

VISALIA LONG RANGE TRANSIT PLAN

FINAL REPORT

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Visalia Transit

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Acronyms and Abbreviations

AAA	American Automobile Association
AASHTO	American Association of State Transportation Officials
AB	Assembly Bill
ADA	Americans with Disabilities Act
APTA	American Public Transit Association
ARFVTP	Alternative and Renewable Fuel and Vehicle Technology Program
BRT	Bus Rapid Transit
Cal OES	California Office of Emergency Services
Caltrans	California Department of Transportation
CalVans	California Vanpool Authority
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CMAQ	Congestion Mitigation and Air Quality
CNG	Compressed Natural Gas
CHSRA	California High-Speed Rail Authority
COLT	Porterville City Operated Local Transit
COS	College of the Sequoias
DART	Dinuba Area Regional Transit
DMU	Diesel Multiple Unit
FAR	Floor Area Ratio
FDOT	Florida Department of Transportation
FLAP	Federal Lands Access Program
FLTF	Federal Lands Transportation Facility
FLTP	Federal Lands Transportation Program

FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gas
HHS	Health and Human Services Agency
HSR	High-Speed Rail
IFD	Infrastructure Financing Districts
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation Systems
JARC	Jobs Access Reverse Commute
KART	Kings County Regional Transit
KDHCD	Kaweah Delta Health Care District
LCTOP	Low Carbon Transit Operations Program
LOS	Level of Service
LRT	Light Rail Transit
L RTP	Long Range Transit Plan
LTF	Local Transportation Funds
MAP-21	Moving Ahead for Progress in the 21 st Century Act
NPS	National Park Service
PM10	Particulate Matter up to 10 micrometers in size
PPP	Public-Private Partnership
PTMISEA	Public Transportation Modernization, Improvement, and Service Enhancement Account
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SJVAPCD	San Joaquin Valley Air Pollution Control District
SOI	Sphere of Influence

SOV	Single-Occupancy Vehicle
SR	State Route
S RTP	Short Range Transit Plan
STA	State Transit Assistance
STPP	Student Transit Pass Program
TCaT	Tulare County Area Transit
TCAG	Tulare County Association of Governments
TCM	Transportation Control Measure
TCRP	Transit Cooperative Research program
TDA	Transportation Development Act
TDM	Travel Demand Management
TIF	Transit Impact Fee
TIME	Tulare Intermodal Express
TOD	Transit-Oriented Development
TSM	Transportation System Management
TSSDRA	Transit System Safety, Security, and Disaster Response Account
UPRR	Union Pacific Railroad
UZA	Urbanized Area
VMT	Vehicle Miles Travelled
VUSD	Visalia Unified School District

Executive Summary

Long-range transit plans (LRTPs) are tools to assist policymakers to foresee future opportunities and challenges, and to make informed decisions how best to position transit to succeed. LRTPs complement short-range transit plans (SRTPs), which tend to have a near-term operations-oriented focus. Visalia Transit has grown significantly since the last LRTP was developed in 1998, and the future 20-year period offers even greater promise. By describing Visalia Transit's vision for how transit can help achieve the City's general plan and the County's regional transportation plan (RTP) objectives, other governmental agencies and private sector developers can better coordinate their investment and policy decisions.

This LRTP is focused on transit services provided within the Visalia Transit's service area. The Tulare County Association of Governments (TCAG) is developing a LRTP for other transit service providers in Tulare County that will address regional connectivity needs. Additionally, TCAG is conducting feasibility studies of several regional corridors, including to the proposed High-Speed Rail Station in Hanford. The recommendations of the Visalia LRTP were formulated first and provided to the TCAG planning effort in 2015 to ensure coordination. The TCAG planning LRTP effort lagged slightly behind the Visalia LRTP planning effort. Both these long-range transit planning efforts are focused on transit over the next 20 years. TCAG also recently completed an update to their multimodal 20-year RTP. The RTP is updated every four years along with its Sustainable Communities Strategy (SCS) element. The other key planning document for the LRTP is the City of Visalia's General Plan which the City updated in 2014. The General Plan is also a 20-year plan and is updated every five years. Bottom line is that planning for transportation and other major governmental programs is an ongoing process and it coordinates many complex decisions. The Visalia LRTP reflects recommendations of the recently completed Visalia SRTP, Visalia General Plan Update, and TCAG RTP/SCS, but it also is intended to inform updates of these plans as well as provide additional guidance towards their implementation.

In 2015, Visalia Transit operated 12 local routes as well as the recent new connection to Fresno, V-LINE. It also operated demand-response services within their service area. On an average weekday Visalia Transit served about 5,700 riders, or about 1.5 percent of all person trips in the service area.

Future Transit Opportunities

The Visalia General Plan Update envisions an increase in population and employment of about 60 percent by 2030 and an expanding developed area needing public services. The goal of the Tulare County RTP/SCS is to reduce greenhouse gas (GHG) emissions by 5 percent per resident by 2020 and 10 percent by 2035. As a key tool for reducing GHG emissions, Visalia Transit will need to expand its coverage area and make its service more attractive to potential riders. These needs largely define the policy and investment framework for this LRTP.

Visalia Transit will play a major role in meeting the County's and City's objectives, and serving the increasing number of transit-conscious patrons. As such, the long-term goal of the Visalia Transit should be to have a mode capture of 5 percent, instead of the current 1.5 percent. With a projected 68 percent increase in population by 2030, this would translate to about 30,000 daily trips on Visalia Transit. This is about a five-fold increase over the current weekday ridership of 5,700 passengers, and

will require aggressive measures to achieve. These measures will include commitments for land use/growth changes in the general plan, investment of funds to support transit improvements, as well as adoption of supporting transportation policies.

Overall, the following were adopted as the LRTP visions:

- **Increase Ridership** – *Provide increased service to captive riders and enhancements to attract an increasing number of choice riders.*
- **Reduce Per Capita GHG Emissions** – *It should be made possible through transit improvements, technology usage, and smart growth initiatives.*
- **Increase Transit Mode Capture** – *Visalia Transit should strive to serve 5 percent of the total person trips in Visalia by 2035.*

Service Plan Element

The LRTP is designed to achieve the goal of 5 percent transit capture by 2035. The LRTP service plan consists of transit mode investments, a route network and routing strategy, and an operations strategy. The key unknowns effecting the implementation of the preferred service plan include the pace and form of growth, the amount of funding available for transit, and the success of improved transit attracting increased ridership. Thus, the preferred service plan is a vision plan, and needs to be flexible to respond to changing conditions. It represents a useful tool for estimating fleet and funding resource needs, and to influence local public policies on growth and transportation as guidance information for private sector developers. The recommendations are based on an assessment of three alternative scenarios regarding coverage, ridership, and costs.

The most promising corridors for premium bus service are the Mooney Boulevard and State Route 198 (SR-198) corridors. The need for exclusive lanes along these corridors is questionable as they are quite short and 10 mph faster running speeds would not be critical. Rapid Ride service with upgraded stops and traffic priorities, seems viable.

The following ten core principles were used to define the preferred service plan route network:

- All routes connect to downtown eliminating the need for passengers to transfer to access this key destination and transfer center. Most routes that do not connect to downtown prove to be very weak at attracting riders.
- Modified grid type of route network which maximizes passenger transfer opportunities. The modified grid network maximizes coverage of market areas. Ends of some routes are bent to reduce passenger transfer needs and to facilitate efficient route lengths for scheduling. Routes are spaced a maximum of one mile apart and generally are spaced one-half mile apart, making most trips within one-quarter mile of the bus route.
- Route network that is simple for passengers to understand. Turns are minimized to reduce confusion.
- Provision of two-way service on all lines except near the ends where buses turn around for the return trip. One direction routes look good on a map, but can result in circuitous trips for most passengers.

- Complementing the Visalia Transit Center with passenger transfer hubs at outer end of routes to maximize the ease of transferring. Location of hubs near route terminals simplifies efficient scheduling and provides the opportunities for end of line restroom facilities for drivers.
- Rather than terminating bus routes at the Visalia Transit Center, routes are interlined or through-routed when possible to minimize the need for passengers to transfer routes. Through-routing bus lines at the Visalia Transit Center will reduce the need for passengers to transfer and will also reduce the amount of time buses occupy bays at the transit center. A terminating bus can occupy a bay for ten minutes or more. A through-routed bus would typically occupy a bay for less than four minutes and allow the transit center to serve twice the number of buses per hour as it currently serves. About 50 percent of current transit riders transfer bus lines and the interlining would help to reduce this transfer needs and provide better service to riders.
- Establishment of higher frequency service on the SR-198 and SR-63 corridors, all of which serve major destinations.
- Where possible all routes directly serve or connect to the downtown, Mooney Boulevard (SR-63) corridor, and SR-198 corridor.
- Maximum service is provided to high schools and middle schools to facilitate non-transfer trips by students.
- Attempt to minimize change to core routes to serve expanding service area growth.

The L RTP service plan envisions moving from today's 30-minute headway service to 15-minute headway service over the next 20 years. Experience has shown that shorter transit headways help to attract choice riders and achieve the goal of capturing 5 percent of all person trips. This upgrade will substantially increase the cost of operating transit services. Annual operating costs including those related to the Sequoia Shuttle are projected to rise from \$9 million today to inflation adjusted \$50 million in 2035.

Vehicle and Facilities Element

Investments will be needed in buses, passenger support facilities, and maintenance depot facilities to successfully provide the desired service and achieve the desired ridership increase. Six types of capital facilities and equipment are proposed:

- Fleet replacement and expansion,
- Maintenance and overnight parking depot expansion,
- Corridor upgrades for Rapid Ride service,
- Pedestrian improvements,
- Bus stop improvements and design guidelines, and
- Transit center upgrades and expansions.

Total capital costs including inflation over the 20-year LRTP period total \$435 million including \$270 million for replacement and expanded service vehicles costs.

Supporting Policies

Even with major new investment in transit, the LRTP's service plan is falling short of achieving the target 5 percent transit capture of all person trips. To maximize the new investment in transit and achieve the target 5 percent capture, supporting policies will be required regarding land use, transit access, and demand management.

Visalia is projected to undergo a substantial change in the coming 20 years in its size as well as activity features. This change presents challenges as well as opportunities for transit. In addition to the amount and design of transit service investments, there are important strategies available to make the market for transit stronger and easier to serve effectively. These strategies are consistent with the City's General Plan Update as well as Tulare County's RTP/SCS updates. These strategies include:

- Land use policy elements,
- Access policy elements, and
- Travel demand management policy elements.

Implementation Plan

The LRTP outlines a vision for implementing the service and capital elements of the Plan. The precise phasing will depend on the pace and form of actual growth as well as availability of funds. By tabling the financial needs in this LRTP, policy-makers are informed of the funding challenge and can invigorate their efforts to financially support the LRTP, SCS, and local General Plan goals. The annual operating costs for service is estimated to increase from \$9 million in 2015 to \$50 million by 2035. About 15 percent of the operating costs would be covered by fare revenues. Capital costs for vehicles and facilities would total \$435 million, much of it federally funded. Long-range projections of federal and state funding are difficult, but it is unlikely that federal funds per capita will increase significantly. State funding for transit might possibly increase to support the objectives of SB-375. Thus, a substantial amount of the increased costs will likely need to be from local sources.

Should funding resources constrain implementation, the LRTP transit vision would remain, but funding constraints would slow the pace of implementation. For example, if only 50 percent of the required funding for the LRTP plan can be assembled, only 50 percent of the upgrades would be possible providing about 50 percent of the targeted ridership and GHG benefits.

The principal goal of the LRTP is to provide increased choices and mobility. Reduction of GHG emissions is also a key goal. The annual cost of owning and operating a car is substantial (\$5,000 to \$12,000 annually), which includes cost of gas, maintenance, insurance, and annual leasing/purchase cost. If the LRTP transit improvements could reduce the need for Visalia households to own and operate a car, it typically would save them each \$6,500 annually. This might include: \$250 per month in lease/purchase cost, \$125 per month for gas, \$1200 annually for insurance, and \$800 annually for maintenance/parts and registration fees. If 5,000 cars could be avoided this would amount to \$32,500,000 annually in savings or \$650 million over the 20-year plan period. The savings would also directly translate to a reduction in GHG emissions.

Benefits

The LRTP is projected to increase the average weekday ridership from today's 5,700 riders to 18,350 riders in 2035. This would translate into a capture of 3.5 percent of all person trips, which is an increase from today's 1.5 percent, but less than the targeted 5 percent. The expanded service would increase the proportion of 2035 population within one-quarter-mile of a transit route (typically considered to be the capture area for transit service) from 66 percent with existing service to 93 percent with the proposed service in 2035.

Section 1

Introduction and Planning Context

1.1 What is a Long-Range Transit Plan?

Long Range Transit Plans (LRTPs) are tools to assist policymakers to foresee future opportunities and challenges, and to make informed decisions how best to position transit to succeed. LRTPs complement Short Range Transit Plans (SRTPs), which tend to have a near-term operations oriented focus. Visalia Transit has grown significantly since the last LRTP was developed in 1998, and the future 20-year period offers even greater promise. By describing Visalia Transit's vision for how transit can help achieve the General Plan and Regional Transportation Plan (RTP) objectives, other governmental agencies and private sector developers can better coordinate their investment and policy decisions.

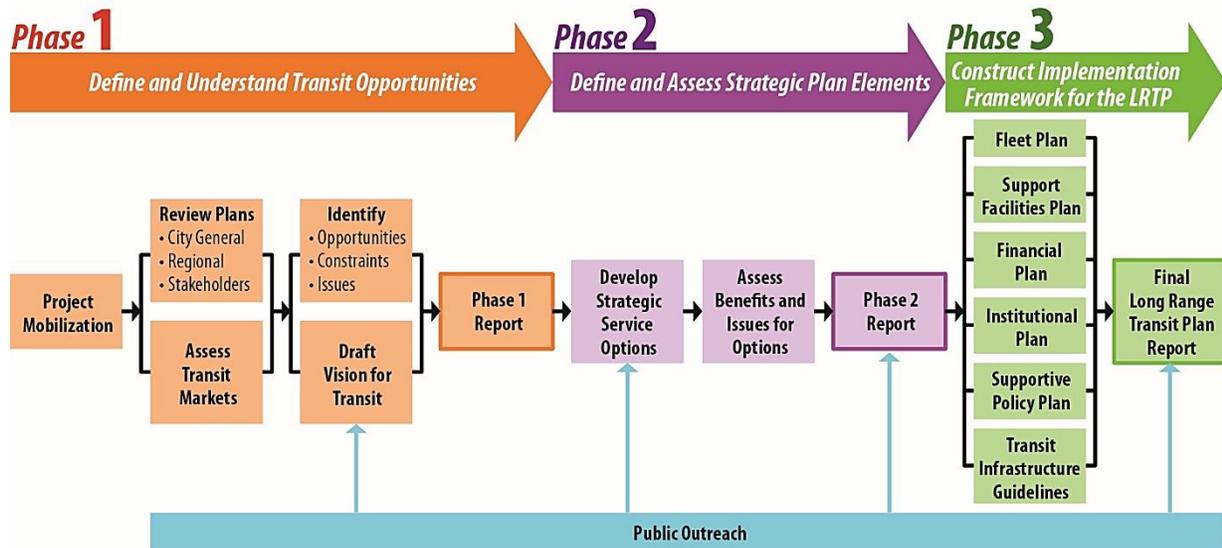
Informed use of limited dollars for public transit is critical to leverage them as much as possible and to maintain the public's confidence that dollars are being well spent. Thus, in many ways LRTPs act as investment research to aid policymakers. Dollars are not spent on low performing measures, and improvements are not shortly obsoleted by unanticipated manifesting needs. A good LRTP will save the City money over the long-term and will maintain the public's confidence in the City's transit services. The LRTP is envisioned as a comprehensive and practical plan that will effectively guide implementation decisions in the coming years.

This LRTP is focused on transit services provided for the City of Visalia. The Tulare County Association of Governments (TCAG) is developing a LRTP for regional transit services in Tulare County that will address regional connectivity needs. Additionally, TCAG is conducting feasibility studies of several regionals corridors, including to the proposed High-Speed Rail Station in Hanford. The Visalia LRTP formulated its recommendations in 2015 and provided these to the TCAG LRTP effort to ensure coordination. Both these long-range transit planning efforts are focused on transit over the next 20 years. TCAG also recently completed an update to their multimodal 20-year RTP. The RTP is updated every four years along with its Sustainable Communities Strategy (SCS) element. The other key planning document for the LRTP is the City of Visalia's General Plan which the City updated in 2014. The General Plan is also a 20-year plan and is updated every five years. Bottom line is that planning for transportation and other major governmental programs is an ongoing process and it coordinates many complex decisions. The Visalia LRTP reflects recommendations of the recently completed SRTP, General Plan and RTP/SCS, but it also is intended to inform updates of these plans as well as provide additional guidance towards their implementation.

1.2 Project Work Plan

A three-phase work plan was developed for this planning project. It began with defining and understanding transit opportunities, then moving into addressing strategic elements as a foundation for constructing the Long-Range Transit Plan. **Figure 1-1** illustrates the project work plan.

Figure 1-1 Project Work Plan



Phase 1: Define and Understand Transit Opportunities – Phase 1 began by understanding the broad regional and local context for the LRTP, defined a vision for transit, and identified the potential future markets for transit. Transit, after all, is a consumer service and it needs to be firmly market based to succeed. Phase 1 identifies market opportunities as well as potential constraints and hurdles.

Phase 2: Define and Assess Strategic Plan Elements – Phase 2 involves defining and assessing the strategic elements of the plan, including the extent and configuration of the transit service needed, type of service, and the service’s connection to its markets. These and other core elements largely define the plan. Recognizing that long-range plans are merely “road maps” it is also important to identify “what if” scenarios which ensure flexibility in the plan and allow it to nimbly respond to manifesting opportunities and difficulties.

Phase 3: Construct Implementation Framework for the Long-Range Plan – Phase 3 involves the implementation of the strategic elements of the plan. The implementing features of the plan include funding, fleet and facility needs, bus stop guidelines, and the full array of supportive policies. Fare policies and best institutional strategies, including relations with partner transit agencies and with private parties like COS and the Downtown were also addressed. While these important features would be the last to be defined, their influences on the first two phases would be considered during those phases of work.

Public input to this planning process was in the form of a stakeholders’ committee having key interest in public transit and providing involvement continuity over the course of the planning process. The committee consisted of representatives from the Visalia Transit, Visalia Planning Department, Tulare County Association of Governments (TCAG), Visalia Unified School District (VUSD), City of Exeter, City of Farmersville, City of Tulare, Goshen Planning Commission, College of the Sequoias (COS), Kaweah Delta Medical Center, and Community Services Employment Training (CSET), along with the members of Visalia’s Transit Advisory Committee. The LRTP benefited from the extensive public outreach of the recent SRTP.

1.3 Planning Context

Key background studies include the following.

1.3.1 General Plan Update

The Visalia General Plan Update outlines goals and strategies to shape land use, urban design, and development factors that will preserve and enhance the community's desirable qualities as well as impact transit demand and accessibility. These strategies focus on several transportation-elements, such as improving connectivity between residents and destinations by enhancing multi-modal travel, connectivity, and circulation. The General Plan extends to 2030 (versus the LRTP's 2035 horizon year) and will be updated every five years. In addition to providing overall implementation plans and responsibilities, the General Plan Update includes detailed assessment of the following elements:

- Land Use
- Historic Preservation
- Circulation
- Parks, Schools, Community Facilities, and Utilities
- Open Space and Conservation (Natural Resources)
- Air Quality and Greenhouse Gas (GHG) emissions
- Open Space and Conservation (Natural Hazards)

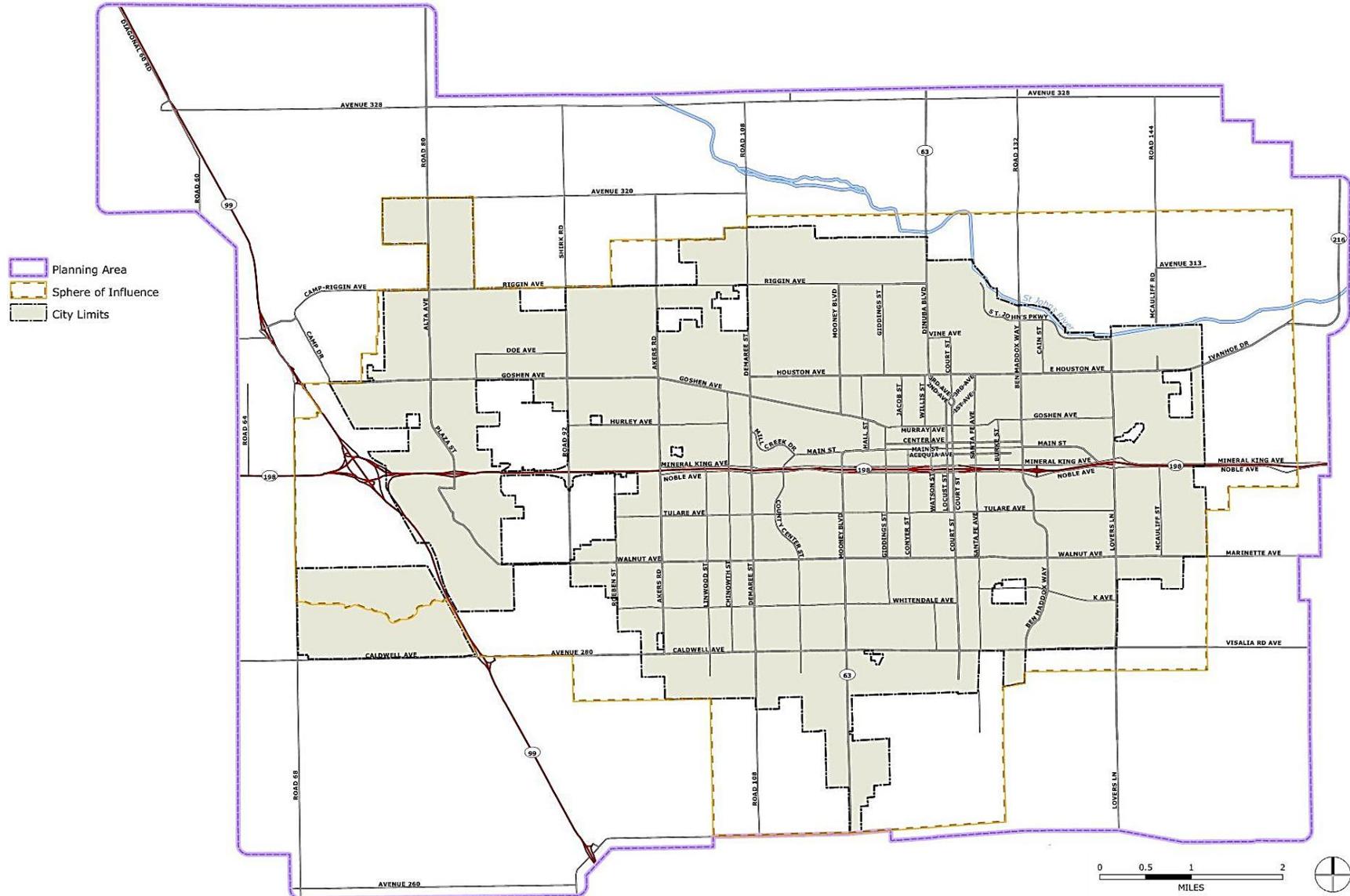
These transportation, land use, community, and economic development elements are all interrelated and interdependent in the vision laid out by the Visalia General Plan Update. For example, higher-density mixed-use development is encouraged to spur economic growth, enhance community relationships, reduce vehicle emissions, and encourage healthy lifestyles that reduce dependence on automobile travel. The overall purpose of guiding these actions through a comprehensive General Plan is to maintain a long-range vision, and to preserve and improve the quality of life for workers as well as residents within the city.

The Visalia General Plan Update's planning area, the City's sphere of influence (SOI), and the City limits are illustrated in **Figure 1-2**.

The General Plan Update envisions a 68 percent growth in population and a 59 percent growth in employment by 2030 as summarized in **Table 1-1**.

The General Plan is the overall blueprint for how the City wants to be in the future and thus its vision is critically important in defining the future for public transit. Its vision for where growth is desired to occur and the form of this growth very much defines the future markets for public transit. Its vision for the role of public transit, private cars, walking and cycling also outlines the desired emphasis for each of these travel modes.

Figure 1-2 Planning Boundaries – Visalia General Plan Update



Source: Visalia General Plan Update

Table 1-1 Estimates of Socio-Economic Factors

Category	Existing (2010)	General Plan Buildout Additions	Total 2030
Housing Units	44,200	32,600	76,800
Population	124,440	85,200	209,600
Employment	65,900	38,690	104,590
<i>Retail</i>	11,180	10,450	21,630
<i>Office/Service</i>	30,660	12,650	43,310
<i>Government/Education</i>	11,070	3,720	14,970
<i>Agriculture</i>	700	0	700
<i>Industrial</i>	12,300	11,870	24,170

Source: Visalia General Plan Update

1.3.1.1 Land Use

The City of Visalia’s role as a center for regional economic activity is an important factor affecting land use policies and goals. The General Plan’s land use vision strives to maintain this position by enhancing retail to promote tourism and sales tax revenues. The land use element of the General Plan focuses on maintaining the quality and character of the community, while improving the efficiency of land use by increasing infill development, encouraging retail and mixed-use development, and preserving open space.

The type of land uses that characterize new growth and development will heavily impact future transportation demand. Classifications of land use types are meant to allow flexibility in future growth, but provide density/intensity standards as well as guidelines on location and distribution of land uses throughout the city. These goals are integrated with strategies to incentivize infill development and preserve open space, creating a more sustainable community with the benefits of compact development. However, much of the expected build-out will continue along the City’s current trajectory of largely single-family low-density neighborhood development.

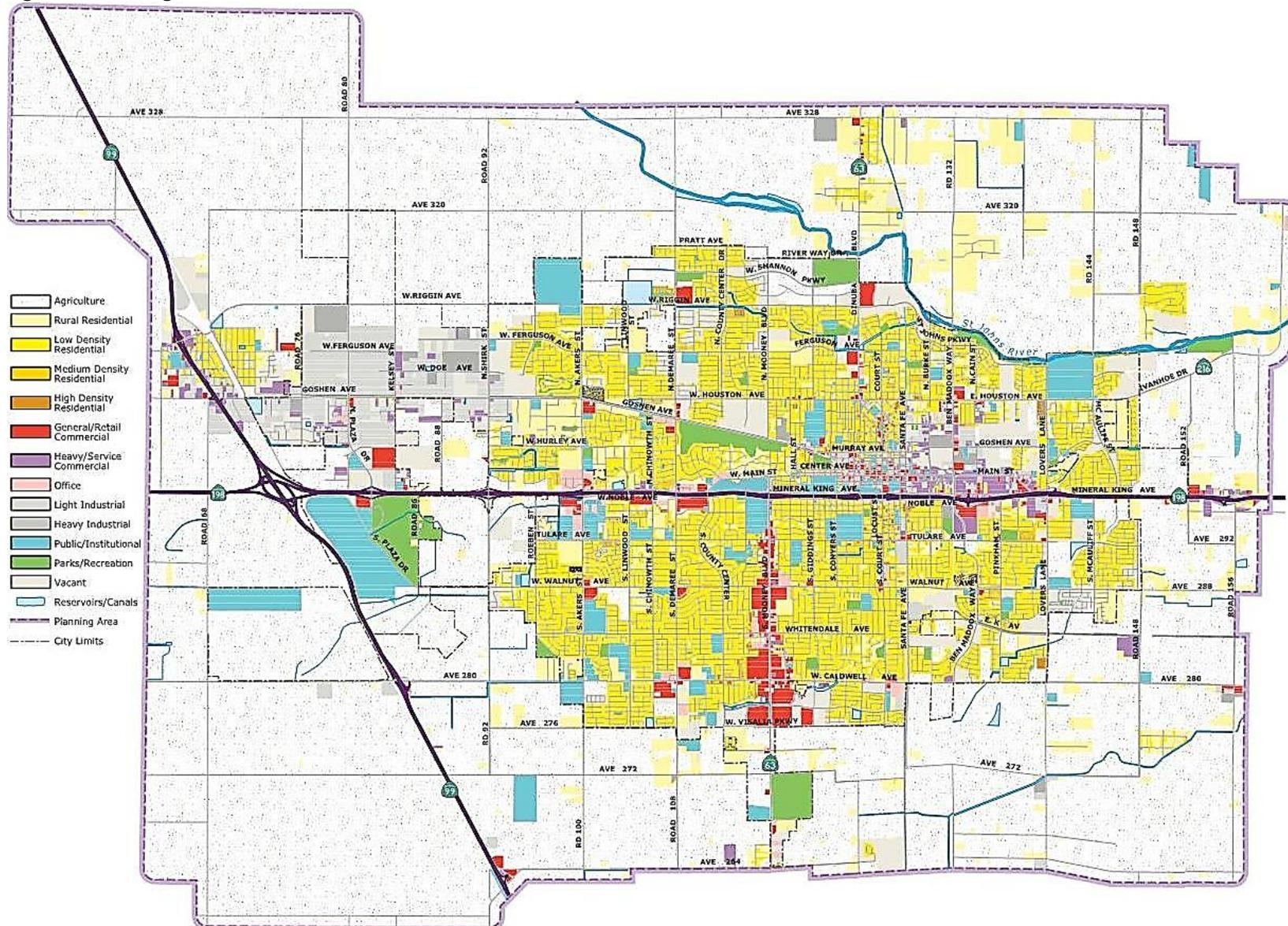
The City’s current land use pattern is exhibited in **Figure 1-3**, while the desired ultimate land use pattern for the City by 2030 is shown in **Figure 1-4**. The tiered expansion of the City’s development is shown in **Figure 1-5**. The desired 2030 land use patterns are generally favorable to public transit.

The land use plans of Exeter and Farmersville are included in **Appendix A**.

1.3.1.2 Complete Streets and Circulation

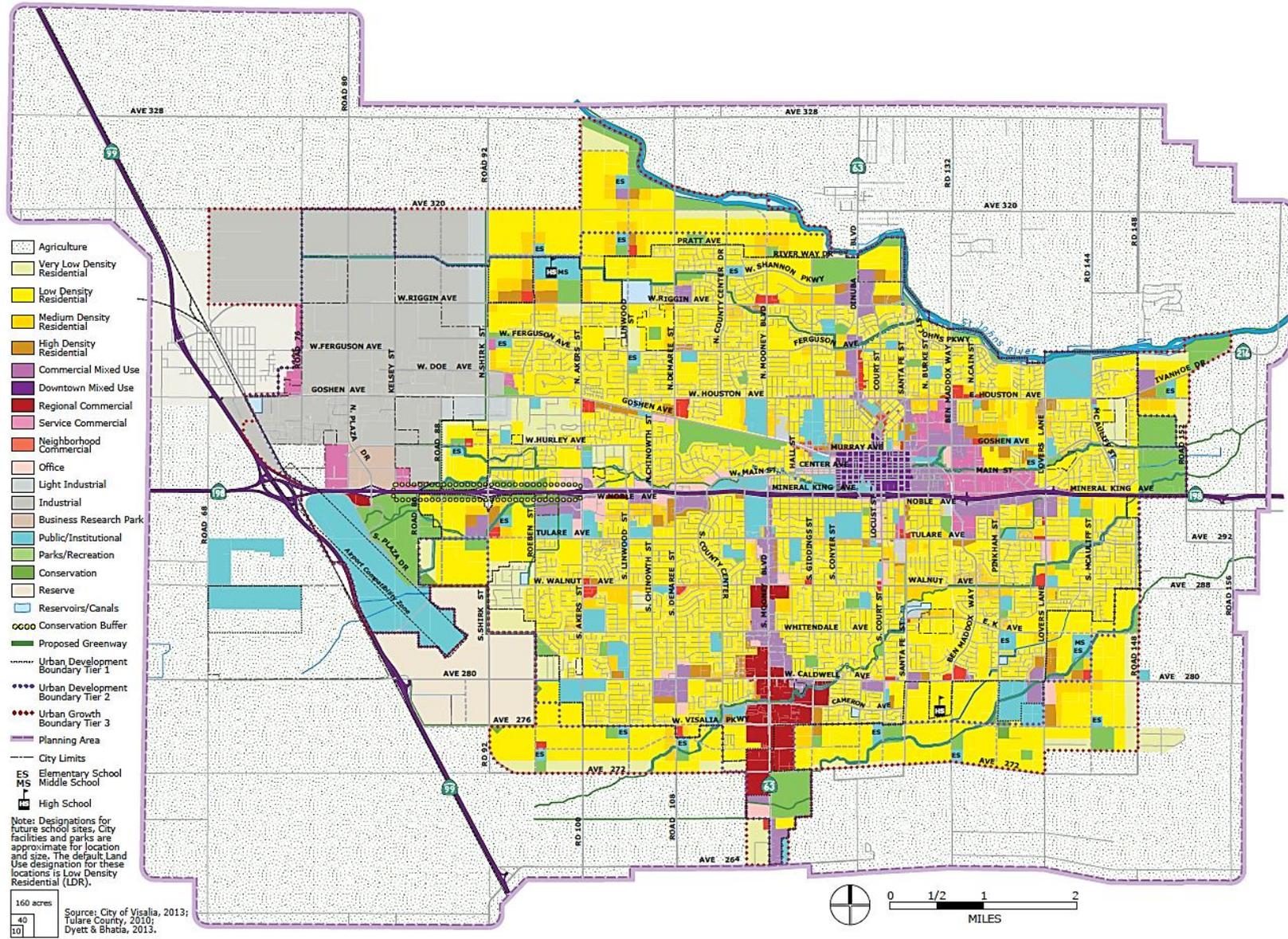
The Visalia General Plan Update focuses heavily on Complete Streets, designing an urban environment to facilitate connectivity for many different travel modes. While improving the Level of Service (LOS) and roadway functions is one aspect of this goal, the Complete Streets objective is to balance transportation modes by supporting pedestrian, bicyclist, and transit use throughout the network. Some methods to achieve this balance include “human scale” landscape and roadway design elements, such as small block sizes to allow more direct access to destinations and compact development to encourage transit use.

Figure 1-3 Existing Land Use Pattern



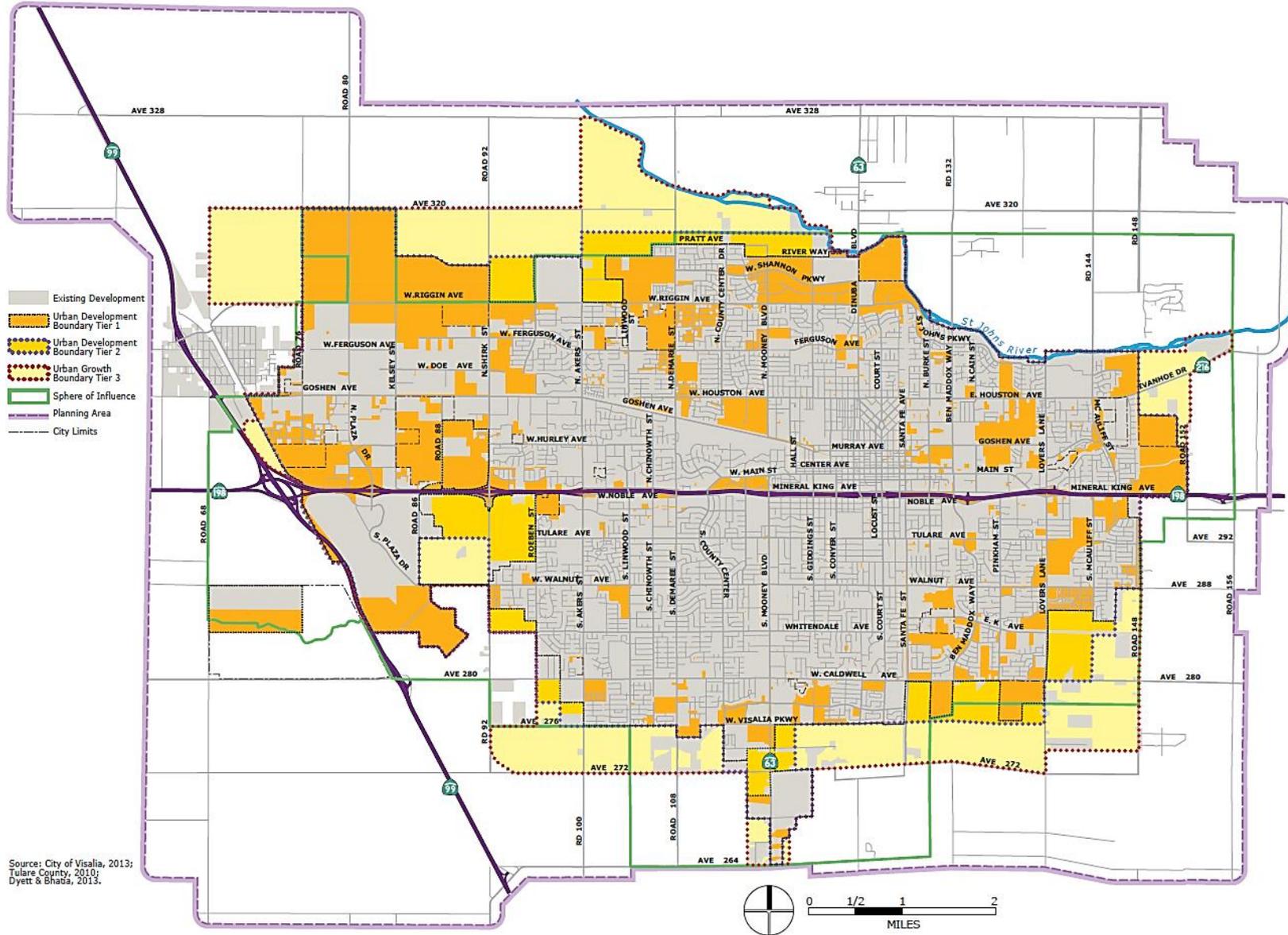
Source: Visalia General Plan Update

Figure 1-4 Proposed 2030 Land Use Pattern



Source: Visalia General Plan Update

Figure 1-5 Proposed Development Footprint



Source: Visalia General Plan Update

Major roadway intersections within the City of Visalia were evaluated during one of the busiest seasons of the year. With these 24-hour counts, the study found acceptable LOS values under existing conditions. Objectives and policies to maintain the roadway system focus on efficiency, safety, and costs.

1.3.2 Regional Transportation Plan and Sustainable Communities Plan

California Senate Bill (SB) 375 labeled the Sustainable Communities and Climate Protection Act of 2008 requires communities to minimize GHG emissions from mobile sources, specifically passenger vehicles. SB 375 complements Assembly Bill (AB) 32 in reducing GHG emissions and requires that RTPs include a Sustainable Communities Strategy (SCS). An SCS is a plan to demonstrate land use and transportation measures that will be used to meet GHG emissions' reduction targets. The primary goals of an SCS are:

1. Identify the general location of uses, residential densities, and building intensities within the region;
2. Identify areas within the region sufficient to house all population of the region, including all economic segments of the population, over the course of the planning period of the RTP;
3. Identify areas within the region sufficient to house an eight-year projection of the regional housing needs;
4. Identify a transportation network to service the transportation needs of the region;
5. Gather and consider the best practically available scientific information regarding resource areas and farmland in the region;
6. Consider the state's housing goals, the provision of safe and decent housing for all segments of the population, particularly low and moderate income households;
7. Set forth a forecasted development pattern for the region which when integrated with the transportation network and other transportation measures and policies will reduce the GHG emissions from passenger vehicles; and
8. Allow the RTP to comply with federal laws inclusive of the Clean Air Act.

The County of Tulare SCS is consistent with Visalia's General Plan Update in supporting higher density infill development, which will be conducive to public transit, and to walk and bike travel modes. While the SCS is primarily focused on land use distribution, there are a number of other policies that could complement these land use distribution policies and help achieve GHG emissions' targets. The planning horizon year for the RTP is 2040 and it is scheduled to be updated every four years. The targets for reduction of GHG emissions per capita for Tulare County are 5 percent by 2020 and 10 percent by 2035. The SCS is proposing to increasing density of new housing developments by 25 percent in 2035 from the baseline 2005 housing densities.

1.3.3 Short-Range Transit Plan

The 2013-2018 Visalia SRTP is a comprehensive assessment of current performance, community desires, and future needs as well as goals for the City of Visalia's public transportation system from 2013 to 2018. The 2013-2018 Visalia SRTP is impacted by the larger regional service area as well as the characteristics specific to the city, such as its position as a regional economic center, its employment

needs, and its air quality concerns. Visalia Transit’s service area also includes the smaller communities of Exeter, Farmersville, and Goshen.

The primary purpose of the 2013-2018 Visalia SRTP is to create a short-range plan to improve the public transportation service. Secondary purposes include providing a forum for community involvement and educating the public while accepting input, assessing performance in terms of ridership and financial effectiveness, and determining the most efficient allocation of future resources to continue and enhance the current services. The SRTP document is organized into the following sections:

- Evaluation of service characteristics and planning
- Review of the public involvement and outreach efforts
- Summary of the goals, objectives, and standards that are used to measure the performance of the system
- Evaluation of Visalia Transit’s overall services
- Operations plan and modification recommendations for each Visalia Transit service
- Analysis of the Capital Improvement Program
- Financial plan overview and scenario analysis

1.3.3.1 Transit Services

Currently, Visalia Transit operates 12 routes servicing the City of Visalia and the neighboring regions. Other public transit services include Dial-A-Ride, three Trolley routes, a seasonal shuttle to Sequoia National Park, and the Loop Route for school-aged kids. Visalia Transit’s fixed route and Dial-A-Ride services were evaluated in terms of cost, comparing the service to seven California transit systems with similar system requirements. Visalia’s Short-Range Transit Plan found that compared to peer California agencies surveyed, Visalia Transit’s systems operated at relatively low-costs, but its service also ranks among the lowest in farebox recovery. This is likely due to comparatively lower-than-average fares as well as low-priced daily and monthly fixed-fare passes.

1.3.3.2 Goals

The region’s large agricultural economy results in an increased use of high-emission equipment and heavy automobiles relative to similar-sized California regions. Because of this, the City of Visalia also has higher levels of air pollution that can be partially mitigated with replacing single-occupancy vehicle use with increased public transportation ridership. Simultaneously, other goals can be achieved such as expanding travel options for those with and without access to automobiles. Providing non-automobile travel options can increase mobility for different demographics; as part of the SRTP public involvement process, the onboard rider survey showed that most passengers were transit-dependent, having no access to a vehicle and/or a driver’s license.

The SRTP evaluates and offers plan and service recommendations for each of the five services provided by Visalia Transit – Fixed Route, Dial-A-Ride, Towne Trolley, Sequoia Shuttle, and the Green Line Call Center. Recommendations to restructure routes, including increase to one-time and monthly pass fees and shifting of service frequency between routes are included in the SRTP evaluations.

1.4 Institutional Relationships

A sound institutional foundation and implementation framework are vital to successfully achieve long-range planning goals. Visalia Transit recognizes the importance of maintaining sound public and private inter-agency practices and has directed for this study a review of specific institutional relationships, their long-term operating and financial impacts, and future challenges.

Key relationships have long been established between Visalia Transit and local as well as regional public and private agencies. These include:

- Local and regional governments and transit agencies
- Local and regional private businesses and non-profit entities
- TCAG
- Visalia Chamber of Commerce
- Downtown Visalians & Downtown Association
- Sequoia Community College District/College of the Sequoias
- School Districts
- Sequoia-Kings Canyon National Parks
- California Vanpool Authority (CalVans)

As a consumer-driven agency, Visalia Transit understands the value of fostering healthy collaboration with the community and the positive benefits that can result. Interagency collaborative areas that will have long-range implications include Visalia's regional T-Pass agreement with partner transit agencies; the COS Student Transit Pass Program (STPP) agreement with the COS and partner transit agencies; and Visalia's Federal Transit Authority (FTA) Urbanized Area Formula Program, Section 5307 distribution agreement with the City of Tulare.

Visalia also has long-standing relationships with other key entities, including the City's Downtown Visalians, an association of merchants; the Downtown Association property owners; and the Sequoia-National Park Service (NPS). A close partnership with the Downtown stakeholders enabled Visalia Transit to introduce the Downtown Towne Trolley in 2008. Close collaboration with the Park Service resulted in launching of the inter-regional Sequoia Shuttle and intra-park transit services in 2007. The long-term potential of Visalia Transit's diverse services will require on-going creative strategies to secure sustainable funding.

On an on-going basis, the City of Visalia closely coordinates and provides transit service to five jurisdictions within Tulare County and enters into an annual Memorandum of Understanding with each. These include Tulare County and the Cities of Tulare, Dinuba, Exeter, and Farmersville.

Successful public transit outcomes in the City of Visalia historically have been based on focused planning, financial commitment, community and stakeholders' acceptance, private-public partnerships, and cooperative multi-agency strategies. These strategic elements will remain vital for effective implementation of the City's long-range transit plans.

The following provides an overview of local and regional institutional operating and funding challenges and their potential impact on Visalia Transit’s overall LRTP implementation strategy. Consideration of these areas will be further refined, as warranted, in additional phases of this study.

1.4.1 College of Sequoia Student Transit Pass Program

Visalia Transit has successfully worked with COS for many years to provide accessible service to the Visalia campus and more recently to the Tulare campus which opened in January 2013. The COS is a two-year community college and part of the Sequoias Community College District. The District encompasses nine campuses with a total enrollment of approximately 10,100 students. The District has three primary sites – the main campus with the majority of enrollment located in the City of Visalia with smaller sites in the Cities of Tulare and Hanford.

Since 2010, Visalia Transit has played an integral role in a pilot project to provide more focused and structured transit services to the COS’s Visalia and Tulare campuses. While the City of Visalia and partnering transit agencies fully support bolstering student ridership, there is concern about the long-term sustainability of the project, particularly if program costs cannot be reasonably compensated. Transit agencies also are sensitive to the potential impact the STPP will have on their overall revenue and the 20 percent State-mandated farebox recovery requirement.

1.4.1.1 Student Transit Pass Program and Related Challenges

The primary mode of transportation to the COS campuses is by private vehicle. The COS Administration is increasingly challenged by the college growth, geographically dispersed enrollment, constrained parking facilities, and limited space to expand. To help address these concerns and facilitate affordable as well as accessible student transportation, the STPP was initiated in 2010 allowing unlimited rides per semester on any fixed route in Tulare County.

Visalia Transit, in cooperation with other transit entities, collectively launched the STPP to provide accessible and affordable student transit services to the Visalia and Tulare COS campuses. Participating transit entities include Tulare County (TCaT), City of Tulare (Tulare Intermodal Express/TIME), City of Dinuba (Dinuba Area Regional Transit/DART), City of Porterville (Porterville City Operated Local Transit/COLT), and Kings County operator – Kings Area Rural Transit (KART).

Each Fall and Spring semester as well as Summer session, COS students enrolled in five units or less pay a mandatory \$9.00 transportation fee while those enrolled in six units or more pay \$10.00. Students are issued a transit sticker for their student identification card coordinated through the Students Activities and Affairs Office. The COS website provides links to transit information and schedules under “Transit/Bus Pass Sticker.”

Recent STPP statistics show that Spring and Fall Semester ridership rose from 269,813 in 2011 to 344,859 in 2014, a 28 percent overall increase. Summer ridership was 9,670 in 2013 and 14,328 in 2014, a 48 percent increase.

Continuation of the STPP is highly desirable, and should respond and evolve to effectively meet student transportation needs to ensure long-term viability.

1.5 Tulare County Area Transit Cost Allocation Planning

The T-Pass Program offers unlimited monthly rides on any Tulare County public transit fixed routes. The T-Pass was initiated in fiscal year 2007/08 as result of an Unmet Transit Needs Hearing finding.

Five transit agencies participate in this program, including Tulare County and the Cities of Dinuba, Porterville, Tulare, and Visalia.

The program has proven to be an attractive fare payment alternative for riders in Tulare County. Annual revenues have grown to \$214,785 or over 321 percent since its inception in 2007/08 and 89 percent since 2008/09. Given this successful growth trend, the program offers opportunities for agencies to benefit from economies of scale through collaborative marketing and outreach and initiation of innovative technologies.

Participating transit agencies recognize that the T-Pass must be price sensitive relative to their individual pass and/or fare structures. In June 2013, the Visalia City Council approved a fixed-route monthly pass increase from \$30 to \$40 beginning in fiscal year 2013/14. In October 2013, TCAG approved an increase in the T-Pass fare from \$45 to \$50. This increase is anticipated to have a minimal impact on the annual sales. In July 2015, T-Passes are made available at mid-month for half the price (\$30).

TCaT administers the program and coordinates distribution of pass revenue with TCAG through its Transportation Development Act (TDA) allocation process. TCAG does not handle any fiscal transactions, but conducts year-end balancing to ensure that each agency receives its pro rata share of revenue for its associated rides. Individual agencies are required to reimburse others to attain their fair share. After minimal marketing, printing, and administrative fees are deducted, TCaT determines pass revenue by agency based on a prorated ridership formula.

During fiscal year 2012/13, the average T-Pass Program fare was \$1.27 per rider, a favorable return compared to Visalia Transit's \$0.67 average fixed-route fare per rider. Visalia Transit has indicated that the T-Pass distribution formula and management through TCaT is satisfactory as currently structured.

1.6 200,000 Urbanized Area Planning

The City of Visalia's FTA Section 5307 funding was impacted by the 2010 Census. The Visalia UZA grew from a population of 120,044 in 2000 to 219,454 in 2010 through a combination of population growth and the inclusion of new areas, including the City of Tulare.

Specifically, the City of Tulare's 2010 population rose to 59,300 and transitioned from a rural Section 5311 to Section 5307 large urbanized area recipient as its population exceeded 50,000, the threshold for urbanized area funding. As a result, the City of Tulare became an eligible recipient of Section 5307 funds that have been available to Visalia Transit since 1981. FTA's 5307 Visalia UZA apportionment also reflects formula funding generated as result of Tulare County CalVans vanpool activity.

Prior to passage of the MAP-21 federal funding program for transportation, recipients in urbanized areas over a population of 200,000 could expend Section 5307 funds for capital purposes only. Recipients can now use these funds for operating purposes in areas with populations over 200,000 if they operate less than 100 buses in fixed-route peak service. Systems operating between 76 and 100 buses in fixed-route service during peak service may use up to 50 percent for operating expenses, while those operating less than 75 buses during peak service may use up to 75 percent. Visalia Transit falls into the less-than-75-bus category and therefore programs 75 percent of its share of Section 5307 funds for operations.

There are two entities included in the Section 5307 Visalia UZA distribution formula – the City of Visalia and the City of Tulare. The Memorandum of Understanding between the two jurisdictions establishes

a distribution formula based on population, revenue miles, and ridership. Fiscal years 2012/13 and 2013/14 are based on the percentage of the total population served by Visalia and Tulare with the percentage then applied to the Visalia UZA's 5307 apportionment service area.

Beginning in fiscal year 2014/15 and thereafter, allocations will be weighted by 40 percent population, 20 percent revenue miles, and 40 percent ridership. FTA Section 5307 distribution formula for areas with a population of greater than 200,000 was examined as a starting point to develop the Visalia UZA distribution methodology. The FTA formula uses a combination of bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles, as well as population, population density, and number of low-income individuals.

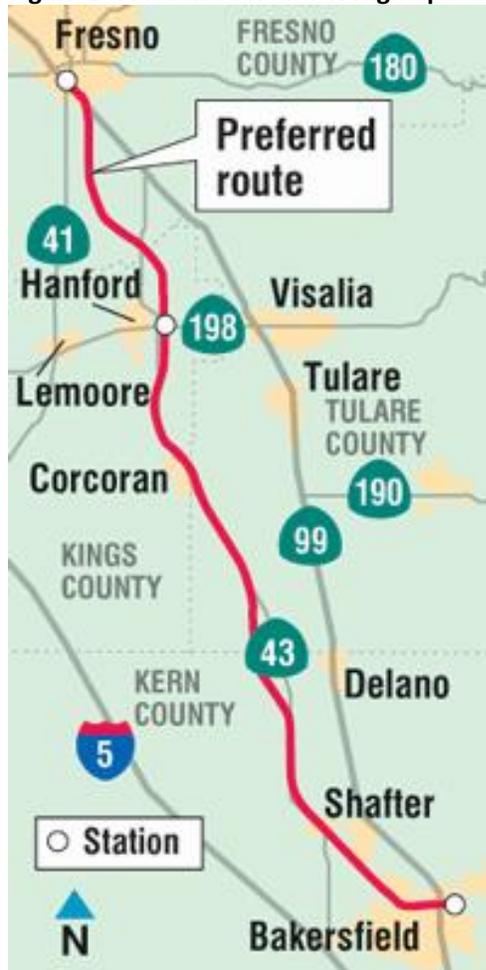
Several methods were considered by Visalia Transit in the allocation of Section 5307 funds that included permutations of one or more parameters – population, miles, hours, and ridership. A closer examination of alternative approaches will be presented in a future phase of this study.

1.7 High-Speed Rail

Plans for high-speed rail (HSR) service connecting the San Francisco Bay Area to Southern California are still in flux. The general alignment has been set, as have the general locations for initial stations. In the vicinity of Visalia, the preferred route for the HSR service would pass east of Hanford through Kings County as shown in **Figure 1-6**. The Kings/Tulare Regional Station is planned just east of the junction of State Route (SR) 198 and SR-43, and about 18 miles west of downtown Visalia. The San Joaquin Amtrak service in the Valley is expected to remain and provide feeder service to the HSR service. Amtrak and the California Department of Transportation's (Caltrans') Division of Rail have outlined plans to upgrade the current San Joaquin services and to continue them once high-speed rail becomes operational. Funding these plans likely will be a challenge and ridership on the San Joaquin service will probably struggle when high-speed rail is operational.

However, full funding has not been secured for the HSR project and many details are still undefined. For example, it is unclear if the California High-Speed Rail Authority (CHSRA) will provide feeder bus services to high-speed rail stations, similar to the current practice in the San Joaquin Valley. The high-speed train patronage from Visalia will largely depend on how Visalia will be connected to the Kings/Tulare Regional Station.

Figure 1-6 Preferred Route of High-Speed Rail Service between Fresno and Bakersfield



Source: The Fresno Bee, November 7, 2013

1.8 Report Organization

Following this introductory section, the LRTP report is organized into seven sections as follows:

- Section 2: Future Transit Market
- Section 3: Vision for Visalia Transit
- Section 4: Transit Choices
- Section 5: Transit Service Strategy Element
- Section 6: Capital Equipment and Facilities Element
- Section 7: Financial Strategy Element
- Section 8: Transit Supportive Policy Element

Section 2

Future Transit Market

Section 2 provides an assessment of the historic and current transit markets, and discusses forecasts of basic travel behavior factors important for transit planning, including population, employment, households with no cars, trip ends, and travel mode share. Additionally, a discussion on the major activity centers is provided. Some of the future market discussion is for 2030 (General Plan horizon year) and some is for 2040 (the RTP planning year). The LRTP is focused on 2035, midway between these two future forecast years, but it is important to recognize that these future forecasts assume paces of development that will likely vary. As such, the forecasts represent growth and population assumptions more than specific year forecasts.

2.1 1998 Transit Market Assessment

According to an intercept sampling survey conducted in 1998 at three shopping malls in Visalia:

- Only one in four respondents indicated riding the bus in the last year and of those that did ride, most were frequent riders;
- The public's image of public transit was favorable with about 60 percent rating it as good and less than 5 percent rating it poor;
- The public's view of transit is that its primary role in the community should be congestion relief;
- About 40 percent of respondents felt that transportation in Visalia was a major problem;
- About 50 percent of respondents felt that more money should be spent on improving transportation;
- About 43 percent of respondents felt that developer/construction fees should be used to subsidize public transportation, 20 percent favored higher fares and 11 percent favored gas tax increase;
- More than half of respondent households had two licensed drivers and only 20 percent reported one or no licensed drivers;
- About 50 percent of respondents indicated that they chauffeured kids during the week;
- When their car is in for repairs, most respondents indicated that they used another household car, 24 percent carpooled and 7 percent rode the bus;
- About 55 percent of respondents felt that the annual cost of operating their car was less than \$2,000 and 25 percent responded between \$2,000 and \$4,000; and
- About 72 percent indicated that they drove cars in their households 20,000 miles a year or less.

Information from the SRTP performed about the same time found that 23 percent of Visalia Transit's ridership were 18 years or younger and that 6 percent reported being 60 years or older. Trip purposes of riders were as follows:

- School/college – 45 percent
- Work – 22 percent
- Shopping/personal business – 15 percent
- Recreation/social – 3 percent
- Medical/dental – 7 percent
- Other – 8 percent

2.2 2013-2018 SRTP Market Assessment

The 2013-2018 Visalia SRTP included an on-board survey of transit riders to better understand who was riding and why they were riding. Approximately 1.6 million annual trips were being served by the Visalia Transit prior to the 2013-2018 Visalia SRTP recommended service changes. Key findings from this survey are:

- Most riders were in the 19 to 35 age group (46 percent) with 31 percent in the 36 to 50 age group, 6 percent on the 60 plus age group and 19 percent in the 18 and under age group;
- 74 percent of riders had annual household incomes of less than \$20,000;
- 34 percent of riders were students, 15 percent were unemployed and 33 percent were either full or part time employed;
- 35 percent of riders had a driver's license versus 65 percent did not have a driver's license;
- 79 percent reported not having access to a vehicle;
- Most of the riders were frequent users of transit services, with 62 percent riding five or more days a week and another 23 percent riding at least once a week;
- 50 percent of riders reported making a transfer to other bus lines; and
- Most riders were making either work (22 percent) or school (28 percent) trips when surveyed.

It would appear that the percent of riders making school trips has dropped since the 1998 intercept survey either through reduced school ridership or increase in other trip purposes.

2.3 TCAG Model Forecasts

Forecasts under existing (2012) and 2040 conditions were obtained from the TCAG Travel Demand Model (referred to as TCAG Model hereafter) for the following socio-economic and travel-related factors:

- Population
- Employment
- Households with no cars

- Trip ends (beginning origins and final destinations of each trip – thus each person trip has two trip ends, an origin and a destination)

These forecasts were obtained for the Visalia Transit’s service area, which includes the Cities of Visalia, Tulare, Exeter, and Farmersville as well as Goshen. A discussion of the population and employment forecasts is provided in the following sections, while that for the trip ends and households with no cars is included in **Appendix B**.

2.3.1 Population

Population forecasts for the Visalia Transit’s service area are illustrated in **Figure 2-1**. According to the TCAG Model forecasts, high population growth would occur in the following areas:

- Areas located near Visalia’s northern city limits and generally bordered by Road 92/Shirk Road, Demaree Street, Avenue 320, and Riggin Avenue;
- Area located north of the Visalia Country Club and bordered by Goshen Avenue, Houston Avenue, Demaree Street, and Mooney Boulevard;
- Areas located in the southeast quadrant of Visalia near the junction of Caldwell Avenue and Lovers Lane;
- Areas located in the southwest quadrant of Visalia near the junction of Akers Road and Visalia Parkway;
- Areas located near the junction of Road 92/Shirk Road and SR-198;
- Outer areas of Farmersville, especially near the western city limits; and
- Outer areas of Exeter.

In the above areas, population is anticipated to at least increase by one and a half times by 2040.

2.3.2 Employment

Employment forecasts for the Visalia Transit’s service area are illustrated in **Figure 2-2**. According to the TCAG Model forecasts, the following areas are anticipated to have more jobs in 2040:

- Goshen;
- Areas located in the northwest quadrant of Visalia;
- Areas along Mooney Boulevard located south of SR-198;
- Visalia Downtown;
- Area located west of Visalia Downtown and bordered by Mooney Boulevard, Main Street, and SR-198 (due to Tulare County Office of Education);
- Area located near Visalia Downtown and bordered by Locust Street, Main Street, West Street and SR-198 (due to Kaweah Delta Hospital); and

Figure 2-1 Population Forecasts – Visalia Transit Service Area

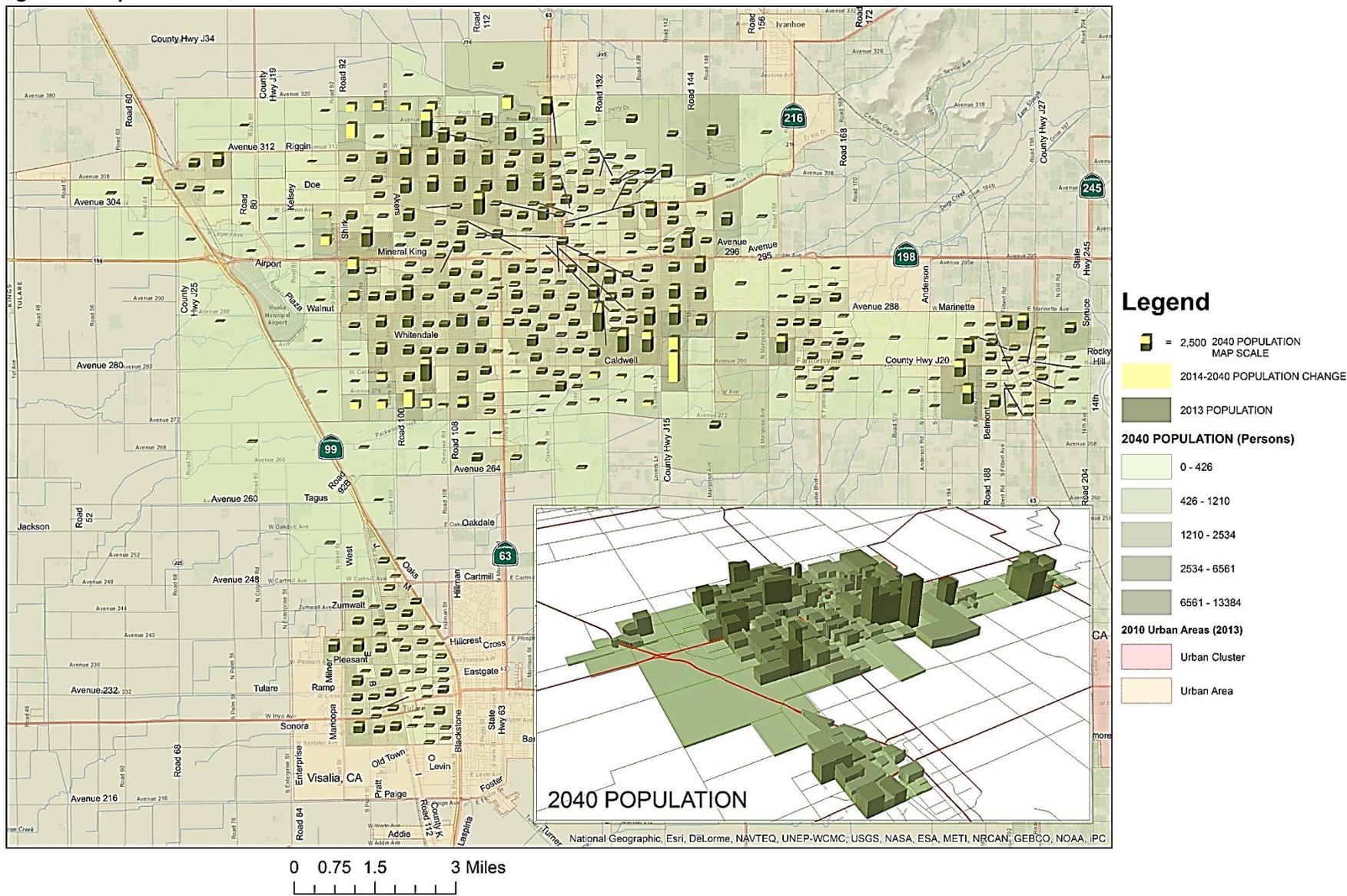
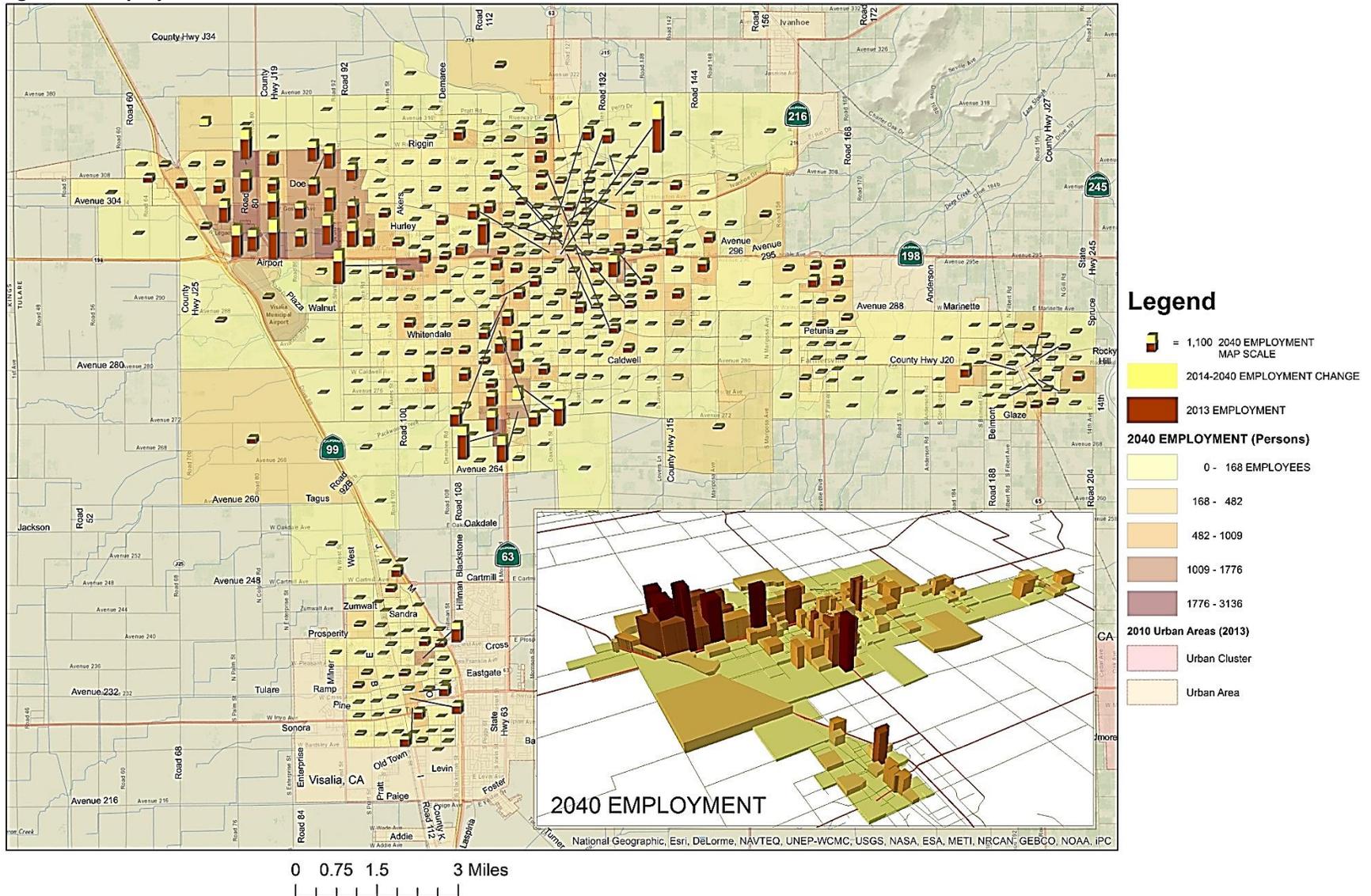


Figure 2-2 Employment Forecasts – Visalia Transit Service Area



- Area bordered by Akers Street, Linwood Street, Cypress Avenue, and SR-198 (due to the West Campus of Kaweah Delta Health Care District).

It is expected that the above areas would have more than 482 employees by 2040.

2.4 Major Activity Centers

The locations of major activity centers which must be served by transit are important planning considerations. As reported in the Visalia SRTP, major activity centers located within the City of Visalia include educational facilities, the transit center, hospital, other medical facilities, retail food facilities, commercial retail facilities, recreational areas, the airport, the federal government office, and industrial facilities. The locations of the major activity centers are shown in **Figures 2-3** and **2-4**. Aside from high schools and middle schools, most of the major activity centers are in the downtown area or along the Mooney Boulevard and SR-198 corridors. COS, a major transit attraction, is located at the junction of Mooney Boulevard and SR-198.

Visalia Transit Center – The Visalia Transit Center is in downtown Visalia and is the hub for all local and regional bus routes serving the City of Visalia. Transit services accessing the Visalia Transit Center include VT (fixed-routes buses, dial-a-ride buses, the Loop Routes buses, Visalia Town Trolley, and Sequoia Shuttle), KART, TCaT, TIME, Greyhound, COLT, DART, and Amtrak connections to Hanford (Kings County).

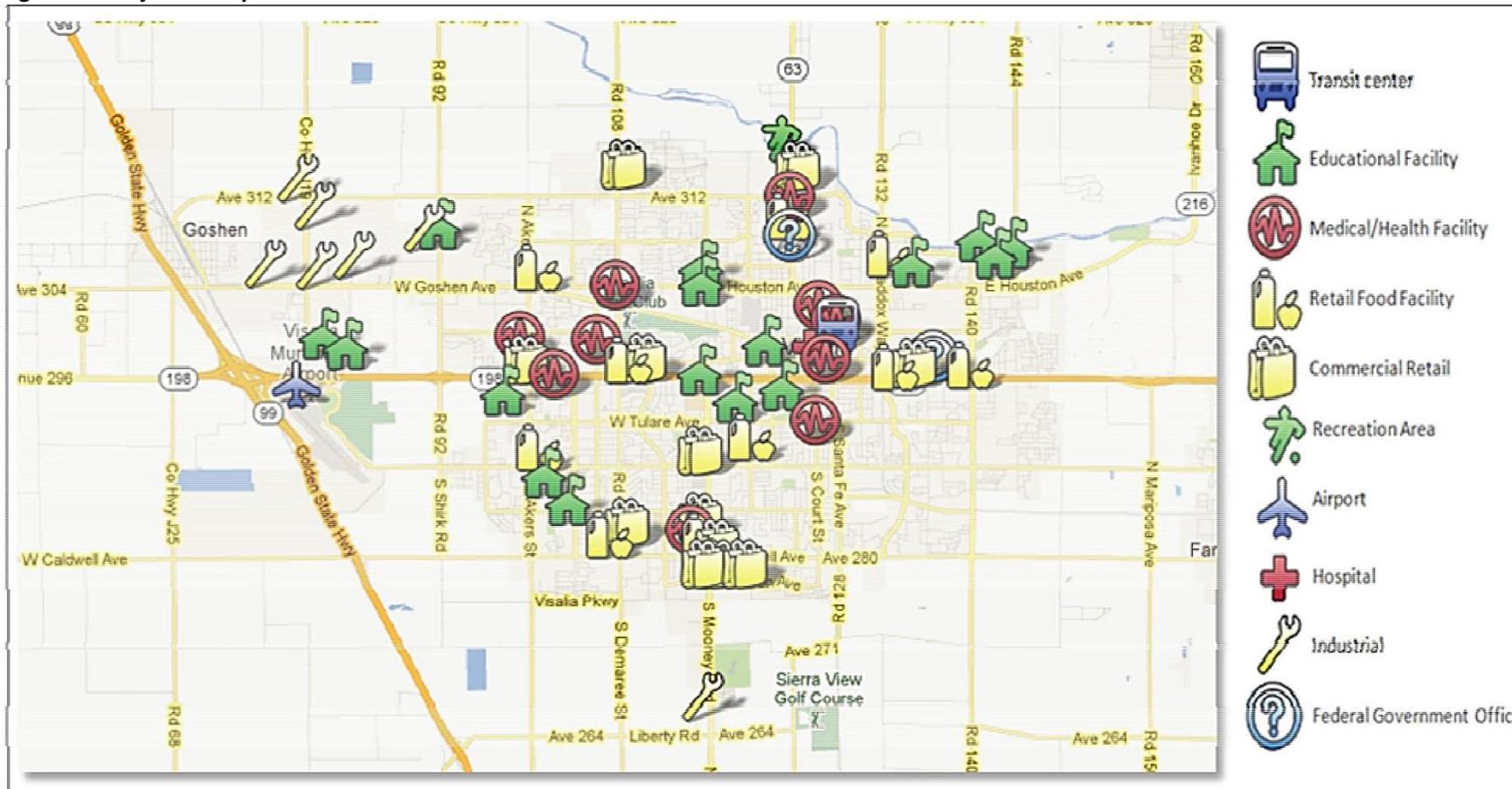
Colleges and Universities – College of the Sequoias, a division of the Community Colleges of California, is the primary college in Visalia. Located near the junction of State Route 198 (SR-198) and Mooney Boulevard, COS currently has about 10,100 students and over 700 full-time and part-time employees. According to the Visalia General Plan Update, COS envisions a student population of 20,000 by year 2030. The college plans to increase public transportation access and increase parking supply to handle the projected growth.

Other private colleges and universities located in the City of Visalia include the University of Phoenix, Brandman University, Fresno Pacific University, San Joaquin Valley College, and Milan Institute. These are primarily located near SR-198.

Schools – The VUSD presently serves about 26,100 students (14,820 students in 24 elementary schools; 3,950 students in four middle schools; 7,280 students in four high schools; and about 1,740 students in eight other schools). Each elementary school has an enrollment of about 500 to 700 students; however, most elementary school students either live within walking distance of school or are transported by the school district. Parents often consider elementary school students too vulnerable to ride public transit.

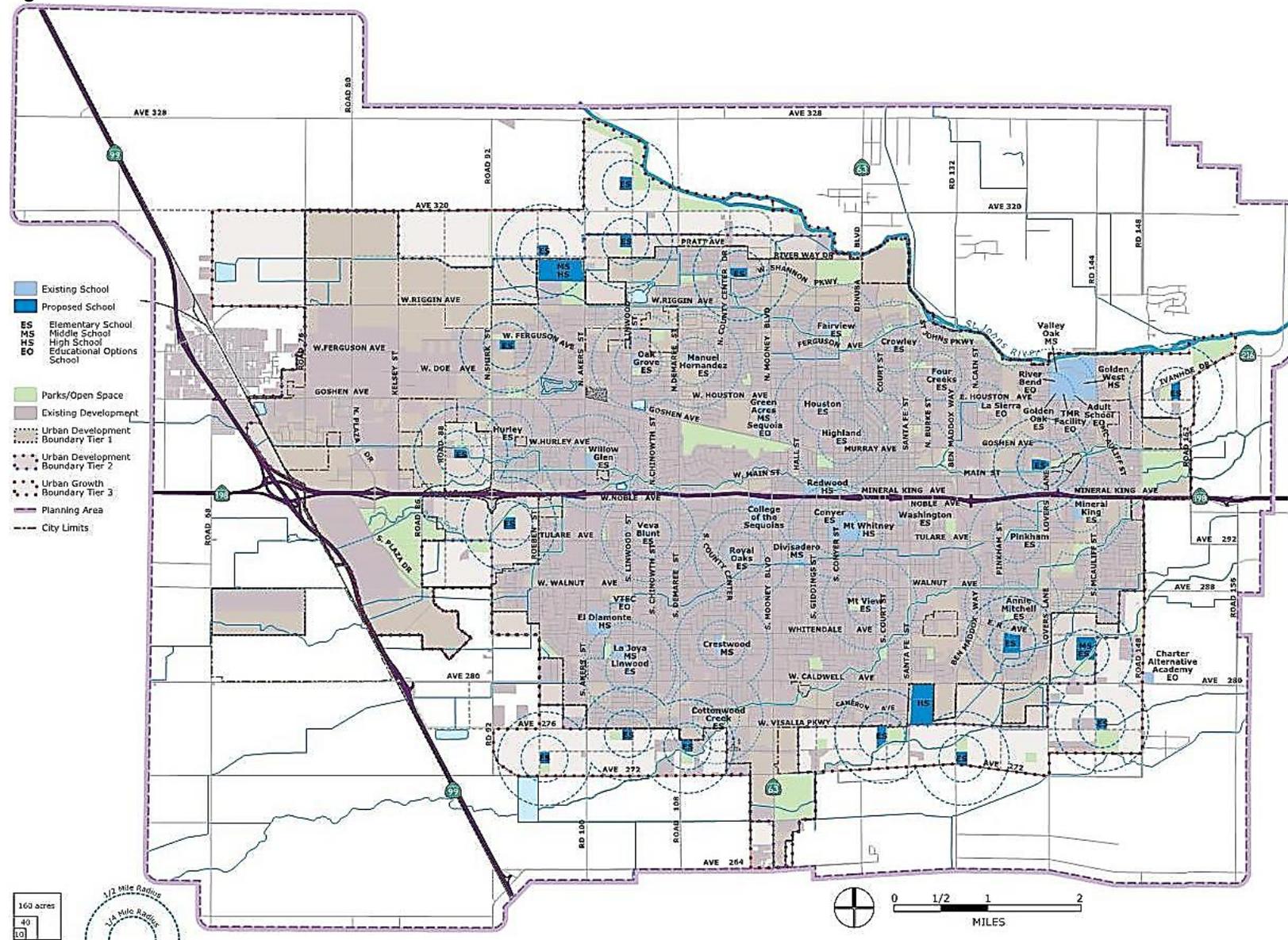
Each public high school in Visalia serves about 1,600 to 2,000 students, except for the Sequoia High School which serves about 350 students. Golden West High School generally serves the northeastern portion of the City with a school-shed generally bounded by Walnut Avenue on the south and by Dinuba Boulevard and St. Johns River on the west. Mount Whitney High School serves the southeastern portion of the City with its school-shed generally bounded by SR-198 on the north and Mooney Boulevard on the west. Redwood High School serves the northwestern portion of the City (and Goshen) with its school-shed generally bounded by Dinuba Boulevard on the east, Walnut Avenue on the south, Plaza Drive on the west, and St. Johns River on the north. El Diamante High School serves the rest of City, primarily the southwestern portion of the City.

Figure 2-3 Major Activity Centers



Source: Visalia Transit Five-Year Short Range Transit Plan, December 2012

Figure 2-4 Locations of Schools



Source: Visalia General Plan Update

Currently, each public middle school serves about 900 students, except for the Green Acres Middle School which serves about 1,200 students. The school-sheds of public middle schools and high schools in Visalia are the same – Divisadero Middle School and Redwood High School, Valley Oak Middle School and Golden West High School, Green Acres Middle School and Redwood High School, and La Joya Middle School and El Diamante High School have the same school-sheds.

According to Visalia General Plan Update, by year 2030, student enrollment at VUSD is expected to increase by 17,690 students. To accommodate the projected increase in enrollment, 17 new elementary schools, two new middle schools, and two new high schools are planned. The locations of the existing and proposed schools are shown in **Figure 2-4**.

Medical Facilities – The Kaweah Delta Medical Center, operated by the Kaweah Delta Health Care District (KDHCD) is in downtown and is the major hospital in Visalia. KDHCD operates other medical facilities in Visalia, including the West Campus (along with the affiliated Sequoia Regional Cancer Center) located on West Cypress Avenue at Akers Street and a South Campus located on Court Street at Paradise Avenue. However, the majority of the medical services are provided at the downtown hospital. In total, KDHCD has about 3,900 employees and manage about 580 licensed beds. According to the Visalia GP Update, KDHCD has significant expansion plans at the downtown hospital over the next 20 years. Also, a new Southeast Campus is planned along Caldwell Avenue between Santa Fe Avenue and Lovers Lane.

Other important medical centers include the following:

- Medical facilities operated by the Tulare County Health and Human Services Agency (HHS) and located on Dinuba Boulevard at Riggan Avenue, on Fairway Street at Dorothea Avenue, and on Northwest 2nd Avenue at Lincoln Oval;
- Visalia Medical Clinic at Akers Street and Hillsdale Avenue; and
- Medical facilities operated by the Family HealthCare Network located in downtown at Bridge Avenue and Murray Avenue, and Oak Avenue and Bridge Street.

The Visalia Medical Clinic has about 300 employees, while the Family HealthCare Network has about 200 employees.

Commercial and Retail Facilities – Regional commercial and retail facilities are located at the following locations:

- In downtown;
- Along Mooney Boulevard between SR-198 and Visalia Parkway;
- Along SR-198 at Plaza Drive, Akers Street, Linwood Street, Chinowth Street, Demaree Street, Ben Maddox Way, Lovers Lane, and Road 152;
- Along Akers Street at Walnut Avenue and Goshen Avenue;
- Along Demaree Street at Goshen Avenue, Walnut Avenue, and Caldwell Avenue;
- Along Dinuba Boulevard at Ferguson Avenue and Shannon Parkway; and

- Along Ben Maddox Way between Main Street and Houston Avenue.

In addition, the General Update envisions future regional retail to occur along SR-99 at Avenue 280 and SR-198, and along Mooney Boulevard between Visalia Parkway and Avenue 264.

Recreational Facilities – There are three large city parks – Mooney Grove Park located in the southeast corner of Mooney Boulevard and Avenue 272, Plaza Park located south of the Plaza Drive interchange along SR-198, and Riverway Sports Park located in the northwest corner of Dinuba Boulevard and Shannon Parkway. Each of these parks is larger than 40 acres and is meant to draw residents from across the city.

Visalia Municipal Airport – This airport is located near the western city limits, at the junction of State Route 99 (SR-99) and SR-198. It serves Visalia, Tulare County, and eastern Kings County and is the only airport providing passenger service in Tulare County. The Visalia Municipal Airport generates about 70,000 annual aircraft operations, with the majority (about 90 percent) related to general aviation and the rest related to commercial, air taxi, and military operations. According to the Federal Aviation Administration records, this airport has about 2000 to 2500 passenger boardings annually.

Industrial Facilities – The City of Visalia has about 1,770 acres of industrial facilities. The majority of the facilities are located in the northwest portion of the city, primarily along Goshen Avenue (Visalia Industrial Park). In addition, a few industrial facilities are located east of downtown along Ben Maddox Way and Goshen Avenue. The industrial sector had about 12,300 jobs in 2010 and is projected to increase to about 17,700 jobs by 2030, representing about 20 percent of the total city employment base.

Offices – Currently, the majority of the offices are located along the SR-198 corridor, in downtown, and along Mooney Boulevard. Major office complexes include those of the County of Tulare Headquarters, CIGNA HealthCare, Kaweah Delta Medical Center, the City of Visalia, and Visalia Medical Clinic. Overall, employment in the office sector is anticipated to increase from 4,700 jobs in 2010 to 6,300 jobs in 2030.

2.5 Existing Mode Capture in Visalia

Mode capture refers to the distribution of person trips to various modes of transportation. Mode capture for the City of Visalia under existing conditions was estimated using the current transit ridership details and the total number of person trips obtained from the TCAG Model. These details are provided in **Table 2-1**. Currently, transit has a mode capture of about 1.5 percent in the City of Visalia.

Table 2-1 Existing Transit Mode Split – City of Visalia

Criteria	Value
Average Weekday Ridership of Visalia Transit	5,728
Approximate number of Total Daily Person Trips in Visalia	377,778
Approximate Transit Mode Split	1.5%

Source: Visalia Transit and TCAG Travel Demand Model

2.6 Forecasted Growth in Visalia

Based on the forecasts obtained from the TCAG Model, the anticipated growths in population and employment in various areas of the City of Visalia are shown in **Table 2-2**.

Table 2-2 Projected Growths in Population and Employment – Visalia Transit Service Area

Location	Population			Employment		
	Existing ¹	2040 Conditions	% of Visalia's Growth	Existing ¹	2040 Conditions	% of Visalia's Growth
Visalia	150,295	230,136	100%	61,036	92,325	100%
<i>Downtown Visalia</i>	1,116	1,682	0.7%	6,717	9,885	10.1%
<i>Areas along Mooney Boulevard (south of SR-198)</i>	3,147	4,332	1.5%	6,345	9,333	9.5%
<i>Visalia Industrial Area (located in Northwest Quadrant of City)</i>	93	414	0.4%	13,548	19,498	19.0%
<i>Outlying Areas of Visalia</i>	3,557	26,397	28.6%	18,536	29,260	34.3%
<i>Other Areas in Visalia</i>	142,382	197,311	68.8%	15,980	24,349	26.7%
Exeter	15,230	23,347	-	3,138	4,734	-
Farmersville	9,894	14,613	-	2,852	4,307	-
Goshen	2,331	3,279	-	1,384	2,067	-

Source: TCAG Travel Demand Model

Note:¹These values were obtained from the TCAG Model and do not completely match those provided in the Visalia General Plan Update.

According to the TCAG Model forecasts, by 2040, about 10 percent of the projected employment growth within Visalia would occur in the downtown, 19 percent in the industrial area located in the northwest quadrant of the city, 10 percent in the areas located along Mooney Boulevard (south of SR-198), 34 percent in the outlying areas of Visalia, and 27 percent in the rest of Visalia. With regards to the projected population growth, about 29 percent would occur in the outlying areas of Visalia and 69 percent in the interior portions of Visalia. Minimal population growth is anticipated in areas located along Mooney Boulevard (south of SR-198), the industrial area located in the northwest quadrant of the City, and downtown Visalia. The remaining portions of the service area (Goshen, Farmersville, and Exeter) are expected to experience at least 50 percent growth in population and employment.

For perspective, Visalia's current population is about 128,000 and it is forecast to increase to 210,000 by 2030 (The General Plan uses 2030 as its planning horizon year versus the Long-Range Transit Plan and RTP horizon years of 2040. For similar size cities in California, 2013 populations are:

- Bakersfield – 364,000
- Stockton – 298,000
- Modesto – 205,000
- Moreno Valley – 201,000

- Elk Grove – 161,000
- Lancaster – 159,000
- Palmdale – 157,000
- Salinas – 155,000

Thus, Visalia in 2030 is forecast to be about the same population size as Modesto is today. Fresno, currently, has a population of 512,000, excluding Clovis's population. Modesto currently is 37 square miles in area, which compares to Visalia's buildout area of 50 square miles (36.3 square miles today). Modesto Transit's current annual operating cost per capita is \$61.58 versus \$50.23 for Visalia Transit. Annual ridership per capita for Modesto transit is 16.2 versus 13.3 for Visalia Transit, perhaps reflecting Modesto's higher population density of 5,440 persons per square mile versus 3,420 persons per square mile for Visalia.

Section 3

Vision for Visalia Transit

This section describes the vision for transit, which builds upon prior planning efforts, including the 1998 Visalia LRTP, 2013-2018 Visalia SRTP, 2030 Visalia General Plan Update, and SCS/RTP. The latter two planning documents are most recent and were the primary guiding influence for the LRTP vision.

3.1 1998 Visalia LRTP Goals and Objectives

The City of Visalia's 1998 LRTP includes many goals and objectives that are still relevant today, 15 years later. Goals are broad visions to improve the overall condition and welfare of the City, while objectives are more specific conditions that will help attain goals. The most prominent goals that are still a priority today include integrating transportation and land use decisions, and improving the air quality of the region through reduced automobile use. Goals for expanding public transportation are integrated throughout each effort to improve and manage the City's overall transportation system.

3.1.1 Transit Service Goals and Objective

In line with the 1998 Visalia LRTP goals and objectives, the scope of the public transit system has expanded significantly in the past 15 years. The fixed-route bus network has evolved from eight routes in 1998 to 12 routes currently, while Dial-A-Ride service has continued and expanded as well. The 1998 Visalia LRTP identified expanded fixed-route bus service as the major objective to improve connectivity and service within the region.

In addition to expanding fixed-route service, the 1998 Visalia LRTP highlights transit as a response to their growing concern about the dominance of automobile travel in the region and high automobile ownership rates. Many relevant themes are discussed, including land use strategies to encourage alternative modes and an awareness of the detrimental effects that the growing automobile reliance has on air quality. Due to an awareness of low ridership rates, transit fares were encouraged to be kept low.

The objectives established help define and reach the goals of the 1998 Visalia LRTP and offer metrics to begin reaching the larger goals of the LRTP. While creating the transit service objectives, the 1998 Visalia LRTP recognizes the population's preference for single occupancy vehicles (SOVs). However, an assessment of commute mode choice showed that almost 20 percent of SOV users preferred transit as their preferred alternative transportation mode. Using this data, the 1998 Visalia LRTP established a transit mode share goal of 4.4 percent.

3.1.2 Integrated General Plan Goals and Objectives

In addition to the overall goals and objectives of the 1998 Visalia LRTP, the LRTP adopts the City's five General Plan's goals, as stated below:

1. Provide an integrated transportation system for the safe and efficient movement of people and goods in the Visalia planning area. The system shall enhance the physical, economic, and social environment of the City.

2. Consider all modes of transportation as an integral component of the City's transportation system. These modes include mass transit (public and private bus, passenger rail, and taxi systems), air transportation, and non-motorized transportation (pedestrian and bicycle).
3. Develop and promote alternative transportation strategies designed to reduce vehicle trips and improve traffic flow.
4. Participate in and assist with coordinating regional efforts which integrate the City's transportation system with the 1993 Regional Transportation Plan (RTP).
5. Plan and develop an efficient transportation system to promote the orderly development of Visalia.

3.1.3 Land Use Goals and Objectives

Plans to direct policies that promote transit-oriented development and other land use decisions are included in the 1998 Visalia LRTP. Containing growth within the City's core area rather than sprawling or "leap frog" development is mentioned as an integrated strategy to support transit use. Research has expanded supporting the use of urban design elements to encourage alternative travel modes since the 1998 Visalia LRTP. Because of a dearth of research proving this idea at the time, only pedestrian improvements such as sidewalks and increasing the number of dwellings per units are clearly supported urban design factors.

3.1.4 Transit Circulation Policy Goals and Objectives

While the goals for the 1998 Visalia LRTP are broad and wide-reaching, the planning objectives are more specific. These objectives are used to create quantifiable measures for assumptions and goals. A few of the objectives include:

- Evaluating mode choice decisions;
- Establishing market forecasts for transit;
- Defining the best organization structure for transit services; and
- Tabulating support facilities and equipment needed to run transit services.

The Policy Element of the LRTP shares with other elements in the Plan the goal to provide efficient transportation facilities that maintain and improve the City socially, economically, and environmentally. The Policy Element goals and objectives for improving circulation focus on improving the overall transportation system by supporting alternative modes and maintaining the current system. These goals stress developing and maintaining the current road system to provide safe and efficient goods and people movement as well as consider and integrate all modes of transportation, including encouragement of pedestrian accessibility. One of several objectives for this is to apply Transportation System Management (TSM) strategies to reduce vehicle trips and improve the flow of traffic. While the City of Visalia wants to improve their own transportation network, they also recognize that travel is a regional issue.

3.2 2013-2018 Visalia SRTP Goals and Objectives

The overarching purpose of the 2013-2018 Visalia SRTP is to provide research and information to help policy makers determine the most effective use of resources to improve the public transportation

system. To do this, the plan assesses system performance in terms of operations and finances, and provides a forum for community input and education. The 2013-2018 Visalia SRTP defined four goals for measuring performance, updated from previous SRTP goals, to reflect constant changes in the transportation system:

1. Operate a high quality public transportation system (safe, reliable, effective, efficient, and accessible).
2. Meet the growing demand for new services and implement innovative and cost effective solutions to meet the increasing public transportation needs of the community.
3. Provide leadership in public transportation for the City, nearby communities, and the industry.
4. Educate the public about transit services in the area and the benefits of public transportation to the community and individuals.

These goals are created to reflect the evolving roles of Visalia Transit, supporting the mission, vision, and values stated for 2013. A key change in this list compared to the 2008-2013 Visalia SRTP goals is the third goal that focuses on being a leader in the field for neighboring communities. This suggests a trend towards using more innovative transportation methods, and aligns with the Plan's incorporation of technology and new concepts into the transportation system.

In addition to the goals of the SRTP, Visalia Transit system evaluates each of its transit services in terms of operation and performance with the objective of identifying points of weakness and areas for improvement. They evaluate the service in terms of the system itself as well as the system in relation to its peers in (1) cost efficiency, (2) service effectiveness, and (3) cost effectiveness. The objectives of the evaluation and comparison are the basis for recommendations to improve the current system's effectiveness. This also serves as an input for the operation plan, which addresses areas of weaknesses by developing alternative Operation Plan options. The objective of the Operation Plan is to develop options that will enhance the overall effectiveness of the service by reaching ridership goals, increasing efficiency and effectiveness of operations, and move towards larger regional transportation goals.

The objectives of the Capital Improvement Plan aspect of the SRTP is specifically focused on the life-cycle costs of Visalia Transit's vehicle fleet and maintaining the current standards for vehicle fleet operations. Included in the Capital Improvements are infrastructure improvements such as bike racks and improved fareboxes.

3.3 Visalia General Plan Goals and Objectives

The goals and objectives of the City of Visalia's 2030 General Plan Update is to create a broad vision of how the community should grow to support the qualities desirable by citizens, business owners, and city officials. The goals and objectives were created with the help of input from citizens, City officials, and City staff. The public participation process initiated in the summer of 2009 to address community needs and seek input from many stakeholders through participation outlets such as focus groups and community workshops.

The General Plan outlines a vision that is long-term, but also states near-term actions and implementation strategies to help achieve that vision. These actions make the broader goals more tangible and achievable. To organize the General Plan, the goals target the key themes listed below:

- **Balanced Growth** – Balancing moderate outward expansion with revitalization of existing retail centers and support of infill development.
- **High Quality of Life** – Support a walkable community and maintain Visalia’s current small-town feel, supporting the variety of different place-types, including Downtown, residential neighborhoods, and the City’s natural creek system.
- **Enhanced Connectivity** – Improve transportation and connectivity around the community by enhancing roadways as well as supporting multi-model networks, or “complete streets,” that also encourage walking, biking, and transit use.
- **Vibrant Community** – Encourage infill and higher-intensity Downtown development and continue to support and attract retail and other businesses.
- **Forward-looking Retail Strategy** – Plan for long-term development and strategies that will provide new opportunities for retail and neighborhood commercial uses.
- **Identity as a Free-Standing City** – Maintain the physical separation that Visalia has to solidify its identity as a free-standing City.

While the general plan creates a long-term vision of the community, it is not static. The general plan may be amended to allow a flexible, dynamic document that responds to changes that cannot be predicted or policies that become obsolete or unrealistic over time.

Increasing transit service will help achieve the above-mentioned goals.

3.3.1 Land Use Goals and Objectives

The objective of the Land Use Element of the General Plan is to guide future land use decisions and development by articulating policies and standards for urban form, including regulations on density and intensity of development, growth boundaries, and phasing over time. The purpose of these objectives is to improve the overall look and feel of the community, and enhance the character and physical aesthetics of the City. Focus areas for these objectives are:

- Urban boundaries, growth management, and the rural buffer and edge conditions;
- Community design and residential neighborhoods;
- Economic development, Downtown and East Downtown, and infill development incentives; and
- Specific land uses, such as commercial and mixed uses, industrial, institutional and civic land, and the airport.

3.3.2 Circulation Goals and Objectives

The Circulation Element’s objective is to continue to achieve the safe and efficient system Visalia currently operates while providing guidelines and additional goals for further planning and policies. The Circulation Element strives to serve all transportation users over several modes – vehicles, trucks, bicyclists, and pedestrians. While this Element is separate from the Land Use Element, it shares several objectives in terms of creating a street landscape that supports the urban design goals of the community while also encouraging pedestrian activity. The guiding principles of the Circulation Element re-state the transportation goals throughout the document:

- Integrating transportation and land use,
- Integrating the transportation planning efforts with the larger region's transportation network, and
- Updating and increasing efficiency by using state-of-the-art systems and applying a Complete Streets Network, keeping in mind goals to increase capacity and safety.

3.4 Exeter General Plan Goals and Objectives

The following are the relevant land use and circulation goals and policies from the Exeter General Plan, 2000 – 2020:

Land use – Growth Management

- Maintain Exeter as a small, agriculturally-oriented city surrounded by farmland.
- Maintain the City's 1990 Annexation Policy that promotes residential infill and discourages urban sprawl.
- Promote Smart Growth planning principles to discourage urban sprawl and the premature urbanization of agricultural land.

Circulation – Transit

- Promote alternative modes of transportation, including bicycles, buses, trains, and walking.
- Reduce automobile use by improving transit service and encouraging transit use.
- Facilitate the provision of convenient, frequent, dependable, and efficient scheduled transit for Exeter residents.
- Improve transit line coverage and frequency throughout Exeter and to adjacent cities, with emphasis on service to the downtown, employment centers, and social services.

3.5 Tulare County RTP/SCS Goals and Objectives

The Sustainable Communities and Climate Protection Act of 2008, also known as the California Senate Bill 375 (SB 375), requires plans for integrating transportation, land use, and housing policies to achieve lower GHG emissions per person. SB 375 is a follow up to California Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 set goals for reduction of statewide GHG emissions to 1990 levels by year 2020; this represents about 25 percent reduction statewide. The California Air Resources Board (CARB) is responsible for establishing GHG emission targets for regions within the California.

The SCS primarily focuses on the distribution of new growth, particularly housing developments. Some RTP roadway improvements are included and some additional emphasis on transit is considered.

The 2015 Tulare County RTP/SCS goals that are relevant to this LRTP development are as follows:

- Provide an efficient and integrated multi-modal transportation system,

- Develop an efficient, maintained, and safe circulation network that maximizes circulation, longevity, and fiscal responsibility, while minimizing environmental impacts.
- Provide a safe, secure, coordinated, efficient, and equitable public transit system that can reasonably meet the needs of residents.
- Improve, enhance, and expand the region’s bicycle and pedestrian systems and connectivity to those systems, while keeping them safe and efficient.
- Promote the improvement of air quality and GHG reductions through congestion management; coordination of land use, housing, and transportation system; provision of alternative modes of transportation; and provision of incentives that reduce vehicle miles travelled (VMT).
- Promote public health in the region by providing opportunities for residents to bicycle and walk to destinations such as home, work, school, and commercial and service businesses.
- Improve transportation mobility and operations by utilizing transportation system management (TSM) strategies, travel demand management (TDM) measures, transportation control measures (TCMs), and intelligent transportation systems (ITS) programs.

3.6 Long Range Transit Plan Vision

Visalia Transit’s ridership is continuing to grow, but it serves less than two percent of the total trips made within the City. The Visalia General Plan Update, and the County’s Regional Transportation Plan and Sustainable Communities Strategies both envision a more substantial role for public transit. According to the 2013-2018 Visalia SRTP, 79 percent of current riders did not have access to a car and 65 percent did not have a driver’s license. Thus, the majority of current riders are “captive riders”.

Increased service to captive riders and enhancements to attract an increasing number of choice riders should be the vision for Visalia Transit. The per capita GHG reduction should be made possible through transit improvements, technology usage, and smart growth initiatives. Visalia Transit should strive to serve 5 percent of the total person trips in Visalia by 2035 due to the following reasons:

- County’s RTP/SCS and City’s Climate Action Plan (CAP) Goals – The Tulare County’s RTP/SCS has an objective for a 5 percent reduction by 2020 and a 10 percent reduction by 2035 in GHG emissions per capita. Additionally, the City of Visalia proposes a reduction in GHG emissions by 2020 with a target of 15 percent below the 2005 levels for the community sector (from all uses and sectors within the City) and 20 percent below the 2005 levels for the municipal sector (for municipal operations). These objectives should be achievable and transit improvements should reasonably account for a third of the total desired per capita passenger vehicle related GHG emissions’ reductions. Some of the savings would come from cleaner and more efficient vehicles.
- Changes in Society Trends – Now-a-days, it is observed that the young generation (teens), especially in and around Visalia, prefer to use public transportation, instead of driving. They have a lot of awareness of the benefits involved with mass-transit use and are interested in saving the planet. Many parents are observing that youth is weaning away from private car use and is delaying acquisition of a driving license and/or an automobile.

Visalia Transit will play a major role in meeting the County's and City's objectives, and serving the increasing number of transit-conscious patrons. As such, the long-term goal of the Visalia Transit should be to have a mode capture of 5 percent, instead of the current 1.5 percent. With a projected 60 percent increase in population by 2035, this would translate to about 30,000 daily trips on Visalia Transit. This is about a five-fold increase over the current weekday ridership of 5,700 passengers, and will require aggressive measures to achieve. These measures will include commitments for land use/growth changes in the General Plan, investment of funds to support transit improvements, as well as adoption of supporting transportation policies.

It should be more convenient for riders to connect to neighboring communities within the county and to points outside the county.

Overall, the following were identified as the draft visions for the LRTP:

- ***Increase Ridership** – Provide increased service to captive riders and enhancements to attract an increasing number of choice riders.*
- ***Reduce Per Capita GHG Emissions** – It should be made possible through transit improvements, technology usage, and smart growth initiatives.*
- ***Increase Transit Mode Capture** – Visalia Transit should strive to serve 5 percent of the total person trips in Visalia by 2035.*

When the 1998 LRTP was completed, transit was serving about 0.5 percent of all person trips. This transit capture rate has increased to 1.5 percent presently, but is short of the 4.4 percent target rate established for transit capture by year 2020. The 4.4 percent target capture rate was based on meeting the average vehicle ridership rate set by the California Clean Air Act. Thus, transit capture has increased threefold since the 1998 LRTP was prepared, and the 5 percent target of the 2015 LRTP will need to repeat the capture rate tripling.

There are many factors affecting successful transit capture of person trips, only one of which is the quality/quantity of transit services being provided. Other key factors include land use growth characteristics, price of gasoline, parking policy, school transportation policies, economic vitality, and demand management measures (ClassPass program at COS). Much of the growth since 1998 has occurred in fringe urban areas that are more difficult to effectively and efficiently serve. Many of the new growth areas are not currently served by transit, thereby reducing the overall citywide transit capture rate.

Recently passed legislation SB-375 and other trends will help to increase ridership in the future if they are effectively implemented. The Visalia General Plan Update also will help to increase transit ridership, particularly if implemented to favor transit. Chapter 8 describes some supportive policies to help encourage transit ridership.

Section 4

Transit Choices

This section discusses about the most common types of transit choices that are available and currently implemented across the country.

Visalia Transit's current operation utilizes conventional transit buses for regular service and smaller van type vehicles for demand response dial-a-ride type service. The service pattern is a modified grid with buses coordinated to facilitate passenger transfers at the Visalia Transit Center. The General Plan identifies a potential LRT service along Mooney Boulevard connecting Visalia and Tulare downtowns. The Tulare County RTP/SCS also lists the potential for LRT services.

The basic forms of transit network design are exhibited in **Figure 4-1**. Radial networks tend to focus routes on the downtown. Hybrid networks include a few crosstown and other non-downtown routes. Hub-and-Spoke networks are oriented around a set of transit hubs where bus schedules are often coordinated to facilitate passenger transfers. Grid networks have routes operating parallel and crossing other parallel routes oriented about 90 degrees from the first set of routes. The Grid network tends to work best when headways are ten minutes or less and for very dispersed destinations. As noted, Visalia's network is generally a modified version of Radial and Grid networks. The geographic size of Visalia's service area and the "T" shaped structure of its major activity centers (along Mooney Boulevard and along SR-198 corridors) suggest a modified grid network design centered on downtown. The hub and spoke network tends to work better for larger service areas.

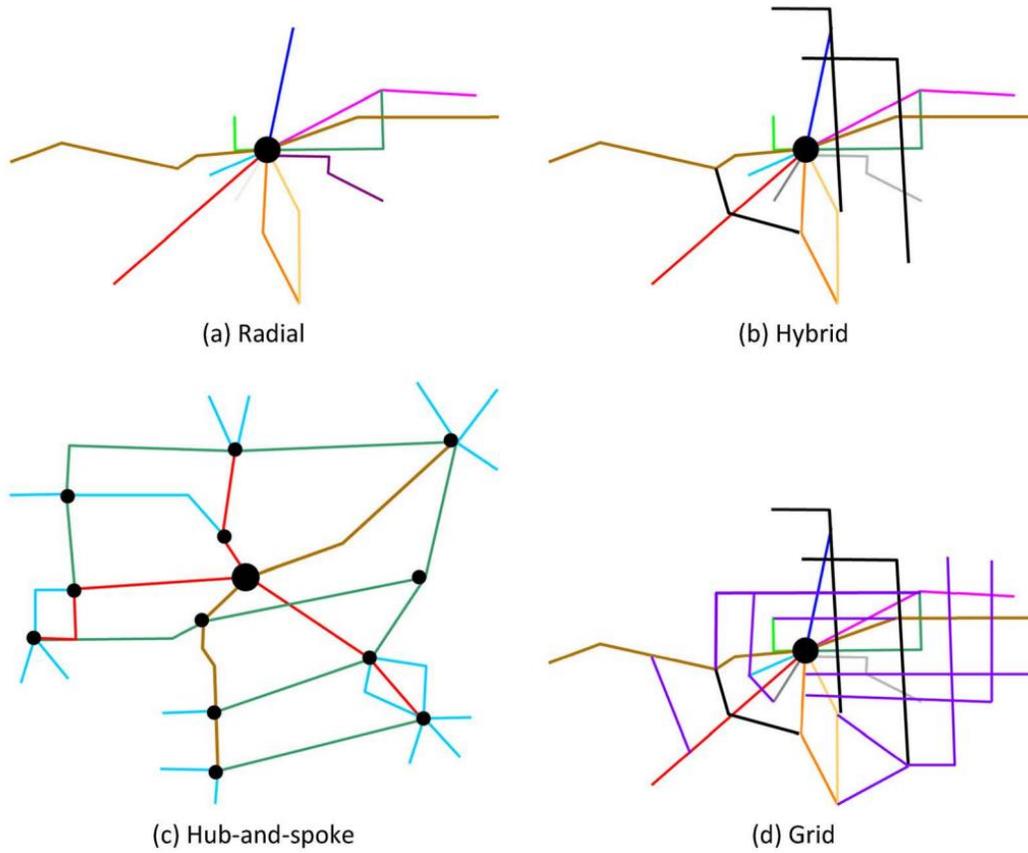
Most communities the size of Visalia operate conventional transit buses in fixed-route scheduled service and complement this service with dial-a-ride services tailored to the needs of seniors and disabled riders. Other types of service include:

- BRT
- Streetcar
- LRT
- Commuter/regional rail

4.1 Conventional Fixed-Route Schedule Bus Service

Visalia Transit's current fixed-route bus service, illustrated in **Figure 4-2**, primarily serves 23 square miles of area bounded by Akers Street, Caldwell Avenue, Lovers Lane, and Riggin Avenue in Visalia; the City of Tulare; and neighboring communities of Exeter, Farmersville, and Goshen. Most of the service operates on 30-minute headways and route lengths are commonly 30 minutes one-way running times. Buses are schedule coordinated to allow for passenger transfers at the downtown transit center. To accomplish the coordinated schedule pulse and provide easy to remember schedules (memory headways – generally uniformly every 15 or 30 minutes) the bus routes are designed to be about 15 miles in length. Expansion of the service area will require comprehensive reconfiguration of many of the current routes.

Figure 4-1 Basic Forms of Fixed-Route Transit Networks



Source: Transit Cooperative Research Program Report 165: Transit Capacity and Quality of Service Manual,

Figure 4-2 Fixed-Route Bus Service in Visalia



Conventional bus services have many advantages. They are flexible and somewhat easy to change. They tend to be walk-accessible and easy to understand. These services also tend to be the most cost efficient to provide and involve minimal capital costs – buses, stops/shelters, and parking/maintenance facility. For these reasons they are the most common form of public transit service for medium size communities as well as for very large cities.

4.2 Express and Limited Bus Service

Limited and Express bus services, illustrated in **Figures 4-3 and 4-4**, are used to serve long-distance trips where the 15-mph running of local buses provides unacceptable travel times for passengers. Express buses sometime run on freeways (similar to Route 11X) and on arterial streets. Most communities the size of Visalia have difficulty supporting express bus service. Fresno has tried several times to establish express bus service and they have yet to succeed.

Figure 4-3 Limited Bus Service in San Francisco



Source: sfmta.com

Figure 4-4 Express Bus Service in Modesto



4.3 Bus Rapid Transit

During the past decade, several cities have implemented BRT which offers higher speeds, enhanced reliability, and better passenger amenities, particularly at stops. The classic definition of BRT includes exclusive lanes for buses, signal preemption, prepaid fares, and enhanced stops. The stops typically are spaced wider apart than local bus stops to operate faster. This however requires many passengers to walk farther to reach their stop and sometimes means operating both local and the express BRT buses on the same street, slightly duplicating service. Higher speeds tend to be more important to riders for long-distance trips, whereas improved schedule reliability is more important for short-distance trips. Some cities have introduced BRT lite or “rapid bus” in lieu of full BRT. These Rapid Ride services primarily operate in shared traffic lanes, but include traffic signal priorities. The federal government generally will fund up to \$25 million dollars for the cost of Rapid Ride services (a maximum of \$3 million per mile). To qualify for the “Very Small Starts” funding from the federal government, current ridership must be 3,000 daily or higher. Federal funding for the full BRT can be higher, but rarely more than 50 percent of the total costs, and must score high in competition relatively to other cities. The key implementation challenges relate to funding and minimizing impacts on traffic. Illustrations of the BRT service in Eugene, Portland and the Rapid Ride service in Seattle, Washington are provided in **Figures 4-5 and 4-6**.

Figure 4-5 BRT Service in Eugene



Source: The Transport Politic, January 11, 2011. <http://www.thetransportpolitic.com/2011/01/11/better-transit-even-on-the-cheap-doesnt-always-come-easy/>.

Figure 4-6 Rapid Ride Service in Seattle



Source: <http://transportationchoicescoalition.blogspot.com/2011/03/act-now-to-save-rapid-ride.html>

4.4 Streetcar

Some cities have recently implemented modern streetcar lines which tend to be lighter, lower in capacity, and slower than conventional LRT lines. Other cities have implemented historic streetcar lines. Streetcar service tends to focus on economic development and to serve shorter trips where speeds are less important. Examples of modern streetcar systems include Portland, Salt Lake City, Seattle, and Tacoma, and examples of historic streetcar systems include San Francisco, Memphis, and Savannah. As both modern and historic streetcars benefit from exclusive lanes, their slow speeds generally enable them to operate in slow moving mixed-flow traffic lanes. Stops tend to be spaced every one-quarter mile. Capital costs are about \$40 million per mile. Emerging technology will allow for streetcars without overhead electric power systems. An illustration of the streetcar services in Portland, Oregon and San Francisco are provided in **Figures 4-7 and 4-8**.

Figure 4-7 Modern Streetcar Service in Portland



4.5 Light Rail Transit

LRT generally operates in trains of one-to-four cars, and offer relatively high capacities. They tend to need exclusive rights-of-way to enable high-speed (30 mph) operation, but can operate in shared rights-of-way for short sections in downtown. They tend to cater to passenger trips of five to twenty-five miles (Visalia to Tulare is about ten miles), and cost about \$40 to \$75 million per mile to construct. Stations tend to be at every mile except in downtowns where quarter-mile spacings are sometimes provided. A 2006 study performed for TCAG of the feasibility of light rail found that it would be unlikely to get federal funding and proposed an express bus between Tulare and Visalia to test the marketplace. This study explored three alignments – Mooney Boulevard, Santa Fe Street, and the Union Pacific Railroad (UPRR) SR-99 corridor. Similar to exclusive lane BRT systems, key challenges for implementation tend to be funding and integration into the traffic network (taking lanes, taking curb parking and limiting turning movements). An illustration of the LRT service in Sacramento, California is provided in **Figure 4-9**.

Figure 4-8 Historic Streetcar Service in Memphis



Figure 4-9 Light Rail Transit Service in Sacramento



Source: Wikipedia. http://en.wikipedia.org/wiki/Sacramento_Regional_Transit_District.

4.6 Commuter/Regional Rail

Commuter rail service tends to operate on freight rail tracks, either sharing the tracks or operating on exclusive tracks, purchased for use. Commuter rail services tend to serve longer trip markets where speed is important (10 to 30 miles). Stations are spaced every three to five miles. Cost can range widely from \$5 million per mile to more than \$25 million per mile. Service can be provided by conventional locomotives or by smaller self-propelled diesel multiple unit (DMU) trains. An illustration of the commuter rail service in San Diego, California is provided in **Figure 4-10**.

Figure 4-10 DMU Commuter Rail Service in San Diego



Source: Examiner, June 2009. <http://www.examiner.com/article/travel-northern-san-diego-on-the-sprinter-train>.

4.7 Community Circulators

Some communities have introduced community circulators or shuttles to complement conventional fixed-route bus services. Some of these are demand-response type and others are route-deviation type services. They offer shorter walks to access service, but they tend to run infrequently (60 minutes), be circuitous, and serve about one-third of the hourly passenger boardings served by the conventional fixed-route service. An illustration of the community circulator service in Emeryville, California is provided in **Figure 4-11**.

Figure 4-11 Community Circulator Service in Emeryville

4.8 Dial-A-Ride

Visalia Transit currently provides dial-a-ride services to seniors and disabled riders. General public can use the service on a space available basis. Curb to curb service is provided. This service is operated Monday through Friday from 6 AM to 9:30 PM and on weekends from 8 AM to 6:30 PM. The Americans with Disabilities Act (ADA) guidelines require that complementary paratransit services be provided for those unable to use fixed-route services. As this type of service tends to be less efficient to provide in terms of passengers served per vehicle hour of service, smaller vehicles are used for this service. The smaller vehicles have sufficient capacity for these demands and can maneuver in tighter spaces needed for door-to-door service. An illustration of the dial-a-ride service in Visalia is provided in **Figure 4-12**.

Figure 4-12 Dial-A-Ride Service in Visalia



Section 5

Transit Service Strategy Element

The LRTP is designed to achieve the goal of 5 percent capture of all person trips by public transit in 2035. It is based on the forecasted growth described in the City's General Plan Update and the RTP/SCS. These foundation documents primarily describe a vision for Visalia based upon the best knowledge of likely and desired growth. The pace of this growth and the form that it takes will likely vary from forecasts suggesting that the LRTP needs to be a flexible plan and should be updated about every 20 years or less if major changes are occurring more frequently. The LRTP includes a vision, a service plan element, a transit fleet element, a facilities element, a financial element, an implementation strategy element and a supporting policy element.

The LRTP service plan consists of transit mode investments, a route network and routing strategy, and an operations strategy. The key unknowns effecting the implementation of the preferred service plan include the pace and form of growth, the amount of funding available for transit, and the success of improved transit attracting increased ridership. Thus, the preferred service plan is a vision plan, and needs to be flexible to respond to changing conditions. It represents a useful tool for estimating fleet and funding resource needs, and to influence local public policies on growth and transportation as guidance information for private sector developers. The recommendations are based on an assessment of three alternative scenarios regarding coverage, ridership, and costs.

5.1 Premium Service Options

As one of the purposes of a long-range plan is to identify major investment and funding needs, consideration of high-cost premium rail and bus services is important. As described in Section 4.1, premium rail services in Visalia possibly could include electric LRT, diesel LRT (sometimes called DMU) and streetcar modes. It is assumed that the San Joaquin Amtrak service will continue serving Visalia from its Hanford Station through 2035. After 2035, it is possible that the planned high-speed rail service will operate to Hanford. Premium forms of bus service include BRT and Rapid Ride. The former typically has significant amounts of exclusive right-of-way operations (exclusive lanes or exclusive alignment) and the latter typically operates in mixed-use traffic lanes with upgraded stops and traffic signal priority.

The most promising corridor for LRT service in Visalia is the Mooney Boulevard corridor. Implementation of LRT along Mooney Boulevard would require exclusive right-of-way and would best be accomplished in the median area where it would displace traffic lanes and impede left turn movements. Curb-running LRT is more accident prone and is rarely built. It is unlikely that LRT along Mooney Boulevard would operate any faster than the current bus service which travels between the downtown and the TCaT transfer center in 23 minutes. It is also unlikely that stops could be eliminated as duplicate local bus service would then be needed. The operating speeds and capacity needs along Mooney Boulevard suggest a modern streetcar system would be more appropriate than a full LRT. The development cost for construction a modern streetcar line along Mooney Boulevard from TCaT transfer center to downtown (about six miles) is estimated to be \$300 million and the cost of a maintenance depot and trains would total another \$55 million bringing the total to about \$355 million. Operating costs for light rail tends to be at least 50 percent more than for local bus service. Thus, the associated costs and traffic impacts indicate that modern streetcar rail transit would not be attractive for Visalia.

Construction of a shorter modern streetcar service between the COS and downtown (about 3 miles) would be lower cost (about \$180 million), but would also impact traffic circulation. Another rail option that has been suggested is along Goshen Avenue to the planned high speed rail station. This is a lower demand corridor and its cost is estimated at \$400 million for electric LRT and \$250 million for DMU service. It is possible in the future that technology will allow for electric rail transit without the overhead power distribution, but this is unknown. Neither of Goshen rail transit investments is recommended as cost effective. It is unlikely that the federal government would help fund any of these rail projects.

The most promising corridors for premium bus service are the Mooney Boulevard and SR-198 corridors. The need for exclusive lanes along these corridors is questionable as they are quite short and 10 mph faster running speeds would not be critical. Rapid Ride service with upgraded stops and traffic priorities, however, seems promising. To keep the costs within FTA's funding threshold for very small starts, these would be about \$3 million per mile to implement. For the Mooney Boulevard and Noble Avenue/Mineral King Avenue corridors, these costs would be about \$18 million and \$12 million, respectively plus cost of buses. It should be noted that the current FTA rules require 3,000 daily riders in the corridor to qualify for very small starts funding. Focusing additional development along these two primary transit corridors would help attract federal funding.

5.2 Route Network and Routing Strategies

The following ten core principles were used to define the preferred service plan route network:

- All routes connect to downtown eliminating the need for passengers to transfer to access this key destination and transfer center. Most routes that do not connect to downtown prove to be very weak at attracting riders.
- Modified grid type of route network which maximizes passenger transfer opportunities. The modified grid network maximizes coverage of market areas. Ends of some routes are bent to reduce passenger transfer needs and to facilitate efficient route lengths for scheduling. Routes are spaced a maximum of one mile apart and generally are spaced one-half mile apart, making most trips within one-quarter mile of the bus route.
- Route network that is simple for passengers to understand. Turns are minimized to reduce confusion.
- Provision of two-way service on all lines except near the ends where buses turn around for return trip. One direction routes look good on a map, but can result in circuitous trips for most passengers.
- Complementing the Visalia Transit Center with passenger transfer hubs at outer end of routes to maximize the ease of transferring. Location of hubs near route terminals simplifies efficient scheduling and provides the opportunities for end of line restroom facilities for drivers.
- Rather than terminating bus routes at the Visalia Transit Center, routes are interlined or through routed when possible to minimize the need for passengers to transfer routes. Through routing bus lines at the Visalia Transit Center will reduce the need for passengers to transfer and will also reduce the amount of time buses occupy bays at the transit center. A terminating bus can occupy a bay for ten minutes or more. A through-routed bus would typically occupy a bay for less than four minutes and allow the transit center to serve twice the number of buses

per hour as it currently serves. About 50 percent of current transit riders transfer bus lines and the interlining would help to reduce this transfer needs and provide better service to riders.

- Establishment of higher frequency service on the SR-198 and SR-63 corridors, all of which serve major destinations.
- Where possible all routes directly serve or connect to the downtown, Mooney Boulevard (SR-63) corridor, and SR-198 corridor.
- Maximum service is provided to high schools and middle schools to facilitate non-transfer trips by students.
- Attempt to minimize change to core routes to serve expanding service area growth.

Figure 5-1 shows the recommended route network and routing plan for the LRTP. It consists of the 13 local routes serving Visalia plus current Routes 9 and 12 to Farmersville and Exeter, and Express Route 11X to Tulare. The service concept also includes a flexible route service catering to the needs of the industrial employment centers in northwest Visalia (referred to as the Industrial Area Shuttle). This network would evolve from the current network to meeting manifesting demands associated with new development.

Proposed routes include the following 17 bus lines.

Route 1 would provide service on Mooney Boulevard linking the TCaT Transfer Station to the proposed 198 Transit Center (at SR-198/Akers Street junction) via Mooney Boulevard, Main Street/Center Avenue, Bridge Street, the Visalia Transit Center, Murray Avenue, Court Street, Third Avenue, Dinuba Boulevard, Riggin Avenue, and Akers Street. It would connect major corridors and help to reduce the need for passengers to transfer. Since long routes are more difficult to keep on schedule, efforts would be needed along this corridor to ensure reliable service. To keep longer routes on schedule, interim schedule adjustment points are typically included in the route schedules. The proposed Route 1 would modify the existing one by extending and interlining it across the Visalia Transit Center, thereby reducing the number of transfers at the transit center.

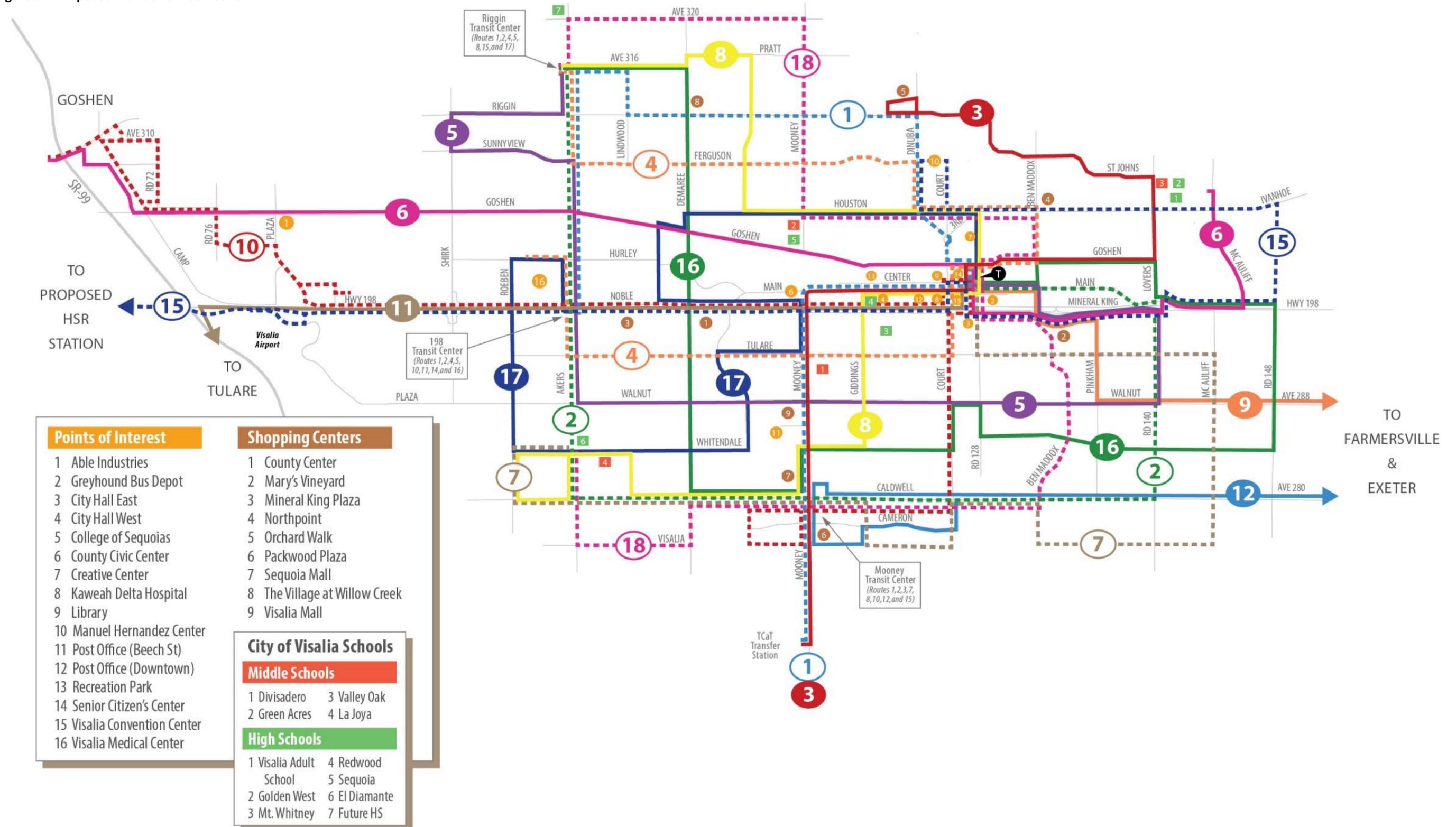
Route 2 would operate between the Visalia Transit Center and the proposed Riggin Transit Center (at Riggin Avenue/Akers Street junction) via Main Street, Lovers Lane, Caldwell Avenue, and Akers Street.

Route 3 would operate between the TCaT Transfer Station and Riggin Avenue/Dinuba Boulevard junction via Mooney Boulevard, Main Street/Center Avenue, Bridge Street, the Visalia Transit Center, Murray Avenue, Goshen Avenue, Lovers Lane, St. Johns Parkway, and Riggin Avenue.

Route 4 would operate between the proposed Riggin Transit Center (at Riggin Avenue/Akers Street junction) and Akers Street/Hurley Avenue junction. It would operate along Akers Street, Ferguson Avenue, Dinuba Boulevard, Houston Avenue, Ben Maddox Way, Goshen Avenue, Murray Avenue, Court Street/Locust Street, Tulare Avenue, Akers Street, and Hurley Avenue.

Route 5 would connect the Visalia Transit Center with the proposed Riggin Transit Center (at Riggin Avenue/Akers Street junction) via Center Avenue, Ben Maddox Way, Noble Avenue, Lovers Lane, Walnut Avenue, Akers Street, Ferguson Avenue, Shirk Road, Riggin Avenue, and Akers Street.

Figure 5-1 Proposed Transit Service Network



Route 6 would connect Goshen to McAuliff Street and St. Johns Parkway (Golden West High School) via Betty Drive, Elfie Drive, Goshen Avenue, Murray Avenue, Santa Fe Street, the Visalia Transit Center, Noble Avenue, Lovers Lane, Mineral King Avenue, and McAuliff Street.

Route 7 would operate between the Visalia Transit Center and Akers Street/Whitendale Avenue junction. It would operate along Santa Fe Street, Tulare Avenue, McAuliff Street, Visalia Parkway, Ben Maddox Way, Caldwell Avenue, Court Street, Visalia Parkway, Giddings Street, Caldwell Avenue, Roeben Road, and Whitendale Avenue.

Route 8 would operate between the proposed Riggin Transit Center (at Riggin Avenue/Akers Street junction) and Akers Street/Whitendale Avenue junction via River Way Drive, Demaree Street, Pratt Road, County Center Street, Houston Avenue, Santa Fe Street, Main Street/Center Avenue, Giddings Street, Mooney Boulevard, Caldwell Avenue, Linwood Street, Whitendale Avenue, Roeben Road, Caldwell Avenue, and Akers Street.

Route 10 would connect Goshen with the proposed Mooney Transit Center (at Mooney Boulevard/Caldwell Avenue junction) via Betty Drive, Robinson Road, Camp Drive, Goshen Avenue, American Street, Nicholas Court, Plaza Drive, Crowley Avenue, Hillsdale Court, Plaza Drive, SR-198, Mineral King Avenue/Noble Avenue, Court Street/Locust Street, Oak Avenue, Visalia Transit Center, Bridge Street, Mineral King Avenue/Noble Avenue, Court Street, Caldwell Avenue, County Center Drive, Visalia Parkway, and Mooney Boulevard.

Route 15 would connect the proposed HSR station near Hanford to Dinuba Boulevard/Houston Avenue junction via SR-198, Mineral King Avenue/Noble Avenue, Court Street/Locust Street, Center Avenue, Visalia Transit Center, Bridge Street, Noble Avenue, Lovers Lane, Mineral King Avenue, Road 148, Houston Avenue, Dinuba Boulevard, Ferguson Street, and Court Street.

Route 16 would connect the Visalia Transit Center with the proposed Riggin Transit Center (at Riggin Avenue/Akers Street junction) via River Way Drive, Demaree Street, Caldwell Avenue, Mooney Boulevard, Whitendale Avenue, Court Street, Walnut Avenue, Santa Fe Street, K Avenue, Road 148, Mineral King Avenue/ Noble Avenue, Lovers Lane, Goshen Avenue, Ben Maddox Way, and Center Avenue.

Route 17 would connect the Visalia Transit Center with the proposed 198 Transit Center (at SR-198/Akers Street junction). It would operate along Akers Street, Hurley Avenue, Roeben Road, Whitendale Avenue, County Center Drive, Tulare Avenue, Mooney Boulevard, Mineral King Avenue/ Noble Avenue, Chinowth Street, Goshen Avenue, Demaree Street, Houston Avenue, and Santa Fe Street.

Route 18 would operate between the proposed Riggin Transit Center (at Riggin Avenue/Akers Street junction) and the Akers Street/Whitendale Avenue junction via Akers Street, Avenue 320, Mooney Boulevard, Houston Avenue, Ben Maddox Way, Goshen Avenue, Murray Avenue, Santa Fe Street, Visalia Transit Center, Noble Avenue/Mineral King Avenue, Ben Maddox Way, Caldwell Avenue, Demaree Street, Visalia Parkway, and Akers Street.

Current routes to Exeter and Farmersville (Routes 9 and 12) would be retained. Route 9 currently connects the Cities of Farmersville and Exeter to the Visalia Transit Center. Route 12 connects Exeter and Farmersville to the Caldwell Avenue/Mooney Boulevard area near the Sequoia Mall. In Farmersville, Route 9 serves most of the key destinations including the Farmersville High School, Farmersville Junior High School, and commercial areas. The highway commercial at the SR-198/Farmersville Road interchange, however, is not served by this route. Route 12 only serves the southern

portion of Farmersville along Visalia Road. Routes 9 and 12 serve the same streets in Exeter which serve the commercial core. These routes terminate at the junction of Palm Street and B Street, which is near the Exeter Union High School. Similarly, the Tulare Express 11X and the Sequoia shuttle would be retained.

The recently introduced V-LINE connecting Visalia with Fresno would be retained and frequencies upgraded over time to hourly service. The downtown trolley would be phased out and replaced with free fare bus service downtown,

The successful Sequoia Shuttle program would be retained as long as NPS continues to support its funding.

Route deviation services would be provided to serve the Industrial Park in northwest Visalia. Industrial employment tends to spike at shift change times and to be very light at other times. Thus, a route deviation service could provide door-to-door type of coverage at shift change times for individual employers. The route deviation shuttles would be anchored at the Akers Street/Riggin Avenue and Akers Street/SR-198 transit centers. These services would be provided as part of all the scenarios.

5.3 Operations Strategy

Initially, routes would be operated on 30-minute headways. With Routes 1 and 3 both operating along Mooney Boulevard, and Routes 9 and 10 both operating along Noble Avenue/Mineral King Avenue, transit services would amount to 15-minute headways along these two major corridors. As growth occurs and supportive policies are introduced, weekday headways would improve to 20 minutes and then eventually to 15 minutes on all routes. On weekends, 30-minute headways would be provided until patronage indicates the need for more frequent service. The exception would be the Mooney Boulevard routes which would operate on the same headways as on weekdays.

The operations' plan through routes most buses in the downtown to reduce the need for transfers. This would also reduce the demand for bus bays at the downtown transit center and allow more buses to serve it. Bus layovers would be relocated to the remote ends of lines at newly established transit center hubs. For many lines terminating at these remote transit centers, schedule coordinated transfers would be provided.

Free rides would be provided on Routes 1 and 3 on weekdays between 11 AM and 2 PM to replace the currently struggling downtown trolley service. The free rides would be limited to trips between the COS and the downtown transit center. Passengers boarding Route 1 and 3 buses within the free ride zone during the noon time free ride period would not need to pay fares when boarding. Passengers boarding prior to the free ride zone would be issued a dated hat-check type of receipt that would be collected by the driver upon the bus departing the free ride zone. Many of these riders hopefully will be COS students and County employees with passes. Riders on board without the hat-check or without a valid Visalia Transit pass or transfer would be asked to pay the fare at the free zone exit point.

A route deviation service would expand service to the industrial employment in northwest Visalia. These employment centers tend to have regular work shifts when 90 percent of transit demand would be oriented, sometimes these are not normal 9 AM to 5 PM work shifts and the route deviation service would concentrate service where and when it is most needed. Service would be defined via subscriptions, coordination with employers regarding work shift times, and on-demand service request calls. Initially, the service would be centered on a new transit center located at Akers Street and SR-198. Routes 2, 4, 5, 6, and 15 currently serve this site. Once the new high school is opened near Riggin

Avenue and Akers Street and a new transit center constructed, the route deviation service would also coordinate at this location providing connections to proposed Routes 1, 2, 4, 5, 8, 15, and 17.

Currently, about 24 Visalia Transit buses depart the downtown transit center every hour on weekdays. In addition to these Visalia Transit buses, the downtown transit center also serves Visalia Transit's dial-a-ride buses, the Loop Routes buses, Visalia Town Trolley, and Sequoia Shuttle; KART; TCaT; TIME; Greyhound; COLT; DART; and Amtrak connections to Hanford (Kings County). As Visalia Transit service expands, it will be necessary to establish an alternating pulse schedule for buses to efficiently use bus bays and minimize impacts on downtown streets. Currently, about one-third of Visalia Transit buses operate on an offset pulse schedule (departing 15 and 45 minutes after the hour, rather than the main pulse of on the hour and half hour). It is envisioned that under 2035 build-out conditions Routes 1, 5, 8, 11, 14, 15, and 17 would operate on one pulse and Routes 2, 3, 4, 6, 7, 9, 10, and 16 would operate on the offset pulse. Each pulse would have three routes terminating at the transit center and laying over. Buses on the other routes would make a quick stop and continue along their route.

5.4 Implementation Phasing

The 2035 vision route network is designed to serve the 2035 development and should be phased in as growth occurs. With the substantial expansion of bus services in 2012, it makes sense to focus early plan efforts towards support of the expansion rather than adding new service. Modest improvements are suggested leading up to 2020. Implementation of service to fringe areas designated in the General Plan as Tier 2 and 3 growth areas does not seem indicated until 2025 and 2035 respectively.

5.4.1 2020 Service

Current service, operating on 30-minute headways, would be continued until 2020. Exceptions would include:

- Replacement of the downtown trolley with free fare service from 11 AM to 2 PM on weekdays between the COS and downtown transit center,
- 10-minute service for Route 1 along Mooney Boulevard on weekdays, and
- Addition of new service on Demaree Street with 30-minute headways operating from the Visalia Transit Center to the new high school planned near Riggan Avenue and Akers Street via Main Street, Mooney Boulevard, Whitendale Avenue, El Diamante High School, Akers Street, Walnut Avenue, Demaree Street, Ferguson Avenue, and Akers Street.

Interlining of routes at the Visalia Transit Center would be implemented for those routes that serve currently developed corridors – Routes 3, 4, 6, and 10 for example. Interlining of other routes serving new growth corridors would be deferred until development justifies service.

5.4.2 2025 Service

By 2025, some of the General Plan Tier 1 growth is expected to have occurred. The Mooney Boulevard Rapid Ride service (Routes 1 and 3) would be implemented and the interim Demaree corridor service would continue. Route 6 would be extended to the Golden West High School and Route 15 would be implemented to strengthen service along Mineral King Avenue/Noble Avenue. Headways of 30 minutes would continue to operate, except for Mooney Boulevard where each route would operate on 15-minute headways.

5.4.3 2030 Service

By 2030, the General Plan Tier 2 growth is assumed to have occurred. The essence of the Service Plan vision route network should be implemented to serve the expanded service area. Upgrading headways to 20 minutes is envisioned for this market. Implementation of Routes 7, 15, and 17 would be deferred until the General Plan Tier 3 growth (2035). Routes 1 and 3 would operate on 10-minute headways each providing a combined 5-minute headway service on the Rapid Ride segment.

5.4.5 2035 Service

The full-service plan shown in **Figure 5-1** would be implemented to serve the General Plan Tier 3 growth and the interim Demaree corridor service would be discontinued. By 2035, 15-minute headway service would be operated on most routes during weekday peak periods and 20-minute service for weekday off peaks and weekends. The exception being Routes 1 and 3 which would operate on 8-minute headways during weekday peak hours and 10-minute headways during weekends and weekday off peak demand times.

5.5 Service Coverage and Ridership Forecasts

GIS analysis of one-quarter mile coverage was performed for the proposed transit network within the City of Visalia. Industry experience is that most people are willing to walk one-quarter mile to access transit. This coverage analysis therefore provides some indicator of the availability of conveniently accessible transit services. Visalia Transit's service coverage rates in the City of Visalia under existing and 2040 conditions are provided in **Table 5-1**. Currently, Visalia Transit provides fixed-route coverage to 69 percent of population and 78 percent of employment in Visalia. As the service area development expands, the employment coverage ratio of existing service under 2040 conditions is expected to remain the same, while the population coverage ratio would drop to 66 percent. However, under 2040 conditions, the proposed service would increase population and employment coverages to 92 percent and 84 percent with the fixed-route service, and 93 percent and 96 percent with the fixed-route plus route deviation service.

Table 5-1 Service Coverage in Visalia – Existing and 2040 Conditions

Scenario	Population		Employment	
	2013 Conditions	2040 Conditions	2013 Conditions	2040 Conditions
Service Area	153,709	223,730	63,535	94,157
Existing Service				
Coverage Area ¹	106,130	147,609	49,536	73,015
Coverage Ratio	69%	66%	78%	78%
Proposed Fixed-Route Service				
Coverage Area ¹	-	205,500	-	79,500
Coverage Ratio	-	92%	-	84%
Proposed Fixed-Route + Route Deviation Service				
Coverage Area ¹	-	207,500	-	97,000
Coverage Ratio	-	93%	-	96%

Source: TCAG Travel Demand Model

Notes:

¹Coverage area is defined to be the area located 0.25 miles on either side of transit routes.

With the implementation of the proposed service, the average weekday ridership on fixed-route service is forecast to increase from 5,795 riders today to 18,550 riders in 2035. **Table 5-2** describes the weekday ridership associated with phased implementation of the service plan. Ridership in 2035 will amount to about 3.5 percent of all person trips. This is short of the target 5 percent transit capture. Additional ridership will depend on aggressive implementation of supporting policies on land use, demand management, and parking.

Table 5-2 Average Weekday Ridership Forecasts

Service Type	Year of Service				
	2015	2020	2025	2030	2035
Fixed-Route Buses	5,665	7,021	9,213	11,000	17,500
Industrial Area Shuttle	0	100	150	200	500
Dial-A-Ride	130	150	200	300	350
V-LINE	0	60	150	200	200
Total	5,795	7,331	9,713	11,700	18,550

5.6 Resource Requirements

The service expansion will require additional vehicles and financial support. **Tables 5-3 and 5-4** provide an estimate of vehicles required during weekday peak hours and the amount of annual vehicle hours of service. The fleet will need to expand to 140 transit buses and 20 paratransit vehicles for basic local service. The revenue hours of service are estimated to increase from current 113,680 hours of fixed-route and 10,153 hours of dial-a-ride service to 353,400 hours and 20,850 hours, respectively for these services. The Industrial Area Shuttle that would serve the northwest employment would add another 4 vehicles and 10,000 revenue vehicle hours of service in 2035. Additionally, the new V-LINE service to Fresno would add another 6 vehicles and 12,000 hours of service in 2035. Overall, Visalia Transit would have a transit fleet of 170 vehicles by 2035. These resources do not include the separately funded NPS Sequoia shuttle services.

Table 5-3 Peak Service Fleet Forecasts

Service Type	Year of Service				
	2015	2020	2025	2030	2035
Fixed-Route Buses	26	33	41	93	140
Industrial Area Shuttle	0	2	2	2	4
Dial-A-Ride	7	11	13	15	20
V-LINE	0	2	4	5	6
Total	33	48	60	115	170

Table 5-4 Annual Vehicle Hours of Service Forecasts

Service Type	Year of Service				
	2015	2020	2025	2030	2035
Fixed-Route Buses	113,680	135,500	148,500	184,500	353,400
Industrial Area Shuttle	0	5,000	6,000	8,000	10,000
Dial-A-Ride	10,153	11,751	14,362	16,973	20,850
V-LINE	0	4,000	8,000	10,000	12,000
Total	123,833	156,251	176,862	219,473	396,250

5.7 Consistency with Housing Element Policy

HE Program 9.11 (Link Transit Facilities and Services with Existing and Proposed RHNA Land Inventory Sites) of the Visalia's General Plan Housing Element¹, states the following:

The City shall incorporate affordable housing linkages to its transportation related Plans, including the Active Transportation Plan and the Visalia Long Range Transit Plan. Both documents are in draft public review as of July 2016, and are anticipated to be adopted by FY 2017-18. The City shall prepare and incorporate a map and any related analysis and policies to ensure there is an optimal linkage among affordable housing, public transit and active transit (non-motorized modes of transportation), and the City's major jobs, commerce and services generators.

This section discusses the consistency of the proposed transit service network with the HE Program 9.11.

5.7.1 Linkage to Affordable Housing

Figure 5-2 exhibits an overlay of the proposed transit network over the distribution of residential density in the City of Visalia. In the map, areas of affordable housing are represented by high- and medium-density residential areas. As shown in the map, all affordable housing areas would be served by the proposed transit service. Since transit service will be provided along all the major corridors running in the east-west and north-south directions, most of the affordable housing areas will be located within a 0.25-mile of transit service.

5.7.2 Linkage to City's Major Jobs, Commerce, and Services Generators

The proposed transit service would serve most of the employment in Visalia. As discussed in Section 5.5 – Service Coverage and Ridership Forecasts, the proposed fixed-route plus route deviation service would cover about 96 percent of the employment in Visalia under 2040 conditions, thereby confirming that most of the employers in Visalia will have access to the proposed transit service.

5.7.3 Linkage to Bike Network

The recommended bikeway network in the Visalia Bikeway Plan² is illustrated in **Figure 5-3**.

¹ City of Visalia General Plan Housing Element, September 6, 2016

² City of Visalia Bikeway Plan, February 2011

Figure 5-2 Proposed Transit Service vs. Residential Density Distribution

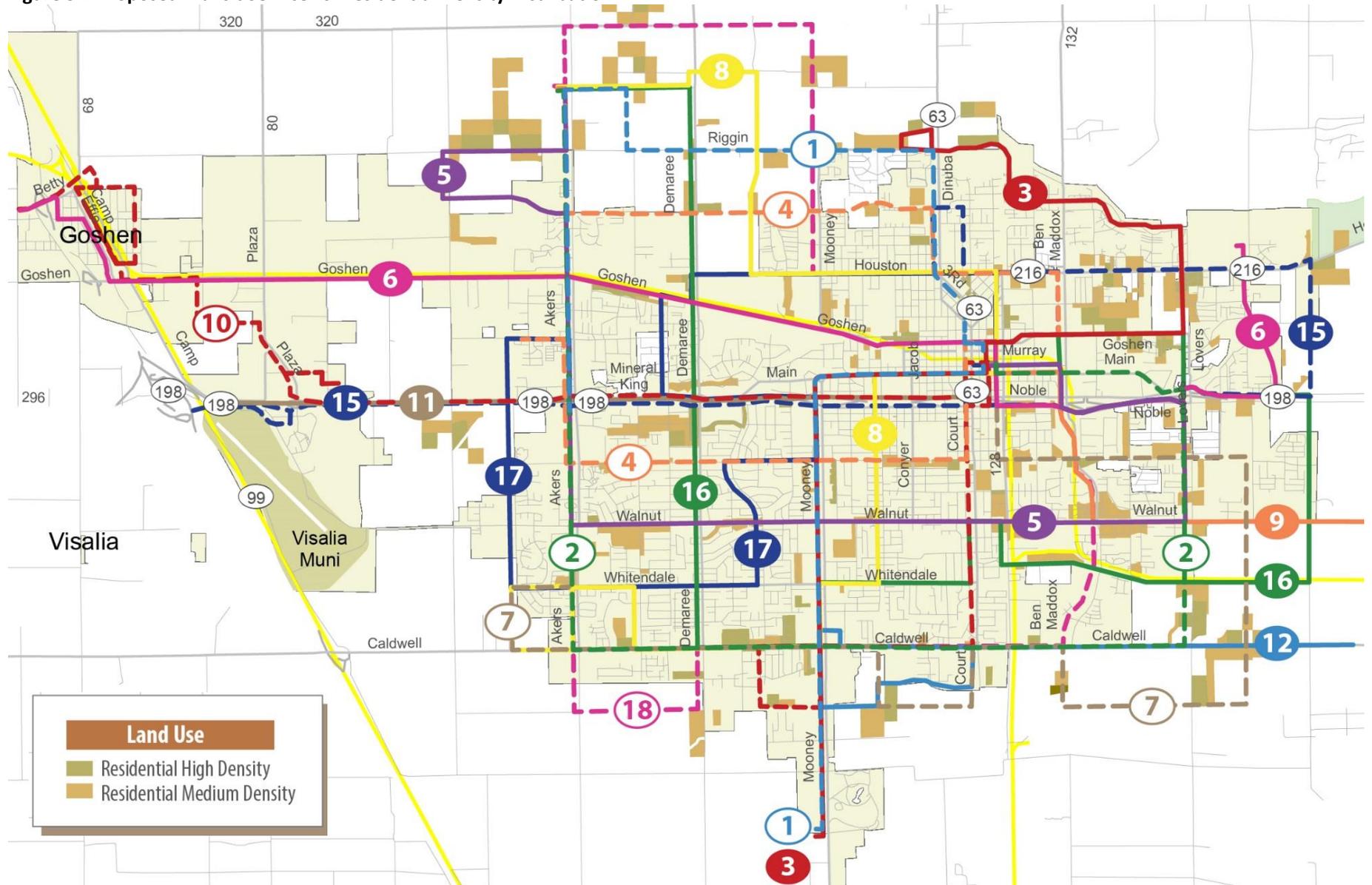
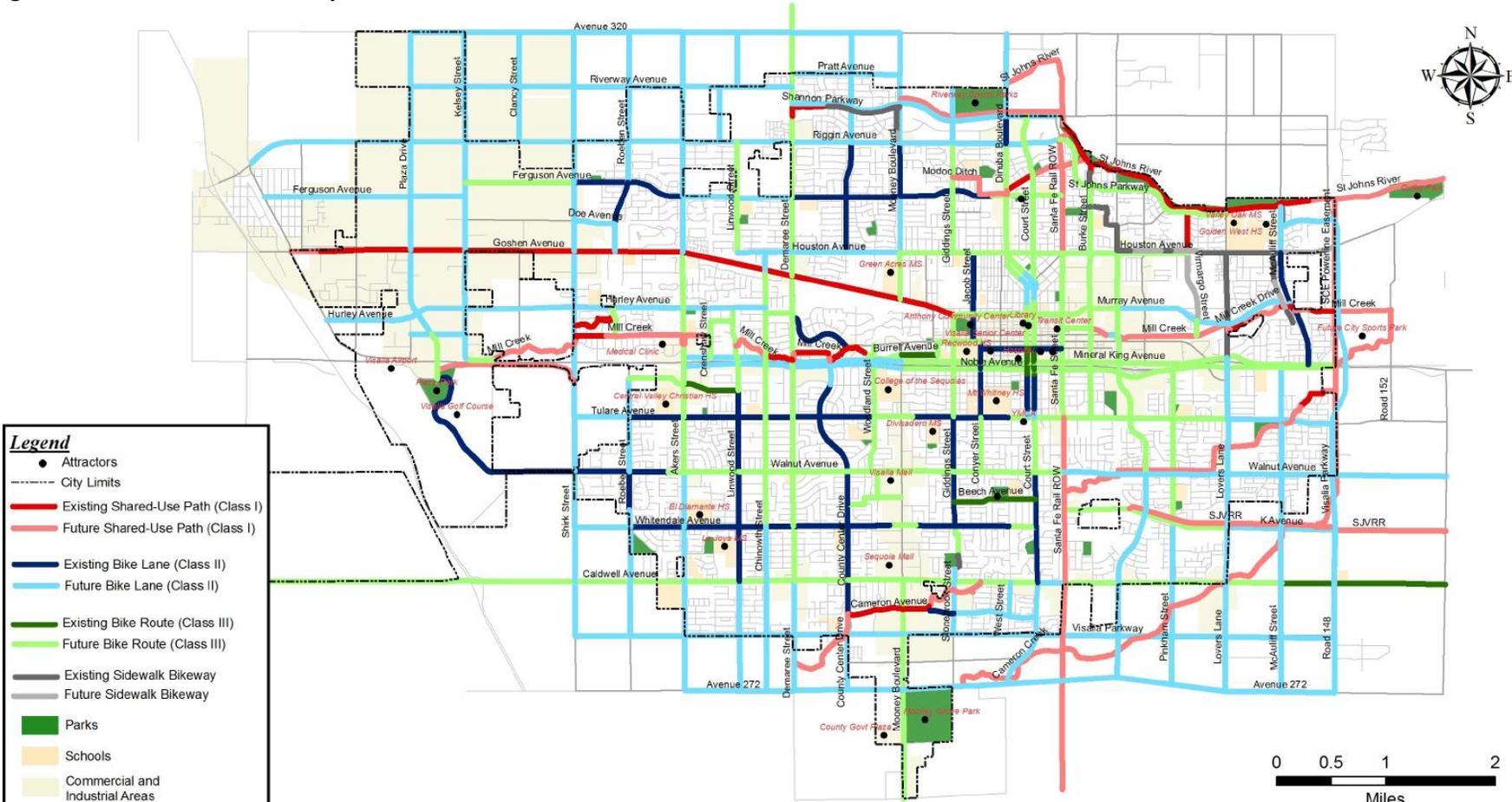


Figure 5-3 Recommended Bikeway Network in Visalia



Source: City of Visalia Bikeway Plan, February 2011

As shown in the map, bikeways are recommended along all the major corridors running in the east-west and north-south directions, which will also be served by the proposed transit service. As such, there would be optimal linkage between the recommended bike and transit networks.

Overall, the proposed transit service would be consistent with the HE Program 9.11 policy and provide optimal linkages to affordable housing, active transit (non-motorized modes of transportation), and the City's major employment generators.

5.8 Summary

The phasing strategy would be linked to the distribution and pace of growth. Initially, efforts would focus on building ridership on the 2012 service expansion investment and establishing increased ridership along Mooney Boulevard. By 2030, growth will necessitate an expansion of the service area and more frequent service.

Section 6

Capital Equipment and Facilities Element

Investments will be needed in buses, passenger support facilities, and maintenance depot facilities to successfully provide the desired service and achieve the desired ridership increase. Six types of capital facilities and equipment are envisioned:

- Fleet replacement and expansion,
- Maintenance and overnight parking depot expansion,
- Corridor upgrades for Rapid Ride service,
- Pedestrian improvements,
- Bus stop improvements and design guidelines, and
- Transit center upgrades and expansions.

The California Air Resources Board (CARB) is targeting a transition to full zero emission vehicle (ZEV) bus fleets by 2040. Thus, Visalia Transit would need to gradually replace its current fleet with ZEV buses by 2040. Technology is rapidly advancing so the cost and efficiency of electric battery buses and other ZEV buses will improve in the years ahead. There are some benefits in familiarizing transit staff with the new ZEV buses in the near term to improve readiness for the fleet transition. In addition to electric battery buses, fuel cell buses are also ZEV transit options, but fuel cell buses cost about 50 percent more than electric battery buses. Electric buses will be quieter than current Visalia Transit buses and be good neighbors for residential and other corridors where traffic noise is an issue.

6.1 Fleet Replacement and Expansion

As described in Chapter 5, the fleet of buses and dial-a-ride vehicles would expand significantly. The peak service fleet requirements mentioned in Chapter 5 do not include allowances for spares. Spares are needed to allow for maintenance and contingencies. An additional 15 percent of the fleet is the accepted guideline for spare vehicles. Buses have useful lives of 12 years and dial-a-ride vehicles typically have lives of 7 years. Experience has shown that it is best to purchase vehicles in batches to minimize parts' needs and gain some economy of scale for specifications, etc. **Table 6-1** provides information about the number of spares that would be needed for fixed-route and dial-a-ride services; however, it does not reflect the separately funded Sequoia shuttle buses.

Table 6-1 Forecasts of Spare Vehicle Requirements

Service Type	Year of Service				
	2015	2020	2025	2030	2035
Fixed-Route Buses					
Peak Service Fleet	26	33	41	93	140
Spares	4	5	6	14	21
Total	30	38	47	107	161
Dial-A-Ride					
Peak Service Fleet	7	11	13	15	20
Spares	2	2	2	3	3
Total	9	13	15	18	23

Somewhat complicating Visalia Transit's future fleet purchase program are federal, state, and local initiatives to reduce air pollution by moving towards cleaner buses. Technology is still advancing, but is not currently in place to replace compressed natural gas (CNG) buses with battery-powered or fuel cell buses. It is however likely that these clean buses will be more expensive to acquire and impact support maintenance facility needs.

The number of riders served per revenue vehicle hours of service is not projected to increase above today's levels. The increased frequencies of service should provide adequate capacity and shifting to larger 40-foot buses is not indicated, except perhaps for the Rapid Ride Routes 1, 3, 9, and 14. Initial Rapid Ride service would be introduced in 2025 on Mooney Boulevard with the major expansion envisioned to occur in 2030.

Table 6-1 suggests replacing the dial-a-ride fleet every seven years buying half the dial-a-ride vehicles every third year and staggered from this schedule purchase a fourth of the fixed-route buses every third year. This should minimize parts' needs, major rebuild conflicts, and new bus break-in conflicts. These purchases could include options for a second batch of the same buses three years later and help to have a uniform fleet of buses.

In addition to the revenue service, fleet provision for several supervisor cars should be considered.

6.1.1 Clean Fuel Buses

The technology for clean fuel vehicles continues to advance, but at a slower pace than is desired. Hybrid electric buses are being used by many transit agencies and a few are experimenting with fuel cell buses. The trend seems to be towards electric battery buses. Electric battery buses seem to be growing in popularity, but their costs are high and their range is shorter than desired. Vendors are claiming 130-mile ranges on a single charge and one is claiming a fast charge capability of 30 miles with a 10-minute charge. The higher costs of electric buses possibly could be offset by lower fuel and maintenance costs. It is possible that Visalia buses could be fast charged at the end of lines at the proposed new transit centers and provide sufficient range for daily operations. This is particularly true as the battery and charging technology advances. Battery-powered buses should be popular with residents and businesses as they

have zero emissions and run quietly. Deferring purchase of electric buses provides the benefits of having better buses for Visalia's needs.

6.2 Overnight Parking and Maintenance Depot

Fixed-route buses and dial-a-ride vehicles along with Sequoia shuttles are currently maintained and parked at Visalia Transit's modern maintenance facility located near Ben Maddox Way and Goshen Avenue. The current site is about 780 feet by 450 feet in dimensions (about 351,000 square feet). About 49,000 square feet of this site is used for employee and visitor parking (about 120 spaces), about 25,000 square feet for operations and maintenance building, about 19,000 square feet for fueling/serving, and the remaining 312,000 square feet for bus parking and circulation. About 120 buses could be parked on the site.

Some of the site is currently used to park and maintain NPS shuttle buses and trailers. The site should be able to support the 2030 fleet of 107 buses and 18 paratransit vehicles, but not if the NPS fleet is also housed at this site. Similarly, the fueling and serving island should be sufficient. Employee parking could become a problem, as could maintenance bays and driver dispatch room facilities. By 2035, expanded facilities would be needed.

Expansion of the employee parking could be addressed at some adjacent off-site parcel. The administrative, operations, and maintenance building would be more difficult to expand, and better use of current facilities, perhaps outsourcing some major repairs would help. If electric buses are eventually added to the fleet, an electric shop will be needed, but some of this could be located off-site. Parking 161 buses and 23 paratransit vehicles will be a challenge and suggest expanding the bus parking area. The Visalia Transit-owned 200-foot by 280-foot site located west of the current site would be a good option for this expansion. Typically, about 3,000 square feet is needed per bus for parking in an efficient layout. About 20 buses could be parked on the adjacent expansion site.

Parking for about 35 NPS buses and trailers (about 120,000 square feet) would also need to be provided off-site. About 200,000 square feet would be needed for Visalia Transit's fleet expansion. In total, about eight acres would be needed for both NPS and Visalia Transit's fleet needs in 2035.

An option would be to construct a second maintenance facility near the proposed Riggan Transit Center (near Riggan Avenue and Akers Street junction). In general, a single maintenance facility is best for bus systems less than 200 buses. If a major change towards electric bus or alternative fuel buses is envisioned, a second facility could become an attractive option.

6.3 Rapid Ride Corridors

Two BRT lite or Rapid Ride corridors are recommended for Visalia. One would be along Mooney Boulevard between Visalia Parkway and SR-198. The second would be along the Mineral King Avenue/Noble Avenue corridor between Akers Street and Santa Fe Street. Both would feature enhanced bus stops and some traffic signal priorities. Strengthening efforts to improve pedestrian access to bus stops is also recommended. For Mooney Boulevard, the current bus pullouts for stops would be eliminated in favor of parallel curb stops to minimize re-entry traffic delays for buses. Lowering the traffic speed limit to 35 mph is suggested.

6.3.1 Mooney Boulevard Rapid Ride

Mooney Boulevard is Visalia Transit's best performing bus route. At its southern end, it terminates at the Tulare County office complex and provides passenger transfer connections to TCaT service. At its

northern end it connects with the Visalia Transit Center. Along Mooney Boulevard, major passenger destinations include:

- COS
- Kohl's and Ross Dress for Less
- Visalia Mall
- Office Depot
- Toys"R"Us
- Towne and Country Shopping Center
- Sequoia Mall
- Walmart
- Lowes Home Improvement
- Best Buy
- Packwood Creek Shopping Center
- Tulare County offices

The link from this Rapid Ride corridor into downtown passes by the Kaweah Delta Medical Center.

6.3.2 Mineral King Avenue/Noble Avenue Rapid Ride

Prior to the construction of the SR-198 freeway in 1965, most of the developed city was concentrated east of Mooney Boulevard. Increasingly, the City is expanding in all directions, but most of its new activity centers have been locating along the SR-198 corridor (see **Figure 6-1**). Currently, Visalia's urban core activity centers essentially are configured in a "T" shape with SR-198 representing the top of the "T" and Mooney Boulevard forming the trunk of the "T"³.

Prior to the construction of the SR-198 freeway, most of the City's activity centers were located either in the downtown or along SR-63 (Mooney Boulevard). The COS, Kaweah Delta Medical Center, and County Office complex are perhaps the largest of these activity centers. As shown in **Figure 6-1**, the SR-198 freeway corridor includes the following major activity centers:

- Visalia Airport (minimal commercial air service)
- San Joaquin Valley College
- Visalia Medical Center
- Akers shopping centers

³ This is consistent with Figure 2-1 – Existing Land Use map of the Visalia General Plan Update.

- Central Valley Christian School
- Cigna Office complex
- Mineral King Plaza Shopping Center
- Kmart and County Center Shopping Center
- Brandman University
- Tulare County Office Complex
- COS
- Redwood High School
- Mt. Whitney High School
- Kaweah Delta Medical Center
- Downtown Visalia
- Mary's Vineyard Shopping Center (east of Downtown)
- Walmart (east of Downtown)

All, but the first two of these activity centers are located along the central five-mile long stretch of SR-198.

The LRTP proposes two major routes along the SR-198/Mineral King Avenue/Noble Avenue corridor. Both would initially operate on 30-minute headways and improve to 15-minute headways over time, combining to provide 15-minute frequency initially and ultimately 8-minute service. Route 15 would operate from the planned HSR station near Hanford to the Visalia Transit Center and thence interline north to a terminus at SR-63 (Dinuba Boulevard) and Houston Avenue serving the Visalia Airport and Noble Avenue/Mineral King Avenue activity centers. Route 10 would originate in Goshen, serve the northwest industrial park, the San Joaquin Valley College, and Noble Avenue/Mineral King Avenue corridor activity centers on its way to the Visalia Transit Center and thence interline to a new Sequoia Mall Transit Center to be located at Mooney Boulevard and Caldwell Avenue.

A typical Rapid Ride bus stop is shown in **Figure 6-2**.

Figure 6-1 Activity Centers along Mooney Boulevard and SR-198 Corridors

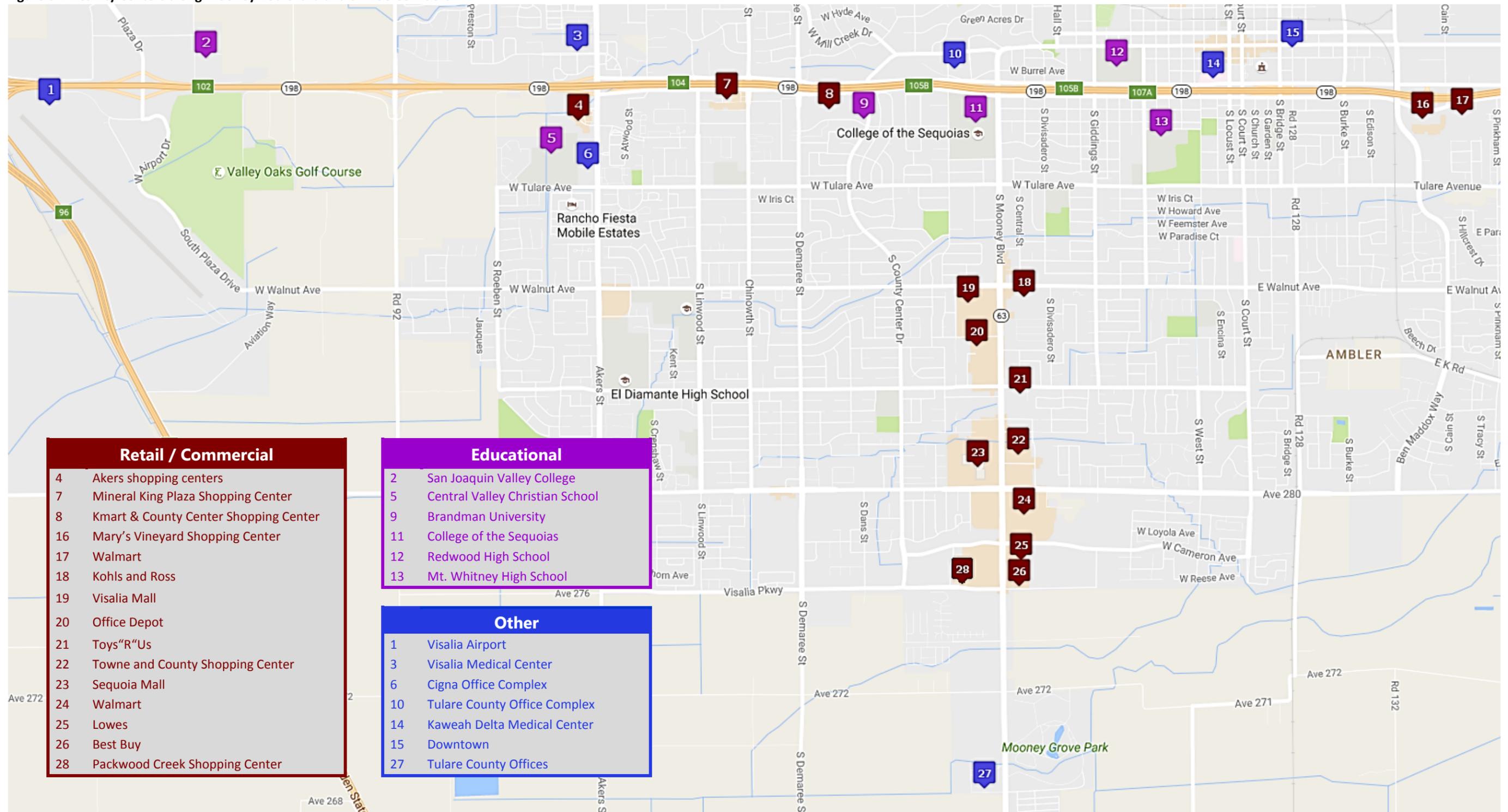


Figure 6-2 Rapid Ride Bus Stop in Seattle

6.4 Pedestrian Access Improvements

In coordination with the General Plan’s circulation element, a number of pedestrian improvements mentioned below would specifically benefit transit. It should be noted that certain suggested improvements are proposed and may be subject to a finding of consistency or amendment to the General Plan.

6.4.1 City Wide

Where possible, pedestrian easements or paths should be developed for gaps in the City’s street network. For example, Linwood to Goshen crossing of railroad tracks, crossing of Mill Creek near Visalia Medical Clinic, pedestrian connection of Ferguson near Crowley Elementary School.

- A continuous, interconnected system of sidewalks should be provided. Sidewalks should be at least six feet wide; additional width is needed when the walks are located adjacent to stores and curbs. Desirably, the sidewalk should be set back from the street.
- Consider property acquisition/easements and the removal of fences, and providing cut-throughs where they will improve the station catchment area access.
- Prohibit gated communities and discourage fences and walls that might impede pedestrian movement. Possibly promote incentives for the removal of fences.
- Discourage cul-de-sac streets unless they are fitted with direct pedestrian links to the street system. Grid street networks with short block lengths tend to provide the best pedestrian paths.

Pedestrian path connections should desirably be 330 to 500 feet apart. Closely spaced street grids, rather than typical suburban street patterns, should be used for new developments.

- Consider installing signals to facilitate pedestrian crossings of major streets, even where they might slightly compromise traffic signal progression. Sometimes new cross-street signals can be added and coordinated with nearby traffic warranted signals to minimize delays and to manage traffic speeds.
- Consider using shorter signal cycle lengths to reduce pedestrian, bicycle, and transit delays.
- Consider providing pedestrian indication at signalized crossings.
- Avoid use of pedestrian push button actuations and include concurrent pedestrian phases in regular signal cycle. Also, consider pedestrian count down displays for major pedestrian crossings.
- Consider adding mid-block pedestrian refuge islands to facilitate crossing of major traffic thoroughfares, complemented with new crosswalks. Refuge islands are particularly needed on wide streets (usually four or more lanes).
- Consider installing sidewalk bulb-outs at major pedestrian path crossings of busy streets.
- Ensure that walkways on surrounding streets have clear sight lines and are free from shrubbery and other obstructions to sight lines.
- Ensure that the main pedestrian paths are properly illuminated and have proper drainage.

6.4.2 Mooney Boulevard

Maximizing transit ridership in this corridor would benefit from measures to enhance pedestrian and bicycle circulation, and access to bus stops. These measures include reducing the speed limit on Mooney Boulevard from 40 mph to 30-35 mph. This measure would also reduce traffic accidents and the severity of those accidents. High-speed traffic is particularly a safety concern and annoyance for pedestrians and cyclists. Add a new traffic signal on Mooney Boulevard midway between Tulare Avenue and Walnut Avenue, perhaps coordinating it with pedestrian links to Harvard Street.

To reduce bus delays, the current recessed bus pullouts on Mooney Boulevard would be replaced with flush curb bus stops. Buses are currently delayed reentering traffic from these pullouts. A new traffic signal is also proposed on Mooney Boulevard between Tulare Avenue and Walnut Avenue to assist pedestrians to safely cross the busy street. No signal is in place on this half mile long segment for pedestrians to safely cross the street and there are several bus stops on this segment. Placing the signal midway between the current signals should facilitate signal timing progression and minimize adverse impacts on traffic flow.

6.4.3 SR-198 Corridor

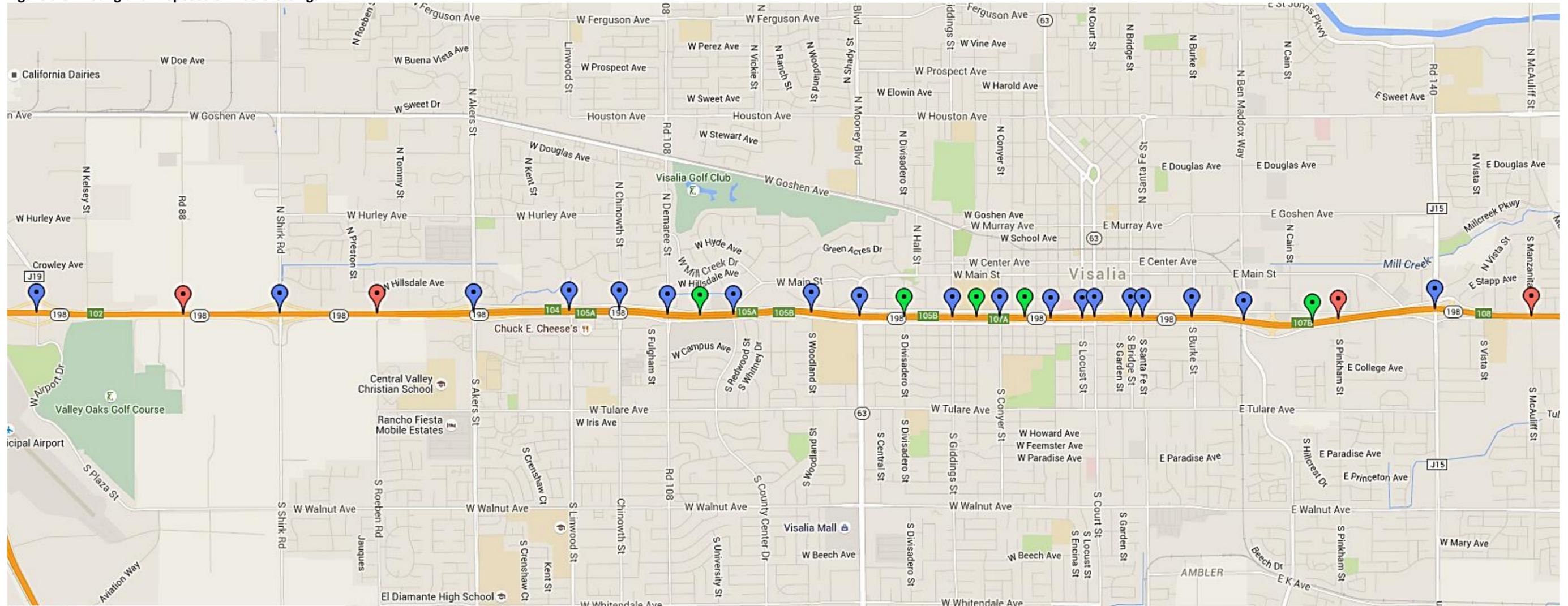
The western and eastern ends of the urbanized SR-198 corridor tend to be auto-oriented, while the two-mile core segment between Mooney Boulevard and Ben Maddox Way tends to have a “pedestrian scale” land use and street network design (small blocks). Most of the development is low rise, of less than four stories even in the core area. Caltrans constructed and maintains SR-198, but not the one-way frontage roads in Visalia. In the State Route 198 Corridor System Management Report, Caltrans envisioned constructing new overcrossings across SR -198 at Road 88, Roeben Road, McAuliff Street, and Pinkham

Street and upgrading the current pedestrian overcrossing at Vista Street to be ADA compliant in its ten-year improvement plan. In the long range, they envision constructing a new interchange at Road 148.

Figure 6-3 identifies the current and new crossing opportunities that are identified in the City's General Plan for pedestrians and motorists. The Mineral King Avenue/Noble Avenue one-way couplet roads are separated by the freeway and are about 330 feet apart, which is a short city block length. The existing and planned traffic crossings across SR-198 in Visalia from west to east are as follows:

- Plaza Drive
- *Road 88 (planned)* – 4,000 feet from Plaza Drive
- Shirk Road – 2,500 feet from Road 88
- *Roeben Street (planned)* – 2,700 feet from Shirk Road
- Akers Street – 2,600 feet from Roeben Street
- Linwood Street – 2,500 feet from Akers Street
- Chinowth Street – 1,400 feet from Linwood Street
- Demaree Street – 1,300 feet from Chinowth Street
- County Center Drive – 1,800 feet from Demaree Street
- Woodland Street – 2,100 feet from County Center Drive
- Mooney Boulevard – 1,300 feet from Woodland Street
- Giddings Street – 2,500 feet from Mooney Boulevard
- Conyer Street – 1,300 feet from Giddings Street
- West Street/Watson Street – 1,400 feet from Conyer Street
- Locust Street – 900 feet from West Street/Watson Street
- Court Street – 300 feet from Locust Street
- Bridge Street – 1,000 feet from Court Street
- Santa Fe Street – 300 feet from Bridge Street
- Burke Street – 1,400 feet from Santa Fe Street
- Ben Maddox Way – 1,400 feet from Burke Street
- *Pinkham Street (planned)* – 2,600 feet from Ben Maddox Way
- Lovers Lane – 2,700 feet from Pinkham Street
- *McAuliff Street (planned)* – 3,900 feet from Lovers Lane

Figure 6-3 Existing and Proposed SR-198 Crossings



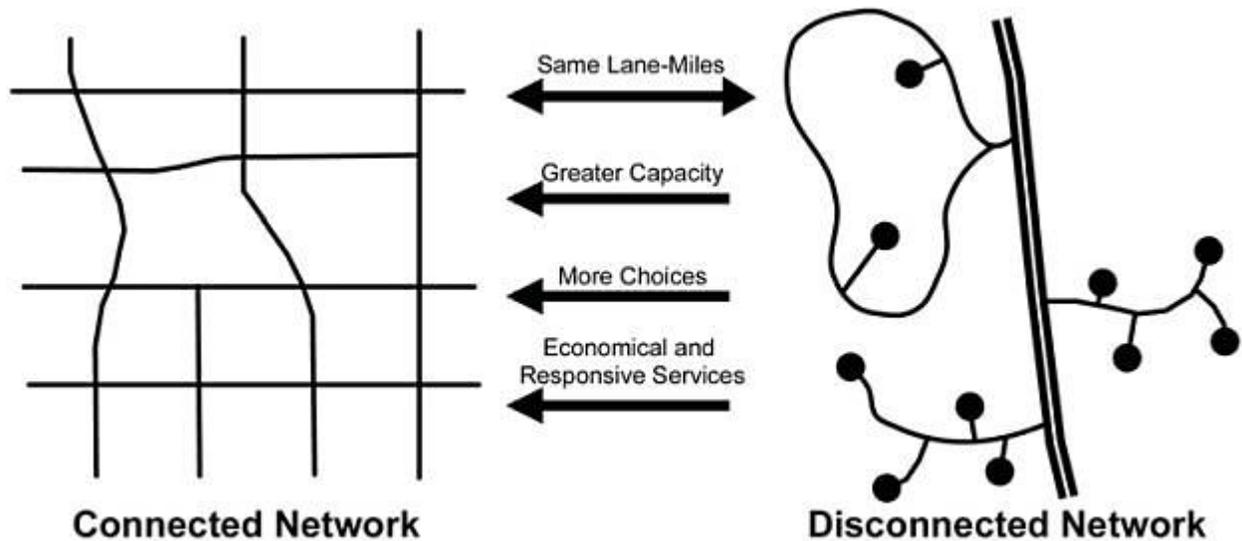
LEGEND

-  Existing Road Crossing
-  Overcrossing Proposed in Visalia GP Update
-  Recommended New Pedestrian Crossing

The average spacing of bus stops is quite long (2,100 feet) in the corridor and the opportunities to cross the freeway are generally more than one-quarter mile apart. While one-quarter mile spaced crossings are only a minor annoyance for motorists (about 30 seconds of travel), pedestrians travel much slower and one-quarter mile would be a five-minute walk or ten times the annoyance as for motorists. Further, weather and security exposure is higher for pedestrians. It is also important to appreciate that bus riders, who are virtually all pedestrians for accessing transit, must cross the corridor at least once for every roundtrip. If their initial destination was on the north side for a westbound trip they would need to cross the SR-198 corridor to get to their return trip eastbound bus stop.

When SR-198 was constructed it divided the City. Addition of traffic and pedestrian connections across SR-198 would help reconnect the City fabric. To encourage alternate modes of transportation such as transit, walking and biking, the circulation network should be well connected. A summary of the street connectivity benefits is illustrated in **Figure 6-4**.

Figure 6-4 Benefits of Street Connectivity



Source: Street Connectivity: Improving the Function and Performance of Your Local Streets. Leigh Valley Planning Commission Staff Project Report, June 2011.

Some of the benefits associated with improved street connectivity include the following⁴:

- Reduction in traffic on arterials;
- Better accommodation of transit services;
- Reduction in travel times, VMT, and GHG emissions by creating shorter routes;
- Provision of continuous and direct routes for walking and biking;

⁴ Source: Xuesong Zhou, Peter T. Martin, Milan Zlatkovic, and Ivana Tasic. *Traffic Modeling of Transit Oriented Development: Evaluation of Transit Friendly Strategies and Innovative Intersection Designs in West Valley City, UT*. Mountain-Plains Consortium, MPC 14-270, July 2014.

- Provision of better and redundant emergency vehicle access and reduction of their response times;
- Lowering of travel speeds and reduction of accident severity; and
- Provision of improved utility connections, easier maintenance, and more efficient trash and recycling pick-up.

The depressed nature of the freeway provides some opportunity for new crossings in the central area since only minor or no grade transitions would be required for the crossings. Thus, as shown in **Figure 6-3**, new pedestrian/bicycle only lightweight bridges are proposed between Mooney Boulevard and downtown at Divisadero Street, Johnson Street, and Sowell Street (near Mt. Whitney High School). Desirably, pedestrian/bike bridges would also be constructed at Crenshaw Court, midway between Akers Street and Linwood Street, and at Walmart, on Noble Avenue located east of Ben Maddox Way. These bridges would involve some vertical circulation as the freeway is at the same grade as the one-way couplet streets. Plans for new traffic crossings that are identified in the General Plan should also coordinate needs of pedestrians and bikes. Entry and exit ramps along SR-198 preclude crossings at other desirable crossing spacings.

6.5 Bus Stop Improvements and Design Guidelines

Passenger responses to the 2013-2018 SRTP survey indicated that riders were satisfied with current bus stops. It is unclear how non-riders felt about the bus stops. The location and design of bus stops is very important to customers and can increase ridership as well as providing fast and safe bus operations. Key bus stop features are:

- Spacing of stops,
- Location at intersections,
- Integration into streets,
- Dimensions,
- Passenger amenities, and
- Passenger comfort.

The transit industry has published many useful references which describe location and design guidelines for bus stops. They are available free from respective websites. These references include:

- American Public Transit Association's (APTA's) "Recommended Practice Bus Stop Design and Placement Security Considerations"
- APTA's "Recommended Practice Design of On Street Transit Stops and Access from Surrounding Areas"
- Transit Cooperative Research Program (TCRP) Report 19 – "Guidelines for the Location and Design of Bus Stops"
- TCRP Report 65 "Evaluation of Bus bulbs"

- TCRP Synthesis Report 117 “Better On- Street Bus Stops”
- TCRP Report 165 “Transit Quality of Service Manual”

The traffic engineering community has also published design guidelines for bus stops. These guidelines view the issue from the perspective of moving cars more than efficiently serving buses and providing convenient passenger access. Both the transit industry and traffic engineering communities tend to be very concerned with safety. Key traffic engineering references include:

- Institute of Transportation Engineers’ (ITE’s) “Recommended Practice for Proper Location of Bus Stops”;
- American Association of State Transportation Officials’ (AASHTO’s) “Guide for Geometric Design of Transit Facilities on Highways and Streets”

In addition to these national references on bus stops, many transit agencies have developed their own guidelines for bus stops and other facilities. Florida Department of Transportation (FDOT) published a good comprehensive description of good practice: “Accessing transit – Design Handbook for Florida Bus Passenger Facilities”. In general, the traffic engineering and the public transit recommended practices for bus stops are consistent.

6.5.1 Current Practice

Current bus stop spacing practice is about one stop per quarter mile. Most stops are located farside parallel to the curb (shown in **Figure 6-5**), except along Mooney Boulevard where bus pull outs are provided as shown in **Figure 6-6**. Modern modular shelters are provided at many stops and benches at other stops. The shelters typically have trash bins, solar lighting, and network route maps in addition to the bus stop flag pole.

Figure 6-5 Current Bus Stop Practice in Visalia



Figure 6-6 Current Bus Stop Practice on Mooney Boulevard

6.5.2 Recommended Practice

Spacing – Arterials in Visalia are generally spaced one-half mile apart with collector streets about every quarter mile apart. Local access streets in the core area are about 330 feet apart resulting in about six local streets between collectors. Long stop spacings are desired to run buses fast, but short stop spacings are desired to reduce passenger access times. Bus passengers view their trip as the complete trip from door to door and not just how fast they travel once on-board the bus. Buses travel four times as fast as pedestrians and therefore cover distances faster. Passengers also view their out of vehicle travel time more highly than their time on board, probably due to security and weather issues. The current 2,100-foot average spacing is too long. One-quarter mile bus stop spacings are the recommended maximums for local service with 660 feet (two blocks) desired in the core area (Mooney Boulevard to Ben Maddox Way) of the corridor.

Location at Intersections – There is total agreement between transit operators and traffic engineers that farside bus stops are better than nearside stops at intersections. Traffic engineers also tend to like mid-block stops, but transit agencies prefer stops at intersections, unless the stop serves a major destination for passengers. Areas near intersections tend to have many turning vehicle conflicts and hence the liking of traffic engineers for mid-block stops. Stops located near intersections facilitate pedestrian access to bus stops and passenger transfers. Nearside stops are mostly desired for approaches to one-way streets that move from left to right. Farside stops also work best for streets with transit signal priorities. Farside stops located near intersections (within 150 feet) are recommended as the preferred practice for Visalia.

Integration into Street – Most bus stops are located along the curb line on streets. In some instances, bus pullouts or bays are desirable, but in some instances extending the sidewalk out and having the bus

stop in a traffic lane is desirable. In general, transit operators prefer sidewalk bulb outs for bus stops and traffic engineers prefer bus pullouts. Bus bulb out stops eliminate the delay buses encounter re-entering traffic after stops and bus pullouts minimize disruptions to traffic flow due to buses stopping. Re-entry delay for buses can extend to the length of the traffic signal green time per cycle, about 30 seconds. The recently published (July 2014) AASHTO guide recommends bus bulbs for urban streets where parking is permitted always and where traffic speeds are under 40 mph. The TCRP guide for bus bulbs recommends bus bulbs for multilane streets (not two-lane streets) and with speeds 40 mph or less. AASHTO recommends bus pullouts for streets where curb lane is used for moving traffic and speeds are over 40 mph. Thus, there is general agreement that bus bulbs should not be used on high speed roads (40 mph or higher) and on two-lane streets. Bus bulbs might not also be appropriate for intersection departure areas that accommodate dual left turn movements. Bus bulbs would be appropriate for 40mph or under multilane streets where buses are delayed re-entering traffic. Since bus bulbs consume only the length of the bus along the curb, they typically eliminate less curb parking than conventional bus stops, which must allow another 50 feet for the bus to enter or leave the stop. For streets with bike lanes, bulb outs need to reflect these lanes in their design. Bus pullouts make sense only for end of line bus layover stops. Bulb outs typically are best for farside stops and in these instances locating a stop 150 feet from the intersection should be considered. It takes a transferring passenger almost one minute to walk this distance. The bus pullouts along Mooney Boulevard should be eliminated and replaced with flush curb stops to minimize traffic re-entry delays to buses. This should be complemented with reducing the speed limit to 35 mph.

Some transit operators also use a sawtooth design for bus stops versus the conventional parallel curb stops. These sawtooth design helps to increase the visibility of transit and promote buses stopping at the same precise location for passengers. They however add to drainage costs and overall cost of bus stop construction, and lack the flexibility to accommodate a range of bus sizes. Parallel curb stops are therefore recommended for Visalia.

Concrete bus pads are desirable at bus stops to prevent the pavement from being damaged by the frequent stopping of heavy vehicles. Most agencies have their own standards for structural features of bus pads based on local conditions. The Florida guidebook has a good generic example of bus pad dimensions.

Dimensions – TCRP’s Transit Capacity and Quality of Service Manual provides the most authoritative discussion of bus stop lengths. Except for the Mooney Boulevard, Main Street corridor on-street bus stops should be designed for the length of a single bus. Mooney Boulevard and Main Street might occasionally see more than one bus arrive at the same stop. It would be desirable to size all stops for a 40-foot transit coach. These buses require about 60 feet to maneuver into a nearside bus stop and 50 feet to maneuver out of a farside bus stop in addition to the 40-foot length needed for the stopped bus. The recent TCRP Synthesis Report 117 suggests 110 feet for nearside stops.

Passenger Amenities – The Florida Accessing Transit Guidebook has a very comprehensive discussion of passenger amenities, including ADA as well as a good overall discussion of bus stop placement. The major upcoming need for Visalia Transit bus stops is the introduction of real time next bus arrival information at the stops. This should be augmented with a smartphone app that was recently developed by the Visalia Transit to provide real time bus arrival information for patrons at low use bus stops. Next bus arrival information has been very popular with passengers where it has already been implemented. One feature shown in the Florida guidebook that might be appropriate for Visalia in general and the

transit center are lean-on-railings, which do not provide weather protection, but have been proven popular on other systems.

Passenger Comfort – Security and good drainage are important at bus stops. Good lighting and location near active businesses are helpful towards improving security.

6.6 Transit Centers

Improvements are recommended for the current Visalia Transit Center and for the establishment of new transit centers near:

- Akers Street and SR-198
- Akers Street and Riggin Avenue
- Akers Street near Diamante High School
- Mooney Boulevard near Caldwell Avenue
- Lovers Lane and Noble Avenue
- Dinuba Boulevard and Riggin Avenue

All the proposed Visalia transit routes terminate at one of these locations providing opportunities for passengers to transfer routes. Transit centers would also provide lavatories for drivers at their layover point. Desirably, a mini transit center would also be developed in Goshen for layovers of Routes 6 and 14.

6.6.1 Location and Design Issues

The best location for transit centers is influenced by bus routes, traffic features, and land uses. In general, the best locations involve minimal off-route diversions. The best locations also attempt to minimize traffic conflicts and provide safe access for buses and passengers. The best land uses for transit centers are retail commercial, including highway commercial which provide added 24/7 lighting and “eyes on the site” for improved passenger security and where possible provide restroom facilities. Bus transit centers located adjacent to high schools often encounter vandalism problems. Transit centers in industrial areas tend to be dark at night and uninviting. Transit centers located near residences often encounter complaints from neighbors. Government and institutional uses can be good neighbors for transit centers.

The least expensive and disruptive types of transit centers are on-street along the curb. On-street transit centers also tend to involve the least diversions from desired bus routings. The dimensions of on-street bus transit hubs will vary with the number of bus routes being served. Typically, each terminating bus route would have a designated layover “bay”, approximately 80 feet in length. These layover positions would be parallel to the current curb for most locations, but could be physically recessed from the traffic lane on high traffic volume streets. Through-routed buses, which make brief stops to board and alight passengers would have stops parallel to the curb (not recessed bus pullouts). Eighty-foot lengths are recommended for each bus line in each direction of travel for through-routed buses.

If high volumes of passenger transfers are anticipated, off-street facilities are generally desired. Provision of safe left turn movements out of transit centers onto street is particularly critical. Off-street

facilities cost more to construct than on-street facilities and involve high on-going annual operating and maintenance costs.

6.6.2 Visalia Transit Center

Visalia Transit currently terminates its routes at the downtown transit center. The LRTP envisions terminating six routes (2, 5, 7, 9, 11, and 15) and through-routing another nine routes at the Visalia Transit Center. Route 12 would be the only route not connecting to the transit center. In addition to Visalia Transit services, the transit center also serves TCAT, KART, Greyhound, Amtrak, Sequoia Shuttle, V-LINE, and Orange Belt Stage bus services. A total of 18 loading bays are provided off-site and another one is provided on Oak Street for Route 16. The bays are relatively short, but work well for 35-foot and shorter buses. In summary, six bays would be needed for terminating buses and 10 bays shared for the 10 Visalia Transit through-routed buses (about 8 buses per hour per bay). These buses would only be making quick stops of about one minute to board and alight passengers before continuing on their route. In addition to Visalia transit's service expansion plans, it is likely that regional expansions of transit services will add to demands at the transit center. One possible configuration of the transit center would be to assign the two-way aisle to through-routed buses, the one-way aisle south of the building to three terminating routes, the bays just north of the building to intercity carriers (Amtrak, Greyhound, and Orange Belt), the opposite bays to three terminating bus routes, and eastbound and westbound Oak Street curbs for Rapid Ride Routes 1, 3, 10, and 14. TCaT and KART buses could layover along Oak Street's curb east and west of the transit center site.

The loading bay resources at the transit center need to be efficiently used with priority given to loading passengers. Long layover buses should be accommodated at a nearby staging site or along the curb on Oak Avenue or Center Avenue on the blocks east and west of the transit center.

6.6.3 SR-198 and Akers Transit Center

Currently, Routes 2, 4, 5 and 6 and 15 pass near this location. Routes 2, 4, and 5 currently terminate at the Visalia Medical Clinic, which is located on Hillsdale Avenue. Hillsdale Avenue has a signalized access to Akers Street. There might be two-to-three buses at this terminal at one time. The proposed service expansion envisions four routes possibly terminating at this location and another five routes passing by the site. The General Plan's land use under 2030 conditions for the Akers Street segment between Mill Creek and Tulare Avenue is compatible with a transit center use. The best location for this transit center needs input from the neighborhood and property owners. One possible location would be the site currently occupied by the Visalia Medical Clinic's parking on the east side of the clinic. Replacement parking would need to be provided on the open lot west of the clinic. It is unknown if Visalia Medical Clinic has expansion plans. The site is about 140 feet by 400 feet and could accommodate two direction bus flows and loading bays. It would be desirable if a new signal could be added near Mill Creek for this site. This location for a transit center would significantly improve transit access to the medical clinic for staff and patients, and could reduce dependence on private cars and the need for parking. A public-private partnership should be explored for this concept.

6.6.4 Akers and Riggins Transit Center

This location is not currently served by Visalia Transit. Future plans envision a new high school at Akers Street and Shannon Parkway. The General Plan also shows a neighborhood retail use at Riggins Avenue and Roeben Road. This retail area might be a good location for a transit center. The LRTP service plan expansion envisions six routes terminating at this site and Route 1 being through-routed. This level of activity suggests the need for an off-street transit facility along Roeben Road. However, it would be

possible to design an on-street loading area on Roeben Road with perhaps small building for driver lavatories, etc.

6.6.5 Akers near El Diamante High School (On-Street)

Currently, Route 2 serves the El Diamante High school. The LRTP envisions three routes terminating at this transit center and two other routes passing by it. The General Plan land uses around the high school are residential with the nearest commercial uses at Walnut Avenue and Caldwell Avenue. While it is not desirable for vandalism reasons to locate a transit center near a school, good options do not exist for this site. An on-street transit center is suggested on Whitendale Avenue in front of the school.

6.6.6 Mooney Transit Center near Orchard Avenue/Mooney Boulevard

Visalia Transit currently serves this location with Routes 1, 2, and 12. The LRTP service expansion plan envisions seven routes passing by the location and two routes (10 and 12) terminating at this location. The land use is compatible with a transit center. The area is maturely developed and off-street options appear limited. The current facilities on West Orchard Avenue could possibly be upgraded. If a partnership with the Sequoia Mall is possible, the parking area of Rabobank along the west side of Mooney Boulevard between Caldwell Avenue and West Orchard Avenue could also be developed into an off-street transit center.

6.6.7 SR-198 and Lovers Lane

Visalia Transit currently serves this area with a one-way loop Route 3 along Noble Avenue. The LRTP envisions passing six routes near this interchange. The south side of the interchange along Lovers Lane sites look available for development of an off-street transit center. If possible, an access point from Noble Avenue would be desirable.

6.6.8 Dinuba Boulevard and Ferguson Avenue

Visalia Transit's Route 7 currently serves this area. Future plans envision two routes terminating in this area and another four routes passing by it. Possible sites exist along the west side of Dinuba Boulevard. An on-street facility could be made to work.

6.6.9 Goshen

Visalia Transit currently terminates Route 6 near Betty Drive by the ARCO Gas Station. The LRTP envisions adding Route 10 to this area; thus, expanding the terminus to serve two routes would be desirable.

6.6.10 City of Exeter

The TCAG LRTP is recommending a new transit center for the City of Exeter. This is a logical terminus for Routes 9 and 12.

6.6.11 City of Farmersville

A new transit center, developed using local funding, is envisioned for the City of Farmersville.

6.6.12 Implementation Phasing

Priority for planning transit centers would be an outreach survey to better understand the opportunities and challenges in developing on- and off-street transit centers at the recommended locations. This would look at the timing of growth and the operational need for facilities. The potential benefits to the host neighborhood also need to be defined in terms of improved accessibility and

reduced parking needs. Parking is not free to provide as is commonly thought, but can cost between \$3,000 (surface space) to \$20,000 (garage space) as well as incurring added operating and maintenance costs for lighting, pavement maintenance, trash removal, and liability issues. Thus, a transit centers' master plan is recommended.

The downtown transit center is well designed and appears capable of accommodating demands until about 2030 when service expansion will stress the facility. Detailed planning for upgrades could be deferred until 2025.

Improvements to the current Mooney Boulevard/West Orchard Avenue transit stop and at the recommended Akers Street/SR-198 location are the most urgent and perhaps could be incorporated into the proposed transit centers' master plan by 2020.

Implementation planning for the proposed transit centers at El Diamante High School, Lovers Lane, Riffin Avenue/Akers Street, Dinuba Boulevard/Ferguson Avenue, and Goshen might also be performed in 2025 in the run up to the service expansion.

6.6 Summary

Major investments will be needed to expand the fleet and its passenger as well as maintenance support facilities. The fleet expansion will be linked to the pace and distribution of growth in Visalia as well as to the availability of financial resources. The conversion to cleaner fuel buses will depend on evolving technology improvements. Improvements to maintenance facilities need to be coordinated with the conversion to clean fuel buses as well as site expansion opportunities at the current maintenance yard. Coordination with public works, the County, and the NPS is needed. If a conversion to electric buses is planned, changes will be need to shop facilities. Development of new transit centers and upgrading the downtown transit center will necessitate outreach efforts with the community and key property owners. Rapid Ride service on Mooney Boulevard and SR-198 corridors will need coordination with Caltrans.

Section 7

Financial Strategy Element

The Financial Strategy is a critical element of the Visalia LRTP to help guide the City's transportation policies, planning, and investments to 2035. Transit strategies recommended in this plan will evolve with projected growth and resulting demand for transit services that are accessible, responsive, and affordable. Cooperative efforts between the City, local policymakers, key stakeholders, and the public will be important in building consensus for successful implementation.

A major difficulty for transit operators nationally is the unpredictability of funding, particularly at the federal and State levels. Federal transportation funding legislation is typically limited to a six-year period, but recently has been short with less than one-year extensions of sun-setting funding legislation. These uncertainties are exacerbated by mandated requirements in the legislation and rigid use limits to some of the funding and by economic uncertainties.

This Plan reflects existing revenue sources and anticipated costs and funding strategies and mechanisms to operate, maintain, and enhance Visalia region's transportation system over the next 20 years. The projections assume a stable economic climate and funding to support the proposed LRTP projects. This Plan ultimately reveals the magnitude of transit needs relative to the regional transportation needs and provides a vision and a financial road map for future improvements.

The primary focus of this financial analysis is to forecast the City's transit system capital and operating needs and costs relative to unconstrained forecasted revenue. Potential federal, State, and local funding are shown along with costs of proposed transportation operations and projects assuming continued economic growth and steady inflation. Historical funding sources and suggestions for non-traditional financial mechanisms are presented.

Specific areas addressed in the Financial Plan are:

- Projected capital and operating costs,
- Potential funding challenges and shortfalls, and
- Existing and potential transportation funding sources.

7.1 Overview of Investments

The Financial Strategy reflects funding for a range of service recommendations, including expansion of fixed-route and Dial-A-Ride service and the introduction of Rapid Ride corridors on Mooney Boulevard and Mineral King Avenue/Noble Avenue beginning in 2023. The plan assumes level operation of the Sequoia Shuttle through 2035 contingent upon continued funding support of the National Park Service. The new inter-city Visalia-to-Fresno shuttle service, V-LINE, began operating in November 2015. The Downtown Trolley is slated for free reduced fixed-route off-peak service beginning in 2019. Deviated-fixed route service with the Industrial Area Shuttle will be initiated in 2020. Vanpool subsidies to support passenger trips in Visalia has been initiated in 2016 in cooperation with CalVans. The Call Center is assumed to continue supporting the region through 2035. However, its continuation and level

of operation is contingent upon the availability of funds. Now-a-days, people are getting transit schedule information from internet; as such, call center funds are diminishing.

Funding for capital improvements is projected for diverse projects throughout the horizon of the plan. Vehicle replacement and expansions are projected to include buses for fixed-route and Dial-A-Ride services, the V-LINE and Industrial Area Shuttle. A separate table reflects Sequoia Shuttle fleet projections. Improvements to the main Downtown Intermodal Facility and expansion of the maintenance facility are recommended along with investment for up to seven new satellite transit centers.

Improved pedestrian access is proposed in smaller increments through 2026 at which time larger investments in pedestrian bridges and islands are implemented through 2035 complementing development of Rapid Ride corridors. ITS and traffic flow improvement projects further enhance Rapid Ride and other high-traffic corridors.

The long-term viability of operating a robust Sequoia Shuttle over the next 20 years will depend on cooperation of the National Park Service and Visalia Transit's ability to identify and maintain steady and reliable funding sources. This plan assumes continued operations through 2035 at the same level of service.

Overall, the plan identifies \$435 million for transit capital improvements and \$408 million in operating costs through 2035 for a total investment of \$843 million. Additional details about these costs are included in the following sections. With a forecasted 2040 population of about 271,375 residents for the Visalia Transit service area (230,136 for Visalia; 23,347 for Exeter; 14,613 for Farmersville; and 3,279 for Goshen), this translates to a 20-year total of about \$3,100 per resident, or about \$155 annually per capita. Not all of this would be funded locally.

7.2 Capital Costs

Recommended LRTP capital projects can be categorized as follows:

- Fleet Replacement and Expansion
 - Fixed Route
 - Fixed Route/Rapid Ride
 - Dial-A-Ride
 - Sequoia Shuttle
 - Visalia-Fresno Shuttle (V-LINE)
 - Industrial Area Shuttle
- Bus Stops and Amenities
 - Bus pads/curb cuts
 - Bus shelters
 - Benches

- Lighting
- Trash receptacles
- Signage/kiosks
- Transit Facilities
 - Transit centers
 - Visalia Transit Center upgrade
 - Transit operations and maintenance facility expansion
 - Electric buses recharging infrastructure
- Pedestrian Accessibility Improvements
 - Pedestrian bridges/islands
- Enhanced Transit Corridors
 - ITS/traffic flow improvements
 - Rapid Ride corridors

Table 7-1 exhibits the projected capital costs during the 20-year planning period.

Table 7-1 Projected Capital Costs

Proposed Strategy	Capital Costs (\$ million)				Total	Proportion
	2015-2020	2021-2025	2026-2030	2031-2035		
Vehicles ¹	\$24.6	\$42.6	\$96.0	\$106.3	\$269.5	61.9%
Transit Operations and Maintenance Facility	\$1.6	\$8.9	\$9.7	\$17.7	\$37.9	8.7%
Transit Centers	\$6.0	\$8.9	\$23.6	\$1.8	\$40.3	9.3%
Bus Stops	\$1.9	\$3.0	\$7.6	\$20.2	\$32.8	7.5%
Pedestrian Access	\$0.3	\$0.4	\$11.0	\$9.5	\$21.2	4.9%
ITS and Traffic	\$0.3	\$1.4	\$1.0	\$4.3	\$7.0	1.6%
Rapid Ride	-	\$12.6	\$14.1	\$0.1	\$26.7	6.1%
Total	\$34.6	\$77.9	\$163.1	\$160.0	\$435.4	100%
Proportion	7.9%	17.9%	37.4%	36.7%	100%	-

Notes:

¹Includes Sequoia Shuttle.

Assumes a 3 percent annual inflation rate.

The 20-year total projected capital costs would be about \$435 million for the Visalia Transit’s service area. Vehicles comprise about 62 percent of capital costs, transit centers and the transit operations and maintenance facility about 9 percent each, bus stops about 8 percent, pedestrian access 5 percent, ITS and traffic about 2 percent, and rapid ride about 6 percent. The actual schedule of costs will depend on the pace of implementing the service expansion plan. Most the existing fleet replacement and service expansion would occur in the later years; as such, most of the capital investments (about 75 percent) would occur after 2025.

The projected fleet replacement costs for the Sequoia Shuttle are summarized in **Table 7-2**. The current ratio of full-size buses (33 percent) and cut-away buses (67 percent) is assumed throughout the forecasted period.

Table 7-2 Sequoia Shuttle Capital Costs

Element	Capital Costs (\$ million)				Total
	2015-2020	2021-2025	2026-2030	2031-2035	
Peak Vehicles	22	22	22	22	-
Vehicle Replacements – Full-Size Bus ¹	0	3	6	0	9
Vehicle Replacements – Cut-Away Bus ¹	13	3	13	3	32
Total Replacements	13	6	19	3	41
Total Cost	\$1.8	\$3.1	\$8.7	\$0.7	\$14.3

Note:

¹Given seasonal usage, assumes useful life of 18 and 10 years for full-size and cut-away buses.

7.2.1 Fleet Investments

The LRTP will require 157 transit and 36 paratransit (including 16 Sequoia Shuttle) buses for 2035 peak service. An allowance of another 15% for spare vehicles would bring these totals to 193 transit buses and 23 paratransit vehicles, respectively. It is assumed that the initial cost of transit buses would be up to \$800,000 each and have useful lives of 12 years. Paratransit vehicles are estimated to cost \$120,000 - \$130,000 each and have useful lives of seven years.

Thus, the expansion of service and replacement vehicles would total 236 transit buses and 64 paratransit vehicles over the 20-year plan. The total cost for transit buses and paratransit vehicles is estimated to be \$270 million. If Visalia Transit transitions to electric battery buses or fuel cell buses to comply with the California Air Resources Board (CARB) Fleet Rule, these costs likely would be higher, by about 20-25 percent; however, these costs could lower with the technological improvements. The CARB Fleet Rule will likely require zero emission buses starting in 2018.

7.2.2 Transit Operations and Maintenance Facility Investments

Similarly, the cost to expand operations and maintenance facilities would depend somewhat on the types of buses purchased for the fleet. The investment would also depend on the viability of expanding the current facility site or the need to develop a satellite second site. A sum of \$38 million is projected for the operations and maintenance facility expansion. Some initial improvements (\$11 million) would occur by 2025, but the bulk of the investment (\$27 million) would be made in later years.

7.2.3 Transit Center Investments

The cost for transit centers could vary widely, depending on decisions to develop off street facilities. A sum of \$40 million is allocated for development of seven new transit centers and upgrading the current downtown transit center. The proposed transit center investment locations include:

- Visalia Transit Center
- SR-198 and Akers
- Akers Street and Riggin Avenue
- Akers Street (near El Diamante High School)
- Mooney Boulevard (near Caldwell Avenue)
- Dinuba Boulevard and Ferguson Avenue
- Goshen
- City of Exeter
- City of Farmersville

7.2.4 Bus Stop Investments

The expansion of service and the restructuring of service will require many new bus stops to complement current stops. Desirably these bus stops would conform with Visalia Transit's existing shelter standards to include concrete pads to minimize pavement damage. A sum of \$33 million is allocated for new bus stops.

7.2.5 Pedestrian Access Investments

A total of \$21 million is allocated for pedestrian access improvements to bus stops. Most of this cost (\$20 million) would be associated with the proposed pedestrian bridges connecting north and south sides of the SR-198 corridor. The remaining \$1 million would be for provision of refuge islands, safety enhancements and perhaps network linkage gap closures. These improvements will help the growing number of seniors in Visalia access and use the more cost effective fixed route transit services.

7.2.6 Traffic and ITS Investments

It is likely that Visalia's street network will be upgraded with ITS technologies to enhance traffic flow. An additional sum of \$7 million is allocated for transit-specific ITS improvements and possible new traffic signals near existing and proposed transit centers.

7.2.7 Rapid Ride Corridors

Rapid Ride enhancements for the Mooney Boulevard and Mineral King/Noble corridors are estimated to cost \$3 million per mile to implement. Each of these corridors is estimated to cost approximately \$13 million through 2035.

7.3 Operating Costs

Operating costs are projected through 2035 as shown in **Table 7-3**. Fixed-route services comprise 73 percent of operating costs, Dial-A-Ride 8 percent, Sequoia Shuttle 7 percent, V-LINE 5 percent, and the

Industrial Area Shuttle 2 percent. The Call Center is projected at 3 percent of total costs, while vanpool subsidies comprise 3 percent. As mentioned earlier, the continuation and the level of operation of the Call Center is contingent upon the availability of funds from various transit agencies using the Call Center.

Table 7-3 Summary of Total Operating Costs

Service	Cost (\$ million)	Proportion
Fixed-Route	\$302.0	73.9%
Dial-A-Ride	\$33.7	8.3%
Downtown Trolley	\$0.4	0.1%
Sequoia Shuttle	\$28.7	7.0%
V-LINE	\$12.4	3.0%
Industrial Area Shuttle	\$7.3	1.8%
Call Center ¹	\$12.6	3.1%
Vanpool Subsidies	\$11.3	2.8%
Total	\$408.4	100%

Note:

¹Subject to continued funding.

As shown on **Table 7-4**, total operating costs are estimated at \$408.4 million for the 20-year period rising from \$12 million in 2015 to \$51 million in 2035. Most of the costs would occur during the latter part of the 20-year plan period. Annual fixed-route costs would rise moderately through 2030 to \$19 million and rise significantly to \$42 million in 2035 with higher levels of service, including initiation of the Rapid Ride corridor service. Dial-A-Ride is projected to grow in response to steady demand with annual operating costs approaching \$3 million in 2035. The LRTP assumes an annual operating cost of \$84,000 for the Downtown Trolley through 2019 and reduced to an estimated \$50,000 when service is proposed to operate at a decreased level through 2035.

The Sequoia Shuttle has experienced rising demand over the past few years. The ability of Visalia Transit to meet this demand remains a challenge as historic funding for the Sequoia Shuttle diminishes. The LRTP therefore assumes sustaining the current level of service until new or expanded funding sources are identified in cooperation with the NPS to sustain services and allow for future growth.

The V-LINE currently operates with two peak buses. Fiscal year 2016 costs are estimated at \$90,000 with annual 2017 costs projected at \$185,000 due to anticipated doubling of service and growing to six peak buses at an annual cost of \$900,000 in 2035.

Table 7-4 Projected Operating Costs

Element	Year of Service				
	2015	2020	2025	2030	2035
Fixed-Route					
Weekly Riders	5,665	7,021	9,213	11,000	17,500
Peak Buses	26	33	41	93	140
Annual Vehicle Hours	113,680	135,500	148,500	184,500	353,400
Annual Cost (millions)	\$9.7	\$11.6	\$13.0	\$18.7	\$41.5
Dial-A-Ride					
Weekly Riders	130	150	200	300	350
Peak Buses	7	11	13	15	20
Annual Vehicle Hours	10,153	11,751	14,362	16,973	20,850
Annual Cost (millions)	\$0.9	\$1.2	\$1.6	\$2.2	\$3.1
Downtown Trolley					
Weekday Riders	22	20	20	20	20
Peak Buses	2	1	1	1	1
Annual Vehicle Hours	1,866	933	933	933	933
Annual Cost (millions)	\$0.1	\$0.0	\$0.1	\$0.1	\$0.1
Sequoia Shuttle					
Weekday Riders	3,727	3,913	4,109	4,314	4,530
Peak Buses	22	22	22	22	22
Annual Vehicle Hours	17,492	17,492	17,492	17,492	17,492
Annual Cost (millions)	\$1.7	\$1.9	\$2.0	\$2.3	\$2.5
V-LINE					
Weekday Riders	0	60	150	200	200
Peak Buses	0	2	4	5	6
Annual Vehicle Hours	0	4,000	8,000	10,000	12,000
Annual Cost (millions)	\$0.0	\$0.2	\$0.7	\$0.8	\$0.9
Industrial Area Shuttle					
Weekday Riders	0	100	150	200	200
Peak Buses	0	2	2	2	4
Annual Vehicle Hours	0	5,000	6,000	8,000	10,000
Annual Cost (millions)	\$0.0	\$0.3	\$0.4	\$0.5	\$1.2
Vanpool Subsidy					
Annual Cost (millions)	\$0.0	\$0.5	\$0.6	\$0.7	\$0.8
Call Center¹					
Annual Cost (millions)	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3
Summary					
Weekday Riders	8,725	10,259	12,641	14,628	21,178
Peak Buses	57	71	83	138	193
Annual Vehicle Hours	143,191	174,676	195,287	237,898	414,675
Annual Cost (millions)	\$12.4	\$16.0	\$18.8	\$25.8	\$50.8

Note:¹Subject to continued funding.

Assumes a 3 percent annual inflation rate.

Visalia Transit is collaborating with CalVans, a multi-county vanpool joint powers authority, and provide up to \$450,000 for vanpool subsidies beginning in fiscal year 2016/17. These subsidies are anticipated to help generate substantial ridership within the Visalia Urbanized Area and the region that will result in higher annual FTA 5307 apportionments. CalVans is a FTA reporting agency and reports its travel activity through transit agency service areas thereby generating additional funds for those agencies.

The Industrial Area Shuttle will be introduced in 2017 utilizing two to four peak buses through 2035. Projected annual operating costs for the Industrial Area Shuttle are \$390,000 in 2020 rising to \$1.2 million in 2035. The LRTP assumes Visalia Transit will continue operating the Call Center through the 20-year horizon. Total annual operating costs for the Call Center are expected to remain similar at \$300,000. However, as mentioned earlier, the continuation and the level of operation of the Call Center is contingent upon the availability of funds from various transit agencies using the Call Center.

7.4 Funding Challenges

The LRTP reflects the City of Visalia's commitment to invest in public transit to spur economic development, protect the environment, and improve the quality of life in the region. The goal of achieving a fully implemented unconstrained LRTP in the Visalia region will be a significant challenge without the infusion of increased transit revenues from existing and new funding sources. The current economic climate presents challenges in a very competitive transportation funding environment.

Traditional transportation funding will not be sustainable without alternative funding mechanisms. As an example of recent challenges at the federal level, the recent transportation bill, MAP-21 was enacted in 2012 as a two-year bill to October 2014. Congress then approved multiple extensions while struggling to develop a viable long-term strategy to fully fund highway and transit needs. On December 4, 2015, President Obama signed a new five-year \$305 billion transportation bill, the Fixing America's Surface Transportation Act or "FAST" without increasing transportation user fees. This bill authorizes \$48 billion for transit providing a more stable, long-term national transportation package.

Federal funding to meet growing transportation needs is threatened by declining gas tax revenues given the proliferation of fuel efficient and electric vehicles and a federal gas tax that has not been raised since 1993. The State of California suffers from this same phenomenon exacerbated by a backlog of highway repairs, deferred maintenance, and a rising number of licensed drivers.

The Congressional Budget Office projects a cumulative \$180 billion shortfall in the Highway Trust Fund in ten years. The trust fund dedicates fuel taxes collected to federal highway and transit projects. By 2025, the Budget Office projects the Trust Fund will spend \$22 billion more than is raised in revenue and interest. New transportation funding mechanisms at the national, State and local levels are being considered, including a vehicle-miles-traveled fee, sales tax, increased motor fuel taxes, public-private partnerships, freight fees, and tolls to ensure adequate future funding. Some plans also call for transferring taxing and spending powers for transportation to the States.

The federal and State transportation challenges heighten the importance of future public support to continue Tulare County's 2006 Measure R one-half cent sales tax beyond its thirty-year period. Voter approval to extend Measure R beyond 2037 would allow for continued expansion and enhancements to the City of Visalia's transit services and significantly improve the quality of the region's transportation network. Successful renewal of Measure R will require a collaborative approach with key stakeholders to ensure a cohesive and sustainable integrated transportation network.

The potential shortfall in future transportation revenues without renewal of Measure R points to the need for efficient and timely project implementation to maximize forecasted revenue and to be well positioned to receive and leverage potential future federal and State funds. Successful outcomes will ensure that the City preserves and maintains the transit system and supports the regional economy by connecting major employment centers and improving Tulare County's overall transportation system.

7.5 Sources of Funding

The City of Visalia and the region will need to ensure that there is sufficient fiscal capacity to make transportation investments over the next 20 years. Historical levels of funding can be viewed as a minimum level of investment for a sustainable transportation program but moves toward developing alternative means to fund transportation projects will become increasingly important to achieve broader goals.

Funding for transit is a dynamic process with policy changes that will no doubt impact traditional funding and introduce new funding mechanisms. This plan recognizes the need for sound and flexible fiscal planning that ensures the City is responsive to future funding opportunities.

A description of traditional federal, State, and local funding sources is provided below. This section also reviews alternative local funding mechanisms that may be considered.

7.5.1 Federal Funds

There are a variety of federal funding programs that the City taps into or may benefit from to support its current and future services. The FTA Sections 5307 and 5339 programs are formula based with funds managed directly by the City. FTA 5309 Very Small Starts and Congestion Mitigation and Air Quality (CMAQ) funds are awarded through a competitive process. The Federal Lands Transportation Program (FLTP) and Federal Lands Access Program (FLAP) programs⁵ are listed below for potential funding for the Sequoia Shuttle. (These programs were authorized under MAP-21 and replace the Transit in the Parks program.)

7.5.1.1 FTA Section 5307

FTA Section 5307 funds are available for planning, operating and capital purposes in urbanized areas. Most recently, MAP-21 consolidated the Job Access and Reverse Commute Program (JARC) into Section 5307 allowing for projects that provide transportation to jobs and employment opportunities for low-income individuals. Apportionments are based and on the level of transit service, population/population density and other factors. Federal funds cover 80 percent of planning, capital projects, and preventive maintenance, up to 50 percent for operating assistance (including JARC activities) and up to 90 percent for Americans with Disabilities Act (ADA) related projects.

MAP-21 expanded the eligibility for operating assistance for recipients operating 100 or fewer buses. Transit operators with 75 or fewer buses in fixed-route service during peak service hours may use up to 75 percent of their allocation for operating expenses. (Previously, only operators in urbanized areas with a population under 200,000 were eligible to receive funding for operating expenses.) The City currently relies on these funds and programs its federal projects in the TCAG Federal Transportation Improvement Program (FTIP).

⁵ These programs were authorized under MAP-21, and replace the Transit in the Parks program.

7.5.1.2 FTA Section 5309 Capital Investment Grant – Very Small Starts

The LRTP proposes the Mooney Boulevard and Mineral King Avenue/Noble Avenue corridors for Rapid Ride implementation. These corridors are long-range projects and would have to meet strict eligibility criteria. The FTA 5309 grant provides capital funds for major transit investment projects considered low-risk, cost less than \$50 million, and less than \$3 million per mile (excluding vehicles). In addition to the cost criteria, the project must be a bus, rail, or ferry project that contains the following features:

- Transit stations
- Signal priority/pre-emption (for Bus/LRT)
- Low floor/level boarding vehicles
- Special branding of service
- Frequent service (10-minute peak/15-minute off peak)
- Service offered at least 14 hours per day
- Existing corridor ridership exceeding 3,000/day

Very Small Starts projects meeting the above conditions and that have satisfied alternative analysis and project development requirements may be recommended for funding subject to availability. The proposed Rapid Ride corridors are not anticipated to meet the required minimum thresholds in the 20-year plan period without increases in ridership.

Visalia Transit key routes such as Route 1 (Mooney Boulevard) and the SR-198 corridor routes, (i.e., Route 15), currently transport 1,467 and 86 daily riders, respectively. The Mooney corridor route is projected to exceed 5,000 daily riders by the end of the plan while the SR-198 corridor routes are only projected to approach 1,500 daily riders by the end of the plan.

7.5.1.3 FTA Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities Program

The FTA 5310 Program provides grant funds for operating and capital expenses to eligible recipients for projects designed to meet the special transportation needs of seniors and individuals with disabilities when public transportation is insufficient, inappropriate, or unavailable. Other eligible projects are those that exceed ADA requirements; improve access to fixed-route service and reliance on complementary paratransit; and offer alternatives to public transit projects for seniors and individuals with disabilities. Under FTA Circular FTA C 9070.1G (June 2014), vehicle projects under the previous 5310 program are now referred to as Traditional 5310 Projects and comprise a minimum of 55 percent of available funding. Operating assistance and mobility management projects under the former New Freedom are referred to as Expanded 5310 Projects and comprise 45 percent of funding.

Under the new circular, Large UZAs or urbanized areas over 200,000 may be designated recipients of Section 5310 funds and will be responsible for overall administration of the project(s), including project selection and administration. Large UZAs also have the option of allowing Caltrans to be the designated recipient with program administration responsibilities. Projects are selected on a competitive basis.

There is an 80 percent matching requirement for eligible capital costs. The federal share of eligible operating costs may not exceed 50 percent of net operating expenses. Projects funded with Section

5310 funds must be included in a locally developed Coordinated Public Transit-Human Services Transportation Plan developed with participation of seniors, individuals with disabilities, public, private and non-profit transportation and human services providers, and other general public members. TCAG is responsible for developing this plan. Visalia Transit may consider utilizing FTA 5310 funds to help support the Green Line Call Center. The Tulare County region is expected to receive an estimated apportionment of \$150,000 per year.

7.5.1.4 FTA Section 5311(f) – Intercity

FTA Section 5311(f) provides funding for planning, marketing, operating and capital transit purposes to connect rural areas to urbanized areas. Operating assistance may be provided for service agreements, user-side subsidies, demonstration projects, and coordination of rural connections between small public transit operations and intercity bus carrier. Capital assistance may support vehicle and vehicle-related equipment purchases, including wheelchair lifts for intercity services. Visalia Transit uses \$200,000 per year in FTA 5311(f) funds to support the external Sequoia Shuttle. V-LINE buses also were purchased using \$300,000 in FTA 5311(f) funds.

Other eligible projects include improvements to existing intercity terminal facilities for rural passengers, modifications to transit facilities to promote shared use of operators, ITS technology for coordinated information and scheduling. Private companies also are eligible and encouraged to participate.

7.5.1.5 FTA Section 5339 – Bus and Facilities Program

This program was created under MAP-21 replacing the previous Section 5309 discretionary Bus and Bus Facilities Program. These are formula funds that may be used to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities, such as bus stop shelters and bus stop signs, and miscellaneous equipment (mobile radio units, supervisory vehicles, fareboxes, computers, and shop and garage equipment).

A portion of the funds are allocated to each State with the remaining balance distributed by formula to operators based on population, vehicle revenue miles, and passenger miles. Section 5339 funds are apportioned to the designated urbanized areas within Tulare County, including the Cities of Visalia and Tulare where funds are shared through an agreement between the two entities. To date, Visalia Transit has received a total of \$1.2 million in Section 5339 funds (FY2012/13 - \$142,857; FY2013/14 - \$311,816; FY2014/15 - \$361,415; and FY2015/16 - \$387,510) and anticipates using these funds for bus purchases.

7.5.1.6 CMAQ Program

CMAQ funds support transportation projects that contribute to attainment of the National Ambient Air Quality Standards in non-attainment areas to reduce ozone, PM-10, and their precursors. A variety of projects are eligible including construction of transit facilities, alternative-fuel facilities, alternative-fuel and zero-emission vehicles, or new services and programs that have positive air quality impacts. CMAQ will fund up to 88.53 percent of project costs with a local match requirement of 11.47 percent. TCAG receives an annual CMAQ apportionment and conducts a County-wide competitive process approximately every two years. These funds should be considered particularly to expand services and existing transit facilities and to develop new transit centers.

7.5.1.7 FLTP

This program funds transportation projects that improve access within the federal national forests, national parks, national wildlife refuges, national recreation areas, and other federal public lands owned and maintained by the federal government. Eligible activities under FLTP include program administration, transportation planning, research, preventive maintenance, engineering, rehabilitation, restoration, construction, and reconstruction of federal lands transportation facilities; operation and maintenance of transit facilities; and transportation projects that provide access to federal lands open to the public.

A total of \$335 million is authorized in fiscal year 2016 under the FAST Act. In accordance with the FAST Act, a majority (over 93 percent) of FLTP funds are designated for federal agencies. Passage of the FAST Act did not modify the FLTP eligibility criteria or features. The City could coordinate with the National Park Service and the U.S. Forest Service for potential funding opportunities to operate and maintain transit facilities for the Sequoia Shuttle. (The federal definition of a federal lands transportation facility (FLTF) is “a public highway, road bridge, trail or transit system that is located on, is adjacent to, or provides access to federal lands for which title and maintenance responsibility is vested in the federal government, and that appears on the national FLTF inventory.”)

7.5.1.8 FLAP

FLAP funds are similar to the FLTP eligibility requirements with the exception that funding is oriented towards access to federal lands that are on or adjacent to federal land. Operation and maintenance of transit facilities are eligible activities. For example, Mt. Hood Express in Sandy, Oregon was awarded \$250,000 per year for four years for service to ski areas in Clackamas County and the City of Sandy with an in-kind match of \$1.5 million.

The FAST Act authorizes a total of \$250 million in fiscal year 2016 and does not modify program eligibility criteria or features.

7.5.2 State Funds

7.5.2.1 Transportation Development Act (TDA)

The TDA of 1971 (SB 325) is administered by Caltrans through Regional Transportation Planning Agencies (RTPAs) and funds a variety of transportation projects including streets and roads, public transit, bicycle and pedestrian projects. The TDA is composed of Local Transportation Funds (LTF) and State Transit Assistance (STA) funds and has been a stable source of funding for the City’s transit services. TCAG is responsible for allocating LTF and STA funds in Tulare County.

LTF, established in 1972, is derived from one-quarter cent of the statewide general sales tax and distributed to counties based on population. The STA program, initiated in 1980, generates funds from the statewide sales tax on diesel fuel providing a stable source of transit funding. STA funds are allocated according to population and operator revenues for the prior fiscal year. Although the Legislature eliminated the gas tax during the economic crisis of 2009 resulting in a significant loss of transit funding, legislation was passed in 2010 to prevent this action in the future.

7.5.2.2 Proposition 1B – Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA) Program & California Office of Emergency Services Program (Cal OES)

PTMISEA Program was created in 2006 with the passage of Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act. The proposition authorized \$19.925 billion in general obligation bonds of which \$3.5 billion was directed to PTMISEA for transit purposes over ten years. These funds may be used for transit capital projects for rehabilitation, safety, or modernization improvement; capital service enhancement or expansion; new capital projects; bus rapid transit improvement; or rolling stock procurement, rehabilitation, expansion, or replacement.

Proposition 1B also authorized the Transit System Safety, Security and Disaster Response Account (TSSDRA) now referred to as the Cal OES program for allocation to eligible public transportation projects. A variety of transit projects may be funded but must demonstrate that they increase protection against a security and safety threat, such as surveillance cameras, bus stop shelters and lighting, and electronic fareboxes. There is no local match requirement for Cal OES or PTMISEA funds.

The City of Visalia to date has derived significant benefits from these programs with the expansion of the Transit Center and the Transit Operations and Maintenance facilities; and installation of bus stop improvements, replacement of fareboxes, the ITS project, and a back-up power generator. Bus purchases also are planned in the future.

7.5.2.3 Greenhouse Gas Reduction Fund (GGRF) - Low Carbon Transit Operations Program (LCTOP)

The LCTOP was initiated in FY2014-15 with the appropriation of \$25 million from Senate Bill 852. This program was created after many years of legislation focused on addressing climate change and reducing greenhouse gas emissions. The California Global Warming Solutions Act of 2006 (Assembly Bill 32), with a goal to reduce greenhouse gases to 1990 levels by 2020 and beyond, created the Cap-and Trade Program that generates proceeds through the sale of allowances. These proceeds are deposited in the GGRF, a portion of which can be purchased from the State. The Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375) directed Metropolitan Planning Organizations to develop a sustainable communities' strategy as part of their Regional Transportation Plan.

Further, Senate Bill 535 (2012) requires a portion of GGRF to be invested for the benefit of disadvantaged communities. The Transit, Affordable Housing, and Sustainable Communities Program established by Senate Bill 862 in 2014 created the LCTOP which is funded by the GGRF to support transit and greenhouse gas reductions. Senate Bill 862 appropriates five percent of the annual auction proceeds in the GGRF for LCTOP beginning in FY2015-16. LCTOP funds new or expanded bus or rail services, expand intermodal transit facilities, equipment acquisition, fueling, maintenance and other costs to operate those services or facilities with the goal of reducing greenhouse gas emissions. Funds are administered by Caltrans and distributed based on submittal of eligible projects through a formal application process.

Tulare County LCTOP funds are administered by TCAG. A total of \$167,017 was apportioned to Tulare County in FY2014/15. Given the relatively small amount of funds available for each agency the first year, funds were directed to the City of Visalia for a single project through an agreement to swap out LCTOP with another jurisdiction for other types of funds, such as TDA. The City is using its current LCTOP funds to help fund V-LINE operations.

7.5.2.4 Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP)

The California Energy Commission is responsible for the administration and implementation of the ARFVTP. This program was initiated in 2007 and creates an annual \$100 million public investment fund. These funds are used to promote development and deployment of advanced technology, low carbon fuels and vehicles that will help the state achieve its GHG reduction goals. Specifically, they are used to support projects that:

- Develop and improve alternative and renewable low-carbon fuels;
- Optimize alternative and renewable fuels for existing and developing engine technologies;
- Produce alternative and renewable low-carbon fuels in California;
- Decrease, on a full fuel cycle basis, the overall impact and carbon footprint of alternative and renewable fuels and increase sustainability;
- Expand fuel infrastructure, fueling stations, and equipment;
- Improve light-, medium-, and heavy-duty vehicle technologies;
- Retrofit medium- and heavy-duty on-road and non-road vehicle fleets;
- Expand infrastructure connected with existing fleets, public transit, and transportation corridors; and
- Establish workforce training programs, conduct public education and promotion, and create technology centers.

Supported alternative fuels include electricity, hydrogen, biofuels, natural gas, and renewable natural gas. ARFVTP supports deployment of the required fueling infrastructure as well as workforce training and development to prepare the next generation of mechanics and technicians.

The City can apply for these funds to develop and deploy alternative fuel transit vehicles and infrastructure.

7.5.3 Local Funds

7.5.3.1 Fare Revenue

Fares collected by the Visalia Transit help offset operating expenses. The City of Visalia is required to meet a minimum farebox recovery ratio (fares to operating costs) of 20 percent to comply with TDA regulations.

7.5.3.2 Measure R

Measure R is a 30-year, half-cent local sales tax approved by Tulare County voters in November 2006 to provide a dedicated local revenue stream to fund a variety of transportation projects in the region. Eligible projects include road widening, streets and roads renovation, new interchanges, traffic management, signalization, public transit, and bicycle and pedestrian facilities. Eligible transit projects must demonstrate an expansion of services and/or projects that attract new riders.

The program is projected to generate a total of \$653 million and is administered by TCAG. Program administration is guided by the Measure R Expenditure Plan and Annual Work Programs. Measure R funds are distributed by formula with 50 percent for regional projects, 35 percent for local projects, and 14 percent for public transit, bicycle and pedestrian facilities and environmental mitigation projects.

Measure R will not be renewed now, so another sales measure is required.

7.5.3.3 San Joaquin Valley Air Pollution Control District (SJVAPCD)

The SJVAPCD provides funds for qualifying transit projects that benefit the public that may help increase Visalia Transit ridership. The Public Transportation Subsidy and Park-and-Ride Lots Program offers pass subsidies to incentivize new public transit and rail riders. Transit agencies are eligible for up to \$30,000. Shuttle services may qualify for a maximum of \$6,000 in funds per shuttle operation with a monthly funding cap of \$500 per month. The minimum passenger requirement for shuttle operations is 20 people and must be sustained throughout the project. This program also funds park-and-ride lots up to \$150,000 to connect commuters to alternative transportation modes.

The Public Benefit Grant Program is composed of four sub-programs that provide funding based on availability of funds. Projects supported by these programs include light and medium-duty vehicles, enhanced transportation strategies (including large-scale mass transit and innovative technology such as bus rapid transit, electric transit buses, and traffic light synchronization, park-and-ride lots, and large-scale alternate commute strategies to reduce vehicle emissions). The Air District will fund up to \$3 million per project and \$3 million per entity with projects meeting a minimum of \$40,000 per ton in emissions reduction.

A summary of the traditional transit funding sources is provided in **Table 7-5**.

7.5.4 Other Funding Mechanisms

The lingering effects of the economic downturn and a slow recovery are driving federal, State and local policymakers to consider new strategies to pay for transportation projects and infrastructure. There also is a growing movement among States to generate needed revenue dedicated to infrastructure spending rather than rely on uncertain federal funds.

Several funding mechanisms may be considered to raise revenue. While the list is not exhaustive, it reflects various State and local options. They include:

- Gas tax increase
- Road user fees
- Bond financing
- Congestion pricing
- Sales tax measures
- Transit impact fee
- Assessment districts

Table 7-5 Summary of Traditional Transit Funding Sources

Funding Source	Planning Elements							
	Operating	Vehicles	Maintenance Depot	Transit Centers	Bus Stops	Pedestrian Access	ITS and Traffic	Rapid Ride
Federal								
FTA Section 5307	✓	✓	✓	✓	✓	✓	✓	✓
FTA Section 5309 Very Small Starts		✓			✓		✓	✓
FTA Section 5310	✓	✓	✓	✓	✓	✓	✓	✓
FTA Section 5311(f)	✓	✓	✓	✓	✓	✓	✓	✓
FTA Section 5339		✓	✓	✓	✓	✓	✓	✓
Congestion Mitigation and Air Quality (CMAQ)	✓	✓	✓	✓	✓	✓	✓	✓
State								
Local Transportation Fund (LTF)	✓	✓	✓	✓	✓	✓	✓	✓
Station Transit Assistance (STA)	✓	✓	✓	✓	✓	✓	✓	✓
Cap and Trade	✓	✓	✓	✓	✓	✓	✓	✓
Proposition 1B – PTMISEA		✓	✓	✓	✓	✓	✓	✓
Proposition 1B – Cal OES ¹		✓	✓	✓	✓	✓	✓	✓
ARFVTP		✓	✓					✓
Local								
Fares	✓	✓	✓	✓	✓	✓	✓	✓
Local Sales Tax – Measure R	✓	✓	✓	✓	✓	✓	✓	✓
San Joaquin Valley Air Pollution District (SJVAPCD)	✓							

- Tax increment financing
- Public private partnerships
- Private contributions

Table 7-6 compares potential local funding options.

Table 7-6 Local Transit Funding Mechanisms

Funding Type	Assessment	Frequency of Charge	Charged	Use of Funds	Where Commonly Used
Sales Tax Measures	Sales tax	Ongoing	Consumers	Capital operating	Areas with traffic congestion
Transit Impact Fees	Varies (i.e., per square footage, per parcel, etc.)	One-time	Developers	Capital operating	High transit use areas/corridors
Benefit Assessment Districts	Varies (i.e., per square footage, per parcel, etc.)	Ongoing	Users	Capital operating	Commercial urban areas
Infrastructure Financing Districts	Property tax	Ongoing	Local governments/ Property owners	Capital	Improvement districts
Public-Private Partnerships	Contribution/ Donation	Ongoing/ One-time	Public-private partners	Capital operating	Infrastructure projects

7.5.4.1 Sales Tax Measures

Increasing the sales tax through local ballot measures is a commonly used mechanism to generate funds to build infrastructure. Currently, 19 county transportation agencies comprise the Self-Help Counties Coalition in California. Voter-approved transportation sales tax measures in these counties are estimated to generate \$3 to \$4 billion annually into California's transportation infrastructure for transit, highway, freight, bicycle, pedestrian, and other programs.

Tulare County's Measure T, approved by voters in 2006, is a 30-year half-cent sales tax that funds transportation capital and operating transit improvements throughout the County. The Measure is expected to generate a total of \$652 million. Half the funds are allocated for regional projects, 35 percent for local programs ranging from road rehabilitation to freeway interchange improvements, 14 percent for transit, bicycle, pedestrian, and environmental projects, and 1 percent to program implementation activities.

7.5.4.2 Transit Impact Fee

This funding mechanism, also referred to as a transit impact development fee (TIF), is a fee charged to developers to fund transit services needed to offset traffic impacts of their projects. Fees are typically based on a per square foot fee on developments and can vary depending on the type of land use. These

fees can also be indexed to inflation to ensure they are reflective of prevailing costs. Some jurisdictions provide fee reductions or waivers to developers to encourage transit-oriented development (TOD) in an effort to create jobs and promote a vibrant economic. A development within Visalia Transit's current service coverage likely will not add to operating and capital costs, but a development outside of the current coverage would add to those costs and those developments should likely bear the added transit costs themselves.

7.5.4.3 Benefit Assessment Districts

Benefit assessments have been commonly used to generate local revenues to pay for public improvements, such as parking, streets, sidewalks, curbs and gutters, streets lights, drainage and flood control facilities, etc. This approach ties the cost of the public improvement to landowners who will benefit from them. The assessment on a property is typically related to the amount of benefit the property receives and may be based on a set amount per parcel or on square footage. Assessments are collected through property tax bills.

7.5.4.4 Infrastructure Financing Districts (IFDs)

In September 2014, legislation was approved in California to expand the IFD funding mechanism and allow for some of the functions of the now discontinued local redevelopment agencies. SB 628 authorizes the creation of Enhanced IFDs to issue bonds to fund capital improvement projects and others of benefit to the community. Enhanced IFDs may include any portion of a former redevelopment project area. This approach allows tax-increment financing that uses future gains in taxes to generate funds to finance infrastructure improvements. The philosophy is that the infrastructure improvement will increase surrounding real estate values and generate additional tax revenue. Tax increment financing can be used to finance many types of projects, including transit priority projects (located within one-half mile of a transit station, with specified density and project amenities), parks, recreational facilities, open space, etc. A 55 percent affirmative voter approval is required for the issuance of Enhanced IFD bonds.

7.5.4.5 Public-Private Partnerships (PPPs)

The use of PPPs to fund public projects is a tool that enables transit agencies to collaborate with private entities to jointly fund projects that increase transit service. MAP-21 specifically supports PPPs to encourage development and revitalization of public transportation and cooperation between public transit and private companies. The PPP contractual arrangement may include design, build, financing, operating and maintenance of transit facilities or entire transit corridors for a transit agency and apportions the costs, benefits, risks and benefits among partners.

Section 8

Transit Supportive Policy Element

Even with major new investment in transit, the LRTP Service Plan is falling short of achieving the target 5 percent transit capture of all person trips. To maximize the new investment in transit and achieve the target 5 percent capture, supporting policies will be required regarding land use, transit access, and demand management.

Visalia is projected to undergo a substantial change in the coming 20 years in its size as well as activity features. This change presents challenges as well as opportunities for transit. In addition to the amount and design of transit service investments, there are important strategies available to make the market for transit stronger and easier to serve effectively. These strategies are consistent with the City's recent General Plan Update as well as Tulare County's RTP/SCS updates. These strategies include:

- Land use policy elements,
- Access policy elements, and
- Travel demand management policy elements.

8.1 Land use Elements

The recent General Plan Update describes Visalia's vision for growth – amount of growth, distribution of growth by land use type, and livability goals. This vision was the result of extensive public input and balances a wide array of complex and sometimes conflicting values. It is recognized that the General Plan Update considered many more issues than transit ridership to enhance livability in the City. The following discussion of land use is intended to help refine future elements of the General Plan and to inform implementation decisions. From a transit perspective, the most efficient and easiest land use pattern to serve would be:

- A high density walkable compact areas (i.e., downtown),
- A network of compact nodes/hubs or village centers, or
- A set of high density linear corridors.

To the extent that new growth can be oriented to one or more of these transit-friendly distribution patterns, the more successful transit will be towards meeting its future desired role. The Visalia General Plan Update lists six key ideas to provide a framework for future land use, all of which are consistent with a transit-friendly marketplace. One of the key ideas describes balanced growth as⁶:

⁶ Source: Visalia General Plan Update, March 2014, Page 1-11.

“Emphasize concentric development and infill opportunities to strengthen downtown, revitalize existing commercial centers and corridors and fill in gaps in the city fabric, balanced outward expansion and protection of agricultural lands.”

Development density maximums are defined for residential and non-residential uses in the Visalia General Plan Update. Four categories of residential density are included with the Very Low Density Residential category (0.1 to 2 dwelling units per acre) the only of the four categories not sufficient to support bus service. Medium and High Density Residential categories with a density of 10 dwelling units or more per acre are sufficient to support bus services, while the last category of 2 to 10 dwelling units per acre (Low Density Residential) is marginally supportive of public transit. Typically, 4 dwelling units per acre is the minimum density that can support regular bus service. Currently, less than five percent of residential development acreage within the City limits is of medium or high density.

For non-residential uses, the General Plan’s maximum floor area ratios⁷ (FARs) are generally set at about 0.5. Thus, the total floor area (including that of upper floors) can only occupy about one half of the total site area. Most of the non-floor space area is available for surface parking lots. Higher FARs would be desirable in primary transit corridors.

The desired 2030 land use pattern for the City is shown in **Figure 1-4** (Section 1), while the three-tier expansion strategy for new growth described in the General Plan Update is illustrated in **Figure 1-5** (Section 1). The first tier (Tier I) which represents the Urban Development Boundary I comprises about half of the potentially developable land under the plan and is projected to hold a population of 160,000. The second tier (Tier II) representing the Urban Development Boundary II comprises about 28,000 acres and could support a population of about 178,000, while the third tier (Tier III) which represents the Urban Growth Boundary III encompasses about 33,000 acres and could hold a population of 210,000 (forecast 2030 buildout population). Between 2030 and the LRTP horizon year additional population growth would occur.

Visalia’s population density under existing, 2030 Tier I, 2030 Tier II, and 2030 Tier III conditions are summarized in **Table 8-1**. Current land uses used for these calculations include substantial agricultural areas, which reduces its overall population densities. Tier II and III growth areas would be lower than Tier I population densities.

Table 8-1 Population Density in Visalia

Scenario	Anticipated Growth		Total		
	Population	Acreage	Population	Acreage	Population Density (per acre)
Existing City Limits	-	-	124,500	19,000	6.6
2030 Tier I	35,500	0	160,000	19,000	8.4
2030 Tier II	53,500	9,000	178,000	28,000	6.4
2030 Tier III	85,500	13,500	210,000	32,500	6.5

Source: Visalia General Plan Update, 2014.

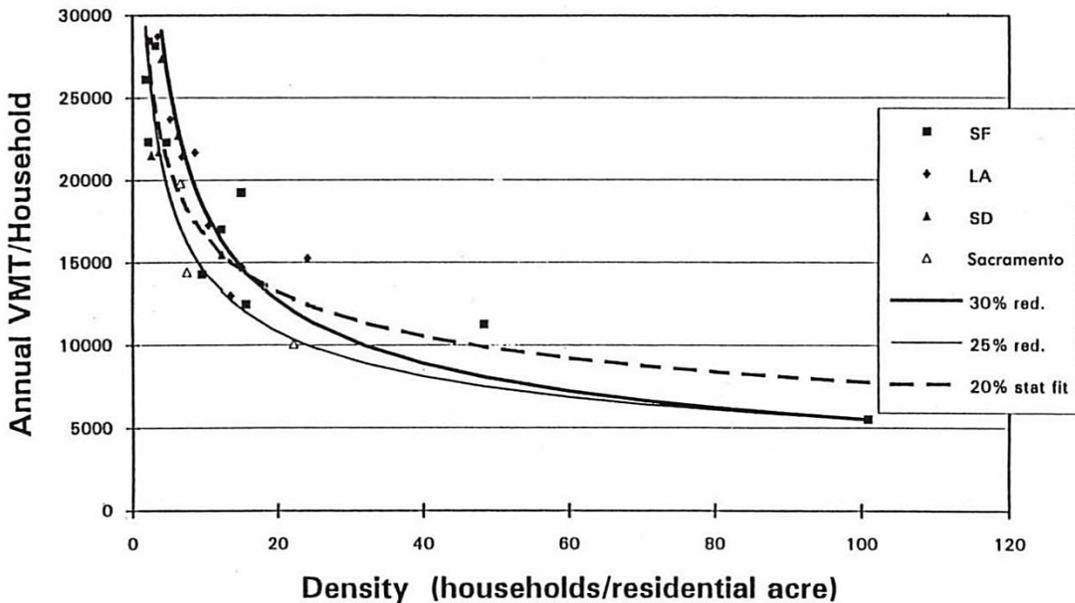
⁷ Floor area ratio is the total square feet of a building divided by the total square feet of the building lot.

Currently, the City limits encompass about 19,000 acres and hold a population of about 125,000, and the predominant land use is Low Density Residential (2 to 7 du per acre). The Visalia General Plan Update provides incentives for infill development in the form of increased densities and reduced off-street parking requirements. About 10 percent of the current acreage inside the City limits is now vacant. Current and future development is most concentrated in the downtown area, and along Mooney Boulevard and SR-198 corridors.

The public often is disdainful of higher density, but they tend to favor walkable communities. Higher density communities tend to be more walkable as densities favor shorter walking trips. Attractive medium density townhouse housing can be a “good neighbor” if properly designed appealing to middle income as well as lower income residents. Increasing the maximum FAR from 0.6 to 0.8 for retail commercial uses and from 1.0 to 1.5 for office uses would help reduce land consumed for these uses by 25 percent for retail and 33 percent for office. For residential uses, increasing densities by 25 percent would reduce the land needed for residential uses by 25 percent and the area needing transit services by about 10 percent. As noted, the design of higher densities land uses should include features to improve walkability. Current plans envision slightly higher residential densities for new development, which will primarily occur on the fringes of current development. From a transit perspective, it would be better if the higher density developments occurred within the inner parts of the City. California Environmental Quality Act (CEQA) analysis is now shifting to VMT rather than traffic delay (Level of Service) and densely developed areas closer to the downtown core tend to have the least VMT impacts.

It is very well established that increased development densities can help to reduce VMT and GHG emissions. By placing developments near each other, trip lengths are reduced. Also, an increased number of trips can be made by walking, biking, and using public transit, thereby reducing dependence on private car use. This is particularly true if development includes a mix of land use types (residential, retail, etc.). **Figure 8-1** illustrates the relationship between housing density and VMT per household.

Figure 8-1 Vehicle Miles Travelled vs. Housing Density in California



Source: Using Residential Patterns and Transit to Decrease Auto Dependence and Costs, J. Holtzclaw, (US) Natural Resource Defense Council, 1994.

Benefits associated with low VMT are experienced when household densities are less than 40 units per acre. VMT reduces by about 40 percent when the household density increases from 4 units per acre to

10 units per acre, and reduces by about 55 percent when the household density further increases to 20 units per acre. Simplistically, the same VMT would result from a development of 33,000 homes at 10 units per acre as would result from only 20,000 homes at four units per acre. These are huge VMT reductions. Because of the way travel demand models typically distribute trips during the forecasting process, full benefits of high density are rarely defined accurately.

Density is also important to the efficiency of public transit services. For example, if all the future growth planned for Visalia were in the area already served by bus services, theoretically no additional investment would be needed for increased transit services. Sprawl development outside of current bus service would require the addition of new routes or the restructuring of current routes all of which would add costs. Development growth on the outer edges of current development also starts to raise the need for express or limited stop transit services.

The City and County should also relook at their FAR requirements. Desirably, structured parking should not be included in the calculation of FAR and FARs should be increased.

Zoning ordinances define maximum densities and allow lower densities to be constructed. Along primary transit corridors it would be better if minimum, and not maximum, densities were specified.

Downtown – Most successful public transit systems serve communities with vibrant downtowns. Visalia’s current downtown is envied by most cities in the Central Valley. It has vibrant retail, as well as significant government and healthcare employment. The downtown core has relatively little housing and significant opportunities to intensify development densities and for infill development. The TCAG Travel Demand Model however reflects relatively less future development in the downtown core, despite Kaweah Delta Medical Center’s expansion plans. Increased efforts to emphasize growth in the walkable downtown area would benefit public transit and overall goals of the City’s General Plan and the County’s SCS.

Compact Nodes (Village Centers) and Corridors – Transit systems best serve compact development nodes that have walkable features. The linear nature of public transit also benefits from origins and destinations that are configured in a pattern that allows for simple and efficient route designs. Sometime transit planning is referred to as connecting the dots (major origin and destination points) or a “string of pearls” network design. In addition to the downtown, Visalia currently has two major development corridors along Mooney Boulevard and along State Route 198 (SR-198). The latter corridor, which includes the Mineral King/Noble one-way couplet, is divided by the freeway. Dinuba Boulevard and Ben Maddox Way are also important corridors north of SR-198.

The General Plan Update identifies growth patterns (higher densities and mixed use) along Riggan Avenue, Caldwell Avenue, and Lovers Lane that would be conducive to transit (if they are designed to be walkable). Emphasis on development (maximum residential densities and FARs) along with walkable design features would help support public transit. For new development areas, short block lengths should be required to enhance walkability. Consideration of treating development along these corridors with parking reduction and infill density type bonuses is one possible strategy. Where possible, car land uses (gas stations and repair shops) should be discouraged along these primary transit corridors. Infill of the Mooney Boulevard corridor located between the COS and the Visalia Mall would also help strengthen this key transit corridor.

The LRTP should formalize the identification of primary transit corridors as refinements to the General Plan. The General Plan Update currently identifies Mooney Boulevard and Goshen Avenue as potential

primary transit corridors. Mooney Boulevard, Main Street/Center Street, Noble Avenue/ Mineral King Avenue, and Dinuba Boulevard are suggested as additional primary transit corridors.

Development Mix – Increasing evidence indicates that mixing land uses not only helps to reduce vehicle travel, but also adds to the quality of life. By mixing land uses, people have a greater opportunity to make short distance trips that can be more easily made without a private automobile. The auto-based trips are also shorter there by reducing congestion and GHG emissions.

Growth Phasing – Desirably, bus routes should not undergo constant change. The schedule coordinated pulsing of buses downtown and the desire to efficiently schedule buses does not lend transit routes to piecemeal additions of a half mile of new service. To the extent possible, expansion of the transit service area to serve new developments should be coordinated by expanding in one sector or direction before moving on to development in other areas. This phasing coordination could be accomplished along with extension of sewer and other utilities as well as schools and public service expansions. To the extent possible more growth should be focused on areas currently served by transit or within the Tier 1 growth area. The General Plan proposes balance growth in all directions, which complicates provision of public transit expansion as well as other infrastructure investments. TCAG's traffic model is showing growth north of St John's River by 3024. This growth will be difficult to efficiently serve with transit. It is not within the city limits, but pressure for transit and other services will certainly arise if it develops.

8.2 Access Elements

The decision to use public transit is not narrowly focused on the transit service itself. Patrons consider the entire door-to-door features of the trip including getting to and from the bus stop. Efforts are therefore very important to provide walkable communities and accessible site designs. Attention to crossing major streets and intersections is also important as is the experience at the bus stop. Most of Visalia is walkable, but security/noise buffer walls are common and tend to make direct walk access to bus stops difficult. With respect to walkability of neighborhoods, it is important to recognize that pedestrians think on a different scale than auto drivers. It would take a pedestrian four minutes to walk out of direction 400 feet versus only 20 seconds for a car driver. Pedestrians also must deal with weather, security, and traffic safety issues meaning out of direction travel for pedestrians should not be assumed in development planning.

Measures to provide/improve direct, convenient, and safe pedestrian as well as bicycle access, often overlooked, can substantially reduce car travel. Most bus patrons are willing to walk one-quarter mile to a bus route. The percentage of patrons willing to walk to bus routes decreases after the one-quarter mile catchment area. Many areas are however limited by walk barriers like major highways (SR-198), drainage channels, and development buffer walls and by the discontinuous pattern of local streets within developments. Providing direct pedestrian connections and enhancing these connections helps to increase the threshold walking distances for transit patrons and benefits pedestrians as well as bicyclists. Opportunities to improve the pedestrian connections should be actively pursued. Prohibition of development buffer walls and gated communities should also be implemented.

Development review should include directness, quality and safety of walking paths to bus stops and major pedestrian destinations as well as traffic convenience.

8.3 Travel Demand Management Elements

Over provision of free parking tends to make driving an attractive option versus paying a fare to use transit. Motorists park free, while transit patrons pay \$1.50 each way. Most cars also tend to need two or more spaces to park with a space to park at home that is not used midday and they have a space at work/school/shopping that is not used overnight. As provision of a parking space typically costs nearly \$500 annually and most cars occupy more than one space, each car is subsidized about \$4 daily for the free parking. Most developments also tend to have more parking than they require further wasting land resources. It would be difficult to begin charging for parking, but it would seem doable to reduce the land consumed by parking and make it a little less convenient for motorists to park free. Reducing parking requirements would make the City more walkable and lessen the need to expand into agricultural lands.

It is widely understood that parking policies have a major impact on private car usage and VMT. It is also generally agreed that most policies for off-street parking are overly generous, encouraging car use; wasting land resources; and complicating walking, biking, and transit use. Policies for off-street parking should be reviewed and updated for inclusion in future Tulare County's SCS. A simple example of the waste of land involved in parking provided for an office is that a 20,000 gross square feet (gsf) two-story office building would require about 24,000 square feet of land for surface parking compared to just 10,000 square feet for the office building. Thus, the off-street parking uses about 70 percent of the site area.

In addition to the amount of off-street parking provided, parking pricing and design also affect VMT. To provide a typical surface parking space, it costs about \$400 to \$600 annually, including annualized capital costs and annual maintenance costs. If long-term parkers are charged the \$2 daily fee to cover the cost of providing this parking, demand would substantially decrease.

Consider, for example, the reductions in parking demand, VMT, and GHG emissions that might accrue if students were charged to park at high schools. Additionally, some school academic facilities could be expanded on existing campuses minimizing the need to construct new campus sites. Some school districts even restrict eligibility to park to those living more than one mile from campus, encouraging nearby students to walk and bike.

There are many underutilized surface parking lots in Visalia and Tulare County. Property owners should be encouraged to redevelop these lots or portions of them for additional residential and commercial purposes. Allowing them to sit underutilized has a blighting influence on corridors.

These are merely examples of how parking policies could strengthen Tulare County's SCS and help promote public transit, walk, and bicycle modes of travel. For some unknown reasons, parking policies are rarely considered in multimodal transportation planning and travel demand forecasting. Clearly, modification of parking policies provides substantial opportunities to reduce GHG emissions and they should be a complement to SCS measures as a minimum.

Both the City's General Plan and County's RTP/SCS envision less dependence on cars for travel, with greater emphasis on transit, bicycling, and walking. Less dependence on cars should translate into less demand for off-street parking. Reducing off-street parking requirements for non-residential developments should enhance walkability and consume less land for development. For example, reducing the off-street parking requirement for shopping uses from 5 spaces per 1,000 gross square

feet of retail to 4 spaces would consume one acre less site area than 5-space requirement for a 100,000-square-foot shopping center. It would allow for either additional retail development on the site or addition of some residential uses. For example, if retail with excessive parking along Mooney Boulevard could be encouraged to develop some of their unused parking lots.

Another example of how parking policies could be used to favor transit, walking, and bicycling would be to reduce free parking at Visalia's high schools. The land saved could be used for classrooms and help reduce the need to construct on new school sites.

Recently, the American Automobile Association (AAA) reported⁸ that the full cost of owning a car averages about \$8,900 annually, including \$3,510 for depreciation, \$2,855 for fuel/maintenance, \$847 for finance charges, \$641 for license/registration/taxes, and \$1,023 for insurance. Older cars (more than five years) and second cars might reduce this annual cost to \$6,500 or less. These are after taxes costs to Visalia households. Few car owners fully appreciate these costs. Trimming household number of second and third cars to reduce ownership by 5,000 cars would therefore save Visalia residents \$32.5 million annually.

Traffic Quality – Most cities and counties nationwide establish minimum traffic levels of service to ensure unimpeded traffic flow. While smooth moving traffic carries with it some GHG reduction benefits, it also tends to encourage private car use and longer distance trips, both of which conflict with GHG emission reduction goals. Some cities have moved away from minimum LOS requirements and others have adopted a more multimodal definition for LOS. These nuances are not generally reflected in normal traffic modeling. Visalia should review its current CEQA and General Plan thresholds for acceptable traffic to ensure that they are consistent with SB-375 and General Plan livability goals.

School Transportation Policy – Students are captive clients with little choice of alternative destinations. Thus, travel demand management policies can be effectively applied to students. For reducing private car use, high school students are the prime targets. Alternative transportation programs for middle school and elementary school students are also available. Middle school students typically are independent enough to use public transit. Partnership programs with schools for fare discounts similar to the successful COS program should be explored.

EcoPass Program – Opportunities to establish employer partnership discount fare programs should be explored with the City, Tulare county, and Kaweah Delta Medical Center.

⁸ Source: <http://publicaffairsresources.aaa.biz/wp-content/uploads/2014/05/Your-Driving-Costs-2014.pdf>

Appendix A

Exeter and Farmersville Land Use Maps

Figure B-1 Exeter Land Use Map

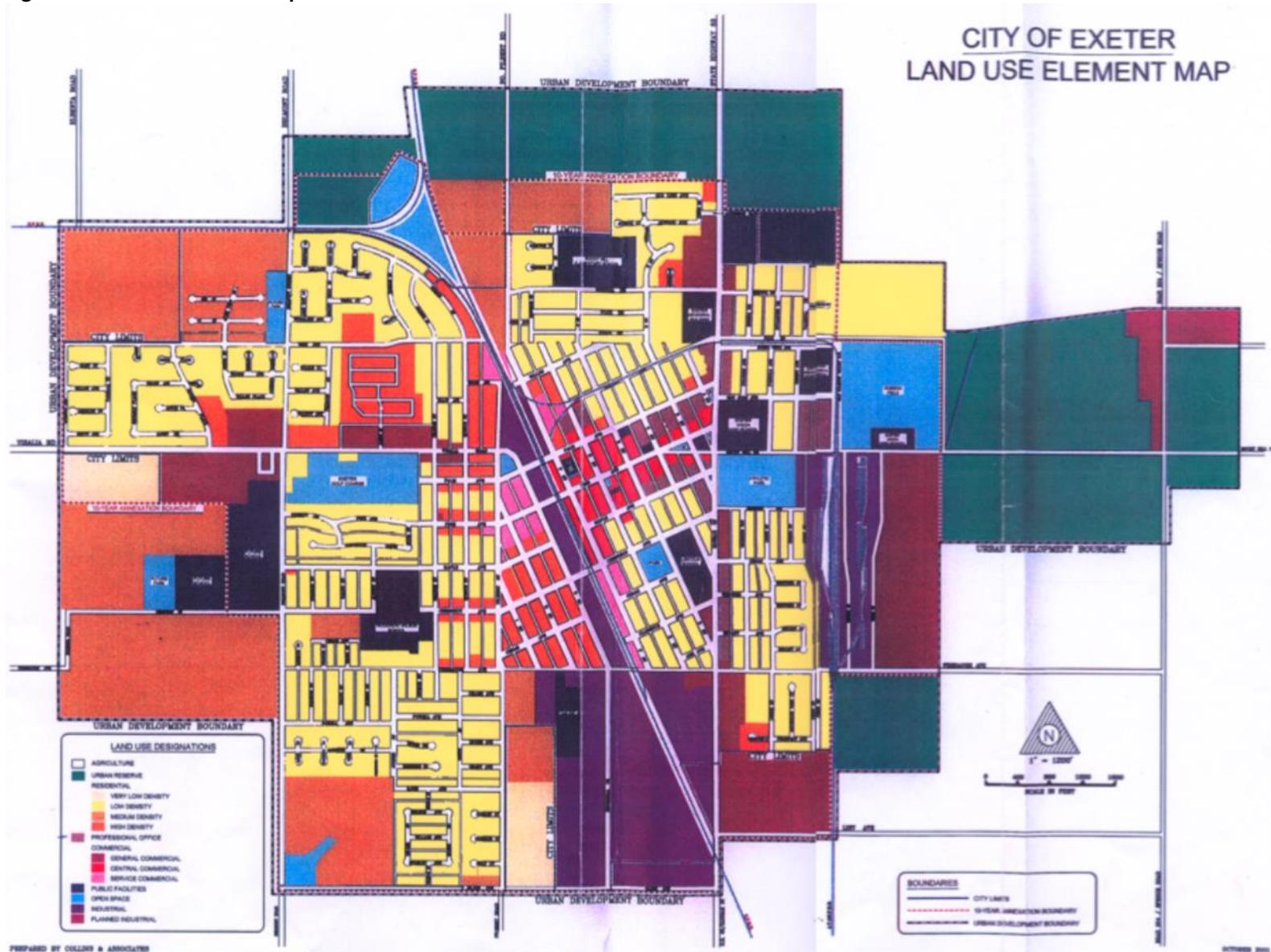
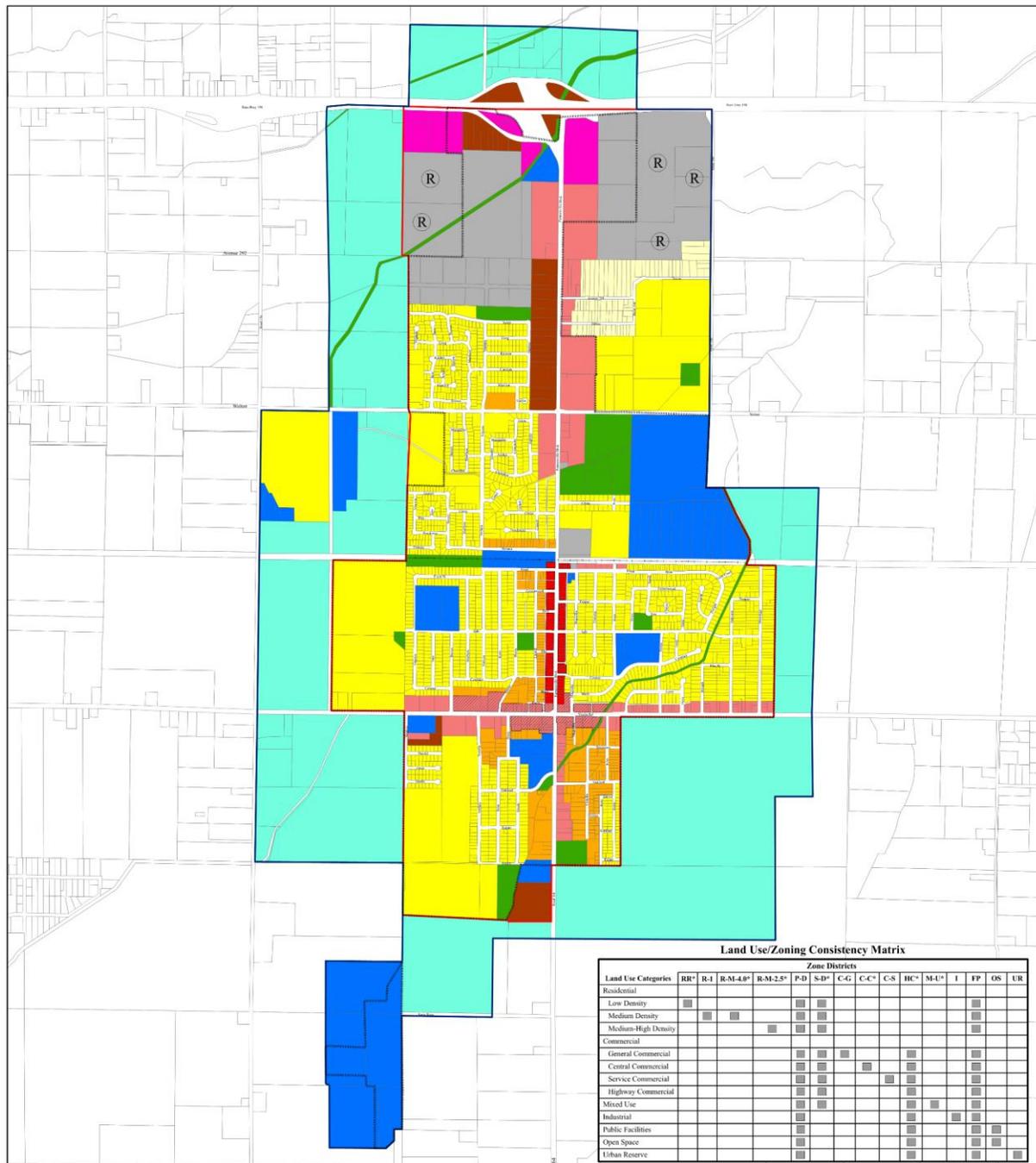


Figure B-2 Farmersville Land Use Map



Legend

- Road 156
- Streets
- Railroad
- City Limits
- Urban Development Boundary
- Urban Area Boundary
- Parcels
- Low Density Residential
- Medium Density Residential
- Medium-High Density Residential
- General Commercial
- Central Commercial
- Highway Commercial
- Service Commercial
- Industrial
- Public Facilities
- Open Space
- Agricultural/Urban Reserve
- Mixed Use Overlay
- Right-Of-Way
- Reserve

CITY OF FARMERSVILLE

Collins & Sublette
PLANNING CONSULTANTS
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Appendix B

TCAG Model Forecasts

This appendix discusses about the forecasts obtained from the TCAG Model regarding the households with no cars and trip ends.

Households with No Cars

For transit planning purposes, it is important to identify the locations of areas where more number of households have no personal vehicles for transportation, since these areas usually have high transit demand. The locations of such areas under existing and 2040 conditions within the Visalia Transit's service area are shown in **Figures B-1** and **B-2**.

In general, the majority of the households with no vehicles are expected to be located in the following areas:

- Areas located near the junction of Caldwell Avenue and Lovers Lane;
- Area located near Visalia's eastern city limits and bordered by Lovers Lane, SR-198, and Road 148;
- Areas located near Visalia's northern city limits and bordered by Riggin Avenue and Avenue 320;
- Areas along Dinuba Boulevard located west of Visalia Downtown;
- Areas located in the southwest quadrant of Visalia;
- Areas located near the junction of SR-198 and Shirk Road;
- Goshen and portions of Visalia located near Goshen;
- Areas located west of Tulare Downtown;
- Areas located on the outskirts of Farmersville; and
- Areas located near the northern and western city limits of Exeter.

Since the above areas are expected to have a high transit demand, it will be beneficial if these areas are served by Visalia Transit.

Figure C-1 Distribution of Single-Family Homes with No Vehicles – Visalia Transit Service Area

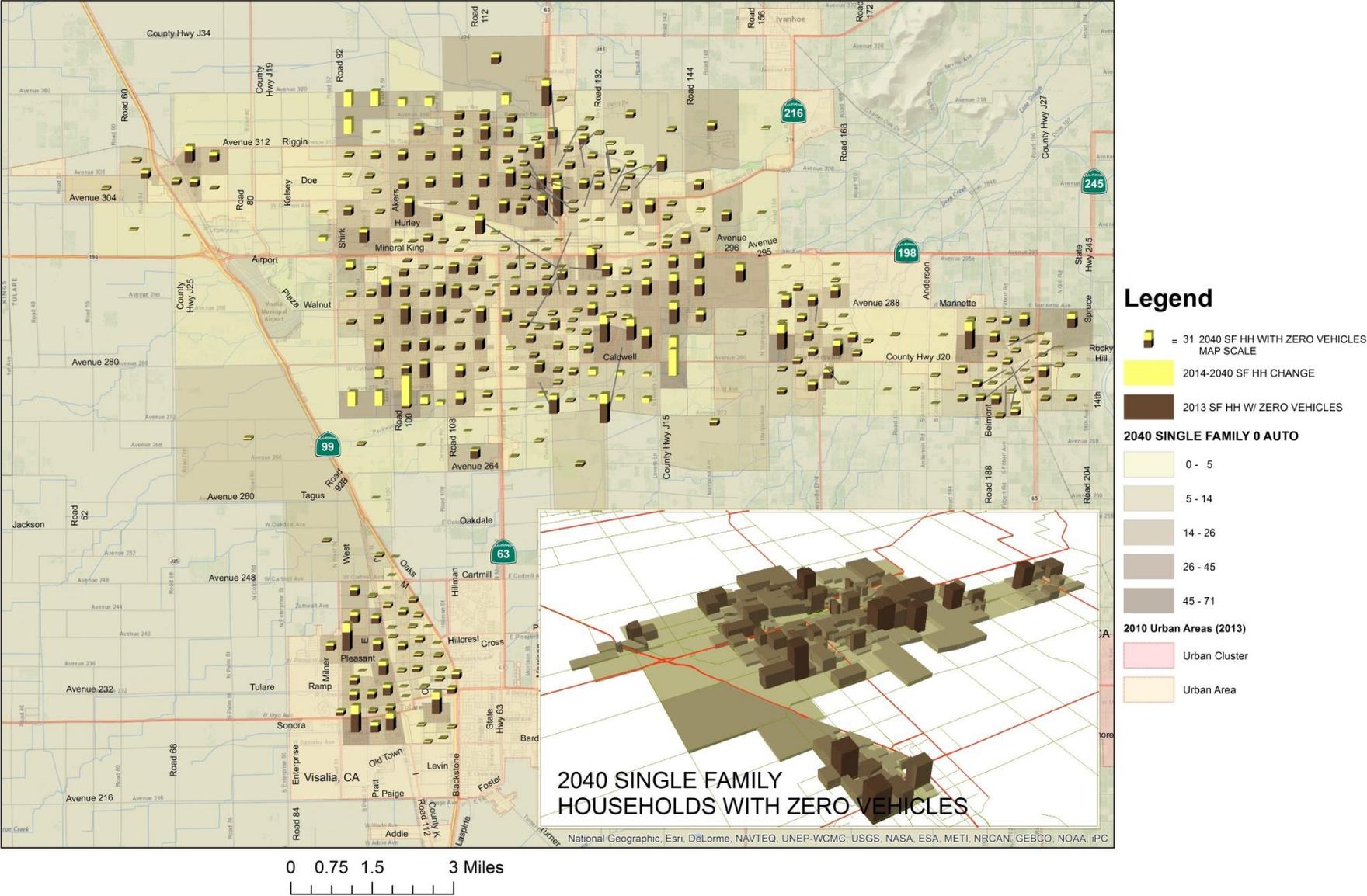
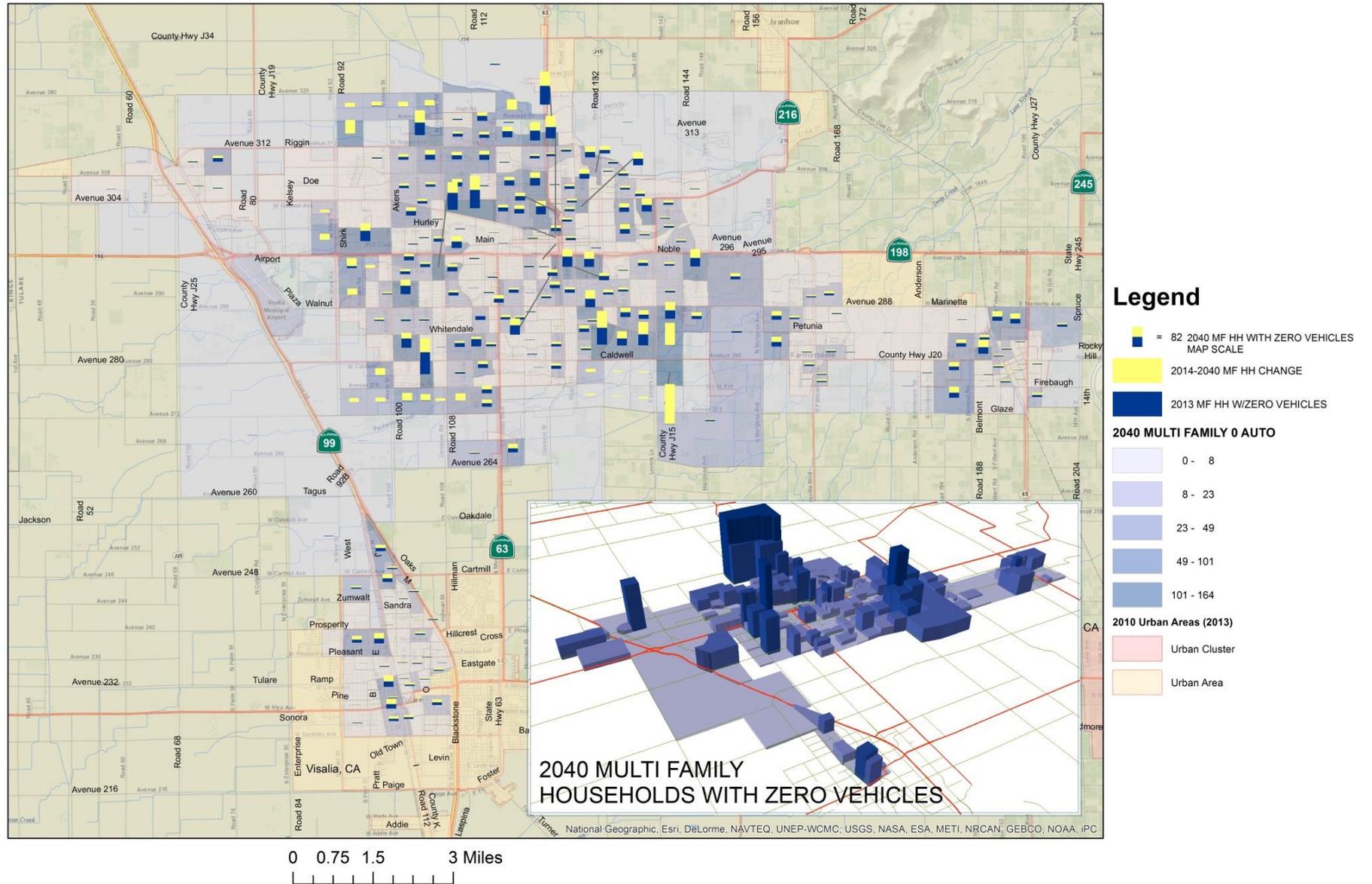


Figure C-2 Distribution of Multi-Family Homes with No Vehicles – Visalia Transit Service Area



Person Trip Ends

Person trip ends represent the origins and destinations of person trips. The distribution of person trip ends within the Visalia Transit's service area under existing and 2040 conditions is exhibited in **Figure B-3**. Since most of the daily trips are either homebound or work-bound, the locations with high trip ends are expected to be the same as with high population and employment forecasts. These locations include:

- Areas located near the northwest corner of Visalia;
- Areas along Mooney Boulevard located south of SR-198;
- Visalia Downtown;
- Area located west of Visalia Downtown and bordered by Mooney Boulevard, Main Street, and SR-198 (due to Tulare County Office of Education);
- Area located near Visalia Downtown and bordered by Locust Street, Main Street, West Street and SR-198 (due to Kaweah Delta Hospital);
- Area bordered by Akers Street, Linwood Street, Cypress Avenue, and SR-198 (due to the West Campus of Kaweah Delta Health Care District);
- Areas located near Visalia's eastern city limits and generally bordered by Avenue 288/Walnut Avenue, Caldwell Avenue, Ben Maddox Way, and Road 148.
- Areas located north of SR-198 and generally bordered by Akers Street, Avenue 320, and Dinuba Boulevard;
- Areas located near the southeast quadrant of Visalia and generally bordered by Road 128, Caldwell Avenue, Road 148, and SR-198;
- Areas located near the junction of SR-198 and Shirk Road;
- Areas located near the western city limits of Farmersville;
- Areas located near the western city limits of Exeter; and
- Areas located in the southwest quadrant of Tulare.

Figure C-3 Forecasted Distribution of Person Trip Ends – Visalia Transit Service Area

