



BUTTE COUNTY ASSOCIATION OF GOVERNMENTS

TRANSIT AND NON-MOTORIZED PLAN

FINAL REPORT

May 2015

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EXECUTIVE SUMMARY

The purpose of this transportation plan is to outline transit service and non-motorized transportation enhancements that can be made in Butte County to expand mobility, improve intermodality, and result in a set of recommended local and intercity public transit services, improved bikeways and bicycle paths, and improved pedestrian access to transit. These recommendations are to be integrated into the region's new 2016-2040 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS).

Public transportation has the potential to reduce greenhouse gas (GHG) emissions in the transportation sector, which makes about 28% of all GHG emissions in the US overall and about 37% in California. The major GHG benefits that are derived from public transportation are from reductions in overall vehicle-miles traveled (VMT) in urbanized areas. These savings are often called displaced VMT. They are mostly indirect impacts that come from changes in mode split, congestion relief, and the "land-use multiplier" effect. Even still, it is difficult for transit service enhancements alone to be able to claim carbon dioxide (CO₂) benefits. Recognizing this challenge, transit projects have had the greatest success in reducing GHG emissions when they are combined with land-use and congestion management strategies that include non-motorized investments.

CHARACTERISTICS OF BUTTE COUNTY

Certain population groups are more likely to use transit than others based on their socio-economic status, age, and physical ability. These groups are known as captive riders—as opposed to choice riders—in that public transit, walking, or biking are their only affordable or practical options for transportation. Since walking and biking have their own limitations in terms of range and physical requirements, public transit can often be the sole option for captive riders. Transit efficiency and performance therefore become imperative, and inadequate service can generate significant impacts on these groups for their work, shopping, medical, and other trips.

While seniors and young people live throughout Butte County, households without vehicles tend to be clustered in central Chico and in residential areas populated by California State University, Chico (CSU) students. Much of central Oroville also has a moderate to high proportion of households that do not own vehicles.

With the exception of CSU in Chico, many of the largest employers in Butte County are located in peripheral areas and near freeways, like the WalMart stores in Chico and Oroville, and the Feather Falls and Gold Country Casinos outside of Oroville. Modest population and employment growth is expected in these peripheral areas, some of which are outside of B-Line's current fixed route service area. Modeled data shows that most population and employment growth is anticipated on the periphery of Chico, with significant population growth on the north side of the city adjacent to Highway 99 and north of East Avenue. Additional growth is anticipated in the southeastern quadrant of the city, between SR 32 and Highway 99, with some employment growth on the south side of the city along Park Avenue. Paradise is expected to have higher levels of residential growth than most of the county's other cities, but pockets of growth are expected south and east of Oroville and around Biggs.

Based on an array of demographic factors, current B-Line routes cover transit-dependent areas relatively well, with the exception of more rural areas off of main corridors in Oroville and Paradise that do not readily support traditional fixed-route operations.

EXISTING TRANSIT SERVICES

B-Line operates primarily two types of services: urban (Chico area) and rural (within other Butte County cities or intercity, between other major cities and population centers of Butte County). Some routes operate Monday through Friday only, and others operate all seven days. Routes 8, 9, and 40X operate on different schedules depending on whether CSU is in session.

B-Line operates and serves transit centers that offer timed transfer points. The Chico Transit Center is located on West 2nd Street between Salem Street and Normal Avenue in downtown Chico. An additional timed transfer point in Chico, referred to as the Forest Avenue Transfer Point, is located on both sides of Forest Avenue at Baney and Parkway Village. The Oroville Transit Center is on Spencer Avenue just north of Oro Dam Boulevard in downtown Oroville. A small stop in Paradise serves as the Transit Center in that community, and is located at Almond and Cedar Streets.

B-Line's fixed-route fleet consists of 35 standard buses. B-Line has special fare agreements with CSU, Butte College, and the City of Chico (for City employees).

B-Line Paratransit is a door-to-door service for qualified individuals traveling within the greater Butte County B-Line service area in Chico, Oroville, and Paradise. It provides Americans with Disabilities Act (ADA) service for individuals who cannot use the fixed-route system as well as for others with disabilities and seniors 65 years of age or older.

TRANSIT PERFORMANCE

For a transit agency of its size, B-Line is performing very well in most respects. Most of its local Chico routes are popular, and ridership is solid in some other cities, although weak on some routes, primarily in Magalia and Oroville.

Maintaining consistent on-time performance continues to be a challenge for several B-Line routes. In an analysis from September 2013, over 50% of B-Line fixed routes were found to be running more than five minutes late at some point during the route. This issue is particularly problematic for through-routed buses, because delays cascade through more than one route.

Overall, B-Line's performance indicators are strong (Chapter 2 provides a detailed summary of B-Line's performance). Over the past five years, B-Line has exceeded Transit Development Act (TDA) farebox recovery ratio requirements for both urban and rural services, and despite difficulties surrounding two route restructuring efforts in 2010 and 2011, ridership increased 6% from fiscal year (FY) 2008/09 to FY 2012/13. Passenger productivity has remained relatively constant while hourly costs increased a modest 15% over the past five years. Paratransit services are also performing very well, with a farebox recovery ratio increase of 27.2% over the past five fiscal years. Changes to eligibility and an increase in the service area have resulted in Paratransit ridership increases, by nearly 40% in the past five years, which is of concern to BCAG. A July 2009 fare increase in addition to recent ridership gains also contributed to a 62.2% increase in Paratransit fare revenues from FY 2008/09 to FY 2012/13.

BICYCLING AND WALKING IN BUTTE COUNTY

According to the Non-Motorized Transportation Action Element of the 2012 MTP/SCS, bicycling has become an increasingly popular method of travel throughout the region due to energy savings, environmental benefits, and health advantages. The Element also notes that pedestrian travel in Butte County is common for very short trips and for students traveling to school. Approximately seven percent of Butte County residents bicycle or walk as their primary means of transportation to work. The walking or bicycling mode shares in Chico and Oroville are both above the county average while those in Gridley, Paradise, and Biggs are all below the average.

To assess the greatest opportunity areas for walking and bicycling, Butte County was analyzed using a regional demand screening process to determine a suitability screening score for bicycling and walking. While Chico, northwest Gridley and portions of Oroville score well for non-motorized modes, Paradise and Biggs have very limited areas that are conducive to walking or bicycling.

For regional trips, the bike infrastructure is fairly limited. Much of the county's street network is still very much planned around maximizing access for automobile trips, and many major streets outside of city and town centers lack sidewalks.

INPUT AND OPINIONS FROM MEMBERS OF THE PUBLIC

Bus Rider Survey

A survey was designed to understand how B-Line riders travel. The survey also collected information on riders' personal characteristics, such as age, income, employment status, and modes of access to the transit services. The survey found that a great proportion of B-Line passengers are students (54% of survey respondents), the majority of whom attend CSU and that most B-Line passengers represent below-average household incomes in Butte County. Most passengers are also regular riders and ride B-Line because they do not have other transportation options.

Overall, passengers are satisfied with B-line service, but seek more sheltered bus stops and better on-time performance. Other improvements sought by passengers include more frequent weekend and weekday service, as well as later evening weekday service. Although the on-time performance data illustrates some significant challenges for the agency, consumers were relatively neutral about on-time performance.

Community Survey

An in-person and online survey included stationing surveyors in downtown Chico, at the Oroville FoodMaxx shopping center, and at a special event in Paradise, as well as making the online version available. A link to this survey was sent by BCAG to a wide array of regional stakeholder groups in an effort to reach as wide an audience as possible.

Despite the fact that 85% of survey respondents said public transportation served their community, the majority of people said their primary mode of transportation for making the trip from home to school/work was driving alone. The intercept survey results offer several reasons for why "driving alone" is preferred over other modes of transportation.

Most people who took this intercept survey made their trip to school or work within 20 minutes, but people who took transit spent up to 40 minutes on their trip to school or work, illustrating that public transportation may result in a longer commute for many people. Nevertheless, many of the people who drive may not have considered the time it takes to find parking or walk from their parking space to their destination.

Greater usage of public transportation by survey respondents from lower-income households corresponds with the finding of the onboard survey: the majority of the people currently using public transportation do so because it is economical or because they have few other options.

The most frequently identified issue reported by pedestrians was a lack of sidewalks. Respondents also noted unsafe crossings or intersections and personal security concerns. Individuals frequently expressed concerns with driver behavior, weather conditions, or deteriorating or poorly maintained sidewalks.

Stakeholders

Approximately one dozen individual stakeholder interviews, generally lasting between a half-hour and an hour apiece, were conducted by phone in October and November of 2013. A common theme expressed by many stakeholders is that traveling by car is the dominant mode of travel given the county's low density and long distances many residents need to travel to reach their destinations. Many expressed that it is challenging to develop convenient alternative transportation options especially in the outlying communities. Some stakeholders commented that the image of the B-Line has improved over the years with the attractive new buses which have given the service greater visibility in the community. Stakeholders offered relatively few weaknesses about B-Line service.

Stakeholders were asked to identify their top three priorities for improving transit services in Butte County in the next three years. Increasing headways on B-Line Service, providing service and connectivity to outlying and unincorporated communities, and improving facilities were the top priorities expressed by a majority of stakeholders. Safety was mentioned as a huge concern for bicyclists and the need to separate cycling from vehicular traffic.

GOALS AND OBJECTIVES

The overarching goal for this project is to identify solutions to reduce greenhouse gas emissions; this remains a key consideration in all of the transit service and bicycle and pedestrian planning effort.

B-Line's, goals, objectives and performance standards provide a basis for establishing transit system design and operations policies, offer a methodology for evaluating services, and provide a rationale for service expansions, reductions and eliminations. B-Line's primary goals are as follows:

- Maximize service efficiency and reliability.
- Maximize the effectiveness of service for B-Line's ridership markets.
- Improve the usability of B-Line.
- Expand B-Line's services into areas where transit has a likelihood of success.
- Tie the provision of transit to land use and the resulting demand levels.
- Advocate sustainable development practices that support transit.

Goals and objectives for bicycle and pedestrian planning include:

- Provide options so people will choose and be able to walk and bicycle as a way to travel, to be healthy and for recreation.
- Focus on urban infrastructure improvements that contribute to interconnectivity and safety for people who choose to walk or bike
- Facilitate regional links allowing for origin-to-destination access to bicycle and pedestrian facilities.

TRANSIT PLAN

Proposed changes to B-Line services in the short-term time horizon (by 2016) are focused on streamlining services and providing greater efficiencies. The recommendations for mid- (2017 through 2027), and long-term (to 2040) time horizons include investments to speed transit and to serve portions of Butte County, primarily in Chico, where transit investments will be appropriate given anticipated development.

Several of B-Line's existing routes perform well. Others can better meet performance standards and address demand. Even with modest changes to the system and essentially status quo operating levels, Butte County's jurisdictions will enjoy some reductions in VMT, along with related reductions in GHG emissions, although the impacts to GHG are small: reductions in emissions overall are estimated to range from about 0.25% to 0.27% of existing emissions.

In Chico, recommendations include changes to Route 15S, Route 15N, Route 2, Route 7, and Route 16, with the elimination of Routes 4 and 5 that would be served by the other routes. In Oroville, Route 24 has been expanded and Route 27 has been retained, essentially unchanged. Route 26 would be modified and Route 25 would be eliminated with service assigned to Route 24.

Most of the major regional routes, including Routes 20, 40, and 41, all perform strongly and as a result the short-term service plan recommends relatively few changes to these services (mostly minor routing changes in Chico). Some modifications or service reductions are recommended for Routes 30, 31, and 32.

Implementation of the transit service plan will benefit from investment in several new capital projects. These include improvements to the North Valley Plaza transfer center and the implementation of Route 1 "BRT lite" improvements. A recommended capital investment for Caltrans includes improvements to the Fir Street "Park & Bike or Ride" in Chico as well as the development of additional Park & Rides throughout Butte County in Oroville, Paradise, and Gridley. Finally, a new Downtown Chico Transit Center is recommended.

NON-MOTORIZED PLAN

Much of the foundation for non-motorized mode planning has already been established by jurisdictions through past bicycle plans. Through coordination by BCAG and movement toward compliance with the Active Transportation Program by jurisdictions, significant progress will be made towards enhancing opportunities for non-motorized modes.

Key bicycle recommendations include a potential bike station at the downtown Chico Transit Center and a small bike share program in Chico. Certain bicycle investments are prioritized by city and include the following:

- Chico: Add a bike path along State Route 99 and bike lanes on Mangrove Avenue, Chico River Road, 5th Street, and Holly Avenue. A pedestrian and bicycle facility is recommended on the north side of SR 32 between the Chico Park & Ride and Bruce Road.
- Oroville: Add a bike path along the Feather River and the railroad tracks, and bike lanes on Oroville Dam Boulevard, Montgomery Street, Mitchell Avenue and Feather River Boulevard.
- Paradise: Extend the Skyway bike path to the city limits, extend the bike lane on Pearson Road, and add bike lanes to Bille Road, Sawmille Road and Wagstaff Road.
- Gridley: Add a bike path along the railroad tracks and bike lanes on Sycamore Street, State Route 99 and on either side of Sycamore Middle School.
- Biggs: Add a bike path along the railroad tracks and a bike lane on B Street.

Improvements are also recommended to wayfinding signage and pedestrian crossings, with special development opportunities for sidewalks and crossings near B-Line stops.

FUNDING

The financial model assumes that the service plan is fully funded assuming the existing funding sources continue to be available and BCAG successfully secures capital grants for B-Line vehicle replacements. If capital grants are not forthcoming, then BCAG may need to postpone some of the scheduled fixed-route and paratransit vehicle replacements.

BCAG should consider other opportunities at the local level to generate local revenue sources. BCAG may want to evaluate the efforts pursued by other counties that are “self-help” in which local voters approve a sales tax for enhanced local services, including transportation.

The short- and mid-term funding plan is shown in Figure ES-1.

Figure ES-1 Short and Mid-Term System Funding Plan

	Short-Term Projections		Mid-Range Projections									
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Operating and Capital Costs												
Total Operating Costs	\$9,572,883	\$9,825,047	\$10,045,621	\$10,384,142	\$10,734,315	\$11,096,551	\$11,471,274	\$11,819,763	\$12,178,842	\$12,548,833	\$12,930,067	\$13,322,886
<i>Fixed Route Service</i>	\$6,357,820	\$6,438,665	\$6,631,825	\$6,830,780	\$7,035,703	\$7,246,774	\$7,464,177	\$7,688,103	\$7,918,746	\$8,156,308	\$8,400,998	\$8,400,998
<i>Paratransit Service</i>	\$3,467,227	\$3,606,956	\$3,752,317	\$3,903,535	\$4,060,847	\$4,224,500	\$4,355,586	\$4,490,740	\$4,630,087	\$4,773,759	\$4,921,889	\$4,921,889
Capital Costs	\$3,249,650	\$4,774,050	\$497,191	\$0	\$0	\$4,373,588	\$634,593	\$0	\$4,116,559	\$0	\$3,114,526	\$3,849,554
Total System Costs	\$12,822,533	\$14,599,097	\$10,542,812	\$10,384,142	\$10,734,315	\$15,470,139	\$12,105,866	\$11,819,763	\$16,295,402	\$12,548,833	\$16,044,593	\$17,172,440
Operating and Capital Revenues												
Federal Sources												
FTA 5307	\$2,020,000	\$2,040,200	\$2,060,602	\$2,081,208	\$2,102,020	\$2,123,040	\$2,144,271	\$2,165,713	\$2,187,371	\$2,209,244	\$2,231,337	\$2,253,650
FTA 5311	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000
FTA 5309 Ladders of Opportunity Initiative Grant	\$2,363,850	\$4,057,943	\$0	\$0	\$0	\$3,653,800	\$0	\$0	\$2,994,454	\$0	\$2,647,347	\$3,272,121
FTA 5310	\$468,650	\$0	\$497,191	\$0	\$0	\$0	\$559,593	\$0	\$593,672	\$0	\$0	\$0
State, Regional and Local Funds												
Miscellaneous Revenues	\$53,895	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
LTF/STA (Member Jurisdictions)	\$5,440,854	\$5,961,453	\$5,345,233	\$5,644,617	\$5,955,258	\$6,882,057	\$6,570,476	\$6,805,845	\$7,529,167	\$7,330,834	\$8,138,964	\$8,464,609
Farebox Revenues												
Fixed Route Service	\$1,350,754	\$1,364,261	\$1,435,903	\$1,450,262	\$1,464,765	\$1,567,298	\$1,582,971	\$1,598,801	\$1,710,717	\$1,727,824	\$1,745,103	\$1,867,260
Paratransit Service	\$353,425	\$350,240	\$378,883	\$383,055	\$387,272	\$418,943	\$423,556	\$424,403	\$455,020	\$455,931	\$456,843	\$489,800
Total System Revenues	\$12,851,428	\$14,599,097	\$10,542,812	\$10,384,142	\$10,734,315	\$15,470,139	\$12,105,866	\$11,819,763	\$16,295,402	\$12,548,833	\$16,044,593	\$17,172,440

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1 INTRODUCTION

Maintaining a high quality of life is the essence of this plan for transit and non-motorized transportation in Butte County. Curbing greenhouse gas emissions (GHG) by reducing congestion, providing transportation options, and developing pedestrian-oriented communities can help the County and its various cities and towns facilitate growth to maintain Butte County's unique character. California Senate Bill 375's goal is to GHG through the development of a Sustainable Communities Strategy (SCS), focusing on the integration of transportation and land use. The ultimate goal of the SCS is to reduce GHG emissions from cars (including light-duty trucks).

To support the sustainable growth targets in the region's 2012 Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy, Butte County needs a transportation system that provides effective transit service and non-motorized transportation options. Through this planning effort, the potential exists for new and expanded local and intercity public transit services, improved bikeways and bicycle paths, and improved pedestrian access to transit.

Outside of its cities, Butte County is largely rural, with agricultural lands and open spaces that include mountains, forests and grasslands. Many consider the county a bicyclist's paradise, with expanses of open roads linking the various communities with bike-friendly Chico. Although Butte County will retain its rural character for many years to come, it also has fast-growing communities and is becoming somewhat of a bedroom community for jobs in counties to its south, including Sacramento, with nearly one-third of employed residents commuting to jobs outside of Butte County. The county anticipates residential growth of 50% by 2035, and a 57% increase in jobs. Much of this growth is forecasted to occur in Chico, which will account for about 40% of the region's housing growth. New development has not always been built with transit or pedestrian access in mind, and if that development accelerates as expected, Butte County may find communities on the edges of its cities that are challenging to serve by transit, and may not easily afford access to bike trails or pedestrian-oriented destinations.

Today, many of Butte County's communities support walking, bicycling and transit. Pedestrian and bicycle trips within each city benefit from close spacing of schools, entertainment, shopping, and employment as well as street grids and existing pedestrian and bicycle infrastructure. This is especially true in Chico, where the California State University (CSU) campus serves a number of college students who do not own cars. CSU Chico is also the site of Butte County's only car-sharing program. Public transit services are provided by B-Line, offering a mix of fixed-route bus service, general public demand-response service, and ADA-complementary paratransit service in Chico, Oroville, and Paradise, and offering regional links to Biggs and Gridley.

STUDY PROCESS

The outcome of this planning process was to provide Butte County with a Long Range Transit and Non-Motorized Plan focusing on bicycles, pedestrians, and transit for integration into the region's

new 2016-2040 MTP/SCS. The Plan refines and updates the goals, objectives, and policies in the 2012 MTP/SCS. Based on an assessment of existing services and programs, this plan identifies needs and service gaps, recommends a prioritized list of improvements to the bicycle and pedestrian networks, and provides recommendations to improve and expand transit services, including better connectivity with the bike and pedestrian system.

This study was conducted in three separate phases. The first phase was an evaluation of existing conditions. This included stakeholder interviews, surveys, service maps, an analysis of demographic data, and a preliminary identification of needs and opportunities.

The second phase included the development of transit service alternatives, non-motorized alternatives and ridership forecasts.

The final phase included the development of air quality and greenhouse gas emission forecasts, a financial model, and this report for integration into the 2016-2040 MTP/SCS.

Oversight for this planning effort was provided by the Butte County Association of Governments (BCAG), along with transit operations staff.

RELEVANT STUDIES/PROJECT BACKGROUND

In developing this plan, the consulting team reviewed a number of existing plans and policies to provide context. Many of these provide guidance for future growth in Butte County, and describe planning efforts specifically related to transportation. Highlights from some of the key documents, including those with specific relevance for this planning effort, are summarized in this section.

2012 Metropolitan Transportation Plan/Sustainable Communities Strategy (MT/SCS) – December 2012

The MTP/SCS is the long-range regional transportation plan spanning 2012 to 2035. The plan identifies goals for transit and non-motorized travel in the county:

Transit

- Increase ridership at a faster rate than annual population growth in the county.
- Create additional routes and expand services to meet ridership demand.
- Explore innovative alternatives, such as a market-based approach, to evaluating and increasing ridership.

Non-Motorized Travel

- Support planning and construction of pedestrian projects and bike routes in local jurisdictions.
- Support bicycle interfacing with the transit system through bike racks and infrastructure.

Land Use

- Promote land uses and design criteria that are friendly to pedestrians and bicyclists.

Mobility

- Tailor transportation improvements to better connect people with activities.
- Increase use of transit, ridesharing, walking, and biking in major corridors and communities.

Sustainability

- Ensure access to jobs, services, and recreation for populations with fewer transportation choices.
- Reduce greenhouse gas emissions from vehicles and improve air quality in the region.

Unmet Transit Needs Assessment – February 2012

The Unmet Transit Needs Assessment (UTN) identifies needs in Butte County. This effort is required for BCAG to receive state funding under the California Transportation Development Act (TDA). In the past, the UTNA has enabled route restructuring for better efficiency in service.

For the 2013/2014 fiscal year, BCAG found one unmet transit need deemed reasonable to meet (met criteria for cost effectiveness, economy, community acceptance, and operational feasibility), which was the addition of one midday run on Route 7 serving east Chico. Meetings are ongoing for this year's UTNA.

Market Based Transit Study – June 2010

B-Line conducted a Market Based Transit Study in 2010 and made changes to transit services based on recommendations.

Key findings from the study included the following:

- Chico: Route 8 had the highest productivity at 39 passengers per revenue hour, while Route 7 had the lowest at 5.8 passengers per revenue hour.
- Oroville: Productivity is generally low (4.8 to 11.0 passengers per revenue hour) with Route 27 having higher than average passengers per revenue hour due to Las Plumas HS student activity
- Paradise: Routes 40 and 41 have excellent productivity (13.9 and 10.2 passengers per revenue hour, respectively)
- Other regional routes:
 - Route 20 (19.3 passengers per revenue hour)
 - Route 31 (9 passengers per revenue hour) which is low, but considered acceptable relative to comparable intercity routes

Four alternatives were developed based on the following assumptions:

- 10% decrease in vehicle revenue hours
- Reallocation of existing vehicle revenue hours to better meet market needs
- 10% increase in vehicle revenue hours
- Market-based scenario that provides a long-term vision requiring twice the current available financial resources

Overall recommendations from the study focused on maintaining the current level of vehicle revenue hours, but reallocating those hours to better meet the market needs in the county.

Recommendations carried forward from the study included the following:

- **Chico**
 - Creation of Route 15, combining Routes 1, 6, and 10
 - Creation of interim transfer point at Forest Ave
 - Route 7 will connect to Chico Mall in addition to Sierra Sunrise Village and Pleasant Valley HS
 - Route 5 service reduced due to low ridership
 - Routes 2, 3, 4, and 5 evening service eliminated after 8:45 p.m. due to low ridership
- **Oroville**
 - Several improvements that provides hourly service from all four routes (20, 24, 25, 26, 27) from the previous service every two hours on three of these routes
 - Route 24 evening service expanded by one hour
 - Increase in Oroville vehicle revenue hours corresponds with a reduction in vehicle revenue hours for paratransit and other demand responsive services
- **Paradise**
 - Route 41 has minor changes to accommodate new Route 15
 - Route 46 between PTC and Feather River Hospital is found to have very low ridership (3 riders per day)
- **Other regional routes**
 - Would operate on the current service levels

Coordinated Public Transit-Human Services Transit Plan – July 2008

This Coordinated Public Transit-Human Services Transit Plan for Butte County was developed to improve mobility for Butte County seniors, persons with disabilities, and persons with low incomes through coordinated projects and partnerships.

This plan focuses on identifying needs specific to those population groups as well as identifying strategies to meet their needs. Federal planning requirements specify that designated recipients of certain sources of funds administered by the Federal Transit Administration (FTA) must certify that projects funded with those federal dollars are derived from a coordinated plan.

Key identified needs included:

- Achieving efficient use of operational vehicles across Butte County (including B-Line and demand responsive service)
- Redefining the role of public school transportation providers in coordinated service
- Recognizing the existing B-Line service footprint in Butte County is limited for low-density areas due to farebox efficiency requirements
- Recognizing the infrastructure need to bring together public transit and human services to provide better service to targeted groups

Key goals included:

- **Facilitating leadership and infrastructure:** A Mobility Manager entity helps coordinate integration of human services with B-Line's network of services
- **Building services:** The Mobility Manager, human service agencies, and B-Line collaborate to grow service capacity and develop/test new services in response to gaps in the existing service fabric
- **Enhance information portals:** Mobility Manager will provide human service transportation information, options, and training for users

The B-Line On-Board Passenger Survey – July 2008

CJI Research Corporation conducted an on-board passenger survey that summarized findings in 2008 for:

- Passenger profile
- Usage profile
- Passenger communication
- Service improvements
- Rider retention

This information has been updated in this planning process through a new on-board survey (see Chapter 4).

Bicycle and Pedestrian Plans – 2009 to 2012

All five of the cities within Butte County, as well as Butte County itself, have bicycle and/or pedestrian plans adopted by their elected officials. These plans were adopted between 2009 and 2012. The plans follow the format and contain the elements called for by California Streets and Highways Code Section 891.2. This code details the elements that a bicycle plan must include for proposed projects to be eligible for Bicycle Transportation Account (BTA) funding.

Prior to 2013, the Bicycle Transportation Account was a state funding source awarded annually to bicycle transportation projects that provide convenience and safety for bicycle commuters. In 2013, several bicycle and pedestrian funding programs, including the Bicycle Transportation Account, were consolidated into the Active Transportation Program. It is currently unknown whether or not the elements identified in California Streets and Highways Code Section 891.2 will be necessary to qualify for Active Transportation Program funding. However, this code still represents a best-practice for elements to include in a bicycle transportation plan.

Butte County

The 2011 Butte County Bicycle Plan (adopted June 14th, 2011) is the most recent master plan update for the County's unincorporated areas. The plan complements the bicycle plans of the cities within Butte County in that it does not duplicate or supersede them but rather focuses on regional connectivity between the cities and the County's unincorporated areas. The plan covers Existing Conditions, Goals, Objectives, and Policies, Proposed Bicycle Network Facilities, Attractors and Generators, Support Facilities, Connectivity and Gap Closures, Short Term Priorities for Grant Funding, and Funding.

City of Biggs

The Biggs Area Bicycle Transportation Plan (dated June 2011) serves as an update of the Biggs Area Bicycle Transportation Plan (dated October 2005). The policies identified in the 2011 plan are both based on concepts presented in the Draft Countywide Master Plan (dated September 1998), and the City of Biggs General Plan.

City of Chico

The most recently adopted bicycle plan for the City of Chico is the 2012 Chico Urban Area Bicycle Plan, which the City Council adopted on November 22, 2012. The City's previous bicycle plan was released in 2007 as part of a countywide planning effort.

City of Gridley

The City of Gridley Bicycle Plan was adopted in January 2011. The 2011 plan serves as an update to the City's previous plan, adopted in 2003.

City of Oroville

The current plan for the City of Oroville is the Draft 2009 City of Oroville Bicycle Transportation Plan. The plan serves as an update to the City of Oroville Bicycle Transportation Plan authored by the Butte County Association of Governments (BCAG) and adopted by the Oroville City Council in December 1998.

Town of Paradise

The Town of Paradise Draft Master Bicycle and Pedestrian Plan is dated March 2012. The Town's previous bicycle plan was adopted in 2006. The 1994 Paradise General Plan also addresses the Town's interest in the completion of the Paradise Memorial Trailway.

ELEMENTS OF THIS REPORT

A significant amount of data was collected and analyzed in the development of this plan. Information from relevant background studies and reports are integrated in the various chapters. The remainder of this report includes the following chapters:

- Demographic data, including population densities and employment concentrations, as well as travel data is described in **Chapter 2**. This information provides a basis for identifying transportation markets in Butte County.
- Transit services are described in **Chapter 3**, with a focus on B-Line fixed-route service performance. The chapter also describes transit facilities and other regional operators. This information allows for an understanding of where services exist today, how existing services might be modified to serve additional needs, and the capacity of the existing network to accommodate new travel demands.
- **Chapter 4** provides an overview of the bicycle and pedestrian infrastructure in Butte County.
- Public and stakeholder input are summarized in **Chapter 5**, providing a selection of comments and concerns from representatives of key organizations. The chapter details the findings from surveys of transit users and non-users in Butte County, which include regular bicyclists and pedestrians.

- Based on the array of findings identified in Chapters 1 through 5, **Chapter 6** identifies transportation service considerations for developing a vision and set of goals for transit and non-motorized modes. It includes a set of performance measures and standards for transit.
- **Chapter 7** presents the Transit Service Plan, with a focus on short- and medium-term service changes and enhancements and direction for longer term service modifications. This chapter also includes an assessment of the modeled impacts on transit ridership and on overall GHG emissions.
- Non-motorized transportation facilities and programs are the focus of **Chapter 8**, which provides recommendations on which elements of existing bicycle plans should be prioritized for improvements to regional connectivity and how non-motorized transportation can better link to transit in Butte County.
- **Chapter 9** provides a financial model that focuses on transit services, because transit is managed by BCAG. Bicycle and pedestrian investments will ultimately be prioritized by the various jurisdictions, with BCAG seeking funding to support the development of local bicycle and pedestrian infrastructure.

2 DEMOGRAPHICS, MAJOR EMPLOYERS AND TRANSIT GENERATORS, DEVELOPMENTS AND LONG-RANGE PLANS

INTRODUCTION

Butte County is located in the northern region of the Central Valley in California, about 60 miles north of the state capitol in Sacramento. Regional planning for the County is managed by the Butte County Association of Governments (BCAG), designated as the County's Metropolitan Planning Organization (MPO) and Regional Transportation Planning Agency (RTPA). Butte County is bordered on the north by Tehama and Plumas Counties, on the west by Glenn and Colusa Counties, on the east by Yuba County, and on the south by Sutter County.

The foundation of determining the transportation needs of residents and workers in the County begins with examining the demographic information of its citizens. In particular, the distribution and density of population, employment, ages and individual travel behaviors provide a basis for this determination. This chapter is a profile of the regional population, identifying groups that are more likely to use public transit or other alternative modes of transportation.

BUTTE COUNTY DEMOGRAPHICS

Existing Characteristics and Projected Population Growth

From the 1940s to the 1980s, Butte County experienced sustained population growth ranging from increases of 24 to 52 percent each decade. This growth rate has substantially tapered starting in the 1990s, however. In 2010, the most recent census year, the population of Butte County was measured to be 220,000 people, an increase of 8.3 percent from the 2000 population of 203,171. As of 2012, Butte County is estimated to have a population of 221,539. Additional general characteristics of the County's population and age distribution are described in Figure 2-1 and Figure 2-2.

Based on recent US Census and 2011 American Community Survey (ACS) data, the county’s population is relatively well educated, with an overwhelming majority (86.1%) having received a high school degree and nearly one quarter of the population attaining a Bachelor’s degree or higher. Additionally, most people speak English as their first language at home (85.7%). As of October 2013, the unemployment rate for Butte County is 9.1%.¹

Figure 2-1 Population Characteristics in Butte County

	Butte County
Change in Population 2000 to 2010*	8.3%
Language other than English Spoken at Home	14.3%
High School Graduates	86.1%
Bachelor’s Degree or Higher	24.0%
Median Family Income	\$54,175
Persons Below Poverty Level	19.8%
Families Below Poverty Level	12.4%
Civilian Veterans	11.7%

Sources: 2007-2011 ACS 5 yr (Butte County, California). * = 2000 Census & 2010 Decennial Census

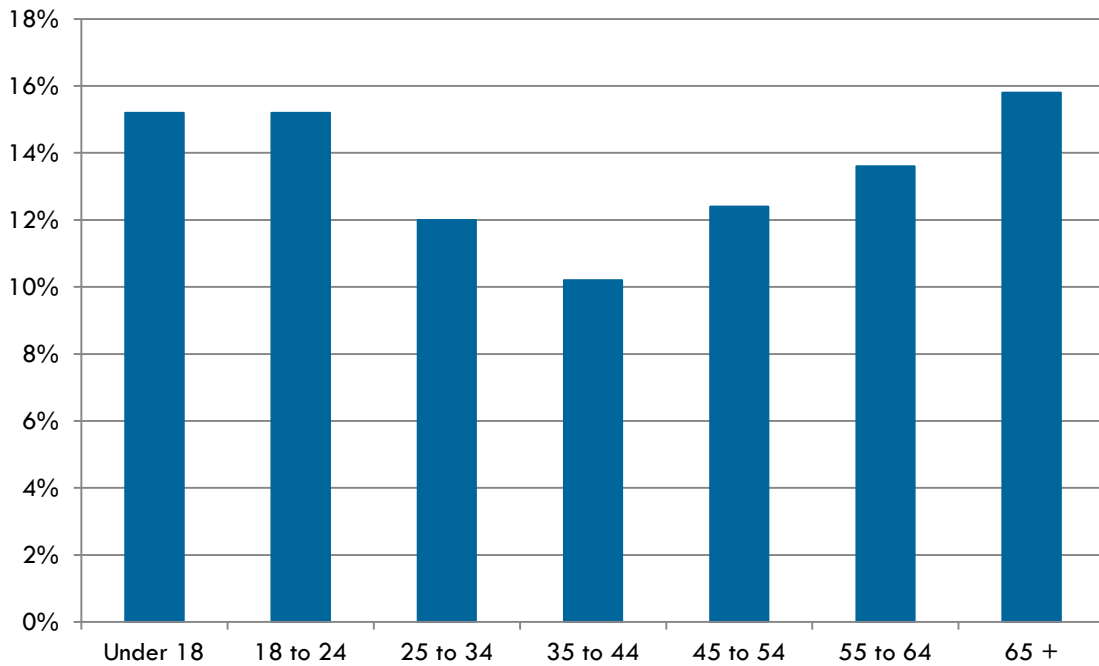
With regard to age, a significant proportion of the population falls within the 65+ age group (15.8%), followed closely by youths under the age of 18 and young adults aged 18 to 24 (both 15.2%). These latter findings are reflective of the presence of Butte College and CSU within the county. See Figure 2-2 below.

Circa 2010, the median age in Butte County was 37.2 years of age.²

¹ Source: State of California Employment Development Department

² US Census, 2010 Demographic Profile

Figure 2-2 Age Distribution in Butte County



Source: 2012 ACS 1 year (Butte County, California)

Population Density & Growth

The population of Butte County is largely distributed between the cities and towns of Chico, Oroville, Paradise, Biggs, and Gridley. A number of smaller population centers are dispersed in unincorporated communities throughout the rest of the county. Chico is the most populous and dense of these places as of 2012, with 87,712 residents, or 39.5% of the county population.³ A significant portion within this population is represented by students at the California State University, Chico. Figure 2-3 shows the population density across Butte County as of 2010.

Figure 2-4 and Figure 2-5 depict the anticipated population densities in Butte County in 2020 and 2035. In 2020, the areas that are expected to increase in population density include currently undeveloped areas to the east of Ceres and Lassen Avenues, along West Eaton Road in Chico. Neighborhoods to the northeast of Chico Mall are also expected to increase in population density by 2020. Population density is largely expected to remain the same in Oroville, Paradise, and other Butte County centers over the next several years.

By 2035, however, it is anticipated that parts of Paradise and Biggs will increase in population, as will currently undeveloped parts of Chico near Sierra Sunrise Village along Route 32. Another area expected to densify is the former Diamond Match company site in southwest Chico, which is slated for future redevelopment and currently undergoing remediation.

³ American Community Survey, 1-Year Estimates (2012)

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Figure 2-3 Butte County Population Density, 2010

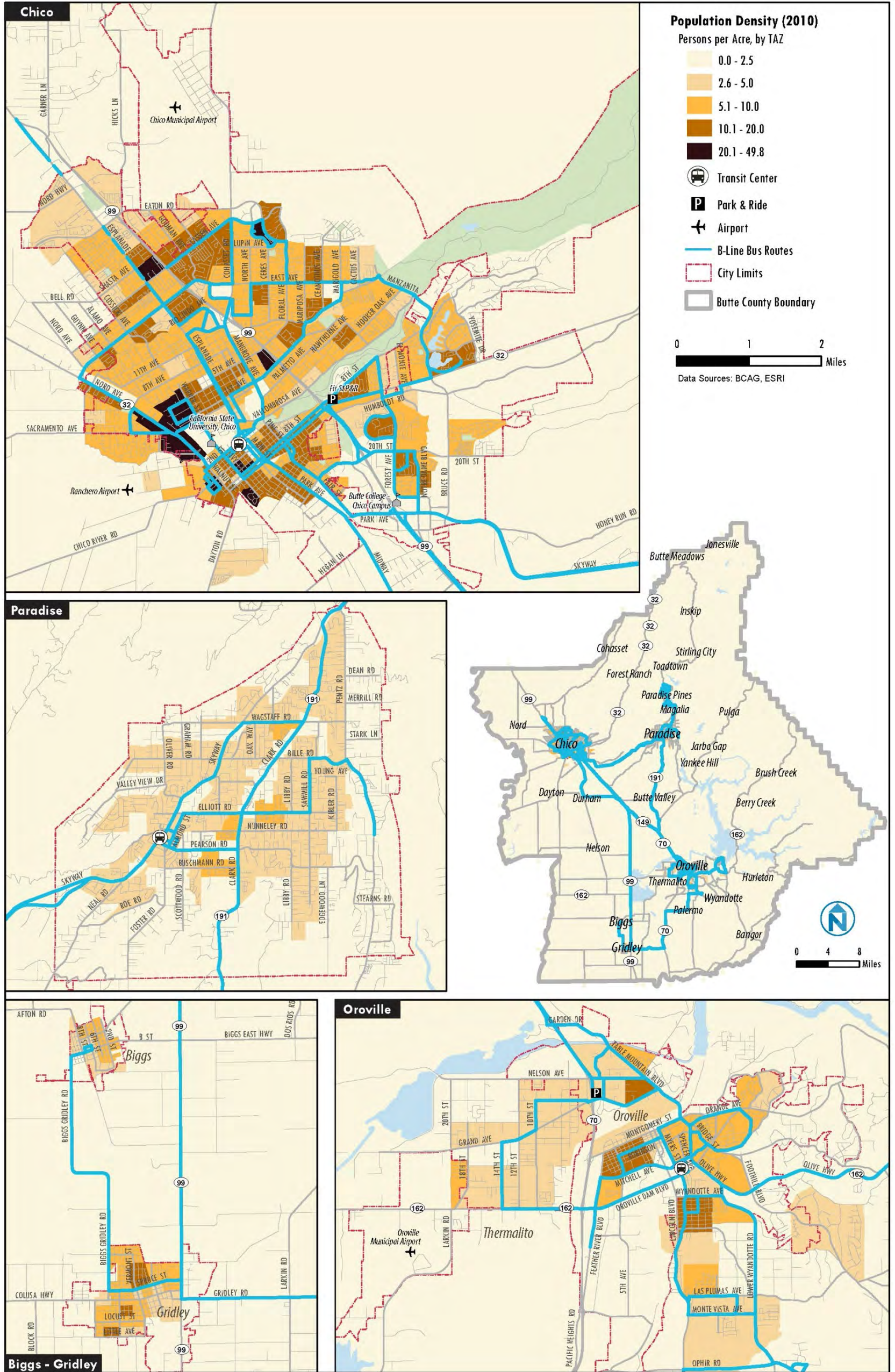


Figure 2-4 Butte County Population Density, 2020

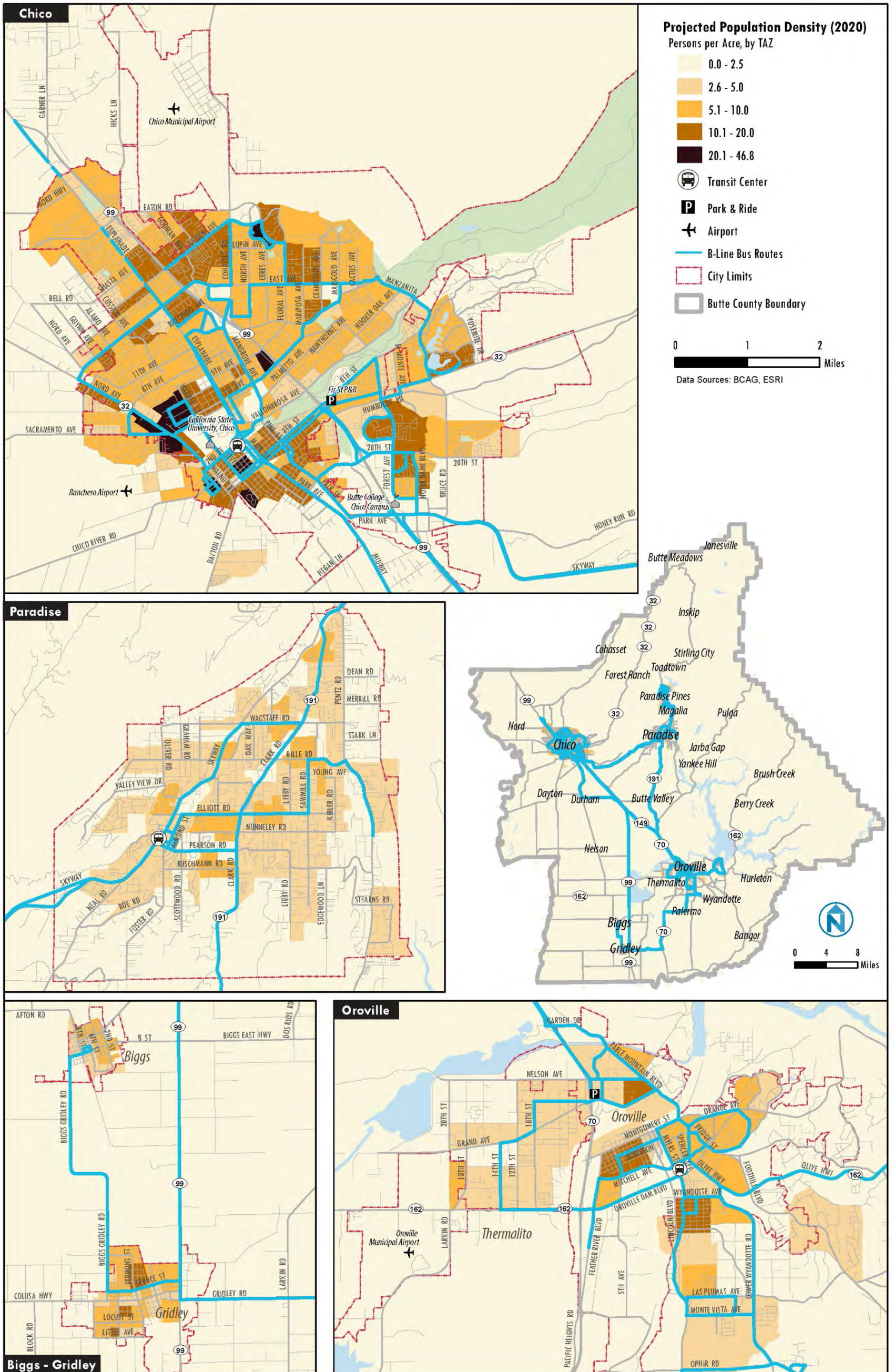
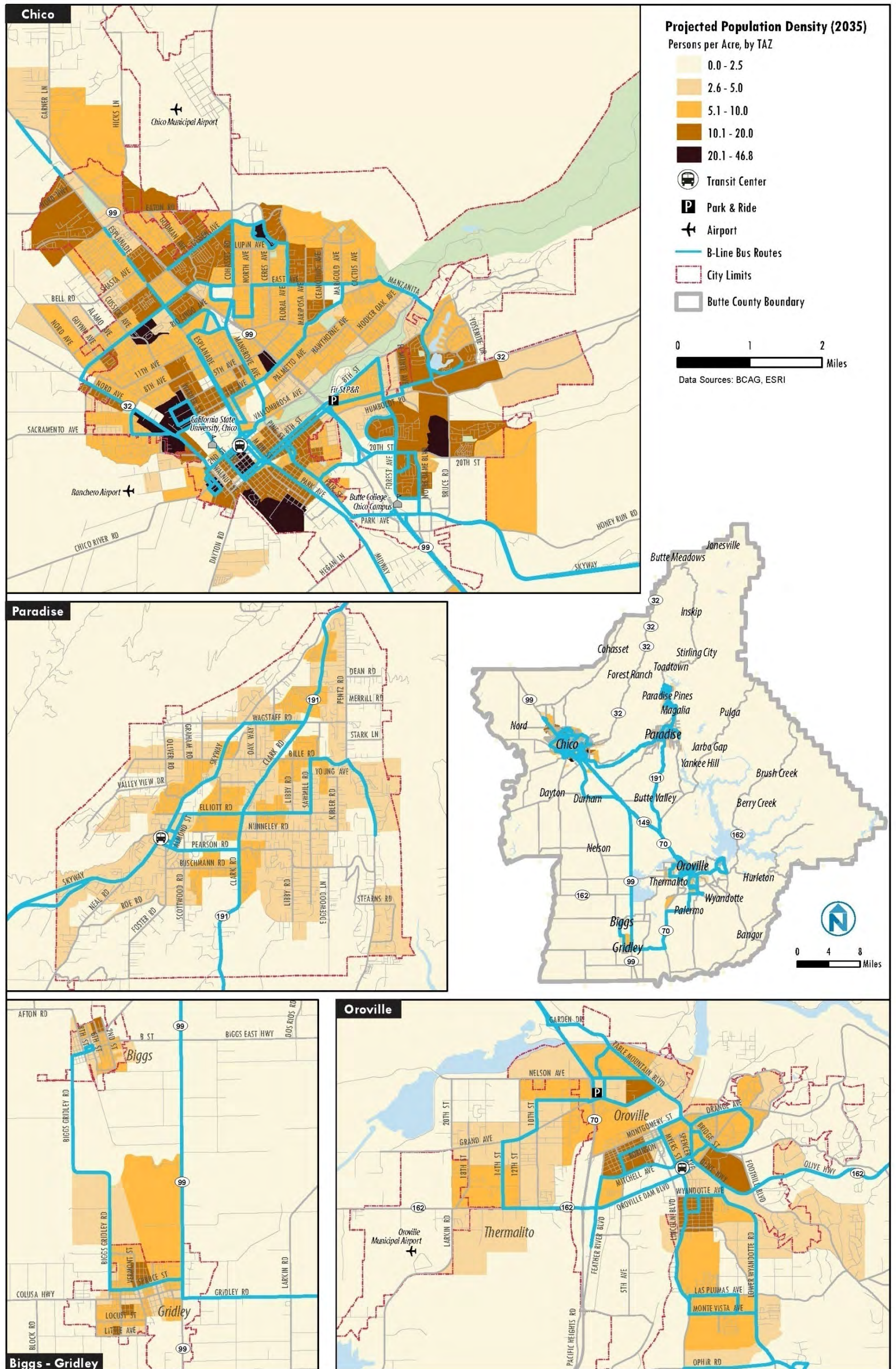


Figure 2-5 Butte County Population Density, 2035



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Transit-Dependent Populations

Certain population groups are more likely to utilize transit than others based on their socio-economic status, age, and physical ability. These groups are known as captive riders—as opposed to choice riders—in that public transit, walking, or biking are their only affordable or practical options for transportation. Since walking and biking have their own limitations in terms of range and physical requirements, public transit can often be the sole option for captive riders. Transit efficiency and performance therefore become imperative, and inadequate service can generate significant impacts on these groups for their work, shopping, medical, and other trips.

For Butte County, these population groups were identified as follows:

- Low income populations
- Households without vehicles (also known as zero-vehicle households)
- Seniors, age 65 or older
- Youth, under age 18

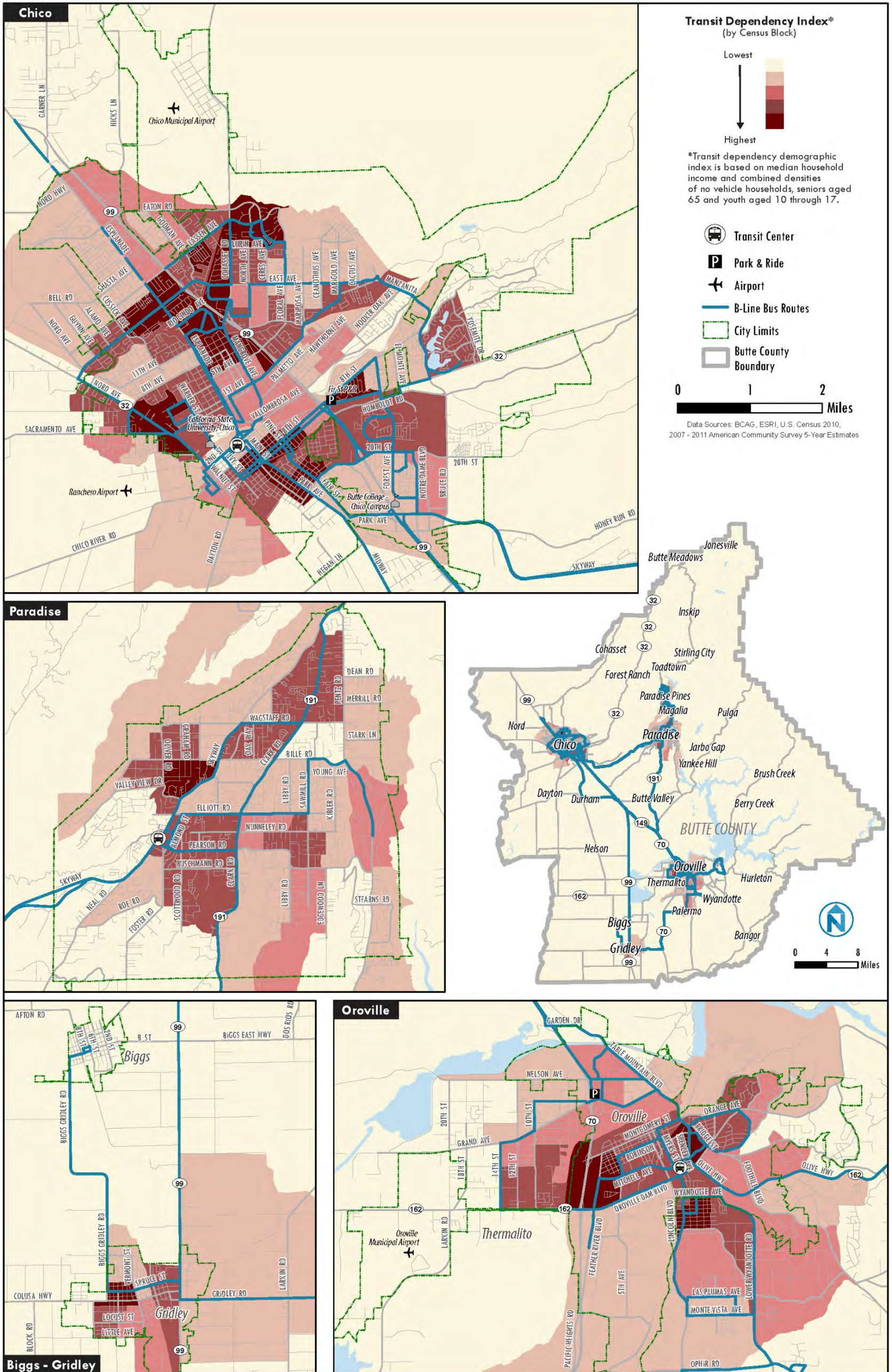
Figure 2-6 depicts a “Transit Dependency Demographic Index” for Butte County. The Index is based on median household income and combined densities of zero-vehicle households, seniors age 65 and older, and youth age 10 through 17. More detailed discussions of these population groups on an individual basis follow below.

On the whole, the areas in Butte County with the highest degree of expected transit dependency are not surprising. In Chico, they include areas of CSU student housing currently served by Routes 8 and 9, as well as neighborhoods to the northwest of downtown along the Esplanade and East Avenue. Neighborhoods around the intersection of Ceres and Lassen Avenues, near the Sycamore Glen Retirement Community, also have a high expected dependency on transit services.

In Oroville, areas with high transit dependency include the north portion of South Oroville, especially the residential neighborhood adjacent to Myers Street and Wyandotte Avenue. Residential areas in the vicinity of the Oroville Elementary School District Office on Yard Street and more remote sections of town near SR 70 and Oroville Dam Boulevard are also seen as having a high transit dependency. In Paradise, there are several areas with moderate to high transit dependency index findings, likely reflecting the presence of several mobile home communities and senior housing establishments in the area.

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Figure 2-6 Butte County Transit Dependency Index



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Low Income Populations

Lower income populations have a stronger dependency on public transit than higher income populations due to the relatively higher costs and other financial requirements for owning a personal automobile. The marginal utility of each dollar is also much greater for lower income households, meaning that a change in bus fare, for example, requires reallocation of a greater percentage of a family budget than it would for a higher income household. These factors lead lower income populations to comprise one of the key ridership groups in determining transit performance and needs.

According to the most recent American Community Survey (2011), 19.8% of persons within Butte County are living below the poverty level, and 12.4% of Butte County families are living below this threshold.

Figure 2-7 describes how median earnings and household status relative to the federal poverty line are related to the choices for commute mode. This table shows a clear correlation of income versus the use of an automobile—transit and non-motorized travelers have approximately half the income of those who drive alone or carpool. In addition, 50 percent of all transit riders in Butte County are at or below the poverty line, making this specific population a significant ridership contingent.

Figure 2-7 Commute Mode and Median Individual Income in Butte County

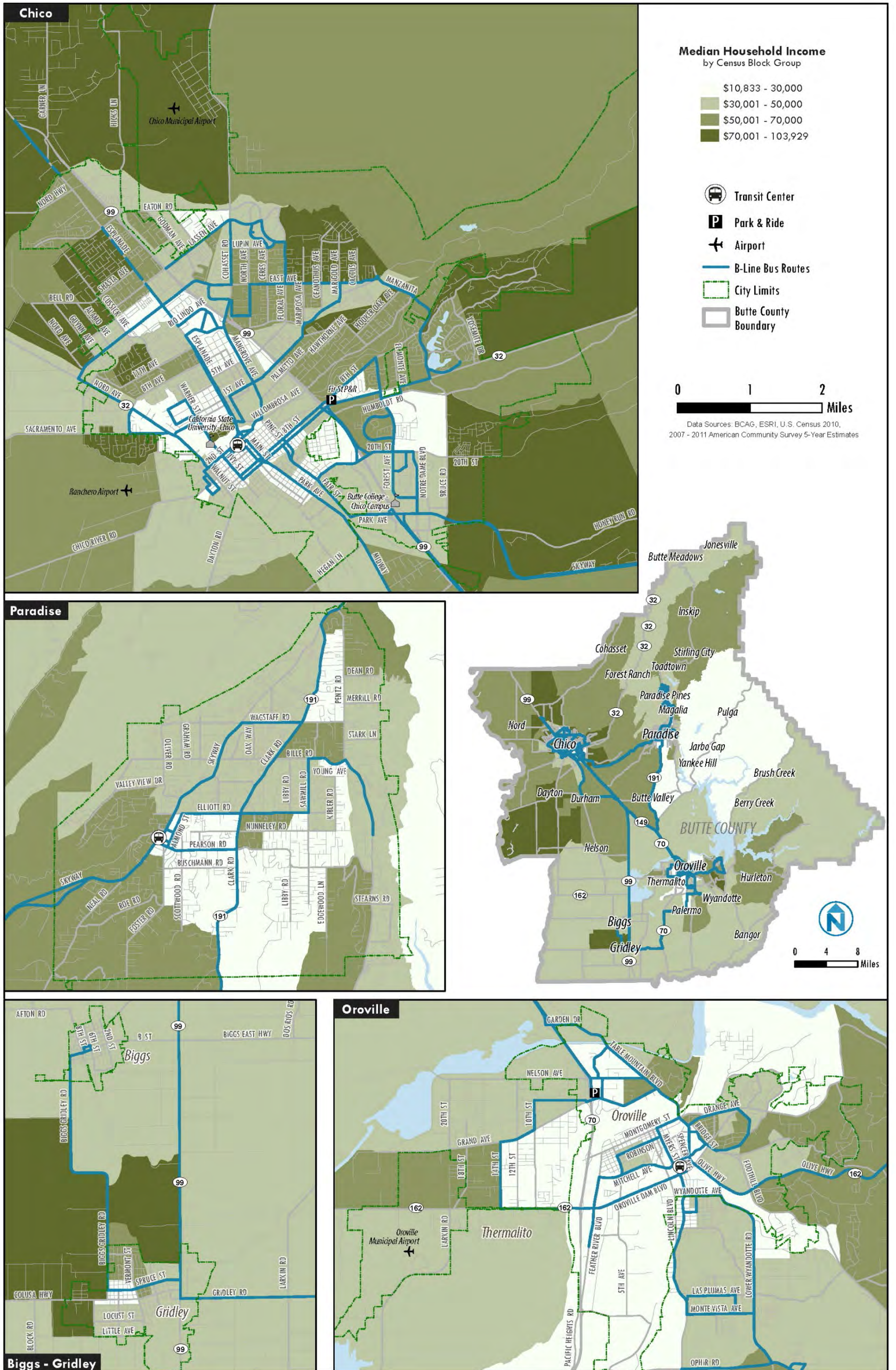
Commute Mode	Population Characteristics	
	Median Earnings	Percent At Or Below Poverty Line
Car, Truck, or Van – Drive Alone	\$26,662	12.2%
Car, Truck, or Van – Carpool	\$25,736	15.3%
Public Transportation – Excluding Taxicab	\$13,097	50.0%
Walk	\$11,817	21.9%
Bicycle, Motorcycle, Taxicab, or other means	\$12,324	38.3%

Source: US Census Bureau, 2012 American Community Survey

Figure 2-8 shows the distribution of median household income throughout the county. Of particular note, areas with the highest median household income are generally located outside of the major city and town centers. Large parts of central Oroville and Paradise have median household incomes of less than \$30,000.

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Figure 2-8 Butte County Median Household Income



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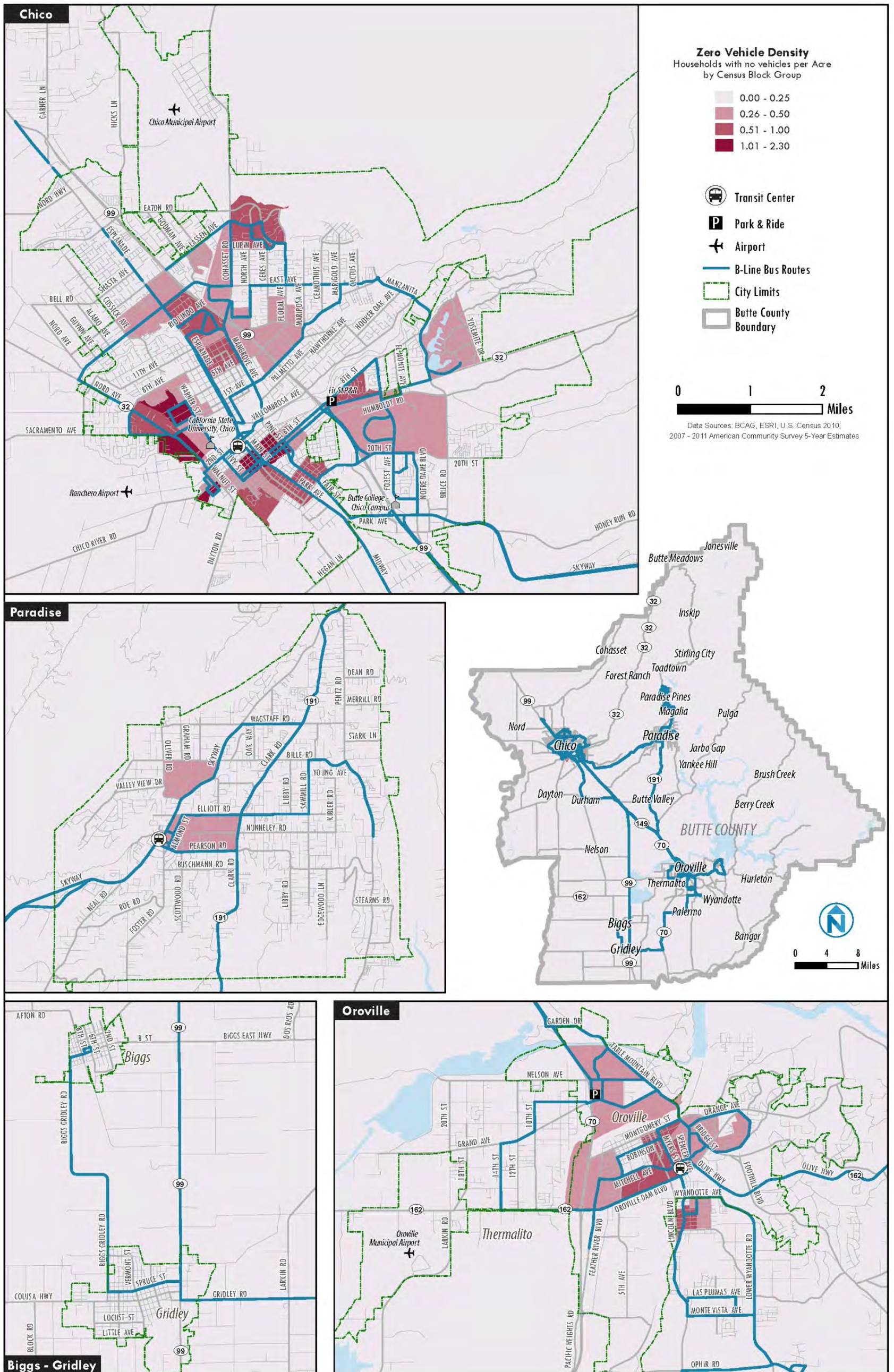
Households without Vehicles

Vehicle ownership is a unique indicator that can identify transit dependency of households beyond an examination of income levels. Many households can have high incomes, but may also be burdened with high expenses or debt. In these situations, owning a vehicle becomes an expendable privilege that in turn generates greater dependency on public transportation. Zero-vehicle households can also be a result of a voluntary decision not to drive. While this population subset may or may not have a concrete dependency on transit, the availability of transit plays an important role in their transportation options.

Figure 2-9 shows the distribution and density of zero-vehicle households throughout the county. As expected, the densest cluster of households without vehicles is located in central Chico and in residential areas populated by CSU Chico students. Neighborhoods around the intersection of Ceres and Lassen Avenues in north Chico are also classified as having a relatively high density of zero-vehicle households, likely due to the presence of senior housing in that area. Finally, much of central Oroville has a moderate to high proportion of households that do not own vehicles.

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Figure 2-9 Butte County Zero-Vehicle Households



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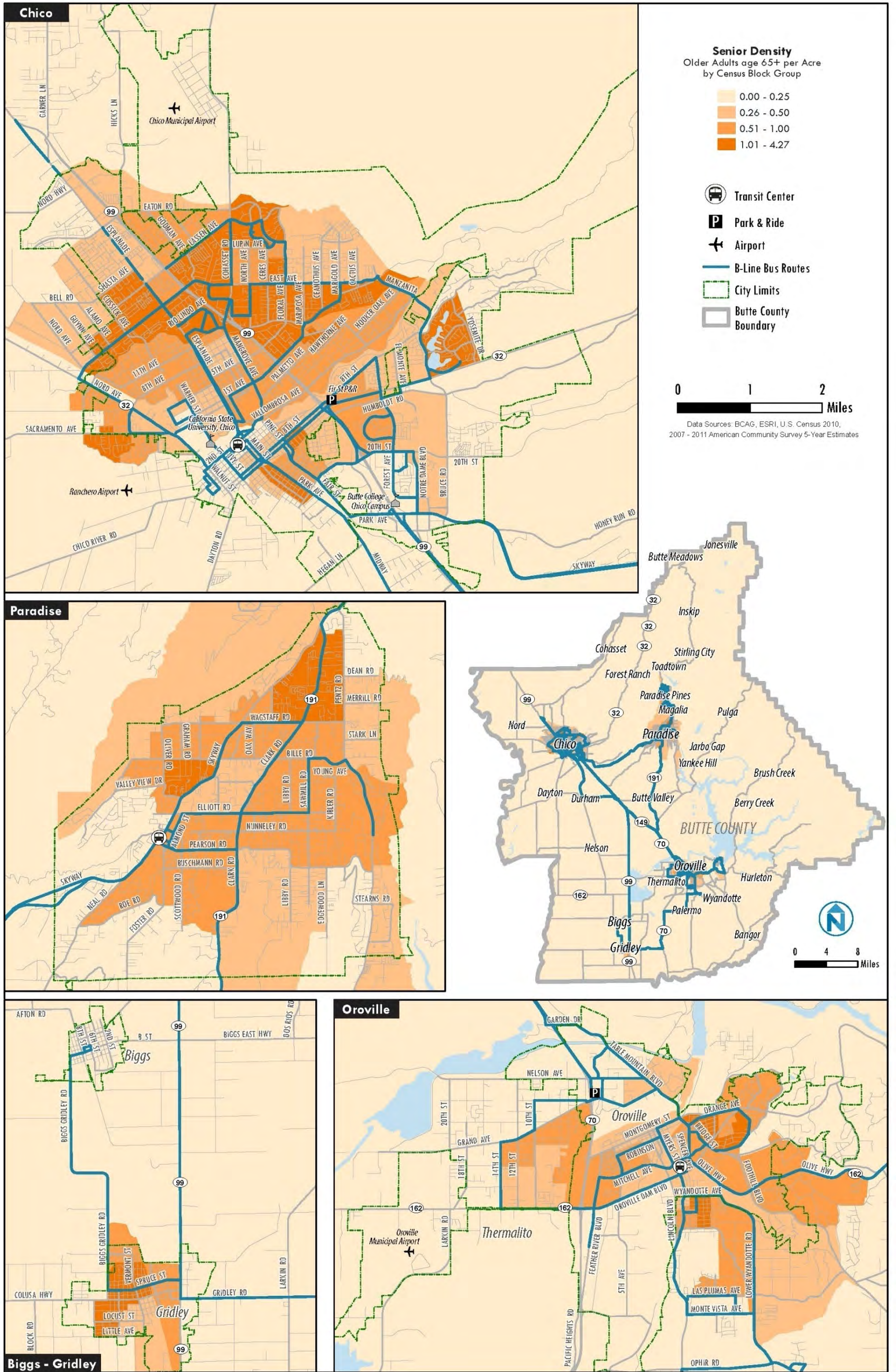
Seniors

The transportation needs for older populations gradually change with advancing age. The ability to own or operate a personal vehicle may become more limited, thereby increasing the importance of public transportation, and possibly paratransit services, for this segment of the population. Most research suggests that the 65 and over population group uses transit largely for non-work, locally oriented trips, and may depend on public transportation for shopping and medical trips. According to the most recent American Community Survey data (2012), persons age 65 and older constitute 15.8% of the county's population.

Figure 2-10 shows the distribution and density of seniors over the age of 65 throughout the county. Senior citizens live throughout Butte County, with moderate to high numbers of older adults per acre in Chico, Gridley, Oroville, and Paradise. Generally, the densities of senior citizens in Chico, Oroville, and Paradise correspond to the locations of senior housing facilities.

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Figure 2-10 Butte County Senior Citizen Density



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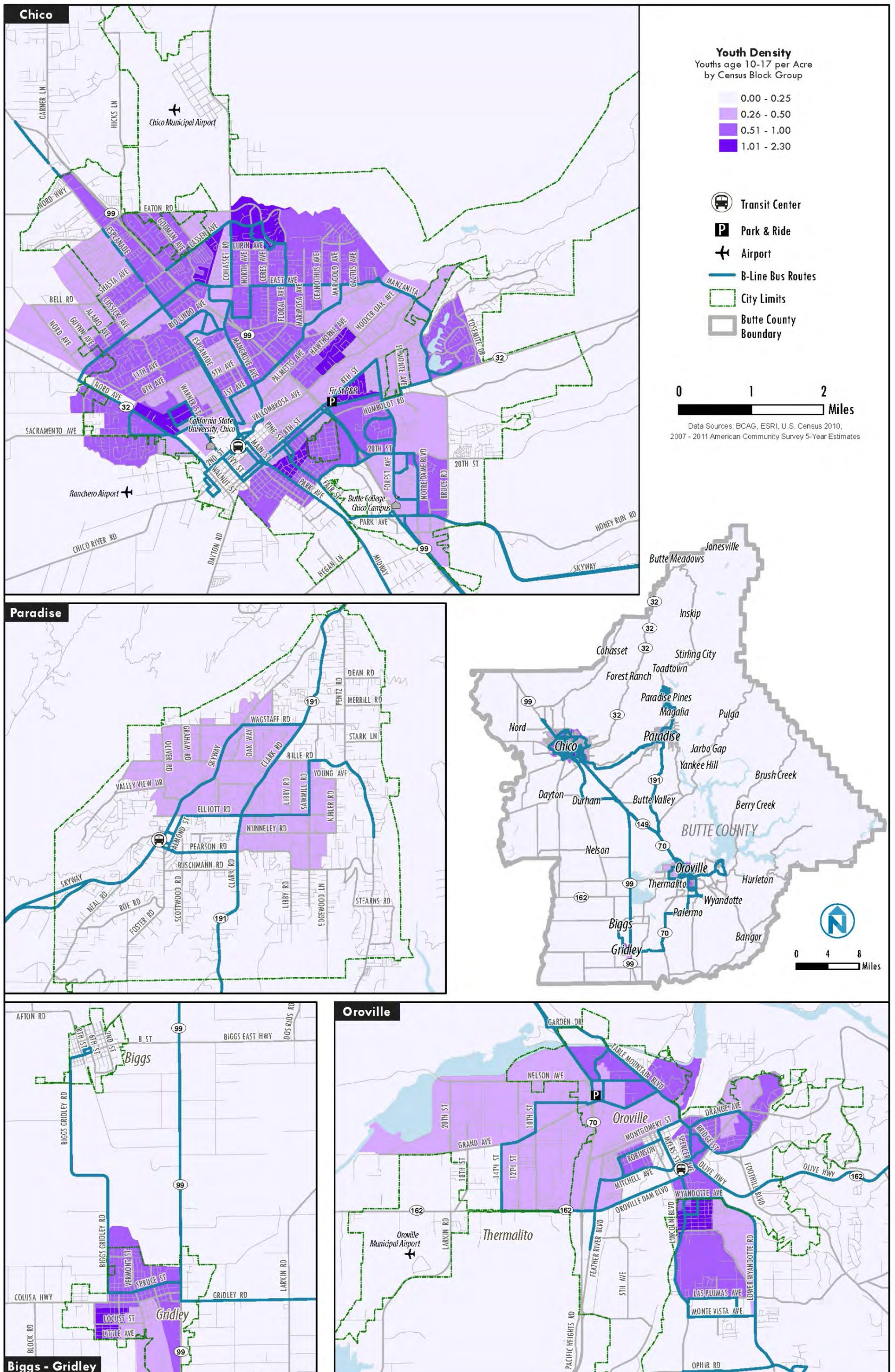
Youth

Transit, walking, and biking are frequently used by younger populations that do not have access to a vehicle. Unlike seniors however, this group often has the option to rely on parents or guardians for transportation. Additionally, youth transit trips are often in the late afternoon or evening, after the end of the school day. While public transportation is many times a secondary option for travel to or from school, it can be preferable to school buses due to costs and convenience. According to the most recent American Community Survey data (2012), youth under the age of 18 constitute 15.2% of the overall county population.

Figure 2-11 shows the distribution and density of youth under the age of 18 throughout the county. In Chico, these areas include the neighborhoods around Ceres and Lassen Avenues on the north edge of the city and neighborhoods on Hooker Oak Avenue and 8th Street, as well as near CSU. Gridley and Oroville have relatively large youth populations, with the highest densities centered on residential neighborhoods on the outskirts of the downtown areas. South Oroville in particular has a high number of youths per acre.

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Figure 2-11 Butte County Youth (Ages 10 – 17) Density



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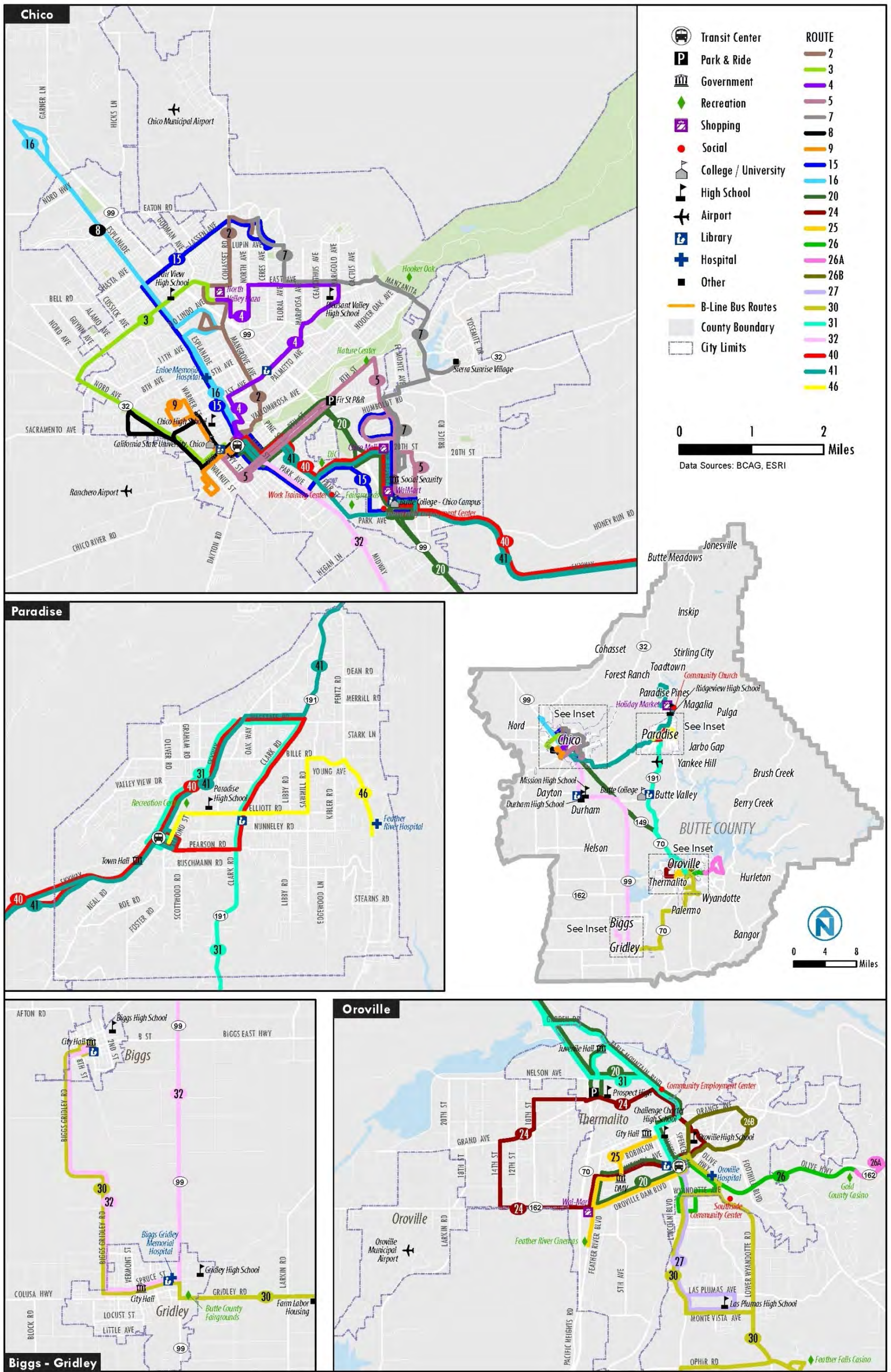
MAJOR EMPLOYERS AND TRANSIT GENERATORS

Major trip destinations are important to identify when evaluating transit, walking and biking transportation. These destinations include major employers, schools, medical facilities and shopping centers. Locating the most commonly traveled-to sites in and around Butte County can help define primary travel corridors and deduce travel patterns. This review includes destinations for both potential choice riders and transit-dependent riders who may require access to social services, low wage jobs, and senior programs.

Figure 2-12 presents an overview of major destinations throughout the county and current B-Line fixed route services.

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Figure 2-12 Major Destinations in Butte County



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Major Employers & Projected Employment Growth

The largest employers in Butte County are public agencies, medical facilities, retail companies, casinos, and agricultural and manufacturing businesses. Many jobs are focused around and generated by the CSU, which also brings in a large consumer base in the form of its students. Several healthcare facilities (identified in a later section) form another set of employers, which are also supported by college nursing programs and vocational schools. Other major employers include WalMart and several casinos around Oroville.

Figure 2-13 shows the existing employment density in Butte County as of 2010, while Figure 2-14 and Figure 2-15 show the projected employment density in 2020 and 2035, respectively. Current B-Line service appears to provide adequate service to the major employment centers throughout Butte County. Two minor exceptions are the lack of direct service to the commercial parks off of Hegan Lane, near the B-Line bus base, and businesses further up Route 32 northwest of West East Avenue.

Between the present (i.e., 2010) and 2020, the number of jobs per acre is generally projected to increase in peripheral areas and along major roadway corridors, but roughly in areas that currently have moderate to high employment density. In Chico, for example, areas along Park Avenue to the southeast of downtown are expected to add jobs, as are areas near Costco and the Sierra Nevada Brewing Company on East 20th Street.

In Oroville, employment density is expected to increase along Oroville Dam Boulevard and lower Feather River Boulevard to the southwest of downtown. In Paradise, by 2020 the employment density is expected to increase southwest of downtown Paradise, along Skyway Road north of Neal Road.

By 2035, projections indicate that several portions of the peripheries of Chico and Oroville will have added many new jobs. In particular, as with the population projections, the area around the redeveloped Diamond Match factory site is expected to have a moderate level of jobs per acre, making the area generally bounded by Park Avenue, Fair Street, and Hegan Lane into a major source of commute travel demand. Likewise, areas in the vicinity of East 20th Street and Bruce Road near Chico Mall are also expected to increase in employment density by 2035. The Nord Avenue corridor, especially near 8th Street, is also expected to have a relatively high number of jobs per acre in 2035.

In Oroville, the trends begun in 2020 are expected to continue into 2035, with gains in employment density continuing down lower Feather River Boulevard by that year. The number of jobs per acre north of downtown Oroville, on Table Mountain Boulevard at Garden Drive, is expected to develop into an employment center by 2035 as well. In Paradise, employment density is expected to intensify along Clark Road by 2035. Finally, much of central Gridley is expected to host more than 10.1 jobs per acre in the final projection year.

Figure 2-16 depicts the population and employment growth index for Butte County for the period between 2010 and 2035. According to both population and employment projections, areas in Butte County that are expected to add the most jobs and persons per acre include not only the traditional town and city centers such as downtown Chico and central Paradise, but also include peripheral development areas and corridors, like along Skyway and Clark Roads in Paradise, areas along Olive Highway (Route 162) to the east of the Oroville Transit Center, and parcels in and around Chico Mall and the Sierra Sunrise Village area in Chico.

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Figure 2-13 Employment Density, 2010

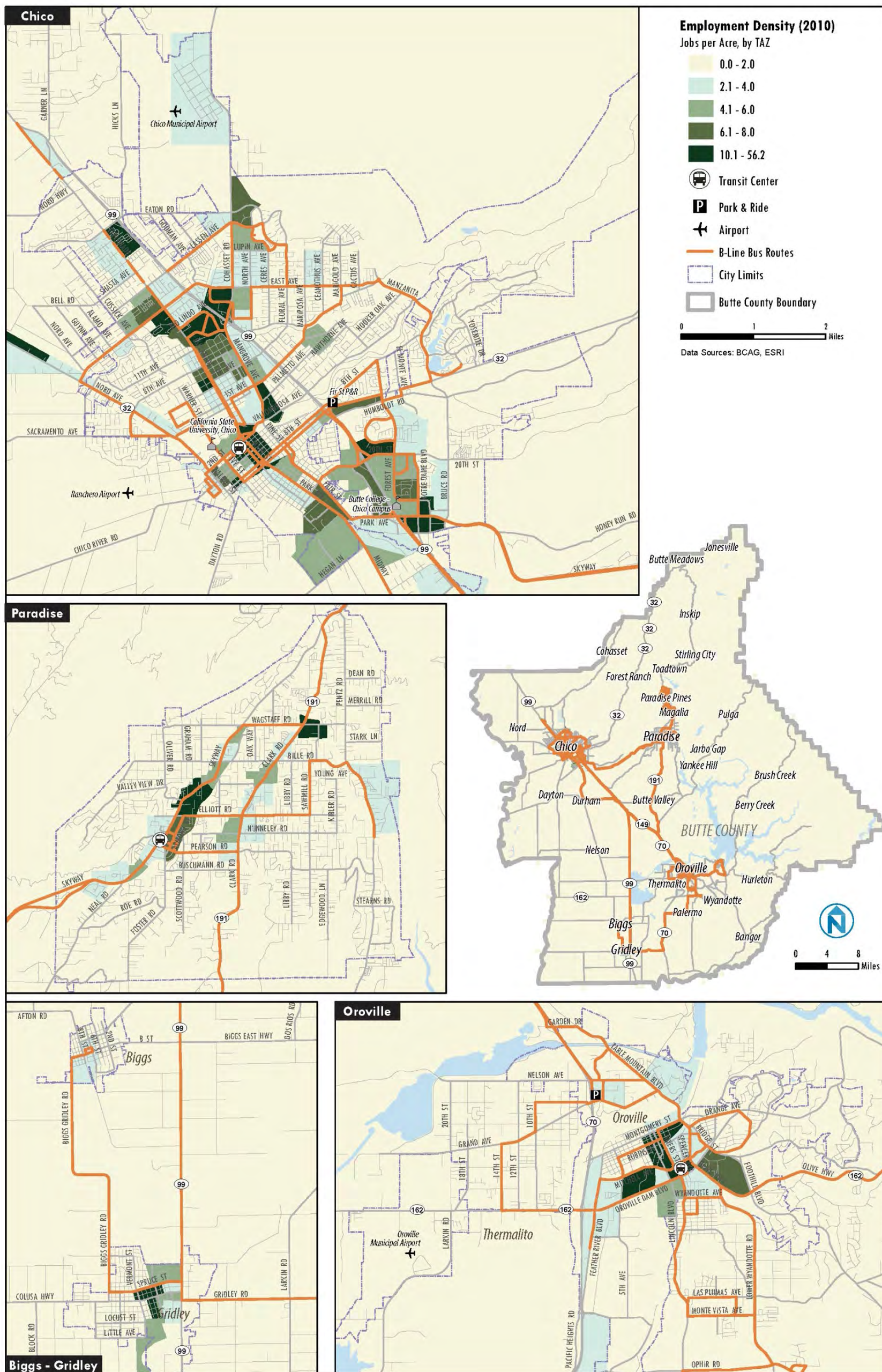


Figure 2-14 Employment Density, Projected 2020

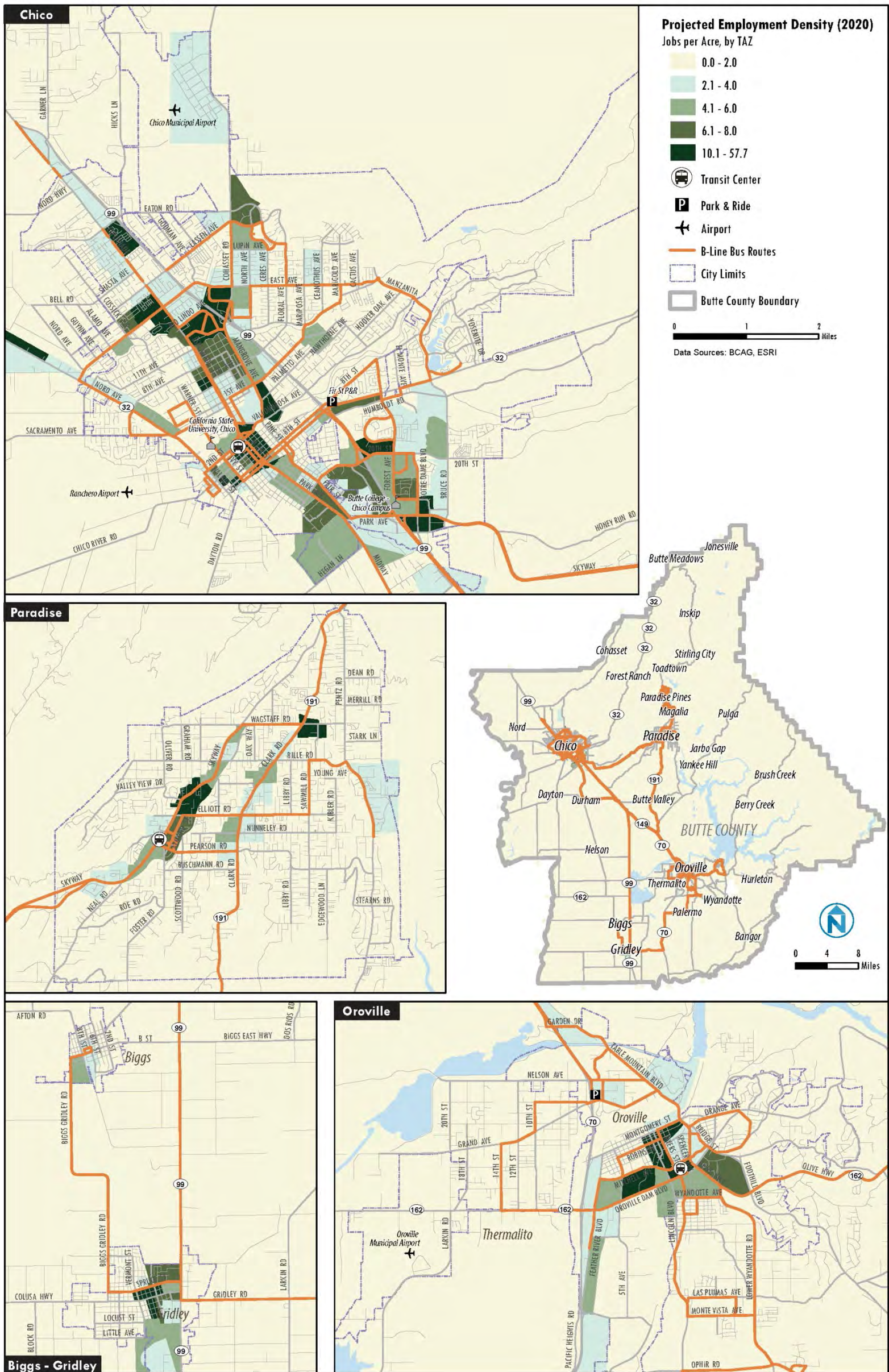


Figure 2-15 Employment Density, Projected 2035

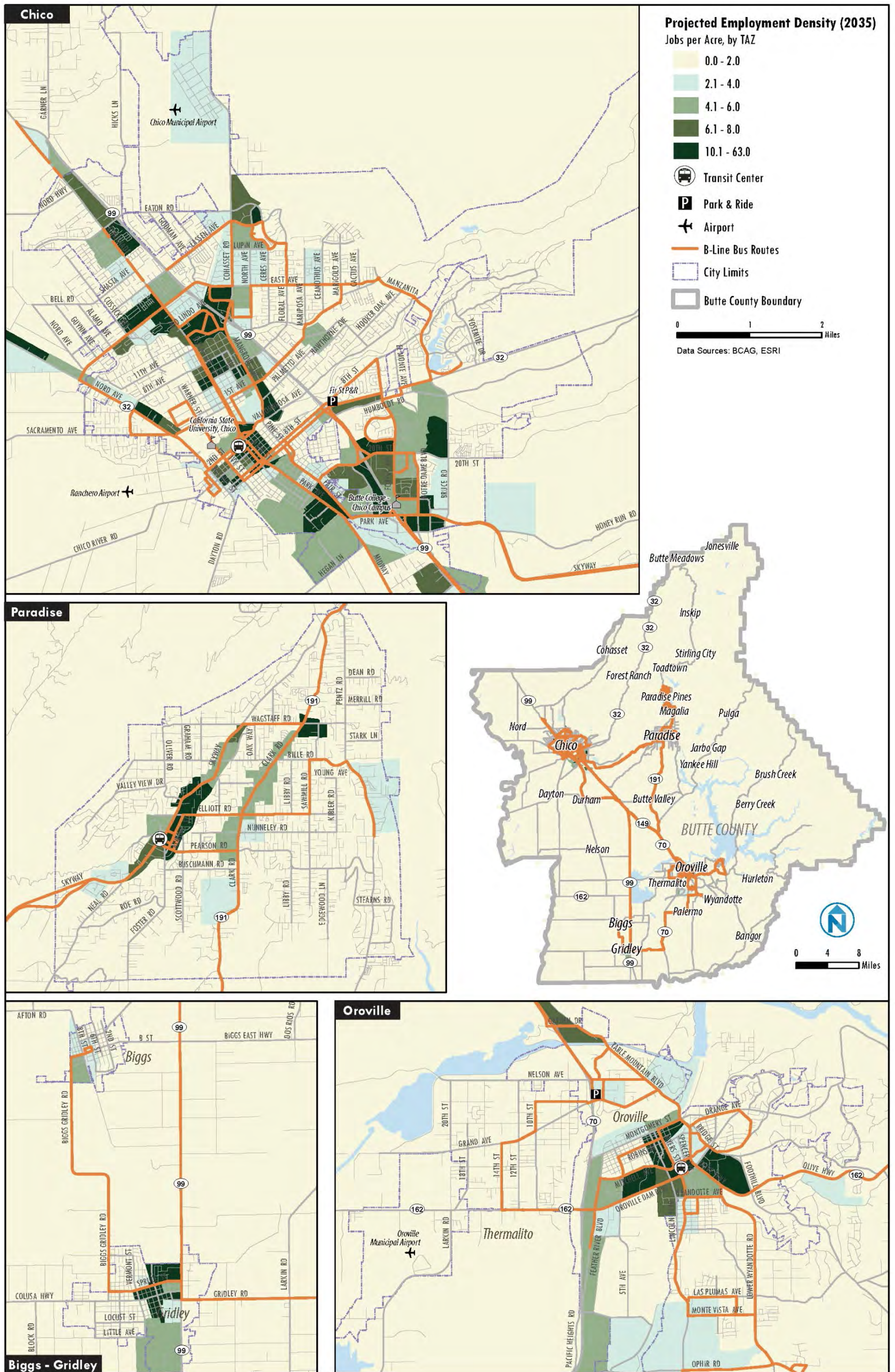
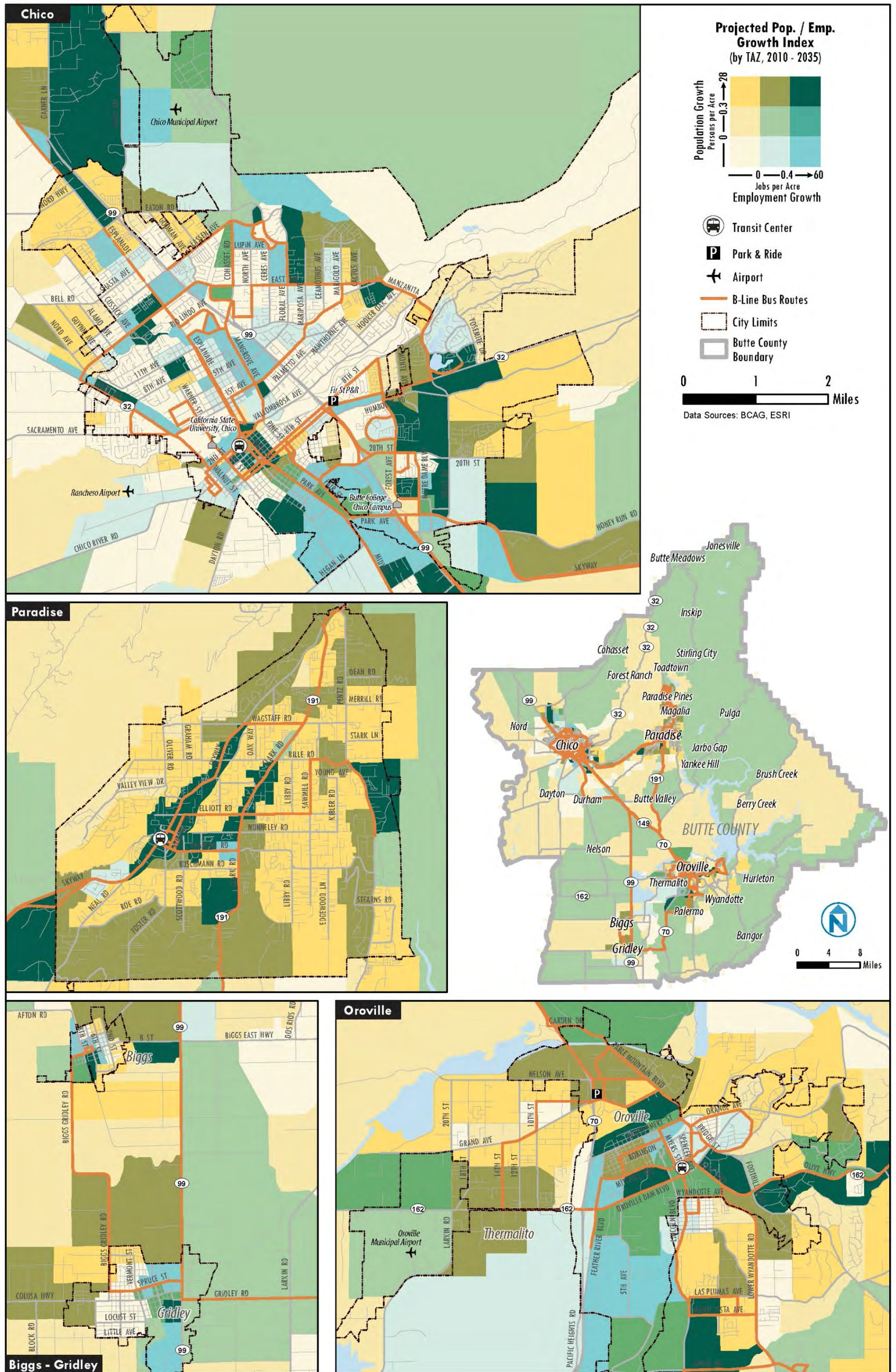


Figure 2-16 Butte County Projected Population & Employment Growth Index, 2010 - 2035



Educational Facilities

Universities, colleges, and vocational schools are important bases for transit, walking, and biking trips. Parking fees, limited automobile access, and the close concentration of major destinations for students like groceries, retail, and nightlife all promote higher transit ridership and non-motorized travel. Typically, colleges and universities may partner with transit agencies to provide optimized and/or discounted service for students and faculty.

In addition, local public and private schools frequently have younger students that may choose to take public transportation to their schools over school buses due to costs or convenience.

Butte County hosts several educational institutions, including the following schools:

- **California State University, Chico (or Chico State University)**, is a four-year and post-graduate degree institution with a central campus in downtown Chico. In 2012, the university had a total student enrollment of 16,356 and staff of 1,777.
- **Butte College** is a two-year degree institution with a main campus located rurally between Chico, Oroville and Paradise, and several satellite campuses throughout Butte County and nearby Glenn County. In 2012, the college had a total student enrollment of 13,286 and staff of 971.
- **15 public school districts comprised of approximately 90 public schools.** B-Line already serves many major public schools, including Chico High School, Fair View High School, Pleasant Valley High School, Chico Junior High School, Oroville High School, Prospect High School (Oroville), and Paradise High School. In particular, students attending Parkview Elementary School in Chico and Las Plumas High School in Oroville are anecdotally known to take B-Line buses to school (on Routes 5 and 27, respectively), and ridership patterns suggest that this activity may be more widespread throughout Butte County.

Medical Facilities

There are a number of hospitals and medical clinics located throughout Butte County, including the following major facilities:

- Enloe Hospital (Chico)
- Oroville Hospital (Oroville)
- Biggs-Gridley Memorial Hospital (Gridley)
- Feather River Hospital (Paradise)
- Butte County Public Health Clinics (Chico, Oroville)

Smaller clusters of medical facilities and doctors' offices also exist throughout B-Line's service area in Butte County, particularly in the vicinity of Cohasset and Parmac Roads in northwest Chico and along East Avenue near Pleasant Valley High School.

Shopping

Major shopping destinations within Butte County are centrally located in Chico, including Chico Mall, WalMart, North Valley Plaza, several grocery stores, and strip malls. In Oroville, major shopping locations include the FoodMaxx shopping center and the WalMart, both on Oroville Dam Boulevard to the south of downtown. Several other strip malls are located along Oro Dam

Boulevard. Additionally, a Raley's is conveniently located immediately adjacent to the Oroville Transit Center. In Paradise, a Big K-Mart and other shops are located at Paradise Plaza, at the corner of Clark & Wagstaff Roads; Paradise Shopping Center offers a grocery among other shops on Skyway Road near the Terry Ashe Recreation Center. Finally, B-Line serves the SavMor market (formerly Holiday Market) on Lakeridge Circle, which is one of a few shopping destinations in Paradise Pines and Magalia.

Elsewhere throughout the county, there are additional shopping destinations largely in the form of strip malls and smaller neighborhood shops in city and town centers. .

FUTURE PLANNING AND DEVELOPMENT PROJECTS

Planners and developers have put in place numerous plans to spur development in Butte County. In fact, according to the City of Chico's Building & Development Services department, as of July 2013 there are several residential projects either under consideration or approved in Chico, including over 2,000 approved and 600 proposed dwelling units.

Significant development plans and projects throughout Butte County are summarized below.

Plans & Development Projects - Chico

- **Chico Opportunity Sites.** In the most recent General Plan (2011), a total of 15 “opportunity sites” are expected to be the focus of change and redevelopment over the next two decades.⁴ On a basic level, these areas include:
 - Downtown Chico, South Campus, and East 8th & 9th Street (Central City sites)
 - North Esplanade, Mangrove Avenue, Park Avenue, Nord Avenue, and East Avenue (Corridor sites)
 - North Valley Plaza, East 20th Street, and Skyway (Regional Center sites)
 - The Wedge (Chapman/Mulberry neighborhoods), Vanella Orchard, Pomona Avenue, and Eaton Road (Other sites)
- **Chico Special Planning Areas.** In the most recent General Plan (2011), the Chico Planning Department designated five (5) areas in Chico as Special Planning Areas (SPAs), which are areas with significant new growth potential.⁵ They include:
 - **Bell Muir**, located northwest of W. East Avenue. Future growth may include single-family residential development designed in such a way as to ease the transition between rural farms and built-up Chico. 644 dwelling units are estimated for this SPA.
 - **Barber Yard** (the former Diamond Match Company site) will largely feature mixed-use residential development of varying densities (from 6 to 15 units per acre). It will also feature a village center, parks, walkable streets, and additional office, light industrial, and public land uses. The General Plan estimates a total of 1,096 dwelling units and over 400,000 square feet of non-residential square uses in the Barber Yard SPA.

⁴ For more information, consult Appendix B of the General Plan, here:
http://www.chico.ca.us/document_library/general_plan/documents/AppendixB_OpportunitySites.pdf

⁵ Please consult Appendix C of the 2011 General Plan, here:
http://www.chico.ca.us/document_library/general_plan/documents/AppendixC_SpecialPlanningAreas.pdf

- **Doe Mill/Honey Run**, located in the foothills at the eastern end of East 20th Street and north of Honey Run Road and Skyway. Potential development would be a recreation oriented, mixed-use development with a range of housing types and densities. Like Barber Yard, it would feature a village center with a mix of professional offices, retail, and other services. This SPA is expected to have 2,095 dwelling units and nearly 375,000 square feet of non-residential uses.
- **North Chico**, located north of the city, west of Chico Municipal Airport, and east of State Route 99, would have a mix of multi-family, single-family, commercial mixed-use, industrial-office mixed-use, public facilities, open space, and parks. The General Plan estimates that up to 1,899 dwelling units and over 1 million square feet of non-residential uses could be built in the North Chico SPA.
- **South Entler**, outside of the city, adjacent to State Route 99 on the east and bounded by Entler Avenue to the north and Marybill Ranch Road to the south, is envisioned as a mixed-use development that will function as a southern gateway to the city. This SPA would be anchored by a regional shopping center and bounded by low-density housing. A total of 949 dwelling units and approximately 1,350,000 square feet of non-residential land uses are estimated for the South Entler SPA.
- **Chapman/Mulberry Neighborhood Plan**, which recommends zoning changes to encourage higher density residential uses on Humboldt Avenue (between Willow Street and Aspen Street) and in the triangle of 16th Street, 19th Street, and C Street. This triangle also has a recommended zoning change from light manufacturing to neighborhood commercial.⁶
- **Chico Downtown Vision**, which highlights a few useful, desired concepts, including downtown intensification, mixed-use development, pedestrian activity, the redevelopment of the South Downtown District, and a transition of development intensity in adjacent neighborhoods.⁷

Plans & Development Projects - Oroville

- **Martin Ranch** is a 71-acre high-density smart growth project being phased in over 10 to 12 years. This development will likely necessitate consideration for a future transit stop.
- **Gateway Development** is a 15-acre development to be located at Highway 70 and Montgomery, with largely commercial and hotel land uses. This development will be important for walking and biking connectivity, especially for guests desiring to bike on trails.
- The **Rio d'Oro** project is a proposed mixed-use (but primarily residential) development encompassing a total of 685 acres located along Highway 70 in southwest Oroville. In addition to up to 2,700 residential units, two commercial centers totaling up to 248,000 square feet and public facilities including parks and a school are proposed.
- The City of Oroville is planning to build a large senior housing project (50 units) at **1511 Robinson Street** in the short-term future. The short-term service plan will ensure that

⁶ Source: Chapman/Mulberry Plan, http://www.chico.ca.us/planning_services/documents/ChapmanMulberryPlan.pdf

⁷ For more information, consult http://www.chico.ca.us/document_library/general_plan/documents/DowntownVisionIllustration.pdf

despite substantial route changes within Oroville, this location will continue to be served by fixed route buses.

- The proposed **Super WalMart** will become both a major destination for shopping trips as well as a significant employer in not just Oroville, but the county as a whole. Transit service will become a major consideration for this development.

Plans & Development Projects – Other Regional Centers

- In Biggs, the **Downtown Visual Master Plan** recommends development code changes that promote mixed-use development, higher density, and diversity in the downtown core.
- In Gridley, the **2030 General Plan** calls for mixed-use, neighborhood center-focused growth at the north edge of the city, west of Highway 99 and on both sides of the rail line.
- In Paradise, the **Paradise Community Village** project is a significant high-density, multi-unit housing development. It will also feature subsidized low-income housing. The first phase of this development is complete and operational. Increasing transit service to this area will likely become a priority, as the nearest existing bus stop is nearly a mile away.

Adopted Long-Range Plans

The following long-range plans have been adopted in Butte County. The most relevant of these to this report are discussed in more detail in Chapter 1.

- 2012 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) Regional Transportation Improvement Program (RTIP)
- Federal Transportation Improvement Program (FTIP)
- Administration of the Transportation Development Act (TDA) Funds
- Regional Housing Needs Study
- Air Quality Conformity Determinations
- Butte Regional HCP/NCCP
- Nord Ave Corridor Plan
- Skyway Corridor Study
- Coordinated Public Transit – Human Services Transportation Plan

CONCLUSION

The information presented in this chapter illustrates pockets of potential transit demand, as well as demand for non-motorized modes in portions of Butte County. This current demographic information, activity center data, and travel analysis serves as the basis for near-term transit alternatives presented in Chapter 7. Based on an array of demographic factors, it appears that current B-Line routes cover transit-dependent areas relatively well, with the exception of more rural areas off of main corridors in Oroville and Paradise that do not readily support traditional fixed route operations. Other current needs are minor, including service to employment areas on Hegan Lane to the southwest of Park Avenue, and further northwest on Route 32, past East Avenue. Longer-term alternatives for potentially expanded service to these areas may include a

mix of fixed-route services or, as have been implemented in other small cities and growing cities, hybrid fixed-deviated services or flex-route services.

The greatest concentrations of people and jobs in Butte County are within Chico and Oroville, with a concentration of population around CSU in Chico and in the established downtown Oroville and South Oroville residential neighborhoods. With the exception of CSU in Chico, many of the largest employers in Butte County are located in peripheral areas and near freeways, like the WalMart stores in Chico and Oroville, and the Feather Falls and Gold Country Casinos outside of Oroville. Modest population and employment growth is expected in these peripheral areas, some of which are outside of B-Line's current fixed route service area. In Chico, areas to explore expanding service in the long-term include the North Chico Specific Plan Area (NCSPA) Village Core area, new developments along the Eaton Corridor, and along Bruce Road south of Sierra Sunrise Village. In Paradise and Chico, long term service strategies may include increasing service span or frequency in areas with population and employment gains.

3 EXISTING TRANSIT SERVICES

In this chapter, existing public transportation services in Butte County are described. The first part of the chapter is devoted to B-Line, the primary transit operator of local and intercity fixed-route bus and demand-responsive paratransit service (“B-Line Paratransit”) within Butte County. Fixed routes link the cities of Chico, Gridley, Biggs, Oroville, and Paradise. Transit service is operated by Transdev (Veolia Transportation), which has operated buses in Chico for over 25 years.

Following the review of B-Line services, this chapter includes a discussion of other public and private services. This chapter includes the results of the boardings and alightings analysis conducted in September 2013.

B-LINE FIXED ROUTE SERVICES

The following section focuses on fixed-route service; paratransit services are discussed later in this chapter.

Route Descriptions

B-Line operates primarily two types of services: urban (Chico area) and rural (within other Butte County cities or intercity, between other major cities and population centers of Butte County). Some routes operate Monday through Friday only, and others operate all seven days. Routes 8, 9, and 40X operate on different schedules depending on whether California State University, Chico, is in session.

B-Line does not operate on New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. See Figures 3-1 through 3-3 for an overview of B-Line services, with each figure showing a specific type of route. Note that in some cases, service start and/or end times have been rounded slightly to make the service span easier to read at a glance.

Figure 3-1 Summary of B-Line Routes Wholly within Chico

Name	Major Stops/Timepoints	Service Span (Rounded)	Headway (Frequency)
2 Mangrove	Chico Transit Center, 5th & Mangrove, Parmac & Rio Lindo, North Valley Plaza and Ceres & Lassen	Mon-Fri 6:15am - 8:30pm Sat 8:15am - 7pm	Peak 30 min Midday 60 min Saturday 60 min
3 Nord/East	Chico Transit Center, West 8th Avenue & Nord, East & Nord, East & Esplanade and North Valley Plaza	Mon-Fri 6:20am - 9pm Sat 8:50am - 7pm	Peak 30 min Midday 60 min Saturday 60 min

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Name	Major Stops/Timepoints	Service Span (Rounded)	Headway (Frequency)
4 First/East	Chico Transit Center, Chico Junior HS, First & Longfellow, Pleasant Valley HS and North Valley Plaza	Mon-Fri 6:15am - 9pm Sat 8:50am - 7pm	Peak 30 min Midday 60 min Saturday 60 min
5 East 8th Street	Chico Transit Center, 9th Street & Pine, 8th Street and Highway 32, 8th Street and Olive and the Forest Avenue Transfer (Bank)	Mon-Fri 6:15am - 8:30pm Sat 8:15am - 7pm	Peak 30 min Midday 60 min Saturday 60 min
7 Bruce/Manzanita	Forest Avenue Transfer (Bank), Marsh Junior HS, Sierra Sunrise Village, Pleasant Valley HS and Ceres and Lassen. Note: Route 7 does NOT serve the Chico Transit Center	Mon-Fri 6:45am - 5:30pm	60 min
8 Nord	Student Shuttle through-routed with Route 9: connects CSU-Chico with student neighborhoods northwest of campus and the Chico Transit Center. Operates only when CSU-Chico is in session	Mon-Thu 7:30am - 9:30pm Fri 7:30am - 4pm	30 min
9 Warner/Oak	Student Shuttle through-routed with Route 8: connects CSU-Chico with student neighborhoods north and south of the campus and the Chico Transit Center. Operates only when CSU-Chico is in session	Mon-Thu 7:30am - 10pm Fri 7:30am - 4pm	30 min
9C Cedar Loop	Limited service; only operates when Route 9 is not running	Fri (while school is in session) 5:10pm - 8:30pm Mon-Fri (CSU breaks) 7:50am - 8:30pm Sat (year-round) 8:30am - 6:30pm	Friday PM 60-120 min Mon-Fri (CSU breaks) 80 min Saturday 120 min
15 Esplanade/ Park/Forest	Route 15 is split into the 15N serving Esplanade/Lassen to the Chico Transit Center and the 15S serving the Chico Transit Center to Park Avenue/MLK/Forest Avenue	Mon-Fri (15N) 6:15am - 9:30pm Sat (15N) 7:50am - 6:30pm Mon-Fri (15S) 6:20am - 9:40pm Sat (15S) 7:50am - 7pm	Peak 20 min Midday 30 min Evening 60 min Saturday 60 min
16 Esplanade/SR 99	Chico Transit Center, Esplanade & 5th, Rio Lindo & Parmac, East & Esplanade and Esplanade and SR 99	Mon-Fri 7am - 7pm Sat 8am - 6pm	60 min

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Figure 3-2 Summary of B-Line Routes Wholly within Other Butte County Cities

Name	Major Stops/Timepoints	Service Span (Rounded)	Headway (Frequency)
Oroville			
24 Thermalito	Oroville Transit Center (Mitchell & Spencer), 14th & Grand and Public Works/Administration. Through-routed with Route 27	Mon-Fri 6:30am - 7:30pm	60 min
25 Oro Dam	Oroville Transit Center (Mitchell & Spencer) and Feather River Cinemas. Through-routed with Route 26	Mon-Fri 6:10am - 6:50pm	60 min
26 Olive Hwy/Kelly Ridge	Oroville Transit Center (Mitchell & Spencer), D Street & Meyers, Gold Country Casino, Kelly Ridge & Royal Oaks, Oroville Hospital and Orange & Acacia. Through-routed with Route 25	Mon-Fri 6:30am - 6:20pm	60 min
27 South Oroville	Oroville Transit Center (Mitchell & Spencer), Las Plumas High School and Meyers & D Street. Through-routed with Route 24	Mon-Fri 7:10am - 6:50pm	60 min
Paradise			
46 Feather River Hospital	Paradise Transit Center (Almond & Birch) and Feather River Hospital. Operation coordinated through B-Line Paratransit	3 trips daily	Approx. 4 hrs

Figure 3-3 Summary of Intercity B-Line Routes

Name	Major Stops/Timepoints	Service Span (Rounded)	Headway (Frequency)
20 Chico - Oroville	Chico Transit Center, Fir Street Park and Ride, Forest Avenue Transfer (WalMart & Bank), Butte County Administration and Oroville Transit Center (Mitchell & Spencer)	Mon-Fri 5:50am - 8pm Sat-Sun 7:50am - 6pm	Peak 60 min Midday 120 min Weekend 120 min
30 Oroville - Biggs	Oroville Transit Center (Mitchell & Spencer), Lincoln & Palermo (Palermo), Heritage Oaks Mall (Gridley) and 6th and B Streets in Biggs	Mon-Fri 7:45am - 5pm Sat 8:45am - 5pm	Weekday 240 min Saturday 120 min

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Name	Major Stops/Timepoints	Service Span (Rounded)	Headway (Frequency)
31 Paradise - Oroville	Almond & Birch (Paradise), Clark & Wagstaff (Paradise), Clark & Pearson (Paradise), County Public Works (Oroville) and the Oroville Transit Center (Mitchell & Spencer)	Mon-Fri 6:45am - 7:30am (Paradise-Oroville); 5pm - 6pm (Oroville-Paradise)	1 morning/ 1 evening trip
32 Gridley - Chico	City Hall - 6th & C Street (Biggs), Spruce & SR 99 (Gridley), Midway & Durham Dayton Hwy (Durham), and the Chico Transit Center.	Mon-Fri 6:40am - 7:40am (Gridley-Chico); 5:20pm - 6:20pm (Chico-Gridley)	1 morning/ 1 evening trip
40 Paradise - Chico	Chico Transit Center, Forest Avenue Transfer @ WalMart (Chico), Almond & Birch (Paradise) and Skyway & Wagstaff (Paradise)	Mon-Fri 6am - 7:30pm Sat 7:50am - 6pm Sun 9:50am - 6pm	Weekday 60/120 min Weekend 120 min
41 Magalia - Chico	Skyway & Colter (Paradise Pines), Lakeridge @ Holiday Market (now a SavMor) (Magalia), Skyway & Wagstaff (Paradise), Almond & Birch (Paradise), Forest Avenue Transfer (WalMart & Bank) (Chico) and the Chico Transit Center	Mon-Fri 5:30am - 6:45pm	120 min
	Saturday service operates between Skyway & Wagstaff, Skyway & Colter, and back, offering transfers to/from Route 40	Sat 9:45am – 6pm	Three round trip routes in AM, midday, and PM

Fixed Route Fleet & Facilities

Transit Centers & Transfer Points

B-Line operates and serves three transit centers that offer timed transfer points. The Chico Transit Center is located on West 2nd Street between Salem Street and Normal Avenue in downtown Chico, and bus boarding areas are located on all three blocks. The facility, which opened in 2008, features shelters, restrooms, and a staffed ticket office. Chico Transit Center is served by most local and intercity B-Line routes, including Routes 2, 3, 4, 5, 8, 9/9C, 15N/S, 16, 20, 32, 40, and 41.

An additional timed transfer point in Chico, referred to as the Forest Avenue Transfer Point or “Forest Avenue Xfer,” is located on both sides of Forest Avenue at Baney and Parkway Village. Buses on Routes 5, 7, 15, 20, 40, and 41 all serve the Forest Avenue Transfer Point.

In 2011, the Oroville Transit Center opened for service, and includes sawtooth bus turn-outs, a permanent shelter with restrooms, several benches, and wide sidewalks. Located on Spencer Avenue just north of Oro Dam Boulevard, the Oroville Transit Center is served by Routes 20, 24, 25, 26, 27, 30, and 31.

The Paradise Transit Center is located at Almond and Cedar Streets in Paradise, and is served by Routes 40, 41, and 46. The Paradise transit center is a bus shelter only.

Fleet & Facilities

B-Line’s fleet consists of 35 standard buses, with 19 of these vehicles powered by Compressed Natural Gas (CNG). All B-Line vehicles are fully equipped with wheelchair lifts or low-floor ramps and include a wheelchair securement area with space for two wheelchairs. Additionally, all fixed-route buses are equipped with front-mounted bicycle racks. See Figure 3-4.

Figure 3-4 B-Line Fixed Route Fleet

Make	Model	Vehicle Year	Fuel Type	Capacity	Age (Years)	Count
Freightliner	MB55	2006	CNG	32	6.00	4
Gillig	Phantom	1992	Diesel	45	20.00	1
Gillig	Phantom	2001	Diesel	35	11.00	3
Gillig	Phantom	2003	Diesel	35	9.00	6
Gillig	Low Floor	2011	Diesel	44	1.00	6
Orion	Orion V	2000	CNG	43	12.00	7
Orion	Orion VII N.G.	2008	CNG	43	4.00	8
Total						35

Dispatching duties are performed and vehicles are stored and maintained at the B-Line (Veolia Transportation) bus base, located at 326 Huss Lane in Chico.

Fares

B-Line has different fixed route fares based on the type of service; with local routes priced slightly less than regional routes. The current fare structure was established in May 2014, with the last fare change occurring in 2009.

As of May 25, 2014, one-way local fares are \$1.50 with a half-price discount (\$0.75) available to seniors (age 65+), those with disabilities, and those with a valid Medicare card. Students (ages 6 to 18) ride for \$1.00, a discount fare priced at roughly two-thirds of the regular fare. Regional one-way fares are set at \$2.00 with discounts available at \$1.00 and \$1.50 for students. Up to two (2) children under the age of six (6) may ride for free with each paying adult.

B-Line currently has a transfer policy which ensures that riders who need more than one bus to reach their destination may complete a continuous one-way trip without paying an additional fare. Local transfers are valid for one hour from the time issued, and regional transfers are valid for two hours.

Riders may purchase several types of passes, including 2-ride, 10-ride, and 30-day passes. Additionally, riders have the option of purchasing an All Day Pass from their bus driver for \$4.00, allowing unlimited access to the entire system for the day. Upgrades from local tickets, passes, or transfers may be purchased by simply paying the difference between the local and regional fare.

Figure 3-5 B-Line Fixed Route Fare Structure (per May 24, 2014 fare increase)

Fare Type	Local Service	Regional Service
CASH		
Regular	\$1.50	\$2.00
Discount*	\$0.75	\$1.00
Student (6-18)	\$1.00	\$1.50
Child (under 6)	2 free	2 free
2-RIDE PASS		
Regular	\$3.00	\$4.00
Discount*	\$1.50	\$2.00
Student (6-18)	\$2.00	\$3.00
10-RIDE PASS		
Regular	\$13.50	\$18.00
Discount*	\$6.75	\$9.00
Student (6-18)	\$9.00	\$13.00
30-DAY PASS		
Regular	\$37.50	\$48.00
Discount*	\$19.00	\$25.00
Student (6-18)	\$25.00	\$34.00

B-Line has special fare agreements with Chico State University, Butte College, and the City of Chico for City employees. Chico State students, faculty, and staff ride B-Line for free as part of a program funded by the Associated Students and the University. Additionally, Butte College students are allowed to purchase 30-Day Passes at the student pass price (usually reserved for students in elementary, middle, and high schools). Finally, City of Chico and downtown business employees are eligible for an employee transit pass, which allows for free bus trips to and from the downtown Chico area through a program funded by the City of Chico.

Standard tickets and passes may be purchased at a few locations in Butte County, including the Chico Transit Center, the City of Chico Finance Office, the Butte County Public Works Department in Oroville, and the Town of Paradise Finance Office. Bulk ticket sales may be made at the B-Line office or by mail.

Fare Payment by Passenger

Figures 3-6 and 3-7 present an overview of the most prevalent forms of cash payments aboard B-Line local and regional/intercity routes for the month of September 2011. September data were chosen from the available Fiscal Year 2011/12 dataset in large part as it serves as the best available proxy for September 2013, the month in which the boarding and alighting data examined in more detail below were collected.

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For both the local and regional routes, the most prevalent cash fare was the regular base fare. Ignoring the unclassified revenues, the second-highest cash fare usage on the local routes (26.1% of transactions) was a student fare. This finding is not surprising given the presence of middle and high schools along several local B-Line routes. Regionally, the second-highest classifiable cash fare transaction type was a discount fare (11.5%). Discount fares also accounted for 17.5% of local B-Line transactions as well.

Figure 3-6 Cash Fare Usage Summary, Local Routes – September 2011

Cash Fare Description	Transaction Count	Use Percentage
Base Regular Fare	6,341	29.5%
Unclassified ("Dump")*	5,616	26.1%
RA2 Student Fare	4,248	19.7%
RA1 Discount Fare	3,762	17.5%
LA4 Regional Disabled Upgrade	536	2.5%
LA3 Regional Upgrade	437	2.0%
Short Fare Paid	370	1.7%
Issue Day Pass	170	0.8%
RA4 Additional Fare	31	0.1%
Total	21,511	100.0%

Source: BCAG

*Note: a "dump" occurs when fare payments temporarily become jammed in the fare collection equipment. Operators press a "dump key" that dumps all cash and coins into the holding box without giving the system a chance to classify the revenue.

Figure 3-7 Cash Fare Usage Summary, Regional Routes – September 2011

Cash Fare Description	Transaction Count	Use Percentage
Base Regular Fare	3,793	33.1%
Unclassified ("Dump")*	3,340	29.2%
RA1 Discount Fare	1,321	11.5%
RA2 Student Fare	850	7.4%
LA4 Regional Disabled Upgrade	492	4.3%
Local Fare - Discount	373	3.3%
Local Fare	327	2.9%
Short Fare Paid	327	2.9%
LA3 Regional Upgrade	232	2.0%
Local Fare - Student	172	1.5%
Issue Day Pass	157	1.4%
Pass - Student	38	0.3%
RA4 Additional Fare	25	0.2%
Total	11,447	100.0%

Source: BCAG

*Note: a "dump" occurs when fare payments temporarily become jammed in the fare collection equipment. Operators press a "dump key" that dumps all cash and coins into the holding box without giving the system a chance to classify the revenue.

As seen in Figure 3-8 below, in FY 2011/12, the most common pass type used in B-Line payment transactions was the University Card, which accounted for nearly 34% of all transactions. The next most used pass types were the Social Service pass, which was used in 14.1% of payment transactions, and the 30 Day Local Discount pass, used in 12.4% of transactions.

Figure 3-8 B-Line Transaction Pass Usage, FY 2011/12

Pass Type	Pass Type - Detail	Total Number of Pass Transactions	Pass Usage %
Special Card	University Card	308,981	33.7%
Period Pass	365 Day Soc. Service	128,945	14.1%
Period Pass	30 Day Local Discount	113,552	12.4%
Period Pass	30 Day Regional Discount	58,813	6.4%
Period Pass	30 Day Local Regular	48,843	5.3%
Period Pass	30 Day Regional Regular	48,806	5.3%
Period Pass	365 Day Employee	34,977	3.8%
Period Pass	30 Day Local Student	31,072	3.4%
Stored Ride	10 Ride Regional Regular	27,673	3.0%
Stored Ride	10 Ride Local Regular	26,649	2.9%
Period Pass	30 Day Regional Student	15,182	1.7%
Stored Ride	10 Ride Local Discount	14,321	1.6%
Period Pass	Day Pass	13,567	1.5%
All Other Stored Ride/Value and Period Passes		46,276	5.0%
Total		917,657	100%

Source: BCAG

Special School Holiday Service

Like many other transit agencies that provide service to areas with a large university or college, B-Line adjusts its fixed route operating schedule when CSU is not in service. In particular, Routes 8 (Nord) and 9 (Warner/Oak) operate only during the CSU school year when Spring and Fall semester classes are in session; these routes do not run when there are no classes, such as during Spring Break, Thanksgiving Week, and other campus holidays like Labor Day, Veterans Day, and Cesar Chavez Day. To provide service in the general vicinity of CSU when school is not in session, however, Route 9C (Cedar Loop) – which normally provides limited service on Saturdays and Friday evenings – operates throughout the day. Additionally, the Route 40X express service, which provides direct service from Paradise Transit Center to the Fir Street Park-and-Ride and the Chico Transit Center on weekdays at 6:44am, does not operate during the summer or winter CSU breaks. Route 40X is intended to provide relief for the 7am westbound Route 41 trip, which is often very crowded. Nevertheless, there is an opportunity to explore expanding flexible scheduling in the vicinity of CSU and other local schools.

There are numerous precedents for flexible scheduling due to school schedules and numerous transit systems across the county that serve major college campuses also alter their services to account for the rise and fall of ridership depending on the school calendar. In a major metropolitan area like Seattle, King County Metro has a separate “When No University of Washington (UW)” schedule. When UW is not in session, designated trips on 13 bus routes that serve the vicinity of the campus are not run (canceled). More akin to B-Line, in Eugene, Oregon, several Lane Transit District (LTD) bus routes experience schedule or routing changes when area schools are out on holiday or on seasonal breaks. In contrast to B-Line, LTD service accounts for breaks not only at the University of Oregon and Lane Community College, but also at local high schools. Other universities, including the University of California Santa Cruz, University of North Texas, and Purdue also significantly modify their schedules when school is not in session.

B-LINE PARATRANSIT

B-Line Paratransit is a door-to-door service for qualified individuals traveling within the greater Butte County B-Line service area in Chico, Oroville, and Paradise. (Paratransit service in Gridley is provided by the Gridley Golden Feather Flyer service.) It provides two types of paratransit services, including:

1. ADA service for individuals who cannot use the fixed route system and hold Americans with Disabilities Act (ADA) certification.
2. Dial-a-Ride service for use by individuals with disabilities who are not eligible for ADA service and seniors 65 years of age or older. Dial-a-Ride trips are not given priority status if individuals with ADA certification need the service, and users may be charged premium fares. B-Line is considering modifying this to disallow non-ADA use for people who are not seniors, and raising the age for a senior to 70.

Service is offered between 5:50am and 10pm on weekdays, 7am and 10pm on Saturdays, and from 7:50am to 6pm on Sundays. While B-Line Paratransit service is available to all destinations within a $\frac{3}{4}$ mile buffer of any B-Line fixed route, supplemental service to areas of up to three miles outside the ADA boundaries is available at an additional cost; however, in order for service to be provided to supplemental areas there must be a direct, easily accessible route from the core service area to the proposed destination. Trips provided outside the core service area are non-ADA and are provided when there is sufficient time and space available.

Reservations may be made from one to seven days in advance, and are taken from 7AM to 5PM seven days a week, excluding holidays. Nevertheless, B-Line Paratransit accommodates a limited number of same-day requests based on available capacity.

Eligibility

New Paratransit riders need to be registered and certified as eligible by B-Line before using the service. Applications may be downloaded online or prospective riders may ask for applications to be sent to them directly.

The ADA Paratransit application (and the Dial-A-Ride application, if the prospective rider requests service based on disability) requires healthcare verification. The ADA Paratransit application in particular asks very detailed questions about a rider’s disability and/or health status, including the nature of their disability, what needs they may have in terms of mobility equipment, and how close they are to fixed route transit.

All eligible riders are only certified to use B-Line Paratransit or Dial-A-Ride for a certain period of time after which point riders must renew their eligibility status.

Fleet & Facilities

The current B-Line Paratransit fleet consists of 14 vehicles. Full fleet information is shown in Figure 3-9 below.

Figure 3-9 B-Line Paratransit Fleet

Make	Model	Vehicle Year	Fuel Type	Capacity	Age in Years	Count
Ford	E450	2008	Unleaded	18	4.00	8
Ford	E450	2010	Unleaded	18	2.00	6

As with the fixed route fleet, B-Line Paratransit vehicles are stored and maintained at the B-Line bus base in Chico.

Fares

Currently, one-way fares for all passengers are \$2.50, with ten-ride passes and \$25 and \$50 value cards also available for purchase. Supplemental fares are as follows:

- Zone 1 (up to 1 mile outside the ADA service area): \$6.25 per ride
- Zone 2 (1-2 miles outside the ADA service area): \$8.25 per ride
- Zone 3 (2-3 miles outside the ADA service area): \$10.25 per ride

Children under the age of 6 and personal care attendants are allowed to ride for free.

Fare Payment by Passenger

As discussed above, expanded B-Line Paratransit service was introduced in FY 2011/12, covering areas up to three miles outside of the ADA-required core service area. As seen in Figure 3-10 below, only one transaction in FY 2011/12 was made for a Zone 3 trip; 125 rides to Zone 2 and 23 to Zone 1 were recorded. By far the most common transaction in FY 2011/12 was for the regular Paratransit fare.

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Figure 3-10 Cash Fare Usage Summary, B-Line Paratransit – FY 2011/12

Fare Type	Transactions, FY 2011/12	% of Total
Regular Paratransit Fare	50,019	94.5%
Unclassified ("Dump")*	2,611	4.9%
Zone 2	125	0.2%
RA4 Additional Fare	83	0.2%
Short Fare Paid	47	0.1%
Zone 1	23	0.0%
Zone 3	1	0.0%
Total	52,909	100.0%

Source: BCAG

*Note: a "dump" occurs when fare payments temporarily become jammed in the fare collection equipment. Operators press a "dump key" that dumps all cash and coins into the holding box without giving the system a chance to classify the revenue.

SYSTEMWIDE PERFORMANCE

This section talks about five-year performance trends for B-Line's fixed route services.

Fixed Route Five-Year Performance Data/Indicators

Below is a summary of key findings related to B-Line fixed route service ridership, productivity, and performance over the past five fiscal years using various service and cost performance indicators. Figure 3-11 displays five performance metrics for all, urban, and rural B-Line services from FY 2008/09 through FY 2012/13. Note that, in practice, the "rural" designation is applied to all routes that operate outside of Chico, but some of these routes also operate within Chico (e.g., Route 20).

Figure 3-11 B-Line Performance Metrics, FY 2008/09 – FY 2012/13

	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	% Chg FY 09-FY13
OPERATING COST						
Total	\$4,489,866	\$4,601,620	\$5,025,326	\$5,214,821	\$5,464,353	21.7%
Urban	\$2,962,418	\$3,028,679	\$3,066,826	\$3,227,788	\$3,313,163	11.8%
Rural	\$1,527,448	\$1,572,941	\$1,958,500	\$1,987,033	\$2,151,190	40.8%
FARE REVENUE						
Total	\$947,583	\$1,125,317	\$1,197,642	\$1,246,467	\$1,300,616	37.3%
Urban	\$674,966	\$743,671	\$767,597	\$757,691	\$757,424	12.2%
Rural	\$272,617	\$381,646	\$430,045	\$488,776	\$543,192	99.3%
VEHICLE SERVICE HOURS						
Total	67,006	67,297	67,383	70,817	70,901	5.8%
Urban	46,307	46,383	43,717	46,161	45,756	-1.2%

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	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	% Chg FY 09-FY13
Rural	20,699	20,914	23,667	24,776	25,144	21.5%
VEHICLE SERVICE MILES						
Total	1,053,539	1,058,065	1,084,201	1,086,583	1,134,226	7.7%
Urban	551,836	536,018	521,829	509,964	552,249	0.1%
Rural	501,703	522,046	562,373	576,618	581,977	16.0%
PASSENGERS						
Total	1,284,761	1,237,284	1,178,509	1,306,431	1,361,955	6.0%
Urban	977,561	932,307	839,387	892,116	938,859	-4.0%
Rural	307,200	304,977	339,122	414,315	423,096	37.7%

Sources/Notes:

FY 2007 - FY 2009 from previous performance audit - previous audit had an apparent calculation error for "total fixed route" in FY 2007-08

FY 2010 - FY 2013 VSH, VSM, Passengers from "FY X-X Summary" documents, supplied by B-Line staff

FY 2010 - FY 2012 FTEs from SCO reports

FY 2010 - FY 2012 revenues and operating expenses from BCAG Basic Financial Statements

FY 2013 revenues and operating expenses from "BCAG Notes to FS 6/30/13" document

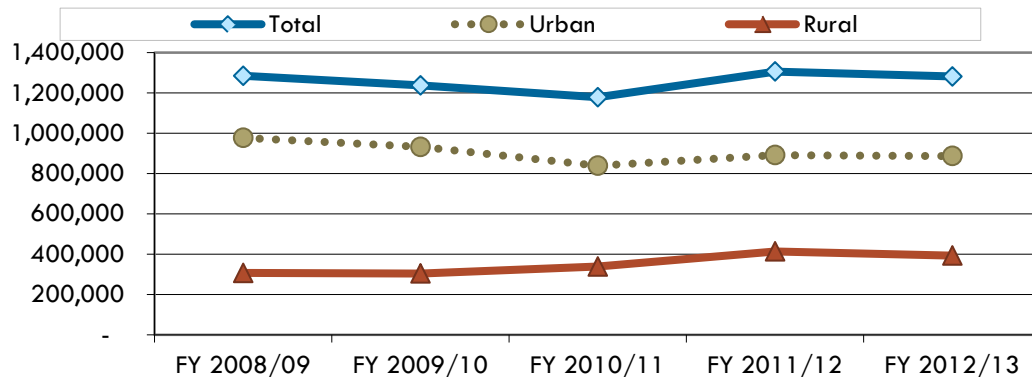
Effect of Service Changes in FY 2010/11

Due to the implementation of the recommendations outlined in the Market Based Study on November 1, 2010 (and subsequent service revisions in April 2011), a number of performance metrics changed significantly in FY 2010/11. For example, operating costs for rural services increased 24.5% that year, partly as a result of the addition of Route 32 (Gridley – Chico). Additionally, the number of passengers on B-Line decreased by nearly 5% as a result of route restructuring within Chico.

Ridership

Overall, B-Line ridership has remained relatively steady over the past five years.

Figure 3-12 B-Line Ridership, FY 2008/09 – FY 2012/13



Despite the steadiness in overall passengers, the share of passengers per service type shifted noticeably between FY 2008/09 and FY 2012/13. Driven by ridership losses of 4.6% in FY

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2009/10 and 10% in FY 2010/11, B-Line’s urban ridership fell 9.2% over the five year review period. By contrast, ridership on the rural routes grew by 28.2% over this same period. Given that ridership stayed relatively constant overall, it is possible that some former local route riders may have switched to regional routes within Chico in recent years. These fluctuations in ridership are largely due to the route restructurings and additional services that were implemented in November 2010 and April 2011.

B-Line Performance Indicators

Several indicators are used to evaluate a transit system’s productivity and efficiency. A summary of seven indicators over the five-year review period are presented in Figure 3-13.

Figure 3-13 B-Line Performance Indicators, FY 2008/09 – FY 2012/13

	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	% Chg FY09 – FY13
OPERATING COST PER HOUR						
Total	\$67.01	\$68.38	\$74.58	\$73.64	\$77.07	15.0%
Urban	\$63.97	\$65.30	\$70.15	\$69.92	\$72.41	13.2%
Rural	\$73.79	\$75.21	\$82.75	\$80.20	\$85.55	15.9%
OPERATING COST PER PASSENGER						
Total	\$3.49	\$3.72	\$4.26	\$3.99	\$4.01	14.8%
Urban	\$3.03	\$3.25	\$3.65	\$3.62	\$3.53	16.5%
Rural	\$4.97	\$5.16	\$5.78	\$4.80	\$5.08	2.3%
OPERATING COST PER MILE						
Total	\$4.26	\$4.35	\$4.64	\$4.80	\$4.82	13.0%
Urban	\$5.37	\$5.65	\$5.88	\$6.33	\$6.00	11.8%
Rural	\$3.04	\$3.01	\$3.48	\$3.45	\$3.70	21.4%
PASSENGERS PER HOUR						
Total	19.2	18.4	17.5	18.4	19.2	0.2%
Urban	21.1	20.1	19.2	19.3	20.5	-2.8%
Rural	14.8	14.6	14.3	16.7	16.8	13.4%
PASSENGERS PER MILE						
Total	1.2	1.2	1.1	1.2	1.2	-1.5%
Urban	1.8	1.7	1.6	1.7	1.7	-4.0%
Rural	0.6	0.6	0.6	0.7	0.7	18.7%
AVERAGE FARE PER PASSENGER						
Total	\$0.74	\$0.91	\$1.02	\$0.95	\$0.95	29.5%
Urban	\$0.69	\$0.80	\$0.91	\$0.85	\$0.81	16.8%
Rural	\$0.89	\$1.25	\$1.27	\$1.18	\$1.28	44.7%

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	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	% Chg FY09 – FY13
FAREBOX RECOVERY RATIO						
Total	21.1%	24.5%	23.8%	23.9%	23.8%	12.8%
Urban	22.8%	24.6%	25.0%	23.5%	22.9%	0.3%
Rural	17.8%	24.3%	22.0%	24.6%	25.3%	41.5%

Sources/Notes:

FY 2007 - FY 2009 from previous performance audit - previous audit had an apparent calculation error for "total fixed route" in FY 2007-08

FY 2010 - FY 2013 VSH, VSM, Passengers from "FY X-X Summary" documents, supplied by B-Line staff

FY 2010 - FY 2012 FTEs from SCO reports

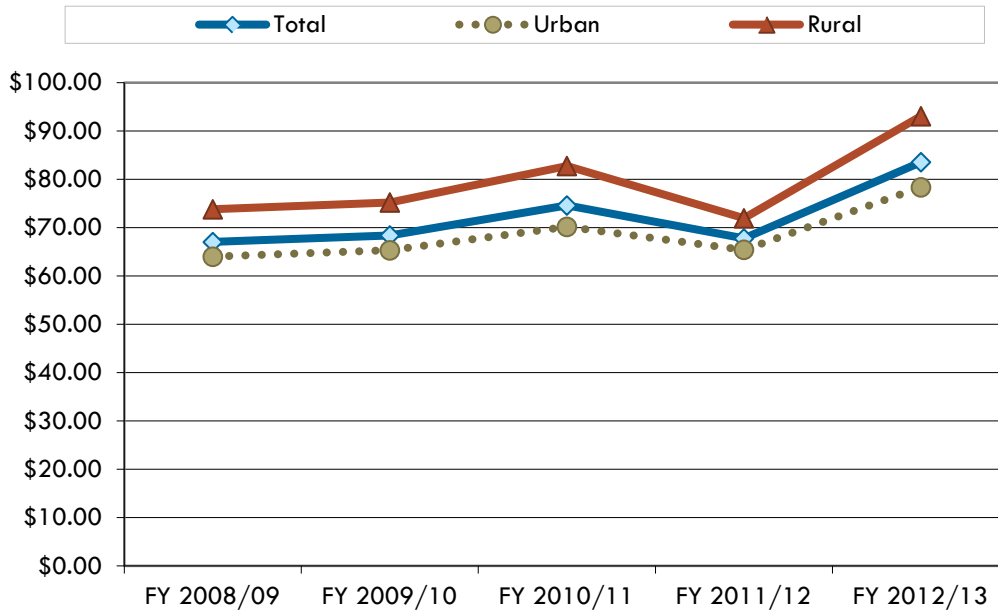
FY 2010 - FY 2012 revenues and operating expenses from BCAG Basic Financial Statements

FY 2013 revenues and operating expenses from "BCAG Notes to FS 6/30/13" document

Operating Cost per Hour

Overall, hourly costs for all fixed route services increased 15% over the five year period (from \$67.01 in FY 2008/09 to \$77.07 in FY 2012/13). Over the first three years of the review period, hourly costs for both urban and rural routes rose gradually, only to fall slightly in FY 2011/12 as increases in vehicle service hours outpaced operating cost increases in that year. Hourly costs rose again in FY 2012/13 (see Figure 3-14).

Figure 3-14 Operating Cost per Hour

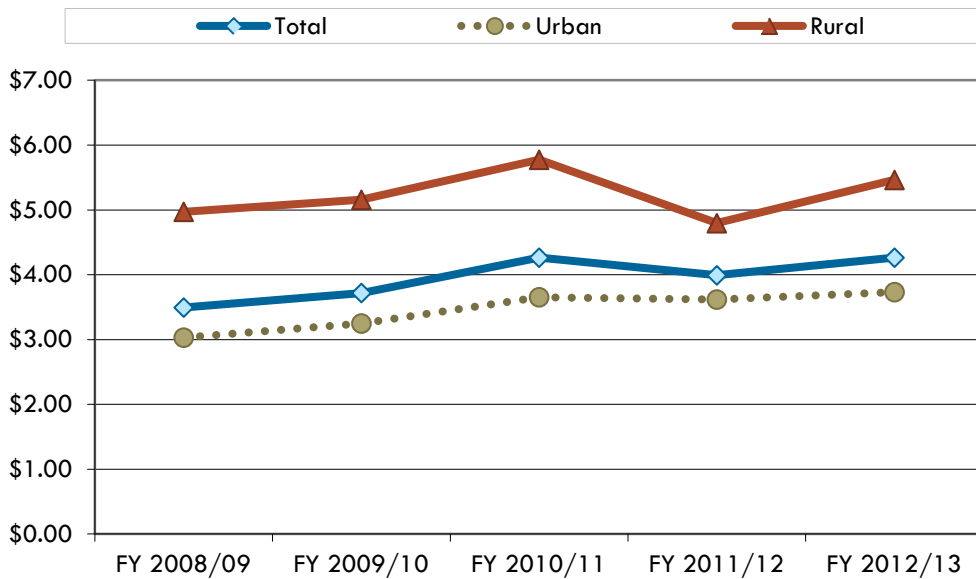


Operating Cost per Passenger

Because B-Line rural services attract fewer passengers than the urban routes, rural costs per passenger are higher overall. Nevertheless, due to the 22% increase in ridership on rural routes in FY 2011/12, operating costs per passenger dropped 17% for rural routes, which resulted in an overall drop of this metric of 6.4% for all fixed route services combined in that year.

Nevertheless, over the five-year review period, operating cost per passenger for all fixed route services increased 14.8%, due in large part to the effects of the route restructuring in FY 2010/11, when operating costs jumped while ridership fell (see Figure 3-15).

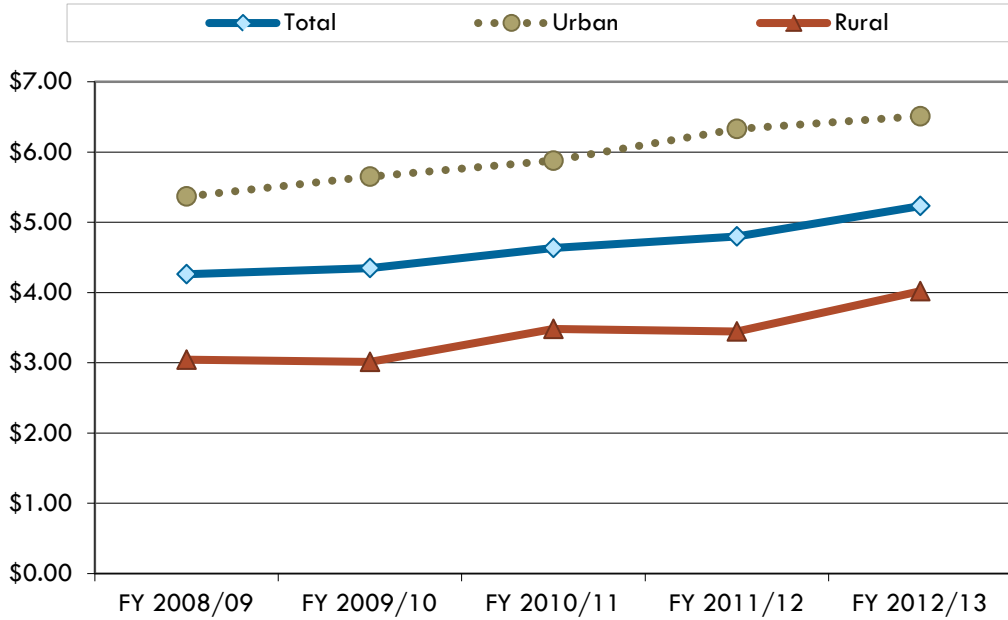
Figure 3-15 Operating Cost per Passenger



Operating Cost per Mile

Operating cost per mile for all services increased gradually over the five-year review period, despite a slight decrease (5.2%) in the cost per mile for urban routes in FY 2012/13. From FY 2008/09 to FY 2012/13, the operating cost per mile for B-Line fixed route services increased 13% from \$4.26 in FY 2008/09 to \$4.82 in the most recent fiscal year (see Figure 3-16).

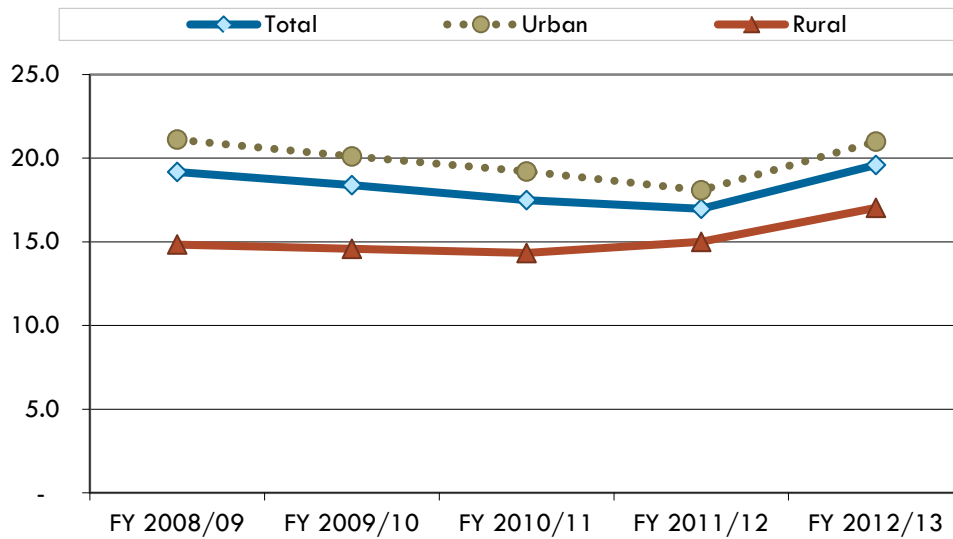
Figure 3-16 Operating Cost per Mile



Passengers per Hour

Despite year-to-year fluctuations, B-Line productivity has remained remarkably consistent between FY 2008/09 and FY 2012/13, at 19.2 passengers per hour. This consistency masks the longer term positive effects of the last route restructuring: even though the initial changes resulted in short-term ridership loss, the changes reversed a three-year trend of falling service productivity; in FYs 2011/12 and 2012/13, the years following the changes, passengers per hour consistently improved (see Figure 3-17).

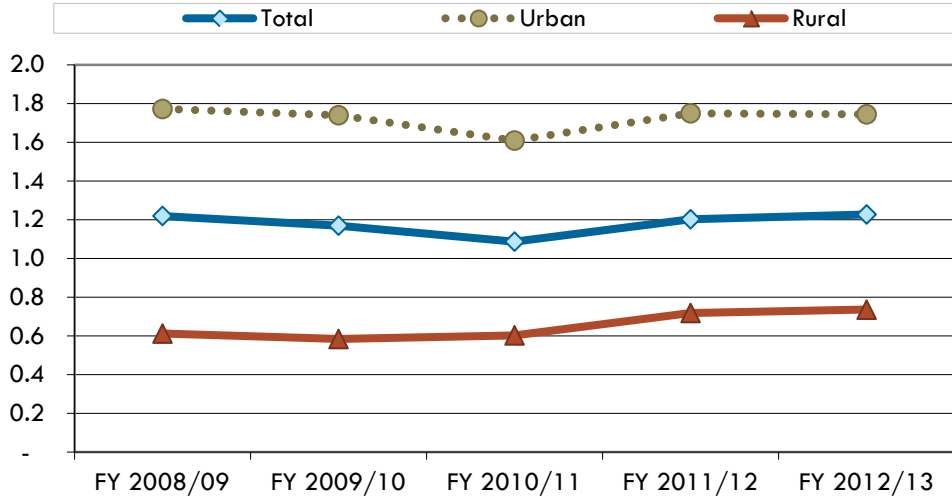
Figure 3-17 Passengers per Hour



Passengers per Mile

Over the course of the five-year review period, the number of passengers per revenue mile fluctuated but remained relatively consistent overall, falling slightly by 1.5% between FY 2008/09 and FY 2012/13. The number of passengers per mile hit a five-year low of 1.1 in FY 2010/11 when urban ridership and revenue miles both fell as a result of service changes implemented that year (see Figure 3-18).

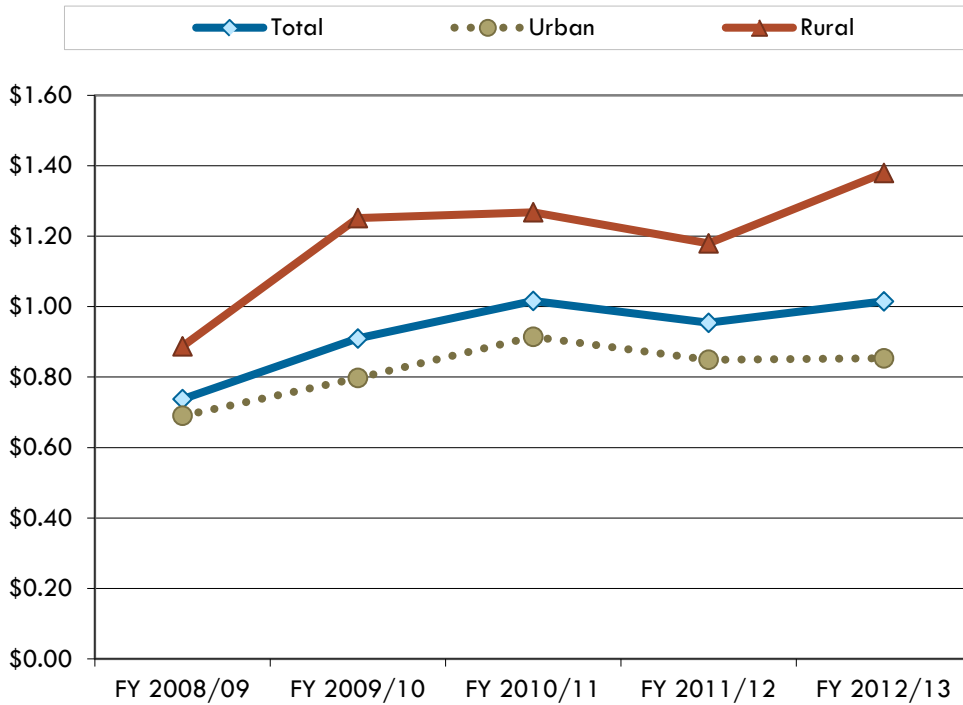
Figure 3-18 Passengers per Mile



Average Fare per Passenger

Average fare revenue per passenger for B-Line fixed route services has remained relatively consistent since fares were raised in July 2009, which resulted in an 18.8% increase in fare revenue and a 23.3% increase in the average fare per passenger in FY 2009/10. Over the five-year review period, the average fare per passenger increased nearly 30%, reflecting not only the fare increase but also ridership and revenue gains over the past two fiscal years (see Figure 3-19).

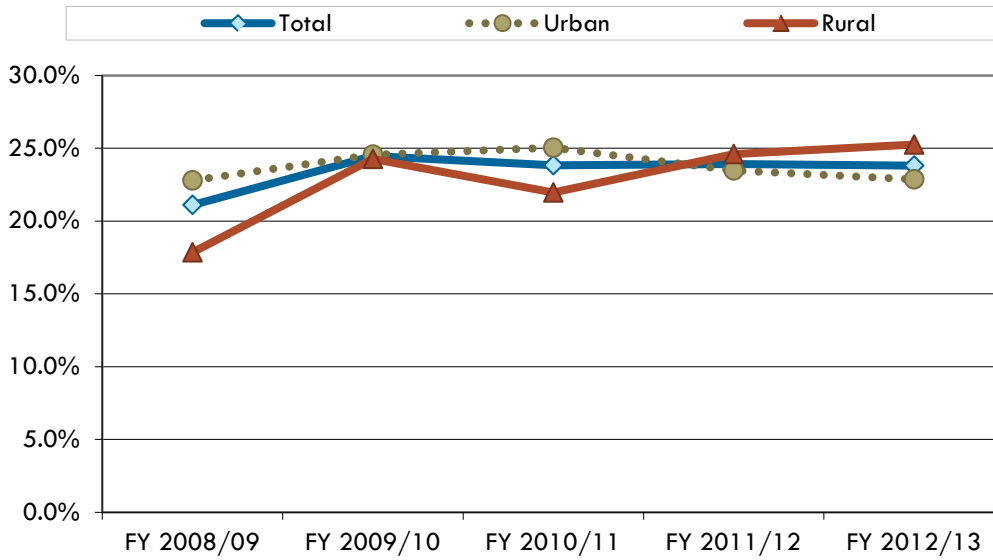
Figure 3-19 Average Fare per Passenger



Farebox Recovery Ratio

B-Line's farebox recovery ratio has consistently been strong, exceeding the 20% urban and 10% rural TDA requirements each year of the five-year review period. In fact, the farebox recovery ratio for all services increased 12.8% between FY 2008/09 and FY 2012/13, reflecting the fact that fare revenue increases outpaced operating costs in three of the five years (see Figure 3-20).

Figure 3-20 Farebox Recovery Ratio



ROUTE PROFILES

Ridership data provides information that can be used to measure system or route performance and to identify opportunities to improve current route alignments. For this planning effort, we primarily analyzed boarding and alighting activity (by stop and by trip) and on-time performance. This approach provides a high level of granularity into the performance of existing B-Line routes; stop-level data helps B-Line staff understand where demand may fall short of service levels, and boarding activity by time of trip can reveal “peaks and valleys” or active/less active periods over the entire service day which can aid in optimizing trip schedules and frequencies. On-time performance data for Wednesday, September 25th have been provided by B-Line staff and are evaluated per route in the summaries below.

In order to capture an understanding of B-Line ridership by route, a boarding and alighting study was conducted in September 2013 covering 100% of the trips for one representative weekday (using data collected on a successive Monday, Tuesday, and Wednesday), Saturday, and Sunday. The boarding and alighting survey was conducted using onboard surveyors who were instructed to tabulate passengers getting on and off the bus at each stop. A total of 5,900 passenger boardings were recorded on the surveyed weekday, with 4,261 boardings occurring on local Chico routes, 345 on local Oroville routes, and 1,294 on intercity/regional routes.

The results in this section present findings from the composite weekday only; unfortunately, the Saturday count date (September 21, 2013) was an uncharacteristically rainy day in the region which had a negative impact on ridership. Drivers on that day also informally remarked that ridership levels on some of the intercity routes, particularly Route 20, neared historically low Saturday levels. Regardless, for planning purposes, weekday ridership will provide the foundation for future route analysis. Weekend stop-level and boarding and alighting information from Saturday may be used to inform planning purposes but due to reduced ridership levels should not be used as the basis for future planning. Due to the relative importance of weekday data, we are including both Saturday and Sunday data in an appendix to this report, Appendix A.

Finally, note that even though the service start and/or end times have been rounded slightly to make service spans easier to understand at a glance, the calculations of revenue hours are based on the exact schedule.

Local Routes - Chico

The following route profiles examine the local fixed route services, serving points in and around the cities of Chico, Oroville, and Paradise.

Note that data from Route 90, which provides rides to homeless people between the Chico Transit Center and the Jesus Center, were not collected during this survey effort.

Figure 3-21 Route 2 Mangrove

At a Glance		
Weekday Boardings		376
Weekday Revenue Hours		11.7
Boardings per Hour		32.3
Boardings per Trip		12.1
Frequency (minutes)	Mon-Fri Peak/Mid-day	30/60
	Saturday	60
Span	Mon-Fri	6:15am - 8:30pm
	Saturday	8:15am - 7pm

Description

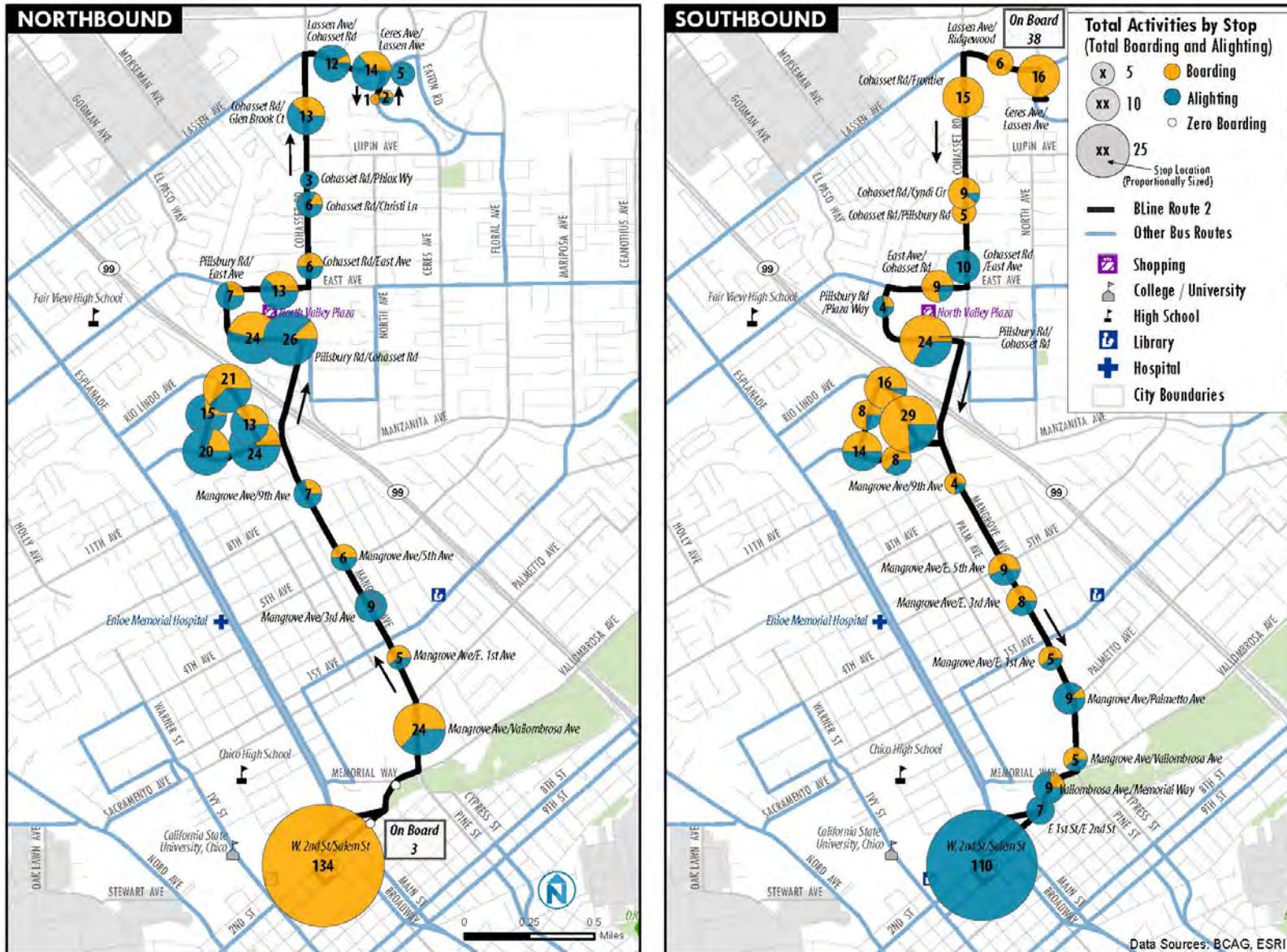
Route 2 operates between the Chico Transit Center and Ceres & Lassen via Mangrove and Cohasset, serving a spate of medical offices and the DMV on a loop in the vicinity of Parmac Road and Rio Lindo Avenue, as well as North Valley Plaza. Major stops and timepoints along Route 2 include the Chico Transit Center, 5th Avenue and Mangrove Avenue, Parmac Road & Rio Lindo Avenue, North Valley Plaza, and Ceres and Lassen Avenues. The route has a total round trip time of approximately 45 minutes. During peak hours, Route 2 is through-routed with Route 7 (meaning the bus operates as Route 7 from the northern terminus).

Route 2 Weekday Service

Figure 3-22 shows the Route 2 boarding and alighting activity for the northbound and southbound directions.

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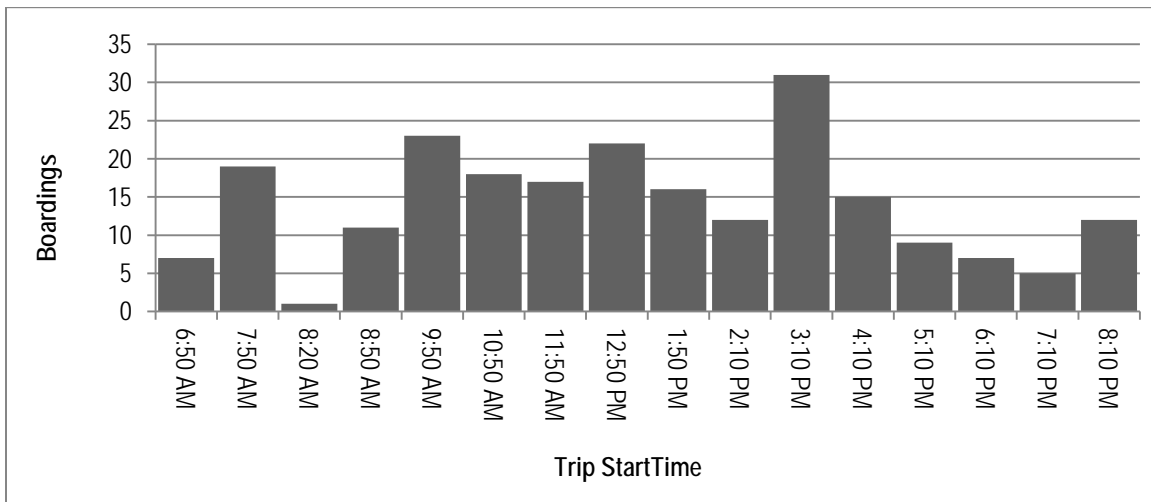
Figure 3-22 Route 2 Weekday Boardings and Alightings by Stop



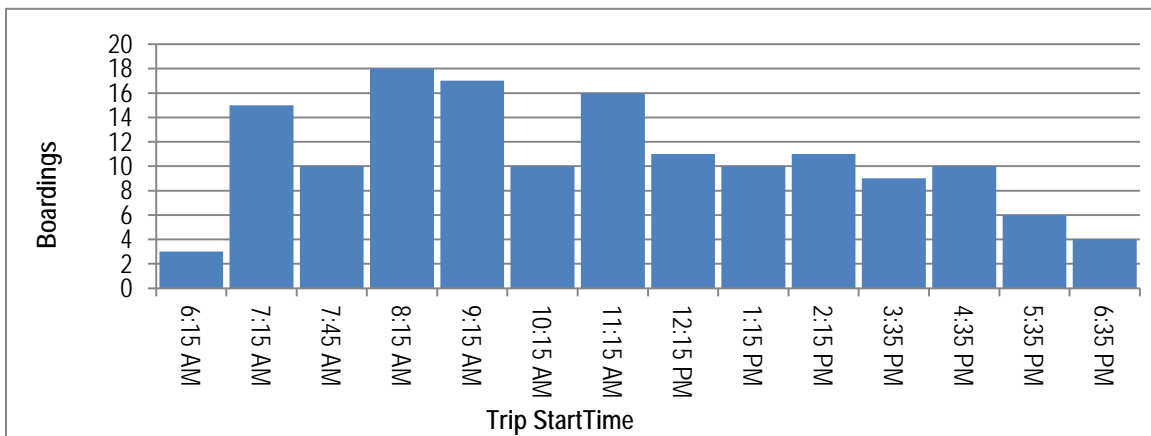
On the northbound trips, the majority of boardings occur at the Chico Transit Center (2nd and Salem Streets) with alightings spread throughout the trip. The highest concentration of alightings occurs in the vicinity of the Rio Lindo Avenue and Parmac Road loop, which serves the DMV and several medical facilities, and North Valley Plaza. A similar pattern occurs in the southbound direction, with spikes in boardings at North Valley Plaza and Rio Lindo Avenue at Cohasset Road, with by far the greatest number of alightings at the Chico Transit Center. A total of 38 passengers rode through from interlined Route 7 buses at Ceres and Lassen Avenues. Figure 3-23 presents boardings by trip start time for Route 2. In the northbound direction, boardings varied over the course of the day, with relatively steady boardings throughout the midday and evening, and short peak in the mid-afternoon. In the southbound direction, however, boardings roughly followed a bell-curve pattern, peaking in the late morning and midday time periods.

Figure 3-23 Route 2 Weekday Boardings by Run – Northbound and Southbound

Northbound



Southbound

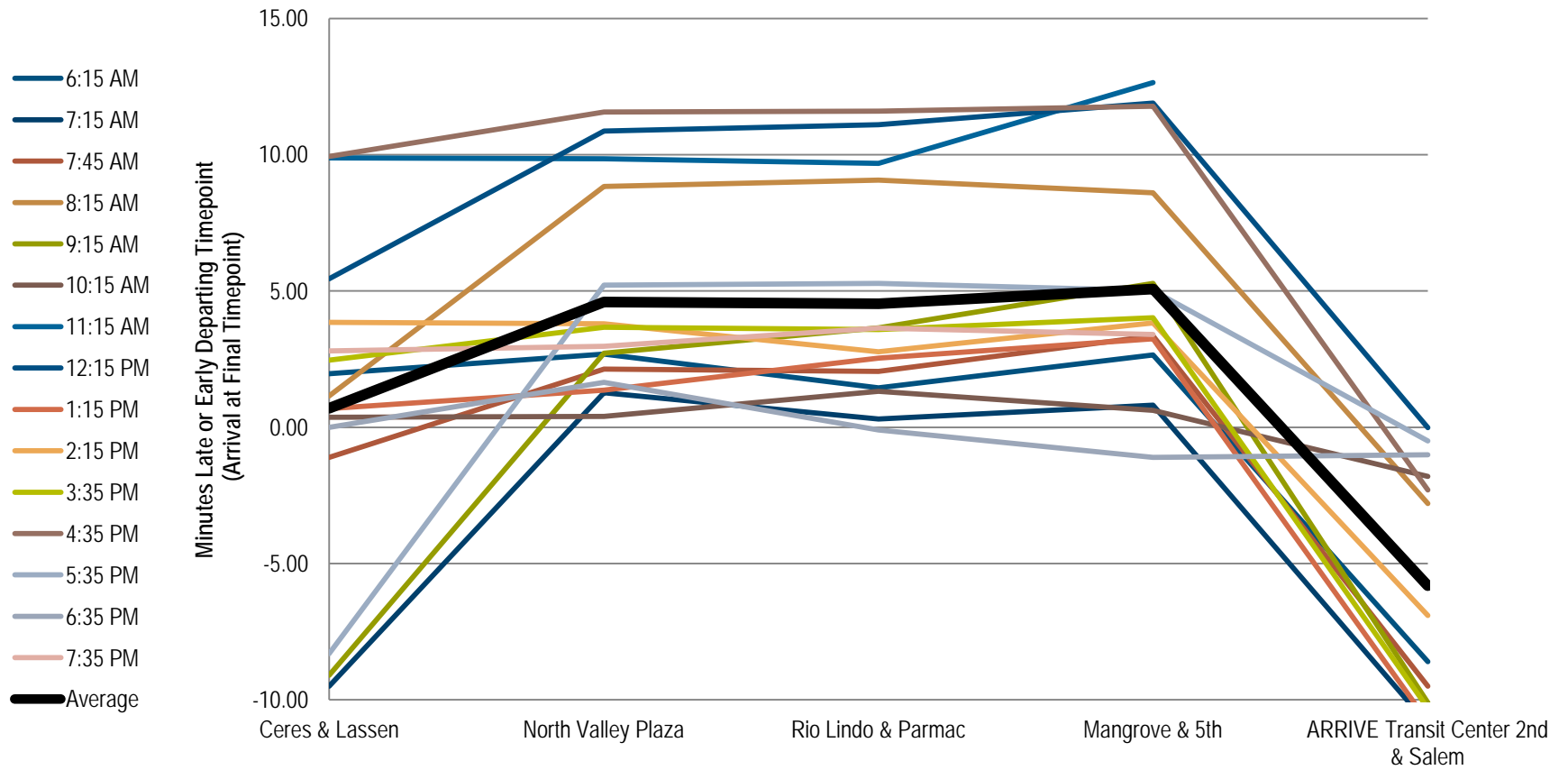


Route 2 On-Time Performance

Route 2 has some of the best on-time performance in the B-Line system. All sampled outbound trips (100%) ran on time (defined as departing within five minutes of the scheduled time from major timepoints and with no departures more than one minute early from any timepoint). One-third (33%) of sampled inbound trips had buses that departed timepoints more than five minutes late (see Figure 3-24). The data suggests some additional time is available inbound between the stop at 5th Avenue and Mangrove Avenue and the Transit Center: all buses – even those delayed more than five minutes – were able to arrive at downtown terminus on time or ahead of schedule.

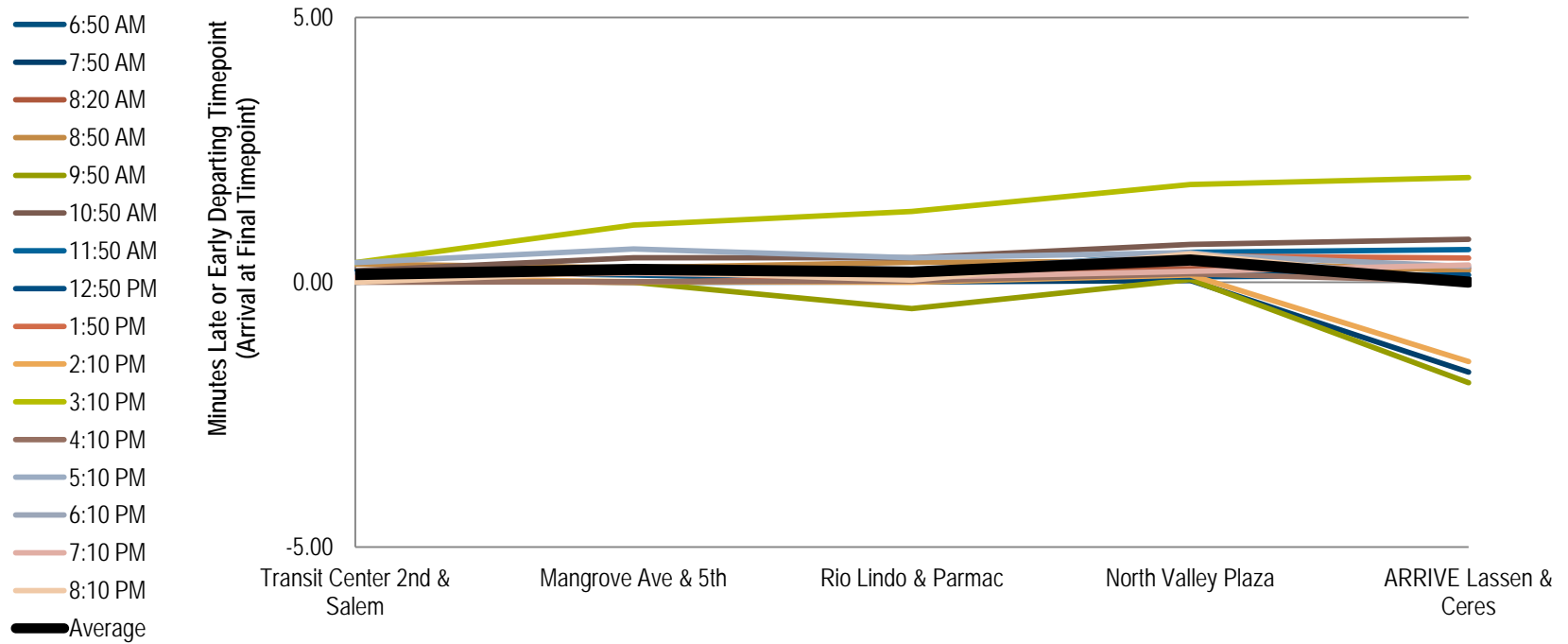
Figure 3-24 Route 2 Schedule Adherence by Route Segment

Route 2 Inbound



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Route 2 Outbound



Route 3 Nord/East

At a Glance		
Weekday Boardings		433
Weekday Revenue Hours		11.9
Boardings per Hour		36.4
Boardings per Trip		13.1
Frequency (minutes)	Mon-Fri Peak/Mid-day	30/60
	Saturday	60
Span	Mon-Fri	6:20am - 9pm
	Saturday	8:50am - 7pm

Description

Route 3 operates between the Chico Transit Center and North Valley Plaza via Nord and East Avenues. Major destinations served along the route include CSU, residential neighborhoods along East Avenue, Enloe Rehabilitation Center, and Fairview High School; major stops and timepoints on Route 3 are Chico Transit Center, West 8th Avenue & Nord, East & Nord, East & Esplanade, and North Valley Plaza. Route 3 is through-routed with Route 4 at North Valley Plaza.

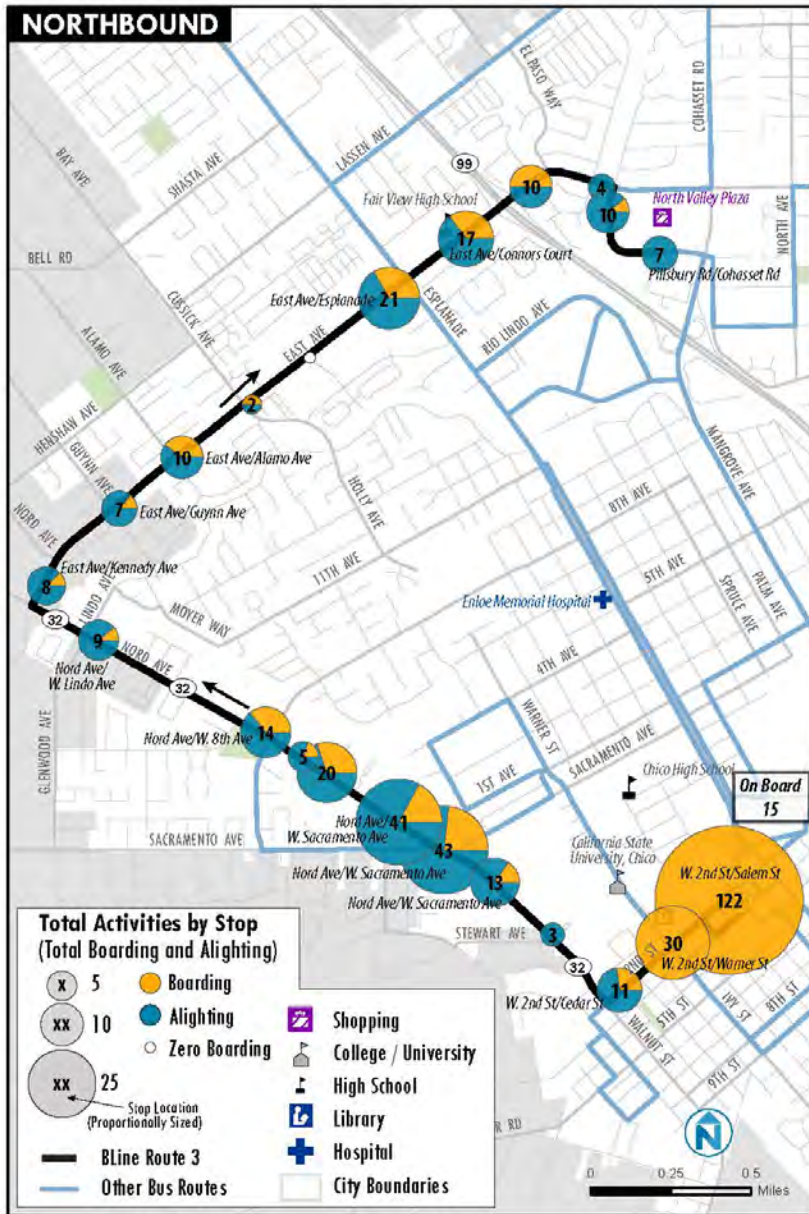
The route has a total round trip time of approximately 49 minutes with layover time at the Chico Transit Center.

Route 3 Weekday Service

Figure 3-25 shows the Route 3 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-25 Route 3 Weekday Boardings and Alightings by Stop



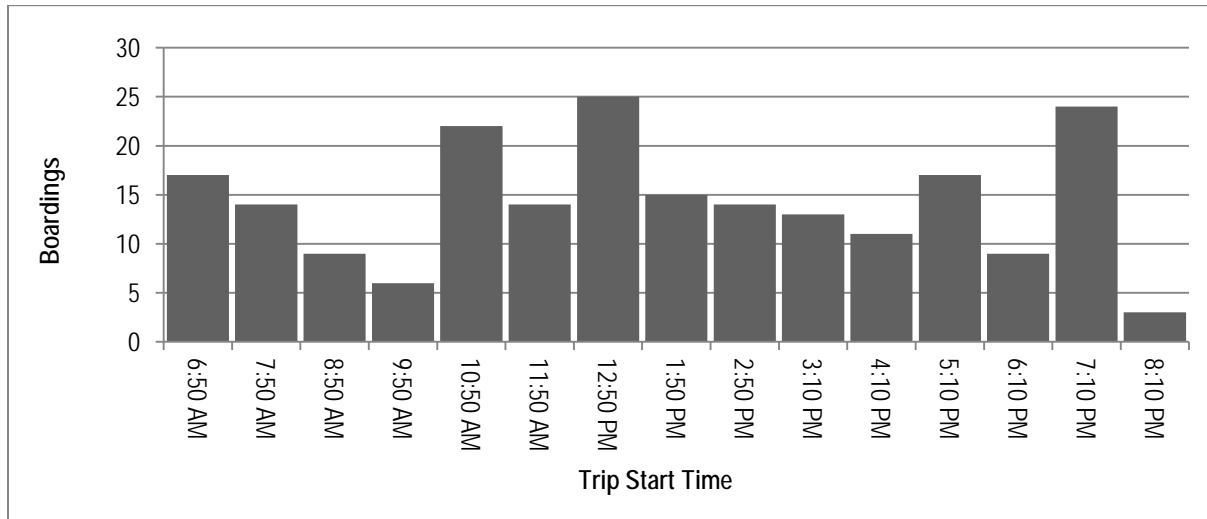
On the northbound trips, the majority of trip boardings occur at the Chico Transit Center (2nd and Salem Streets) with the highest amount of alightings around CSU, especially around Nord and Sacramento Avenues. The greatest amount of boarding and alighting activity was concentrated just to the north of CSU and around the intersection of East Ave and the Esplanade, where there is a high concentration of commercial activity. For the surveyed weekday there was no observed activity at the stop at East Avenue and the Enloe Rehabilitation Center in the northbound direction.

In the southbound direction, a total of 66 passengers rode though to Route 3 at North Valley Plaza on interlined Route 4 buses. The greatest amount of activity occurred at Nord Avenue and West Sacramento Avenue, where a total of 74 passengers boarded primarily in the morning and midday. As in the northbound direction, a smaller concentration of activity occurred in the vicinity of East Avenue and the Esplanade.

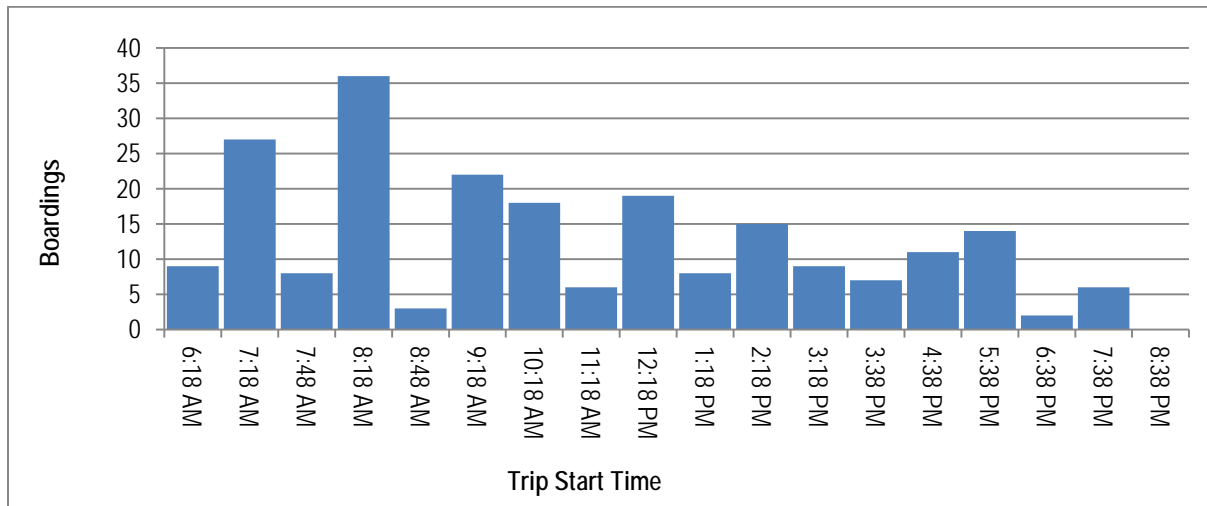
Figure 3-26 presents boardings by trip start time for Route 3. In the northbound direction, boardings varied over the course of the day, with the highest concentrations of boardings in the late morning and into midday. A spike in boardings occurred on the 7:10 PM run, largely from passengers traveling from downtown Chico to stops around CSU. In the southbound direction, however, boardings peaked during the morning and remained relatively steady throughout the rest of the day.

Figure 3-26 Route 3 Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



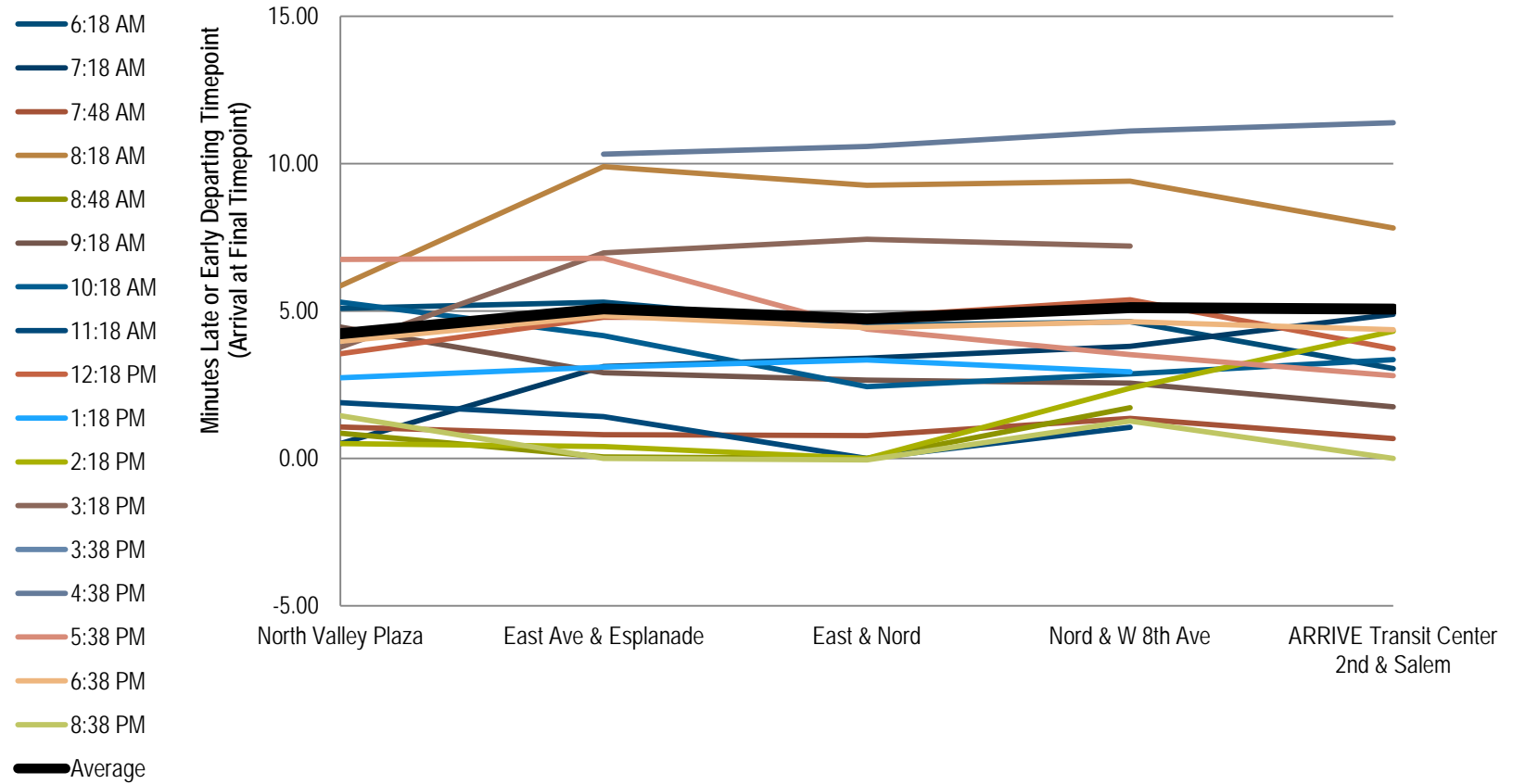
Route 3 On-Time Performance

Route 3 also has strong on-time performance results (see Figure 3-27). The majority of sampled inbound trips departed North Valley Plaza within five minutes of the scheduled time, and maintained this condition throughout the rest of the route. On average, buses arrived at Chico Transit Center slightly over five minutes behind schedule. In the outbound direction, however, while most runs departed Chico Transit Center on time, over half of the runs fell more than five minutes behind schedule starting at the first timepoint. Overall, over half of outbound Route 3 runs were more than five minutes late. The data suggests that the outbound schedule is tight.

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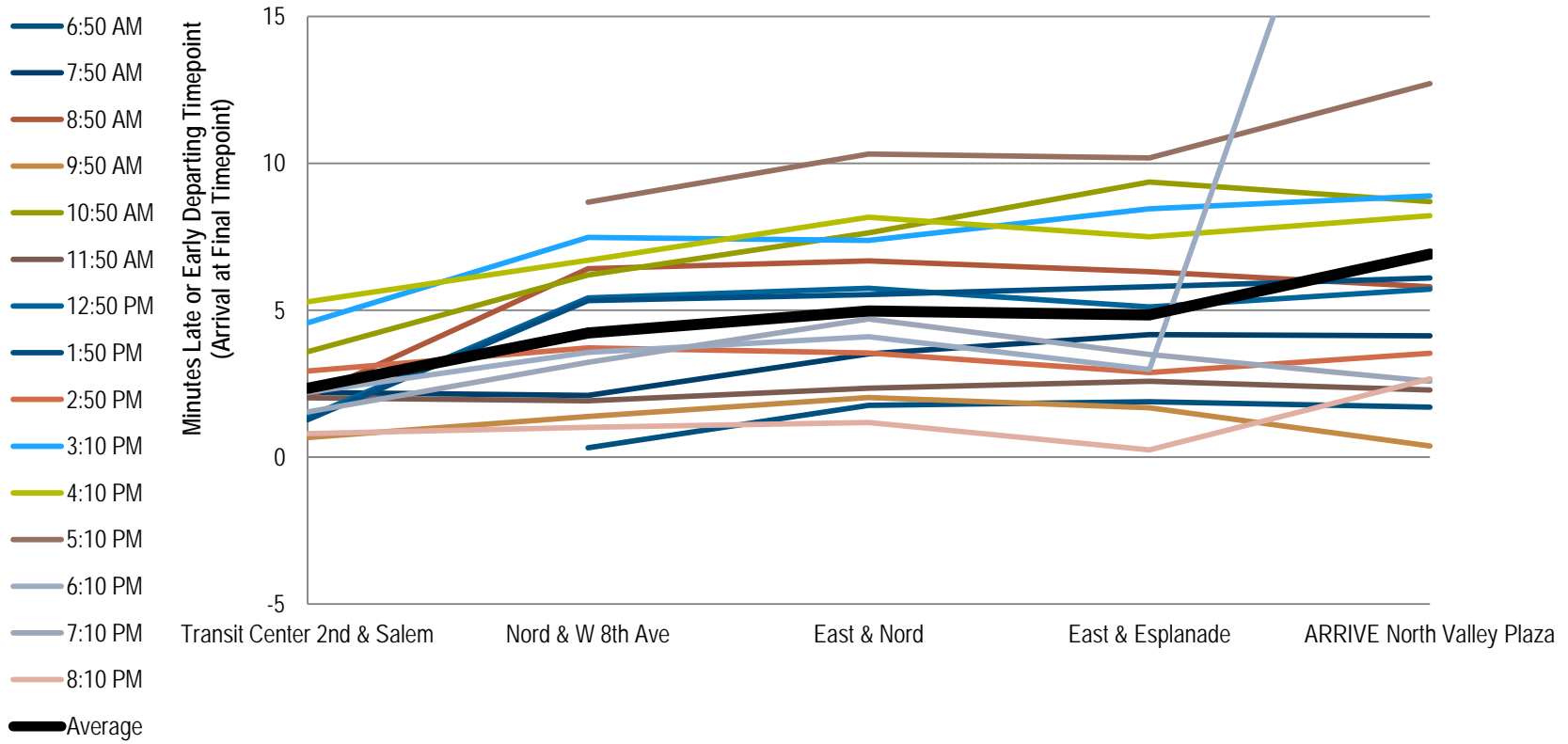
Figure 3-27 Route 3 Schedule Adherence by Route Segment

Route 3 Inbound



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Route 3 Outbound



Route 4 First/East

At a Glance		
Weekday Boardings		389
Weekday Revenue Hours		13.9
Boardings per Hour		28.0
Boardings per Trip		11.4
Frequency (minutes)	Mon-Fri Peak/Mid-day	30/60
	Saturday	60
Span	Mon-Fri	6:15am - 9pm
	Saturday	8:50am - 7pm

Description

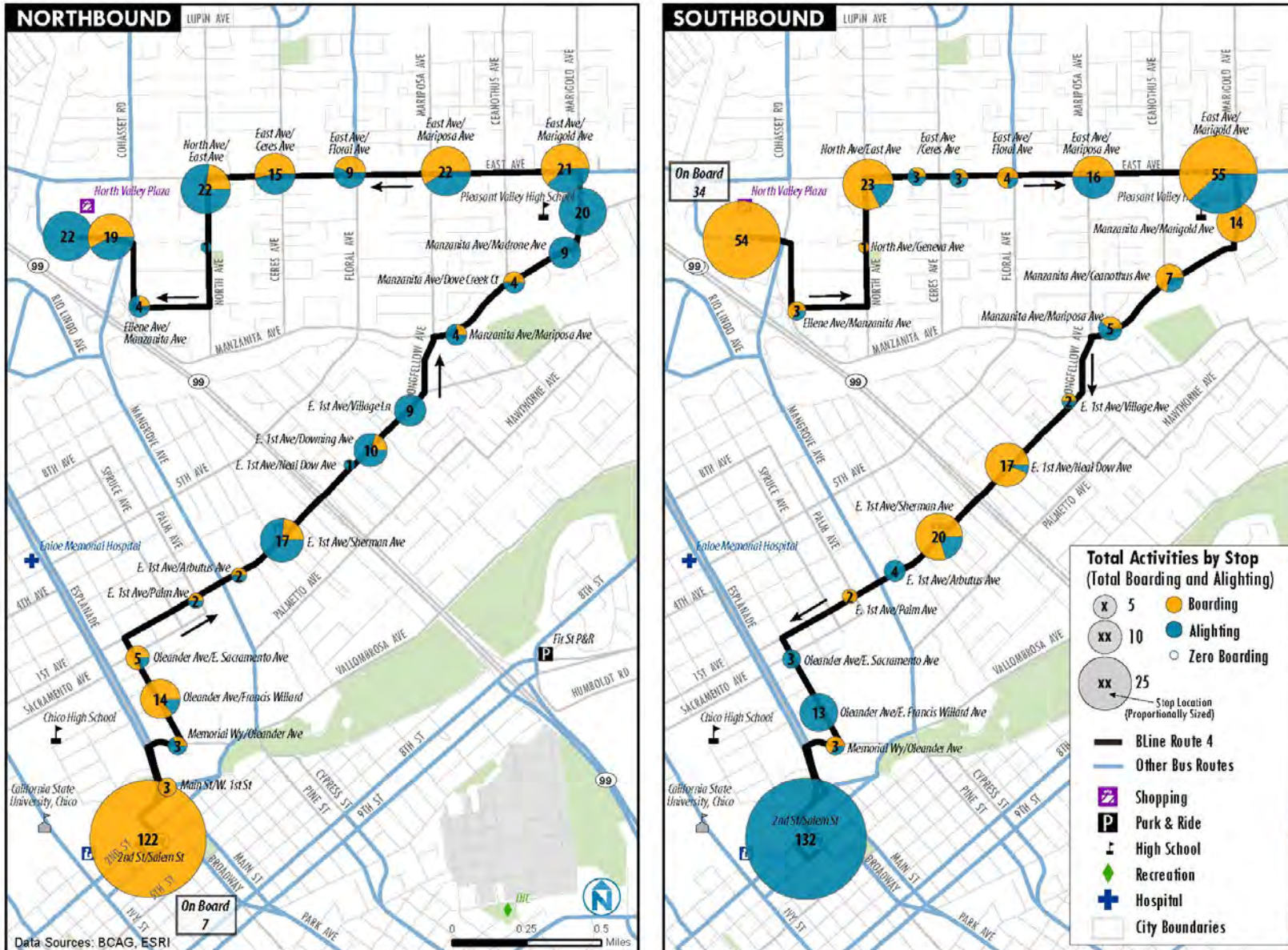
Route 4 operates between the Chico Transit Center and North Valley Plaza via East First Avenue, Manzanita Avenue, and East Avenue, and is through-routed with Route 3 at North Valley Plaza. The route passes through several residential neighborhoods to the northeast of downtown Chico, serving the Chico Courthouse, Chico Junior High School, Chico Public Library, and Pleasant Valley High School. Major stops and timepoints on Route 4 are Chico Transit Center, Chico Junior High School, First Avenue at Longfellow Avenue, Pleasant Valley High School, and North Valley Plaza. The route has a total round trip time of approximately 49 minutes with layovers at Chico Transit Center and North Valley Plaza.

Route 4 Weekday Service

Figure 3-28 shows the Route 4 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-28 Route 4 Weekday Boardings and Alightings by Stop



On the northbound trips, there is a consistent level of activity along East Avenue, particularly around Pleasant Valley High School and at East Avenue at Mariposa Avenue, near the Safeway shopping center. Outside of Chico Transit Center, boardings are highest at Chico Junior High School (Oleander Avenue and Francis Willard) and around Pleasant Valley High School. The highest concentrations of alightings occur at North Valley Plaza, followed by Marigold Avenue and Manzanita Avenue (at Pleasant Valley High School), and at North Avenue and East Avenue, near Bidwell Junior High School. Activity at East 1st Avenue and Sherman Avenue seems to correlate to library traffic.

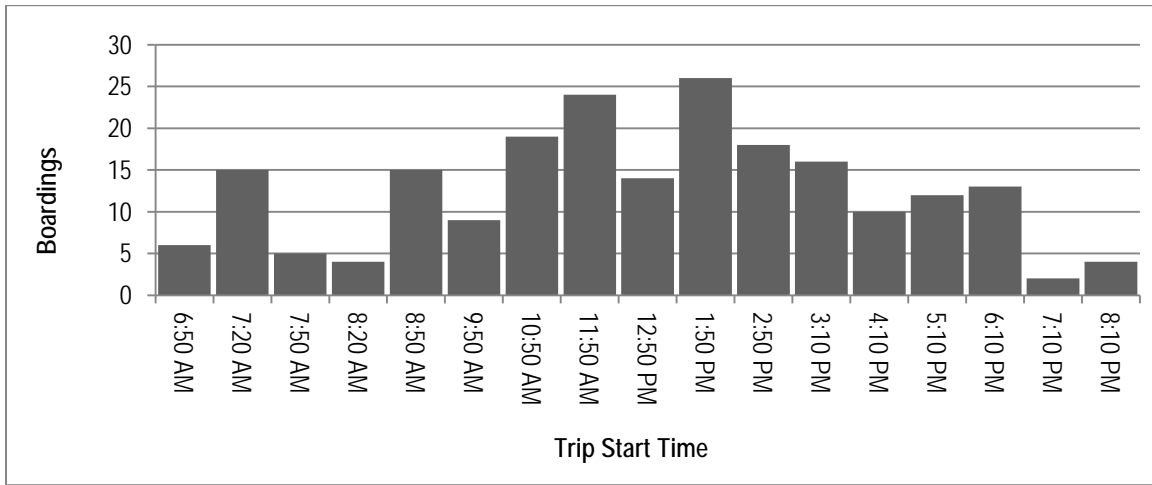
On southbound trips, a total of 34 passengers rode through to Route 4 at North Valley Plaza from interlined Route 3 buses. While total activity by stop for the most part mirrored the northbound direction (especially at North Avenue and East Avenue, the general vicinity of Pleasant Valley High School, and E. 1st Avenue and Sherman Avenue), there were a few stops that saw significantly more traffic in the southern direction, such as East 1st Avenue and Neal Dow Avenue

Overall, there were several stops along Route 4 that saw relatively little activity in both directions. The locations of these stops included the route jog along Ellene and North Avenues near North Valley Plaza, and on East 1st Avenue between Oleander Avenue and Sherman Avenue.

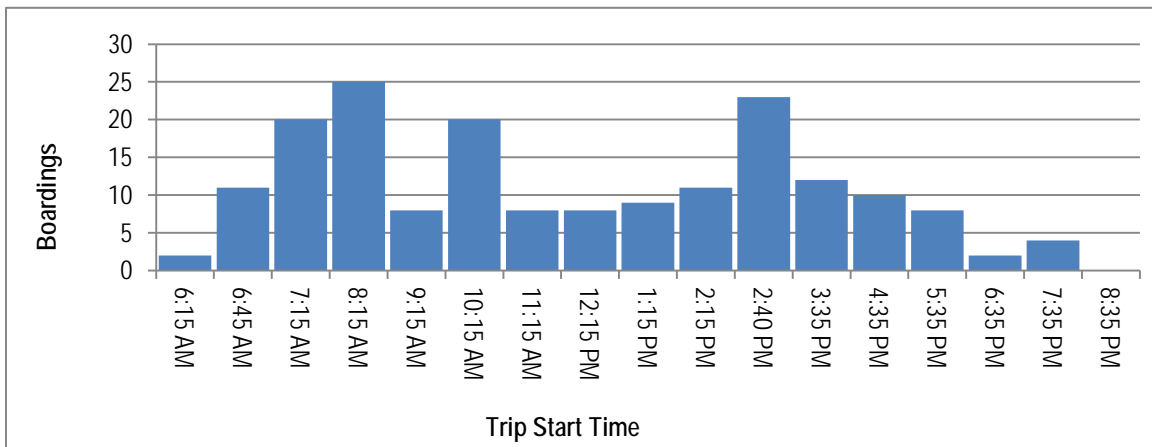
Figure 3-29 presents boardings by trip start time for Route 4. In the northbound direction, boardings roughly followed a bell-curve pattern, peaking immediately before and after the noon hour. In the southbound direction, however, boardings peaked in the morning and mid-afternoon, correlating with school bell times.

Figure 3-29 Route 4 Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



Route 4 On-Time Performance

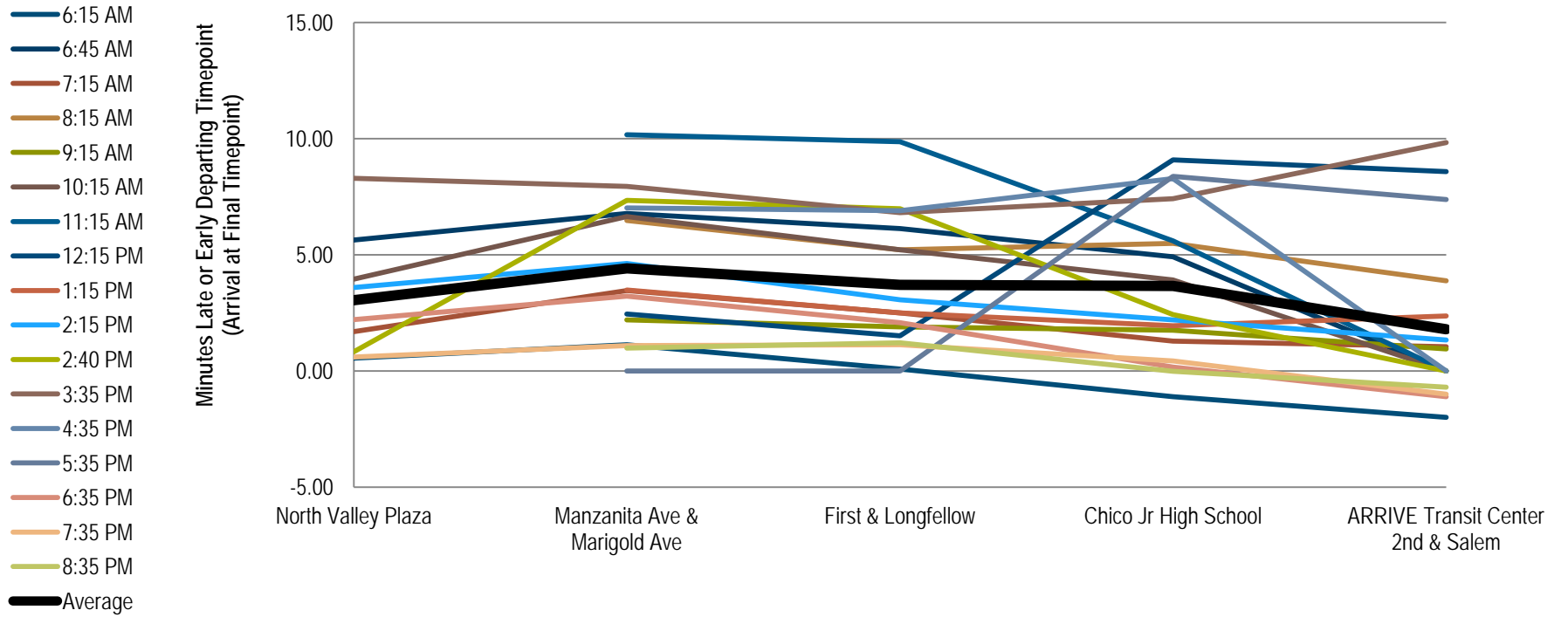
Inbound trips generally average a delay of three to four minutes over the course of the route, and 41% of sampled runs departed timepoints at least five minutes late. Outbound trips averaged nearly five minutes of delay, mostly due to a couple of significantly delayed runs in the afternoon.

As shown in Figure 3-30, the outbound service has greater delay in the afternoon than the morning. Nearly one-quarter of all trips (24%) experienced a delay departing at least one timepoint.

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Figure 3-30 Route 4 Schedule Adherence by Route Segment

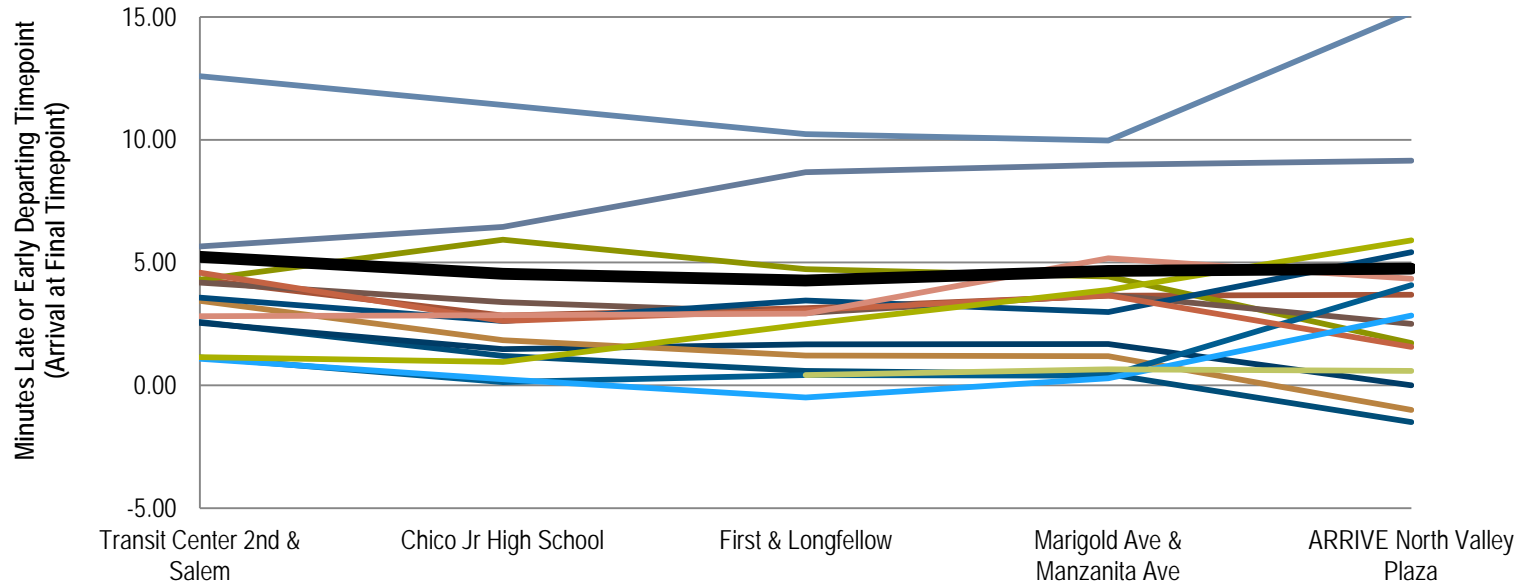
Route 4 Inbound



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Route 4 Outbound

- 6:50 AM
- 7:20 AM
- 7:50 AM
- 8:20 AM
- 8:50 AM
- 9:50 AM
- 10:50 AM
- 11:50 AM
- 12:50 PM
- 1:50 PM
- 2:50 PM
- 3:10 PM
- 4:10 PM
- 5:10 PM
- 6:10 PM
- 7:10 PM
- 8:10 PM
- Average



Route 5 East 8th Street

At a Glance		
Weekday Boardings		254
Weekday Revenue Hours		14.8
Boardings per Hour		17.2
Boardings per Trip		6.9
Frequency (minutes)	Mon-Fri Peak/Mid-day	30/60
	Saturday	60
Span	Mon-Fri	6:15am - 8:30pm
	Saturday	8:15am - 7pm

Description

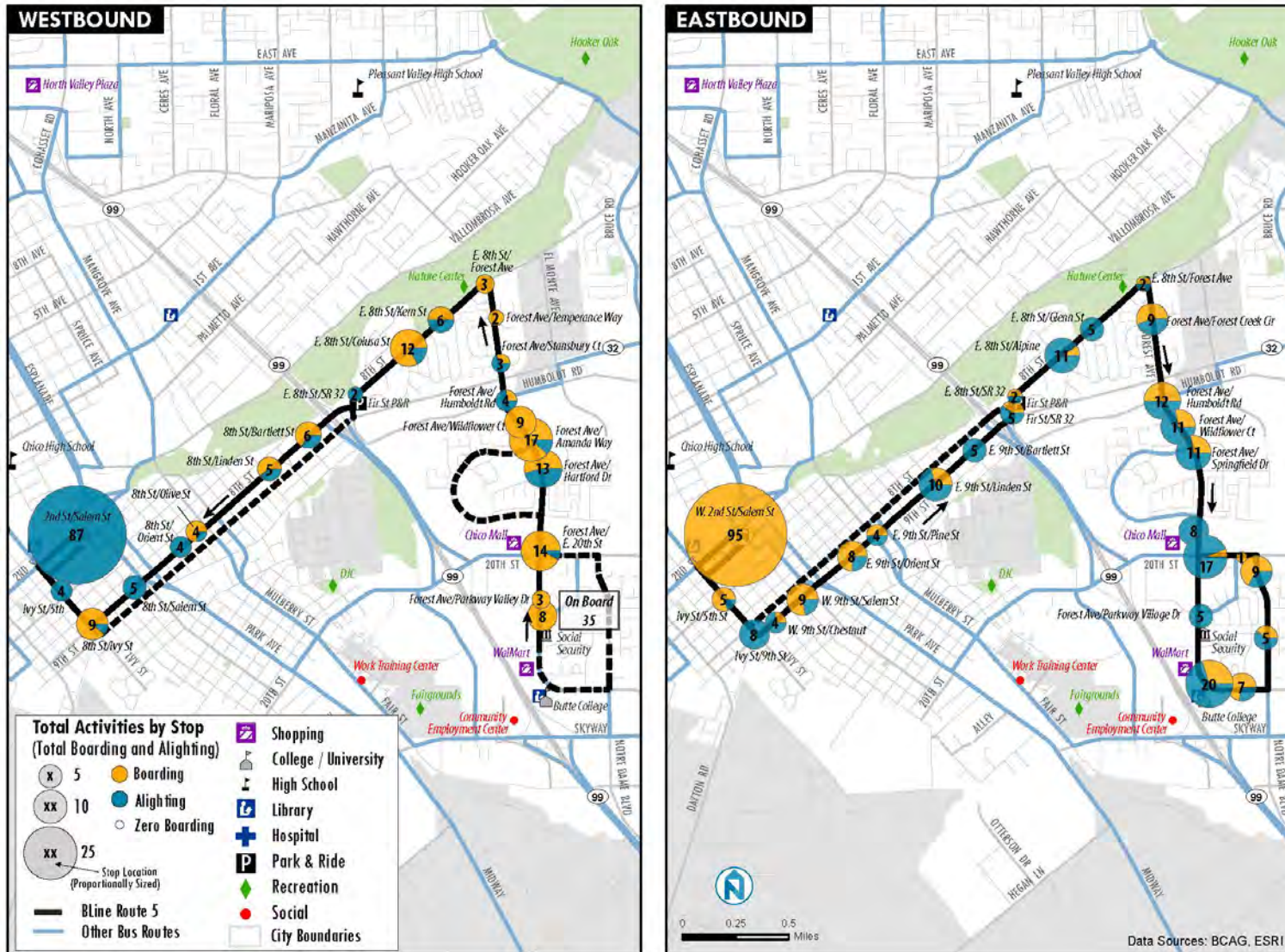
Route 5 provides service between the Chico Transit Center and the Forest Avenue Transfer, operating in a one-way couplet on 9th Street (Eastbound) and 8th Street (Westbound) and in the vicinity of WalMart, operates on a one-way loop along 20th Street, Notre Dame Boulevard, and Forest Avenue, serving the neighborhoods along Notre Dame Boulevard in addition to the shopping centers around the Forest Avenue Transfer. Major stops and timepoints along Route 5 include the Chico Transit Center, 9th Street & Pine, 8th Street & Highway 32, 8th Street & Olive, and the Forest Avenue Transfer. The route has a total round trip time of approximately 49 minutes with a layover at the Chico Transit Center.

Route 5 Weekday Service

Figure 3-31 shows the Route 5 boarding and alighting activity for the westbound and eastbound directions.

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Figure 3-31 Route 5 Weekday Boardings and Alightings by Stop



Note: contrary to the maps available on the B-Line website, the materials made available to us in the preparation of this report did not include a Route 5 loop along Springfield Drive north of Chico Mall. Therefore data for this segment are unavailable.

On the westbound trips (i.e., towards Chico Transit Center), boarding activity is largely clustered around Forest Avenue and Amanda Way, near several apartment complexes, as well as at Forest Avenue and East 20th Street (near the Chico Mall), and East 8th Street and Colusa Street, at the Parkview Elementary School. There is a relatively constant moderate amount of activity along East 8th Street. In the eastbound direction, there are a few predictably active stops, particularly in the vicinity of Forest Avenue and Wildflower Court, near the multifamily housing complexes, along with WalMart and the Chico Mall. A total of 35 passengers were carried through from the eastbound direction into the westbound direction at the Forest Avenue Transfer.

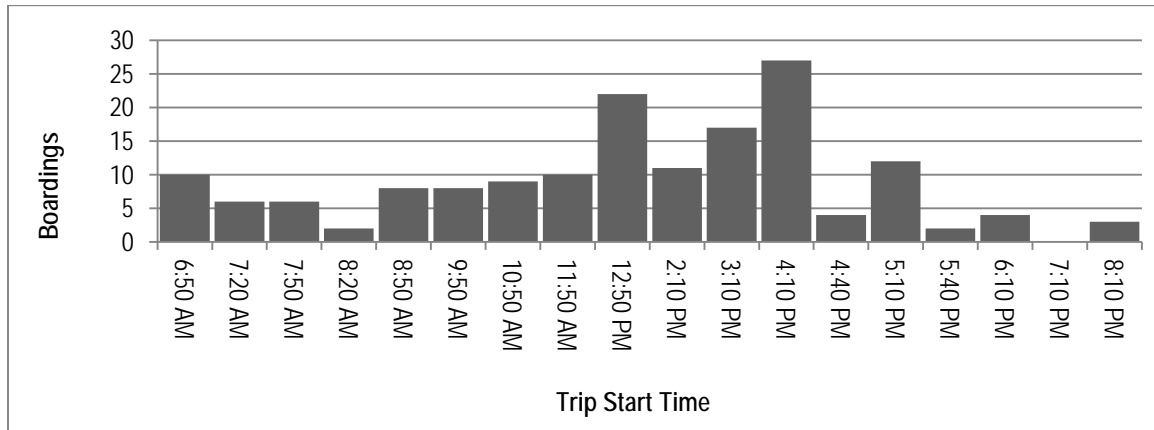
It should be noted that on Monday, September 23rd, police activity blocked access to the stops at East 8th/9th Street & SR 32 and East 8th/9th Street & Bartlett Street on the final three runs in the eastbound direction and on the final two runs in the westbound direction.

According to B-Line staff and other on-site feedback heard during the boarding and alighting survey, Parkview Elementary students (as well as students at other schools in the district) often take B-Line rather than school buses because public transit is a cheaper option. Additionally, CSU students have increasingly begun to take Route 5 to reach Wal-Mart and Chico Mall due to crowding on Route 15S. Finally, East 8th & SR32 on westbound Route 5 is, according to drivers, a rarely used stop; drivers also noted that there are problems with the bus blocking traffic at this stop.

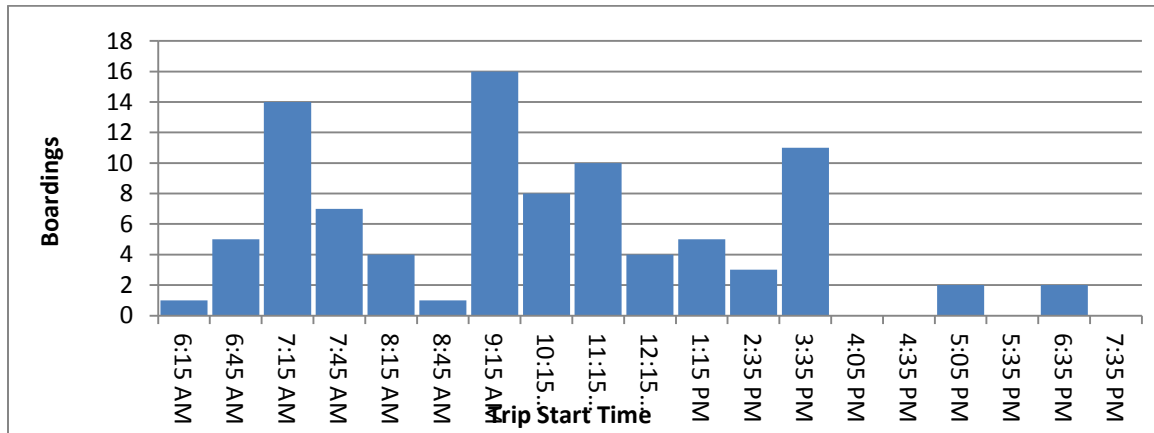
Figure 3-32 presents boardings by trip start time for Route 5. In the eastbound direction towards Chico Mall, the highest numbers of boardings occurred in the early to mid-afternoon, peaking on the 4:10pm trip. In the westbound direction towards downtown Chico, boardings skewed toward the mid- and late-morning, peaking at 9:15am. On the survey day, at least, there were several runs with very few, if no boardings, which may be an aberration from an unknown factor on the survey day. Nevertheless, these patterns in conjunction with the boarding and alighting patterns in residential neighborhoods along Route 5 suggest that this route may be used for commuting purposes in addition to trips to the shopping centers.

Figure 3-32 Route 5 Weekday Boardings by Run – Eastbound & Westbound

Eastbound



Westbound



Route 5 On-Time Performance

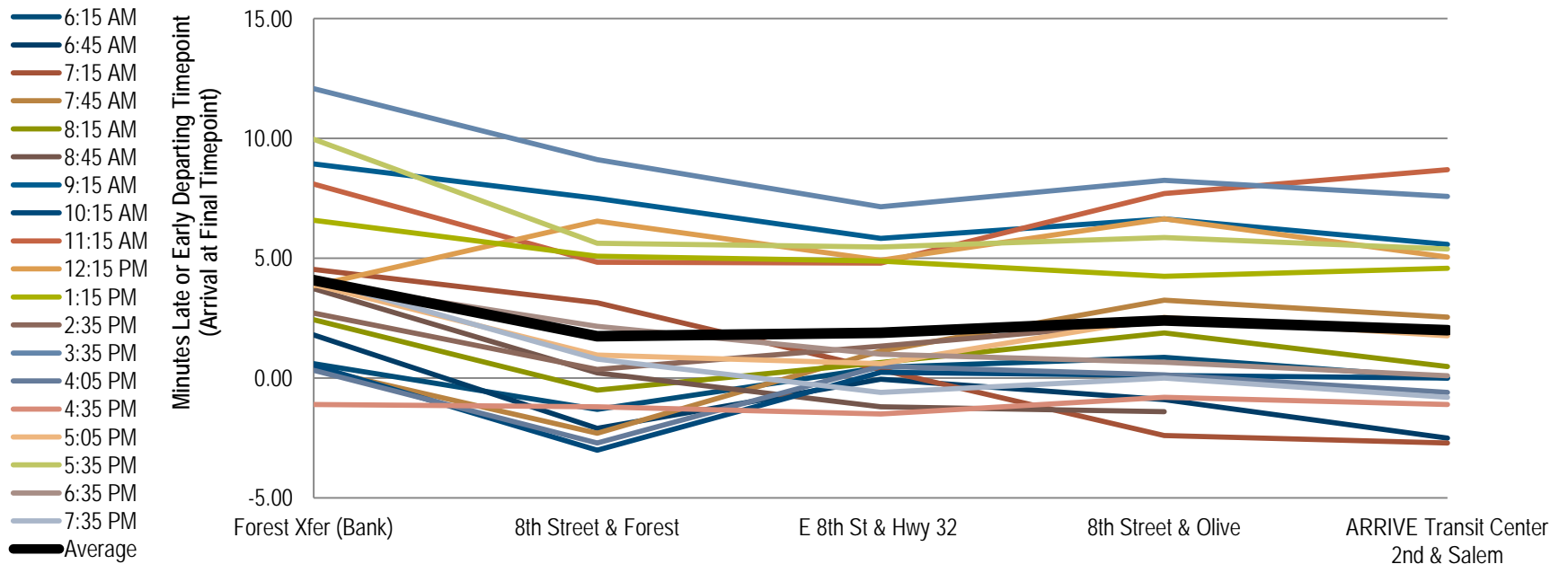
In the inbound direction of Route 5 towards Chico Transit Center, 32% (6 of 19) runs were more than five minutes late from timepoints with 37% (7 of 19) departing more than one minute early from timepoints. In particular, the seven buses that departed early made up time between the Forest Avenue Transfer and 8th Street & Forest Avenue, suggesting that there is some slack in the schedule at times. A few of the late departures in the inbound direction were caused by late arrivals to the Forest Avenue Transfer in the outbound direction; these delays occurred between East 8th Street & Forest Avenue and the Forest Avenue Transfer terminus (see Figure 3-33).

In the outbound direction, on-time performance was more consistent with only 17% (3 of 18) of trips running more than 5 minutes late at any timepoint.

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Figure 3-33 Route 5 Schedule Adherence by Route Segment

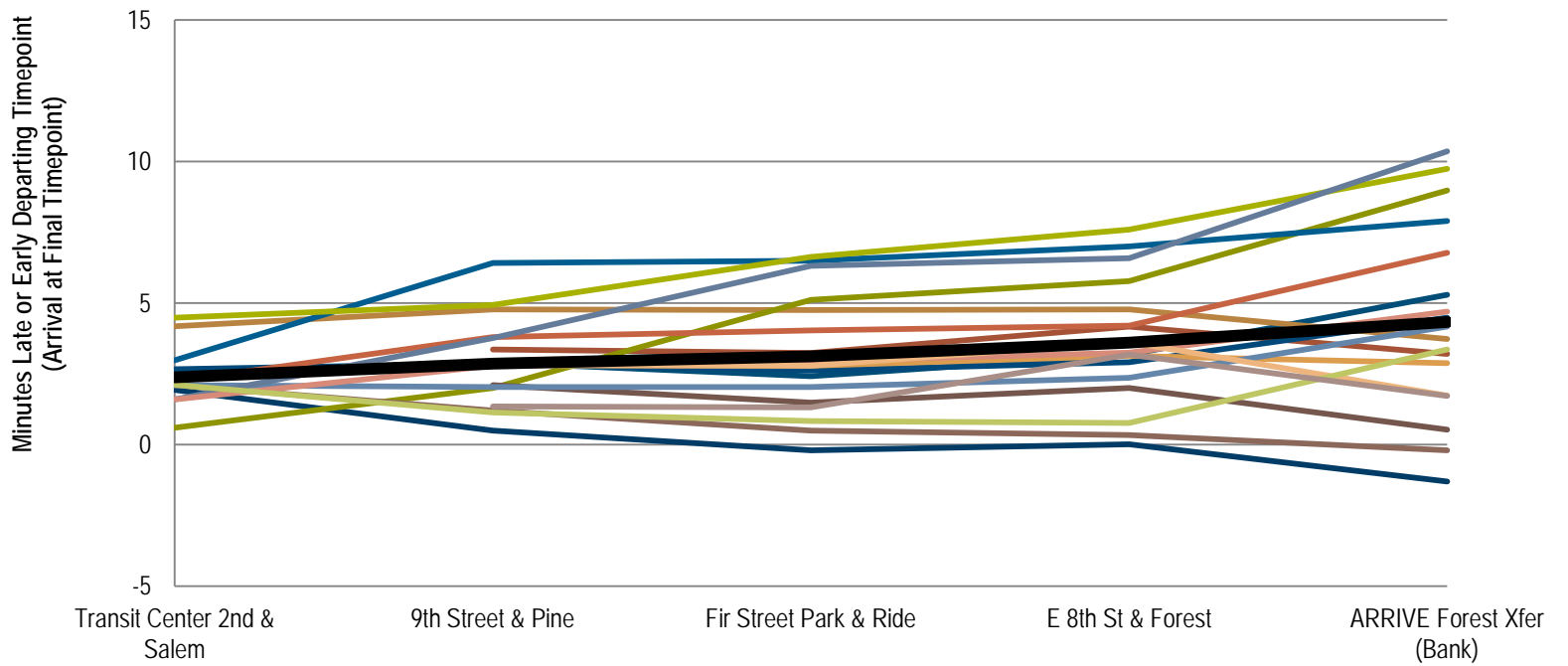
Route 5 Inbound



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Route 5 Outbound

- 6:50 AM
- 7:20 AM
- 7:50 AM
- 8:20 AM
- 8:50 AM
- 9:50 AM
- 10:50 AM
- 11:50 AM
- 12:50 PM
- 2:10 PM
- 3:10 PM
- 4:10 PM
- 4:40 PM
- 5:10 PM
- 5:40 PM
- 6:10 PM
- 7:10 PM
- 8:10 PM
- Average



Route 7 Bruce/Manzanita

At a Glance		
Weekday Boardings		108
Weekday Revenue Hours		5.1
Boardings per Hour		21.4
Boardings per Trip		8.3
Frequency (minutes)	Mon-Fri	60
Span	Mon-Fri	6:45am - 5:30pm

Description

Route 7 operates between the Forest Avenue Transfer and Ceres and Lassen Avenues via Sierra Sunrise Village and Pleasant Valley High School. Route 7 is through-routed with Route 2 at Ceres and Lassen, and is the only Chico local route that does not serve Chico Transit Center. Major stops and timepoints on Route 7 include the Forest Avenue Transfer, Marsh Junior High School, Sierra Sunrise Village, Pleasant Valley High School, and Ceres and Lassen Avenues. The route has a total round trip time of approximately 51 minutes, and operates three peak AM and PM runs in the southbound direction, and in the northbound direction, four peak AM runs and three peak PM runs.

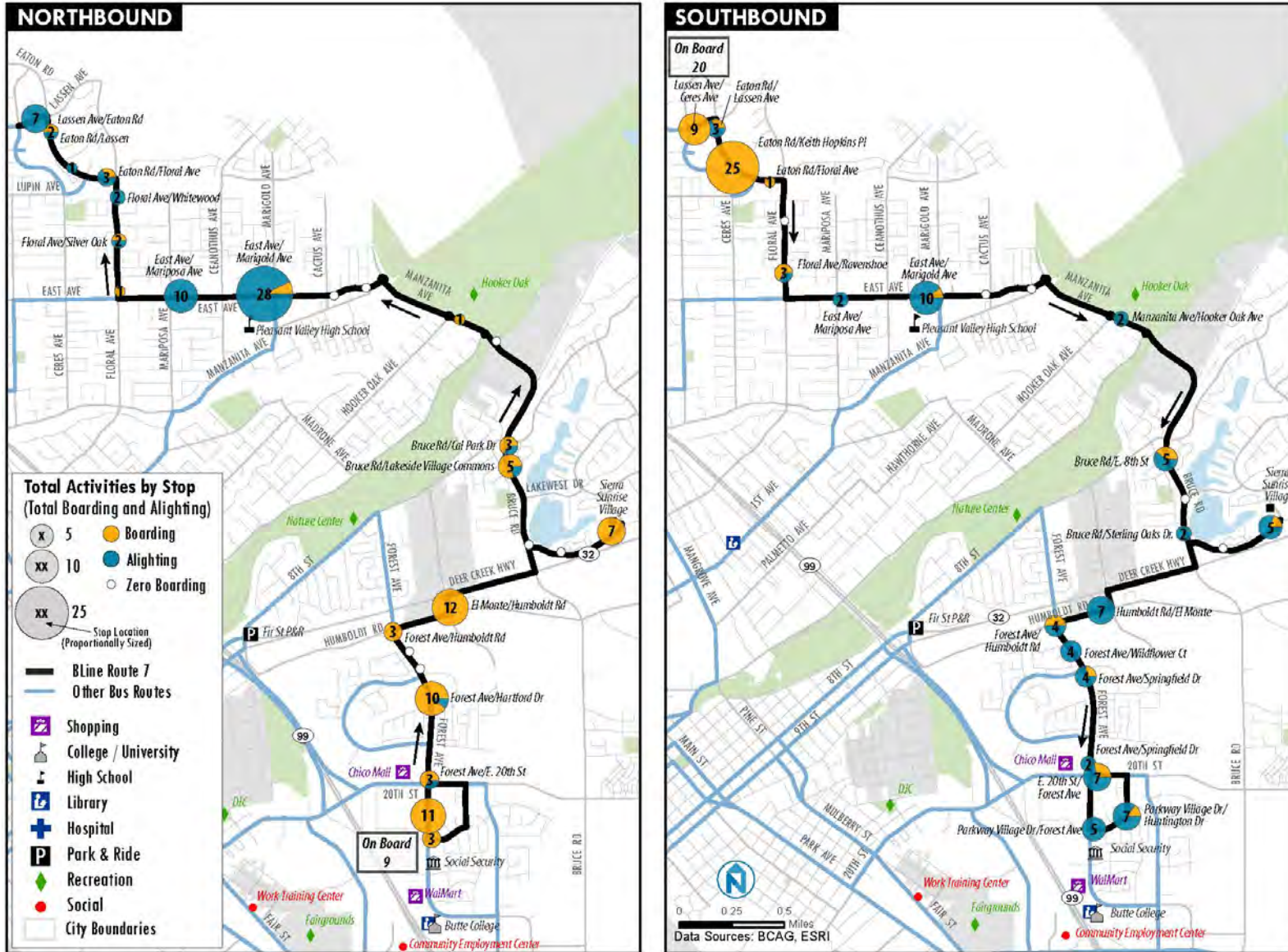
Route 7 does not operate on the weekend.

Route 7 Weekday Service

Figure 3-34 shows the Route 7 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-34 Route 7 Weekday Boardings and Alightings by Stop



Route 7 appeals to students in particular due to its proximity to Pleasant Valley High School and Marsh Junior High School and coverage in several residential neighborhoods at the eastern edge of the city. With no midday trips, it is designed primarily to serve school trips and afterschool activities; however, as an outgrowth of the 2013/14 Unmet Needs study, B-Line plans to introduce a midday run of Route 7 later in FY 2013/14. On the northbound trips, Route 7 primarily attracts passengers in the vicinity of Chico Mall and in neighborhoods to the north, including Sierra Sunrise Village. The highest number of alightings in the northbound direction occurs at Pleasant Valley High School and at East Avenue & Mariposa Avenue, near the Safeway shopping center.

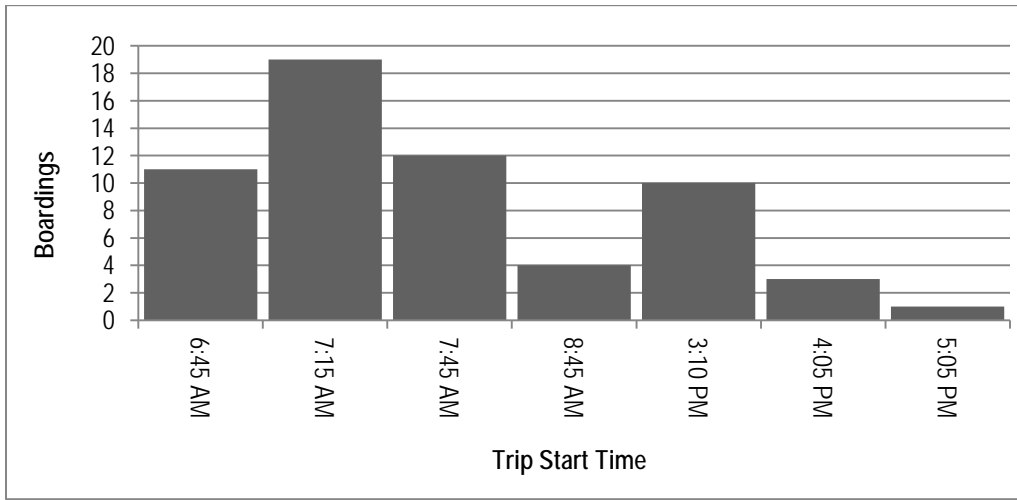
In the southbound direction, a total of 20 riders continued on Route 7 from interlined Route 2 buses. The highest number of boardings occurred at Eaton Road and Keith Hopkins Place on the 2:44pm run; this may be an aberration given that the stop is located in the middle of a residential area with few destinations nearby.¹ In any event, total activity in the southbound direction is spread relatively evenly along the line, with expected concentrations around Chico Mall and the two public schools.

Figure 3-35 presents boardings by trip start time for Route 7. In the northbound direction, boardings were greater in the morning peak period than the evening peak, whereas in the southbound direction, boardings were generally much lighter overall (except for the 2:42pm run). Generally, northbound Route 7 appears to provide needed service for middle and high school students during the peak morning hours; its value to these students in the afternoon is not readily apparent from the available data.

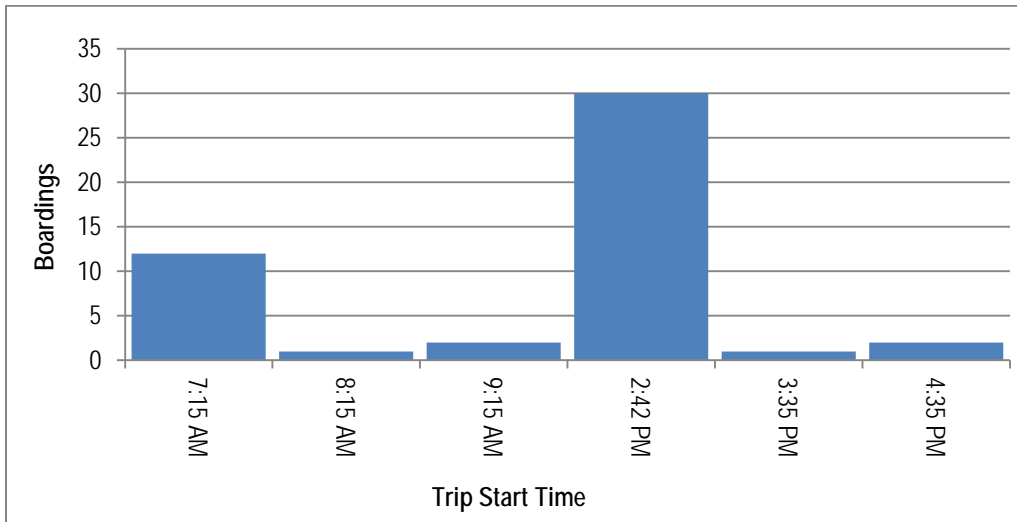
¹ On this particular day (September 23, 2013), the majority of these riders proceeded to alight at a variety of stops serving residential neighborhoods south of Sierra Sunrise Village. It is a strong possibility, given the time of their boardings, that the group were affiliated with a local school that had just let out; the surveyor may have entered the count on the wrong line of the survey form. Alternatively, the large group could be related to the Sycamore Glen Retirement Community, located near the stop.

Figure 3-35 Route 7 Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



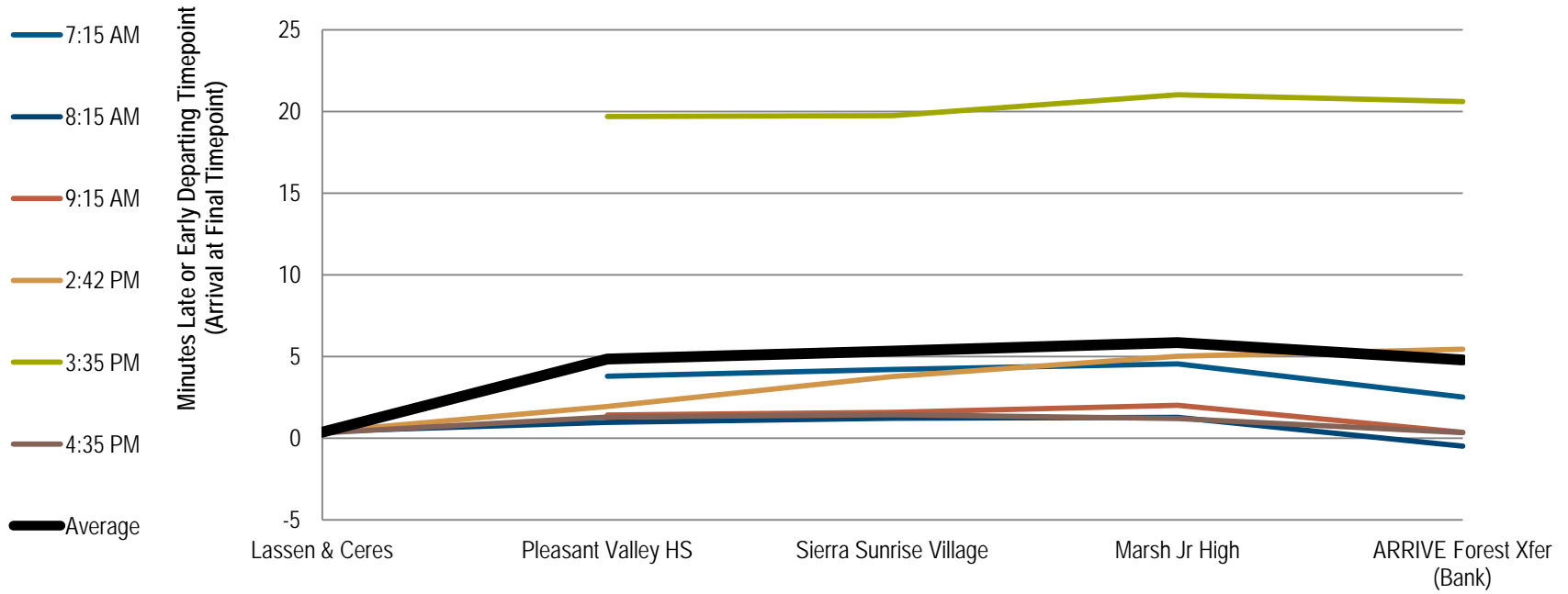
Route 7 On-Time Performance

Of the sample data, two of six (33%) inbound runs departed more than five minutes late from timepoints, while 43% of outbound runs had on-time performance problems, with several arriving at the terminal point late, suggesting that this route schedule is tight (see Figure 3-36).

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Figure 3-36 Route 7 Schedule Adherence by Route Segment

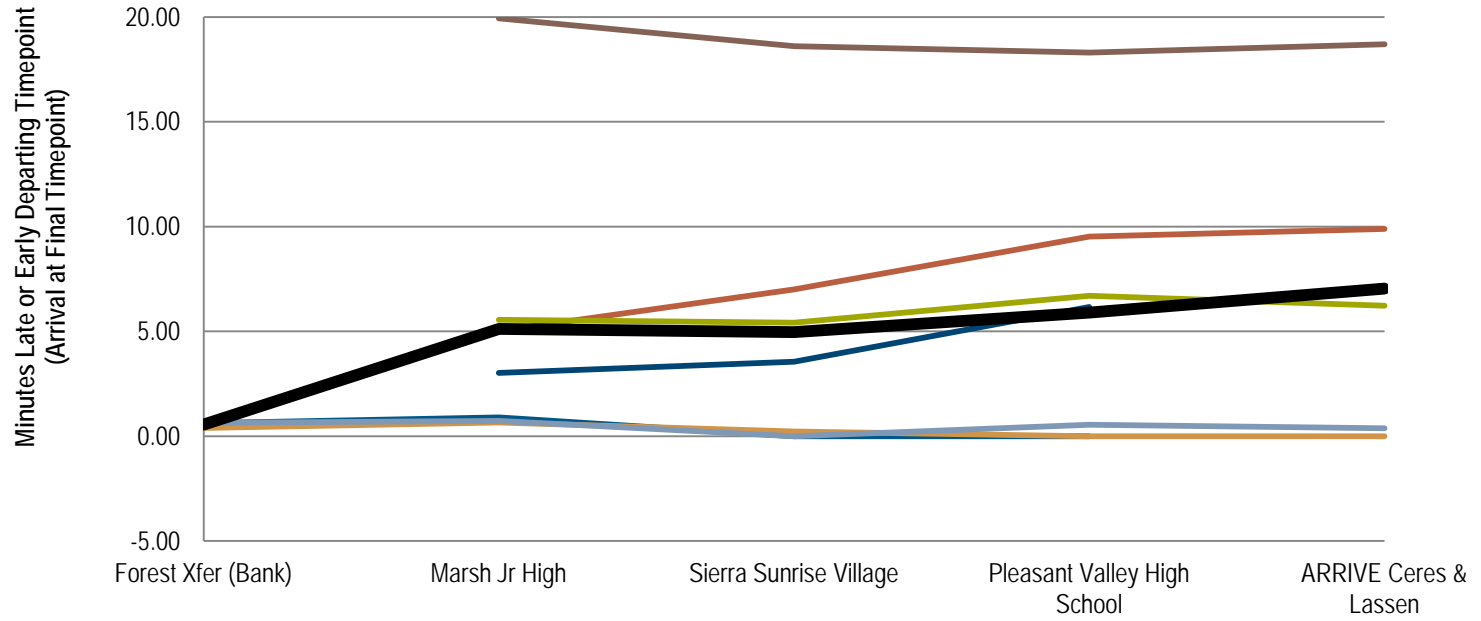
Route 7 Inbound



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Route 7 Outbound

- 6:45 AM
- 7:15 AM
- 7:45 AM
- 8:45 AM
- 3:10 PM
- 4:05 PM
- 5:05 PM
- Average



Route 8 Nord

At a Glance		
Weekday Boardings		605
Weekday Revenue Hours		9.5
Boardings per Hour		63.7
Boardings per Trip		25.2
Frequency (minutes)	All Day	30
Span	Mon-Thu	7:30am - 10pm
	Fri	7:30am - 4pm

Description

Along with Route 9, with which it is through-routed, Route 8 is a student shuttle loop that directly connects CSU-Chico with downtown Chico and student neighborhoods to the northwest of campus. Route 8 operates on Nord Avenue and Warner Street flanking the campus, and makes a loop of student housing on West Sacramento Avenue, 8th Street, and Nord Avenue. Major timepoints along Route 8 include the Chico Transit Center, West Sacramento Avenue & Nord Avenue at the Chevron station, Nord Avenue at the University Village apartments, and Warner Street & West Sacramento Avenue. The route has a total round trip time of approximately 24 minutes.

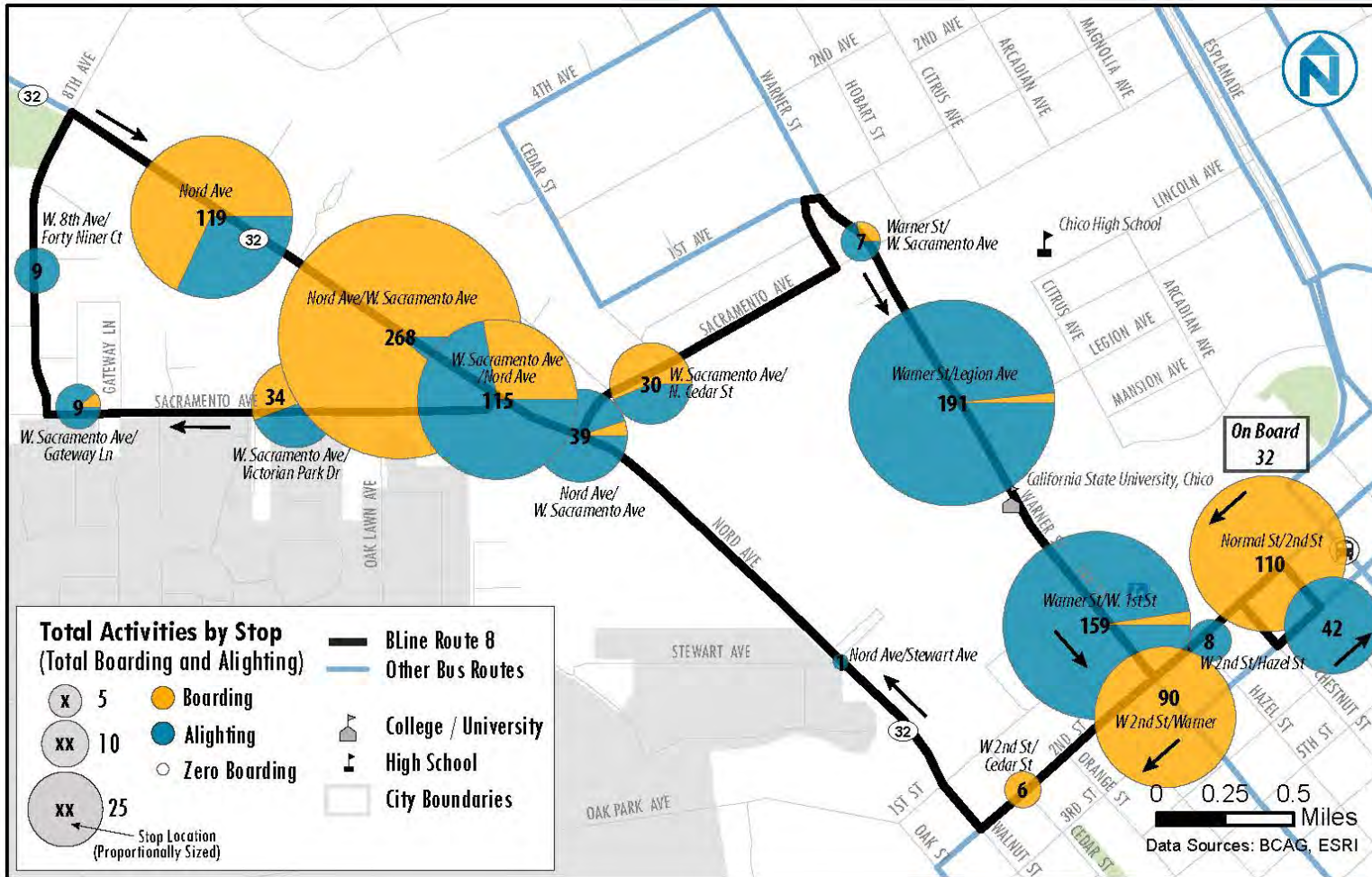
Route 8 only operates when CSU is in session; it does not operate on extended school breaks and holidays. Route 8 also operates a slightly shorter service span on Fridays, and does not operate at all on the weekend.

Route 8 Weekday Service

Figure 3-37 below presents the Route 8 boarding and alighting activity along the loop route.

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Figure 3-37 Route 8 Weekday Boardings and Alightings by Stop

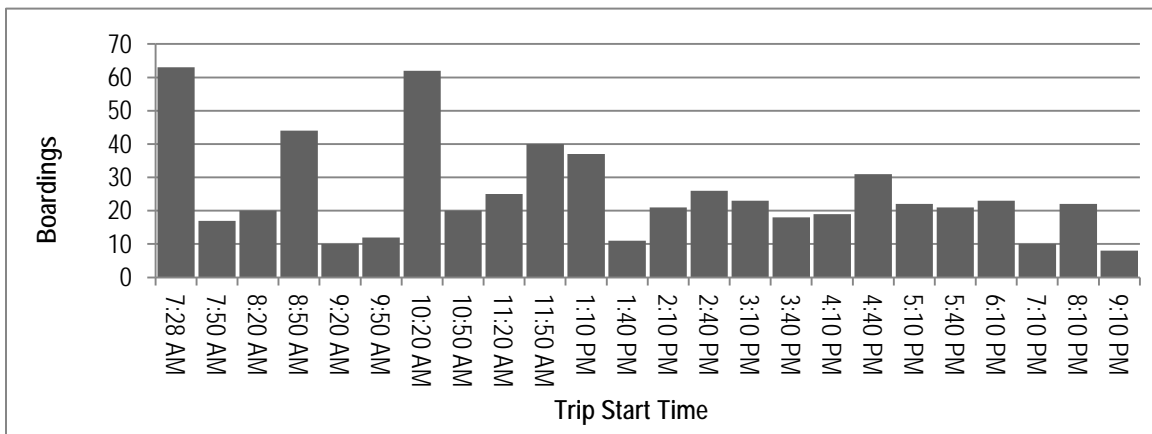


Route 8 is a loop route, and according to the observed boardings and alightings, it fulfills its role as a student shuttle; the highest number of boardings occur at Nord Avenue & West Sacramento Avenue, at the University Village apartment complex, while the highest numbers of alightings occur, appropriately, along Warner Street immediately adjacent to the CSU Student Health Center (Warner St & Legion Avenue) and the CSU parking structure (Warner Street & W. 1st Street). A total of 30 passengers were carried through on interlined Route 9 buses.

Despite the popularity of the route overall, there is very little activity northbound on 2nd Street and Nord Avenue between Chico Transit Center and Sacramento Avenue.

Figure 3-38 presents boardings by trip start time for Route 8. Overall, boardings are relatively steady throughout the day with the highest numbers of boardings on the 7:28am, 8:50am, and 10:20am runs.

Figure 3-38 Route 8 Weekday Boardings by Run

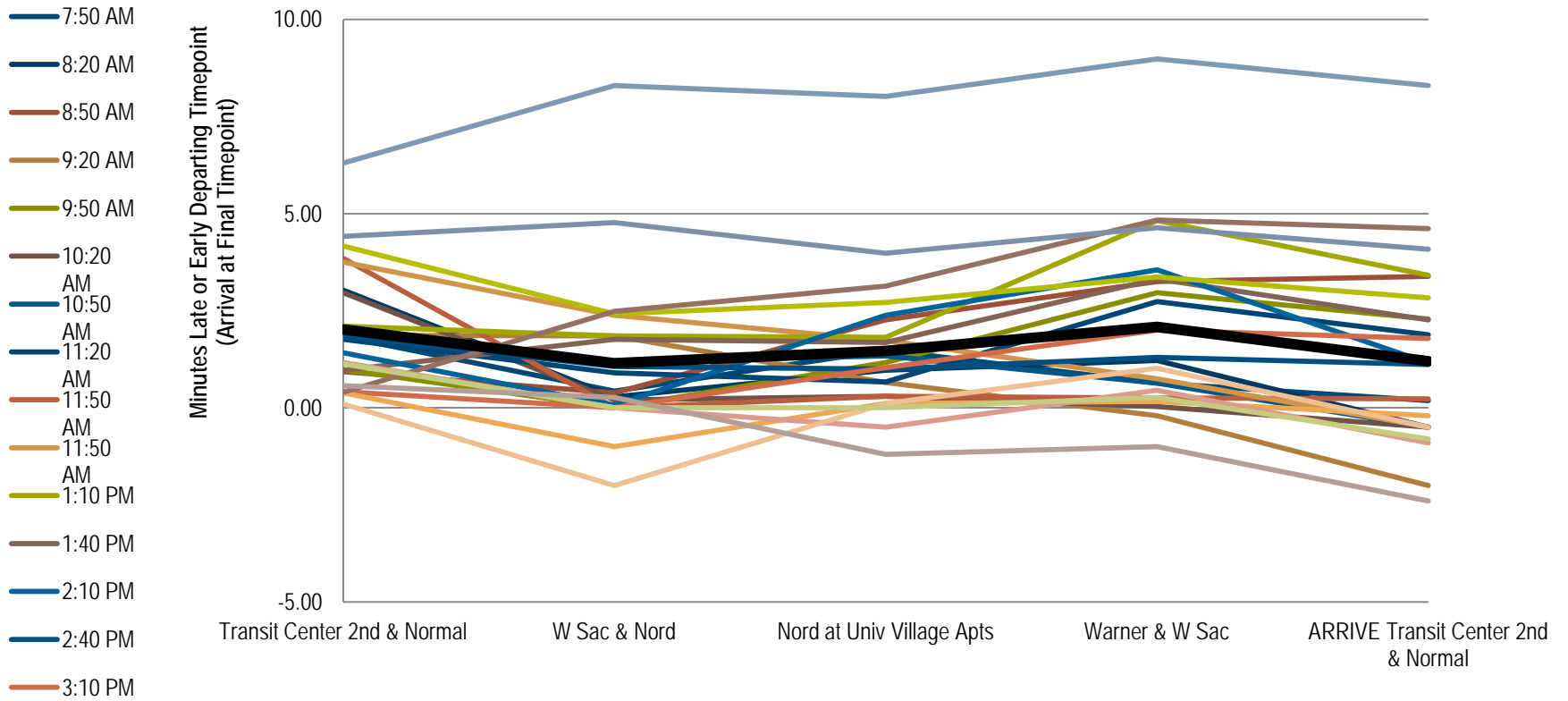


Route 8 On-Time Performance

As shown in Figure 3-39, Route 8 has consistently strong on-time performance, with only one run of 24 running more than 5 minutes late at a timepoint. Two of 24 runs ran more than one minute early, however, making the trip between Chico Transit Center and West Sacramento Avenue & Nord Avenue faster than scheduled.

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Figure 3-39 Route 8 Schedule Adherence by Route Segment



Route 9 Warner/Oak

At a Glance		
Weekday Boardings		499
Weekday Revenue Hours		10.7
Boardings per Hour		46.9
Boardings per Trip		20.0
Frequency (minutes)	All Day	30
Span	Mon-Thu	7:30am - 10pm
	Fri	7:30am - 4pm

Description

As noted above, Route 9 is through-routed with Route 8, and is also a student shuttle. Route 9 makes two loops, first one serving student neighborhoods to the north of campus on W. 4th, Cedar, and Warner Streets, then, after returning to the Chico Transit Center, one to the south of campus along Oak, W. 5th, and W.7th Streets. The route has a total round trip time of 27 minutes.

Like Route 8, Route 9 only operates when CSU is in session; it does not operate on extended school breaks and holidays. Route 9 also operates a slightly shorter service span on Fridays, and does not operate at all on the weekend. However, unlike Route 8, Route 9 service on the north (Cedar) loop is provided whenever Route 9 is not running. This replacement operation, Route 9C, operates on Fridays after 4pm (year-round), Saturdays year-round, and during CSU breaks.

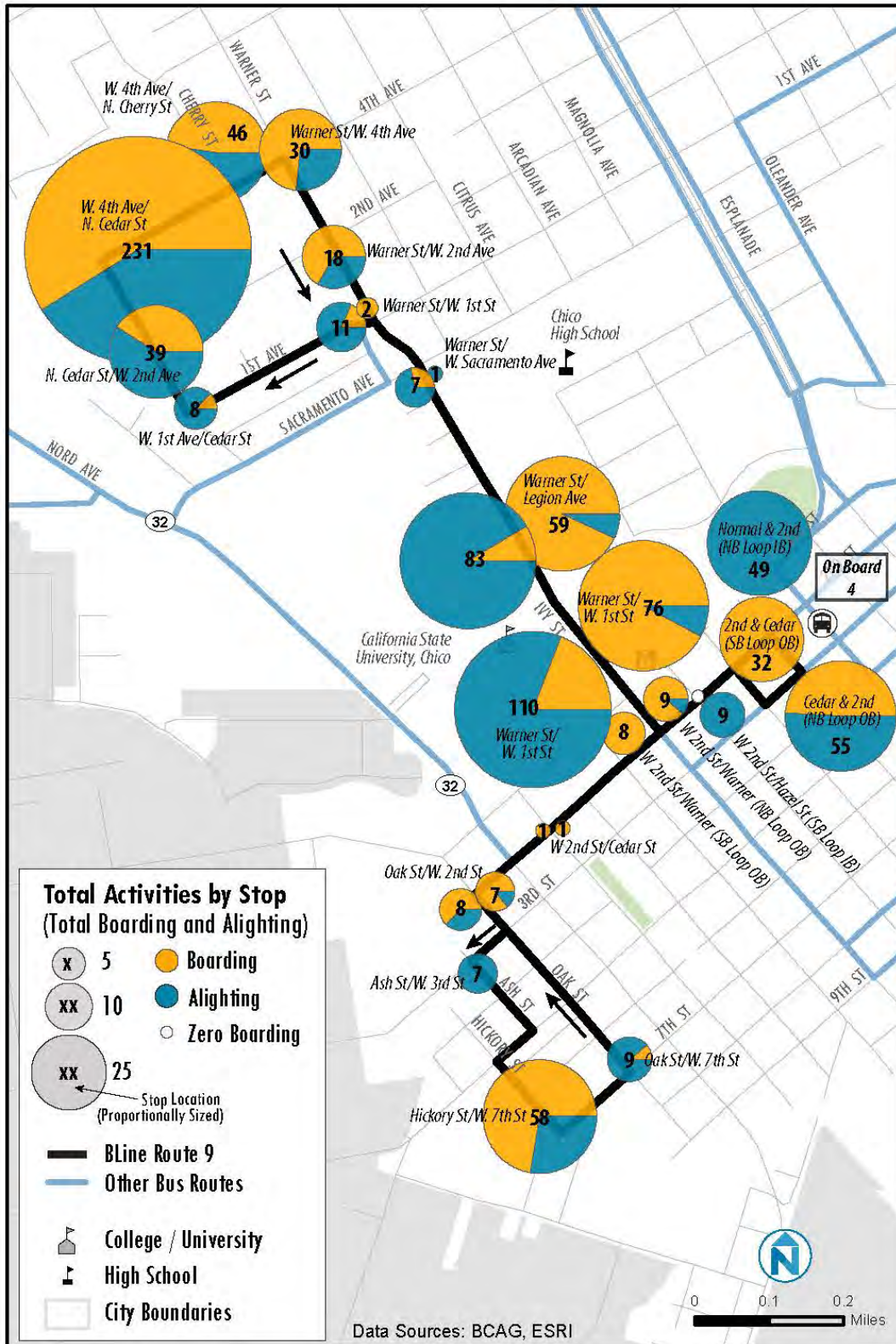
When CSU is in session, Route 9C operates three runs on Fridays from 5:10pm to 8:24pm; on Saturday, it operates five runs from 8:30am through 6:24pm. When CSU is on break, however, Route 9C begins operating at 7:50am and ends at 8:24pm, making seven runs over the course of the day.

Route 9 Weekday Service

Figure 3-40 presents the Route 9 boarding and alighting activity along the loop route.

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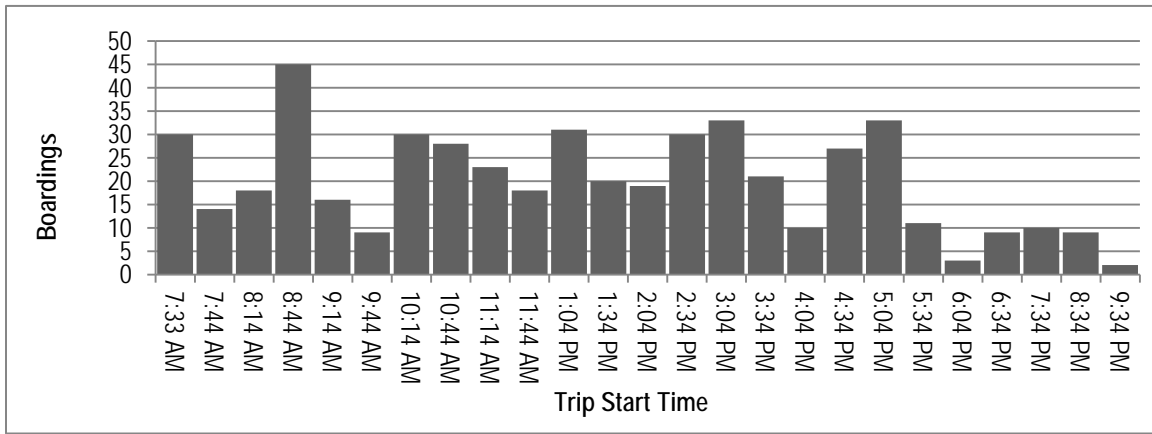
Figure 3-40 Route 9 Weekday Boardings and Alightings by Stop



On the south loop, the highest number of boardings occurs at Hickory St & W. 7th Street, adjacent to the Jefferson on 5th apartment complex; on the north loop, most boarding and alighting activity takes place at the W. 4th Avenue & N. Cedar Street stop, adjacent to a number of different apartment complexes.

Figure 3-41 presents boardings by trip start time for Route 9. Like Route 8, boardings peak in the morning (8:44am); over the rest of the day, boardings are relatively steady with smaller peaks scattered throughout the afternoon. Boardings fall significantly after 5:30pm.

Figure 3-41 Route 9 Weekday Boardings by Run

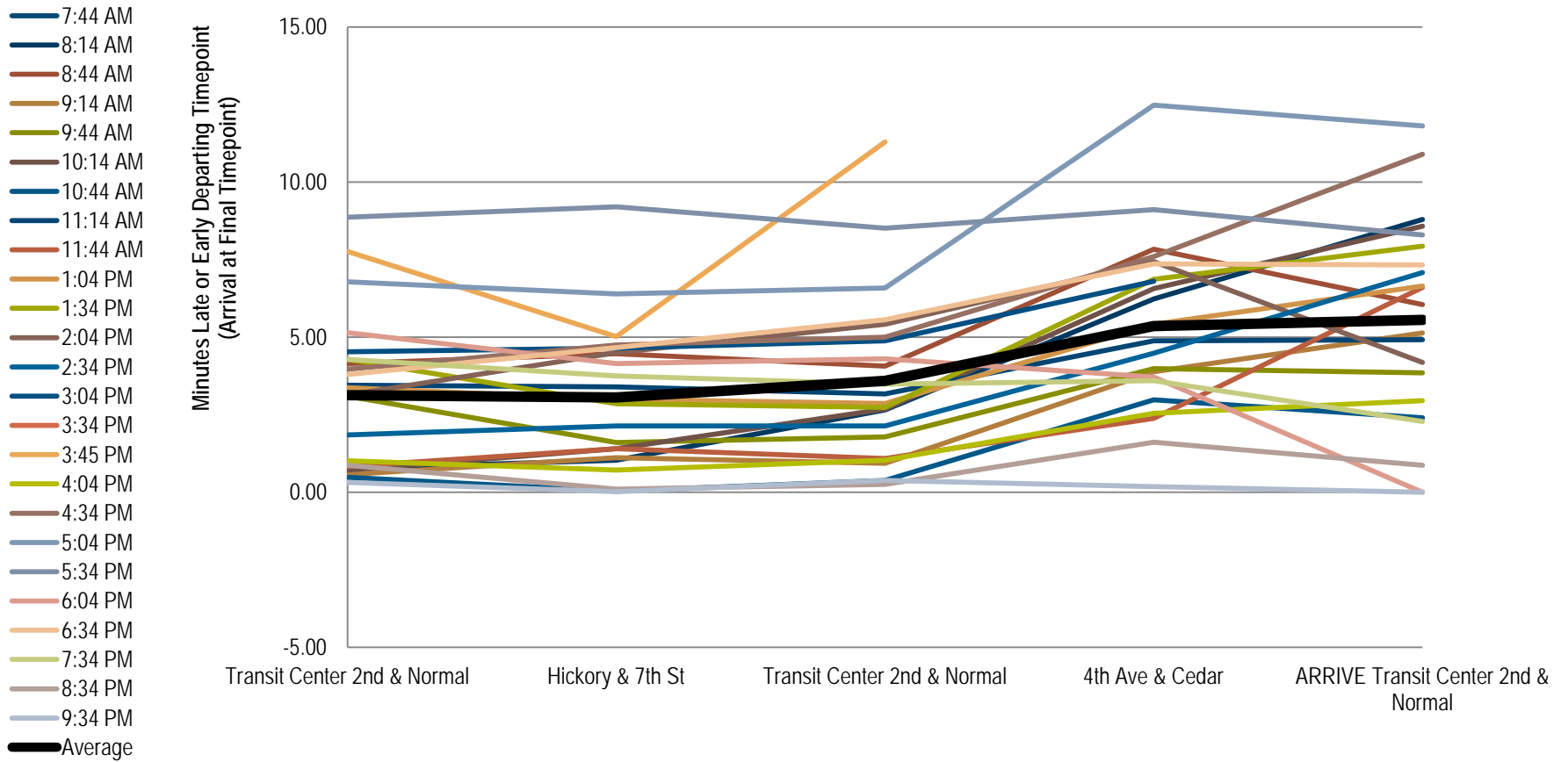


Route 9 On-Time Performance

Unlike its counterpart student shuttle service Route 8, over half of Route 9 runs (52%, 13 of 25) were more than five minutes late at timepoints. In particular, Route 9 runs tended to run behind schedule on the northern loop (see Figure 3-42). It is possible that the delays in the route after the 4th Avenue & Cedar Street stop are being caused by passenger volumes as total boarding and alighting activity is very high on this segment, the final leg of the route.

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Figure 3-42 Route 9 Schedule Adherence by Route Segment



Route 15 - Overview

Route 15, one of the most popular routes in the system, provides service on the Esplanade and Park Avenue corridor from Ceres & Lassen in the north to the Forest Avenue Transfer in the south. It is divided into two distinct sections that are through-routed: Route 15N (Lassen/Esplanade) and Route 15S (Forest/MLK/Park). For the sake of ease, Routes 15N and 15S are discussed separately in this section.

Route 15N Lassen/Esplanade

At a Glance		
Weekday Boardings		446
Weekday Revenue Hours		16.4
Boardings per Hour		27.2
Boardings per Trip		9.5
Frequency (minutes)	Mon-Fri Peak/Midday/Evening	20/30/60
	Sat	60
Span	Mon-Fri	6:15am - 9:30pm
	Sat	7:50am - 6:30pm

Description

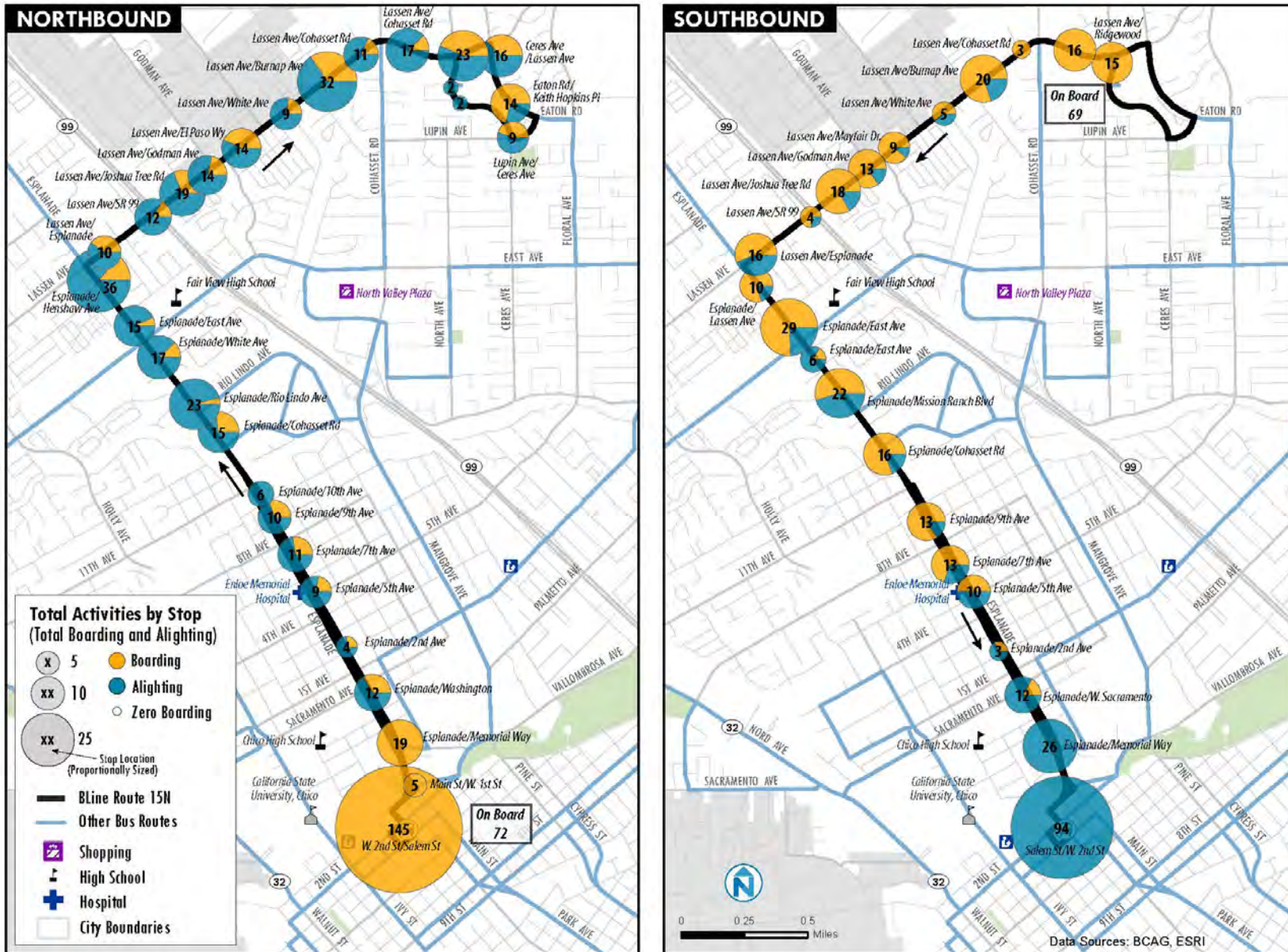
Route 15N operates between the Chico Transit Center and Ceres & Lassen via the Esplanade and Lassen Avenue. Route 15N operates in a short loop at the terminus on Eaton Road and Ceres Avenue. Major stops and timepoints include Chico Transit Center, Esplanade & 5th, Esplanade & East, Lassen & Cohasset, and Ceres & Lassen. Other destinations along the route include Chico High School, Enloe Memorial Hospital, and several shopping centers. The route has a total round trip time of approximately 49 minutes.

Route 15N Weekday Service

Figure 3-43 shows the Route 15N boarding and alighting activity for the northbound and southbound directions.

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Figure 3-43 Route 15N Weekday Boardings and Alightings by Stop



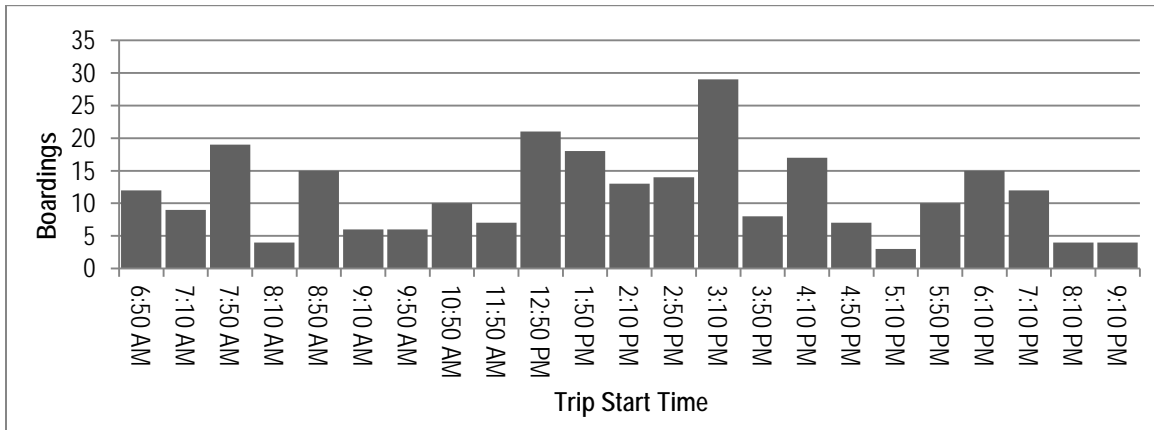
On northbound trips, Route 15N has a high level of consistent alighting activity, with the highest share of alightings taking place at Esplanade & Rio Lindo Avenue, Esplanade & East Avenue, and Esplanade & Henshaw Avenue. Outside of Chico Transit Center, the greatest amount of boarding and alighting activity occurs at Esplanade & Henshaw Avenue, and Lassen Ave & Burnap Avenue, in the vicinity of several apartment complexes. Over the course of the day, a total of 72 passengers rode through from Route 15S to Route 15N in the northbound direction at Chico Transit Center. In the southbound direction, there were more boardings than alightings along much of the route outside of downtown Chico, especially along Lassen Avenue.

Figure 3-44 present boardings by trip start time for Route 15N. In the northbound direction, boardings varied over the course of the day, peaking on the 3:10pm run while experiencing smaller peaks during midday and the AM and PM peaks. In the southbound direction, boardings peaked in the early and peak morning period, with a smaller period of high boardings around noon. Three runs in the peak and late evening period did not have any boardings.

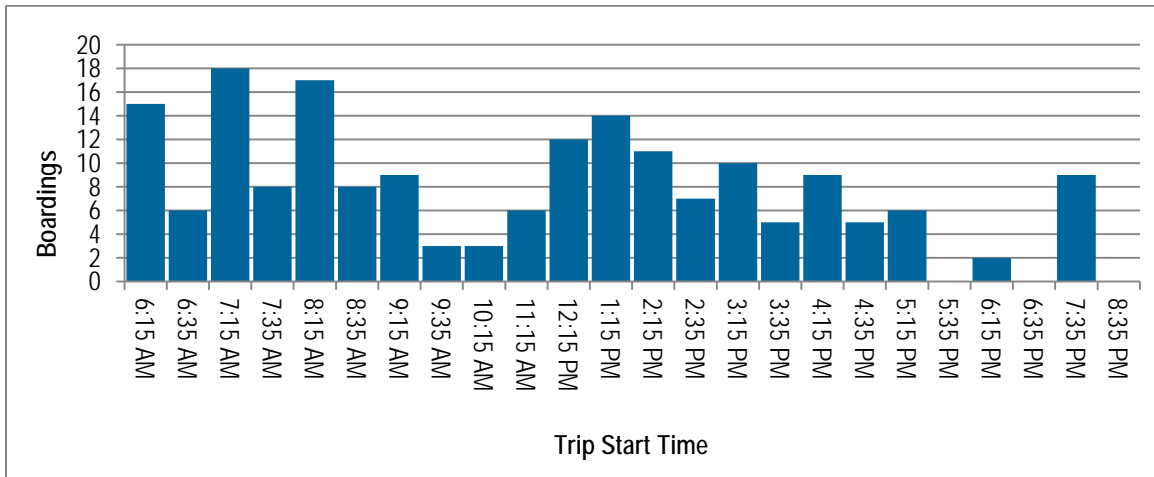
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Figure 3-44 Route 15N Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



Route 15N On-Time Performance

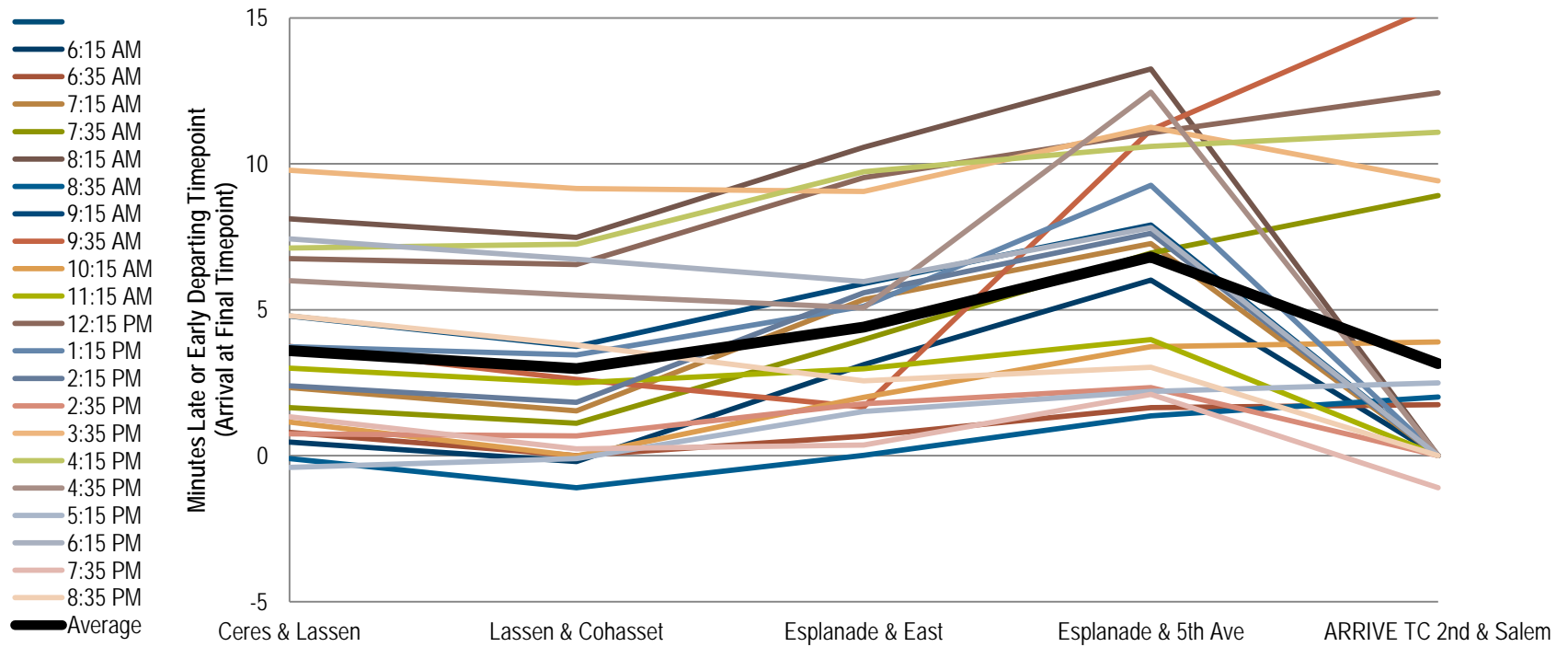
Route 15N is more reliable in the outbound direction than the inbound direction, as 60% of runs depart timepoints within five minutes or less of the schedule. As shown in Figure 3-45, traveling outbound, most runs experienced some delay between Esplanade & East Avenue and Lassen Avenue & Cohasset Road, suggesting that this segment may be a bit tightly scheduled. That many runs used the next segment, between Lassen Avenue & Cohasset Road and the Ceres & Lassen Avenues terminus, to return to schedule indicates that there is slack built into the existing schedule to absorb the earlier delays.

In the inbound direction, 57% of runs were more than five minutes behind schedule at timepoints. On average, the segment from Esplanade & East Avenue down the Esplanade to Esplanade & 5th Avenue caused runs to run more than five minutes behind schedule. The schedule may be tight in this segment.

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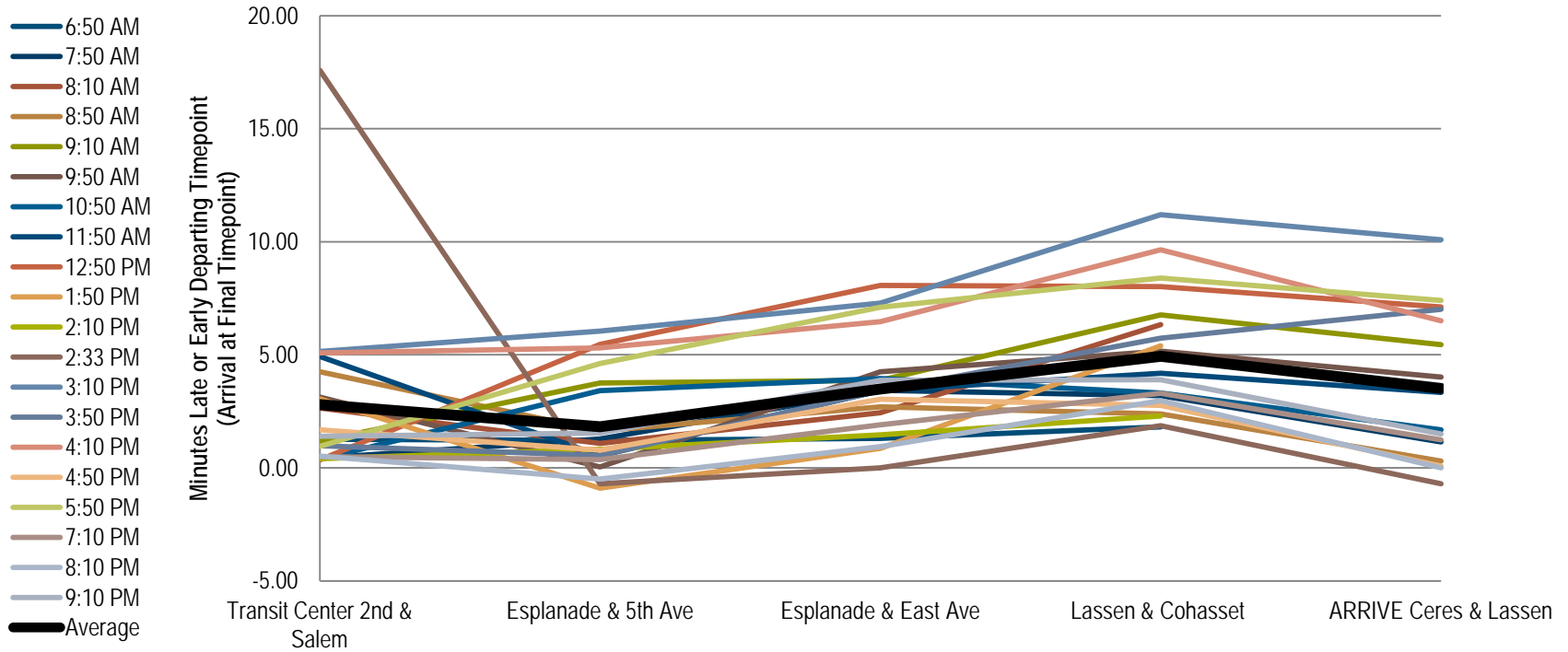
Figure 3-45 Route 15N Schedule Adherence by Route Segment

Route 15N Inbound



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Route 15N Outbound



Route 15S Forest/MLK/Park

At a Glance		
Weekday Boardings		878
Weekday Revenue Hours		16.4
Boardings per Hour		27.2
Boardings per Trip		12.2
Frequency (minutes)	Mon-Fri Peak/Midday/Evening	20/30/60
	Sat	60
Span	Mon-Fri	6:20am - 9:40pm
	Sat	7:50am - 7pm

Description

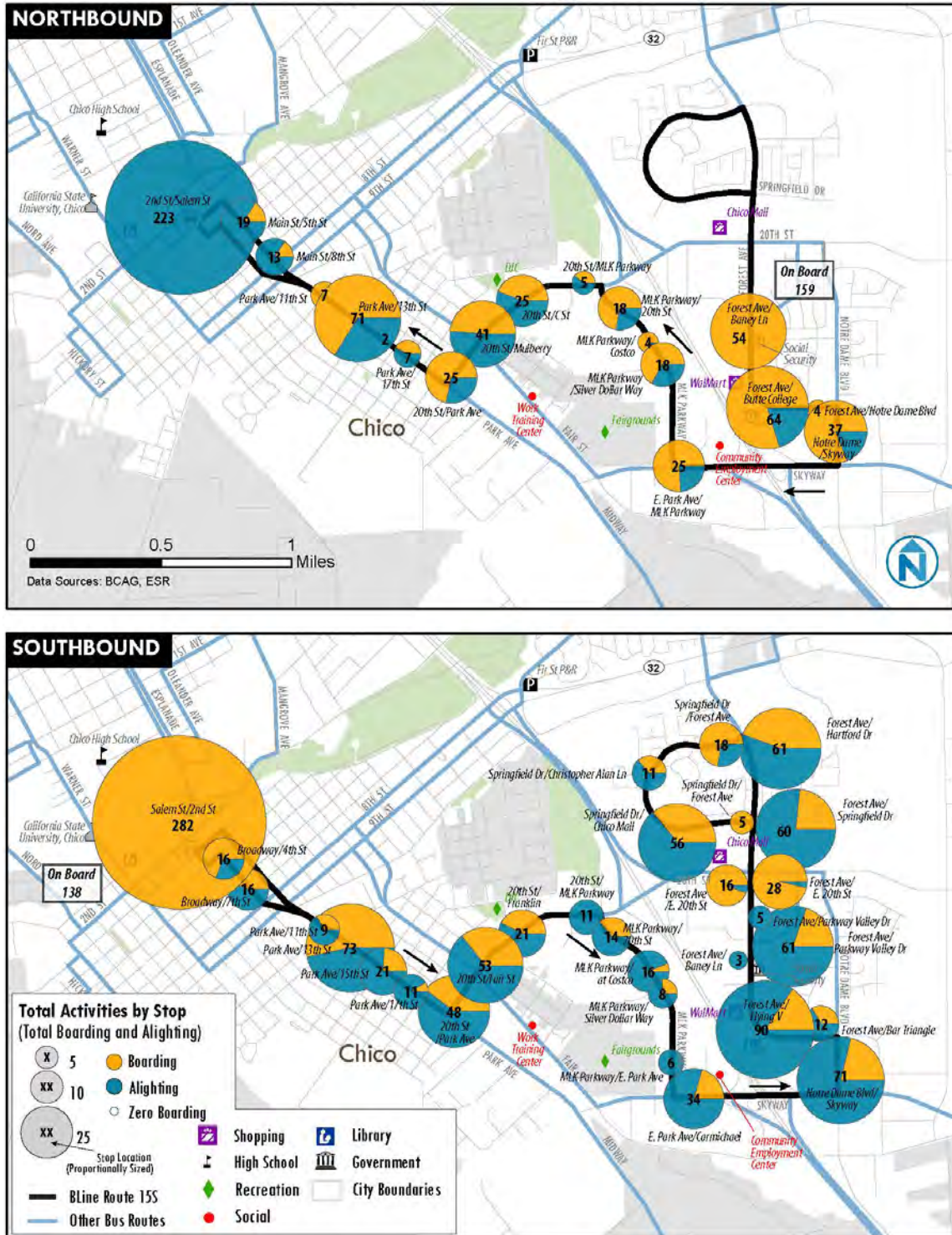
Route 15S operates between the Chico Transit Center and the Forest Avenue Transfer via Park Avenue, 20th Street, MLK Parkway, Forest Avenue, and Springfield Drive. Like Route 15N, Route 15S operates in a short loop before reaching its terminus, traveling in a counterclockwise direction on Springfield Drive north of Chico Mall. Major stops and timepoints on Route 15S include Chico Transit Center, 20th Street at East Park Avenue, East Park Avenue at MLK Parkway, Forest Avenue Transfer (Bank – NB), and Forest Avenue Transfer (WalMart – SB). Route 15S also serves the Community Employment Center, Butte College Chico campus, and Chico Mall, completing the round trip in approximately 49 minutes.

Route 15S Weekday Service

Figure 3-46 shows the Route 15S boarding and alighting activity for the northbound and southbound directions.

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Figure 3-46 Route 15S Weekday Boardings and Alightings by Stop

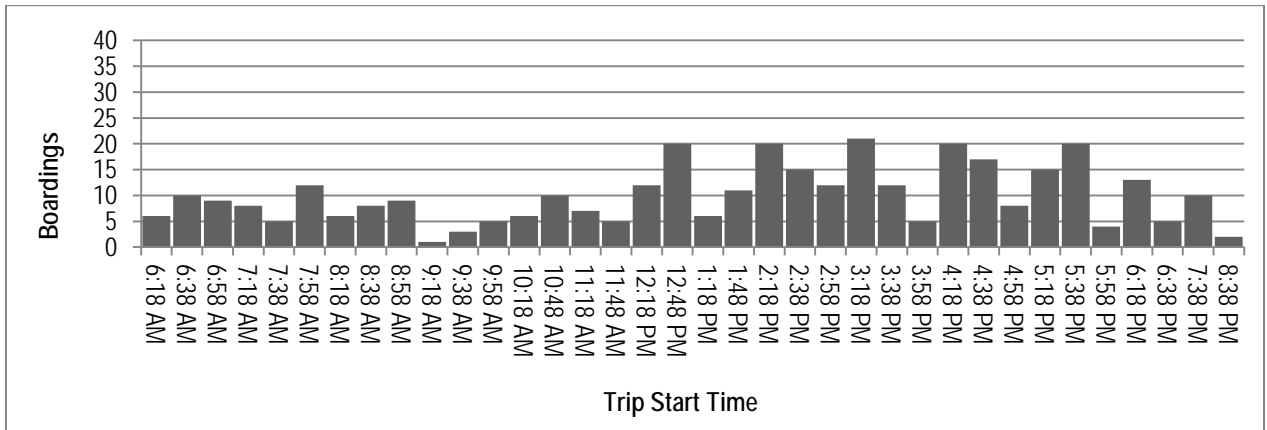


Route 15S has significant boarding and alighting activity on weekdays along several sections of the route, especially around Chico Mall, WalMart and Butte College. Outside of the Chico Transit Center, the most popular stops are Forest Avenue at Butte College and Forest Avenue at Flying V (northbound and southbound), Park Avenue at 13th Street (northbound and southbound), and Notre Dame Boulevard at Skyway. In the southbound direction, a total of 138 riders continued on Route 15S from interlined Route 15N buses.

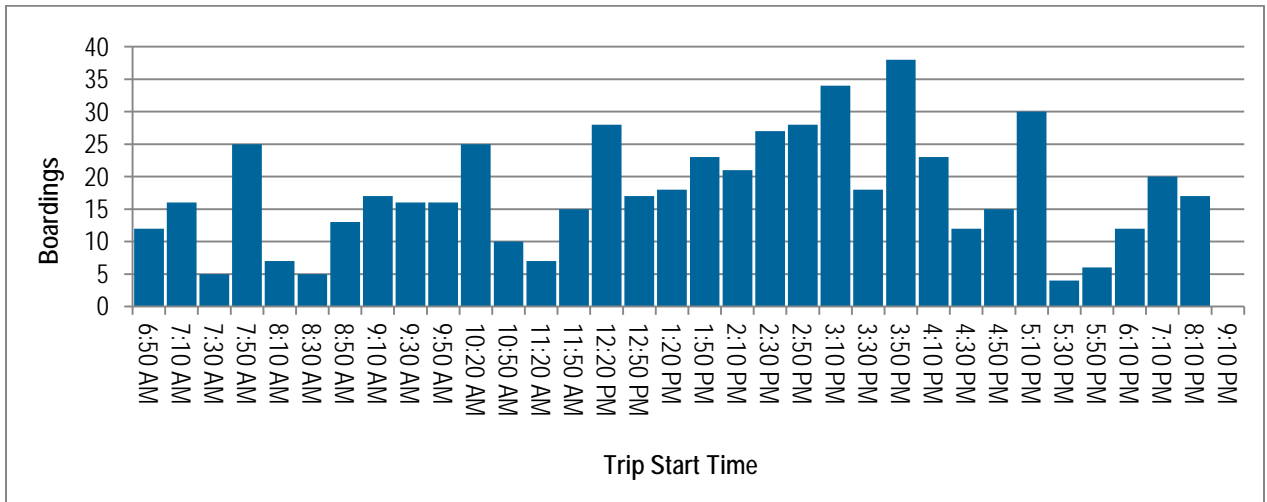
Figures 3-47 presents boardings by trip start time for Route 15S. In the northbound direction, boardings were highest in the afternoon and evening, though there was a high degree of variance between some runs (in particular, boardings were the highest on the 3:18pm run). In the southbound direction, boarding activity also varied over the course of the day with peaks in the late afternoon, midday, and morning.

Figure 3-47 Route 15S Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



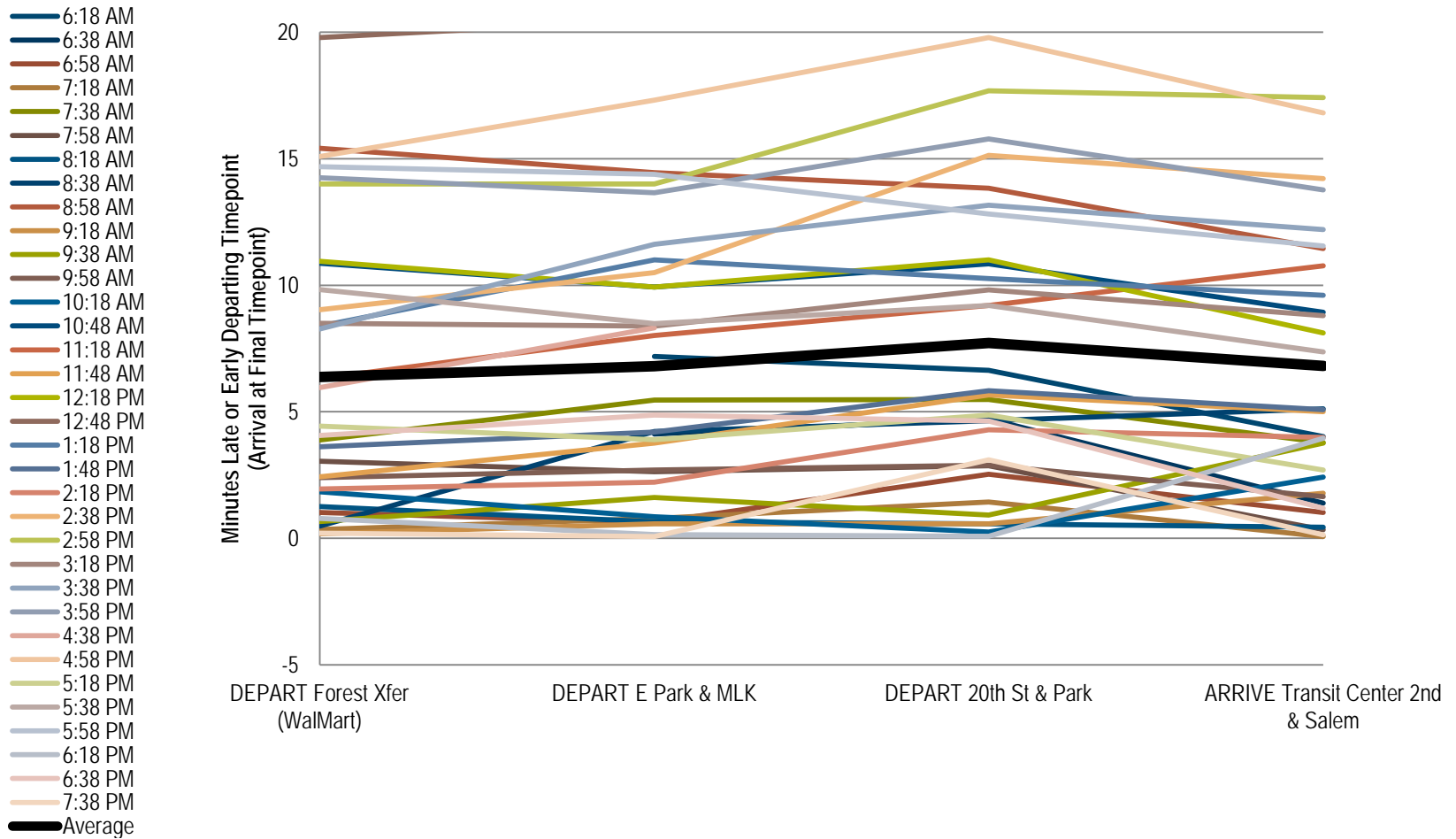
Route 15S On-Time Performance

As shown in Figure 3-48, on both inbound and outbound trips, Route 15S is plagued by delays, with one half (50%) of all trips delayed at some timepoints. Of sampled trips, average delay on inbound trips is approximately seven minutes; outbound trips average five to seven minutes. The outbound segment of the route between the downtown Transit Center and the timepoint at 20th Street and Park Avenue accounts for an average of more than two minutes of delay, while the segment between East Park Avenue at MLK Parkway and the Forest Avenue Bank Transfer location adds an average of 1.5 minutes of delay to nearly all trips. Being interlined with Route 15N allows for very modest recovery, but both routes run tight on about one-half of all trips, suggesting the need for some revisions to schedule and/or routing.

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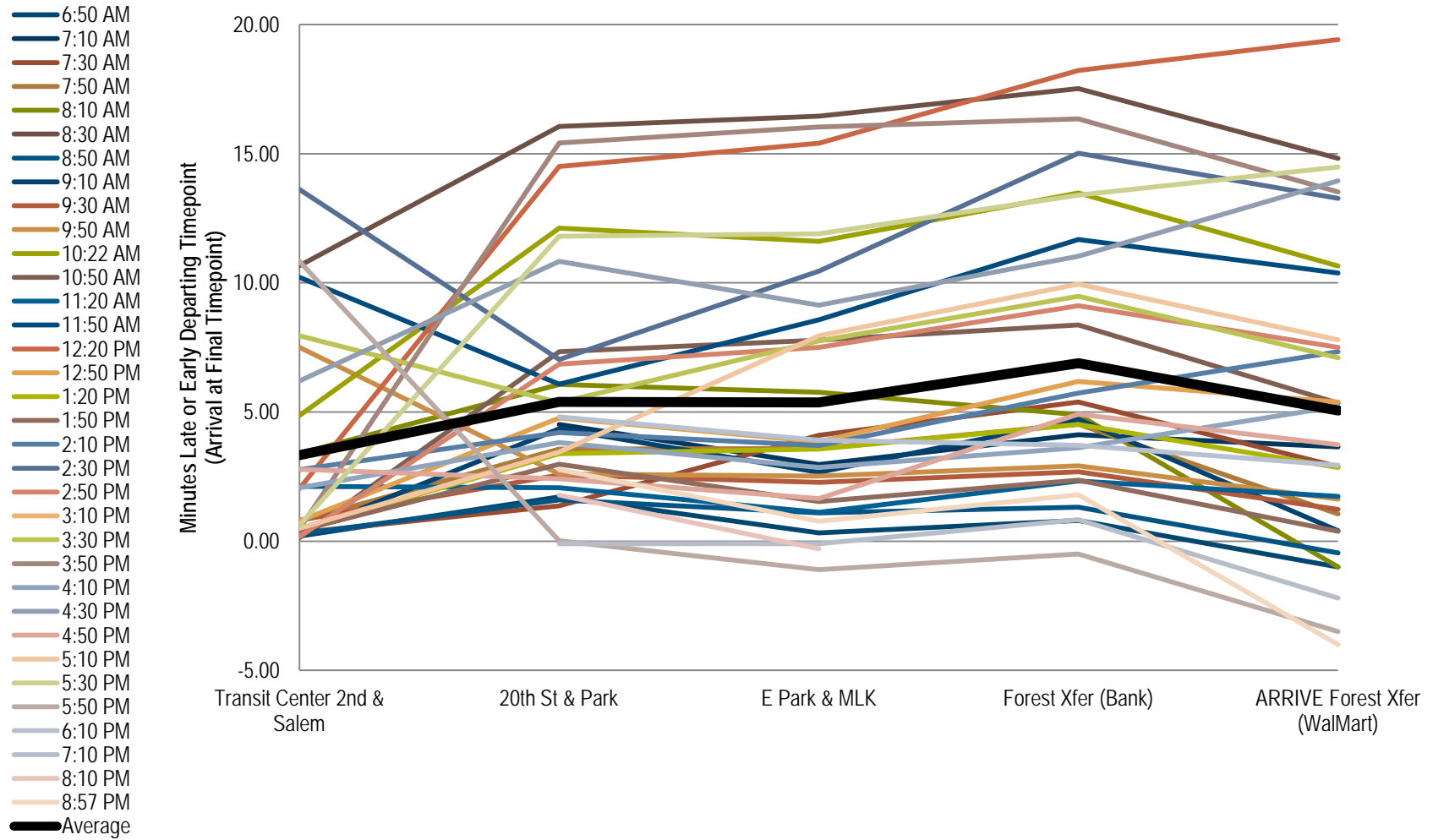
Figure 3-48 Route 15S Schedule Adherence by Route Segment

Route 15S Inbound



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Route 15S Outbound



Route 16 Esplanade/SR99

At a Glance		
Weekday Boardings		273
Weekday Revenue Hours		10.4
Boardings per Hour		26.3
Boardings per Trip		11.4
Frequency (minutes)	Mon-Fri All Day	60
	Sat	60
Span	Mon-Fri	7am - 7pm
	Sat	8am - 6pm

Description

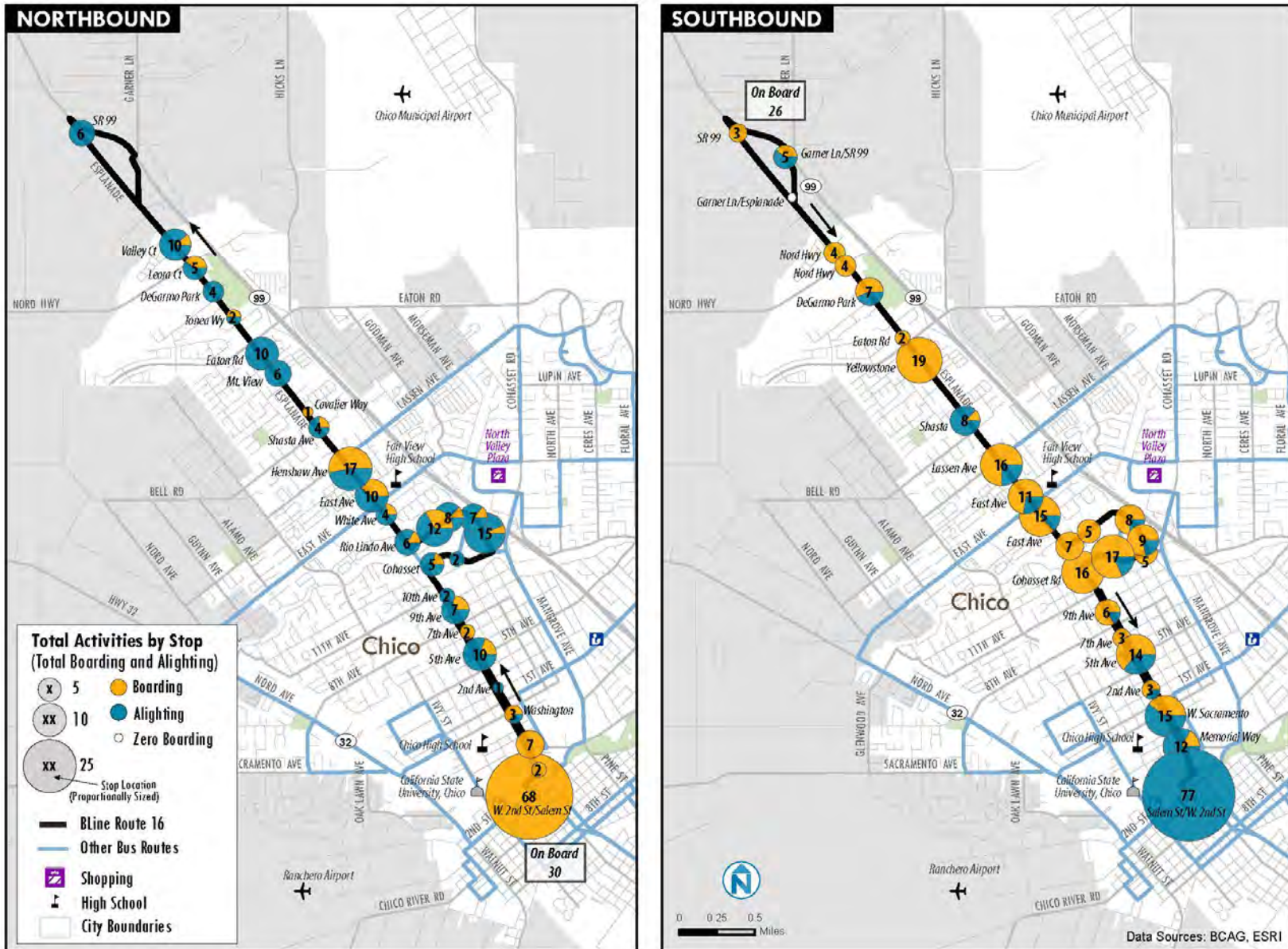
Route 16 operates along the Esplanade from Chico Transit Center to a loop on Garner Lane and State Route 99 at the far northwest corner of Chico. About halfway along the route, Route 16 jogs off of Esplanade to serve the shopping centers and medical facilities along Rio Lindo. Major stops and timepoints include Chico Transit Center, Esplanade & 5th, Rio Lindo & Parmac, East & Esplanade, and Esplanade & SR 99. Route 16 is through-routed with Route 15 at the Chico Transit Center. Route 16 completes one round-trip in approximately 52 minutes.

Route 16 Weekday Service

Figure 3-49 presents the Route 16 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-49 Route 16 Weekday Boardings and Alightings by Stop



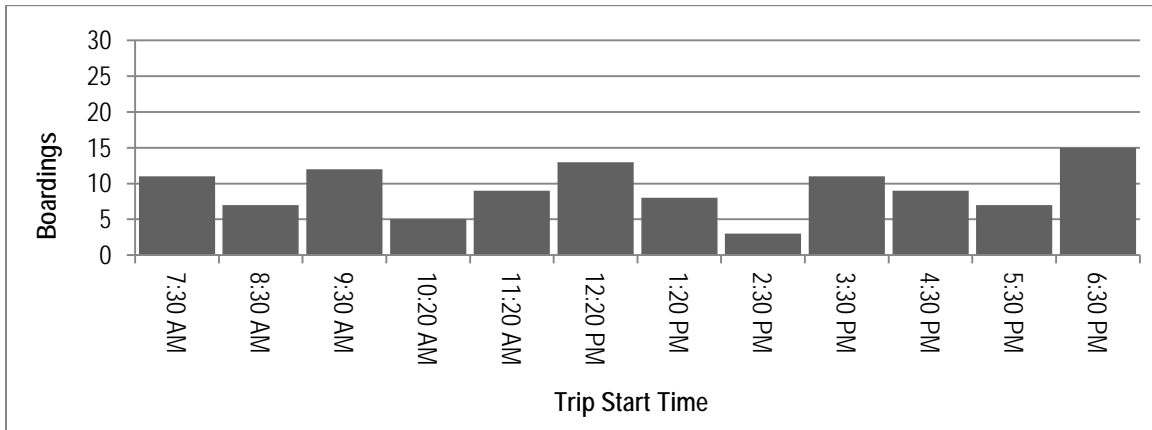
In the northbound direction, outside of Chico Transit Center the greatest number of boardings occurs at Esplanade & Henshaw Avenue in the vicinity of a few apartment complexes and other commercial activity. Most of the activity in the northbound direction, however, consisted of alightings, especially along Rio Lindo. At a few stops, such as Esplanade & Eaton Road, the activity consisted solely of passengers alighting. Additionally, in the northbound direction, a total of 30 riders joined Route 16 on interlined Route 15N buses.

In the southbound direction towards Chico Transit Center, the highest amount of activity occurs at the Esplanade & Yellowstone stop. Additionally, there is a cluster of activity around East Avenue and the Rio Lindo loop. The Garner Lane & Esplanade stop was observed to have no activity on the surveyed weekday. On the surveyed weekday, a total of 26 riders rode through from Route 16 northbound to Route 16 southbound.

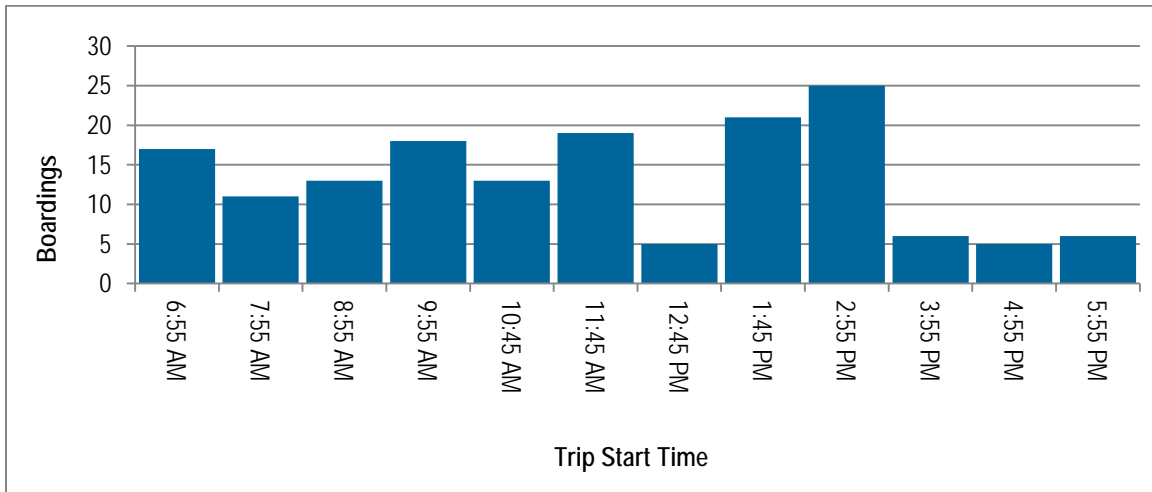
Figure 3-50 presents boardings by trip start time for Route 16. While boardings fluctuated throughout the day in the northbound direction, the highest amount of boardings (i.e., over 10) occurred on the 7:30am, 9:30am, 12:20pm, 3:30pm, and 6:30pm runs. In the southbound direction, boardings remained consistent for most of the day, peaking in the early afternoon. Relatively little boarding activity occurred on the last three runs of the day.

Figure 3-50 Route 16 Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



Route 16 On-Time Performance

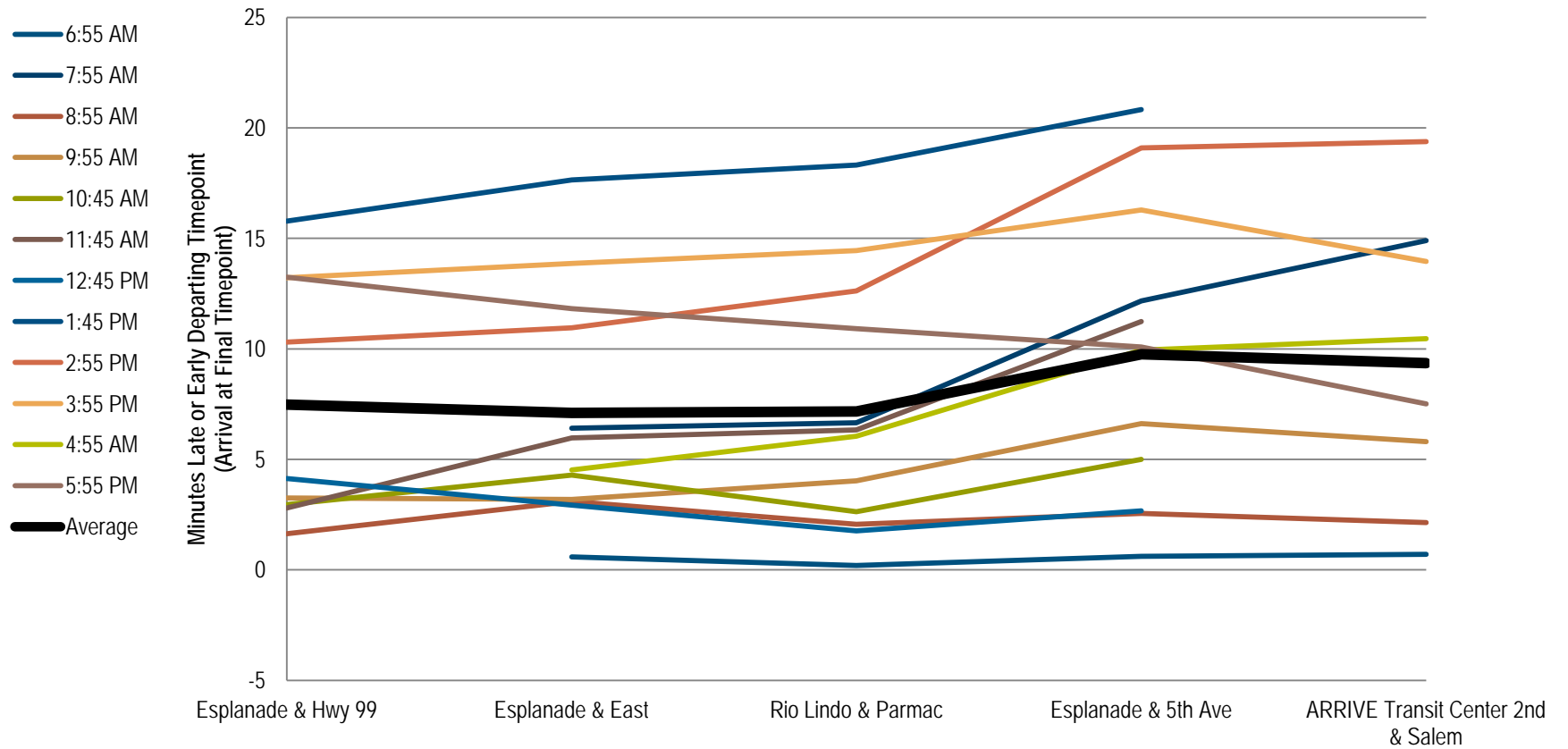
As shown in Figure 3-51, outbound Route 16 runs generally averaged between four and five minutes behind schedule, with two-thirds of trips running on-schedule (less than five minutes late at timepoints). Inbound Route 16 performance was less consistent; in this direction, two-thirds of trips ran more than five minutes behind schedule at timepoints. On the sample weekday, four runs in the inbound direction were more than ten minutes behind schedule throughout the route.

Given the performance of Route 15N and Route 16 in the inbound direction, it is possible that traffic along the Esplanade is causing systemic delays. In any case, there is an opportunity to reevaluate the schedule of these routes along this segment in particular to improve future on-time performance on these and connecting routes.

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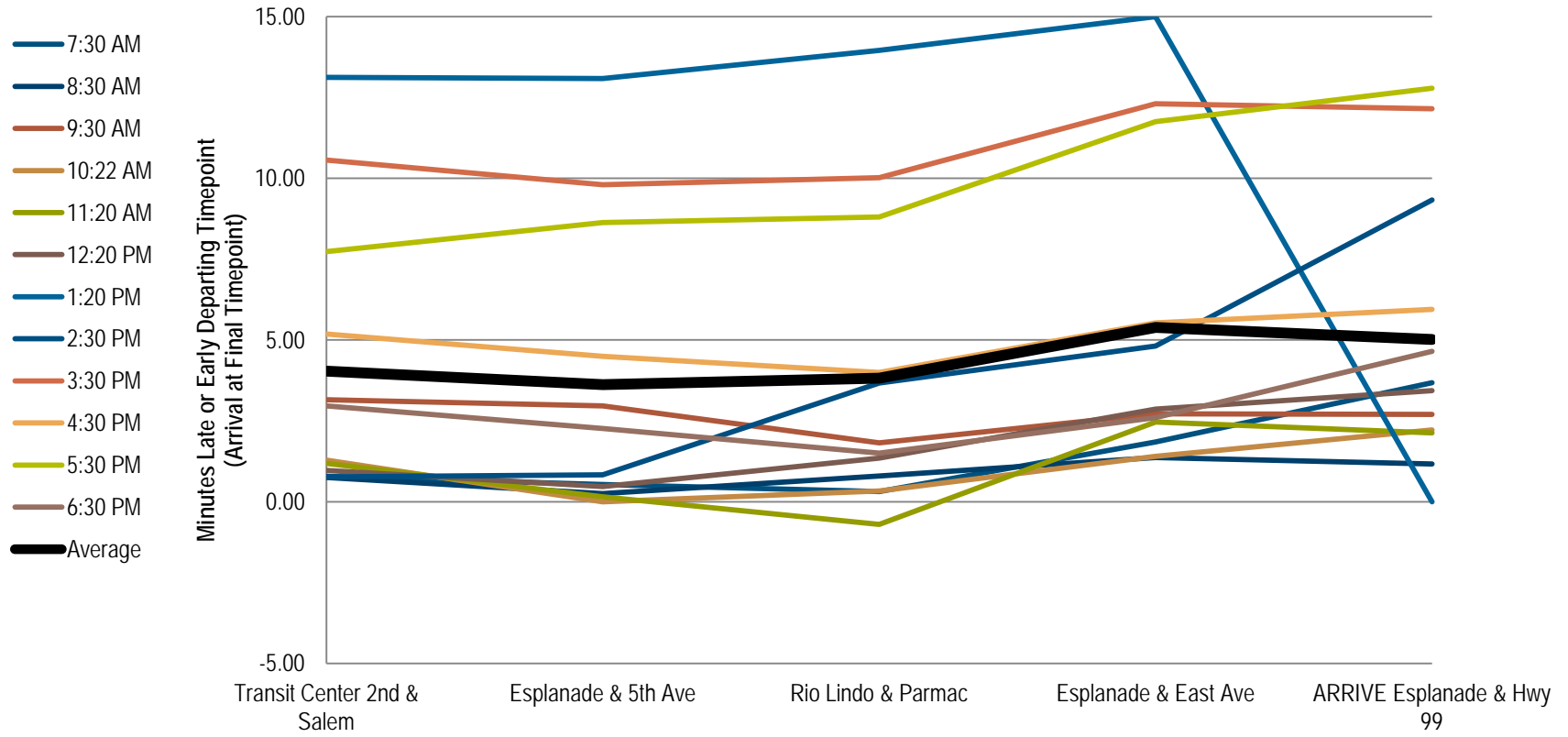
Figure 3-51 Route 16 Schedule Adherence by Route Segment

Route 16 Inbound



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Route 16 Outbound



Local Routes – Oroville

Route 24 Thermalito

At a Glance		
Weekday Boardings		139
Weekday Revenue Hours		6.9
Boardings per Hour		20.2
Boardings per Trip		11.6
Frequency (minutes)	Mon-Fri All Day	60
Span	Mon-Fri	6:30am - 7:30pm

Description

Route 24 provides service to Thermalito, operating from the Oroville Transit Center (Mitchell & Spencer) to the Butte County Public Works/Administration center and back in a clockwise loop along Mitchell Avenue, Oroville Dam Boulevard, 14th Street, Plumas Avenue, and Grand Avenue. Major stops and timepoints along Route 24 include the Oroville Transit Center, 14th & Grand, and Public Works/Administration. Other destinations served include WalMart, Prospect High School, the Community Employment Center, Oroville High School, and Juvenile Hall. The total round trip running time is 36 minutes. Route 24 is interlined with Route 27 at the Oroville Transit Center.

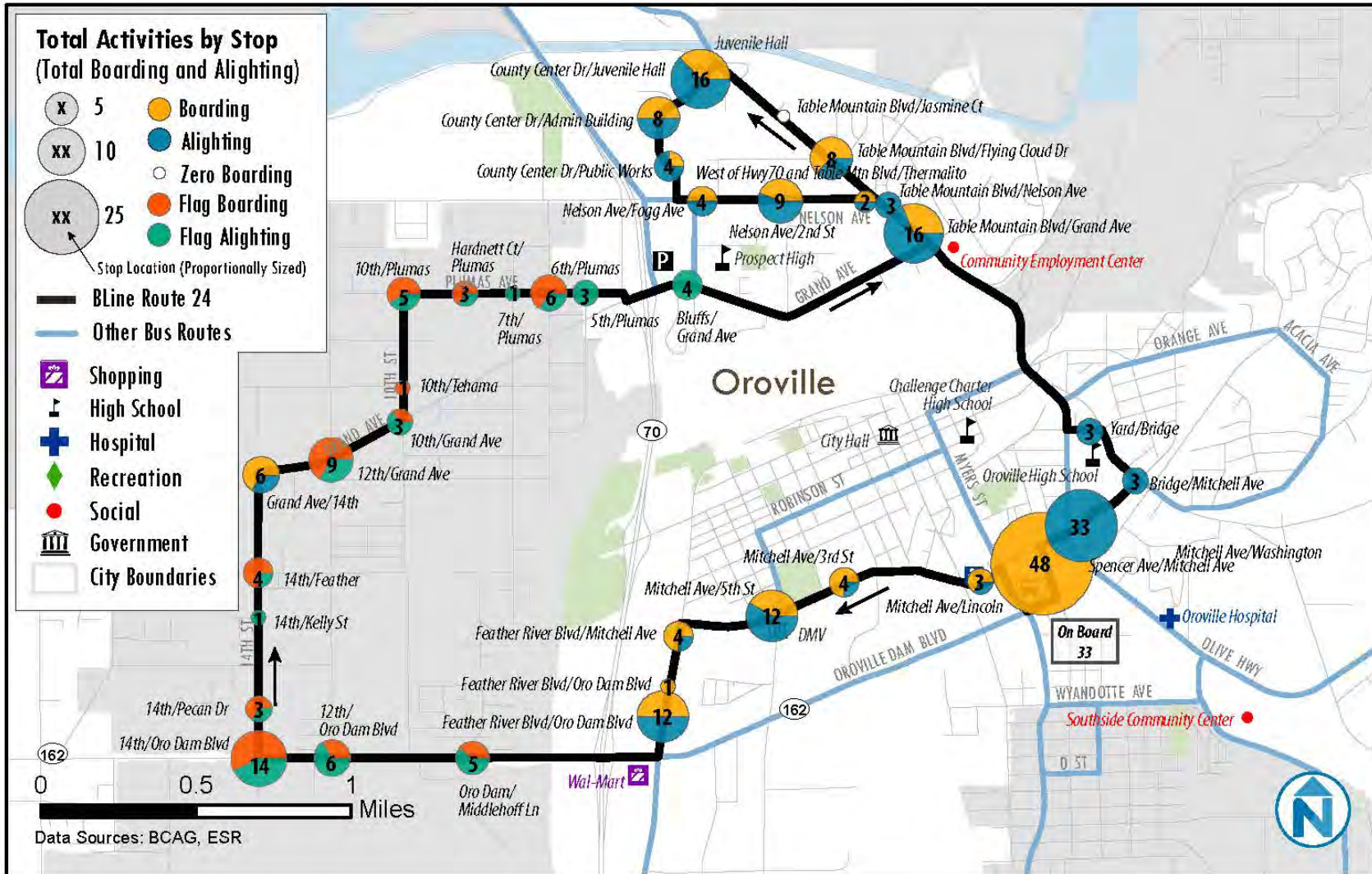
Like several other routes in Oroville and Paradise, Route 24 has portions of the route that allow flag stops. Flag stops were recorded on the surveyed weekday and are included on the boarding and alighting activity map below.

Route 24 Weekday Service

Figure 3-52 presents the Route 24 boarding and alighting activity along the loop route.

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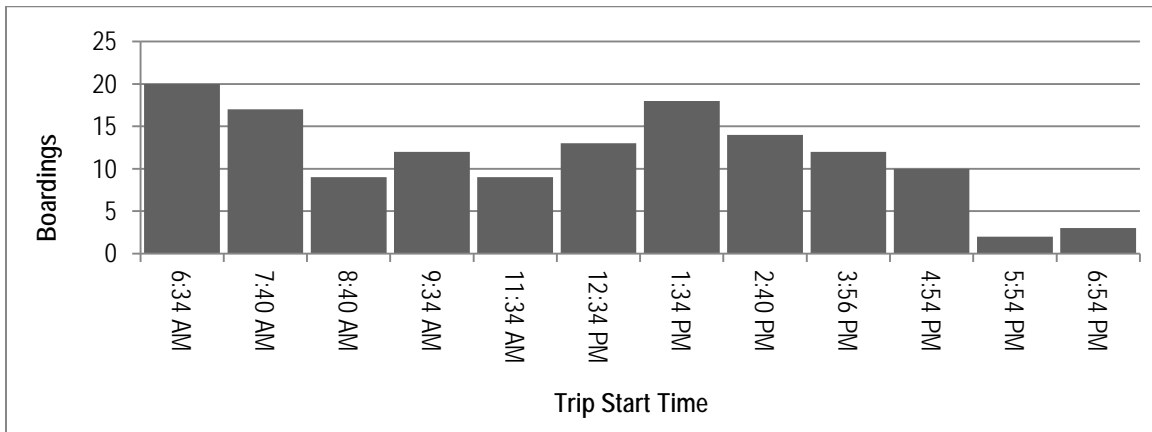
Figure 3-52 Route 24 Weekday Boardings and Alightings by Stop



Other than Oroville Transit Center, the scheduled stops with the highest total amount of boarding and alighting activity include Table Mountain Boulevard & Grand Avenue, near the Community Employment Center, and County Center Drive at Juvenile Hall. The highest number of alightings along the route occur at Table Mountain & Grand Avenue, and at Juvenile Hall. The most popular flag stops included 14th & Oro Dam Boulevard and 12th & Grand Avenue in Thermalito. A total of 30 passengers joined Route 24 on interlined Route 27 buses.

Figure 3-53 presents boardings by trip start time for Route 24. Route 24 is most popular from the early morning until approximately 5pm, after which boardings fall off. Peak boardings occurred on the 6:34am, 7:40am, and 1:34pm runs.

Figure 3-53 Route 24 Weekday Boardings by Run

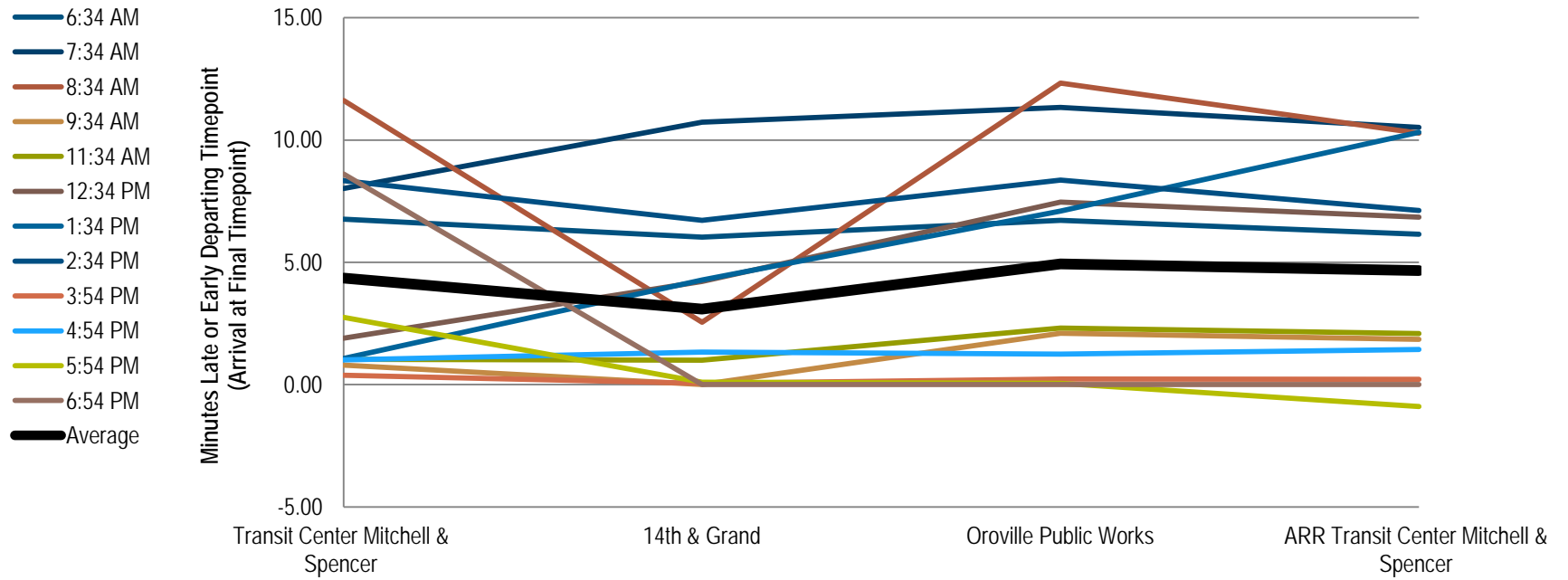


Route 24 On-Time Performance

Over half (58%, 7 of 12) of Route 24 runs were more than five minutes behind schedule at timepoints along the route (see Figure 3-54). Three of the runs that had the worst on-time performance on the sampled day were the 6:34am, 7:34am, and 8:34am trips, an indication that morning traffic or other special occurrences in the mornings cause delays for Route 24.

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Figure 3-54 Route 24 Schedule Adherence by Route Segment



Route 25 Oro Dam

At a Glance		
Weekday Boardings		61
Weekday Revenue Hours		3.6
Boardings per Hour		16.9
Boardings per Trip		5.1
Frequency (minutes)	Mon-Fri All Day	60
Span	Mon-Fri	6:10am - 6:50pm

Description

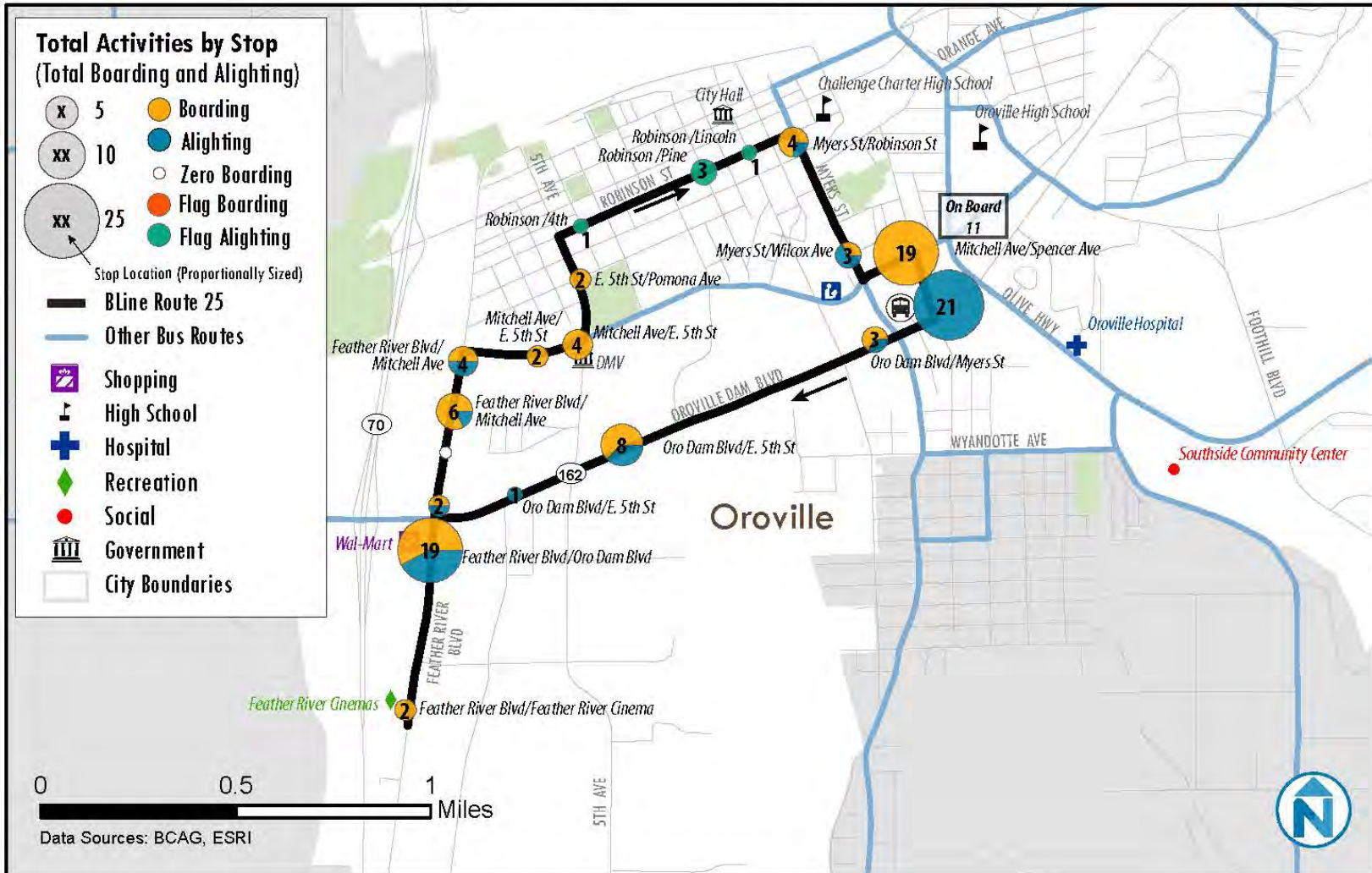
Route 25 provides local service within Oroville, operating in a clockwise loop between Oroville Transit Center, Feather River Cinemas, and downtown Oroville. Other destinations served by Route 25 include the Oroville DMV, Challenge Charter High School, and the Oroville Library. The time to complete one loop is approximately 18 minutes. Like other Oroville routes, Route 25 includes a few sections of flag-stop operation, notably in downtown Oroville along Robinson Street. Route 25 is through-routed with Route 26.

Route 25 Weekday Service

Figure 3-55 presents the Route 25 boarding and alighting activity along the loop route.

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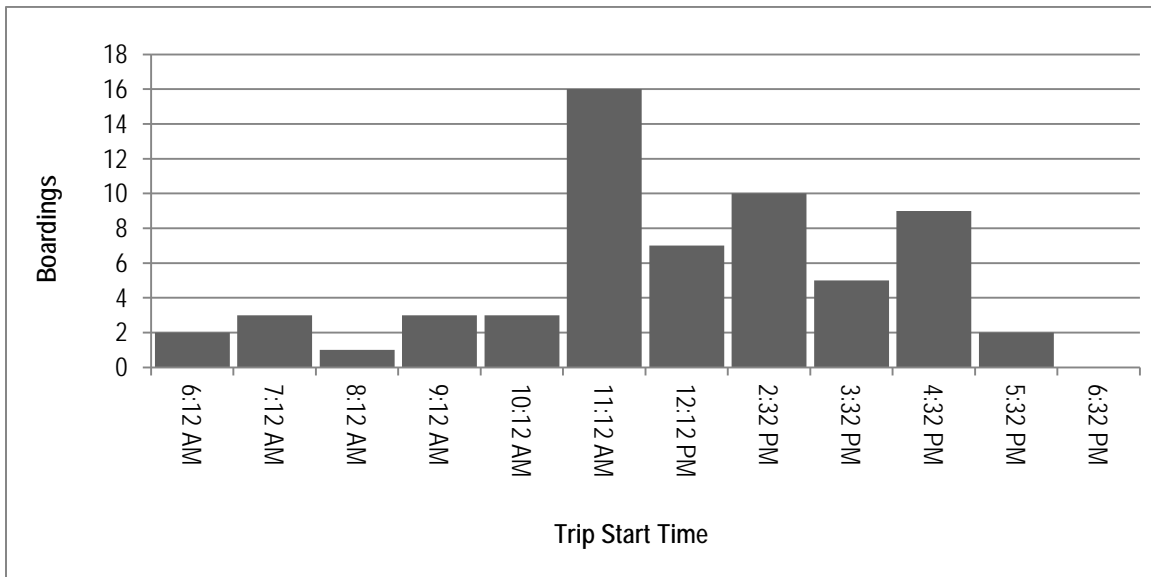
Figure 3-55 Route 25 Weekday Boardings and Alightings by Stop



Overall, Route 25 has relatively light activity, with a total of 61 boardings recorded on the surveyed weekday. Along the loop route, the most active stops were Oroville Transit Center and Feather River Boulevard & Oro Dam Boulevard, near the Oroville WalMart. Several stops experienced very little activity over the course of the day, including the Feather River Cinemas stop and a string of stops on Mitchell Avenue and 5th Avenue. The most popular flag stop was located at Robinson Street and Pine in downtown Oroville. A total of 11 passengers rode through to Route 25 on through-routed Route 26 buses.

Figure 3-56 presents boardings by trip start time for Route 25. Boardings were very light until the 11:12am run, which had the highest number of boardings (16). In the afternoon, boardings fluctuated; there were no boardings on the 6:32pm run.

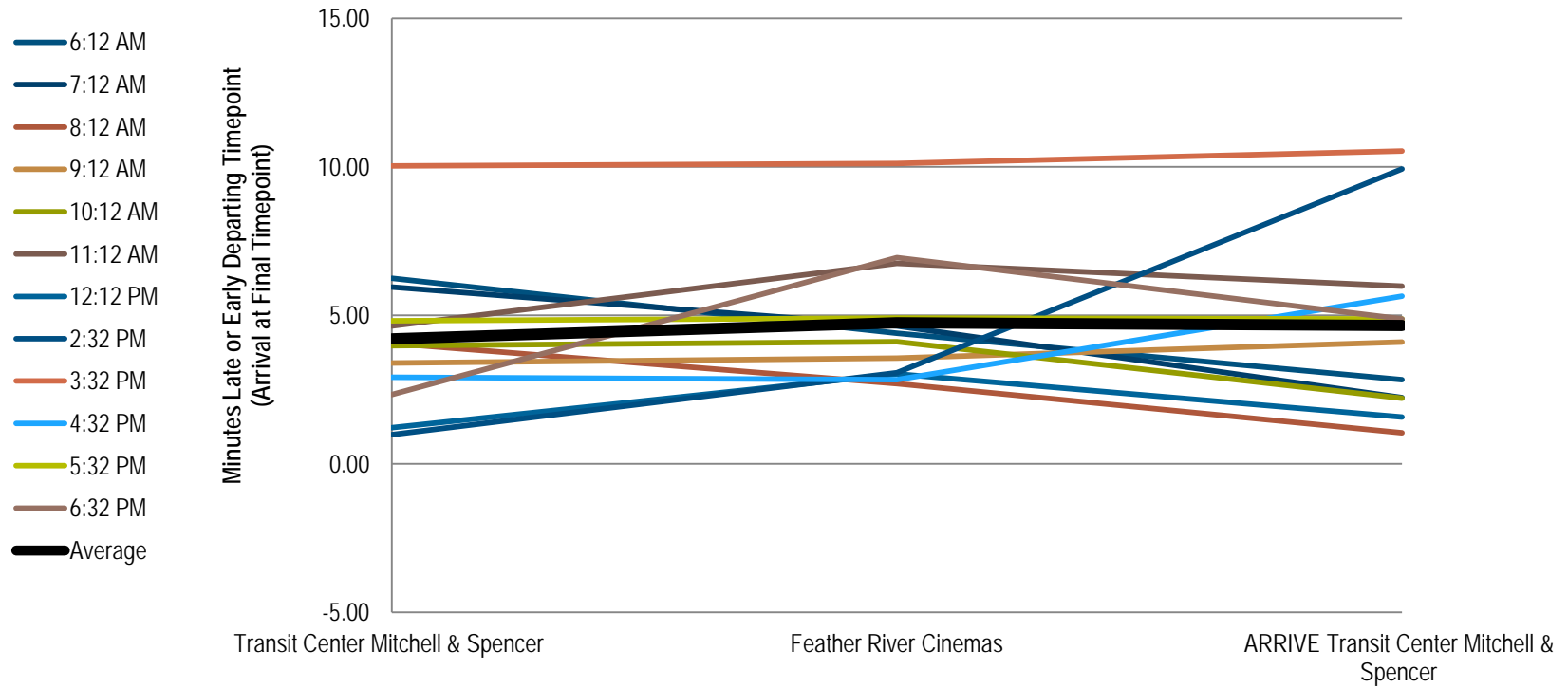
Figure 3-56 Route 25 Weekday Boardings by Run



Route 25 On-Time Performance

On average, Route 25 trips departed timepoints under five minutes behind schedule (see Figure 3-57); however, 42% (5 of 12) of runs on the sample day were more than five minutes late at timepoints. There may be an opportunity to loosen the schedule slightly to improve route performance.

Figure 3-57 Route 25 Schedule Adherence by Route Segment



Route 26 Olive Highway/Kelly Ridge

At a Glance		
Weekday Boardings		59
Weekday Revenue Hours		5.6
Boardings per Hour		10.5
Boardings per Trip		5.4
Frequency (minutes)	Mon-Fri All Day	60
Span	Mon-Fri	6:30am - 6:20pm

Description

Route 26 provides additional local service within Oroville and to neighborhoods and destinations to the northeast and east of the city. The route operates between the Oroville Transit Center and South Oroville to Gold Country Casino on 60 minute headways, and serves on alternating 120 minute headways the Kelly Ridge (5 trips per day) and Orange & Acacia areas (6 trips per day). These two sub-routes are designated Routes 26a and 26b. Major stops and timepoints on Route 26 are the Oroville Transit Center, D Street & Meyers, Gold County Casino, Kelly Ridge & Royal Oaks, Oroville Hospital, and Orange & Acacia. Other destinations adjacent to Route 26 include the Southside Community Center and Oroville Hospital. Total running time for Route 26 is between 28 and 34 minutes, depending on which alternate loop it is running. Route 26 is through-routed with Route 25.

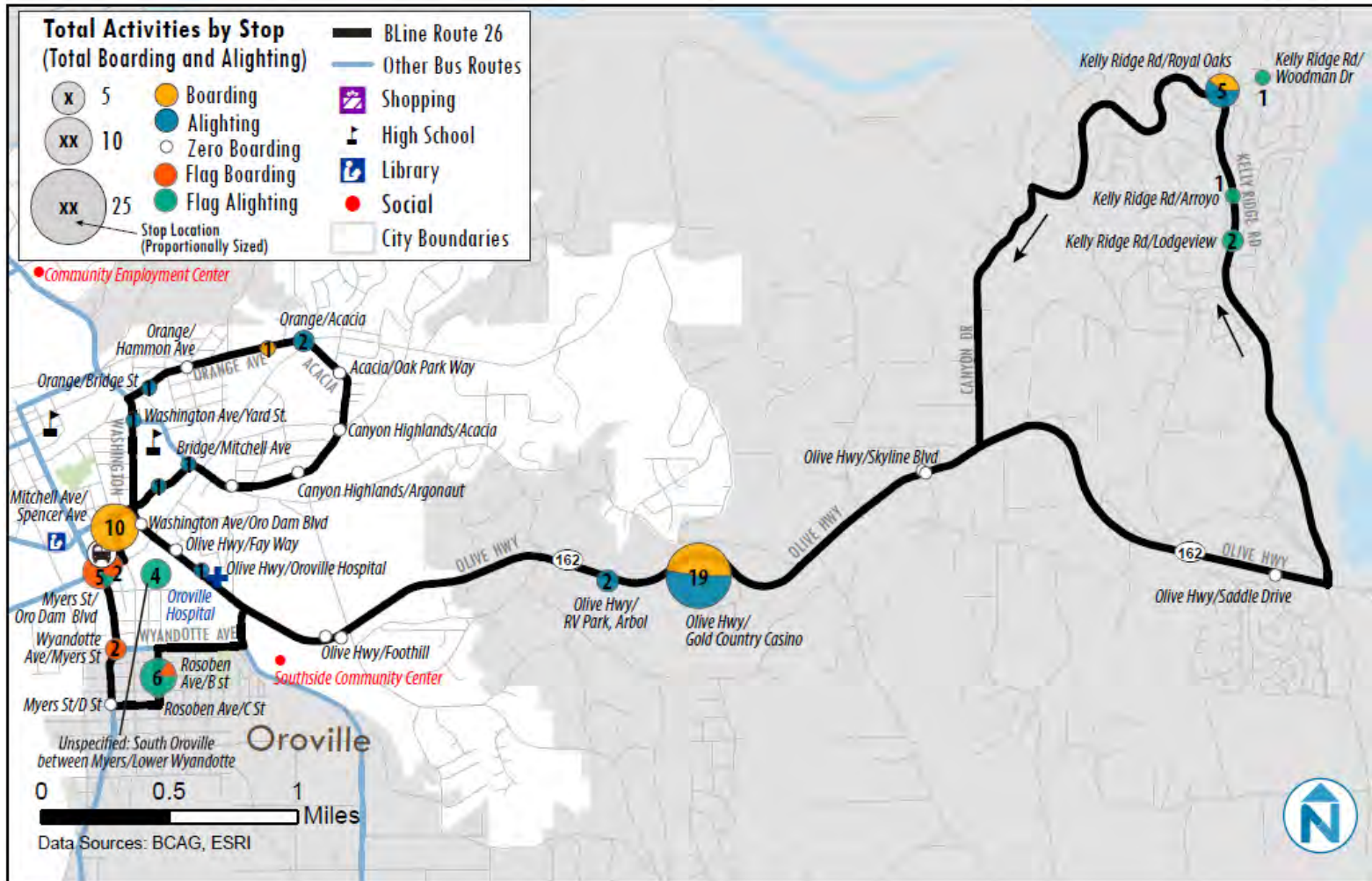
Route 26 includes flag stop segments in the South Oroville and Kelly Ridge areas.

Route 26 Weekday Service

Figure 3-58 shows the Route 26 boarding and alighting activity for the alternating loop route.

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Figure 3-58 Route 26 Weekday Boardings and Alightings by Stop



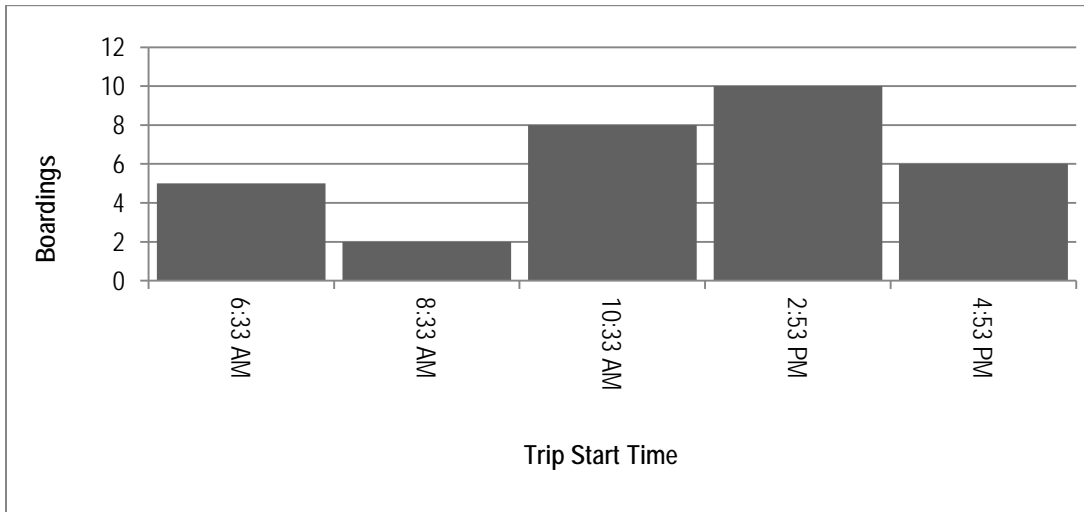
Like Route 25, Route 26 also experienced relatively low ridership on the surveyed weekday, with just under 60 total boardings. Other than the Oroville Transit Center, the most active scheduled stops were located at the Gold County Casino and at Kelly Ridge Road & Royal Oaks. A total of 34 passengers joined Route 26 on through-routed Route 25 buses.

The most popular flag stops were located in South Oroville, and included Myers Street at Oro Dam Boulevard and Rosoben Avenue & B Street. Many stops on both the Kelly Ridge and Orange & Acacia loops had no boarding or alighting activity on the surveyed weekday. The onboard surveyor noted that there have been multiple requests for a bus stop at Olive Highway & Lower Wyandotte Road, near the Dialysis Center.

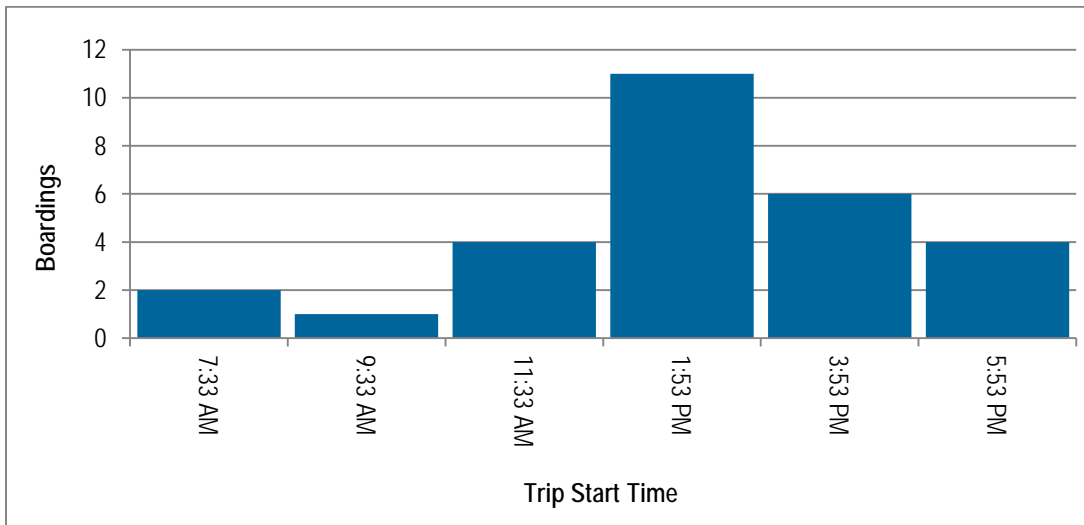
Figure 3-59 presents boardings by trip start time for each loop of Route 26. On Route 26A (Kelly Ridge), boardings were highest on the 2:35pm run; the fewest boardings occurred on the 8:33am run. On Route 26B (Orange & Acacia), there were few boardings in the morning with peak boardings occurring on the 1:53pm run.

Figure 3-59 Route 26 Weekday Boardings by Run – Northbound & Southbound

26A



26B

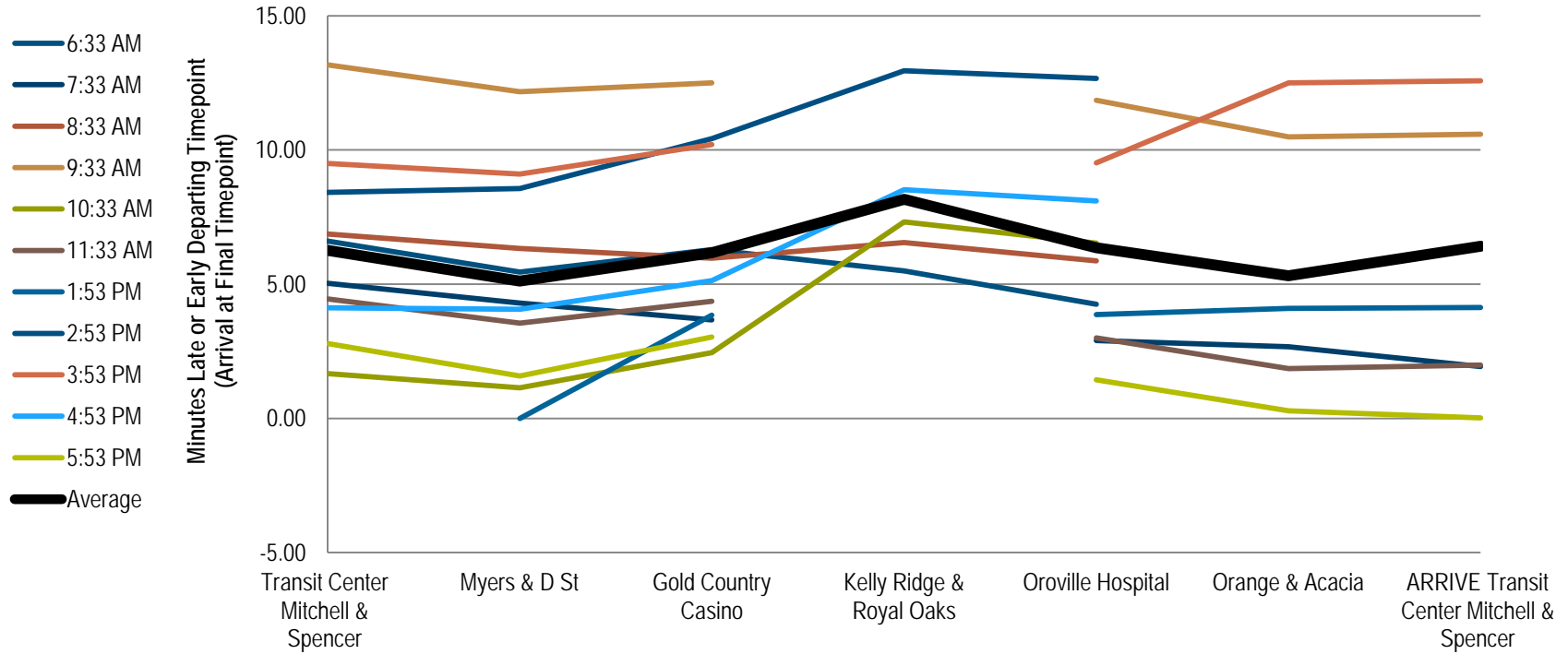


Route 26 On-Time Performance

Seven of the eleven Route 26 runs on the sample day ran more than five minutes late at timepoints. On average, Route 26A buses were more on schedule than Route 26B runs; the average delay at the Orange & Acacia timepoint was five and a half minutes, compared with an average delay of over eight minutes at the Kelly Ridge & Royal Oaks timepoint (see Figure 3-60). The Route 26B schedule may be too tight to allow consistent on-time performance on that loop.

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Figure 3-60 Route 26 Schedule Adherence by Route Segment



Route 27 South Oroville

At a Glance		
Weekday Boardings		86
Weekday Revenue Hours		3.7
Boardings per Hour		23.5
Boardings per Trip		7.8
Frequency (minutes)	Mon-Fri All Day	60
Span	Mon-Fri	7:10am - 6:50pm

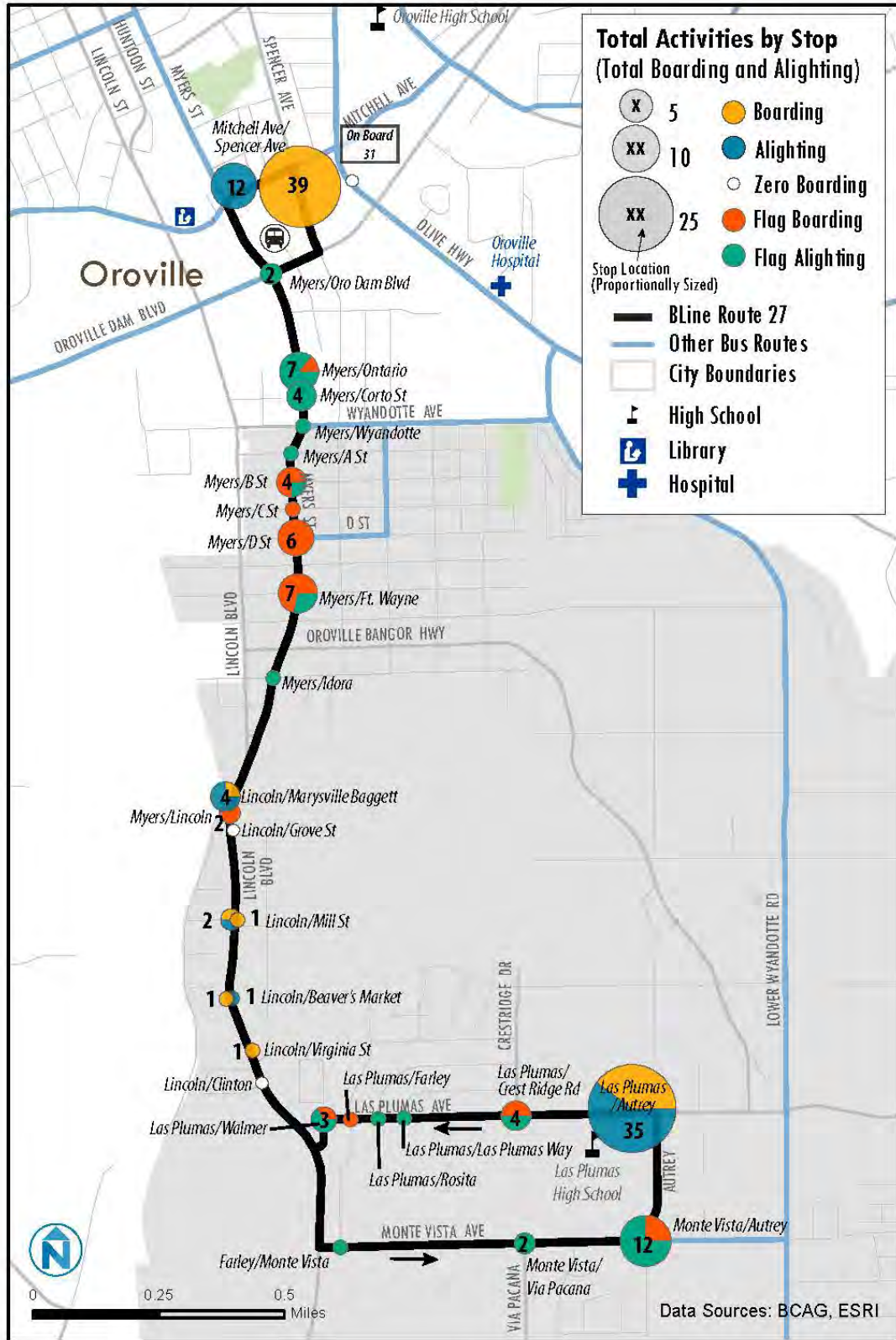
Description

Route 27 provides a loop service between the Oroville Transit Center and Las Plumas High School, operating on Lincoln Boulevard and in a counterclockwise loop on Monte Vista Avenue, Autrey Lane, and Las Plumas Avenue in South Oroville. Most of the route has no defined stops, and flag stop operation is in effect along Lincoln Boulevard from Oro Dam Boulevard to Oro Bangor Highway as well as along both Monte Vista and Las Plumas Avenues in South Oroville. The major stops and timepoints on Route 27 are Oroville Transit Center, Las Plumas High School, and Myers & D Street in South Oroville. Total running time for Route 27 is 20 minutes. Route 27 is through-routed with Route 24.

Route 27 Weekday Service

Figure 3-61 presents the boarding and alighting activity for Route 27.

Figure 3-61 Route 27 Weekday Boardings and Alightings by Stop



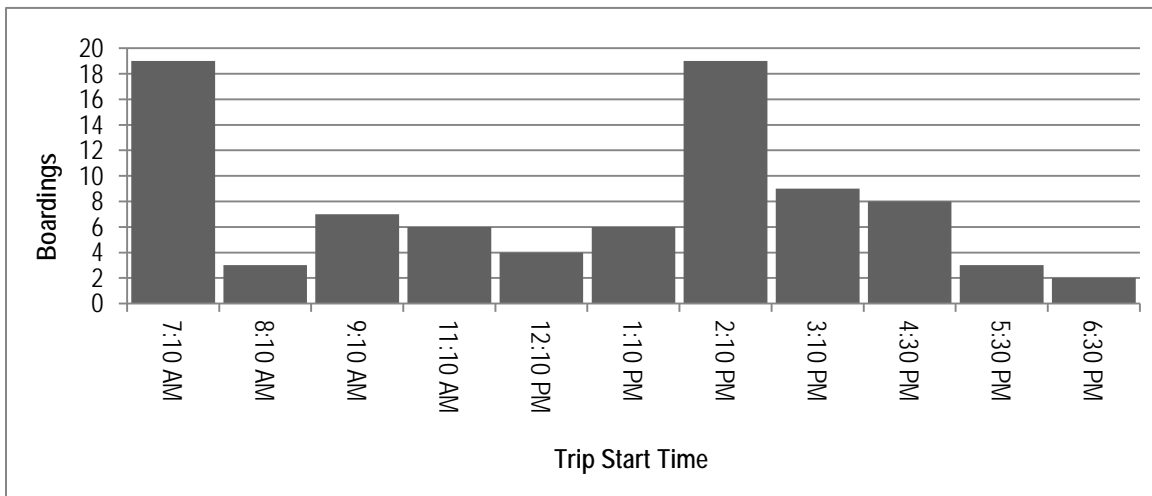
Aside from the Oroville Transit Center, most boarding and alighting activity on Route 27 occurred at Las Plumas & Autrey Lane, outside Las Plumas High School. In the morning, 15 passengers disembarked the 7:10am bus, and in the afternoon, 11 boarded at this stop.

The most popular flag stop was located at Monte Vista Avenue and Autrey Lane, adjacent to a Mormon church and the Las Plumas High School sports fields. Other popular flag stops were located along Myers Street in South Oroville, and included Myers & Ontario, which had more alightings than boardings, and Myers & Ft. Wayne, which had more boardings than alightings.

Additionally, a total of 31 passengers joined Route 27 on through-routed Route 24 buses at Oroville Transit Center.

Figure 3-62 presents boardings by trip start time for Route 27. The peak boarding runs occurred in the morning and mid-afternoon, at 7:10am and 2:10pm. In conjunction with the boarding and alighting counts at Las Plumas High School on these runs, it seems reasonable to assume that high school students are using Route 27 on a regular basis.

Figure 3-62 Route 27 Weekday Boardings by Run

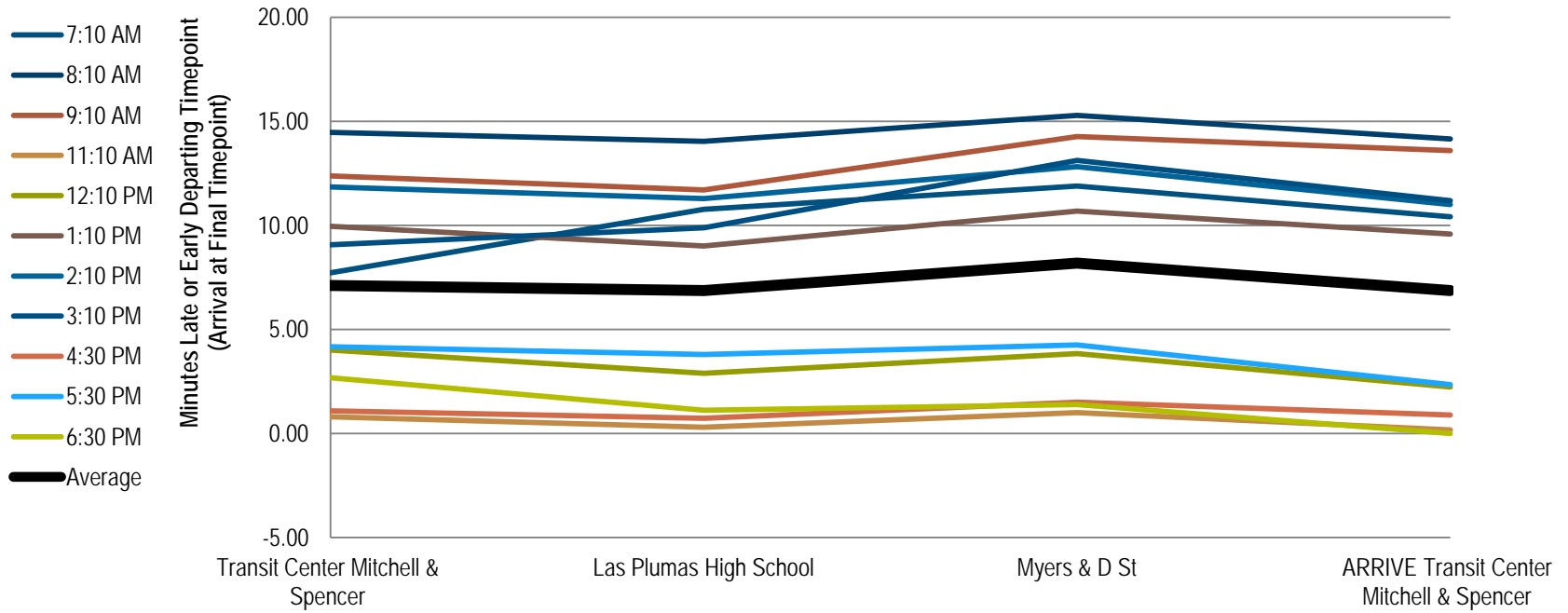


Route 27 On-Time Performance

Six of eleven Route 27 runs (55%) were more than five minutes late at timepoints, with all six of these runs more than ten minutes behind schedule at times (see Figure 3-63). This is likely a direct outgrowth of late-running Route 24 buses, showing the cascading effects of late buses in a system that relies on through-routing to efficiently maximize frequency and coverage. That the rest of the runs were all on time throughout the duration of Route 27 indicates that its schedule is appropriately timed, especially when connecting Route 24 buses are also on time.

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Figure 3-63 Route 27 Schedule Adherence by Route Segment



Route 46 Feather River Hospital

Route 46 operates in conjunction with B-Line Paratransit, and provides local service in Paradise between Paradise Transit Center and Feather River Hospital. Route 46 operates three round trips daily.

Route 46 was not evaluated as part of this effort.

According to B-Line staff, Route 46 is being considered for elimination due to low ridership.

Intercity (Regional) Routes

B-Line operates six intercity routes among the major cities and towns in Butte County. These routes are summarized below.

Route 20 Chico - Oroville

At a Glance		
Weekday Boardings		660
Weekday Revenue Hours		19.8
Boardings per Hour		33.4
Boardings per Trip		26.4
Frequency (minutes)	Mon-Fri Peak/Midday	60/120
	Sat-Sun All Day	120
Span	Mon-Fri	5:50am - 8pm
	Sat-Sun	7:50am - 6pm

Description

Route 20 provides intercity service between Chico and Oroville. Major stops and timepoints include Chico Transit Center, Fir Street Park-and-Ride, Forest Avenue Transfer, the Butte County Administration Complex, and Oroville Transit Center. Other destinations served include WalMart and the Butte College Chico campus, as well as the Community Employment Center in Oroville. Route 20 completes one round trip in approximately one hour and 50 minutes (110 minutes), with a layover at the Oroville Transit Center. Additionally, on weekdays the first two runs and the last two runs of Route 20 serve the Oroville Park-and-Ride at 3rd & Grand.

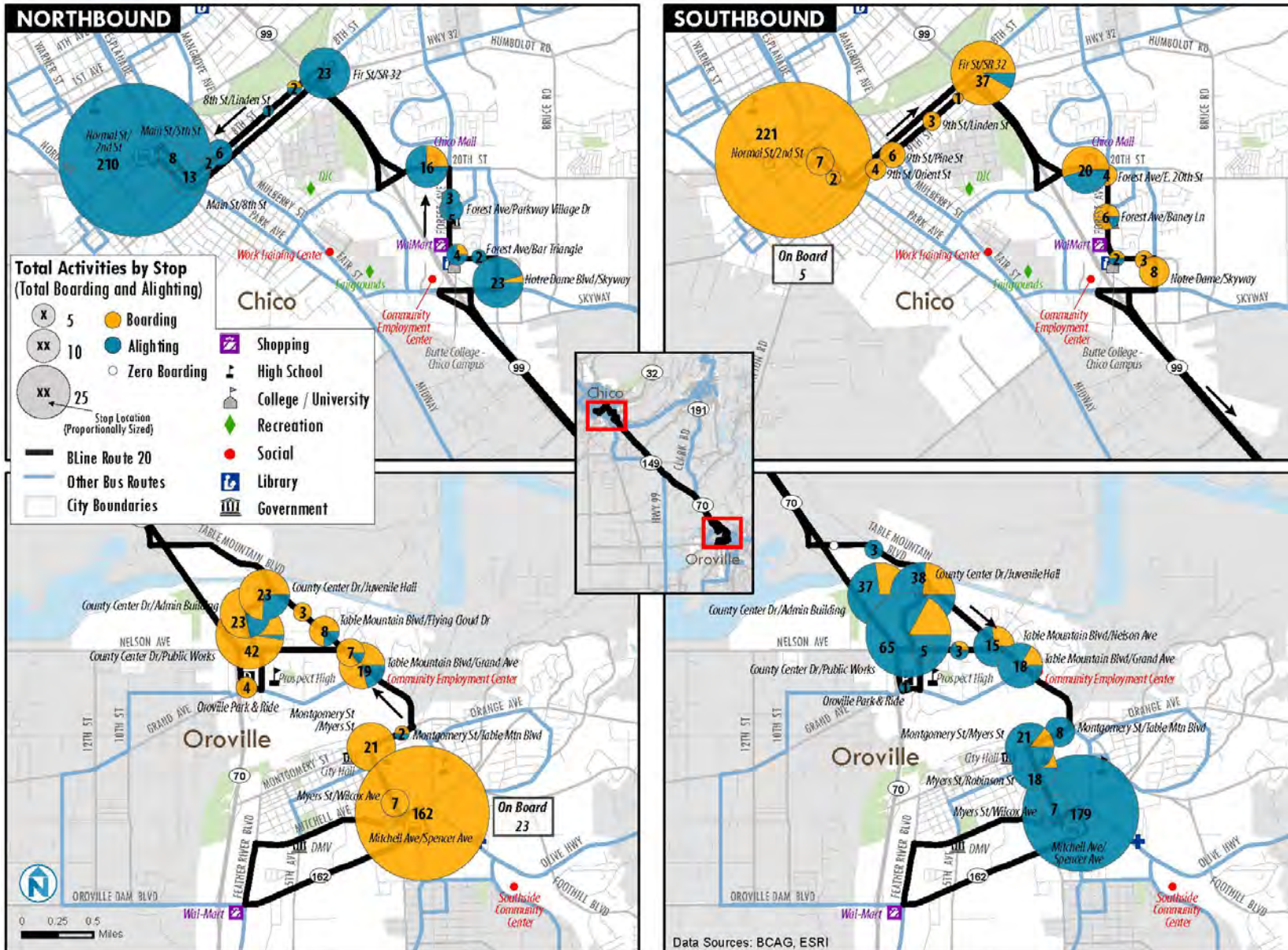
On weekends, Route 20 conducts a larger loop in Oroville, looping clockwise on Oro Dam Boulevard, Feather River Boulevard, and Mitchell Avenue to serve WalMart and other destinations in greater Oroville.

Route 20 Weekday Service

Figures 3-64 shows the Route 20 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-64 Route 20 Weekday Boardings and Alightings by Stop



In the northbound direction, the most popular boarding locations in Oroville other than the Transit Center are clustered around the Butte County Administration Complex (with the highest total at County Center Dr/Public Works), as well as at Montgomery St & Myers St near downtown Oroville. That there are a number of locations with alightings in Oroville suggests that some, if relatively few, passengers may also use Route 20 as a local service during the day. In the northbound direction in Chico, the majority of passengers alight at Chico Transit Center; smaller nodes of alighting also occur at the Fir Street Park-and-Ride, Chico Mall, and Notre Dame Boulevard & Skyway near several shopping centers.

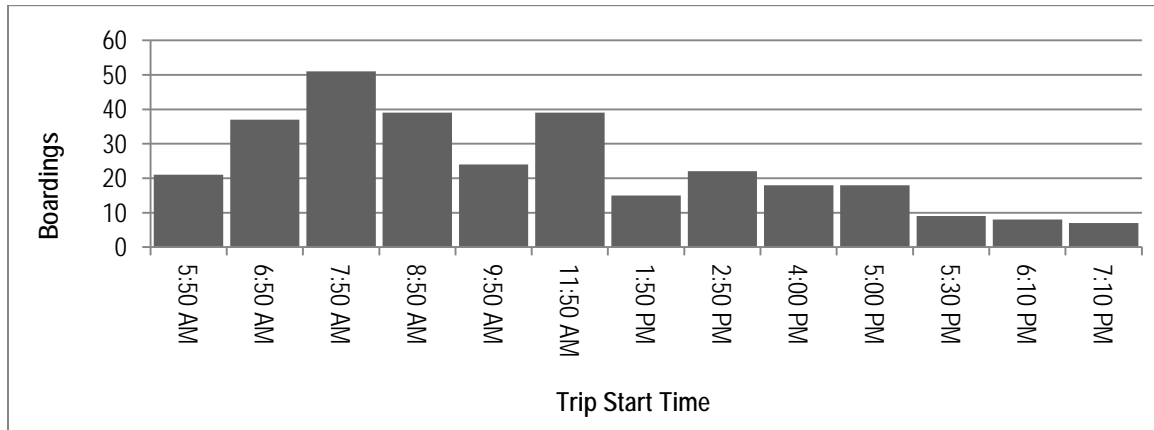
Heading southbound towards Oroville, activity patterns largely match northbound boardings and alightings, with clusters of activity around the Fir Street Park-and-Ride, Chico Mall, and Butte County Administration Complex in Oroville.

The deviation towards Oroville Park-and-Ride at 3rd & Grand yields relatively few passengers; a total of five (5) passengers boarded and alighted at this stop on the surveyed weekday.

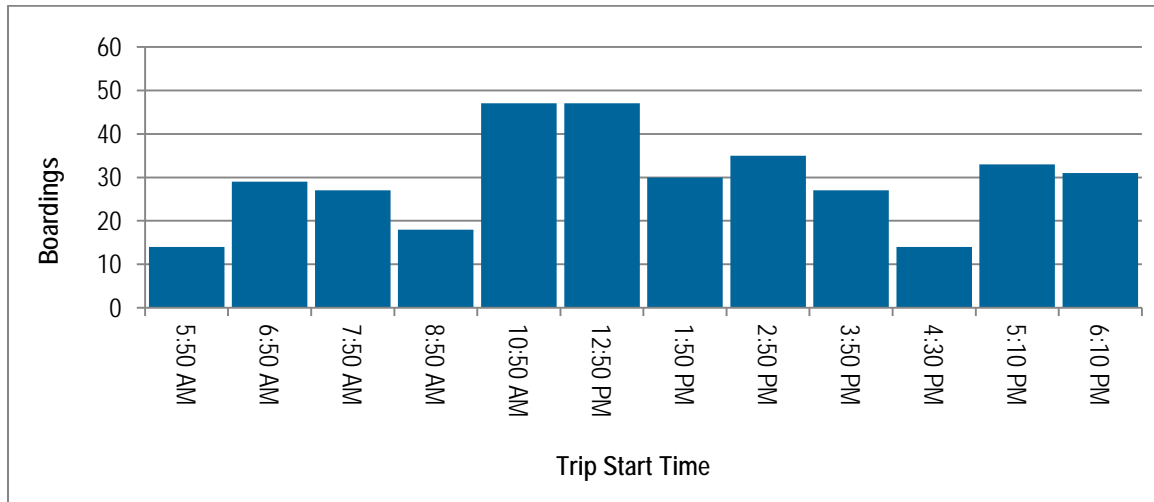
Figure 3-65 shows boardings by trip start time for Route 20. In the northbound direction, boardings were highest in the early and late morning, and subsided in the afternoon and evening. In the southbound direction, however, boardings were more consistent throughout much of the day, peaking in the midday period. Peak AM and PM periods also saw a more moderate degree of boardings. Together, these data suggest that while Route 20 may be being used as a more traditional commute route in the northbound direction, it also plays an important role throughout the day in providing service to Oroville.

Figure 3-65 Route 20 Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



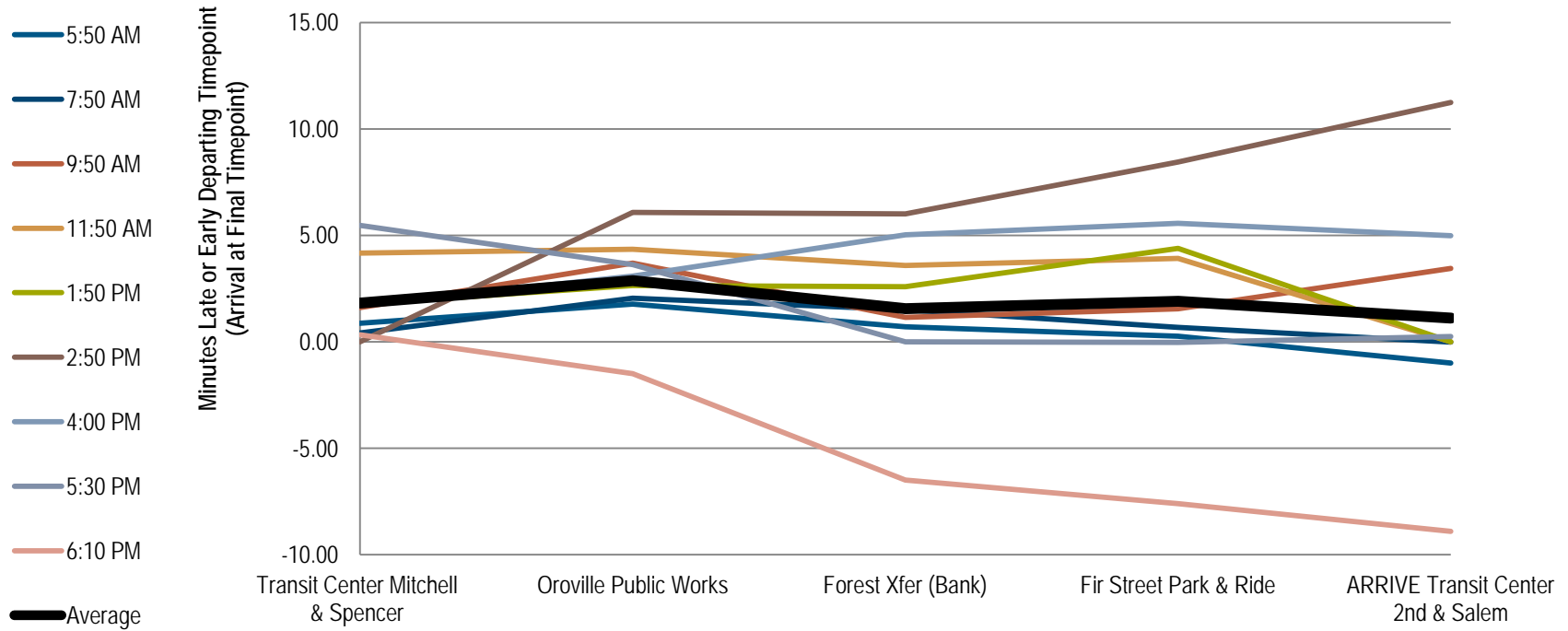
Route 20 On-Time Performance

Route 20 has mixed on-time performance results. In the inbound direction, just over half of runs were on time, with one of nine sampled inbound runs actually arriving more than five minutes early to stops in Chico (see Figure 3-66). On average, inbound runs departed timepoints along the route between one and a half and three minutes behind schedule, indicating that the inbound direction is likely appropriate as currently scheduled. In the outbound direction, however, 42% (5 of 12) of sampled runs were more than five minutes late at timepoints. Additionally, half of the surveyed routes were late in arriving at the Oroville Transit Center, suggesting that the schedule in this direction may be tight.

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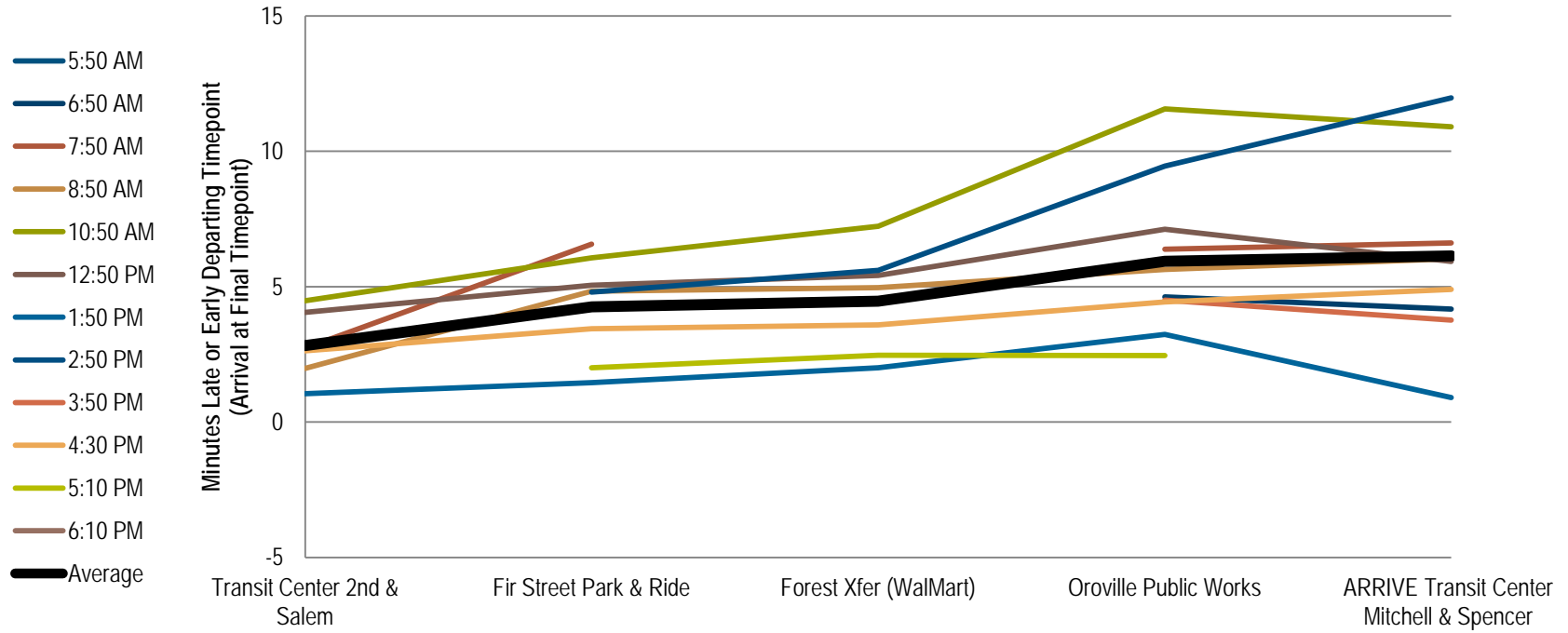
Figure 3-66 Route 20 Schedule Adherence by Route Segment

Route 20 Inbound



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Route 20 Outbound



Route 30 Oroville – Gridley – Biggs

At a Glance		
Weekday Boardings		77
Weekday Revenue Hours		4.6
Boardings per Hour		16.7
Boardings per Trip		12.8
Frequency (minutes)	Mon-Fri All Day	240
	Saturday All Day	120
Span	Mon-Fri	7:45am - 5pm
	Saturday	8:45am - 5pm

Description

Route 30 links Oroville and Biggs with intermediate stops in Palermo and Gridley. Major stops and timepoints include Oroville Transit Center, Lincoln & Palermo in Palermo, Heritage Oaks Mall in Gridley, and 6th & B Streets in Biggs. Other destinations along Route 30 include Feather Falls Casino, Butte County Fairgrounds, and Biggs Gridley Memorial Hospital. On weekdays, headways are approximately four hours while on Saturdays buses operate on two-hour headways. Total round-trip travel time on Route 30 is approximately one hour and 40 minutes (100 minutes). The segment of the route on Lincoln Road between Ophir and Palermo Roads is designated for flag stops.

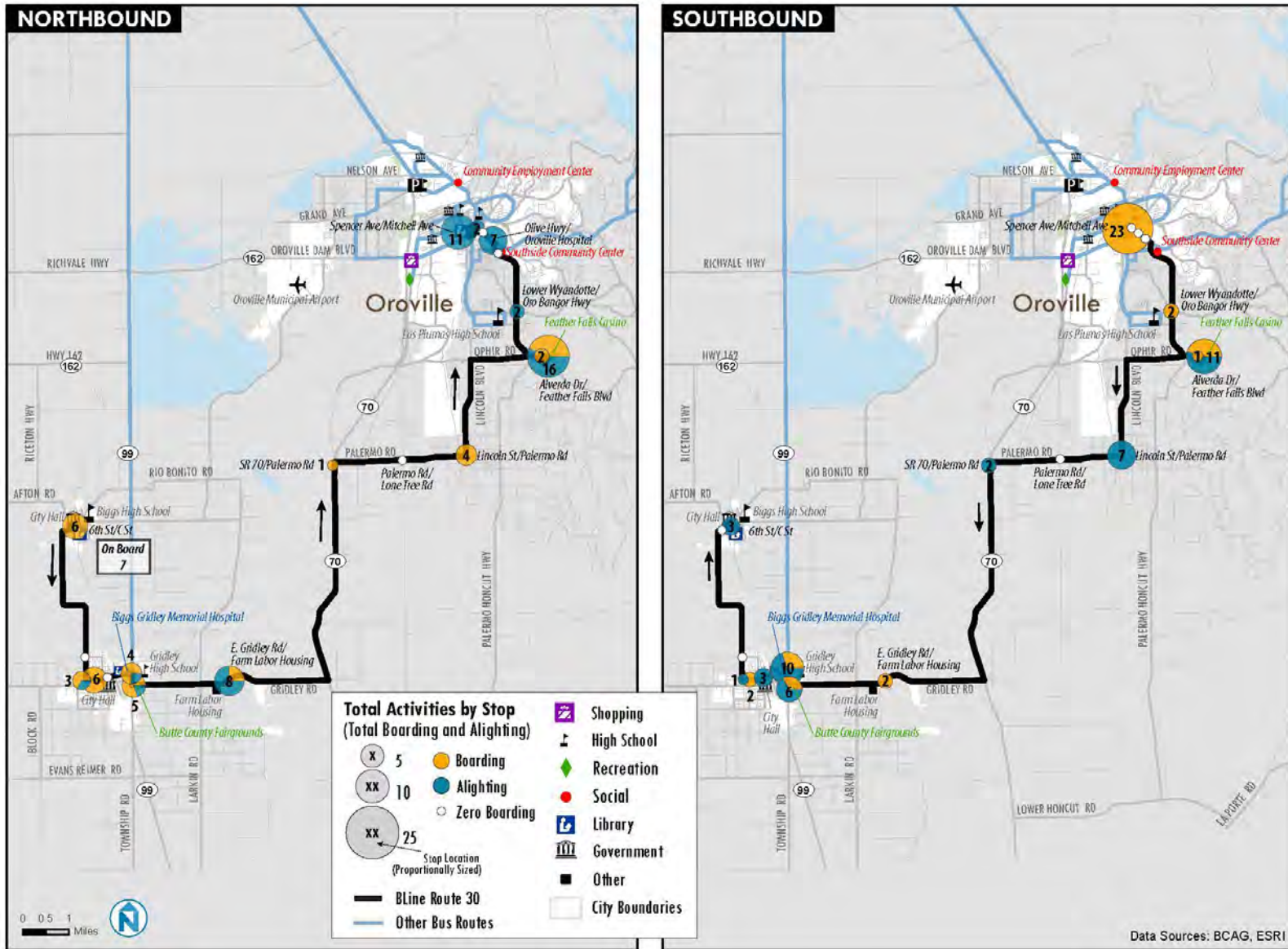
On Saturdays, Route 30 serves South Oroville on Wyandotte Avenue, Myers Street, Lincoln Road, and Monte Vista Avenue; it does not serve Lower Wyandotte Road between Wyandotte and Monte Vista Avenues.

Route 30 Weekday Service

Figure 3-67 presents the Route 30 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-67 Route 30 Weekday Boardings and Alightings by Stop



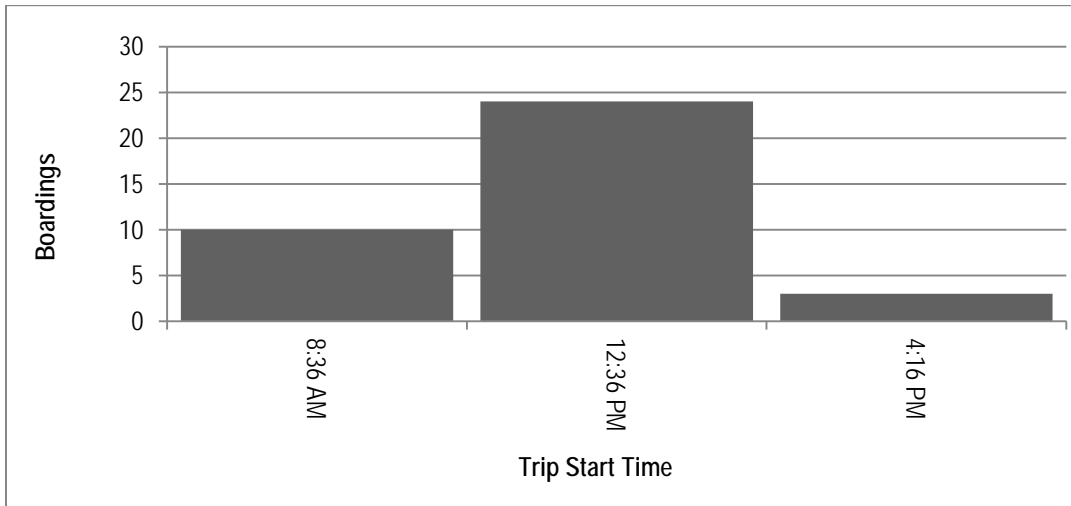
Partly due to its shortened schedule, and partly due to service provided by Route 32 (Gridley – Chico via Biggs), ridership on Route 30 is relatively low; on the surveyed weekday, the route attracted a total of 77 boardings over the course of the day. In the northbound direction towards Oroville, the stops with the most activity included Alverda Dr. & Feather Falls Boulevard, at the Feather Falls Casino, E. Gridley Road/Farm Labor Housing, and the cluster of stops in downtown Gridley. There was also local traffic within the Biggs - Gridley area, with a total of six alightings at the Farm Labor Housing stop.

Similar to northbound activity, in the southbound direction the most active bus stops included the cluster of stops in downtown Gridley and the Feather Falls Casino stop. In contrast to northbound activity, however, there were more alightings at Palermo in the southbound direction.

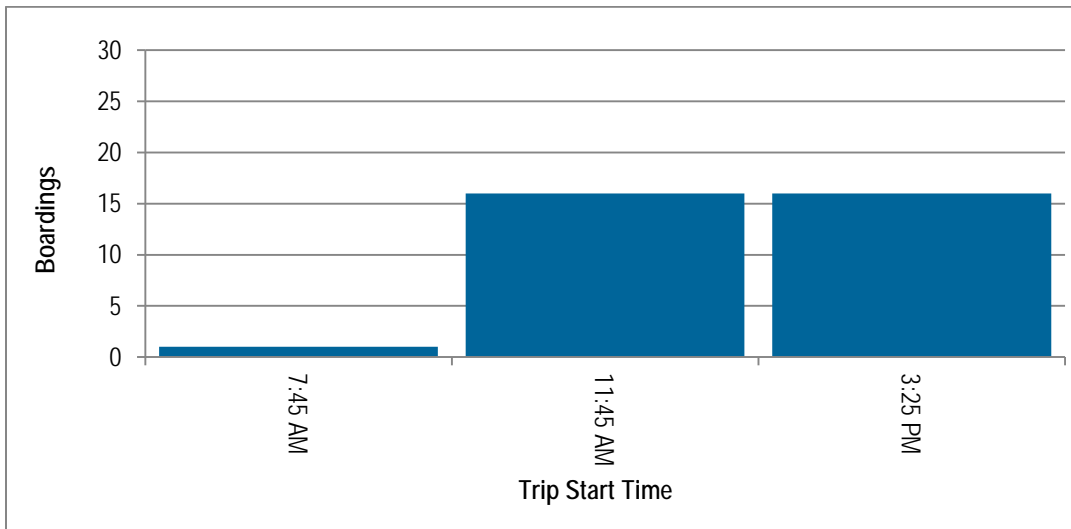
Figure 3-68 presents boardings by trip start time for Route 30. There are only three trips in each direction on weekdays. In the northbound direction, boardings peaked on the midday run, whereas in the southbound direction, peak boardings occurred on the midday and afternoon runs.

Figure 3-68 Route 30 Weekday Boardings by Run – Northbound & Southbound

Northbound



Southbound



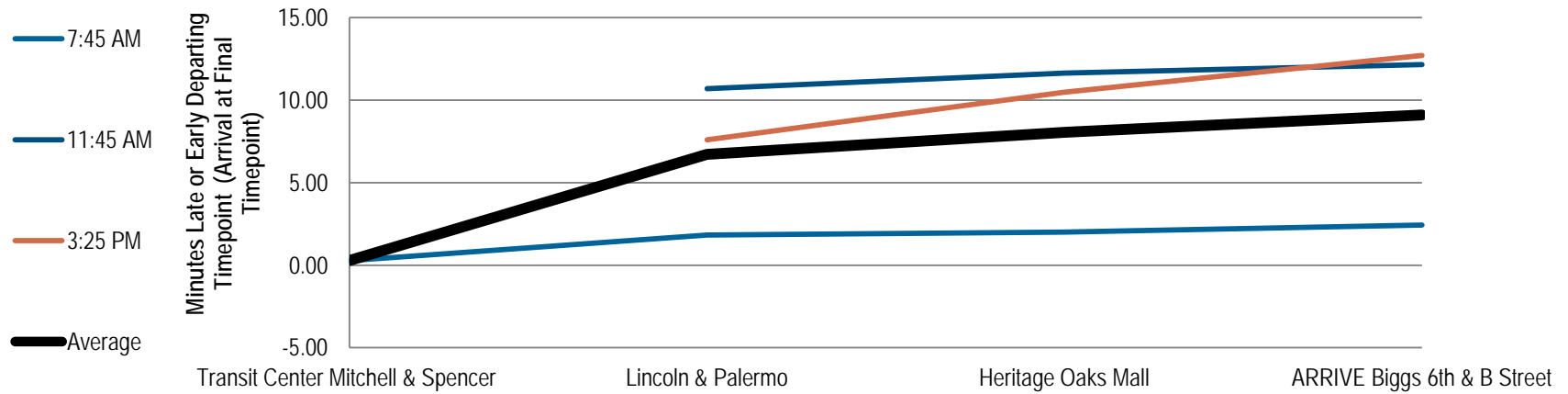
Route 30 On-Time Performance

As shown in Figure 3-69, two-thirds (four of six) of Route 30 trips were more than five minutes late at timepoints along the route. The only runs that met the five minute standard were the morning trips (7:45am southbound & 8:36am northbound), indicating that extenuating factors for the midday and afternoon trips are causing delays on this route. It is also worthy of note that boardings on the morning trips are very low, which may allow the route to perform on schedule. If increased boarding and alighting activity is indeed causing delays on this route on its midday and afternoon trips, then there is an opportunity to adjust the schedule to allow the route to both attract these riders and operate on time.

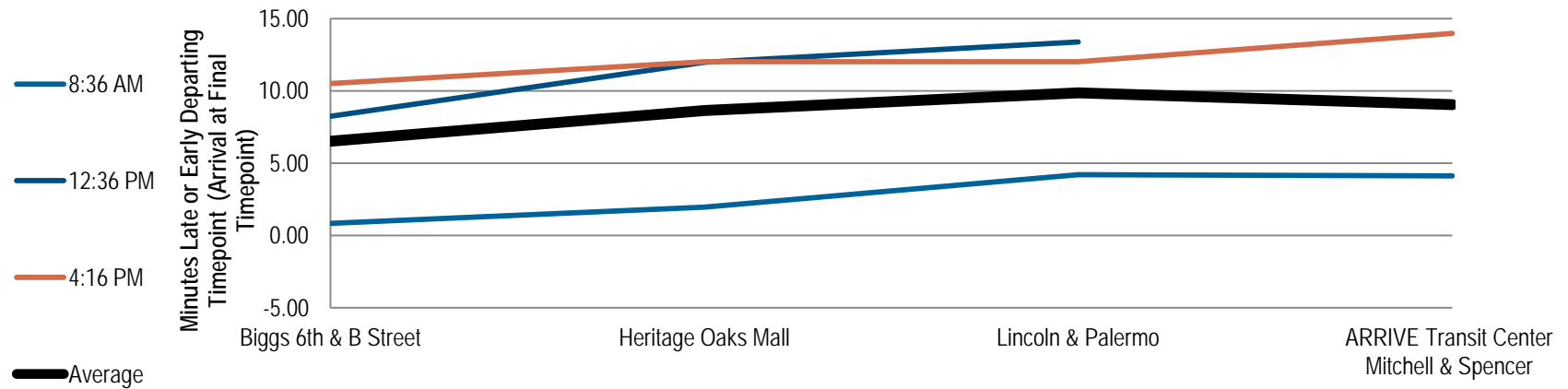
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Figure 3-69 Route 30 Schedule Adherence by Route Segment

Route 30 Inbound



Route 30 Outbound



Route 31 Paradise – Oroville

At a Glance		
Weekday Boardings		15
Weekday Revenue Hours		1.7
Boardings per Hour		9.1
Boardings per Trip		7.5
Frequency	Mon-Fri	One AM and one PM trip
Span	Mon-Fri	6:45am – 7:30am (SB) 5pm – 6pm (NB)

Description

Route 31 links Oroville and Paradise with one morning and one evening trip on weekdays only; the morning trip travels southbound and the evening trip travels northbound. Major stops and timepoints on Route 31 are Almond & Birch (Paradise Transit Center), Clark & Wagstaff (Paradise), Clark & Pearson (Paradise), County Public Works (Oroville), and the Oroville Transit Center. The total one-way travel time between Paradise and Oroville is approximately 50 minutes.

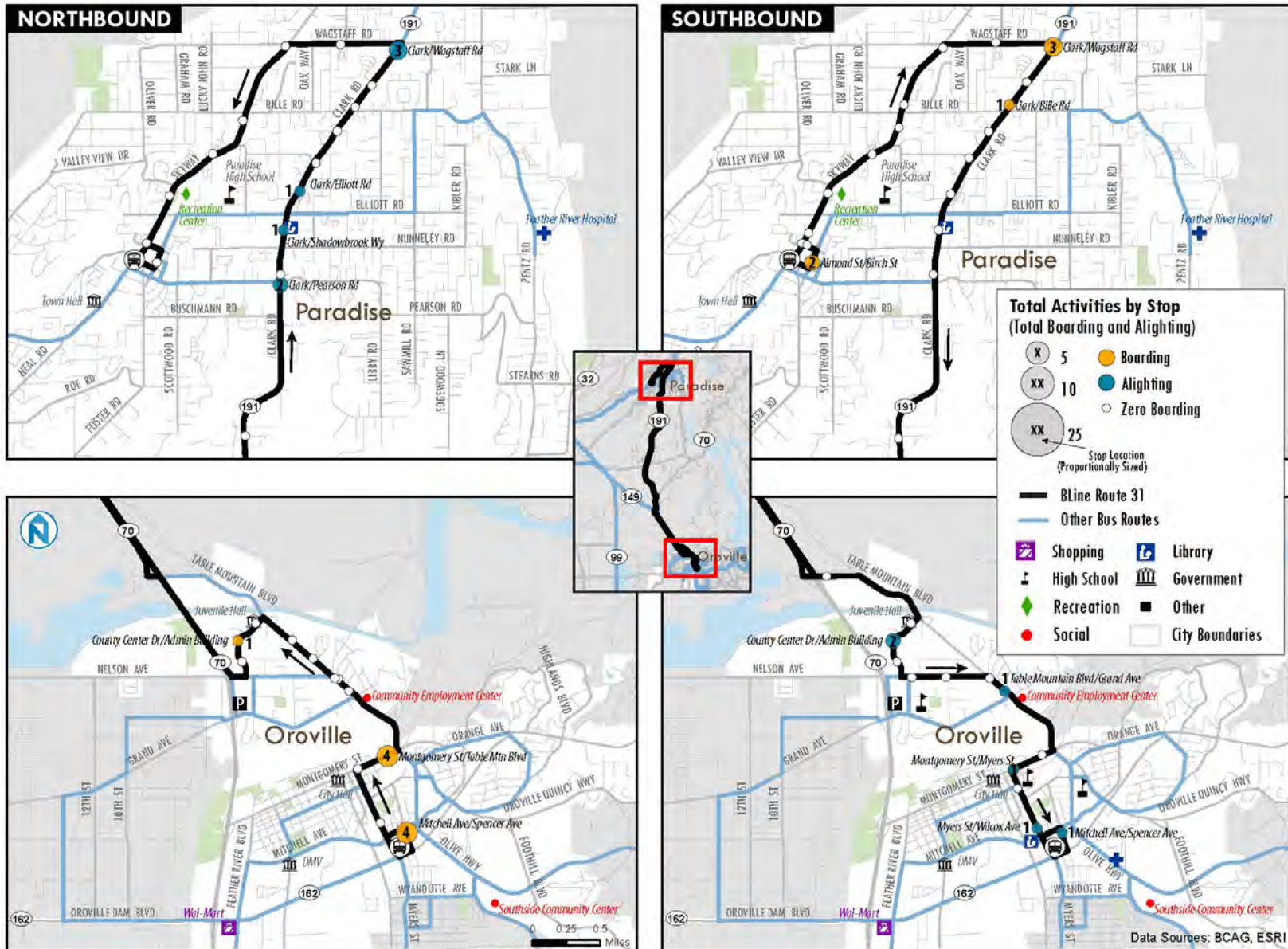
Note that the morning (southbound) Route 31 bus will serve the Butte College Main Campus if and only if a passenger on the bus asks for that stop. In the northbound direction, riders who wish to get on a Route 31 bus at Butte College must call dispatch to let them know they want to ride; the bus will then deviate into campus on its way to Oroville.

Route 31 Weekday Service

Figure 3-70 shows the Route 31 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-70 Route 31 Weekday Boardings and Alightings by Stop



Due to its limited schedule, Route 31 has very low ridership. On the surveyed weekday, a total of 15 riders boarded Route 31. On the morning run (southbound), the most active stops in Paradise were Clark & Wagstaff (3 boardings), Almond & Birch (2), and Clark & Bille (1) with alightings spread along the route in Oroville. On the evening/northbound run, boardings were more consolidated in Oroville, with the highest numbers getting on the bus at Oroville Transit Center and Montgomery St. & Table Mountain Boulevard. Alighting activity in Paradise included more stops than had been used for boardings.

A total of 2 passengers were dropped off at Butte College on the morning run on the surveyed weekday. Additionally, many stops in Oroville and Paradise were not used at all on the surveyed weekday.

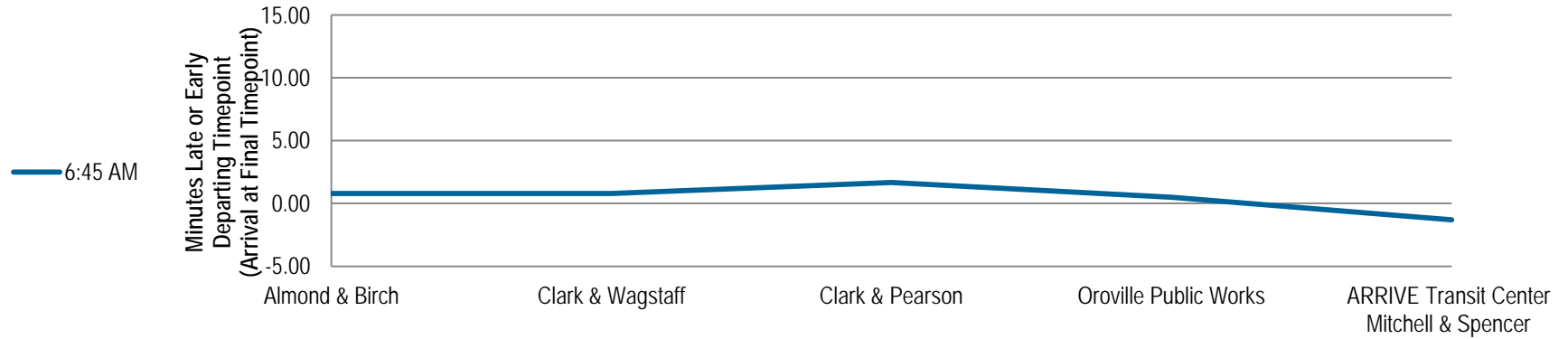
Route 31 On-Time Performance

As shown in Figure 3-71, on the sample weekday, Route 31's southbound trip operated on schedule while its evening northbound route ran late throughout the duration of the route. There may have been extenuating circumstances to cause this delay on the sampled weekday, and given that there are only two runs per day with very low ridership, it does not appear that the northbound delays have major effects on ridership. Furthermore, given that on-demand deviations to Butte College are allowed on this route, on-time performance may be affected by this practice as well.

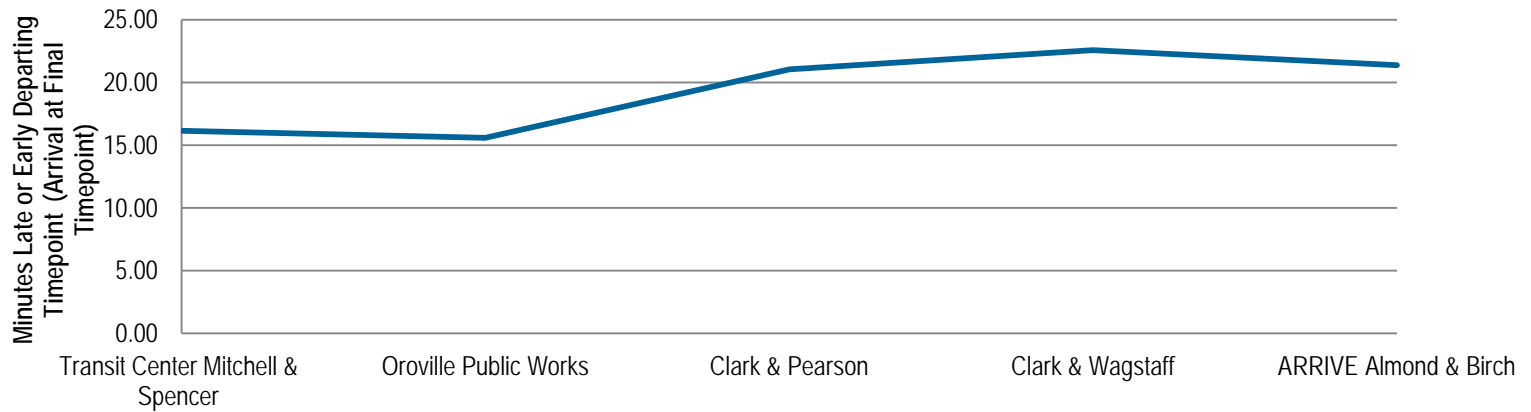
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Figure 3-71 Route 31 Schedule Adherence by Route Segment

Route 31 Inbound



Route 31 Outbound



Route 32 Gridley – Chico

At a Glance		
Weekday Boardings		12
Weekday Revenue Hours		2
Boardings per Hour		6
Boardings per Trip		6
Frequency	Mon-Fri	One AM trip and one PM trip
Span	Mon-Fri	6:40am - 7:40am (NB) 5:20pm – 6:20pm (SB)

Description

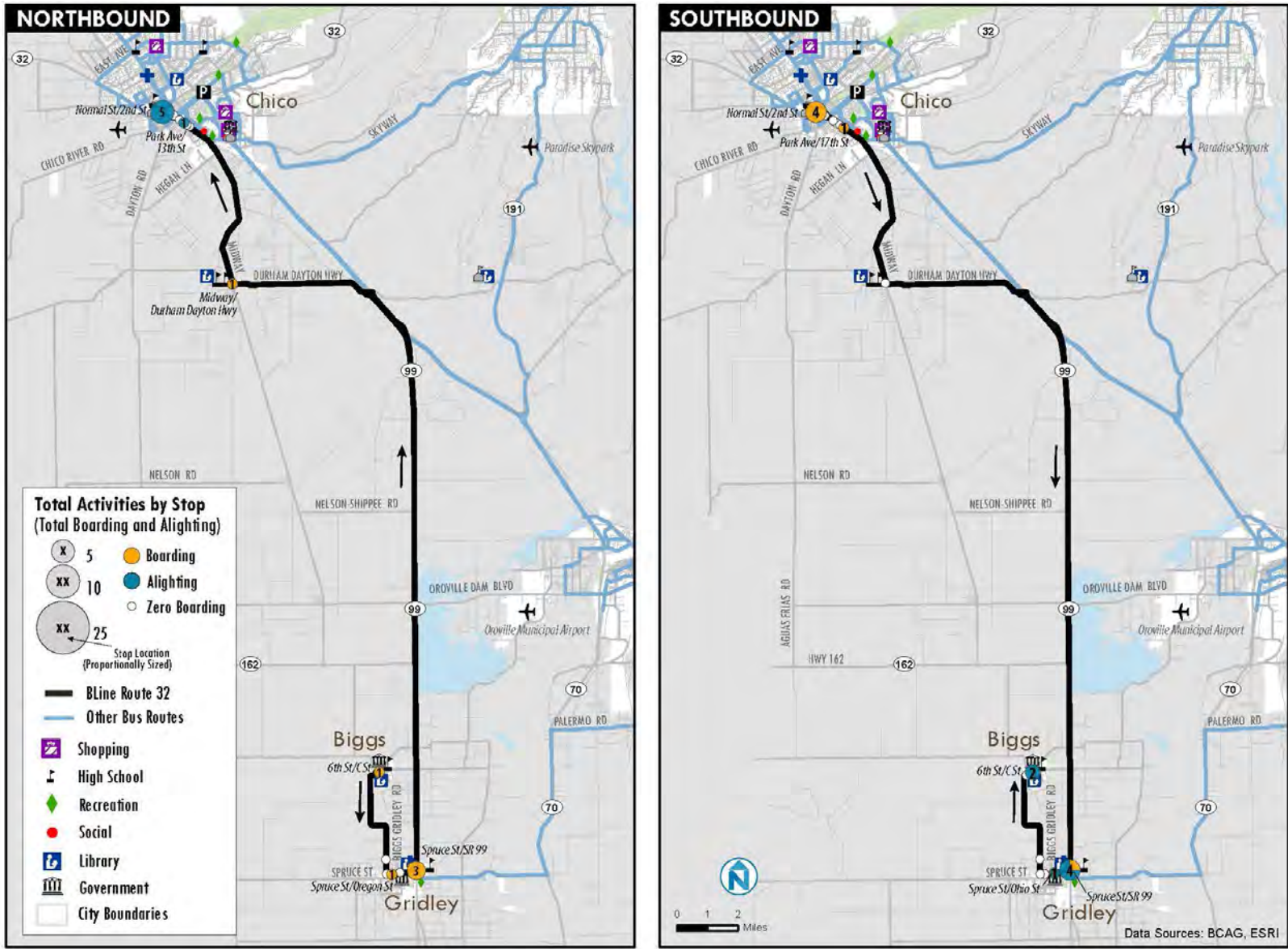
Route 32 links Biggs, Gridley, and Chico with one morning and one evening trip on weekdays only; the morning trip travels northbound and the evening trip travels southbound. Major stops and timepoints include City Hall – 6th & C Street (Biggs), Spruce & SR 99 (Gridley), Midway & Durham Dayton Highway (Durham), and the Chico Transit Center. The total travel time one-way between Biggs, Gridley, and Chico is 60 minutes.

Route 32 Weekday Service

Figure 3-72 presents the Route 32 boarding and alighting activity for the northbound and southbound directions.

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Figure 3-72 Route 32 Weekday Boardings and Alightings by Stop



Route 32 has very low ridership; on the surveyed weekday, a total of 12 people boarded the bus. On the morning run, only one person joined the route in Biggs, four boarded in Gridley, and one boarded in Durham. In the southbound direction (evening run), the pattern was similar. There was one passenger in the southbound direction who traveled locally between Gridley and Biggs. According to B-Line staff, Route 32 is being considered for elimination due to its low ridership.

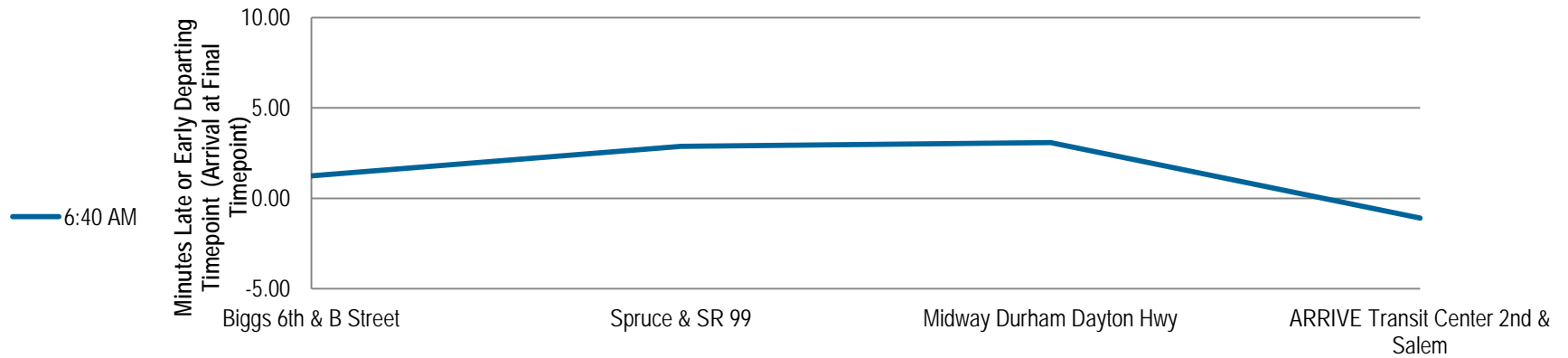
Route 32 On-Time Performance

Figure 3-73 shows that Route 32 performs on time in both directions, arriving early in the morning. However on the sampled weekday, the data from B-Line shows the evening (southbound) run left nearly nine minutes ahead of schedule, which is not a recommended practice for future operations. It is possible that the data is anomalous.

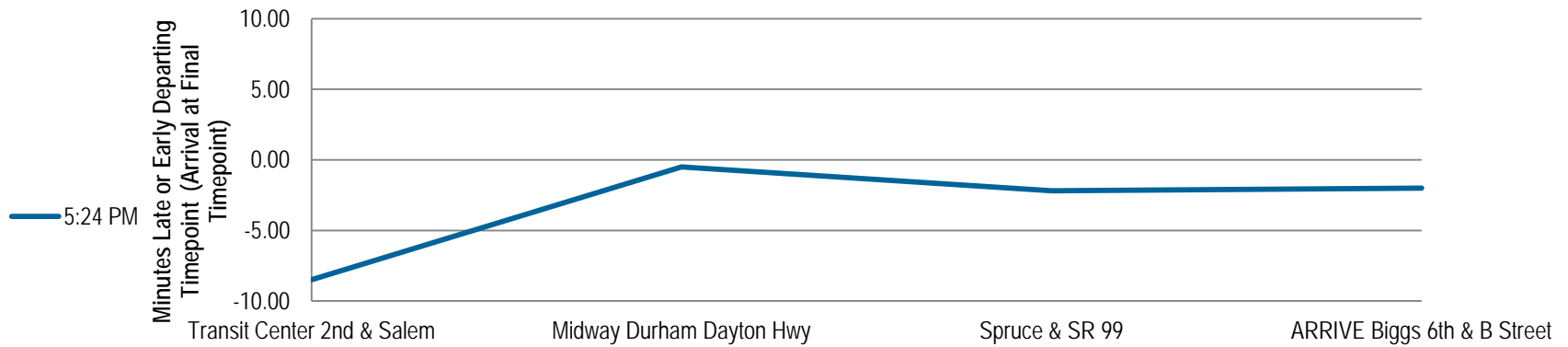
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Figure 3-73 Route 32 Schedule Adherence by Route Segment

Route 32 Inbound



Route 32 Outbound



Route 40 Paradise – Chico

At a Glance		
Weekday Boardings		284
Weekday Revenue Hours		15.5
Boardings per Hour		18.3
Boardings per Trip		15.8
Frequency (minutes)	Mon-Fri Peak/Midday	60/120
	Sat-Sun All Day	120
Span	Mon-Fri	6am - 7:30pm
	Sat	7:50am - 6pm
	Sun	9:50am - 6pm

Description

Route 40 provides intercity service between Chico and Paradise seven days a week. Major stops and timepoints on Route 40 are Chico Transit Center, Forest Avenue Transfer, Almond & Birch (Paradise Transit Center), and Skyway & Wagstaff (Paradise). Other destinations served include Chico Mall, WalMart, Butte College Chico Center, and Paradise Town Hall. In Paradise, Route 40 serves Paradise Transit Center twice; after leaving the transit center, it makes a loop of residential neighborhoods to the northeast of downtown on Skyway, Wagstaff, Clark, and Pearson Roads to Paradise Transit Center and back. The total round-trip travel time on Route 40 is approximately an hour and 52 minutes (112 minutes), with a scheduled 10 minute layover in Paradise. Route 40 alternates with Route 41 on most runs.

An additional westbound Route 40 run is provided on weekdays at 6:44am. Referred by B-Line staff as “Route 40X,” or Route 40 Express, it was added as a backup to Route 41, which at this time of day is typically heavily used by middle and high school students. The Route 40X run is only provided during the middle/high school year. Route 40X operates as an express service from the Paradise Transit Center to the Chico Transit Center, making one intermediate stop at the Fir Street Park-and-Ride lot.

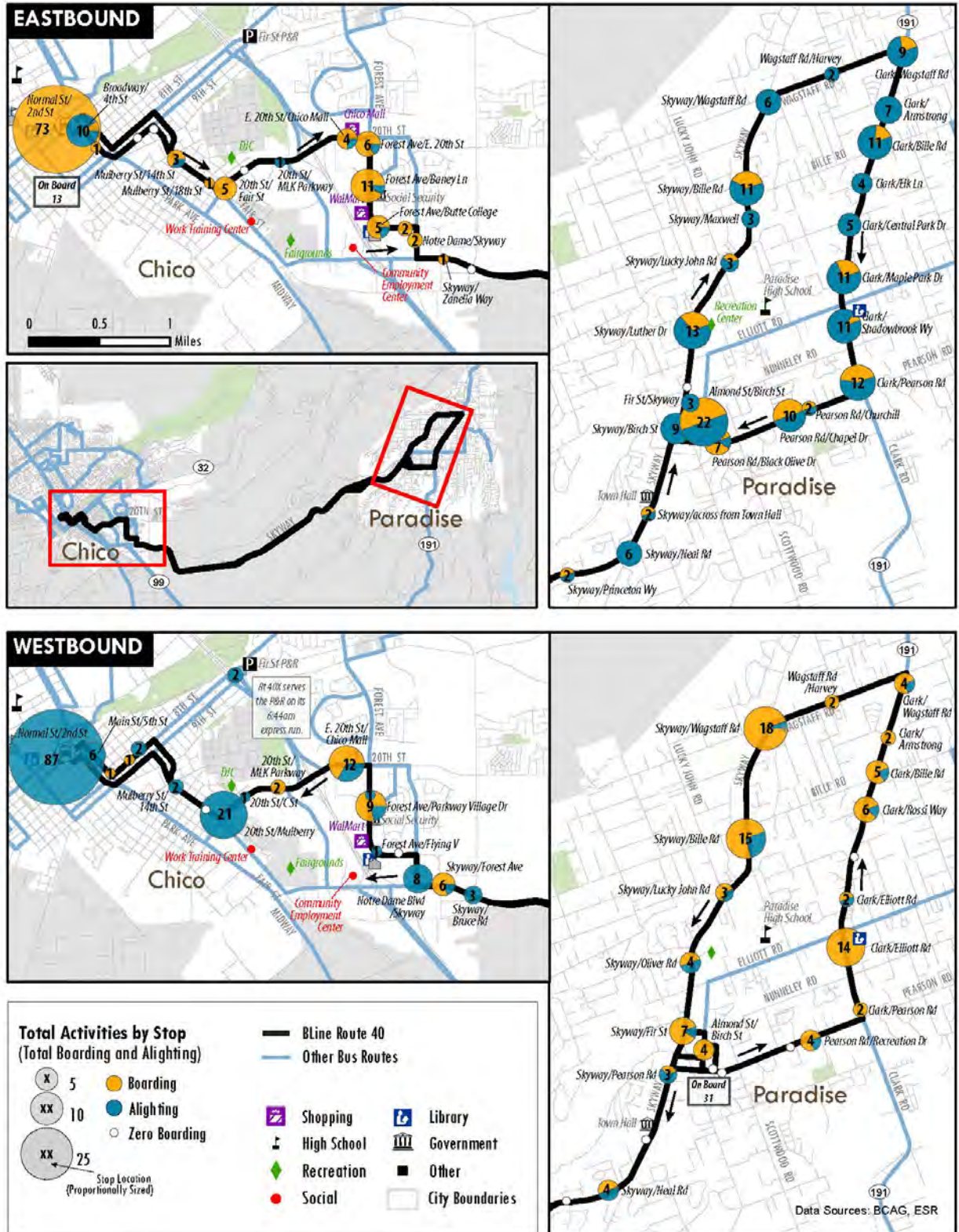
In Paradise, the Skyway & Wagstaff and Clark & Wagstaff stops serve as transfer points for Routes 40, 41, and 31.

Route 40 Weekday Service

Figure 3-74 presents the Route 40 boarding and alighting activity for the eastbound and westbound directions.

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Figure 3-74 Route 40 Weekday Boardings and Alightings by Stop



In the eastbound direction towards Paradise, the majority of boardings occur at the Chico Transit Center. Smaller numbers of boardings occur at Forest Avenue Transfer and Paradise Transit Center. Alightings, however, occur throughout the route, especially within Paradise where the route essentially serves as a local circulator. A total of 13 passengers joined Route 40 in the eastbound direction already on buses at Chico Transit Center. In the westbound direction, total activity is concentrated at Skyway & Wagstaff Road, Clark Road & Elliott Road, and Skyway & Bille Road in Paradise; peak alightings occur in the vicinity of Chico Mall (Notre Dame Boulevard & Skyway), at 20th St & Mulberry Street, and at Chico Transit Center. The presence of boardings in the westbound direction in Chico and alightings in this direction in Paradise reinforce that even though Route 40 is primarily an intercity route, some are using it as a local service. A total of 31 passengers joined Route 40 westbound aboard buses continuing from the eastbound direction.

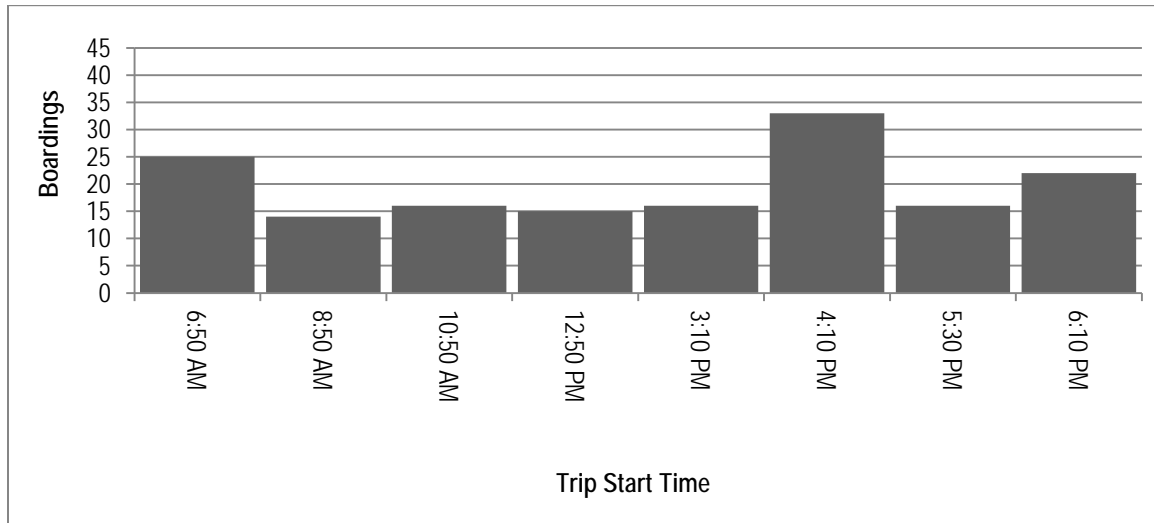
Note that on Tuesday, September 24th (the second day of weekday data collection for this report), Route 40 ridership was affected by two separate delays:

- An accident along the route, first reported on the scheduled 10:50am eastbound trip, caused initial delays on that run of over an hour. The subsequent westbound trip out of Paradise Transit Center, scheduled for an 11:44am departure, left instead at 12:25pm. In order to return to the schedule, the driver skipped the Paradise loop portion of the route. The combination of the missed route and the delays directly affected ridership on Route 40 during the midday runs.
- Early in the 3:10pm run, the Route 40 bus broke down, causing delays along the route as another bus was brought into service.

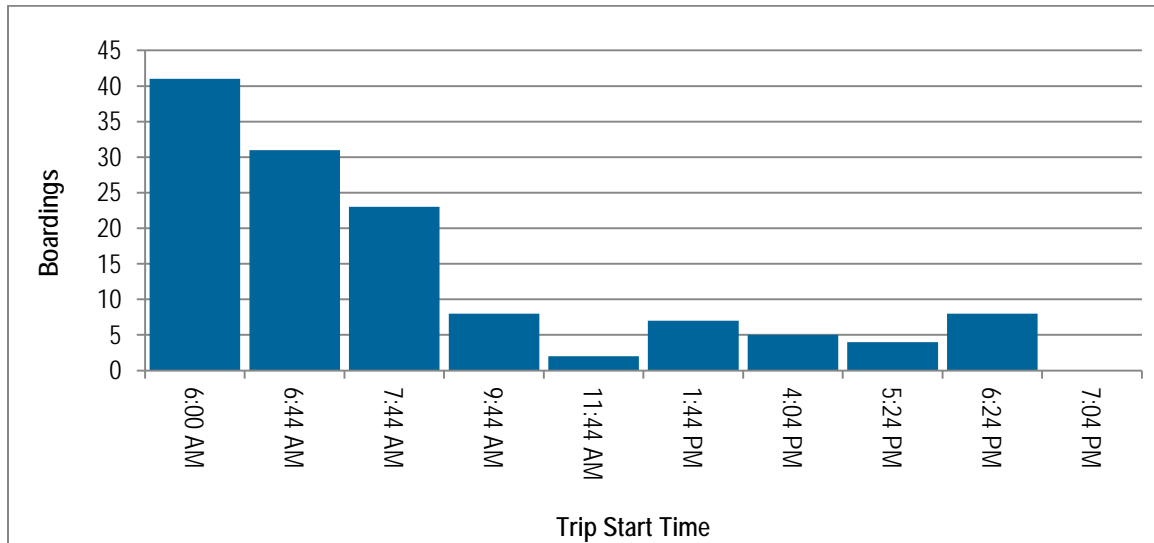
Figure 3-75 presents boardings by trip start time for Route 40. Heading eastbound, boardings peaked in the peak morning, late afternoon (4:10pm), and peak evening periods. In the westbound direction, however, ridership peaked in the morning and was very low throughout the rest of the day. Given that Route 41's ridership had a secondary peak on its 1:26pm run (see below), it is possible that riders traveling between Chico and Paradise may take either Route 40 or Route 41 depending on convenience.

Figure 3-75 Route 40 Weekday Boardings by Run – Eastbound & Westbound

Eastbound



Westbound



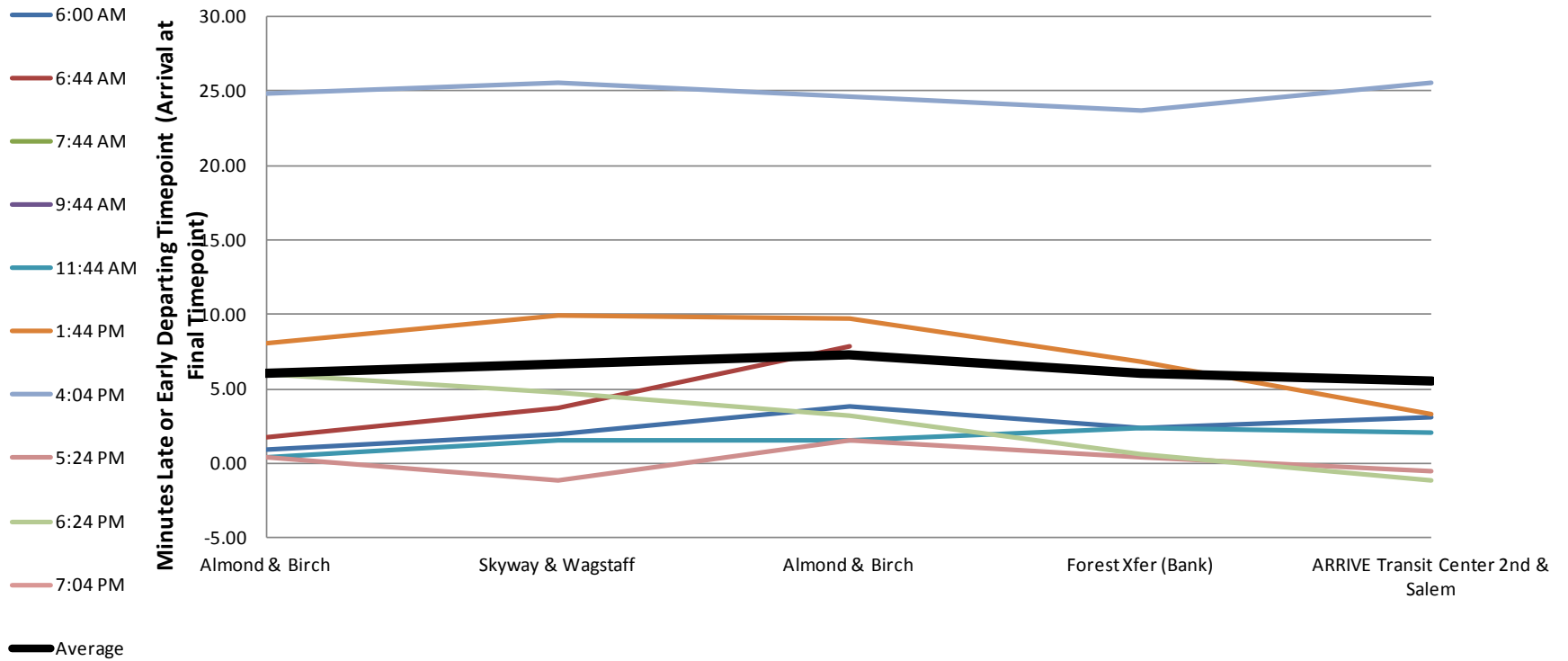
Route 40 On-Time Performance

Route 40 performs better in the outbound than the inbound direction, with five of eight (63%) runs departing timepoints within five minutes of the scheduled time. Nevertheless, average delays exceed the five minute standard on the segment between Chico Transit Center and the Forest Avenue Transfer, suggesting that the schedule for this segment at some times of the day is a bit tight. In the inbound direction, half of the runs on the sample day were more than five minutes behind schedule at timepoints along the route (see Figure 3-76). However, that all runs arrived at the Chico Transit Center within five minutes of the scheduled arrival time indicate that some additional time is available between the Forest Avenue Transfer and downtown.

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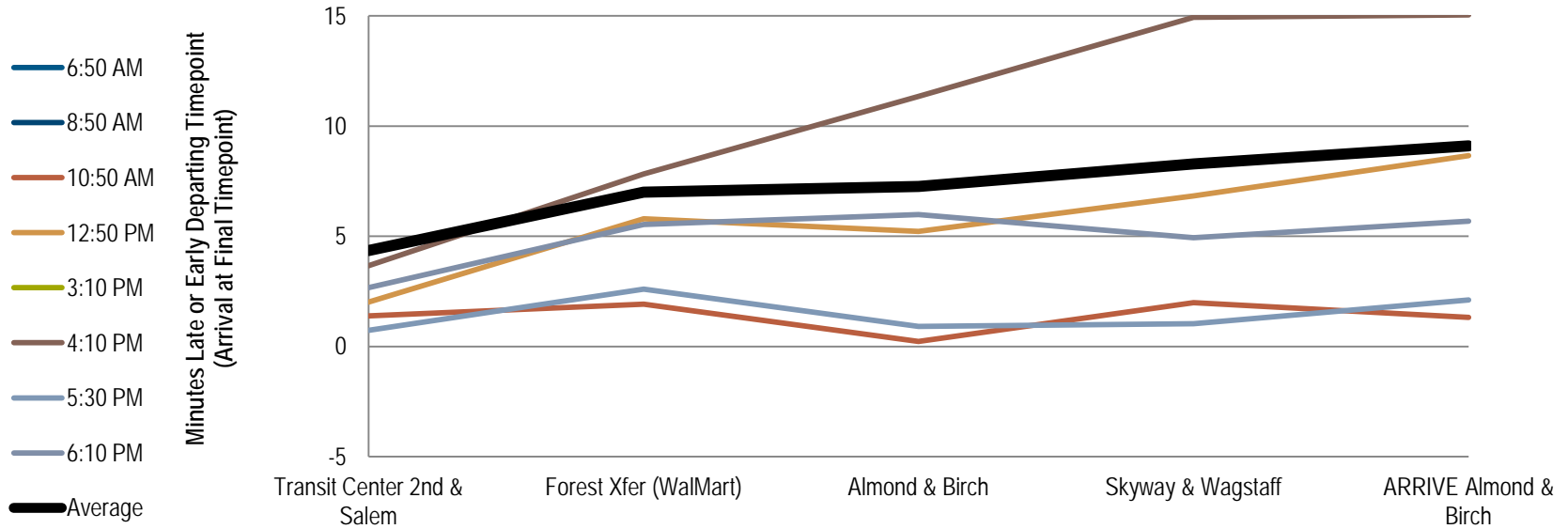
Figure 3-76 Route 40 Schedule Adherence by Route Segment

Route 40 Inbound



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Route 40 Outbound



Route 41 Paradise Pines – Chico

At a Glance		
Weekday Boardings		246
Weekday Revenue Hours		14.5
Boardings per Hour		17.0
Boardings per Trip		16.4
Frequency (minutes)	Mon-Fri All Day	120
	Sat-Sun All Day	3 round-trips in AM, midday, PM
Span	Mon-Fri	5:30am - 6:45pm
	Sat	9:45am – 6pm

Description

Route 41 provides intercity service between Chico, Paradise, and Magalia on Monday through Friday; on Saturdays, it provides limited service within northern Paradise and Magalia connecting to Route 40 at Skyway & Wagstaff Road. Between much of Paradise and Chico, Route 41 parallels Route 40; however, instead of turning south at Wagstaff & Clark in Paradise like Route 40, it turns north on Clark, operating into the forested neighborhoods of Magalia. Three sections of the route are flag stop areas: a loop on Rosewood Drive, Wood Drive, and Imperial Way; a loop on Nimshew Road, Carnegie Road, and Colter Way; and a loop on Creston Road and Ponderosa Way. The first run in the morning begins at Skyway & Rosewood in Magalia. Major stops and timepoints include Skyway & Colter (Paradise Pines), Lakeridge at Holiday Market, now a SavMor (Magalia), Skyway & Wagstaff (Paradise), Almond & Birch (Paradise Transit Center), Forest Avenue Transfer, and the Chico Transit Center.

Route 41 has several non-standard operating procedures. For example, whereas during off-peak periods the terminus of Route 41 is the intersection of Skyway & Colter, during peak periods, Route 41 begins its route south and west on the flag stop loop of Nimshew, Carnegie, and Colter before the scheduled time at Skyway & Colter. B-Line asks passengers wishing to catch the bus along this loop to “please be ready approximately 5-10 minutes before the posted time.” Additionally, the first and last westbound runs of the day do not travel all the way to Chico.

Another deviation occurs on two weekday trips, one in each direction. The 6:35am westbound and 3:50pm eastbound trips do not serve Forest Avenue or East 20th Street, instead traveling via Fair Street to serve the Work Training Center.

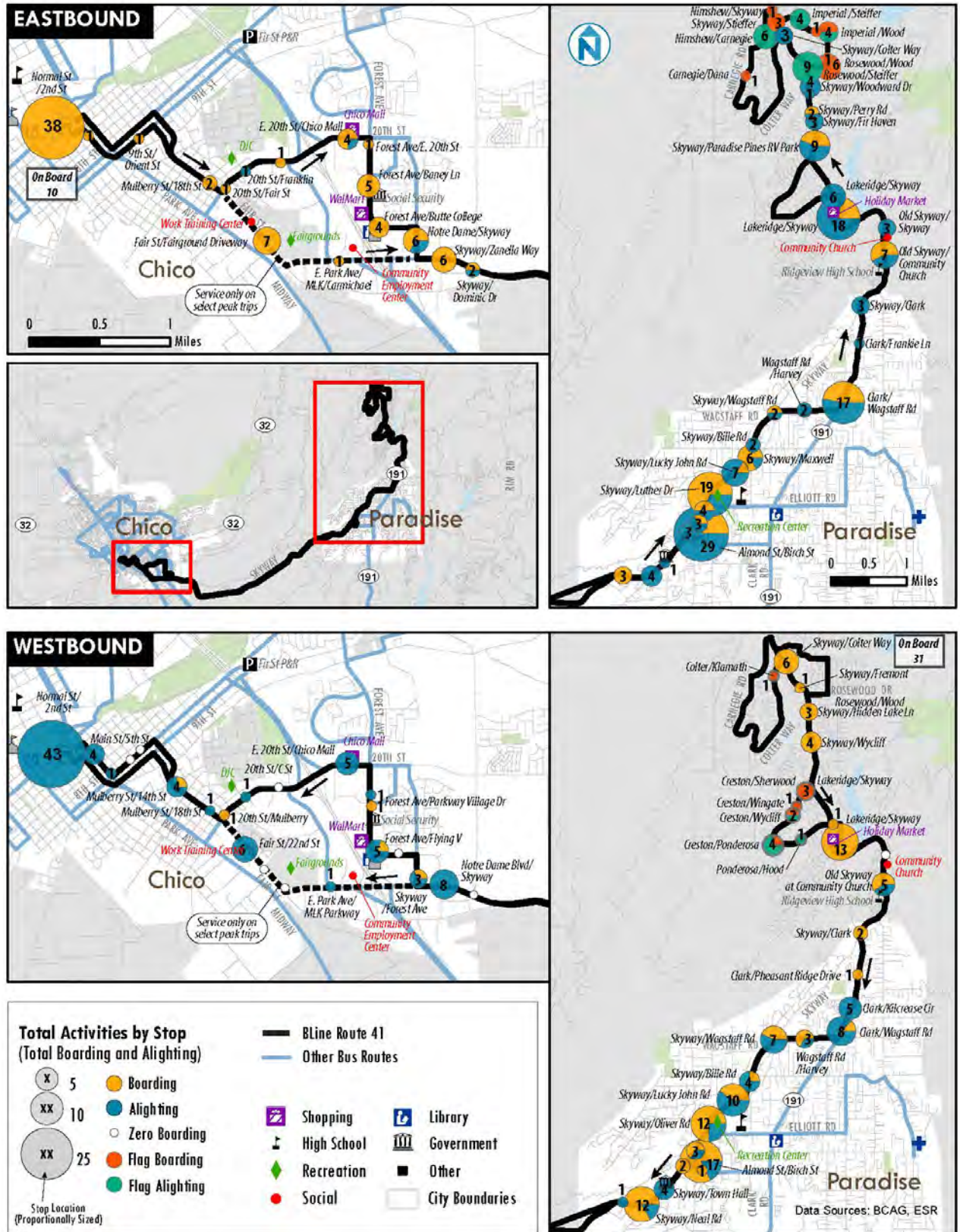
The total round-trip travel time on Route 41 is approximately two hours and 10 minutes (130 minutes). Route 41 alternates with Route 40 for most runs.

Route 41 Weekday Service

Figure 3-77 shows the Route 41 boarding and alighting activity for the eastbound and westbound directions.

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Figure 3-77 Route 41 Weekday Boardings and Alightings by Stop



In the eastbound direction towards Magalia, the majority of boardings occur at the Chico Transit Center. Additional boarding activity occurs in Paradise, especially at Skyway & Luther Drive near the Terry Ashe Recreation Center and several shops and businesses. Alightings in the eastbound direction are relatively sustained throughout Paradise and up into Paradise Pines, peaking at Paradise Transit Center and on Lakeridge at Holiday Market (SavMor). The Rosewood/Imperial flag stop area is also relatively popular, with total boarding/alighting activity totaling 25 passengers in this area on the surveyed weekday. A total of 10 riders rode through from other buses entering service as Route 41 at Chico Transit Center.

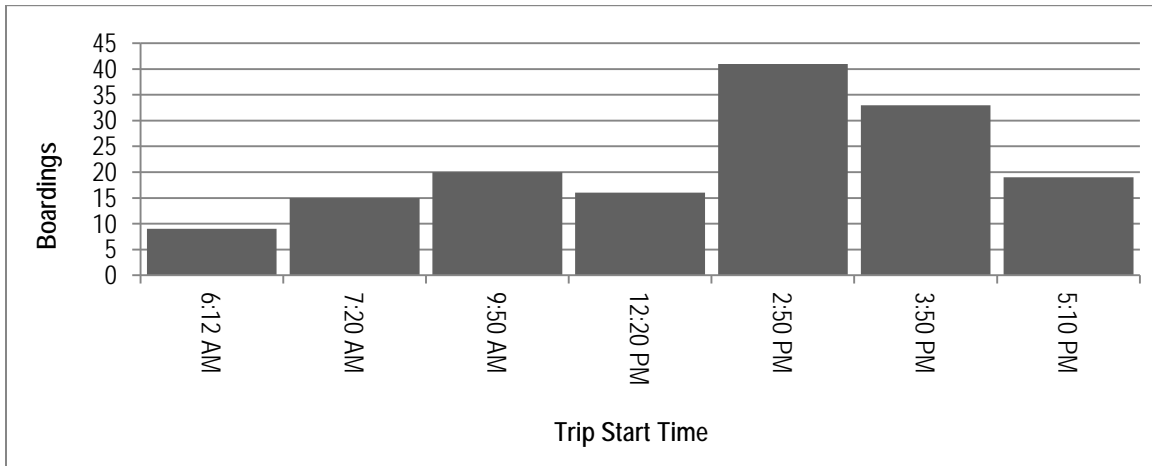
Heading westbound towards Chico, a total of 31 passengers rode through to Route 41, already on board eastbound buses. Stops that had the most boardings included Lakeridge & Skyway at the Holiday Market/SavMor, Paradise Transit Center, and Skyway & Neal Road near a few churches and businesses. The greatest number of alightings occurred at Chico Transit Center, with clusters of alightings in Paradise and in the vicinity of Chico Mall. Notably, the Carnegie/Colter flag stop loop attracted very little ridership on the surveyed weekday; just two riders boarded Route 41 along this stretch. By contrast, the Creston/Ponderosa flag stop segment attracted seven riders and the select route deviation to the Work Training Center resulted in seven boardings and six alightings.

It is important to note that the ridership data also reflect a few atypical occurrences observed during the survey effort. In particular, on Monday, September 23rd, the surveyor noted that on the 6:45pm run, a loose belt caused delays, and some passengers left due to these delays.

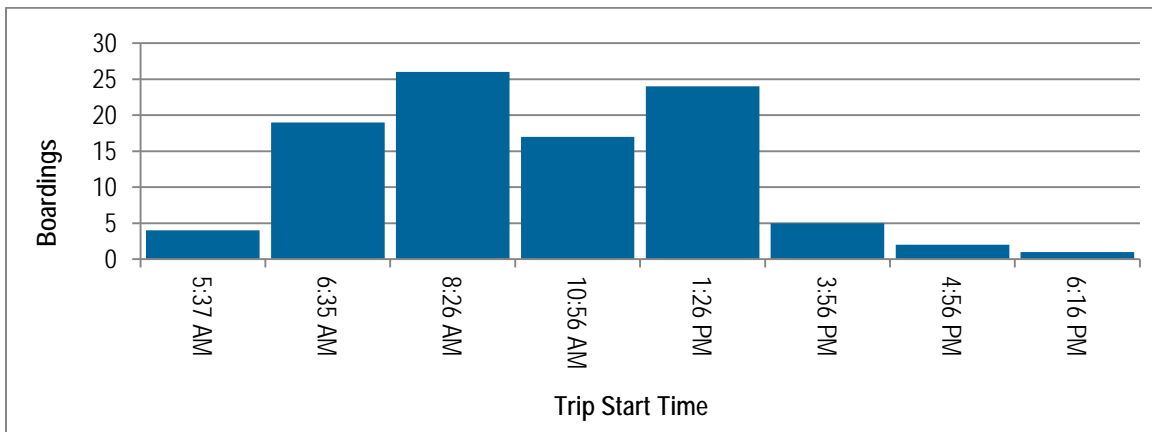
Figure 3-78 presents boardings by trip start time for Route 41. Heading eastbound, boardings peaked in the mid afternoon, with 41 riders boarding the 2:50pm run. In the westbound direction, ridership peaked in the morning (8:26pm run) with a secondary peak in the midday, at 1:26pm.

Figure 3-78 Route 41 Weekday Boardings by Run – Eastbound & Westbound

Eastbound



Westbound



Route 41 On-Time Performance

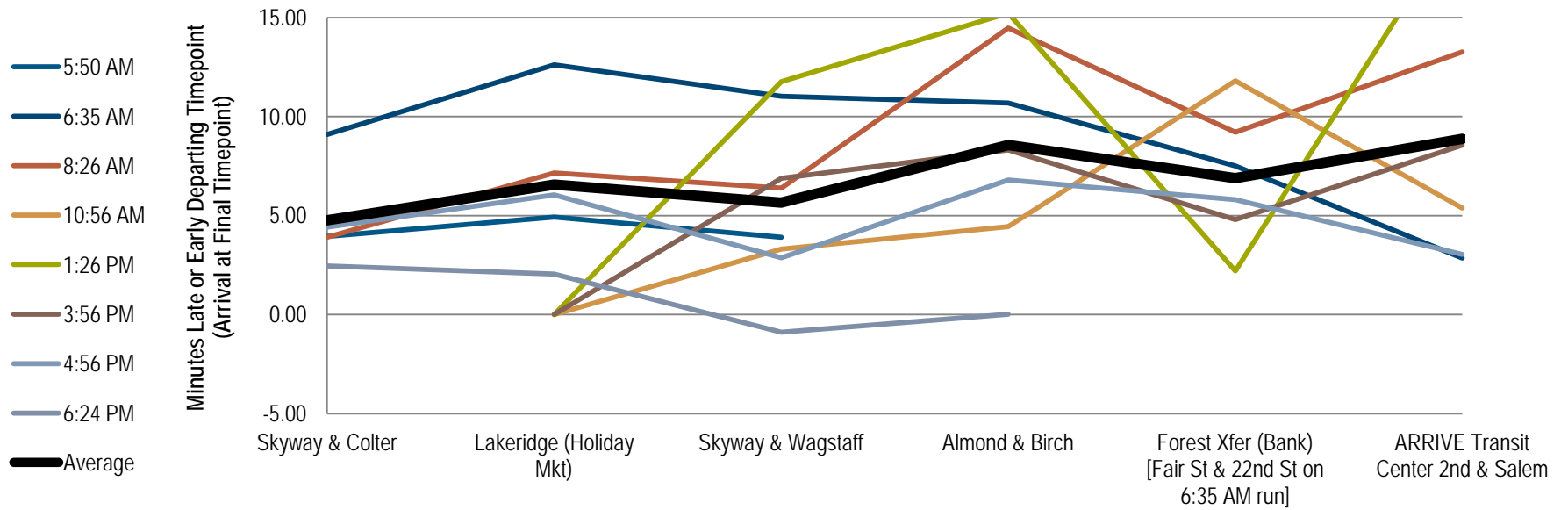
Like Route 40, Route 41 eastbound on average experiences slight delays within Chico, between Chico Transit Center and the Forest Avenue Transfer (see Figure 3-79). For half of the runs on the sampled day, slight slack in the schedule allowed the runs to arrive in Paradise on time. One-third of the outbound routes on the sampled day (the midday runs) increased their delay throughout the run.

In the westbound direction, three-quarters of Route 41 runs were more than five minutes late at timepoints along the route. While there was a great deal of variability on the sampled weekday, on average buses experience delays between the Skyway & Wagstaff and Almond & Birch timepoints within Paradise and between the Forest Avenue Transfer and Chico Transit Center. On average there appears to be additional time in the schedule between Paradise and the Forest Avenue Transfer.

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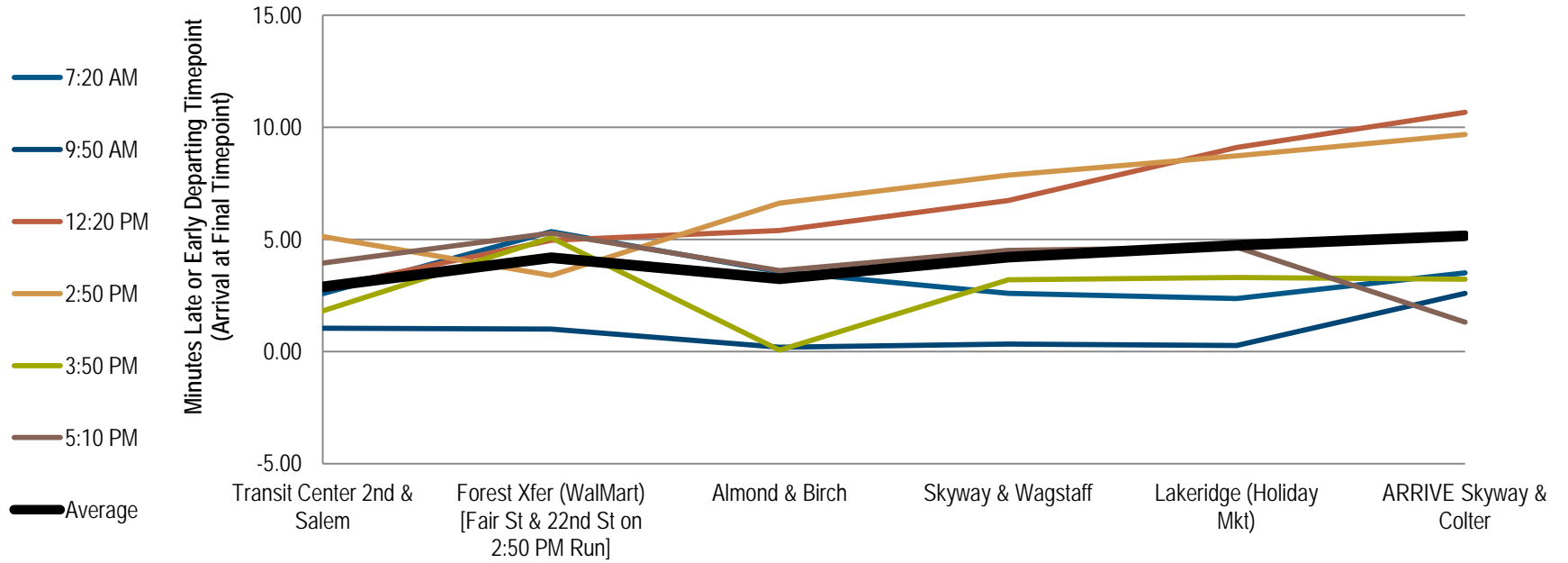
Figure 3-79 Route 41 Schedule Adherence by Route Segment

Route 41 Inbound



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Route 41 Outbound



B-LINE PARATRANSIT PERFORMANCE

Key findings related to B-Line Paratransit ridership and trip characteristics are discussed.

Paratransit Five-Year Performance

Below is a summary of findings related to B-Line Paratransit ridership, productivity, and performance over the past five fiscal years using various service and cost performance indicators. Figure 3-80 displays five performance metrics for all B-Line Paratransit services combined (i.e., a combination of the data designated “urban” and “rural”) from FY 2008/09 through FY 2012/13.

Figure 3-80 Paratransit Performance Metrics

Performance Measures	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	% Chg FY09-FY13
Operating Cost	\$2,333,122	\$2,368,286	\$2,457,298	\$2,737,068	\$2,974,530	27.5%
Fare Revenue	\$202,491	\$234,931	\$259,485	\$311,875	\$328,348	62.2%
Vehicle Service Hours	41,215	40,264	41,486	46,431	48,500	17.7%
Vehicle Service Miles	429,194	344,746	313,788	389,530	410,304	-4.4%
Passengers	106,120	111,243	120,980	136,117	147,808	39.3%

Source: BCAG (For detailed notes, see Figure 3-11)

Over the five-year period shown, B-Line Paratransit ridership experienced tremendous growth. While vehicle service miles actually decreased slightly between FY 2008/09 and FY 2012/13 (-4.4%), the number of passengers increased nearly 40% (39.3) and fare revenue grew by 62.2%. While the growth in revenue may be partially attributable to the fare increase implemented in July 2009, when base Paratransit fares rose 25%, the ridership increase is likely due to the expansion of the service to additional zones outside of the required ADA core area in FY 2011/12. (The increase in vehicle service miles (24.1%) in FY 11/12 is also reflective of this change.) It is also possible that the recent simplification of the passenger eligibility process has led to an increase in riders as well. B-Line is considering modifying eligibility requirements that may help reduce some of the growing demand for Paratransit.

Figure 3-81 Paratransit Performance Indicators

Performance Indicators	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	% Chg FY09-FY13
Operating Cost per Hour	\$56.61	\$58.82	\$59.23	\$58.95	\$61.33	8.3%
Operating Cost per Passenger	\$21.99	\$21.29	\$20.31	\$20.11	\$20.12	-8.5%
Operating Cost per Mile	\$5.44	\$6.87	\$7.83	\$7.03	\$7.25	33.4%
Passengers per Hour	2.6	2.8	2.9	2.9	3.0	18.4%
Passengers per Mile	0.2	0.3	0.4	0.3	0.4	45.7%
Average Fare per Passenger	\$1.91	\$2.11	\$2.14	\$2.29	\$2.22	16.4%
Farebox Recovery Ratio	8.68%	9.92%	10.56%	11.39%	11.04%	27.2%

Source: BCAG (For detailed notes, see Figure 3-13)

Overall, hourly costs for B-Line Paratransit fluctuated over the five-year review period, effectively increasing approximately 8% between FY 2008/09 and FY 2012/13. While operating costs per mile fell in FY 2011/12 after the expanded zonal system was established, this metric too increased 33.4% over the five-year review period.

Passenger productivity (passengers per hour) for B-Line Paratransit increased to a five-year high of 3.0 passengers per hour in FY 2012/13, largely due to growth in ridership that outpaced increases in vehicle service hours.

Popular Destinations

As illustrated in Figures 3-82 through 3-84, the most frequented destinations in each of the three major B-Line Paratransit service areas are similar in nature, and indicate that the services are integral for people with disabilities. The data analyzed below are from the week of June 9 – June 15, 2013.

Chico

The most frequent B-Line Paratransit trip pairs in Chico are shown in Figure 3-82. The most frequented destinations include the Work Training Center, the Peg Taylor Center for Adult Day Health Care, La Hacienda Restaurant, and a cluster of health care offices on East Avenue near the Marigold Elementary School. The preponderance of Paratransit trips to healthcare and senior facilities indicates that there is clearly transit demand to these locations, especially among seniors.

Oroville

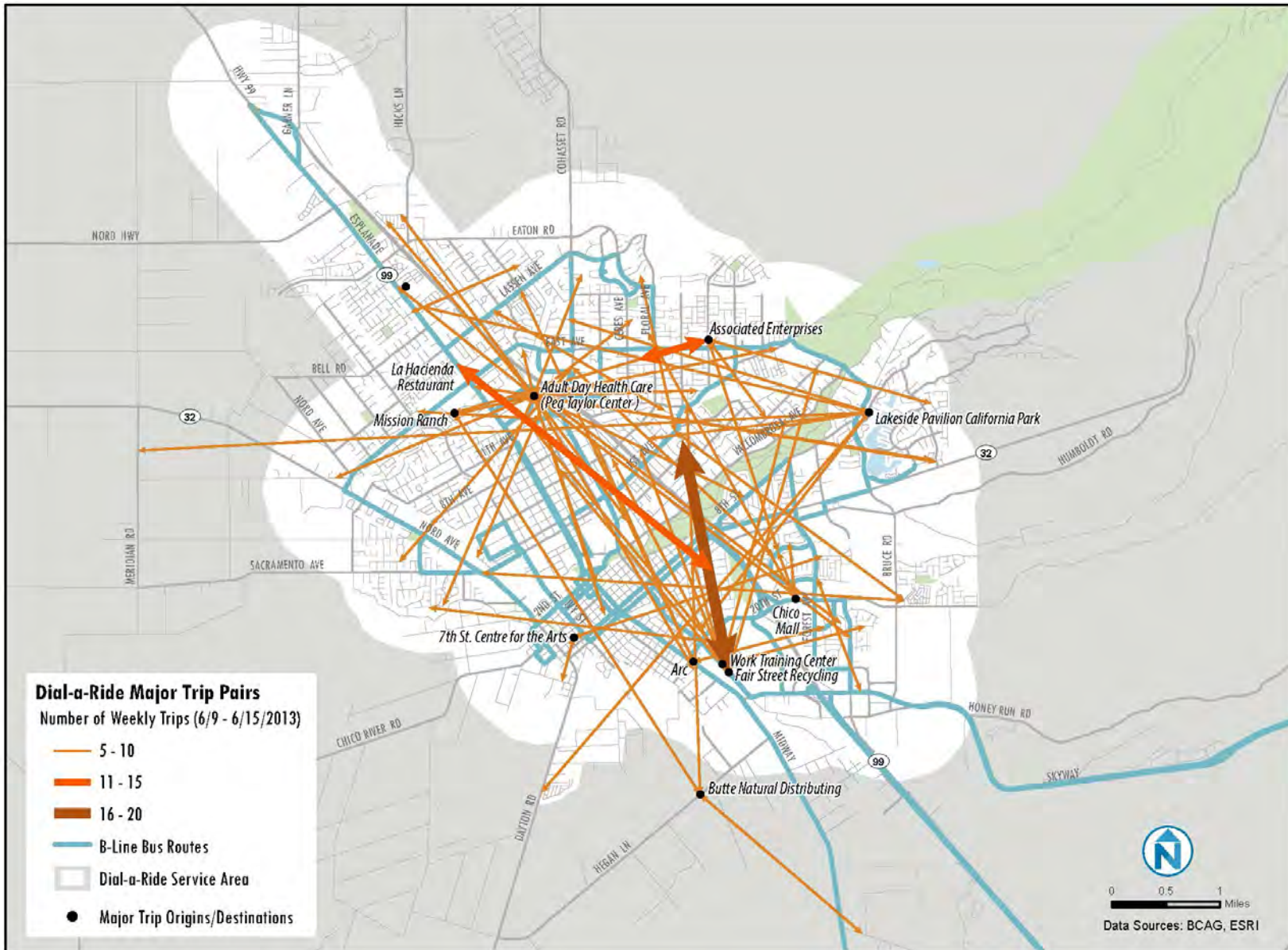
As shown in Figure 3-83, the most frequented destinations in Oroville are primarily social service facilities and assisted living or residential care facilities. These include several Work Training Center facilities, including the Feather River Opportunity Center in South Oroville.

Paradise

As in Chico and Oroville, the most frequented destinations in Paradise include facilities and locations that cater to people with disabilities; the highest frequency of trips is between the Creative Learning Center and a local assisted living/residential care facility. As shown in Figure 3-84, other popular destinations include the Feather River Hospital (served by fixed route Route 46) and Paradise Adult Services, a mental health clinic.

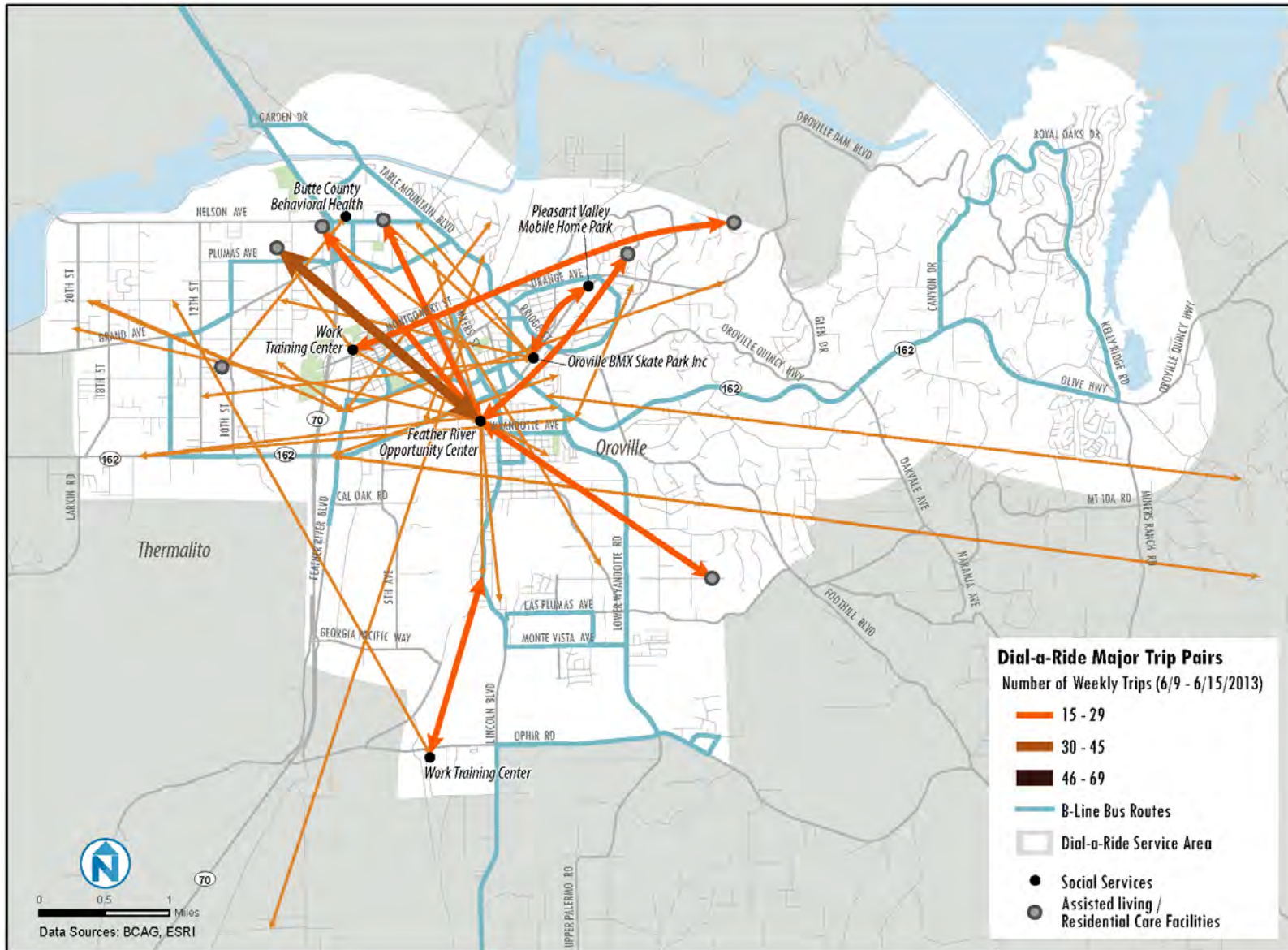
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Figure 3-82 B-Line Paratransit Origin-Destination Patterns – Chico



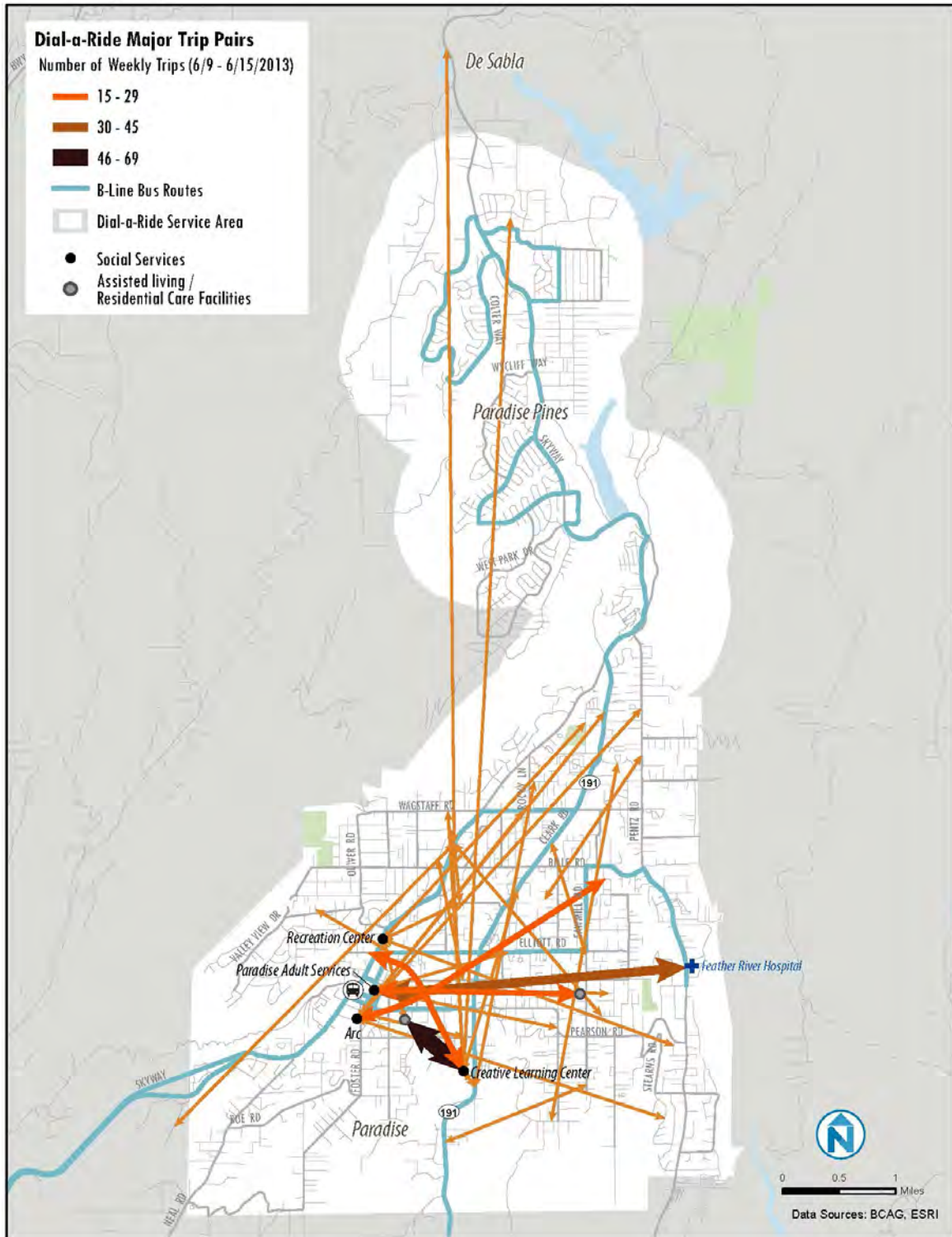
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Figure 3-83 B-Line Paratransit Origin-Destination Patterns – Oroville



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Figure 3-84 B-Line Paratransit Origin-Destination Patterns – Paradise



OTHER TRANSIT SERVICES

Amtrak

Amtrak is the brand name for intercity rail service operated by the National Railroad Passenger Corporation, an entity owned by the federal government. Chico is served by the long-distance *Coast Starlight* route, which runs daily both ways between Los Angeles and Seattle, Washington. (Continuing service to additional destinations is available either through connecting trains or Amtrak Thruway Motorcoach services.) Both daily trips stop in Chico in the early morning, with the southbound train scheduled at 3:50am and the northbound run at 1:47am.

In California, some service is subsidized by the state, managed by the California Department of Transportation's (Caltrans) Division of Rail, and branded as Amtrak California. This service includes the *San Joaquin* line running south-to-north through the Central Valley from Bakersfield to Stockton, where the route splits into Sacramento and Oakland branches, and the *Capitol Corridor* line, which links San Jose and Auburn. Even though these train routes do not serve Chico directly, Amtrak offers Thruway Motorcoach services to and from Chico as a connecting service. Amtrak Thruway Motorcoach Route 3 provides four buses daily between Redding, Sacramento, and Stockton with Chico among seven intermediate stops. Four buses – two in the morning and two in the evening - leave Chico to southbound destinations while four buses arrive in Chico between noon and 7:30pm. All Thruway bus passengers must also be booked on a *Capitol Corridor* or *San Joaquin* train as California state law prohibits the separate sale of Thruway bus tickets.

The Chico Amtrak station is located at 450 Orange Street, in the South Campus neighborhood of Chico, approximately one-half mile from the Chico Transit Center. The station consists of a platform only and there are no ticket sales at this location.

While the utility of Amtrak's Coast Starlight train service for those living and/or working in Chico is limited primarily due to the infrequency of train service and the very early morning arrival/departure times, the Thruway bus service is more useful in that it offers travel to major regional destinations at more convenient times (by way of connecting rail services).

Fares to/from Chico vary according to both distance and time of day. One-way adult fares to regional destinations range from \$20 (to or from Sacramento) to ~\$50 (to or from Oakland or San Francisco). Roughly half-off discounted fares are available for children between ages 2 and 15. Infants may travel for free.

Greyhound

Greyhound is a privately owned, nationwide bus operator serving more than 100 destinations in California. The lowest cost fare for a one-way ticket without advance purchase (web-only, nonrefundable) from Chico to Marysville is \$14.40. The price of a one-way ticket to Sacramento is \$21.60.

The Chico Greyhound Station is located at the Chico Amtrak depot, at 450 Orange Street.

Butte College Shuttles

Butte College is a community college in the Butte – Glenn Community College District and is located in Oroville with satellite campuses located in Chico and Orland. In Spring 2012, there were approximately 13,000 students enrolled. As a commuter campus, Butte College promotes

several alternatives to driving alone, including providing preferential carpool parking on campus, and an online ride-sharing program (“ZIMRIDE”). Butte College also has the largest community college bus system in California with several regional routes serving destinations around the county.

In particular, at its peak (i.e., Monday through Friday during the Spring and Fall sessions) the service includes five routes serving Chico, two routes to Oroville, one route to Paradise, and more limited service to Biggs, Gridley, and Palermo as well as Durham. On Fridays, Butte College offers express routes to the main campus, with one line each serving Oroville, Paradise, Biggs, Gridley, & Palermo, and Durham, and two routes serving Chico.

The bus service is free to current students only who are required to show a current and valid Butte College student ID before boarding. Small children must be accompanied by an adult and have proof of enrollment at the Child Development Center.

Gridley Golden Feather Flyer

The City of Gridley offers Dial-A-Ride taxi services within Gridley. The service is restricted to seniors and a one-way fare costs \$2.00.

Glenn County Transit

Glenn Ride

The Glenn County Department of Planning & Public Works operates Glenn Ride, which provides daily bus service from Willows to Chico with several Glenn County destinations in between, including Grove, Artois, Orland, and Hamilton City. Glenn Ride offers seven round trips on weekdays and three round trips on Saturday. All buses are equipped with accessible lifts and bicycle racks. One-way fares for trips within Glenn County are \$1.50 with out-of-county trips costing \$2.00. 30-Day passes are available for \$45.00. Children 6 and under may ride for free with a paying adult 18 years and older.

Glenn Trans Dial-a-Ride

In addition to Glenn Ride fixed route services, Glenn County offers Glenn Trans Dial-a-Ride service for seniors and those who are unable to use Glenn Ride in the Orland and Willows areas. Services are restricted to within a 1.5 mile radius of the city halls of Orland and Willows.

Plumas Transit Systems

Plumas Transit Systems provides fixed route and dial-a-ride service primarily within Plumas County. The system offers round-trip service between Quincy and Chico Transit Center every Wednesday. One-way passes are \$12.00 (fares are lower if the bus is taken from stops closer to Chico) and 10-ride punch passes (10 rides to/from Quincy) are available for \$90. Half-fare is available to seniors, children under 16, and persons with disabilities.

Craig Hall Shuttle (CSU)

Craig Student Living offers dormitory and apartment living options for CSU and Butte College students. The complex is located four blocks from Chico State University and offers a free shuttle (The “C-Shuttle”) for residents and guests to and from campus.

Feather River Hospital & Hospice

Feather River Hospital, located in Paradise, offers a volunteer-run program for Paradise and Magalia residents who need transportation to and from medical appointments. Clients must be ambulatory and in stable medical condition to take advantage of this service.

Merit Medi Trans

Merit Medi Trans offers a fee-based non-emergency medical transportation in a service area that covers all of Northern California from Sacramento to the Oregon state line, including Butte County. Service is offered to patients needing transportation to routine medical appointments and physical therapy sessions, and those requiring a Certified Nurse's Assistant to travel with them. Service is offered 24 hours a day by appointment.

Work Training Center

The Work Training Center in Chico provides services to people with disabilities, and offers its own transportation services for those unable to use public transportation.

Public School Transportation

Transportation for students is available in the following school districts:

- Chico Unified School District: Fee-based home-to-school transportation for eligible students living within the school district boundaries.
- Oroville City Elementary School District: Fee-based transportation for special needs students attending schools in Oroville.
- Oroville Union High School District: Fee-based transportation for all students within the Oroville School District; only those who live more than two miles from their assigned school are eligible.
- Paradise Unified School District: Fee-based transportation for students living within the school district boundaries and attending the school of their area of residence.

Shuttle Services

Several other shuttle services are available for transportation both within Butte County and to/from regional airports. These include:

- North Valley Shuttle, which provides scheduled service between Chico, Paradise, and Oroville and the Sacramento International Airport from Monday through Saturday;
- Super Shuttle, for service between Chico and Sacramento International Airport; and
- Van Man Charters, for service between Chico and Paradise and the Sacramento Airport (as well as recreational trips).

Park-and-Ride Lots

There are two park-and-ride lots in Butte County with a total of 103 parking spaces available. One lot is in Chico along Highway 32 at Fir Street on the east side of Highway 99, where 73 parking spaces and 8 bike lockers are available. The Chico Park-and-Ride lot is served by B-Line Routes 5

and 20. The other lot is located in Oroville at the northeast corner of Grand Avenue and Third Street, where 30 parking spaces are available. This lot is served by B-Line Route 20 on a limited basis.

CONCLUSION

The existing transit system has many efficient services, but opportunities exist to improve performance of some services by shifting resources from low-productivity segments to areas where transit has the potential to capture a greater service market. The evaluation suggests that by streamlining services and developing strategies to reduce transit travel times with effective, bidirectional services, Butte County can reduce overall VMT by promoting a mode shift to transit. When inefficiencies and on-time performance issues are addressed, B-Line can appeal to a greater array of markets. Better frequencies along corridors that ultimately are increasing in density will have the greatest impact for reducing GHG emissions and promoting strategic growth, particularly in Chico, but also in Oroville and Paradise. Residents and developers recognize that reliable, frequent transit service in a key corridor with development potential is attractive to many markets. When it is clear that this is a long-term priority for B-Line, they can make decisions to build and locate within close proximity of a transit corridor. This further encourages use of transit, reduces the need for personal automobiles, supports local land use initiatives, improves the pedestrian environment, and contributes to the reduction of CO₂ emissions.

For a transit agency of its size, B-Line is performing very well in most respects. Most of its local Chico routes are popular, attracting a total of 4,261 boardings on the surveyed composite September weekday. Also on that day, intercity routes attracted nearly 1,300 riders and 345 people boarded Oroville local routes. Total observed fixed route boardings totaled 5,900 riders. There are still areas of concern, however, as intercity Routes 31 (Paradise – Oroville) and 32 (Gridley – Chico) attracted only 15 and 12 riders, respectively, on the surveyed weekday. Oroville local routes also attracted fewer riders than in Chico by several orders of magnitude.

Maintaining consistent on-time performance continues to be a challenge for several B-Line routes. In our analysis of data from Wednesday, September 25th (provided by B-Line staff), over 50% of B-Line fixed routes were found to be running over five minutes late at some point during the route. This issue was particularly problematic for through-routed buses, as in most cases (especially Routes 24 and 27 in Oroville) delays would cascade through both routes. There may be opportunities for route and/or schedule restructuring in Oroville to improve service effectiveness and performance.

To the extent that ridership patterns can be gleaned from boarding and alighting data, it appears that local students – not only those attending CSU– regularly use several routes, including Route 7 in Chico and Route 27 in Oroville. According to B-Line staff and other on-site feedback heard during the boarding and alighting survey, Parkview Elementary students (as well as students at other schools in the district) often take B-Line rather than school buses because public transit is a cheaper option.

Bus crowding at times presents an opportunity for considering new approaches to managing peak demand. In addition to the regular crowding on the 7am Route 41 run (acknowledged by B-Line with the addition of the 6:44am Route 40 Express run), according to B-Line staff during the survey effort CSU students have increasingly begun to take Route 5 to reach Wal-Mart and Chico Mall due to crowding on Route 15S.

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Overall, B-Line's performance indicators are strong. Over the past five years, B-Line has exceeded TDA farebox recovery ratio requirements for both urban and rural services, and despite difficulties surrounding two route restructuring efforts in 2010 and 2011, ridership increased 6% from FY 2008/09 to FY 2012/13. Passenger productivity has remained relatively constant while hourly costs increased a modest 15% over the past five years. Paratransit services are also performing very well, with a farebox recovery ratio increase of 27.2% over the past five fiscal years. Changes to eligibility and an increase in the service area have resulted in Paratransit ridership increases, by nearly 40% in the past five years, which is of concern to BCAG. A July 2009 fare increase in addition to recent ridership gains also contributed to a 62.2% increase in Paratransit fare revenues from FY 2008/09 to FY 2012/13.

4 BICYCLING AND WALKING IN BUTTE COUNTY

INTRODUCTION

According to the Non-Motorized Transportation Action Element of the 2012 MTP/SCS, bicycling has become an increasingly popular method of travel throughout the region due to energy savings, environmental benefits, and health advantages. The Element also notes that pedestrian travel in Butte County is common for very short trips and for students traveling to school. To better understand bicycle and pedestrian activity in Butte County, this chapter reviews non-motorized travel in Butte County and highlights existing and planned facilities and amenities.

EXISTING LEVELS OF WALKING AND BICYCLING

The American Community Survey (ACS) is one of the only sources of data regarding existing levels of walking and bicycling within Butte County. The 2008-2012 ACS provides sample data about means of transportation to work. Figure 4-1 shows commuting mode share for Butte County and its jurisdictions according to the 2008-2012 ACS. Figure 4-2 shows the number of commuters by mode. These figures are for work trips only and do not include trips made for recreational or other utilitarian purposes. Non-work trips, such as shopping or errands, are more likely to be made by walking or bicycling. Therefore, it is reasonable to believe that actual levels of bicycling within Butte County are higher than those presented in Figure 4-1. Figure 4-1 shows mode share percentages for each jurisdiction. ACS data does not distinguish between intra-jurisdiction and inter-jurisdiction trips; however, it is likely that the bicycle and walking mode shares are higher among individuals who live and work in the same jurisdiction.

Figure 4-1 American Community Survey Mode Share %, 2008-2012

Jurisdiction	Bicycle	Walk	Car, Truck, or Van	Public Transit	Worked at Home/Other
Butte County (Total)	2.9	4	85.5	1.1	6.5
Biggs	0	2.8	93.8	0	3.4
Chico	5.8	5.6	81.6	1.1	5.9
Gridley	0	5.3	89.3	1.5	3.9
Oroville	0.2	7	85.3	1.8	5.7
Paradise	1	2	89	1.5	6.5

(American Community Survey, 2009)

Based on the 2008-2012 ACS data, approximately seven percent of Butte County residents bicycle or walk as their primary means of transportation to work. The walking or bicycling mode shares in Chico and Oroville are both above the county average while those in Gridley, Paradise, and Biggs are all below the average.

Figure 4-2 shows the number of commuters by mode.

Figure 4-2 American Community Survey Number of Commuters by Mode, 2008-2012

Jurisdiction	Bicycle	Walk	Car, Truck, or Van	Public Transit	Worked at Home/Other
Butte County (Total)	2,445	3,372	72,085	927	5,480
Biggs	0	15	496	0	18
Chico	2,239	2,161	31,456	424	2,277
Gridley	0	119	2,003	34	87
Oroville	11	379	4,614	97	309
Paradise	96	192	8,530	144	623

(American Community Survey, 2009)

Based on the 2008-2012 ACS data, over 11,000 commuters bicycle or walk as their primary means of transportation to work, representing over 22,000 trips per working day. Each commuter makes two trips each day: one trip from home to work and one trip from work to home.

EXISTING AND PLANNED WALKING AND BICYCLING INFRASTRUCTURE

Sidewalks are available on many arterial and collector streets throughout Butte County’s jurisdictions and unincorporated towns. In many developing areas of the county, gaps in sidewalk coverage exist, which present barriers to walking.

Chapter 1000 of the *Highway Design Manual* (Caltrans, 2012) covers Bicycle Transportation Design. Section 1000.4 defines three classes of bikeways as follows:

- **Class I Bikeway (Bike Path).** Off-street bike paths are facilities for use exclusively by bicycles, pedestrians, equestrians, and other non-motorized users, with minimal cross-flow by motor vehicles. They are almost always located in an exclusive right-of-way.
- **Class II Bikeway (Bike Lane).** Bike lanes are areas within paved streets that are identified with striping, stencils, and signs for preferential (semi-exclusive) bicycle use.
- **Class III Bikeway (Bike Route).** Bike routes are on-street routes intended to provide continuity to the bikeway system. Bike routes are designated by signs or permanent markings and are shared by motorists. Many bike routes provide shoulders that can be used by bicyclists or pedestrians.

Figure 4-3, Figure 4-4, and Figure 4-5 show the existing and proposed bikeways in the various jurisdictions within Butte County.

City of Biggs

Existing

The City of Biggs has two bike paths: one along Rio Bonito Road east of 2nd Street and another at the City's northeastern limits with a connection to 2nd Street. Bike lanes exist on E Street/Rio Bonito Road between 8th Street and 2nd Street, 6th Street between B Street and E Street, and 8th Street between B Street and E Street. Biggs has bike routes on 2nd Street, 5th Street, C Street, Aleut Street, and Trent Street.

Proposed

Proposed bicycle facilities in the City of Biggs include a bike path following the Hamilton Slough between Biggs Gridley Road and B Street, and a regional bike path beginning south of B Street and following the railroad tracks south towards Gridley. Bike lanes are proposed on B Street and 6th Street. Additional bike routes are proposed on 5th Street and C Street.

City of Chico

Existing

Class I Bike Paths

The City of Chico has an extensive network of Class I bike paths. Bicycle paths are present alongside or parallel to several major arterial streets including Nord Avenue, Cohasset Road, State Route 99, Park Avenue and Midway, and Bruce Road. The City also has several bike paths that follow waterways or abandoned railroad. For example, Bidwell Park features several bike paths which serve as connections between other facilities north and south of the park.

Class II Bike Lanes

East Avenue, Nord Avenue, Warner Street, Manzanita Avenue, Easton Road, 20th Street, Notre Dame Boulevard, Forest Avenue, and Skyway Road are all corridors featuring Class II bike lanes along at least a portion of their route. Bike lanes are not available on all roadways; some simply feature a wide shoulder.

Class III Bike Routes

Several major arterials and collectors within Chico have been designated as Class III bike routes, with the majority concentrated in downtown and just north of downtown in the vicinity of CSU Chico. Bike routes also exist throughout the residential neighborhood immediately northwest of Bidwell Park, along Lassen Avenue, and along a portion of Dr. Martin Luther King Junior Parkway.

Proposed

The City of Chico has identified numerous improvements to its network of bicycle infrastructure. Components of the proposed network include:

- Construction of bike paths on Humboldt Road between Marsh Junior High School and the City's eastern limits, along the railroad right-of-way between the 9th Street/Walnut Street intersection in downtown and the City's southern limits, following the abandoned

- railroad spur from Estes Road east to Skyway Road, following the Sacramento River tributary between State Route 32 and Cohasset Road, along the future Eaton Road between its existing terminus and Nord Avenue, and continuing along the Amtrak tracks between Lindo Avenue and the Sacramento River Tributary.
- Construction of bike lanes along sections of several roadways, including Sacramento Avenue, Nord Avenue, Chico River Road, Eaton Road, Cussick Avenue, Bruce Road, and Honey Run Road.
 - Designation of bike routes on numerous city streets, focusing especially on downtown Chico and the neighborhoods to the north of CSU Chico.

City of Gridley

Existing

The City of Gridley does not currently have any bike paths. Bike lanes exist on Spruce Street between Biggs Gridley Road and State Route 99, on Gridley Road between Vermont Street and Washington Street, on Hazel Street between Virginia Street and the street's eastern terminus, and along the entire length of Washington Street. Gridley has not designated any streets as bike routes.

Proposed

The City of Gridley has proposed to add bike lanes to several north-south and east-west streets within its roadway grid. Additionally, the regional bike path between Biggs and Gridley will be accessible in Gridley near the Washington Street/Spruce Street intersection.

City of Oroville

Existing

Within the City of Oroville, there is one bike path which connects Riverbend Park and State Route 70 along the banks of the Feather River. Bike lanes are present on sections of Grand Avenue, Orange Avenue, and Foothill Boulevard. The City of Oroville has not designated any streets as bike routes.

Proposed

Oroville's network of proposed bicycle facilities calls for bike lanes on several of the city's long north-south and east-west corridors. Bike paths are proposed following the Feather River, parallel to Lincoln Boulevard, and following the paths of two high-tension power line easements to the east of downtown. The network proposal designates two corridors in downtown Oroville as bike routes.

Town of Paradise

Existing

The Paradise Memorial Trailway is the Town of Paradise's major bike path and currently connects the Neal Road/Skyway Road intersection with the Pentz Road/Skyway Road intersection. The

trail parallels Skyway Road for its length. A short bike lane exists on Pearson Road between Recreation Drive and Clark Road. There are currently no bike routes in the Town of Paradise.

Proposed

The Town of Paradise's current plan calls for the addition of bike lanes along several roadway corridors including Pentz Road, Wagstaff Road, Bille Road, Sawmill Road, Pearson Road, and Neal Road. Bike routes have been proposed on Pentz Road south of Pearson Road, Clark Road, and segments of Wagstaff Road and Nunnelley Road. A bike path that would connect Chico and Paradise has been proposed adjacent to Skyway Road.

Unincorporated Butte County

Existing

From Chico, the Chico-Durham Bike Path continues south along Midway to Jones Avenue in Durham. Additionally, several multi-use trails serve the area north and west of Oroville, continuing north along State Route 149 to the Butte College campus on Clark Road.

Proposed

An extensive network of bike paths, bike lanes, bike routes, and multi-use trails is proposed for the unincorporated areas of Butte County. Bike paths are proposed between Chico and Paradise along Skyway Road, and between Biggs and Gridley along the railroad right-of-way. Bike lanes are proposed on several state highways and county roadways. Bike routes are proposed on segments of Humboldt Road, Skyway Road, Pentz Road, and Jones Avenue.

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Figure 4-3 Existing and Proposed Bicycle Facilities – Countywide, Biggs, Gridley and Paradise

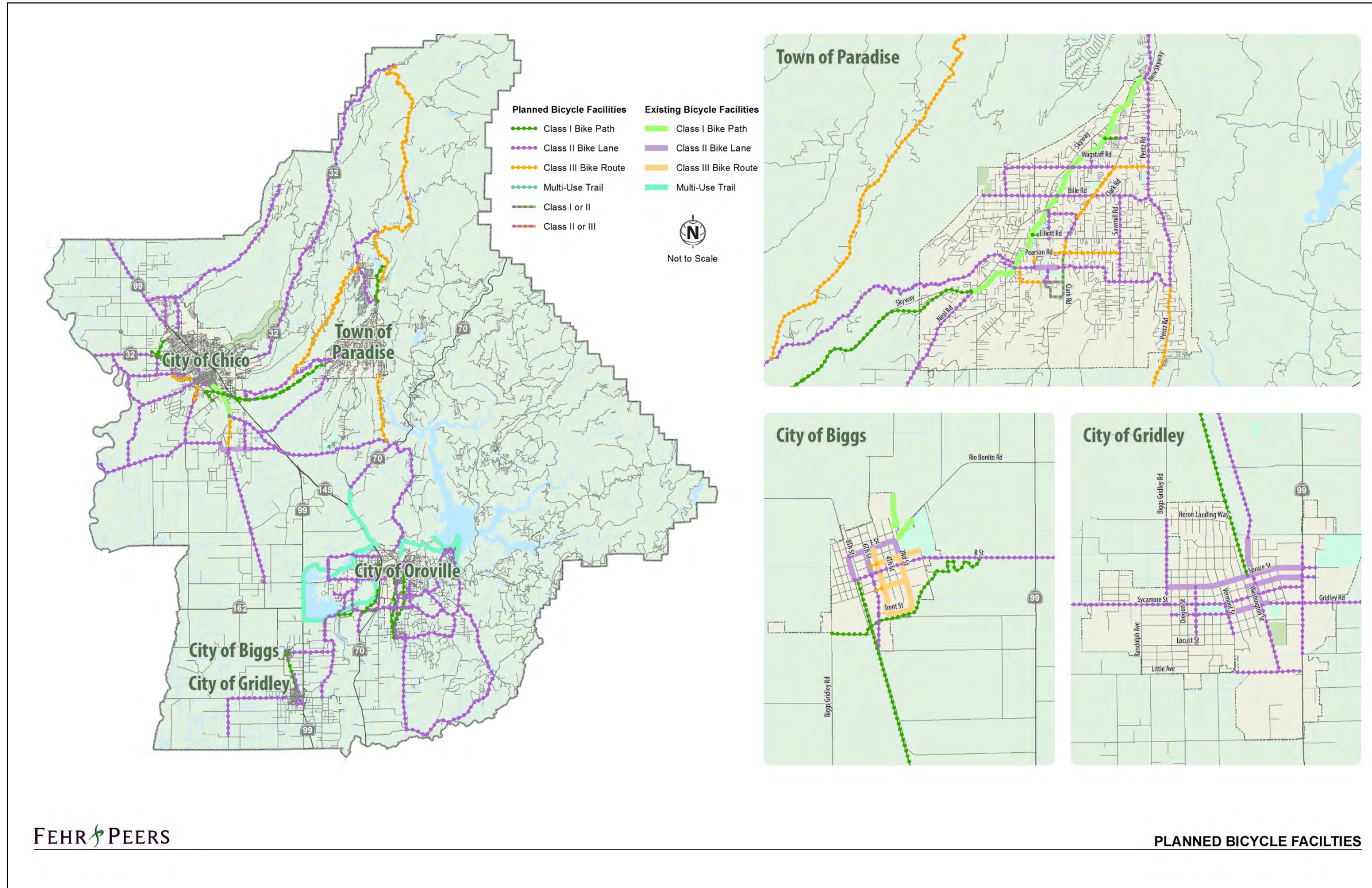


Figure 4-4 Existing and Proposed Bicycle Facilities – Oroville

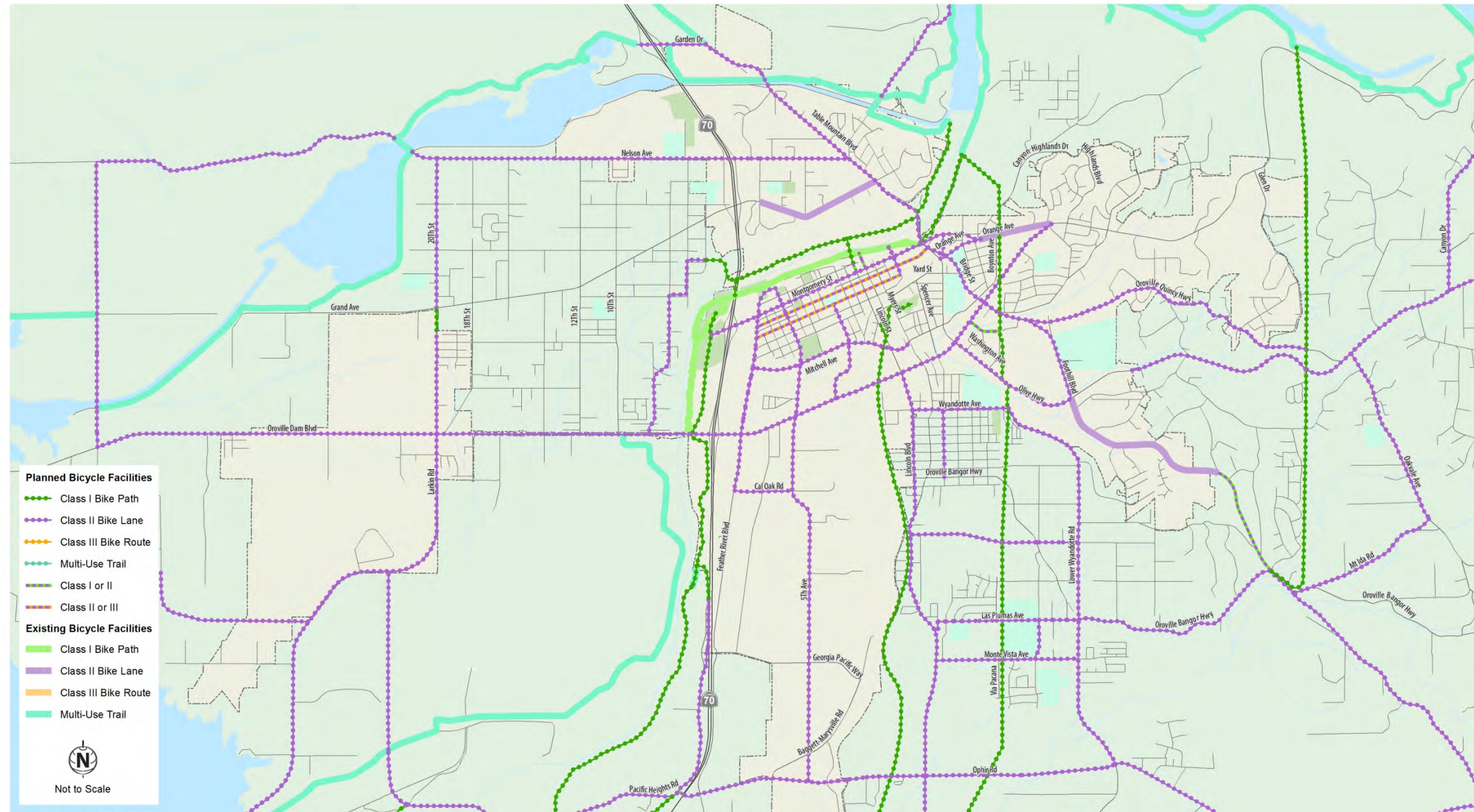
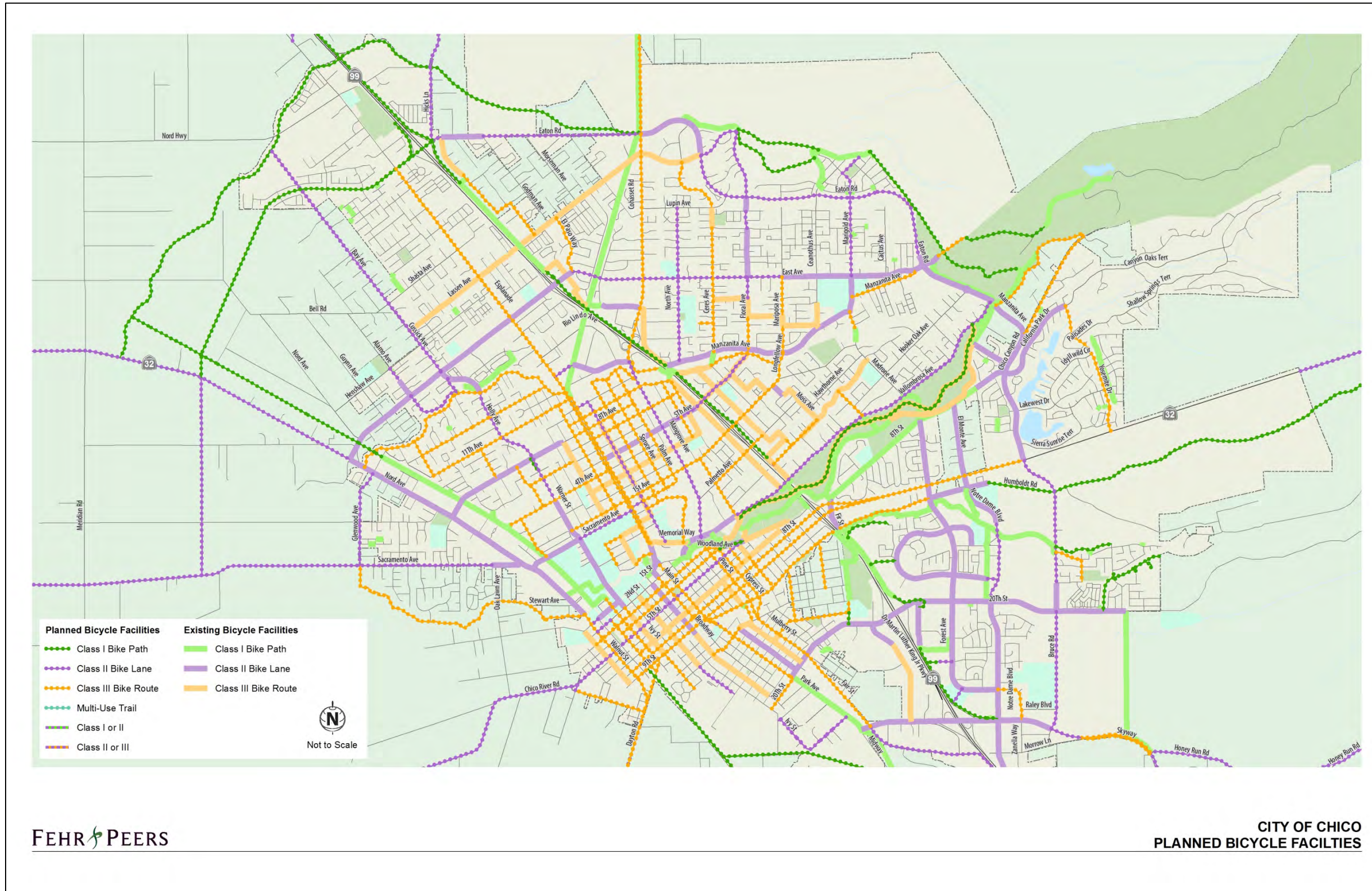


Figure 4-5 Existing and Proposed Bicycle Facilities – Chico



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COLLISION ANALYSIS

Five years of California Highway Patrol (CHP) Statewide Integrated Traffic Records System (SWITRS) data for injury or fatality collisions involving pedestrians or bicyclists was reviewed to identify collision locations and trends in Butte County. The SWITRS data was accessed using the Transportation Injury Mapping System (TIMS), a service available from the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley. Figure 4-6 includes a summary of total, pedestrian-vehicle, and bicyclist-vehicle collisions occurring in Butte County between 2007 and 2011. Collision locations are mapped in Figure 4-7, Figure 4-8, and Figure 4-9.

Figure 4-6 Summary of Butte County Injury and Fatal Collisions, 2007-2011

Year	Total Collisions		Pedestrian-Vehicle Collisions		Bicyclist-Vehicle Collisions	
	Injury	Fatal	Injury (%)	Fatal (%)	Injury (%)	Fatal (%)
2007	755	34	37 (5%)	5 (15%)	56 (7%)	1 (3%)
2008*	684	26	36 (5%)	5 (19%)	44 (6%)	0 (0%)
2009	667	17	35 (5%)	2 (12%)	46 (7%)	0 (0%)
2010*	864	33	38 (4%)	9 (27%)	85 (10%)	0 (0%)
2011	729	16	40 (5%)	5 (31%)	66 (9%)	0 (0%)
Total	3,699	126	186 (5%)	26 (21%)	297 (8%)	1 (1%)

* Note: One collision in 2008 and one collision in 2010 involved both a bicyclist and pedestrian.

Figure 4-1 shows that the Butte County's total walk and bicycle mode share is approximately seven percent. However, Figure 4-10 shows that pedestrian-vehicle and bicyclist-vehicle collisions account for 13 percent of all injury collisions and 22 percent of all fatal collisions in Butte County. Because pedestrians and bicyclists are particularly vulnerable in collisions with vehicles, infrastructure and programs aimed at reducing pedestrian or bicyclist injuries or fatalities could have a significant effect on reducing the County's overall numbers of traffic-related injuries and fatalities.

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Figure 4-7 Pedestrian and Bicycle Collisions (2007-2011) – Countywide, Paradise, Biggs, and Gridley

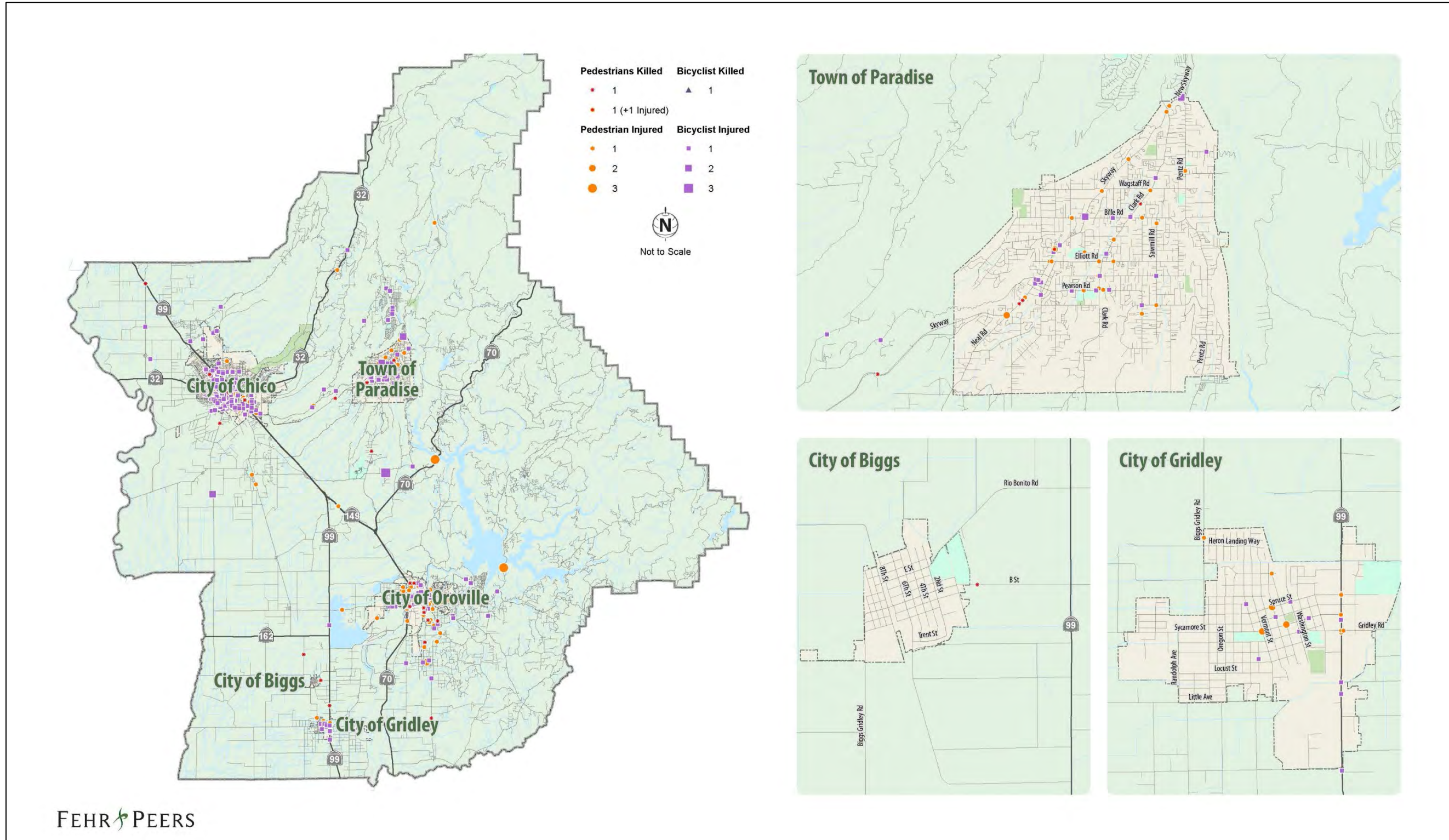


Figure 4-8 Pedestrian and Bicycle Collisions (2007-2011) – Oroville

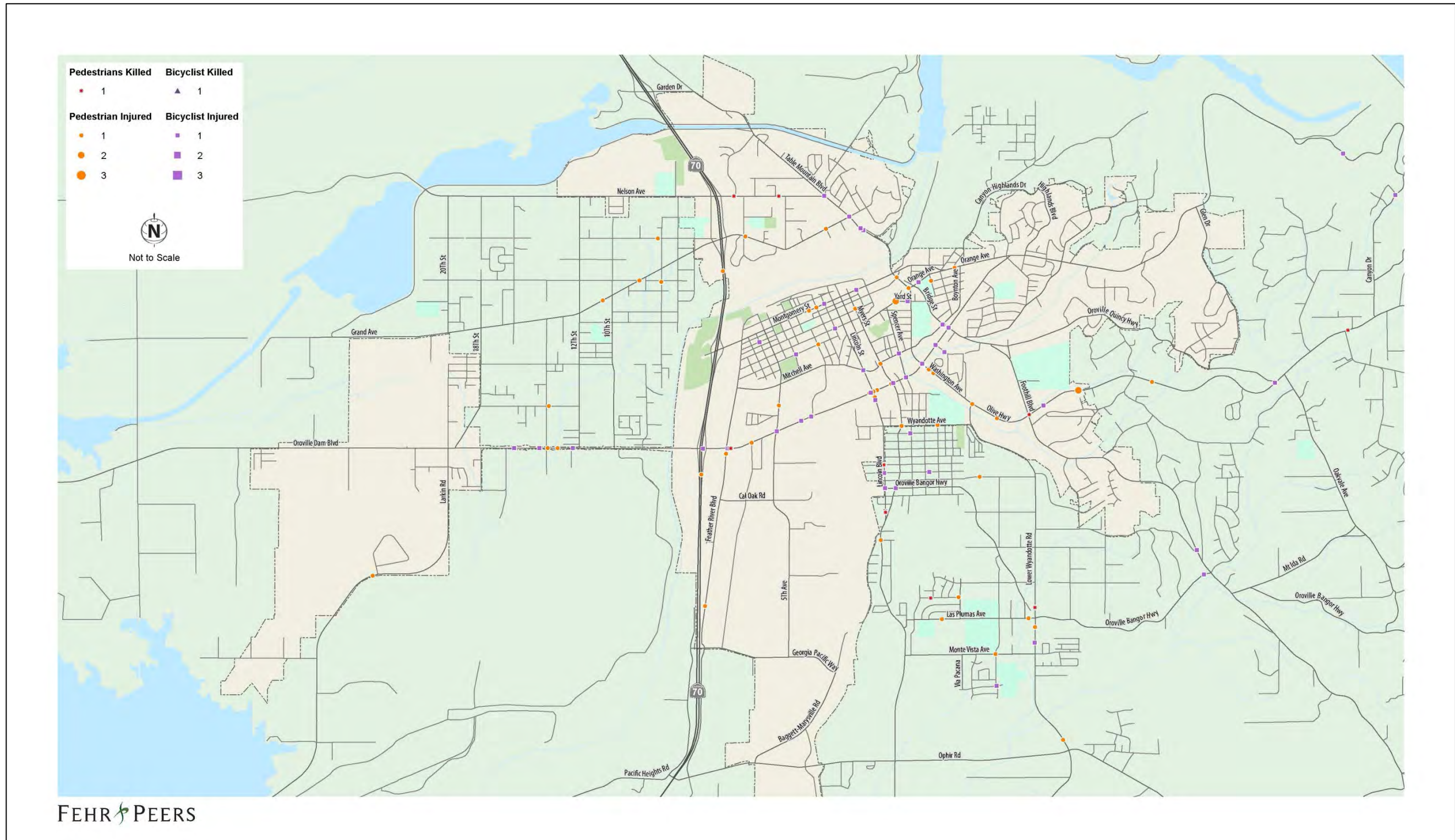
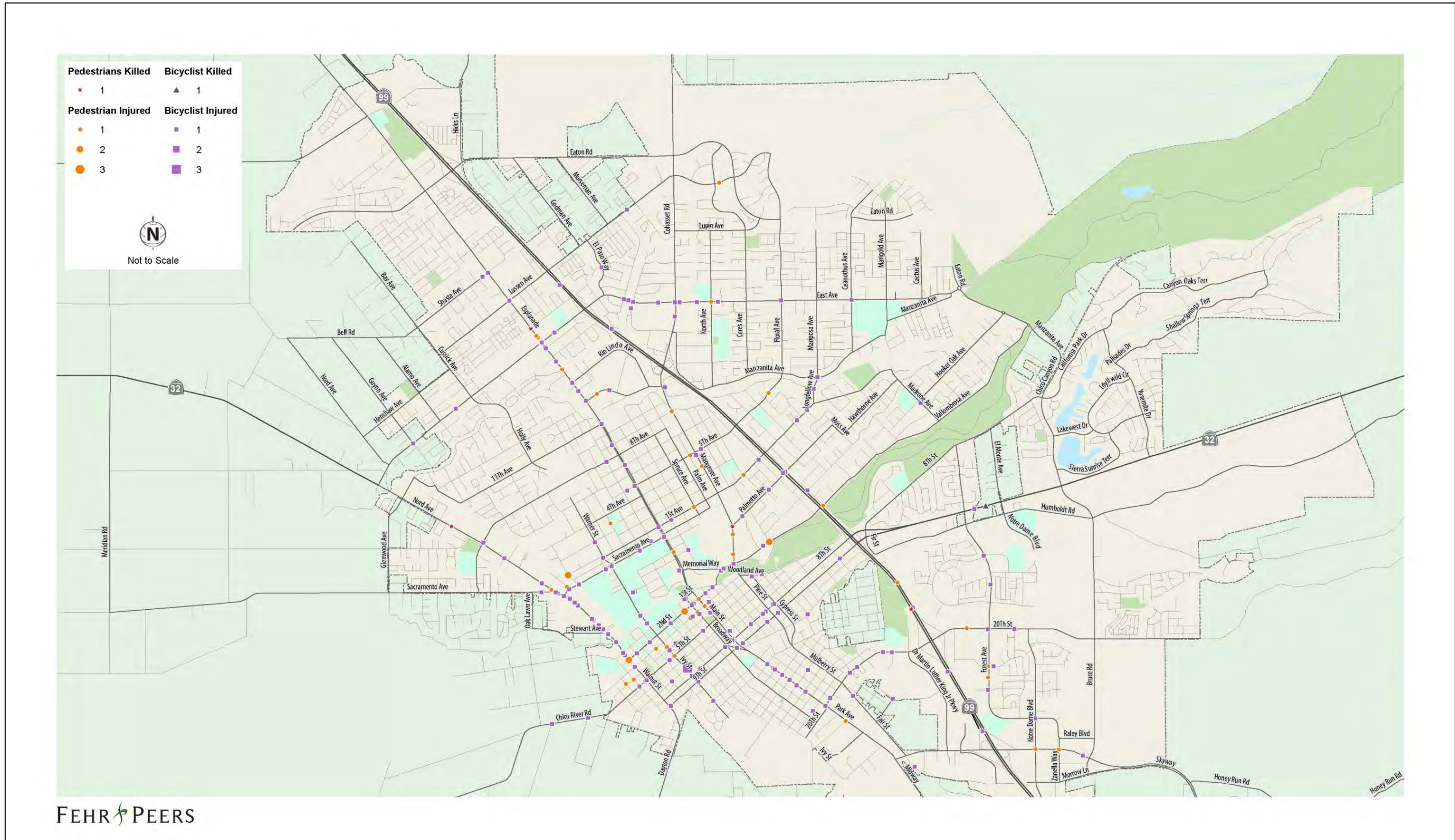


Figure 4-9 Pedestrian and Bicycle Collisions (2007-2011) – Chico



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WALKING AND BICYCLING TO TRANSIT

As described in Chapter 3, B-Line is the provider of public transportation services within Butte County. Services are provided from four transit centers (with two in Chico, one in Paradise, and one in Oroville). B-Line provides bicycle storage on buses on a first-come, first-served basis. Bike racks are available on the front of all buses in B-Line's fleet and can accommodate up to three bicycles. The agency does not advertise a policy regarding the ability of passengers to carry bikes with them onto buses. Supporting bicycle and pedestrian facilities are available at some of B-Line's transit centers.

Transit centers of regional significance are examined for their connectivity with existing bicycle and pedestrian infrastructure.

Chico Transit Facilities

Figure 4-10 and Figure 4-11 show the transit centers in Chico and their proximity to existing bikeways.

Downtown Chico Transit Center

B-Line's highest level of service is in downtown Chico at the transit center located near the intersection of 2nd Street and Normal Avenue. The transit center features short-term bicycle parking (bike racks). This transfer center is located between downtown Chico and CSU, both of which are currently served by a network of well-connected streets; however, few streets feature bikeways. Salem Street has bike lanes and there are bike routes on Ivy Street and Chestnut Street. Additionally, the bike paths through Bidwell Park connect to downtown Chico near the transit center.

Within downtown Chico, nearly all roadways feature high-quality pedestrian infrastructure including sidewalks and crosswalks. Elements of the streetscape contribute to an attractive environment for walking, including active storefronts, wide sidewalks, landscaping, and pedestrian-scale lighting. Some intersections are missing pedestrian infrastructure such as curb ramps and pedestrian signals. Additionally, there may be uncontrolled locations where it is difficult for pedestrians to cross the street.

Forest Avenue Transfer Point

The Forest Avenue transfer point is Chico's second transit center of regional significance. The transfer point is located on Forest Avenue south of Parkway Village Drive and serves six of B-Line's routes. In that vicinity, Forest Avenue features bike lanes on both sides of the street, although the transfer point does not feature bicycle parking. Sidewalk coverage is continuous on both Forest Avenue and Parkway Village Drive in the vicinity of the transit stop.

Chico Park and Ride at State Route 32 and Fir Street

The Park & Ride at State Route 32 and Fir Street on the east side of State Route 99, which is owned and maintained by Caltrans, is the only Park and Ride in Chico. The facility has 141 vehicle parking spaces combined in lots on both the east and west sides of Fir Street and 16 bike lockers. Currently, only B-Line Routes 5, 20 and 40X serve this Park and Ride. Changes to this facility that are being considered include: rebuilding the east lot to streamline bus stops and allow for easy entry from the inner lanes of State Route 32; marketing this Park and Ride as a regional

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transit connection for pedestrians and bicyclists; and providing a multiuse path connecting Fir Street and Forest Avenue or Bruce Street along the north side of State Route 32. As shown in Figure 4-11, Fir Street connects the Park and Ride to existing bike paths in Chico. Although there are several multifamily housing developments near the Park and Ride, pedestrian access to the Park and Ride is limited by missing walkways along State Route 32 and a lack of pedestrian crossings of State Route 32 to the Park and Ride. There are no bicycle facilities on State Route 32.

Figure 4-10 B-Line Transit Centers and Bicycle Facilities – Chico

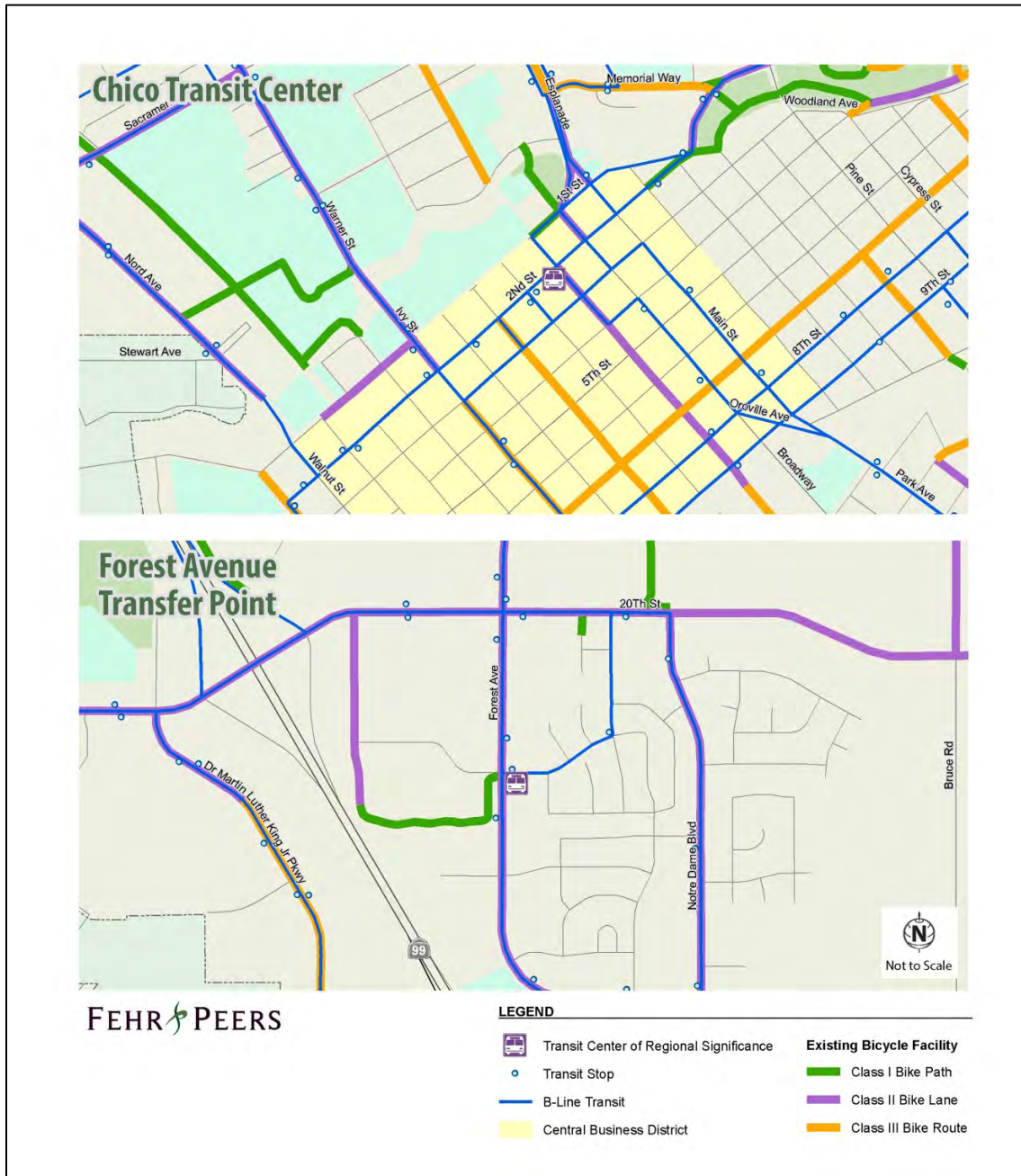
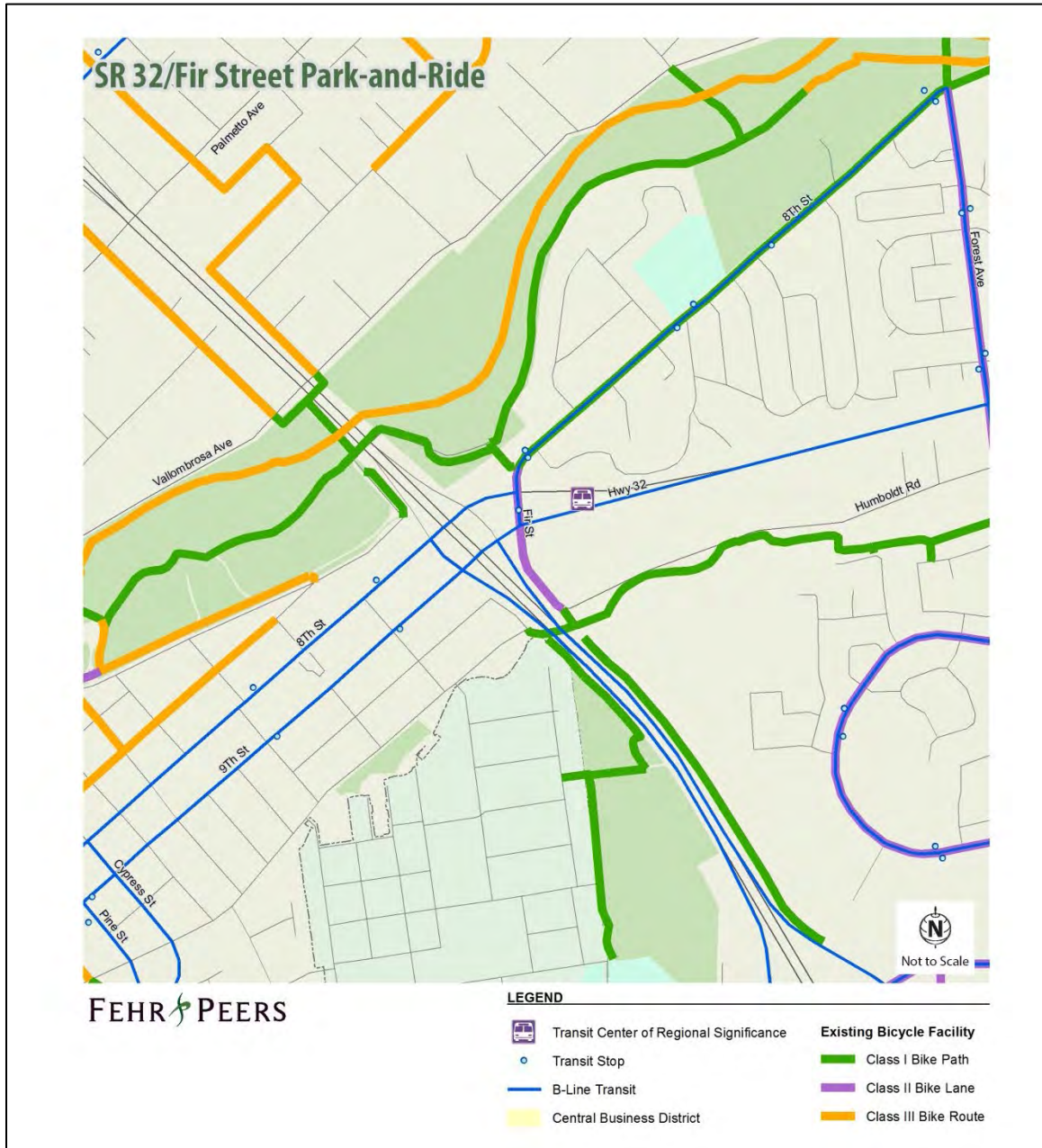


Figure 4-11 State Route 32 and Fir Street Park & Ride – Chico



Paradise Transit Center

The Paradise transit center is a bus shelter located on Almond Street between Cedar Street and Birch Street. The transit center is one block away from the Paradise Memorial Trail; however, there is no other nearby bicycle facilities. There are no sidewalks on the east side of Almond Street at the transit center and sidewalk coverage elsewhere in this part of Paradise is minimal.

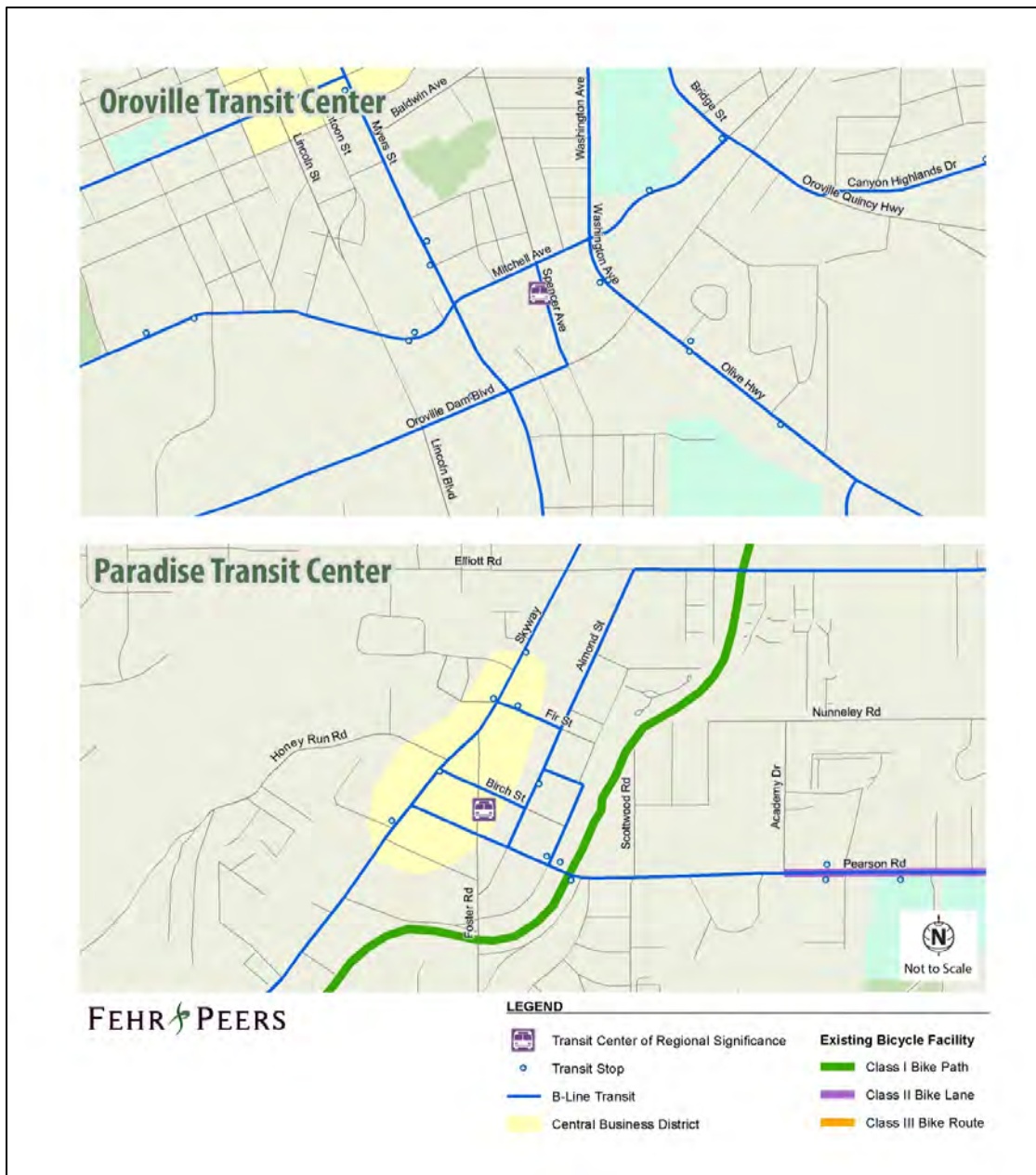
Figure 4-11 shows the transit center and its proximity to existing bikeways.

Oroville Transit Center

B-Line’s transit center in Oroville is located on Spencer Avenue immediately south of the intersection with Mitchell Avenue. The center features wide sidewalks. There is no bike parking at the transit center. Although the immediate area surrounding the transit center is not very dense, most of the streets feature sidewalks. There are no bicycle facilities that connect directly to the transit center.

Figure 4-12 shows the transit center and its proximity to existing bikeways.

Figure 4-12 B-Line Transit Centers and Bicycle Facilities – Oroville and Paradise



SUITABILITY FOR WALKING AND BICYCLING

The greatest opportunity for increasing bicycling and walking mode share through capital projects is in areas that have the following characteristics:

- Density – dense, mixed residential and commercial areas
- Major employers – for example, California State University, Chico
- Attractions – provide access to active local and regional attractions
- Transit – provide connections to existing local and regional transit services, such as B-line, Amtrak bus, and Greyhound

To assess the greatest opportunity areas for walking and bicycling, Butte County was analyzed using a regional demand screening process to determine a suitability screening score for bicycling and walking. The regional demand screening process combined five variables selected from the Environmental Protection Agency (EPA)’s Smart Location Database (SLD) into a suitability screening score that indicates the relative suitability for bicycling and walking throughout the County. The variables selected address housing, population, and employment density, land use diversity, and urban design. High population and intersection density (a measure of urban design) are correlated with bicycling and walking mode share in academic literature, and housing density, employment density, and land use diversity intuitively reflect a built environment suitable for shorter trips that could be served by walking or bicycling. The “D” variables shown in Figure 4-13 were selected from the EPA’s SLD.

Figure 4-13 U.S. Environmental Protection Agency Smart Location Database, Selected Variables

Factor	Metric	Source Data
Density	D1a : Housing density (units per unprotected acre) in 2010	Housing units: Census 2010
Density	D1b: Population density (people per unprotected acre) in 2010	Population: Census 2010
Density	D1c: Job density (jobs per unprotected acre)	Jobs: Census LED 2008
Land Use Diversity	D2: Entropy index of commercial/industrial/institutional, retail, recreational, and residential within a block group	Jobs and housing units: ESRI Business Demographics 2009
Urban Design	D3: Intersections per sq. mile (weighted by intersection type)	US Census TIGER/Line Shapefile 2009

According to the suitability screening scores shown in Figures 4-14 through 4-16, the areas that have the greatest potential to increase mode share can be found in the densest and most land-use-diverse areas of each jurisdiction.

Biggs

The City of Biggs was found to be low on the suitability index for non-motorized modes.

Chico

Areas with high suitability screening scores include the California State University, Chico and Downtown areas, the commercial and residential area in north Chico bound loosely by Cohasset,

White Ave., and Hwy 99. The corridor along Hwy 99 and Esplanade scores well and is also important as it connects several other smaller areas suitable for non-motorized travel.

Gridley

The most suitable area for non-motorized modes is in northwest Gridley in the commercial zone along Washington Street and the residential neighborhood to the northwest. Two areas score moderate-high: the eastern area between the railroad and Hwy 99; and in west Gridley, the area bound by Sycamore, Randolph, Little, and Oregon Streets.

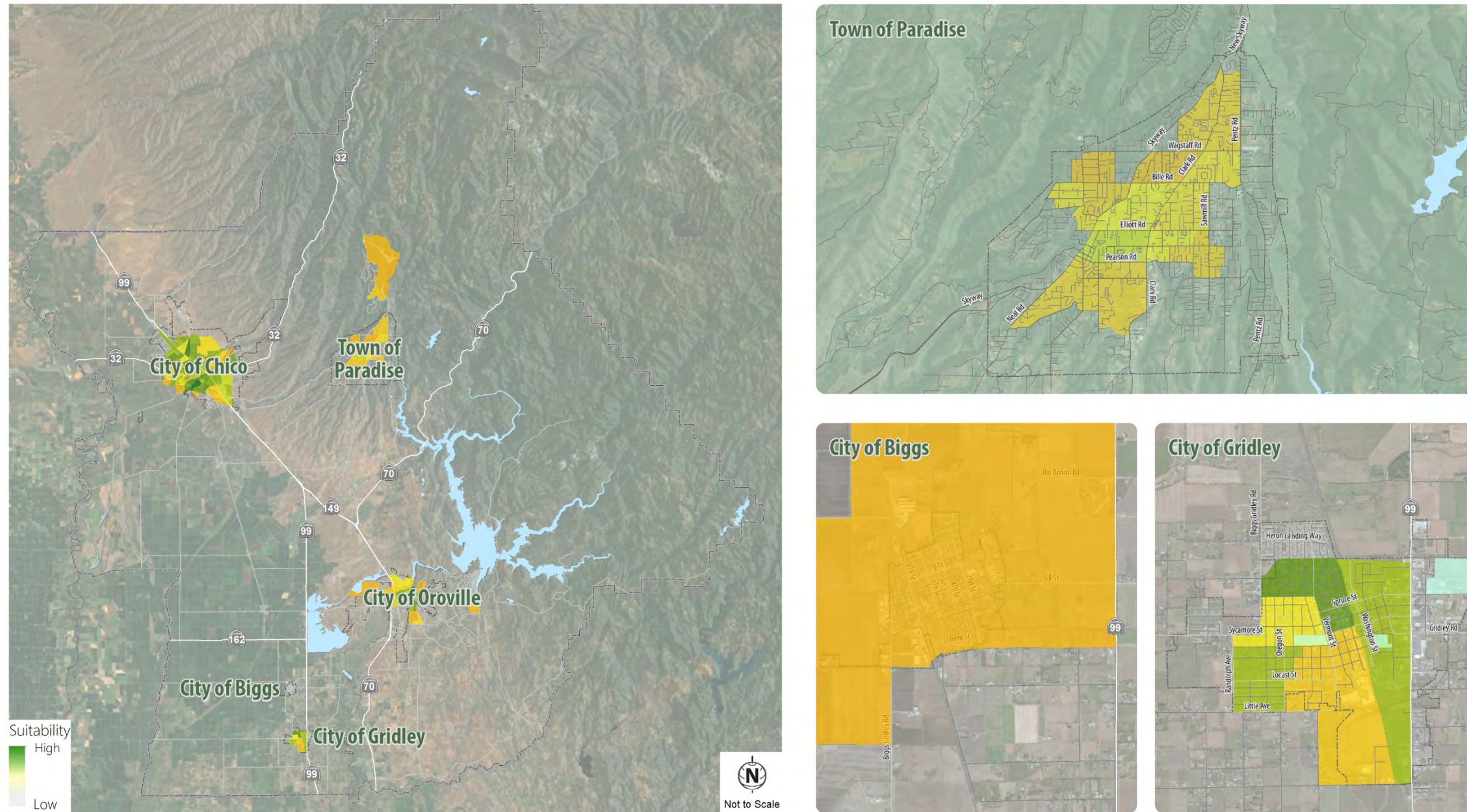
Oroville

Two areas in Oroville score moderately well as areas suitable for non-motorized travel: the residential and commercial area along Feather River, Hwy 70, Mitchell Avenue, and Lincoln Street; and in South Oroville, southeast of the Lincoln and Wyandotte Ave. intersection. The commercial and residential area bound by Feather River, west of the railroad tracks, and Mitchell Avenue scores moderately well on the suitability index.

Paradise

Although primarily auto-centric, the most suitable area for non-motorized travel is within the area bounded by Elliot Rd. and Pearson Rd. to the north and south, and by Skyway Rd. and Clark Rd. to the east and West, with the better mix of land uses and street connectivity within a few blocks of Skyway Rd.

Figure 4-14 Regional Suitability Screening Score

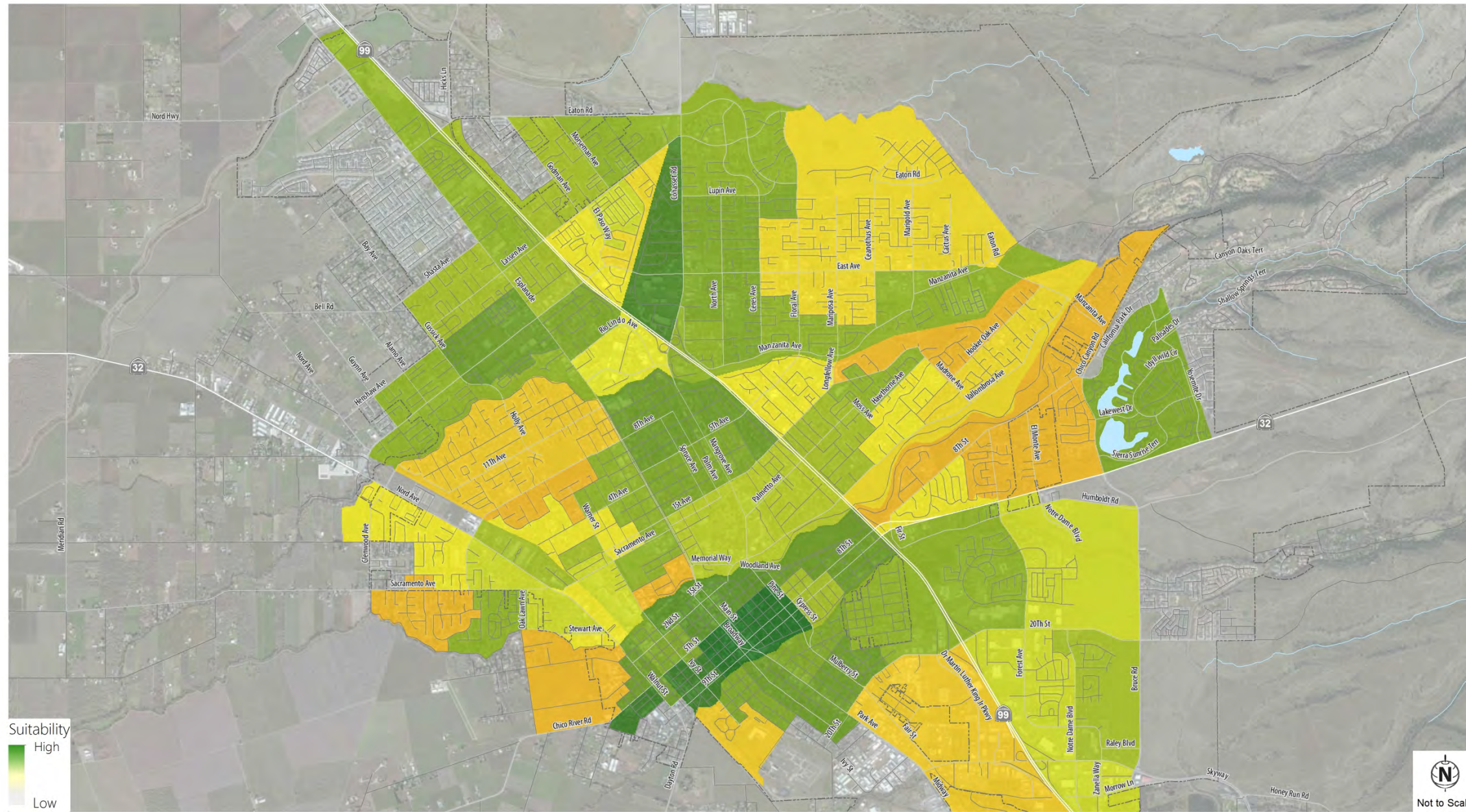


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Regional Suitability Screening Score

Figure 4-15 Regional Suitability Screening Score

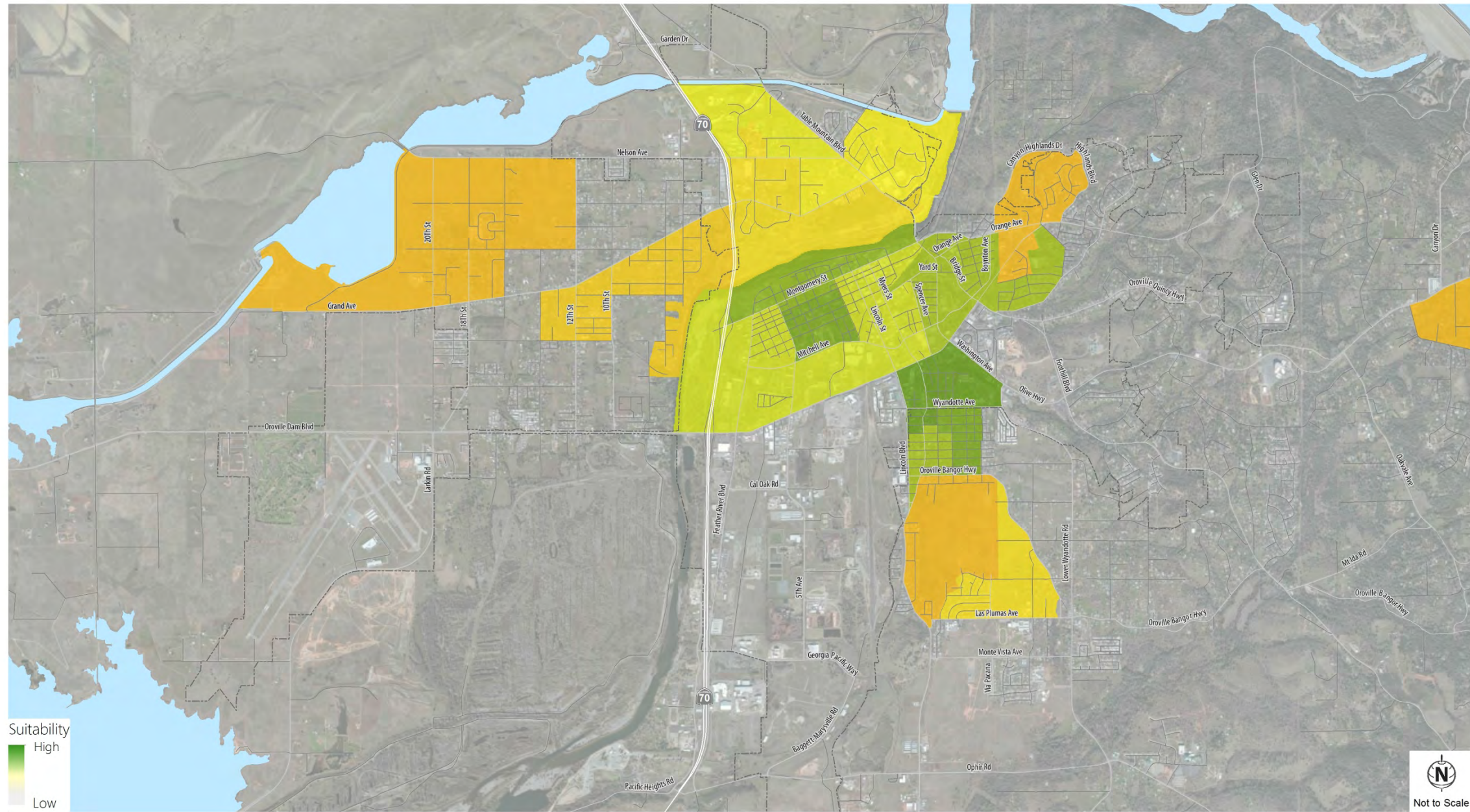


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CITY OF CHICO
 Regional Suitability Screening Score

Figure 4-16 Regional Suitability Screening Score



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CITY OF OROVILLE
Regional Suitability Screening Score

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IMPROVING TRANSIT ACCESS

Improving walking and bicycling access to transit centers, stops, and routes can increase transit ridership. One strategy for improving walking and bicycling access to transit facilities is to enhance infrastructure that serves “first mile” (access from home to transit) and “last mile” (access from transit to work, school etc.) walking and bicycling trips. The greatest opportunity for improving transit access is in areas that have high housing, population, and job density, areas with a diverse mix of land use, areas with dense roadway networks, and areas near transit stops with high ridership. Enhancing infrastructure in these areas is most likely to increase transit ridership by improving walking and bicycling access.

To identify areas of greatest opportunity for improving transit access, a transit access score was calculated for every B-Line stop in Butte County. The transit access score for a stop is based on the average regional suitability score within a quarter mile of the stop (which accounts for housing, population, and job density, diversity of land use, and roadway network density as shown in Figure 4-14 through Figure 4-16) and the stop’s number of weekday bus boardings and alightings. The transit access score evenly weights the average regional suitability score and weekday bus boardings and alightings.

Figures 4-17 through 4-19 show the transit access score for each stop. The transit access score identifies for which stops investments in walking and bicycling infrastructure are most likely to improve transit access. Comparisons can be made between stops both on a regional scale (for example, comparing stops in Chico to stops in Oroville) or on a local scale (for example, comparing stops within Oroville to each other).

Biggs

All of Biggs’ transit stops are on B Street. Although Biggs’ stops have a low transit access score compared to other stops in the region, investments in bicycling and pedestrian infrastructure on or connecting to B Street are most likely to improve transit access in Biggs.

Chico

Several clusters of stops in Chico have a high transit access score: Downtown Chico, the area near the Sacramento Avenue/Nord Avenue intersection, and the area near the State Route 99/Cohasset Road interchange. These stop clusters are amongst the highest scoring in the region.

Gridley

In Gridley, the stops on Spruce Street near Downtown Gridley have a moderately high transit access score. The areas near the Spruce Street/Biggs Gridley Road intersection and State Route 99/Spruce Street intersection have a relatively low transit access score. However, relative to transit access in the community, these two locations are good candidates for bicycle and pedestrian improvements.

Oroville

Two areas in Oroville have a high transit access score: north Oroville near the Nelson Avenue/County Center Drive intersection and the area near the Oroville Dam Boulevard/Washington Avenue intersection.

Paradise

The area near the Skyway Road/Pearson Road intersection has the highest transit access score in Paradise.

Figure 4-17 Transit Access Score

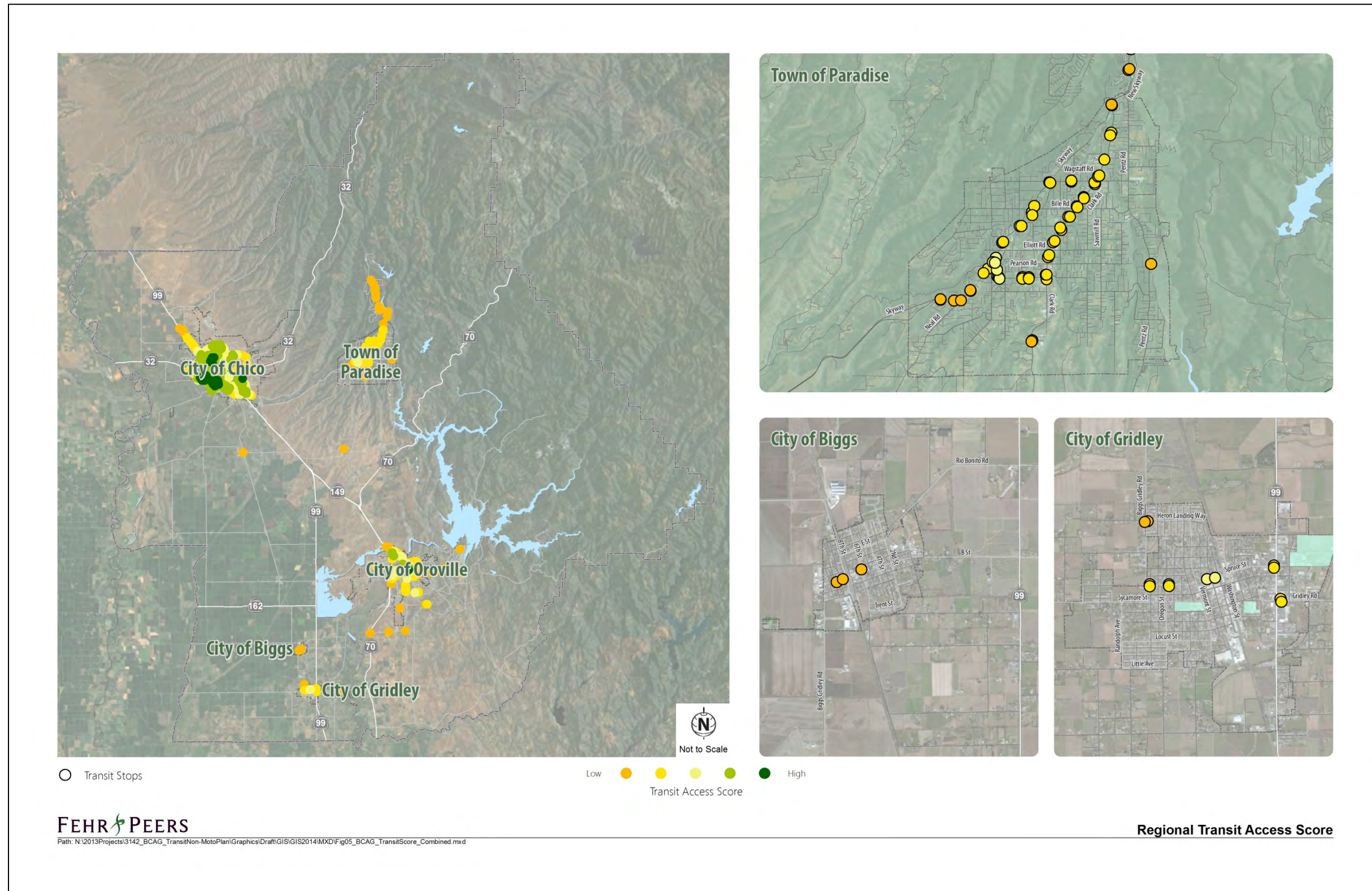
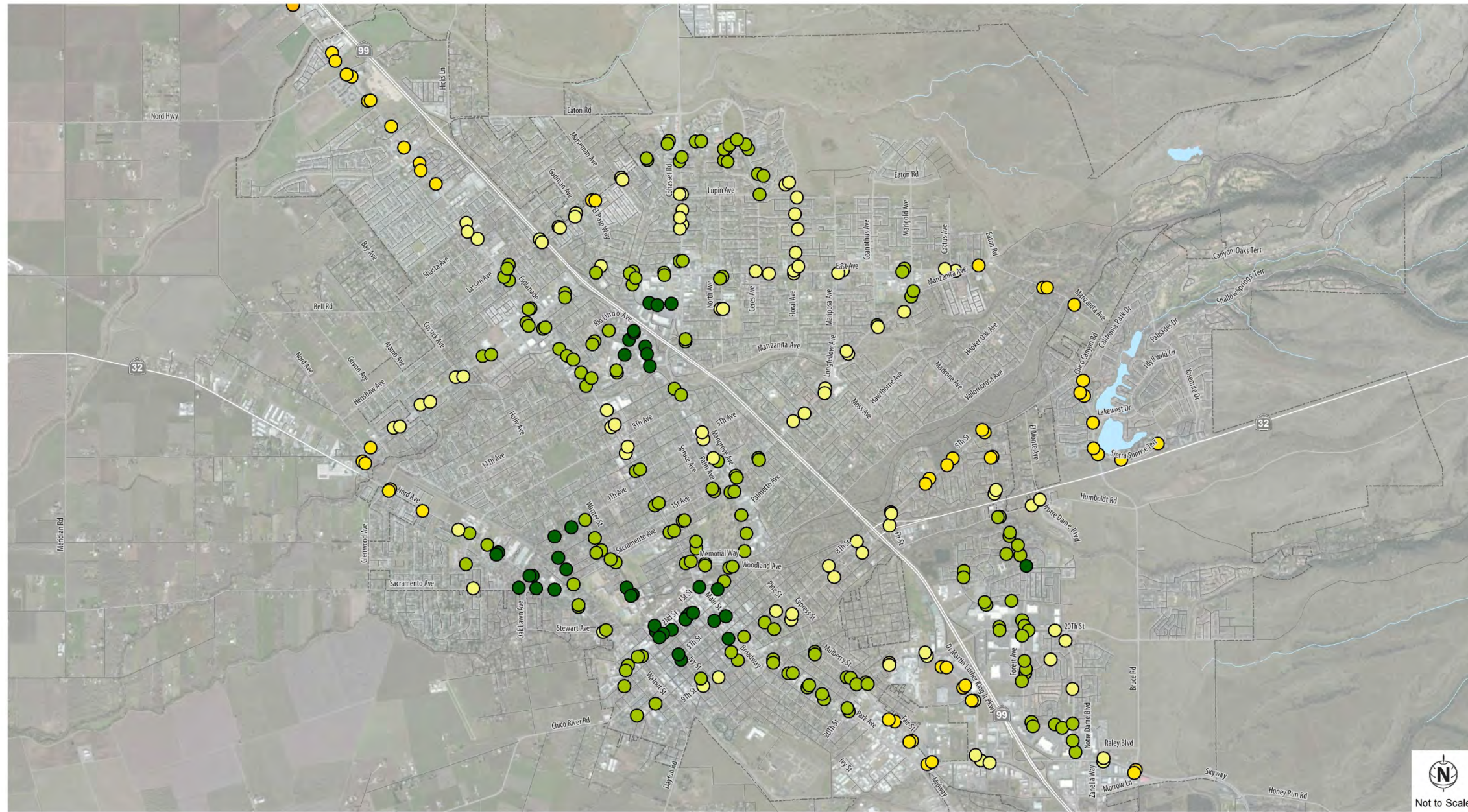


Figure 4-18 Transit Access Score



○ Transit Stops

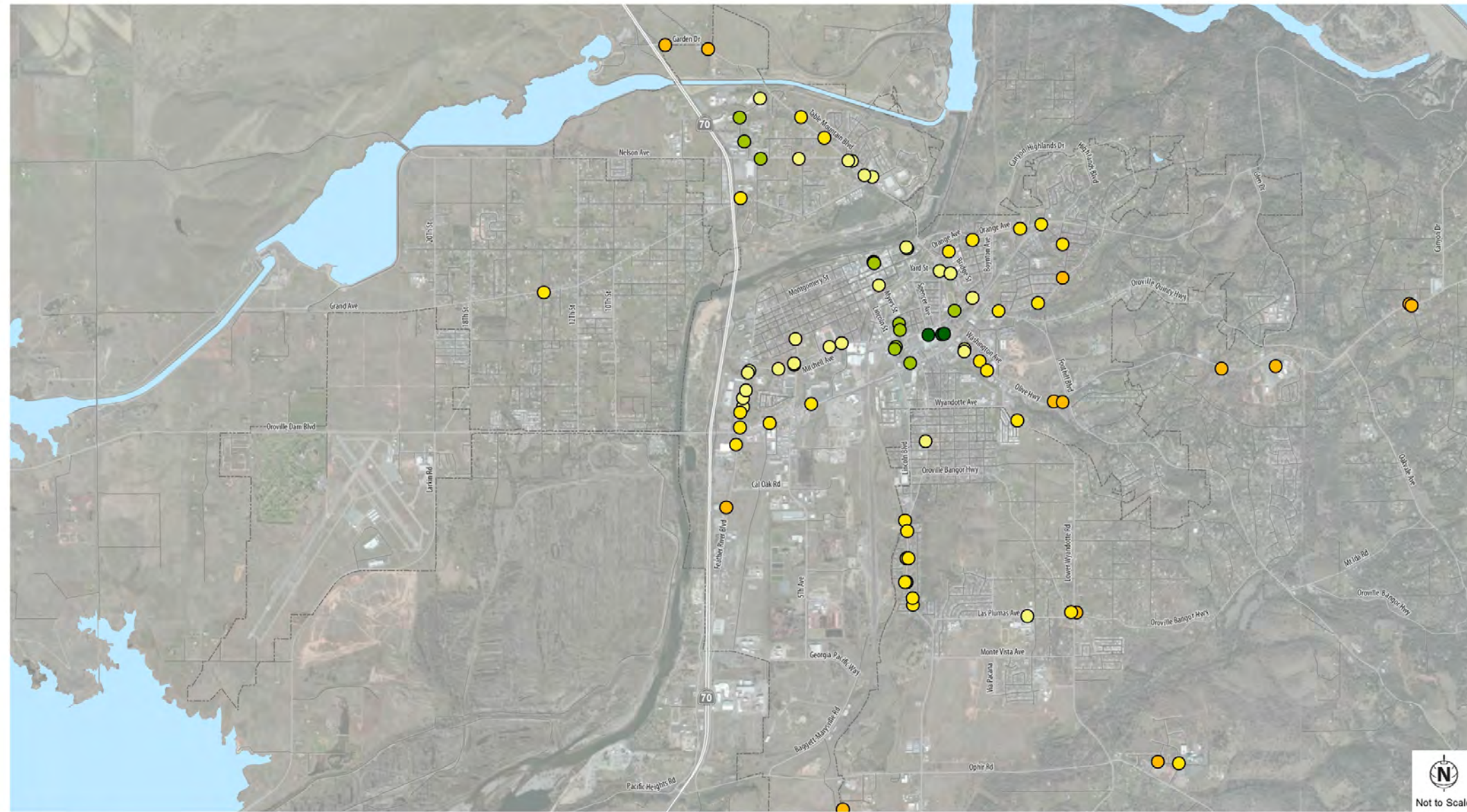
Low ● ● ● ● High
 Transit Access Score

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CITY OF CHICO
 Regional Transit Access Score

Figure 4-19 Transit Access Score



○ Transit Stops

Low ● ● ● ● High
 Transit Access Score

North Arrow
 Not to Scale

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CITY OF OROVILLE
 Regional Transit Access Score

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CONCLUSION

A sustainable transportation strategy offers a specific role for walking and bicycling in support of public transit, and provides an unparalleled option for mitigating GHG emissions. As many cities and some smaller towns have shown in recent years with the introduction of road diets, complete streets, and bicycle sharing programs, prioritizing a safe pedestrian and quality bicycle infrastructure affords healthier communities, more transit friendly communities and an overall better quality of life.

Bicycling and walking are good transportation options in Butte County for local trips, but safety, appropriate amenities, and access issues have not been fully addressed. For regional trips, the bike infrastructure is fairly limited. Much of the county's street network is still very much planned around maximizing access for automobile trips, and many major streets outside of city and town centers lack sidewalks. Although much of the local bike infrastructure has been planned in the county's largest cities, little of it has been developed. As land uses change, more and more residents will seek access to non-motorized modes. Tools to increase the mode share of biking and walking in Butte County, as well as improving pedestrian access to transit, must be developed as part of a long-term sustainability strategy and play a key role in addressing policies for GHG emissions reductions.

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5 PUBLIC AND STAKEHOLDER INPUT: SURVEYS AND INTERVIEWS

The importance of soliciting public feedback cannot be understated. One of the key elements of this study is to define potential service options and enhancements to address public demands and to determine what types of services changes or infrastructure investments may lead to a mode shift toward cleaner and higher capacity transportation options, both motorized and non-motorized. A separate memo entitled “Public Involvement Approach” for this planning effort, submitted to BCAG in October 2013, highlights an approach to gather information by talking with stakeholders and residents in interviews and meetings, and through surveys, to get all of the issues “on the table” early in the study process.

This chapter reviews findings from the three preliminary efforts for guidance on this planning effort: an on-board survey of B-Line fixed-route riders, a general public survey about transportation in Butte County, and a set of interviews with key stakeholders.

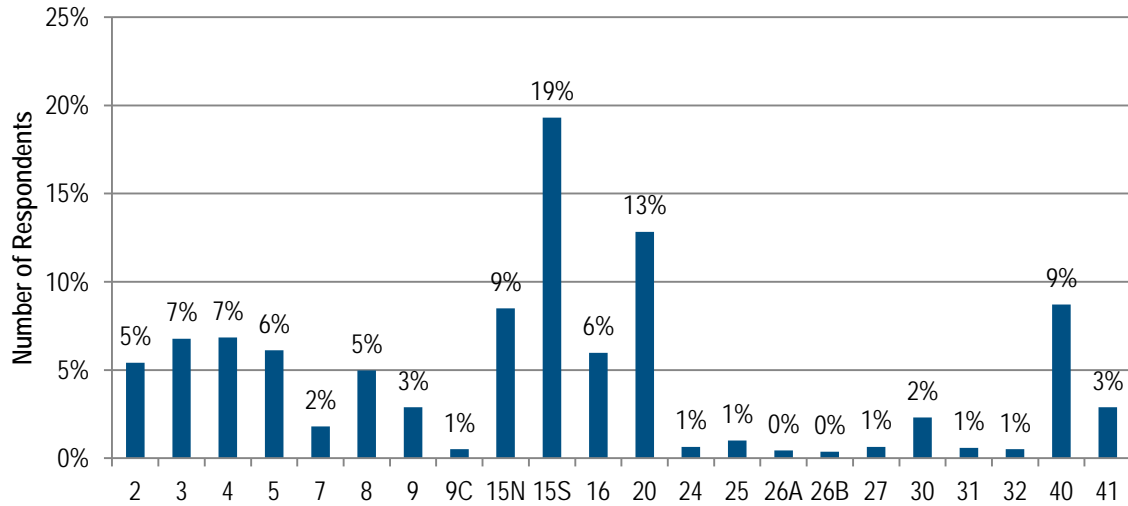
B-LINE ONBOARD SURVEY

Methodology

The onboard survey was designed to understand how each passenger completes his or her trip, why the passenger chose to ride B-Line, and perceptions of the existing services. The survey also collected information on riders’ personal characteristics, such as age, income, employment status, and modes of access to the transit services. Questions about trip purpose, trip origin and destination, and mode of access to the bus stops asked respondents specifically about the trip they were taking that day. The survey form is included in Appendix B.

Passengers on B-Line buses were surveyed Saturday, September 21st through Wednesday, September 25th. The 18-question survey was available in both English and Spanish. A total of 1,428 individuals completed the survey, but not all individuals answered all questions. Nearly 20% of riders completed the survey on Route 15S, and 13% on Route 20, the highest ridership routes in the B-Line system. The percentage of surveys collected by route is shown in Figure 5-1.

Figure 5-1 Survey Responses by Route
 (n=1388)



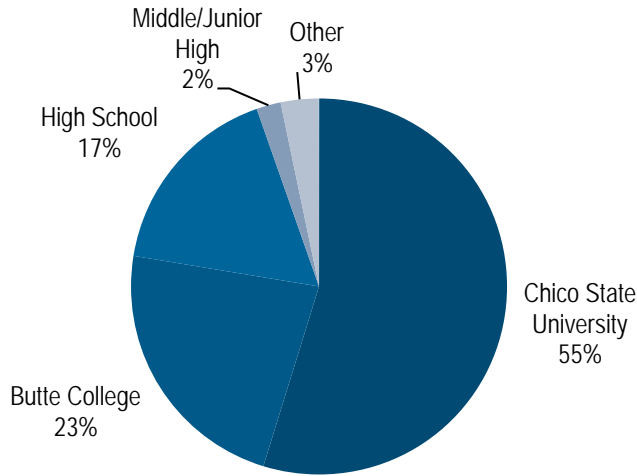
There were some instances in which a survey respondent chose more than one answer for a one-response question. In many cases, the respondent’s answer was not included in the data analysis, unless otherwise stated in the following text.

Demographics

The survey included several questions to assess who rides B-Line. Based on the responses to a series of demographic questions, two major findings were identified: (1) a great proportion of B-Line passengers are students (54% of survey respondents), the majority of whom attend Chico State University and (2) most B-Line passengers represent below-average household incomes in Butte County. There is a correlation between student status and lower incomes.

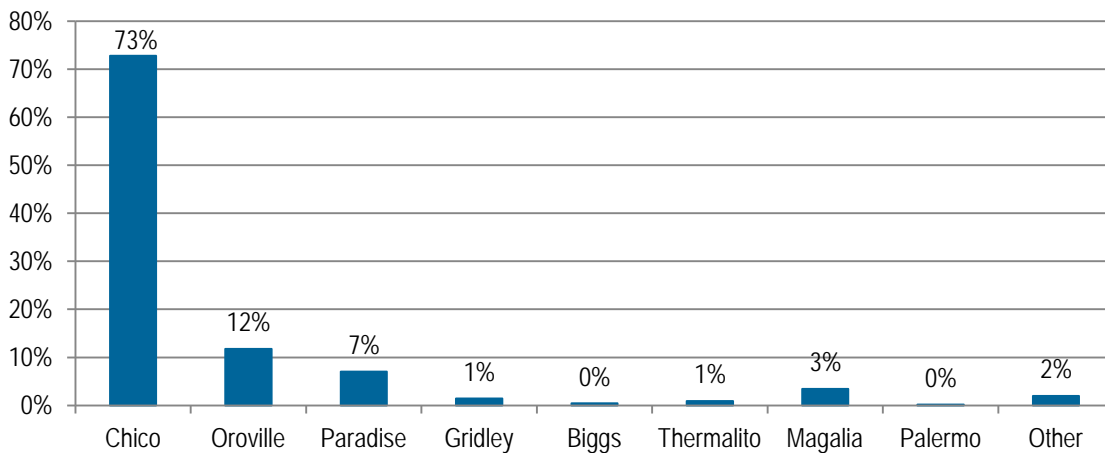
The collection of demographic information from riders is especially helpful in identifying any special needs that bus riders may have that might be different from those of the general population in Butte County.

Figure 5-2 Schools Attended
(n=670)



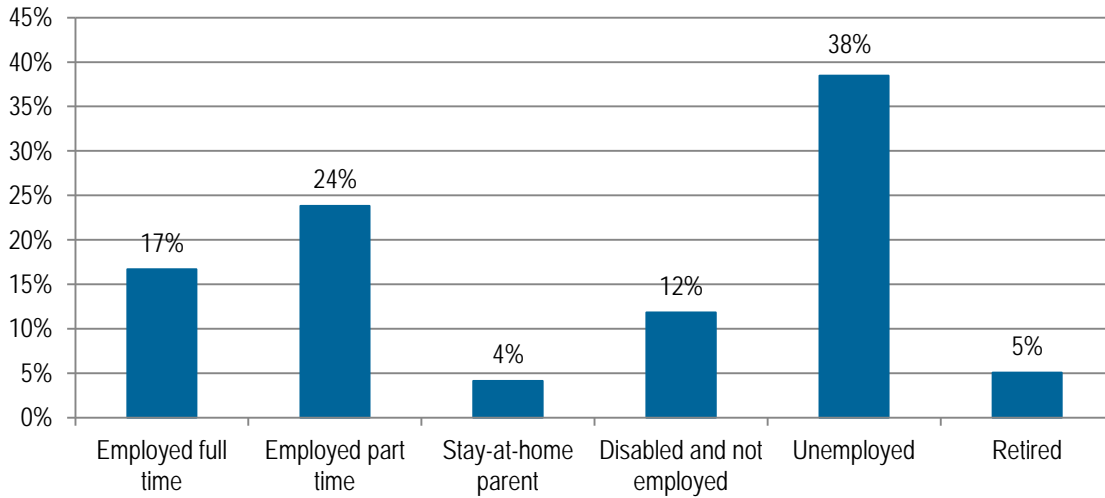
Over half of the survey respondents are students, and as shown in Figure 5-2, more than half of those students attend Chico State University. Other student populations riding B-Line include those who attend Butte College and various high schools. This high representation of students in the survey – despite the fact that two of the five days the survey was administered were weekend days – illustrates how important the student population is within the B-Line passenger profile.

Figure 5-3 City of Residence
(n=1323)



A majority of the survey respondents live in Chico where B-Line operates its most robust service (Figure 5-3). While 32% of service hours are allocated to rural routes, a considerable share of service hours on some of those routes is within Chico. Oroville, Paradise, and Magalia residents contributed relevant but much smaller shares of passengers for the survey.

Figure 5-4 Current Employment Status
(n=1385)



According to the survey responses, 41% of B-Line riders are employed and 38% are unemployed (Figure 5-4). The question did not include an option for “full time student;” hence we conducted a crosstab analysis. As shown in Figure 5-5, most respondents who are unemployed are students (close to 75%).

Figure 5-5 Comparison of Employment and Student Status

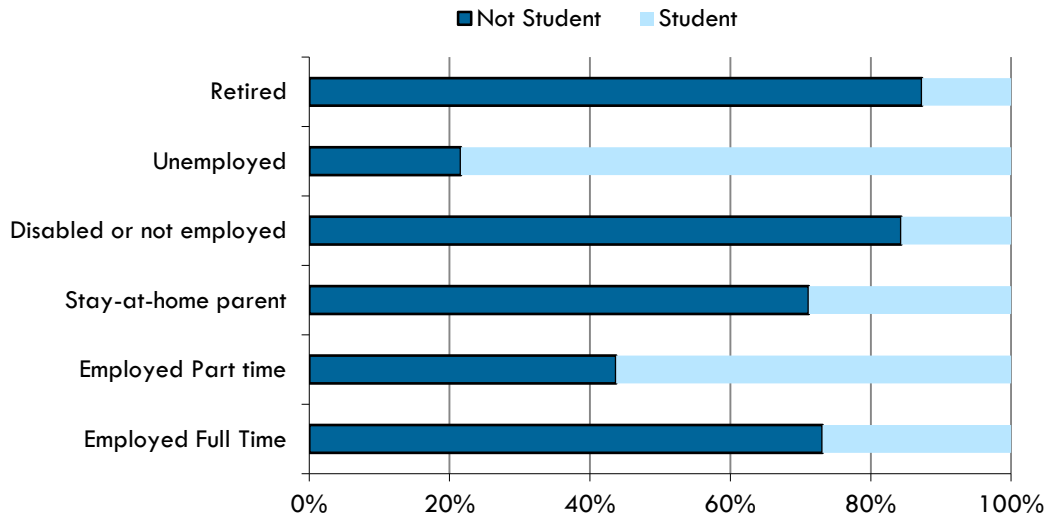
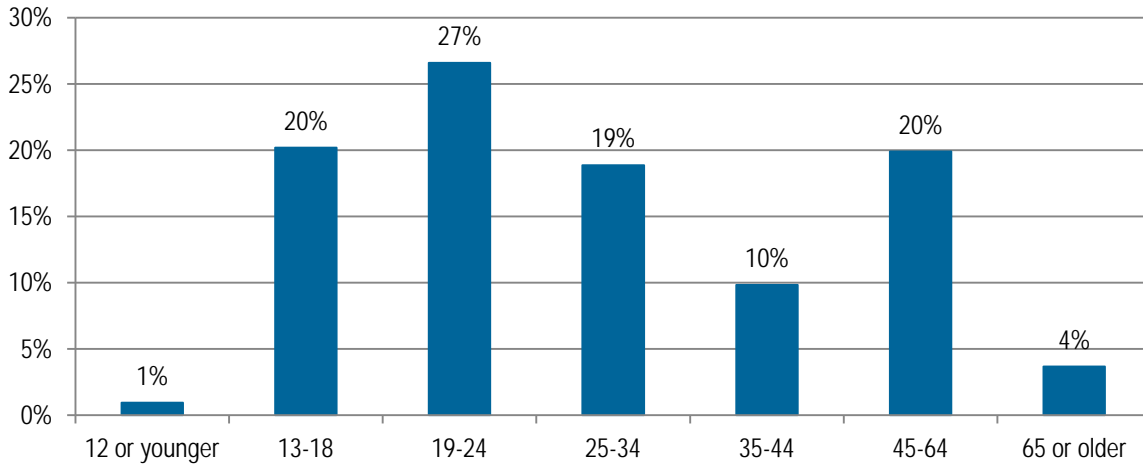
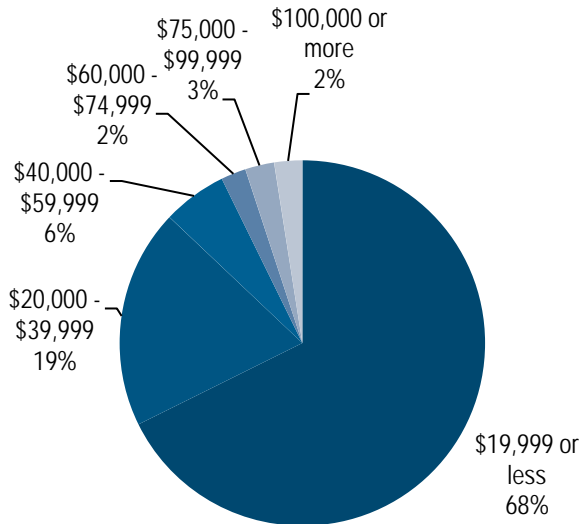


Figure 5-6 Respondent Age
(n=1362)



As shown in Figure 5-6, the largest group of survey respondents indicated they are between the ages of 19 and 24, again illustrating the prominence of college students among riders on B-Line. A very small percentage (1%) of people surveyed are 12 years or younger and only 4% are 65 years or older. The spread among the remaining ranges of ages is approximately equal and reflective of Butte County’s general population characteristics.

Figure 5-7 Total Household Income
(n=1129)

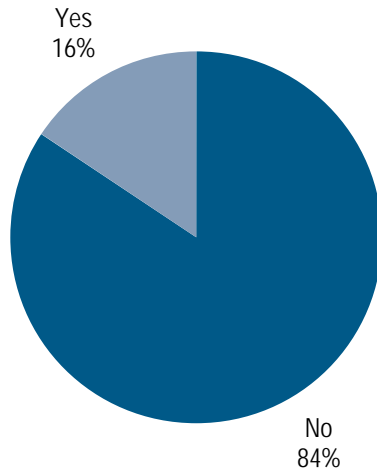


The lower income ranges dominate within the surveyed passenger group. Figure 5-7 shows that 87% of those who were surveyed are from households with a total annual income of \$39,999 or less. According the US Census, the median household income in Butte County between 2007 and

2011 was \$42,971. Only 6% of the survey respondents fall in this category, while 68% belong to households that earn \$19,999 or less.

Figure 5-8 Mobility Issues Due to Disability

(n=1253)



Disability was indicated as a mobility issue for 16% of respondents. Investments geared to provide improved access to B-Line bus stops may prove to be beneficial for this group, and are considered as part of the pedestrian planning component of this study.

Journey Specifics

Respondents were asked about the specifics of the journey they were making on the day they were surveyed. These questions provide information about the transportation needs that the bus service is used to fulfill, and also help provide an understanding of how the service itself is accessed.

Figure 5-9 Trip Purpose

(n=1482)

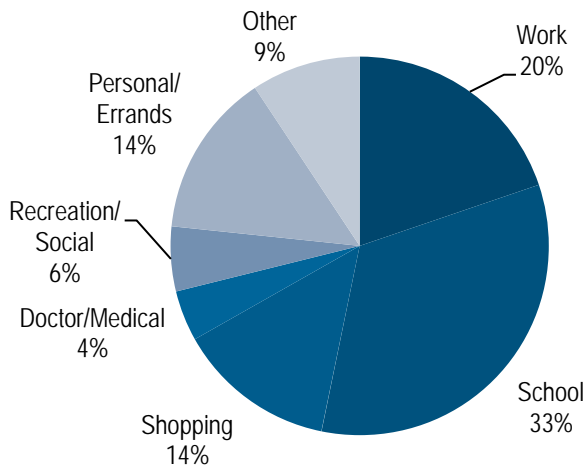


Figure 5-9 shows the primary trip purpose of surveyed passengers. The vast majority of trips were home-based, so the figure illustrates the various non-home origins and destinations indicated by passengers.

An origin or destination of school is represented by 33% of all trips. Work trips represent 20% of all trip purposes, followed by personal/errands at 14%. Shopping trips also accounted for 14% of all trips, and doctor or medical appointments for about 4%. The responses show that although many people perceive the vast majority of riders to be making college-bound trips, B-Line serves the full array of trip types made in Butte County.

Figure 5-10 Access to Bus Stop
 (n=1409)

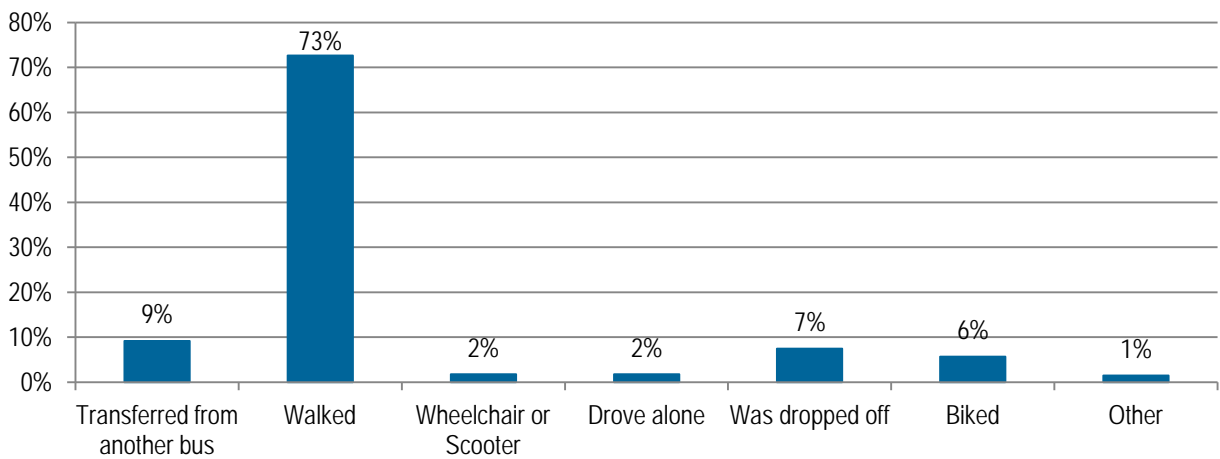
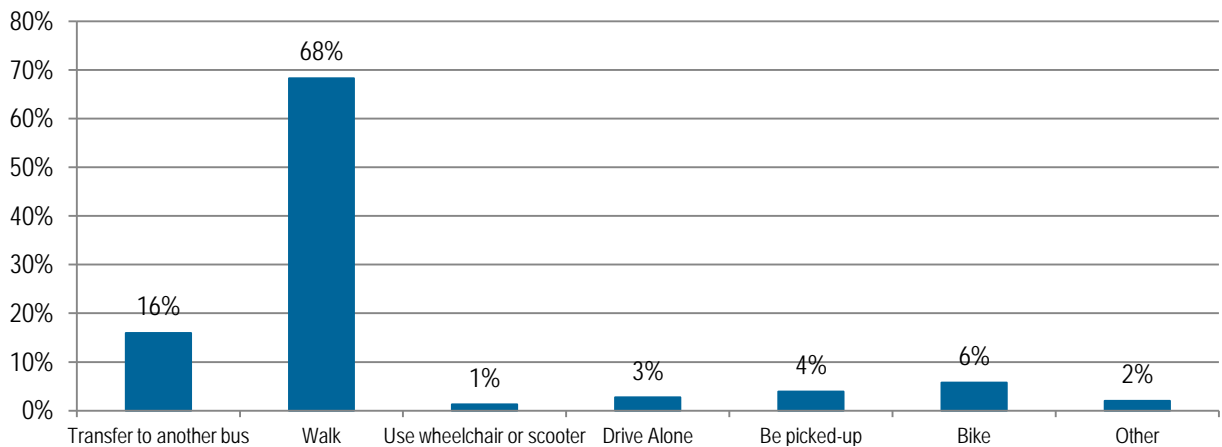


Figure 5-11 Access from Bus Stop to Destination
 (n=1389)



Respondents were asked how they got to the bus stop and how they got from the bus to their destination (Figure 5-10 and Figure 5-11). Most made the journey to and from the bus stop on

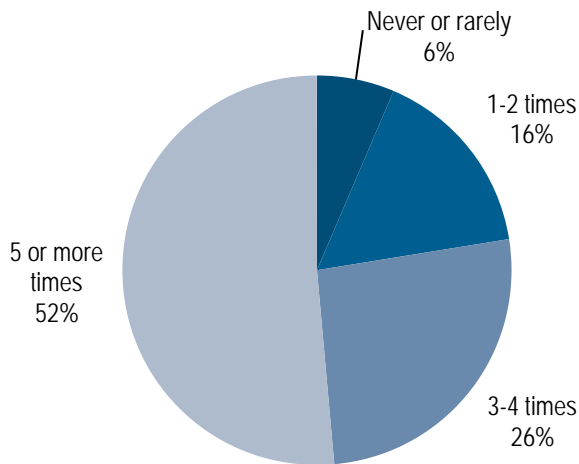
foot: the vast majority walked (68% to 73%). Between 9% and 16% completed their trip by transferring to another bus, while approximately 6% biked. Several stakeholders talked about the need for park-and-ride facilities, and the findings show indeed some people drive to catch the bus.

Bus Riding Habits

The survey sought to identify the reasons, usage patterns, and features that influence passengers to use B-Line service. Major conclusions derived from answers to this part of the survey are that most passengers are regular riders and most passengers ride B-Line because they do not have other transportation options.

Figure 5-12 How Often Do You Ride the Bus?

(n=1400)



As shown in Figure 5-12, most B-Line riders are regular users, with 78% riding at least three times per week. About one-third of riders began using the service in 2013 (Figure 5-13). Most transit operations that serve universities enjoy a high level of ridership from freshmen and other new students, which tends to taper off over time. This may account for the difference between people who began riding more recently and those who have been riding for more than one year. B-Line has also improved its image, in general, and offers significantly more outreach and information than it used to, which may also account for higher numbers of new riders. The goal will be to see how the agency can maintain these riders.

Figure 5-13 Year Began Riding B-Line Regularly
(n=1366)

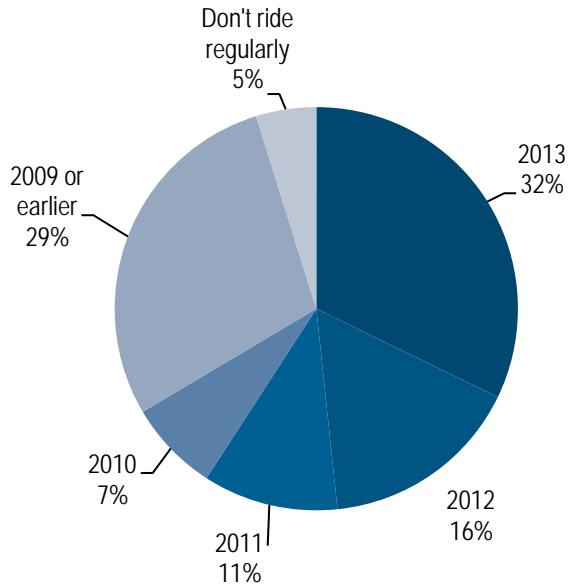
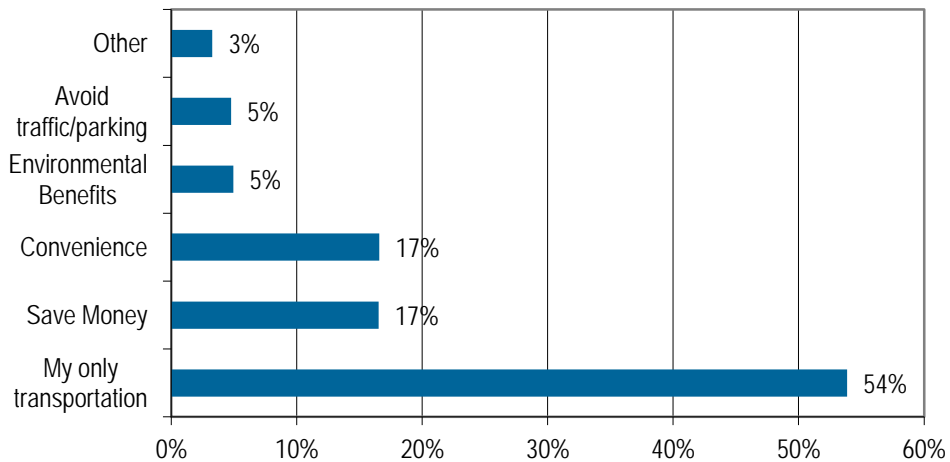


Figure 5-14 Main Reason for Choosing B-Line
(n=1615)



Respondents were asked to indicate their primary reason for choosing B-Line. Although the question was intended to obtain only one answer from respondents, various people cited more than one reason for choosing B-Line. For this question, all choices selected by each respondent were accepted. Most people chose to take B-Line because it was their only transportation option, and at least 74% of responses indicated that riders did not have access to a car for the trip they were making when they were surveyed (see Figure 5-15 below). B-Line's convenience and relatively inexpensive service were also significant reasons for passengers choosing to use transit.

Figure 5-15 Was a Car Available to You for This Trip?
(n=1341)

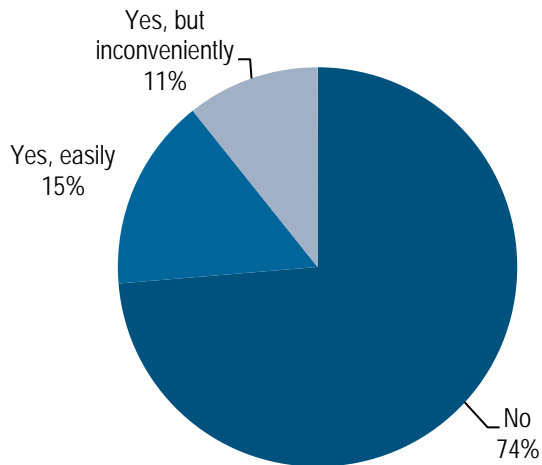
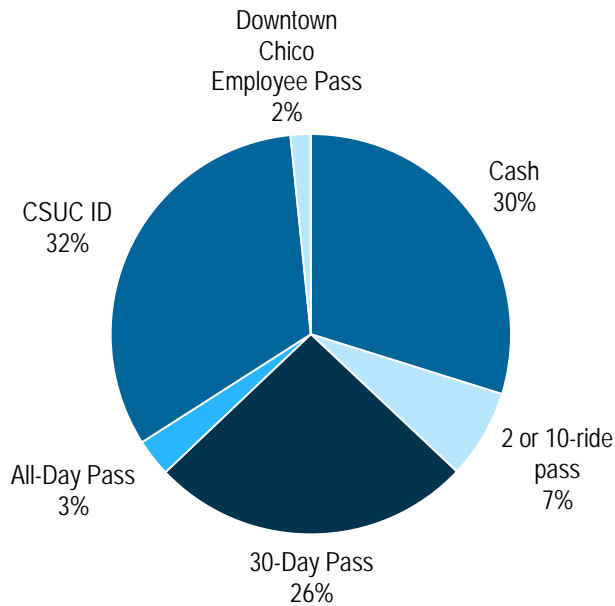


Figure 5-16 How You Paid Bus Fare Today
(n=1348)



Respondents indicated how they paid for their fare (Figure 5-16). A very small number of passengers (2%) used the Downtown Chico Employee Pass, while a majority of passengers used their CSU ID. Cash is an equally important form of payment for B-Line passengers overall. A breakdown between methods of payment and employment status (see Figure 5-17) shows that cash is used most often as a form of payment by passengers who are unemployed and are not CSU students.

Figure 5-17 Comparison of Payment Method and Employment Status

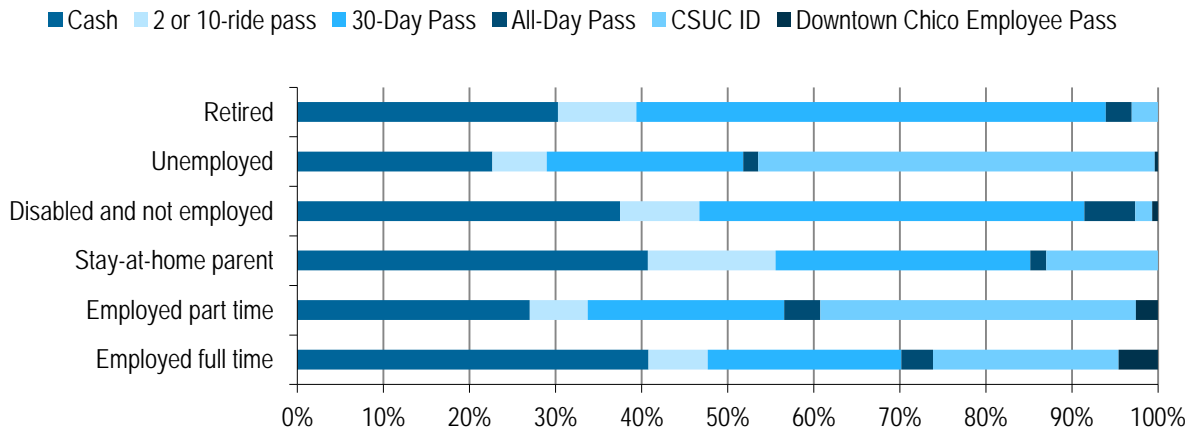


Figure 5-18 How You Get Information about B-Line Services

(n=1829)

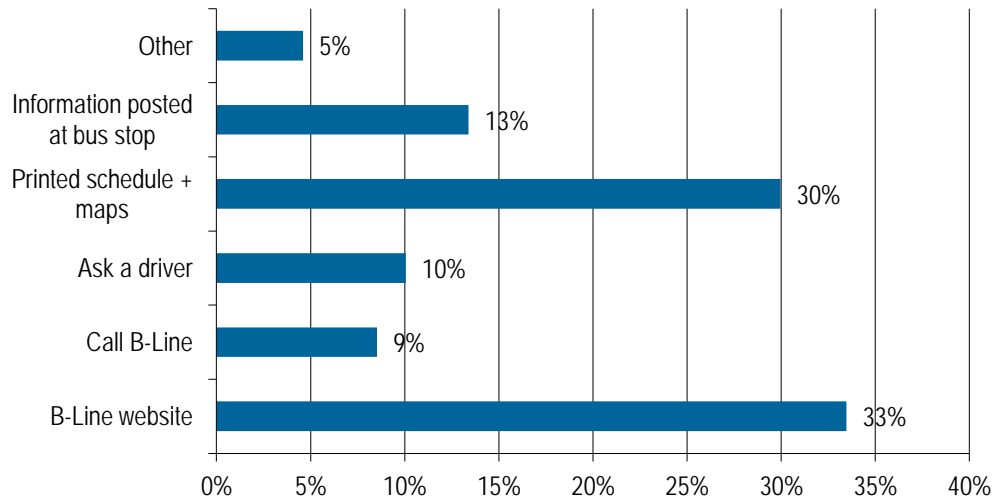
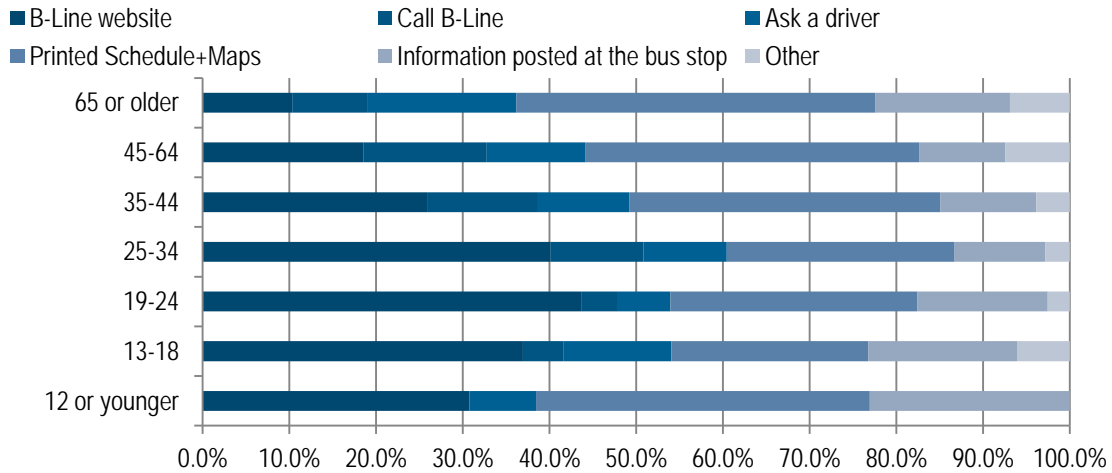


Figure 5-18 shows that most people obtain information about B-Line through the web or through the printed route maps and schedule. Respondents indicated other ways they gather information about B-Line, and many people wrote “friends and family” as an important source. More than one response was accepted for this question, which accounts for the high number of responses.

Delving deeper into the different factors that may impact how passengers obtain information about B-Line service, the following crosstab illustrates how different passenger age groups vary in the way they find information.

Figure 5-19 Comparison of Age and Method of Service Information Retrieval



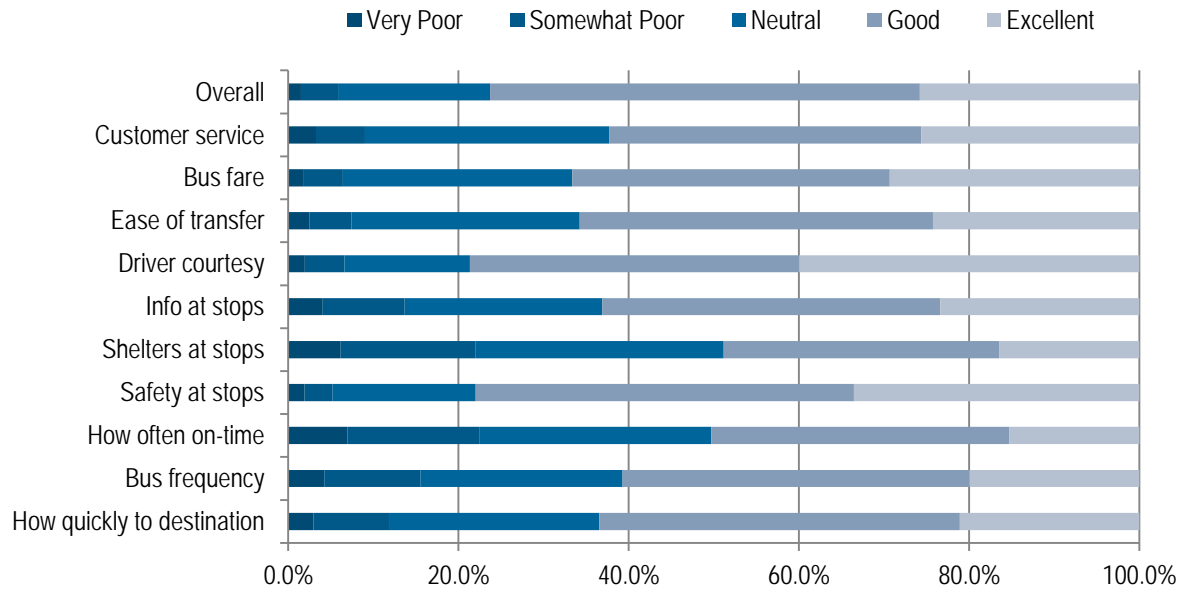
Significant numbers (between 30% and 40%) of individuals in the youngest age groups obtain information through the B-Line website, while greater numbers (between 10% and 26%) of older riders (older than age 35) acquire bus information through printed schedules and maps. This data illustrates the importance of using a variety of tools to provide information about services to riders, and emphasizes the importance of continuing to provide printed materials in the digital age.

Service Rating and Suggested Improvements

Overall, passengers are satisfied with B-line service, but seek more sheltered bus stops and better on-time performance. Other improvements sought by passengers include more frequent weekend and weekday service, as well as later evening weekday service. Respondents were allowed the option of writing additional comments about service enhancements they would like and “Sunday service” was a recurring response.

Figure 5-20 illustrates how passengers rated different aspects of the B-Line service.

Figure 5-20 B-Line Service Ratings



Most people ranked every aspect of the service as “good” or “excellent.” It may be more instructive to focus attention on the service features that received the most “neutral” and “somewhat poor” rankings when considering which investments to prioritize for improved service. “Shelters at stops” and “on-time performance” received a greater proportion of lower and neutral ratings of all B-Line service attributes.

Figure 5-21 shows which improvements people would find most effective, and Figure 5-22 illustrates preferred attributes based on how often an individual rides B-Line. The information is interesting because it shows very little variation between infrequent and frequent riders with regard to their transit service preferences. More frequent weekend service ranks highest among improvements sought by all passengers, followed by more frequent weekday service, more shelters at bus stops, and later weekday service.

Figure 5-21 Improvement Most Likely to Encourage More Frequent Use of B-Line
 (n=2153)

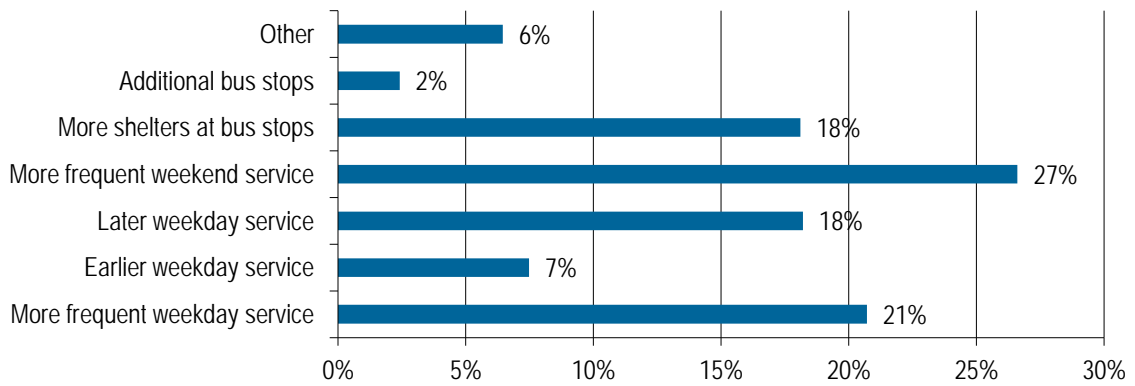
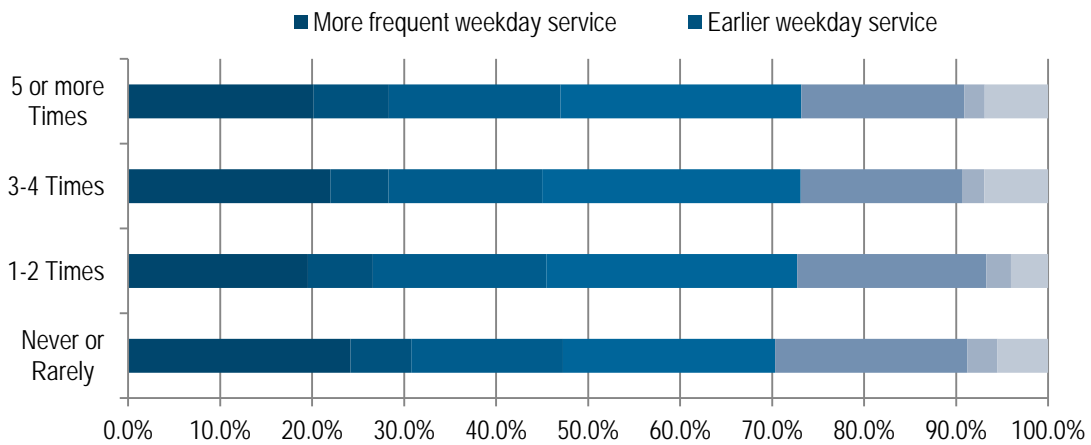


Figure 5-22 Which Improvements You Would Find Most Effective (Based on Frequency of Ridership)



Summary of Key Findings

The survey results indicate that B-Line is primarily used by commuters and students who are dependent on the service and who lack other transportation options. B-Line's focus should be on making the service appealing to a broad range of users, even in the presence of other transportation options.

Although the on-time performance data illustrates some significant challenges for the agency, consumers were relatively neutral about on-time performance. More frequent service was identified as a preferred service improvement, along with more shelters at bus stops, and later-running buses on weekdays.

GENERAL PUBLIC INTERCEPT AND ONLINE SURVEY

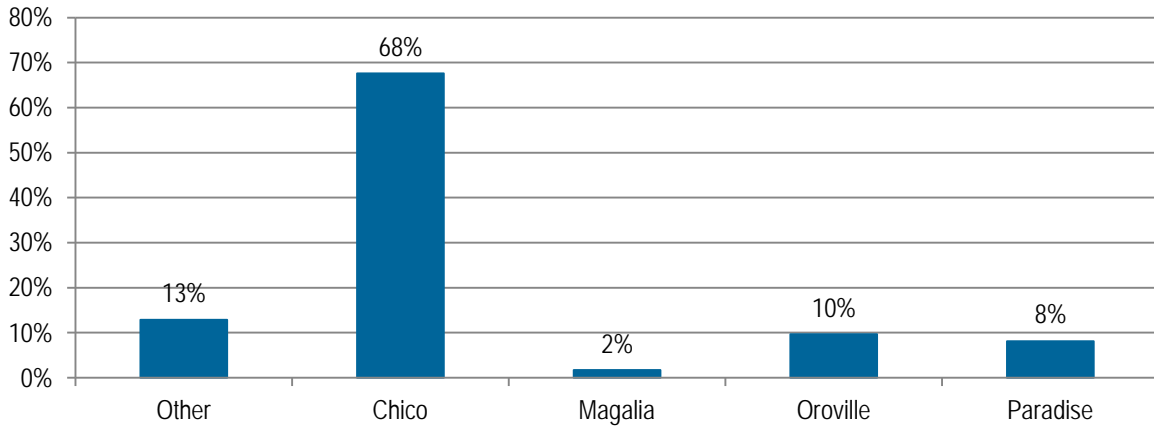
Methodology

Surveyors administered an in-person intercept survey as well as an online version of the survey. The purpose was to gather feedback from Butte County residents about all forms of transportation in the region, including transit, bicycling, and walking. Intercept surveys were primarily deployed on Sunday, September 22nd, with additional surveys administered during the following week. To ensure a large enough sample across the county, surveyors were located in downtown Chico, at the Oroville FoodMaxx shopping center, and at a special event in Paradise, the Paradise Family Festival. The online version of the survey was hosted for two weeks at buttetransportationsurvey.info. Surveys were available in English and Spanish. A link to this survey was sent by BCAG to a wide array of regional stakeholder groups in an effort to reach as wide an audience as possible. In total, there were 654 respondents for this survey, although the exact number of responses varies for each question. The survey questions are included in Appendix B.

Demographics

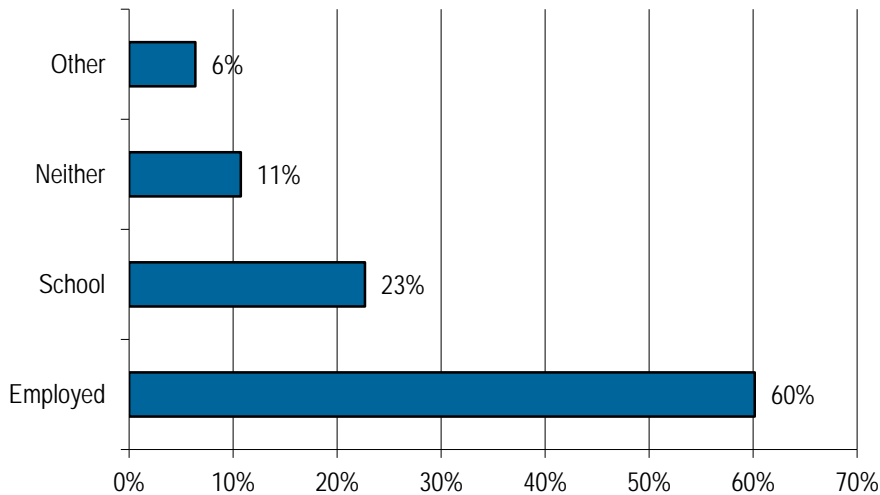
Several questions examine the general characteristics of the survey respondents. This information is valuable in understanding factors that may influence a respondent's preference and helps provide context to the overall survey results. An overview of the demographics of the surveyed population also plays a role in determining how effectively the surveyed pool represents Butte County as a whole.

Figure 5-23 City of Residence
(n=651)



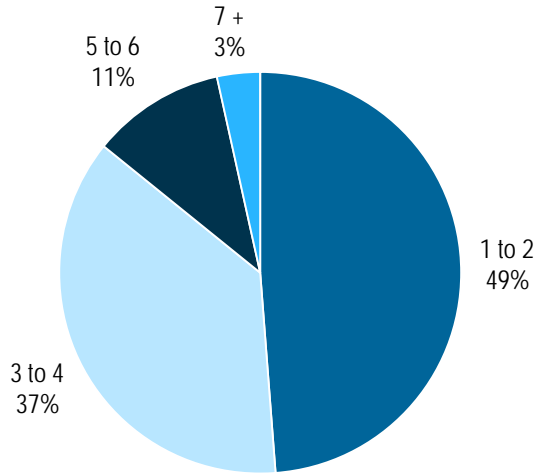
As shown in Figure 5-23 above, a majority of the survey respondents – about 68% – reside in Chico. Other Butte County cities are all represented among the survey responses.

Figure 5-24 Employed or In School?
(n=688)



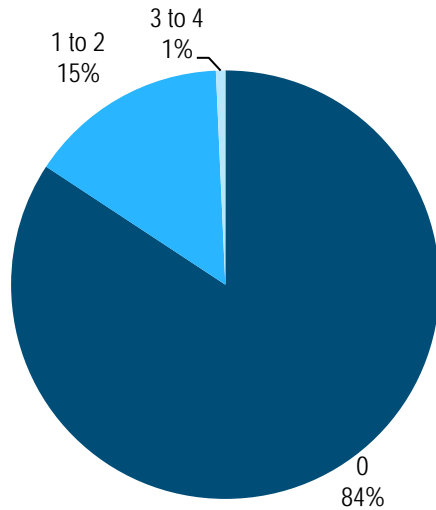
Respondents were asked whether they worked or went to class (Figure 5-24). Most of the survey respondents (60%) are employed and a smaller group (23%) are in school. There were several respondents who are both employed and in school.

Figure 5-25 Number of People in Household
(n=578)



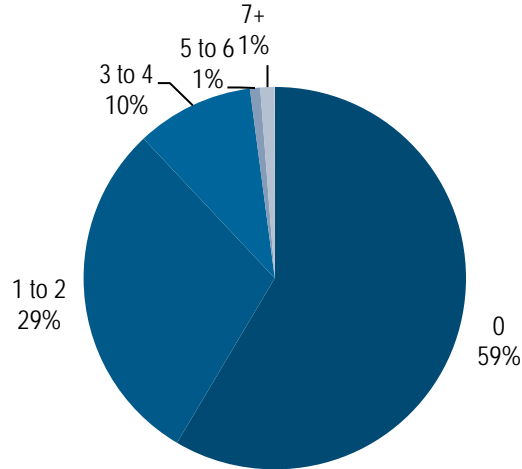
The average household size in Butte County, according to the US Census, is 2.5, and this number is reflected by the survey results. Most survey respondents live in small households, as shown in Figure 5-25: 49% live in a household consisting of 1 to 2 people and another 37% live in household of 3 to 4 people.

Figure 5-26 People in Your Household 65 or Over



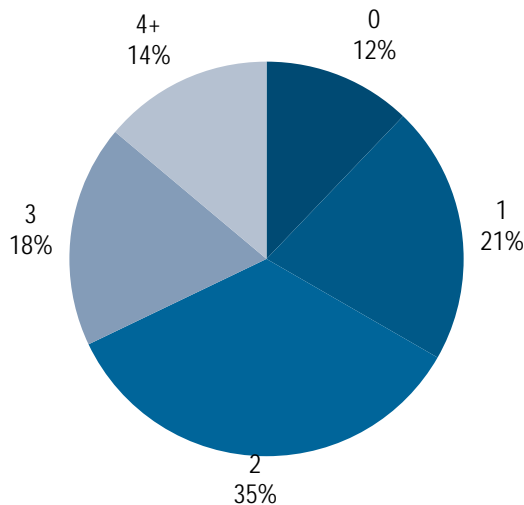
As shown in Figure 5-26, most respondents, about 84%, did not live in a household with anyone 65 years or older. According to the most recent American Community Survey data, persons 65 and older constitute 15.8% of the population, which is reflected by the survey demographic data.

Figure 5-27 People in Your Household 18 or Under
(n=574)



More than half of all survey respondents, about 59%, live in a household without anyone 18 years or younger, while about 29% of respondents live in a household with one or two individuals that are 18 years old or younger (Figure 5-27). According to the most recent American Community Survey data, youth under the age of 18 comprise 15.2% of the overall county population.

Figure 5-28 Number of Automobiles in Household
(n=576)



Approximately 88% of survey respondents live in a household with at least one automobile and 56% percent live in household with at least two automobiles (Figure 5-28). About 12% of people

who took this survey lived in a household with no automobiles. According to Census data, about 8% of households do not have vehicles, so this population is just slightly overrepresented by the survey demographic.

Figure 5-29 Annual Household Income
(n=536)

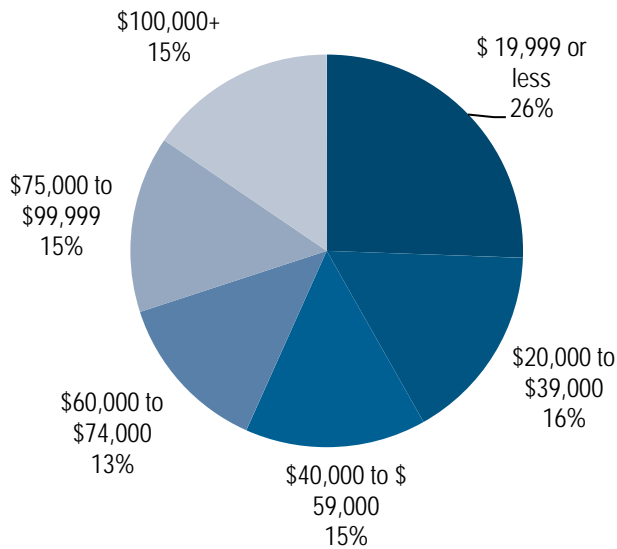


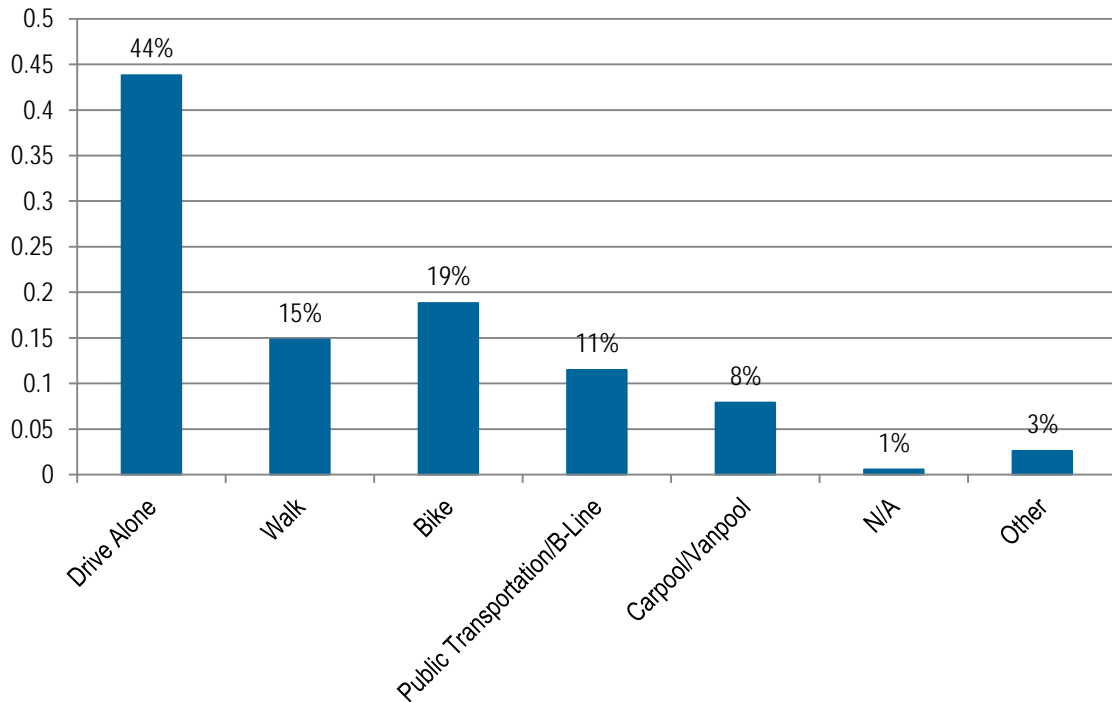
Figure 5-29 illustrates the annual household income of survey respondents. This question had a high number of blank responses; approximately 18% of survey respondents did not answer the question. Of those who answered, the figure shows that various income levels are almost equally represented by the survey respondents. About 26% of respondents fall in the lowest income category, \$19,999 or less, a slightly greater figure than the number of respondents associated with the rest of the income categories. A large proportion of these individuals were found to be students, based on a crosstabulation of the data.

Transportation Options and Preferences

A portion of the survey gathered answers about individual transportation preferences and habits of the respondents.

Figure 5-30 Primary Mode of Transportation

(n=696)



Respondents were asked to indicate their primary mode of transportation, as shown in Figure 5-30. Although this question asked for a single response, some respondents chose more than one answer. The analysis summarized in the chart above allows for more than one answer from each respondent. The survey results show that driving alone is the dominant transportation choice for 44% of survey-takers, substantially leading bicycling (19%) and walking (15%), the next most popular choices, respectively, but which are also somewhat overrepresented in this survey population in comparison with general public characteristics. As shown in the figure above, public transportation ranks below biking, walking, and driving alone, which is reflective of Butte County mode choice.

To investigate whether household income had an impact on primary mode choice preferences, the crosstab shown in Figure 5-31 was developed, showing that people from lower-income households walk or take public transportation to work/school in much greater numbers than people who fall in other income categories. All other income ranges had primarily people who drive alone to work/school.

Figure 5-31 Primary Mode by Household Income

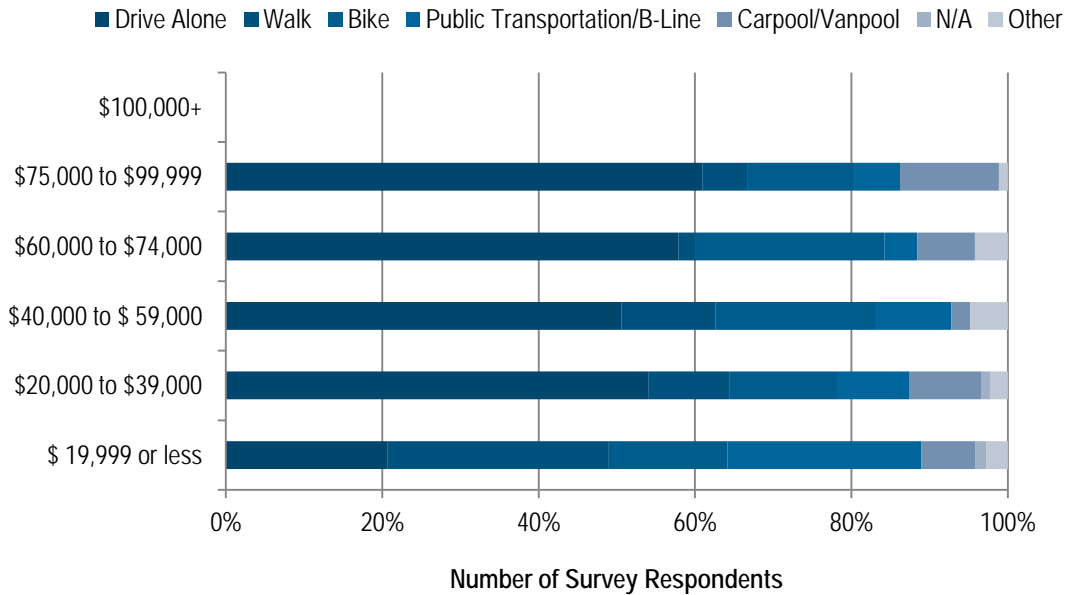
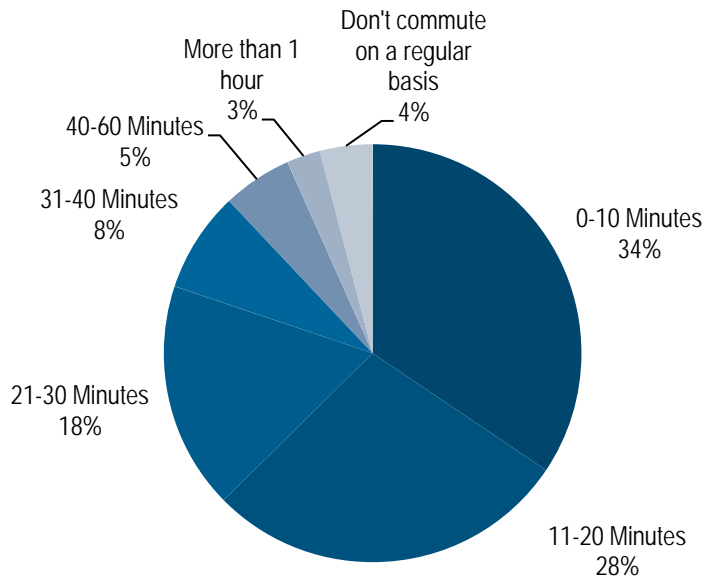


Figure 5-32 Travel Time for Home to School/Work
(n=540)



Respondents indicated the length of time it takes them to commute to work or school. The largest group of people who took this survey (34%) reported their trip from home to school/work as somewhere between zero and ten minutes long. Fewer and fewer people are associated with increasing trip times.

Figure 5-33 Primary Mode Choice and Home to Work/School Trip Time

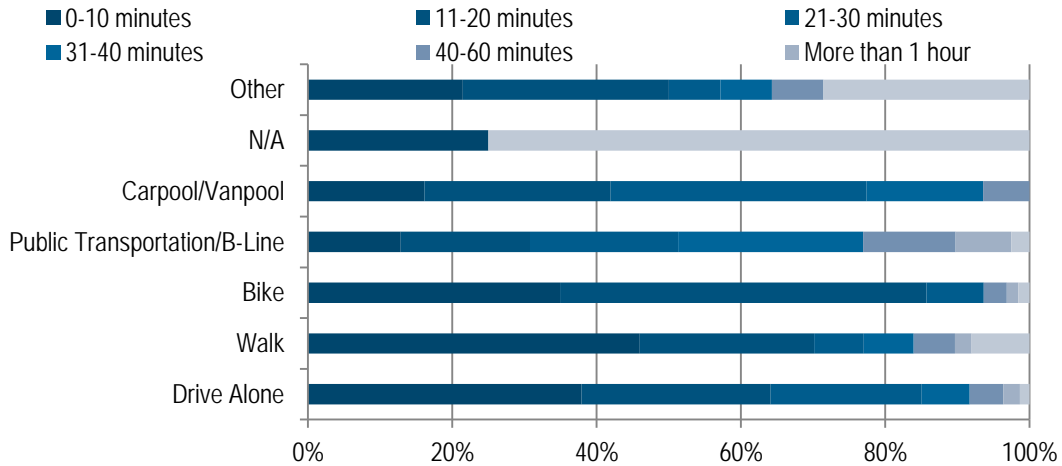
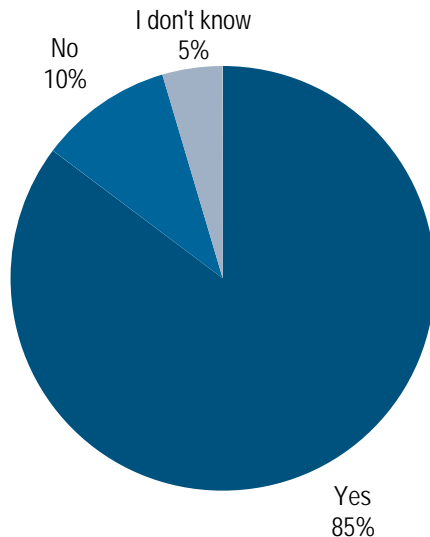


Figure 5-33 shows how primary mode choice and home to work/school trip times affect another. The majority of the people who walk spend 0 to 10 minutes on their commute: most of the people who walk do so because of proximity to their school or work destination. The figure shows that a greater percentage of bicyclists spend 11 to 20 minutes on their home to school/work trip than walkers or drivers, which is the amount of time for a bicyclist to travel just a couple of miles. The largest group of people identifying public transit as their primary mode of transportation spend 31 to 40 minutes on their trip to work/school.

Figure 5-34 Does Public Transportation Serve Your Community?

(n=631)



Respondents were asked whether public transportation as available in their community. Most said it was, suggesting great knowledge of the availability of transit in Butte County. Fully 85% of survey respondents acknowledge that public transportation is present in their community. The bulk of those who said public transportation did not serve their community said they would consider transit if it was available to them.

Figure 5-35 Used Public Transportation in Past Six Months?
(n=607)

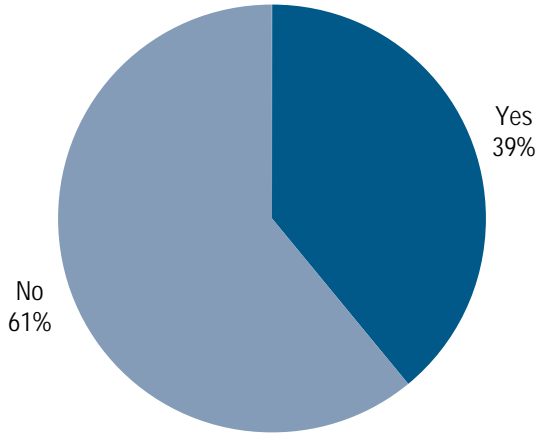


Figure 5-36 How Often Do You Ride Public Transportation?
(n=277)

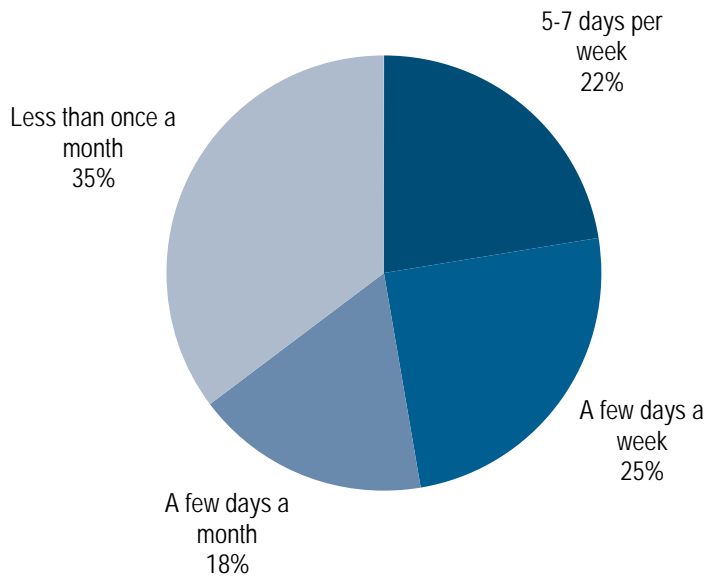


Figure 5-37 Which Public Transportation Services Have You Used?
(n=241)

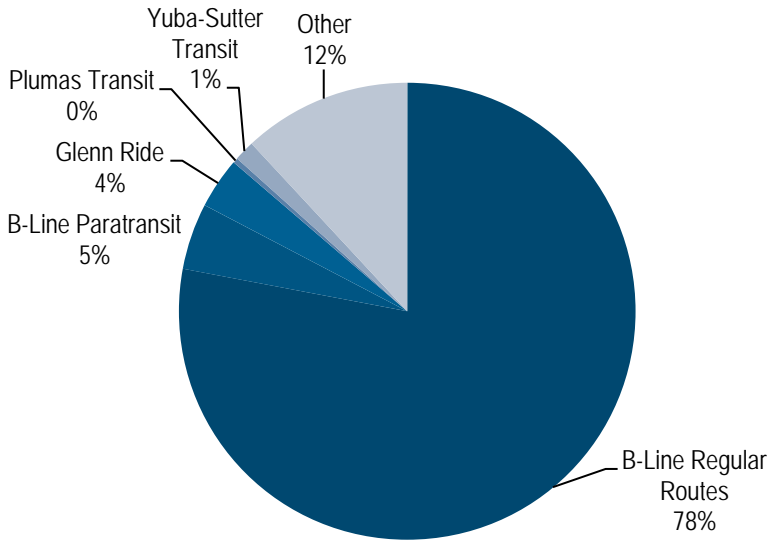
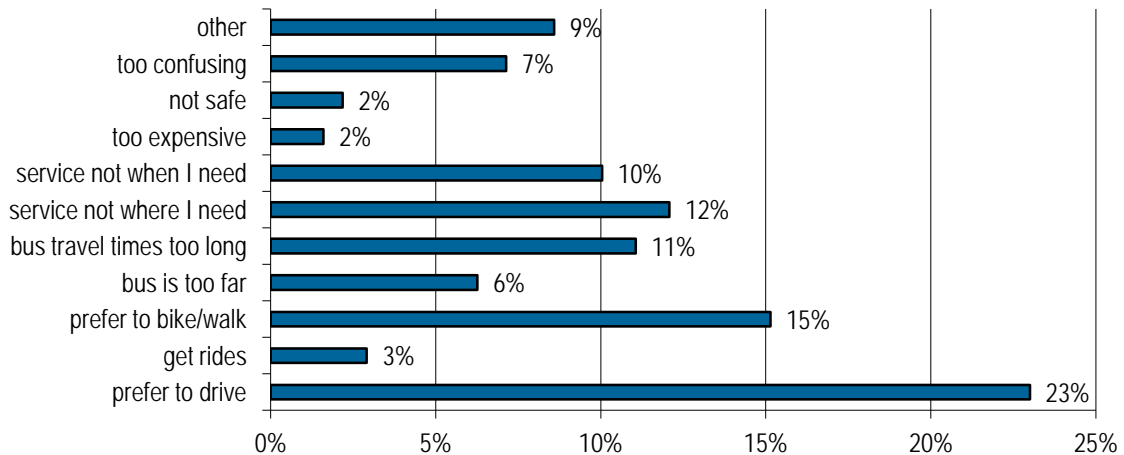


Figure 5-35, Figure 5-36, and Figure 5-37 provide information about transit use. More than half of the survey respondents said they had not used public transportation in the past six months, and 35% of those who had taken transit said they used it less than once a month. Among the various transit providers listed, B-Line service was by far the most popular among those who reported public transportation usage in the past six months (78%), but other transit providers were also indicated by respondents.

Figure 5-38 Why Have You Not Used Public Transportation?
(n=687)

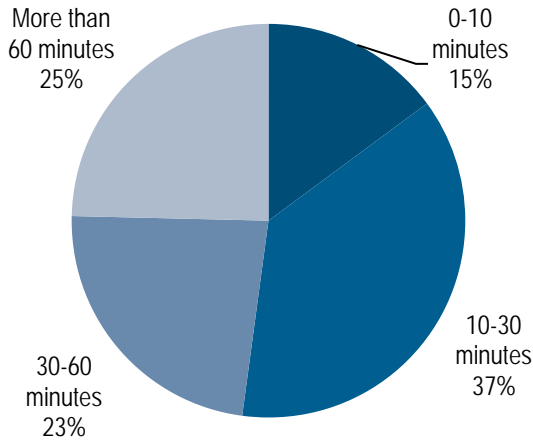


When non-transit users were asked why they had not used transit (Figure 5-38) 23% cited their preference to drive as the main reason. About 33% of the responses cited bus service-related

issues as reasons for not using public transportation: long travel times via buses, inaccessible service, and poor service times were the main reported issues concerning B-Line service. The graph illustrates an important observation about people’s transportation preferences: other than driving, the findings are that walking and biking are the preferred alternatives for a majority of the people – reinforcing the observation in the “Primary Mode of Transportation” chart shown in Figure 5-30.

Figure 5-39 Minutes Spent Walking on an Average Day

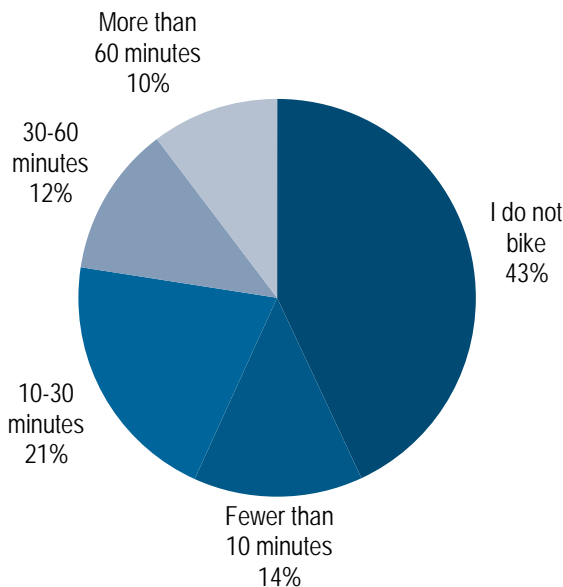
(n=585)



The survey asked individuals to indicate how much time they spent walking and biking outdoors on an average day. Most of the survey respondents (37%) reported that they walk between 10 to 30 minutes outdoors on average, and about a quarter of the survey respondents walk more than 60 minutes on an average weekday (Figure 5-39).

Figure 5-40 Minutes Spent Biking on an Average Day

(n=581)



Nearly half of the survey respondents said they do not bike at all on an average weekday (Figure 5-40). Roughly a quarter of respondents said they bike about 10 to 30 minutes on an average weekday.

Issues and Recommended Improvements

The survey analysis highlights the needed improvements/problems identified by the survey respondents to provide insight into which public transportation investments are likely to be most effective.

Figure 5-41 Which Factors Would Encourage More B-Line Usage?

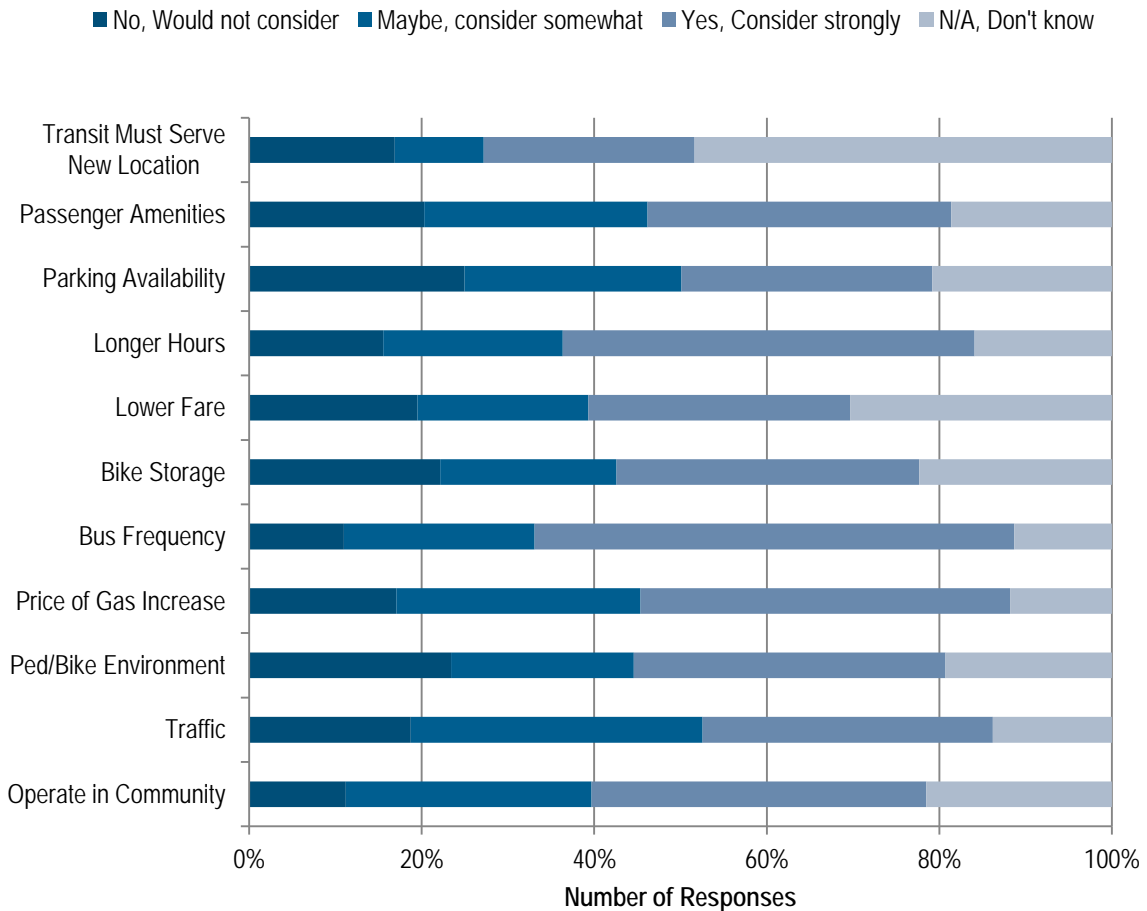
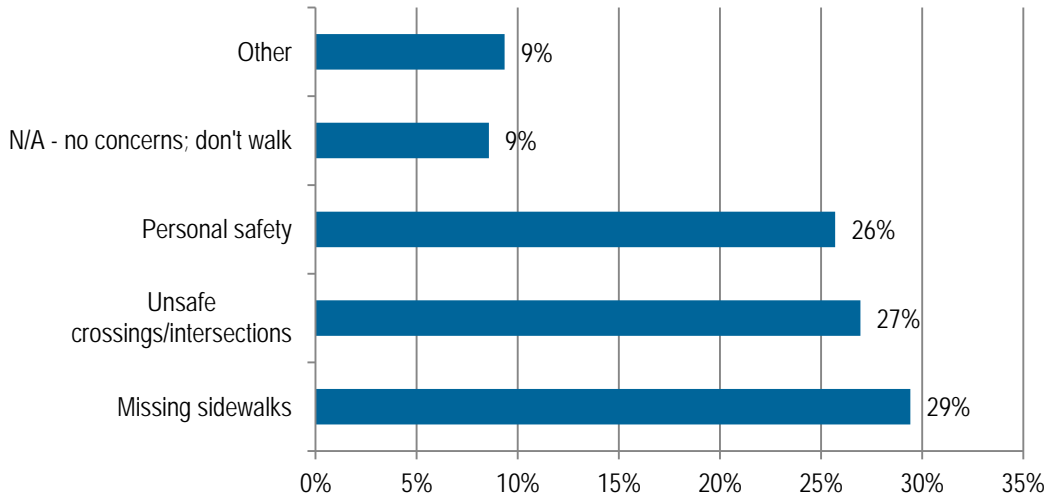


Figure 5-41 illustrates what respondents said would encourage them to ride B-Line more often. Bus frequency (which reflects what current riders indicate), longer service hours, and the price of gas hold the greatest potential to encourage greater patronage of B-Line. Approximately 25% of respondents indicated that increased parking around the bus stops would not induce them to use B-Line more often. In the free response portion of this question in the survey, respondents listed a broad range of locations and voiced general concerns about lack of direct routes and inconsistent on-time performance of the existing B-Line service.

Figure 5-42 Primary Issues for Pedestrians
(n=887)



Respondents also noted their primary concerns as pedestrians (Figure 5-42). Missing sidewalks, unsafe intersections, and safety were closely ranked high as the primary issues for pedestrians. Respondents also provided information about specific intersections, sidewalk segments, crosswalks and other items that they identified as problematic that were considered in the development of recommendations in Chapter 8.

Figure 5-43 Primary Issues for Bicyclists
(n=421)

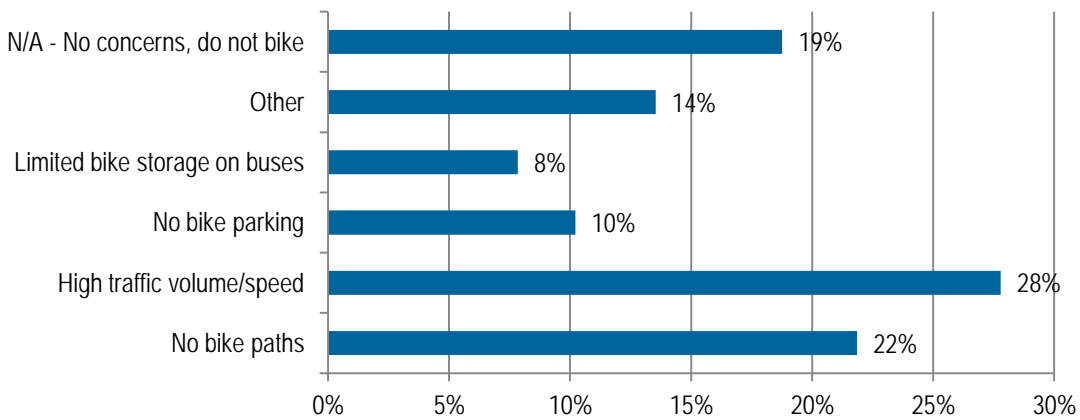


Figure 5-43 shows that the primary issues for bicyclists are the high volumes and speed of traffic, and lack of bike paths or lanes. For many – about 19% of respondents – there were no concerns cited, due to the fact that a great number of the survey respondents do not bike. As with pedestrian improvements, bicyclists offered advice on road segments and bike paths that require improvements and that were considered in the development of alternatives in Chapter 8.

Key Findings

Despite the fact that 85% of survey respondents said public transportation served their community, the majority of people (44%) said their primary mode of transportation for making the trip from home to school/work was driving alone. The intercept survey results offer several reasons for why “driving alone” is preferred over other modes of transportation.

According to the survey, 67% of respondents have at least two automobiles in their household. This suggests that survey respondents have fairly good access to automobiles within their households. Sufficient access to automobiles coupled with bus service that does not necessarily address respondents’ preferences (33% of respondents cited service-related issues as reasons for not using public transportation) is certainly a reason for the lack of mode diversity.

Most people who took this intercept survey made their trip to school or work within 20 minutes, but people who took transit spent 31-40 minutes on their trip to school or work, illustrating that public transportation may result in a longer commute for many people. Nevertheless, many of the people who drive may not have considered the time it takes to find parking or walk from their parking space to their destination.

The greater usage of public transportation by survey respondents from lower-income households corresponds with the finding of the onboard survey: the majority of the people currently using public transportation do so because it is economical or because they have few other options.

The most frequently identified issue reported by pedestrians was a lack of sidewalks. Respondents also noted unsafe crossings or intersections and personal security concerns. Individuals frequently expressed concerns with driver behavior, weather conditions, or deteriorating or poorly maintained sidewalks.

STAKEHOLDER DISCUSSIONS

Through a series of one-on-one interviews with representatives from BCAG member jurisdictions and other key stakeholders who are knowledgeable about transit and non-motorized transportation issues in Butte County, a number of major themes emerged.

It is important to be aware of these perceptions for a number of reasons. First, they allow the consulting team to supplement document review and technical analysis which the team might not otherwise be aware of, and are important to understand if community priorities are to be understood. Second, they can help ensure that the Transit and Non-Motorized Plan ultimately reflects community values and concerns, and is capable of achieving consensus. Finally, they can serve as a source of creative inspiration and ideas for both short and longer-term improvements. For all of these reasons, it is important to speak early in the study process with a broad range of stakeholders representing a diversity of viewpoints and different segments of the community.

Stakeholders

Approximately one dozen individual stakeholder interviews, generally lasting between a half-hour and an hour apiece, were conducted by phone in October and November of 2013.

All stakeholders who were contacted chose to participate. Participants represented a cross-section of experts, community leaders and advocates, and included:

- Ken Albright, Director, Facilities, Planning & Management, Butte College
- Fletcher Alexander, Sustainability Coordinator, Chico State University

- Dan Breedon, Principal Planner, Butte County Department of Development Services
- Scott Friend, Planner, City of Biggs
- Armen Kamian, Planner, Butte County Air Quality Management District (AQMD)
- Marc Mattox, Planner, Town of Paradise
- William Modine, Planner, Butte County Department of Employment and Social Services
- Steve O'Brian, Pullins Cyclery
- Janine Rood, Planner, Chico Velo Bike Club
- Don Rust, Director of Community Development, City of Oroville
- Rick Walls, Interim Traffic Engineer, City of Oroville
- Mark Wolfe, Director of Planning, City of Chico

Major Transportation Challenges

A common theme expressed by many stakeholders is that traveling by car is the dominant mode of travel given the county's low density and long distances many residents need to travel to reach their destinations. Many expressed that it is challenging to develop convenient alternative transportation options especially in the outlying communities. For example, according to one stakeholder, anecdotal evidence suggests that about 85% of students travel by car to get to Butte College because it is located about 15 miles from the nearest town. While B-Line has a route that travels near the college, the bus makes a special stop only by request. The College has its own bus service and carried about 2,000 riders a day.

Meeting the transportation needs in the county is further challenged because many residents want to travel to Chico and to a lesser extent to Oroville from communities scattered throughout the county including Paradise, Gridley, Cohasset, and Feather Falls. With many of the employment, retail, medical and educational opportunities located in Chico and the county offices in Oroville, residents living in outlying areas without access to automobiles have trouble getting there. Other residents who live in Chico need to travel short distances within town.

Stakeholders noted that many jurisdictions are in the process of updating their general plans and climate action plans, and transportation options are being more seriously considered, consistent with the new direction throughout the state. For example, higher density and less dispersed development are being encouraged to reduce the need for long distance travel and make it easier to support transit use.

Major Strengths and Weaknesses of B-Line Service

When asked about the strengths and weaknesses of the B-Line, many stakeholders acknowledged that they did not have firsthand experience with the service. Some respondents said they had not ridden the service themselves, but were speaking for friends and family who regularly use B-Line service or were commenting about what they heard from their constituents or colleagues.

Some stakeholders commented that the image of the B-Line has improved over the years with the attractive new buses which have given the service greater visibility in the community. Other stakeholders thought that the basic commuter routes work well and that the Park-and-Ride lot located at Highway 99 and 32 is heavily used. One stakeholder said that he noticed that the lot is typically full on most weekdays and that it can be difficult to find a parking space. According to stakeholders, Route 20, which runs between Chico and Oroville, is nearly at capacity in both the morning and evening runs and there is occasional overcrowding and standing room only.

Another positive attribute of the service is the Oroville Transit Center that opened two years ago. It was highly praised for its creative design and for improving the downtown area. However, some felt that it is unfortunately attracting homeless people, which could potentially be mitigated by reducing shrubbery in the immediate surrounding area.

A few stakeholders commented on B-Line fares. They are aware that fares are going up in January 2014 with the regional pass increasing to \$48. While they were not complaining about the fare hike, they were noting that it would be nice to bring back the subsidy previously offered to county employees to help encourage greater transit usage.

Weaknesses of B-Line

Stakeholders offered relatively few weaknesses about B-Line service. A few comments were made about B-Line routes not covering enough of the neighborhoods outside of downtown Chico. While many stakeholders thought downtown Chico is well served, the routes do not adequately serve the secondary arterials which means people have to walk long distances to access a bus stop. While overall comments about Route 20, which runs between Chico and Oroville, were positive, a few stakeholders noted that the vast majority of riders want to travel between Chico and Oroville as quickly as possible, so express service would be desirable.

The stakeholder from CSU explained that there was a large meeting on campus in October that focused on transportation with considerable discussion about B-Line. He said that a major issue voiced by students is that they are experiencing difficulty in understanding the service schedule. He said they are “overwhelmed trying to make sense of the schedule,” especially the younger students who are not accustomed to riding buses and reading transit maps and schedules. In some cases, students who want to ride the bus are not doing so because they cannot navigate the system.

One stakeholder said the Butte County Employment and Social Services Department located at 2445 Carmichael in Chico is not directly served by B-Line, although it is actually served by Route 15.

A few comments were made about bus shelters that are not properly maintained and about limitations in the sale of B-Line of tickets and passes in Paradise.

Regarding B-Line Paratransit

Very few stakeholders had experience with B-Line Paratransit and some were totally unaware of the service. One stakeholder thought that there needs to be more information about the service to let people, especially seniors and people with disabilities, know it exists.

A few comments were made about seniors who live in rural areas and no longer drive and need to travel to Chico and to a lesser extent to Oroville for medical appointments. They thought that these trips could be served by B-Line Paratransit even if on a “lifeline” schedule.

Potential Transit Markets

When asked about potential new markets, a common theme was that that several small and outlying communities within Butte County are not served by public transit, such as Forest Ranch, Durham, Bangor, and Cohasset. Many stakeholders observed that there is no connecting bus service further south than Gridley and that there is no B-Line-operated service to neighboring Yuba and Glenn counties. Several stakeholders suggested that service between Glenn and Butte

counties could serve students as well as commuters who work in Orland, a service which actually is available, although not operated by B-Line. Repeatedly, stakeholders noted that there is no commuter service between Chico and Sacramento, nor is there service to Sacramento Airport. One commenter said that since there is a shift in summer travel habits, there could be a market for people wishing to get to the Forebay Aquatic Center north of Oroville that could operate from April 1 to October 1.

While nearly all stakeholders acknowledged that students at the high school and college level are an important market and seem to be fairly well served, some commented that the B-Line does not do a good job of serving CSU students for trip purposes other than to and from school. For example, the perception is that for students who want to go to the mall, grocery stores, parks or other destinations beyond downtown Chico, B-Line does not serve them well. Butte College was cited as another example, because students attending the college who come from Glenn County have limited options for getting to the school.

Short-Term Priorities

Stakeholders were asked to identify their top three priorities for improving transit services in Butte County in the next three years. Increasing headways on B-Line Service, providing service and connectivity to outlying and unincorporated communities, and improving facilities were the top priorities expressed by a majority of stakeholders. Another priority was how to help students navigate the service and schedule information, and restructuring of services to better serve secondary streets and destinations beyond downtown Chico. The specific suggestions under each category are summarized in Figure 5-44.

Figure 5-44 Short-Term Priorities for Improving Regional Transit Services

Frequency Improvements	Infrastructure and Information Improvements	Service to outlying communities
<ul style="list-style-type: none"> ▪ It would be ideal if people could travel anywhere in the county without having to wait more than 15 minutes for a bus ▪ If B-Line operated with 15-minute headways, especially in Chico, this high level of service would capture more ridership ▪ In Chico, folks want more frequent service – 15 minute headways would be ideal! 	<ul style="list-style-type: none"> ▪ The Park-and-Ride at Highway 32/99 is very crowded and sometimes no spaces available for autos creates problems for patrons who worry they may get towed. New convenient locations should be explored for Park-and-Ride lots. ▪ Proper infrastructure is needed in Paradise; a formal transit center like one in Oroville and/or a Park-and-Ride to formalize the location where people access the B-Line ▪ Many of the bus shelters are in bad condition; they should be cleaned up! 	<ul style="list-style-type: none"> ▪ We need to make sure that people can get to work and for social service purposes in Chico and Oroville from several communities throughout the county ▪ CSU students need routes that will take them to other parts of town such as shopping malls, movie theatres, etc. ▪ Many people in small communities don't know about transit service; the lack of service prohibits discussion of short-term needs ▪ Routes also need to serve secondary streets, not just main streets

Longer-Term Transit Needs

When asked about long-term priorities, there were few responses. A few stakeholders talked about the demographic shift in the county as the population ages there will be an increase in demand for both fixed routes and paratransit services. At the same time, the younger generation is driving less and will be looking for higher levels of fixed-route service. Other comments were about service extending beyond Butte County in all directions, serving Sacramento, Yuba and Glenn counties. Finally, one stakeholder thought that in the longer-term when B-Line replaces its bus fleet, it should consider hybrid buses and coordinate bus procurements and supporting facilities with other entities such as the College, University, and local jurisdictions.

Bicycle Network and Connectivity

A common theme was the desire for completing and funding the bicycle network in the county. Many stakeholders lamented that Bicycle Plans are in place yet the network is piecemeal because there is inadequate funding to complete it. A high priority expressed by several stakeholders is the need for more bike lanes and bicycle connectivity. A few specific quotes are as follows:

- The Esplanade is terrible for bicyclists. There are no bike lanes and the road surface is cracked and uneven. There are stop sign at every intersection and cyclists have to cross many busy streets.
- Mangrove Avenue is a problem area because there is no shoulder or bike lane.
- Bike lanes adjacent to the railroad tracks near the university campus are dark and unsafe. These lanes should be downplayed and cyclists should be encouraged to use other bike lanes.
- The Memorial Trail is multi-use trail and considered a great asset in Paradise but connectivity is needed.
- Pedestrian and bicycle circulation improvements are underway on the west side from Nord to Warner. Currently, this is a very unsafe crosswalk with no traffic light.

Bicycle-Related Issues and Concerns

Safety was mentioned as a huge concern for all stakeholders and nearly all participants spoke about two recent fatal bicycle accidents. Because of these tragic incidents, cycling has taken on a higher profile and more visibility in the county. Many stakeholders claimed, “Now is the time for a big push in educating the public about bike safety.” Some stakeholders suggested education is needed at elementary schools and others would like to see expanded programs to provide helmets to school age and college students. Safety improvements are needed in downtown Chico and around the university, along with clear lane delineation, better signage, and lighting to improve bike safety in Chico and elsewhere in the county. According to one stakeholder, “We need to build separate bikeways and walkways, to separate cycling from vehicular traffic.”

A few stakeholders explained that incentives to increase cycling are included in their updated general plans. These include adding outdoor covered bike parking at select locations and providing space for bicycles at residential complexes. According to some stakeholders, a few jurisdictions now require developers to provide bike parking and that these requirements should be expanded to large employers, institutions, and others in keeping with the growing bicycle culture in Butte County.

When asked if there are ways to encourage more people to walk and ride bicycles in Butte County, several suggestions were offered and are listed in Figure 5-45 below.

Figure 5-45 Strategies for Increasing Walking and Biking

To encourage more people to bike	To encourage more people to walk
<ul style="list-style-type: none"> ▪ Amenities along the trails are needed to promote bike usage ▪ Let's try bike sharing like other cities such as Portland and San Francisco ▪ Provide better and more bike parking including a bike station and/or lockers at the Park-and-Ride lots, employment sites and other locations ▪ Increase distribution of bike maps ▪ Improve signage for cyclists and motorists to increase safety for everyone 	<ul style="list-style-type: none"> ▪ We need sidewalks in our community ▪ Expand Safe Routes to School program at the elementary and middle schools ▪ Educate parents to enhance safety on pedestrian and bike paths ▪ Increase education and enforcement so everyone feels safer

Essential Elements to Support Plan

Stakeholders were asked to identify the necessary elements to support the Transit and Non-Motorized Plan. Two themes emerged:

- **Funding.** Most stakeholders acknowledged that there might not be adequate funding to cover all desired transit and non-motorized improvements recommended in the Plan. Projects should be prioritized and opportunities and strategies identified for increasing funding such as developer impact fees and other innovative ways to maximize funding in the long-term.
- **Consistent Policies.** Several stakeholders mentioned that they are in the process of updating general plans and climate action plans. These important planning documents include policies and action plans that encourage more dense development, greater use of sustainable forms of transportation and other strategies to reduce greenhouse gas emissions. It is essential for this Transit & Non-Motorized Plan to support, advance and be consistent with the policies in these complementary planning documents.

CONCLUSION

The surveys and stakeholder interviews provide valuable input for the planning process and approach for building more sustainable communities in Butte County. They show similar issues as being important to multiple groups, including bicycle safety, improved transit headways, and a comprehensive approach to linking Butte County's various jurisdictions, all of which are elements of a strategic approach to growth. They suggest that the public has a strong interest in options to driving: improved transit services and safer bicycle facilities can help to spur a mode shift to reduce overall VMT and cultivate an interest in multimodal, environmentally sensitive transportation solutions. Although the data presented in this chapter does not gauge overall public support to fund solutions to reduce GHG emissions (through a tax measure, as an example), it suggests that there is ample knowledge of and demand for investments to improve the services that exist today.

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6 VISION FOR TRANSPORTATION SERVICES IN BUTTE COUNTY

INTRODUCTION

The Butte County MTP/SCS for 2012-2035 (adopted December 13, 2012) sets out goals for the transportation system, based on a vision of an efficient and environmentally sound multimodal system to meet the established targets. Key objectives of the 2012 MTP/SCS are to improve accessibility and reduce environmental impacts by promoting bicycling, walking, and expanding transit service where possible to meet ridership demand and increase ridership at a rate faster than the county's population growth. The outcome of this planning process is to provide Butte County with a Long-Range Transit and Non-Motorized Plan focusing on bicycles, pedestrians, and transit for integration into the region's 2016-2040 MTP/SCS.

In order to define goals, objectives and performance standards for transit that can be integrated into the region's new 2016-2040 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS), any service changes should be based on a framework of formally adopted or recommended policies, practices and procedures consistent with both best practices in the transit industry and local conditions. Goals and objectives are presented to establish policy direction to address B-Line's challenges. This chapter highlights recommendations for new practices and policies for B-Line. These are described briefly. Performance standards support the goals and objectives, allowing B-Line to better monitor its services and make decisions based on service performance.

This chapter also contains an overview of the goals and standards which will guide future bike and pedestrian planning and investments.

KEY CONSIDERATIONS

Several key considerations establish the basis for the goals and objectives presented in this chapter.

Transit Observations and Opportunities

Service Reliability

There is no question that B-Line is dedicated to providing quality transit service for the community and enjoys a high level of support from riders and non-riders alike. The challenge is to secure ongoing funding and effectively deploy resources to provide effective service that is reliable. B-Line's on-time performance varies by route, but Chico's workhorse Routes 15S and 15N, as well as the Oroville area routes have significant on-time performance problems, with some routes experiencing delays exceeding five minutes on the majority of runs. On a fixed-route

system, service reliability is critical because some routes are infrequent and transfers are limited. Delays suggest the need for adjustments to schedule times, elimination of some stops, more direct routes (which may be a challenge since B-Line has generally a fairly straightforward portfolio of routes), or shifting available resources among services. Based on existing boarding and alighting patterns, the data suggests some routes could potentially be shortened or segments eliminated, while some routes should be reconfigured altogether. It is also appropriate to consider other service delivery options for Oroville, Gridley, and Biggs.

Bus Stop Spacing

B-Line has been very accommodating of requests for new stops and along some routes, stops are available every block or two. Numerous studies have found that optimal stop spacing is close to one-quarter mile (1,320 feet), and a number of transit agencies have updated their stop-spacing policies to both require and allow greater distances between stops. When stops are farther apart, access is reduced, and in some cases improvements to travel times aboard vehicles may be offset by increased travel times to and from stops. Ease of access for seniors and other people with mobility issues must also be taken into account.

Frequency

Frequency was identified as one of the concerns among B-Line users. Frequency determines whether a local service is likely to be useful when you want to go, or whether you must plan your trip around the bus schedule. Nationally, routes that operate on 30-minute headways perform much better than hourly services, or routes that operate less often than hourly. In many communities, experience shows that a transit-dependent rider is willing to walk a few extra blocks for more frequent service. The issue of frequency relates closely to total operating budget, vehicle allocation, route spacing, and most importantly, service policy.

Service Area

Although downtown Chico and CSU are important employment hubs, new employment centers and residential developments are in the outlying areas, suggesting that a long-term transit strategy will require some expansion beyond the existing B-Line route footprint, especially around Chico and Paradise.

Based on the analysis of demographics and key service areas, B-Line does a good job of providing service in areas with the highest densities of transit-dependent populations and access to most key work sites, medical facilities, schools, shopping areas, and recreational sites in Butte County. Some stakeholders noted that B-Line serves CSU students going to school quite well, but that the service is not useful for students seeking to travel to locations elsewhere in Chico, suggesting that there may be some misinformation about the system or a lack of understanding of how to use the system. Butte College's location limits the utility of B-Line for students going to classes there, but allows students to make a transfer to the College-operated buses serving Oroville, Paradise and Chico.

B-Line Paratransit

B-Line Paratransit provides a very good service, but has gone beyond the ADA mandate for many years. It has been able to do so with relatively reasonable operating costs per passenger (about \$22.00), carrying nearly three passengers per hour, and has achieved a farebox recovery ratio

exceeding 10% for the last three years. About 35% of B-Line’s operating resources are spent on Paratransit, which is relatively consistent with agencies operating in similar service area.

B-Line provides premium service outside the mandated ADA paratransit service area in Chico, Oroville, and Paradise on a space-available basis and charges premium fares for these additional services (up to \$10.25 per ride from the outermost zone). B-Line is planning to implement some policy changes to Paratransit, while allowing the operation to continue to serve non-ADA riders, by increasing the age eligibility requirement to 70 from 65 and reducing some access to non-ADA riders who are not seniors. This may allow B-Line to reallocate some resources to fixed routes, and will likely improve overall operating performance of Paratransit. Efforts might also be made to encourage current Paratransit users to ride fixed routes whenever possible through changes to the eligibility program and travel training.

Public Information and Marketing

User-friendly marketing and useful public information are key elements of successful transit systems, and B-Line has very good information and a mix of different tools and resources to communicate services and the availability of services to the public. B-Line’s new website is attractive, easy to navigate and comprehensive, its stops are appropriately signed, the schedule brochure is comprehensive, and the B-Line Tracker provides on-demand schedule information at B-Line bus stops. The on-board survey found that many riders, especially younger riders, make use of B-Line’s website for information about transit and service schedules, while older riders rely more on the printed schedule. Even with these tools in place, some stakeholders talked about the complexity of the system that makes it especially difficult for people to understand how it operates.

Land Uses to Support Transit, Pedestrian Activity, and Bicycle Use

In developing the MTP/SCS, transit offers an opportunity to help shape development in some areas. Many of Butte County’s newer developments — just like many suburban and rural communities in California and across the US — have not really been built with transit in mind. A general threshold for transit-supportive residential uses is 15 units per acre for high-frequency bus service. Commercial, institutional and corporate space with high employment densities (e.g., offices, medical centers, colleges) support more transit use than do those with lower employment densities (e.g., industrial parks or warehousing). Extensive areas of retail can become auto-dominated if not scaled appropriately and mixed with other uses.

Based on current land use patterns, B-Line has been most effective in building ridership in higher density areas and areas where parking is more limited (or costly), such as around CSU. Long term strategies for growth in Butte County will include the need to work with local communities and developers to orient new growth and locate new facilities so they can be affordably and effectively served by transit. Some tools may include design guidelines to ensure land uses are mixed both horizontally and vertically, activity centers are diversified to maximize transportation choice, land use intensities encourage use of transit and support pedestrian and bicycle activity, and parking requirements (and parking provision) are compatible with compact, pedestrian and transit-supportive design and development. Opportunities may exist for some transit-intensive corridors in some portions of Chico and in downtown Chico.

Transit amenities (benches, shelters, etc.) and infrastructure that makes it possible to access transit (sidewalks, bike lanes, etc.) is an often overlooked aspect of providing transit service. While these amenities exist to some degree in Butte County, some existing bus stops are lacking in amenities, and access to many stops is difficult, especially for people with limited mobility. To better meet future transit needs in Butte County, BCAG and the various jurisdictions in the county should continue to improve and maintain transit facilities and ensure that pedestrians and bicyclists have good access to transit.

Bicycle Issues

Nearly 40% of the general public survey respondents indicated they spent at least 10 minutes per day bicycling, illustrating the high level of participation in the survey from bicyclists and the large number of people who bike for recreation. Countywide, according to the US Census, fewer than 3% of Butte County residents bike to work. Increasing this mode share is a key element of developing a sustainable transportation plan for Butte County.

Local Versus Regional Approach

One thrust of this planning effort is to piece together the various local bicycle planning activities to identify a countywide network of services that will provide for mobility within and between Butte County's various jurisdictions. Several officials from local jurisdictions and bicycle advocates talked about the piecemeal approach to bicycle planning in Butte County as an impediment to a regional network. Funding limitations have impacted the development of the bicycle infrastructure, meaning that plans are in place for a more comprehensive set of bike facilities but the money to construct or develop those facilities has not always been available, or that these facilities have been a lower priority in some jurisdictions than other competing investments. An effective MTP/SCS will necessitate greater coordination of regional and local bicycle facilities.

Bicycle Safety

As ubiquitous as bicycling is in Chico and elsewhere in Butte County, many survey respondents and stakeholders identified areas where bicycling is perceived as unsafe. Survey respondents indicated high traffic volumes and automobile speeds contribute to perceptions of safety, and recent accidents that have led to the deaths of at least two student cyclists have raised concerns about whether bicycling is safe in Butte County. Several people indicated concerns about inattentive drivers and intersection designs that are not deemed bike friendly, with the Esplanade and Mangrove Avenue identified as especially bad for Chico cyclists.

THE LONG-TERM PLANNING CONTEXT

As a plan with short-term, mid-term and long-term elements, one key element of this effort is to establish a preliminary set of goals for B-Line service over the next 25 years, as well as identify goals for non-motorized modes. *An overarching goal for this planning effort is to identify solutions to reduce greenhouse gas emissions; this remains a key consideration in the development of all of the transit service and bicycle and pedestrian plans.*

Goals and Objectives for B-Line

The value of establishing goals is that they provide strategic direction for BCAG and B-Line. They also help BCAG be proactive in how it shapes its service rather than being reactive to public sentiment. The following six goals in support of B-Line were developed based on current operating characteristics, stated priorities of stakeholders, and the markets for transit services. The objectives to support each goal are, in most cases, actions that can be taken by B-Line to help move the agency toward reaching these goals.

Goal 1: Maximize service efficiency and reliability. This is a critical goal for B-Line, to improve and maintain the quality of services it provides. Some objectives include:

- Ensure availability of sufficient safe and reliable in-service vehicles to meet the daily pullout requirements for B-Line.
- Operate on schedule within adopted on-time performance standards.
- Operate consistent headways whenever possible.
- Consistently monitor and evaluate services in accordance with adopted service standards.
- Build services around a network of intercity and local feeder services, as well as local routes/service in urban areas.
- Minimize non-revenue hours operated on all services
- Assign vehicles by service type.
- Maintain a minimum/maximum fleet size that ensures an optimal spare to in-service fleet ratio.

Goal 2: Maximize the effectiveness of service for B-Line's ridership markets. A more effective transit service focuses on simplification and ease of use, with minimal one-way loops and convenient transfers. Objectives include:

- Minimize service overlap/duplications.
- Provide access to major centers of demand from all parts of the B-Line service area.
- Ensure routes are easy to understand.
- Bi-directional service should be provided by most route segments (except unidirectional commuter services), so that transit provides an equivalent alternative for travel in both directions.
- Transfers should be convenient and fast between routes.
- Operate most routes directionally, minimizing the amount of off-directional travel.
- Implement strategies to speed transit service, particularly along congested corridors.
- Ensure adequate vehicle capacity to maintain passenger loads within the adopted maximum load standards established for fixed-route services.

Goal 3: Improve the usability of B-Line. Some basic objectives to increase usability and visibility include:

- Provide effective communications and marketing tools to promote transit use and to advance the vision, mission and goals of BCAG.
- Improve the passengers' experience through enhanced bus stops and passenger amenities.

- Provide easy-to-understand signage and passenger information that promotes the use of B-Line's services.
- Ensure transparency and openness to the public throughout all of the agency activities.
- Partner with local organizations, CSUC, Butte College, businesses, municipalities and other agencies to enhance B-Line's community outreach and information efforts.

Goal 4: Expand B-Line's services into areas where transit has a likelihood of success. Not all parts of Butte County are appropriate for fixed-route transit service, but demographic data suggests some form of transit service or alternative mode (carpool, vanpool, flexible route service, etc.) may be appropriate in many portions of the county. Some objectives include:

- Provide outreach to non-participating cities and other potential public or private partners such as casinos and new residential developments.
- Negotiate potential pilot programs and partnerships to introduce transit services into communities where service is not currently available.
- Ensure that each new service is financially feasible, meets performance standards and does not negatively impact existing services.

Goal 5: Tie the provision of transit to land use and the resulting demand levels.

Because land use patterns are the single largest determinant of transit patronage, transit services will be designed to complement land use patterns. Proposed developments must be evaluated in a consistent manner. This will allow the development community, citizens, and elected officials to anticipate the extent that future transit services will provide service to new developments. Some objectives that provide direction to B-Line to address this goal are as follows:

- Existing services that fail to achieve established performance standards should be considered for remedial action.
- Existing services that significantly exceed standards should be augmented.
- Primary transit services (both intercity and urban trunk services) focus on corridors where compact development patterns that feature a mix of residential, retail, and employment activities exist. Secondary transit service – community circulators – will operate in a mix of medium density, and in some cases, lower density neighborhoods.
- Transit services may not be appropriate for some communities that do not meet service implementation thresholds.

Goal 6: Advocate sustainable development practices that support transit. Objectives, which are in-line with previous MTP/SCS goals, include the following, for which BCAG has an advocacy and advisory role to Butte County's jurisdictions:

- Advocate for transit-friendly building practices, working with planning staff and developers to ensure planned and future development meets transit service access criteria.
- Work with Butte County and local jurisdictions to enact zoning regulations that facilitate dense transit-oriented development to be focused near in specific transit emphasis corridors.
- Support the establishment of building orientation and pedestrian accessibility recommendations for new development, so that the development that occurs is convenient to the transit rider.

- Encourage higher density development and relaxed parking requirements in neighborhoods within easy access to transit emphasis corridors.
- Encourage the establishment of local policies requiring new transit-dependent land uses, such as social service offices and community colleges, should be located on transit routes.
- Support infrastructure projects, especially along transit corridors, that complement and/or enhance the system's operational needs (pedestrian access to bus stops, adequate location for passengers to wait for the bus, sufficient curb space for buses, passenger amenities and transit priority treatments).

Goals & Objectives for Bicycle and Pedestrian Planning

In addition to goals for transit, three primary goals were established for non-motorized transportation.

Goal 1: Provide options so people will choose and be able to walk and bicycle as a way to travel, to be healthy and for recreation. Objectives include the following:

- Recognize the value of walking and bicycling in Butte County's cities and between communities.
- Advocate for healthy, sustainable, and efficient communities
- Develop services and invest in improvements that overcome the obstacles – physical, social and institutional – allowing them to walk and bike.

Goal 2: Focus on urban infrastructure improvements that contribute to interconnectivity and safety for people who choose to walk or bike. Objectives should ensure local planning and development policies pursue strategies that will support safe and effective travel by bike or walking:

- Improve bicycle facilities on primary commuter routes to major employment locations in Butte County.
- Encourage installation of sidewalks along the street at all major commercial developments and in higher density residential neighborhoods.
- Link noncontiguous sidewalk segments/close gaps.
- Provide the option for bike and pedestrian access to surrounding neighborhood destinations for all new developments.

Goal 3: Facilitate regional links allowing for origin-to-destination access to bicycle and pedestrian facilities. Some basic objectives include the following:

- Assist local jurisdictions to seek funding to connect local bike and pedestrian projects to regional trails and bikeways.
- Develop projects, programs, and policies to encourage people to make multimodal trips that link walking, bicycling and transit.
- Develop facilities (e.g., bike lockers, freeway crossings, intermodal centers) that make it easy for people to choose non-motorized modes for longer distance travel.

B-LINE TRANSIT PRACTICES AND POLICIES

In order to advance B-Line's service to address these goals and objectives, some proposed changes to B-Line's current practices are proposed, including policies for stop spacing, pull-out stops, and bicycle accommodation. This planning process also advances B-Line toward the identification of Transit Emphasis Corridors, as well as defining other community design standards to support transit growth in Butte County. These are discussed in the following sections.

Stop Spacing

B-Line's policy does not reflect the state of the research into "optimal" stop spacing, or stop spacing that balances access and on-board travel time to maximize ridership. Numerous studies have found that ideal stop spacing is close to one-quarter mile (1,320 feet), and transit agencies including VTA and Muni in the Bay Area have recently updated their stop-spacing policies to both require and allow greater distances between stops.

When stops are farther apart, access is reduced, and in some cases improvements to travel times aboard vehicles may be offset by increased travel times to and from stops. Ease of access for seniors and other people with mobility issues must also be taken into account.

Stop spacing is always a "balancing act": if access were the only concern, stops would be as closely spaced as possible, while if speed and reliability were the only concern, there would be as few stops as possible. This is why B-Line has some opportunities to provide "all-stop" or "local-stop" service as well as limited-stop or express service in some corridors, possibly at different times of day. However, it is not always possible to do so given limited resources. In these cases, choices must be made regarding the balance between access, speed and reliability.

Stop-spacing policies should take into account a variety of factors related to the specific local condition, including: proximity of senior centers, community centers, schools, libraries, social service providers and other community institutions; composition of the area population, in particular numbers of CSUC students, seniors, youths and persons with disabilities; topography/grades; pedestrian connectivity, including both completeness of the street network (a challenge in some parts of Chico, Oroville, and Paradise), as well as the quality of facilities including sidewalks, crosswalks and wheelchair ramps; connectivity to other routes; locations relative to intersections ("far-side" locations are generally preferable); community and official support; and other factors in stop placement. Stop-spacing policies should be flexible, allowing for deviation from the standards where it is found to be necessary on a site-specific basis.

The defined minimum and maximum standards, meanwhile, should be adequate to strike a reasonable balance between access, speed and reliability. With this in mind, an increase in B-Line's minimum distance between stops should be closer to one-quarter mile or 1,320 feet (but could be 1/6 mile in dense communities). A maximum could also be set for stops in Chico and part of Oroville – perhaps one-third of a mile or 1,760 feet.

While B-Line's stop-spacing policy would not need to be strictly applied – existing stops that do not conform to the standard do not necessarily have to be relocated – it could be used to offer guidance on whether stops should be consolidated to reduce delay. While most agencies consider stop consolidation as part of route restructuring processes, Seattle's King County Metro reviews stop locations on a regular, rotating basis, at a rate of two to three corridors per year. Portland's

Tri-County Metropolitan Transit District or TriMet, meanwhile, has developed the following methodology for assessment of stop locations¹:

1. *Divide line into segments.*
2. *Identify “anchor” stops including:*
 - a. *Transfer points*
 - b. *Stops adjacent to major trip generators*
 - c. *Stops at major intersections*
3. *Remove or relocate remaining stops according to factors including:*
 - a. *Preference for locations on far sides of intersections*
 - b. *Pedestrian connectivity*
 - c. *Safe pedestrian access*
 - d. *History of wheelchair boardings*
 - e. *Traffic impacts*
 - f. *Compatibility with adjacent land uses*
 - g. *Proximity to “paired” stop in opposite direction*
 - h. *Level grades and clear visibility*
 - i. *Community input*

Pull-out Stops

“Pull-out” bus stops consisting of a “bay” cut out of the curb are often funded and built for use by B-Line by developers as part of development agreements. While pull-out stops serve to increase safety by removing buses from traffic where no space exists between the travel lanes and curb, they increase transit delay by requiring buses to merge back into traffic after the stop. For this reason, pull-outs should be avoided on arterial streets with multiple lanes in each direction where typical speeds are no greater than 35 or 40 miles per hour, and B-Line policies and practices should be adjusted to reflect this.

Pedestrian & Bicycle Access

Used in tandem with transit trips, bicycles can be especially useful in bridging “first/last mile” gaps between trip origins and destinations and transit stops, and integration of bikes with transit can increase ridership and help advance agency and community sustainability, safety and other goals. B-Line currently seeks to accommodate cyclists by providing front-mounted racks on buses able to accommodate up to three bikes and by allowing folding bikes aboard buses and by providing bike racks. Advocates, however, have identified a number of additional steps the agency might take:

- Expansion of bikes-on-buses options.
- Addition of rear-mounted racks to intercity buses.

¹ Ahmed M. El-Geneidy, Thomas J. Kimpel and James G. Strathman, “Empirical Analysis of the Effects of Bus Stop Consolidation on Passenger Activity and Transit Operations.” Center for Urban Studies, College of Urban and Public Affairs, Portland State University (May 2005).

- Addition of bike parking at stops undergoing improvement.
- Seeking out funding for a program of subsidized fold-up bikes.
- Participation in a community bikeshare program.
- Enhancements to driver training related to bicyclist safety.
- Support for safe-routes-to-transit projects.

Some options might not be desirable for reasons of competing objectives (e.g., accommodation for elderly passengers and passengers with disabilities) or operational issues. Nonetheless, B-Line staff should further explore ways in which to more seamlessly integrate transit and bicycle travel.

Transit-Emphasis Corridors

A “transit-priority” or “transit-emphasis” corridor is a street segment in which high-quality transit service is provided and physical improvements for transit are prioritized. In general, high-frequency service, a bus every 15 minutes or more often in each direction (on one route, or all routes combined), is necessary to warrant designation as a transit-emphasis corridor². Along with high-quality transit amenities, such frequency can create a virtuous cycle in which more transit service creates more demand for transit service.

In Butte County, there are opportunities where the following characteristics suggest the potential designation of transit-emphasis corridors. These are street segments where:

- Residential densities are in the range of 15 or more units per acre, or there is a significant mix of employment and service destinations.
- There is an existing concentration of transit services along the corridor or intersecting the corridor.
- Capital investments could improve travel times, schedule reliability and connectivity for thousands of riders on one or more primary routes.
- The built environment includes high-quality pedestrian amenities, public spaces, appropriate canopies, and street access to destinations along the corridor.
- Existing and planned land uses are consistent with a transit-emphasis corridor, and where all-day frequencies are either every 15 minutes, or relatively close to it. These segments may include The Esplanade, Park Avenue, Forest Avenue and 20th Street. Others will be discussed with BCAG staff.

These segments would ideally be formally designated in the near-term as transit-emphasis corridors by both the BCAG Board and, if possible, the City of Chico. Additionally, B-Line should develop service and infrastructural standards for transit-emphasis corridors, and in partnership with other agencies, it should develop capital improvement strategies for each corridor.

A headway standard for transit-emphasis corridors of 15 minutes or less between 7:00 a.m. and 7:00 p.m. on weekdays is recommended. Furthermore, 15 minutes should be the maximum scheduled interval between *all* arrivals, on any route (e.g., buses on different routes should not be scheduled to arrive 10, then 20 minutes apart). Transit planners differ on the definition of “walk-up” service, or service that operates so frequently that most riders cease to consult schedules before determining when to leave for the stop: some say it is 15 minutes, while some say 12 or

² California Senate Bill 375 (SB 375) applies a similar standard to “high quality transit corridors,” defined as corridors with 15-minute or better service during peak periods. As defined here, “transit-emphasis corridors” include frequent service as well as transit-supportive land uses and high-quality pedestrian access.

even 10. For this reason, a minimum standard of 15 minutes is recommended, but greater frequencies could be developed in the longer-term recommendations.

A number of capital improvements might be made on transit-emphasis corridors:

- **Improvements to the right-of-way.** In some parts of Chico, rights-of-way are constrained: streets cannot be widened, at least not without property takings. Providing buses with their own travel lanes free from traffic, then, generally requires removal of either on-street parking or mixed general-purpose travel lanes. In some cases, this may have little or no effect on traffic or parking availability. In some cases, it is possible to mitigate impacts through other means, for example by providing additional left-turn lanes, off-street parking or parking on connecting streets. In other cases, complete transit-only lanes may not be feasible, but it might be possible to provide transit vehicles with lanes that are shared with some other vehicles (such as taxis, emergency vehicles, delivery trucks, high-occupancy carpools, or autos turning right), that are in effect only part of the time (for example, during peak periods), or that exist only in segments. An example of the latter is the “queue jump” lane, a transit-only lane that exists for only a short distance on approach to an intersection, allowing transit vehicles to bypass lines of cars waiting at red lights, and go ahead of them using a special “advance phase” for transit a few seconds prior to the regular green signal for all traffic. Transit queue jump lanes could be useful on The Esplanade, shared with cars and trucks turning right, as a way to speed travel along that roadway.



Queue Jump (Milwaukie, Oregon)

- **Improvements at intersections.** Queue jumps with advance phases are one way to improve transit travel times and schedule reliability. Other ways to reduce transit delays at signalized intersections include “transit-signal priority” (TSP) systems and simple retiming of signals. In a TSP system, signals are equipped to detect approaching buses, and signal phases may be changed in one of two ways: using signal preemption, in which red lights are turned green a few seconds early, or by signal extension, in which green lights are made to stay green a few seconds longer. In either case, the change can be reversed in the following signal cycle, restoring green time for cross traffic removed from the previous cycle and limiting impacts on traffic flow and capacity. A less-effective but simpler way to reduce transit delay at signals is to simply retime the signals so that cycles and/or red phases are shorter, reducing the maximum amount of time that buses may be stopped and/or reducing the likelihood that they will be stopped in the first place. In

many cases, signal phases are longer than they need to be to allow pedestrians and queued vehicles to cross the street. (Another option is to re-time signal progressions; however, because buses must make stops, their average speeds are much slower than for other vehicles.)

- **Improvements to stops.** Two basic types of improvements can be made to transit stops: improvements designed to reduce transit delay, and improvements to the safety, comfort and capacity of the stop itself. In a Bus Rapid Transit or BRT system, stops are sometimes raised so that they are level or nearly level with vehicle floors, eliminating steps and any need for wheelchair lifts. Ticket machines are also sometimes provided at the stop so that passengers can enter vehicles through any door and don't have to line up to pay on-board. In BRT systems and even in many non-BRT systems, stops are sometimes located on traffic islands or on sidewalks extended into the street so that buses can stop in the travel lane and don't have to wait to merge back into traffic after the stop. Stops are also sometimes moved from the near side to the far side of an intersection, which can reduce delay in a variety of ways. Other improvements consist of amenities ranging from shelters to additional seating, enhanced signage (potentially including real-time arrival information), concrete pads for wheelchairs and pedestrian access improvements to nearby sidewalks and crosswalks. BRT-style amenities may be appropriate in the transit emphasis corridors in the mid-and long-term phases of the Transit and Non-Motorized Plan's implementation.



Bulb-Out Stop (Seattle, Washington)



High Visibility Stop (Kansas City, Missouri)

- **Improvements to pedestrian connections.** Finally, transit service can be improved by improving access to transit. In an environment such as Butte County, most transit passengers walk to and from stops, but outside of the downtown areas, pedestrian infrastructure is often inadequate. Sidewalks may be too narrow, in poor condition, or there may be gaps. Opportunities to cross streets may be limited, and where crosswalks exist, there may not be signals requiring drivers to stop, or there may be signals, but not enough time in the walk cycle for all to safely cross. As a result, buses in Oroville travel a long distance past a WalMart to turn around due to the lack of easy pedestrian access at the WalMart.

The street network itself prevents direct pathways. Wheelchair ramps may also be missing or substandard. These issues are generally beyond the purview of BCAG, but the agency can work with cities and Butte County to identify needs, develop projects, and seek grant funding.

Many of these improvements may be made on an incremental basis, as funding becomes available, or on an opportunistic basis, as part of street repaving or other projects. Similarly, service could be expanded to achieve the 15-minute standard over time. Finally, additional transit-emphasis corridors could be designated over time.

Optimize Regional Transit Approach

Overall, B-Line's regional routes operate relatively well, particularly the trunk Route 20 and the local/regional Routes 40 and 41. Routes 30, 31, and 32 are primarily coverage routes, and handle fewer consistent riders per day. Recognizing that B-Line is a regional provider, it is important that BCAG optimizes its regional approach, ensuring that each route market is served by the right kind of service. For example, although it is new to BCAG, a vanpool approach may be more appropriate than fixed route service between Paradise and Oroville (Route 31) in the short- or mid-term and Biggs, Gridley, and Chico (Route 32) in the long-term. Additionally, to complement both fixed route and future vanpool services, BCAG may also consider building more park & rides at key locations throughout the region. These park & rides can help to consolidate demand and increase the efficacy of well-performing intercity arterial lines such as Routes 20, 40, and 41 as well as coverage routes such as Routes 30 and 32.

Vanpools

Vanpool programs are cost effective means for providing commute transportation to employment sites. While vanpools are particularly effective in serving downtowns or large employment sites where significant numbers of people are commuting to/from the same general area, they can also be implemented in a more limited, targeted way. In the mid-term timeframe, vanpools could provide service in Butte County between Paradise and Oroville (replacing Route 31) and potentially also between Biggs, Gridley, Durham, and Chico (replacing Route 32).

In practice, vanpools offer a higher degree of flexibility than fixed route services in both management and operation. For example, BCAG may choose to simply oversee a vanpool program, contracting out the actual services to a private contractor (such as Enterprise or VRide). Alternatively, BCAG may choose to operate and manage the vanpool program in-house. Operations are similarly flexible, as a vanpool's precise route and schedule are developed by participants themselves, with the service able to pick up vanpool participants at their residences and drop them off directly at workplaces. Vanpools may also be organized in such a way as to originate at Park & ride lots. Overall, for BCAG converting a fixed route to vanpool helps conserve valuable resources while continuing to offer regional mobility along a key corridor(s).

In short, a vanpool program is an attractive mobility option for a number of reasons:

- Vanpools are highly cost effective
- Vanpools are faster than bus transit
- Vanpools travel directly to the work site
- Vanpools are attractive for shift workers

Park & Rides

Currently, B-Line serves two Caltrans park & rides in Butte County – Fir Street Park & Ride in Chico, and Oroville Park & Ride, located at Highway 70 and Grand Avenue. Park & rides are a convenient and very visible access point to transit service for commuters who have access to an

automobile but do not wish to commute via car. In this way, park & rides can help transit agencies by consolidating transit demand in more suburban and rural areas, reducing the need for fixed route buses to serve very few riders in outlying areas.

Park & rides can also serve as hubs for different types of service; in addition to being served by fixed routes, they can also function as vanpool start points. In fact, in the mid- to long-term timeframes, there are several opportunities for additional park & rides throughout Butte County, particularly at the Home Depot lot in Oroville, the fairgrounds in Gridley, and a potential new joint transfer center/park & ride in Paradise. Caltrans guidelines should be referenced in development of park & ride lots to ensure integration of bicycle facilities to the support the bicycle recommendations in this plan.

Community Design Standards in Support of Service Design Standards

Recommended policies address issues of land use, circulation, and urban design. While B-Line cannot always directly influence development patterns in Butte County, these standards can be an element of B-Line's advocacy role. B-Line can advise local jurisdictions and Butte County on policies that will allow local transit service to meet demands, as well as provide for an environment that can support ongoing investment in an effective — and more efficient — transit system.

The coordination of these three aspects of form and function are essential in order to support increased transit ridership and preserve the livability of Butte County. In the mid- to long-term timeframes, these types of standards would be expected to support transit service and livability along the future Route 1 (Routes 15N/15S) transit corridor, around North Valley Plaza, and in the vicinity of the Chico Mall.

Land Use

The land use criteria are intended to measure the ability of land use policies to support the goals of this plan.

- **Land uses should be mixed both horizontally and vertically.** Vertical mixed use, with ground floor retail in developed areas and activity centers as identified through land use plans, can increase the vitality of the street and provide people with the choice of walking to desired services. Only Chico really has the potential for this type of vertical integration in the short term. More important for the rest of Butte County, mixing uses horizontally can prevent desolate, single-use areas, and encourages increased pedestrian activity; scale of use and distance between uses are important to successful horizontal mixed-use development.
- **Support and enhance major activity centers.** Activity centers have a strong impact on transportation patterns as the major destinations in the city. They are generally characterized by their regionally important commercial, employment, and service uses. To make these places more transit-supportive they should be enhanced by land use decisions that locate new housing and complementary neighborhood-scale retail and employment uses to diversify the mix, creating an environment that maximizes transportation choice.
- **Land use intensities should be at levels that will encourage use of transit and support pedestrian and bicycle activity.** A general threshold for transit-supportive

residential uses is 10 to 15 units per net acre for high-frequency bus transit. This density can be lower, however, if the urban environment supports pedestrian access to transit. Commercial and employment/education uses with high employment densities (e.g., CSUC) support more transit use than do those with lower employment densities (e.g., industrial or warehousing). Extensive areas of retail tend to be auto-dominated if not scaled appropriately and mixed with other uses, such as Chico Mall or North Valley Plaza. Non-residential uses with a Floor Area Ratio (FAR) of 0.5 provide a baseline that can support transit ridership. While there is little empirical research available to link employment density with transit ridership, the general “rule of thumb” is to maximize the intensity of development given market conditions and to make certain that the transit network provides high-quality service to areas with concentrations of employment uses and retail services.

- **Parking requirements (and parking provision) should be compatible with compact, pedestrian and transit-supportive design and development.** Requirements should account for mixed uses, transit access, and the linking of trips that reduce reliance on automobiles and total parking demand.

Circulation and Connectivity

Transit and transportation systems need to provide a balance of hierarchy and integration between and amongst modes. The circulation system facilitates access and safety for all travel modes, with particular attention to pedestrian and bicycle access, as these modes support transit ridership.

- **The transportation and circulation framework should define compact districts and corridors** that are characterized by high connectivity of streets to not overly concentrate traffic on major streets and to provide more direct routes for pedestrians, good access to transit, and streets that are designed for pedestrians and bicycles, as well as vehicles. None of Butte County’s cities has successfully developed around a connective, integrated street network (Chico and Oroville have some elements of a good street network in the urban core areas, but have very limited street networks elsewhere).
- **New residential developments should include streets that provide connectivity.** Cul de sacs and walls around communities, which have been the norm in newer developments in Paradise, Gridley and the edges of Chico are especially challenging for providing effective public transit.

Urban Design

High quality urban design, including street and building design, can support increased transit use and pedestrian and bicycle activity. An important evaluation criterion is the extent to which the plans provide guidelines or standards to achieve the desired urban design character in a particular community.

- **Streets should be designed to support use by multiple modes**, including transit, bicycles, and pedestrians, through proper scaling and provision of lighting, landscaping, and amenities. Amenities must be designed to provide comfortable walking environments.

- **Buildings should be human scaled**, with a positive relationship to the street (including entries and windows facing onto public streets, and appropriate articulation, signage, etc.).
- **The impact of parking on the public realm should be minimized** by siting parking lots behind buildings or screening elements (walls or landscaping). Buildings should be close to the road so parking can be located on the side or in the rear.

PERFORMANCE STANDARDS

To address the goals and objectives and support the recommended practices and policies, B-Line and its partners will need to work together to create closer-knit communities with more walkable streets and an enhanced transit network. If successful, Butte County will benefit from reduced traffic congestion, a reduction in vehicle emissions, more transportation choices and healthier neighborhoods.

To achieve the goals, it is important to define service measures and standards. These measures and standards provide a valuable tool for allocating scarce resources. By providing a consistent set of design and performance standards, B-Line staff and the BCAG Board will have consistent direction on how to allocate, prioritize and deploy services. Their use in the service planning and allocation process will avoid potentially inequitable, and possibly inefficient, allocations of service. Without such standards, there is little rationale for telling constituents “yes” or “no” when necessary.

Service design standards also assist in creating consistency and predictability of responses to emerging community needs. As decision-makers reach conclusions about various aspects of growth in their communities, they will have some frame of reference to know how transit will respond to those changes. When asked whether a particular development on the outskirts of Oroville will be served, transit planners will have a policy basis for their response. Standards can also provide insights on where to focus transit service reductions, or reallocations when those subjects inevitably arise over the life of the long range plan.

The remainder of this chapter focuses on proposed service standards, offering a set of performance measures and standards for use on B-Line fixed routes along with a suggested methodology for the routine evaluation of fixed route services. This section also considers standards for the design of fixed-route services. Transportation planners routinely face requests to deviate an existing route, or extend it to serve a new development. Service design standards provide a policy basis for their decisions, providing consistency in the way services are provided throughout the entire service area.

While it makes use of research that has been conducted at transit agencies across the country³, the following sections adapt best practices to Butte County’s unique operating conditions.

Definitions

Two terms are used: measures, which identify what factor is being evaluated, and standards, which set the bar for performance against that measure.

³From the peer review and both “Transit Capacity and Quality of Service Manual, “Transit Cooperative Research Program (TCRP) Report 100, 2nd Edition. Washington, D.C., 2003 and “A Guidebook for Developing a Transit Performance-Measurement System, “Transit Cooperative Research Program (TCRP) Report 88, Washington, D.C., 2003.

- A **measure** is a basis for comparison; a reference point against which other factors can be evaluated. For this project, an example measure would be the population or employment density along a bus route.
- A **standard** is defined as a recommendation that leads or directs a course of action to achieve a certain goal. Transit operators' approaches to the design and application of standards vary depending upon local conditions and expectations.

FIXED ROUTE PERFORMANCE REPORTING

Route Classification System

Transit services are most effective when they are tailored to the design and needs of the communities they serve. B-Line's current system of classifying general public transit services places routes into urban and rural classifications. We propose a reclassification of routes:

1. **Intercity Express Bus Services:** B-Line does not currently operate any routes that could be classified as Intercity Express Bus services that provide fast service during peak commute hours, focusing on linking cities or neighborhoods with high concentrations of workers traveling to a specific employment area or a major transit hub.
2. **Intercity Arterial Routes:** B-Line's intercity services are arterial routes. Characteristics of intercity arterial routes are as follows:
 - **All day service** – Regional arterial routes operate at least every 60 minutes during midday periods and may operate every 30 minutes during peak periods. The goal is to facilitate convenient transfers to/from feeder routes.
 - **Major transit center connections** – Regional arterial routes should have a terminus at a major transit center (e.g., downtown Chico, CSUC) or a major regional activity center. Routes should be designed to make timed transfers to and from major connecting services.
 - **Longer stop spacing** – Stops are limited to major residential developments, retail centers and park & ride facilities to speed travel times for longer distance riders.

The goal is for intercity arterial routes to operate quickly and be relatively competitive with automobile travel times.

3. **Urban Area Trunk Routes:** Trunk routes are typically relatively straight and operate along main roads, constituting a primary form of local fixed route bus service. Route 15 is the closest B-Line has to an Urban Area Trunk Route. Typically, trunk routes should operate every 15 to 30 minutes on weekdays, with a relatively long service span.
4. **Community Circulators:** Other local fixed-route bus services, typically operating at 30- or 60-minute headways (but with the potential for greater frequencies), are termed community circulator routes. Most of B-Line's existing routes would be classified as community circulators. Except around CSUC, these are designed to provide policy level coverage service to neighborhoods that do not necessarily have the population density or employment — or design characteristics — to support trunk routes. Services are designed to adapt to the unique characteristics of the neighborhoods or cities they serve. Whenever possible, clockface operations ("memory headways" or the same time(s) after the hour on each trip) and timed transfers at transit centers should be accommodated in route designs. This suggests very careful attention to the length of the route to ensure there is a reasonable match between the schedule cycle time and the route length.

Three types of community circulators are identified for Butte County.

- A. Neighborhood Circulators:** These are traditional fixed route services. Because they do not compete effectively with private autos, neighborhood circulators should be established when higher levels of service cannot be effectively supported. They normally operate every 30 to 60 minutes and should operate on a clockface headway whenever possible.
- B. Feeders:** Feeder buses are designed to “feed” trunk routes and intercity express bus services. Schedules are drawn to provide clockface headways. Feeder routes operate in Chico and Oroville and every effort should also be made to provide timed transfers with other routes at the transit centers served by feeders.
- C. University Circulators:** These may look like traditional fixed routes, but have a specific market – student ridership – and serve a location with significant student housing and parking constraints or costs. These routes normally operate at relatively good frequencies – every 15 to 30 minutes (sometimes as often as 5 or 10 minutes in some communities) – and clockface headways are often not as critical.

Proposed Service Standards

Transit agencies typically monitor key systemwide performance statistics, using pre-established targets in order to measure organizational success. These allow policymakers to evaluate whether their expectations are being met. System service standards can cover a wide range of subjects including ridership, safety, reliability, and customer satisfaction. While there is value in continuity – allowing policymakers to review performance trends over time – many systems also find benefit from adding special measures that consider areas of special emphasis or concern.

Proposed service standards for fixed-route operations look assume a short-term horizon (within five years) of the MTP/SCS in order to establish operating characteristics that B-Line can work toward within in the immediate term.

Figure 6-1 Service Quality and Reliability Benchmarks for B-Line

Quality/ Reliability Measures	Service Type	Proposed Fixed Route System Service Standards
Boarding Passengers per Revenue Hour	Regional Express Services	20 psgrs/hour
	Regional Arterial Routes	15 psgrs /hour
	Urban Area Trunk Routes	25 psgrs /hour
	<i>Community Circulators</i> Neighborhood/Feeder University	10 psgrs /hour 25 psgrs /hour
Passengers per Mile	Regional Express Bus Services	1.0 psgrs /mile
	Regional Arterial Routes	1.0 psgrs /mile
	Urban Area Trunk Routes	2.2 psgrs /mile
	<i>Community Circulators</i> Neighborhood/Feeder University	0.7 psgrs /mile 2.2 psgrs /mile

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Farebox Recovery	Regional Express Services	25%
	Regional Arterial Routes	15%
	Urban Area Trunk Routes	20%
	<i>Community Circulators</i> Neighborhood/Feeder University	15% 35%
On Time Performance	No bus shall depart a formal time point before the time published in the schedule.	
	90% on-time performance for all services	
Passenger Complaints/ Boardings	The number of complaints shall not exceed 0.01% of the total boardings. The benchmark is 7.5 complaints/100,000 boardings.	
Accidents /Bus Miles Operated	Fewer than 2 accidents/100,000 revenue miles	
	Fewer than 1 preventable accident/100,000 revenue miles.	
	Fewer than 1.5 major accidents per million bus miles	
Maintenance	The number of road calls should not exceed 0.06% of total revenue miles operated. The benchmark is one road call/7,000 revenue miles.	
	At least 85% of all regular fleet vehicles should be available for operations at all times	
	The ratio of spare vehicles to regular fleet vehicles should be less than at 20%	
	95% of vehicle inspections shall be completed on time	
Trips Cancelled	No bus or trips shall be cancelled. The benchmark is zero tolerance.	

Route-Level Performance Measures and Standards

One of the most important decisions that B-Line must make is identification of the characteristics that define success for individual routes. While route ridership and productivity are the most common measures of success, they do not always provide a complete picture of system operations. For example, a route that carries commuters from Thermalito to jobs in Oroville will have lower ridership and productivity than a route that carries CSUC students to nearby apartment complexes. Differentiated performance measures need to account for this.

Four measures are proposed to measure the success characteristics of individual routes:

- **Passengers per Revenue Hour.** Because it is so commonly employed and often provides a snapshot of overall performance, this measure is suggested for the evaluation of service types and individual routes.
- **Service to Total Hours Ratio.** With a goal to reduce vehicle-deadheading to/from a bus route or layover, it is important to understand service hours (or revenue hours) as a proportion of total service hours. Currently, B-Line deadheads its intercity routes. Ratios for routes that are higher than those of other routes may point to operating issues such as schedules that cannot be cost-effectively broken into vehicle assignments or routes with distant or inefficient terminus points.

- **Passenger Miles per Revenue Hour.** Although every passenger boarding is important, passengers who travel longer distances generally entail greater cost but in many ways also produce greater public benefit when they use public transportation for their trip. By monitoring how many passenger miles are recorded during an hour of revenue service this considers whether both the number of people riding and the distances they are traveling is increasing.
- **On Time Performance.** The reliability of route operations is also critical. Measuring an individual route’s schedule adherence provides information regarding whether a customer can count on a bus being there as scheduled.

Figure 6-2 summarizes the proposed fixed route operating standards, beginning in the short-term: five years (2019). In accordance with B-Line’s proposed line service standards, poor performance suggests that a route should be modified or eliminated. Exceptional performance suggests the route could be expanded, larger vehicles could be used, or headways can be improved.

Figure 6-2 Proposed Route-Level Operating Standards

	Intercity Express Bus Services	Intercity Arterial Routes	Urban Area Trunk Routes	Community Circulators
Passengers per Hour	15	15	15	Neighborhood/Feeder: 8 University: 15
Service to Total Hours Ratio	1.3	1.3	1.15	1.15
Passenger miles per Revenue Hour	300	150	40	Neighborhood/Feeder: 25 University: 40
On-Time Performance	90%	90%	90%	90%

While some of the data needed to support the monitoring of these efforts is already available to B-Line based on existing data collection procedures, better employee training on the software would allow for improved data analysis and performance monitoring.

SERVICE DESIGN STANDARDS

Service design standards are critical planning tools that are used to guide the expansion of service to new areas and potential markets. They will help justify B-Line’s decisions to regional partners and outside interest groups.

Typically, transit agencies need to consider a full range of interrelated social, political and economic factors when they make major service decisions. While ridership is critically important, issues of equity and broader community impacts cannot be ignored. Because, at their core, service design standards identify strategies for maximizing ridership, they may not fully address policymakers’ concerns but experience suggests that the **most successful transit systems**

place high value on designing services that will increase ridership. Several general design principles should guide the planning and operation of B-Line's fixed route transit services:

1. **Directness.** Routes should be as straight as the street pattern allows. These direct paths make for the most direct, likely the fastest, possible trip, and therefore tend to be useful to the more people than circuitous routes. Even if a trip requires changing buses, it is likely to be more direct and faster than a trip using circuitous service.
2. **Frequency.** The elapsed time between consecutive buses on a route is one of the most important determinants of ridership. More frequent service attracts more passengers assuming a market is present. A very infrequent route requires customers to plan trips around the bus schedule. A very frequent route allows riders to travel whenever they want, without a schedule, allowing transit to approach the convenience that a road offers to a motorist: it is there exactly when customers want and need it.

Provision of service that operates every 15 minutes is an important psychological breakpoint. At frequencies of 15 minutes or better, many riders will not need to use the schedule, because they know that they can just wait for the bus and it will be along "soon." While frequency is expensive, it is also crucial to high ridership.

3. **Consistency.** A consistent pattern to the schedule is strongly recommended. While frequency may vary during the day according to demand, it should not vary with apparent randomness from one trip to the next. Whenever possible, routes should also have frequencies that divide evenly into an hour, such as every 10, 15, 30, or 60 minutes. These frequencies have two advantages:
 - Customers can remember the schedule easily, because the same pattern of times is repeated each hour. If a route runs every 30 minutes, the customer can remember that the bus comes at: 10 and: 40 past each hour. By contrast, if the bus runs every 35 minutes, few customers can remember the schedule, and are, therefore, forced to consult a timetable – or seek assistance from customer service – in order to catch any trip that they don't use routinely. Irregularity will often convince customers that they have missed a bus, or that the bus is "always late."
 - Using frequencies such as 15, 30, or 60 minutes offer greater ease in scheduling timed connections between routes that occur consistently in each hour. This is especially important for less frequent feeder routes because they rely on connections for much of their ridership. Timed connections permit passengers on these feeders to complete their trips much more quickly.
4. **Simplicity.** Straight routes are also easily associated with one or two major arterials. The naming, presentation, and planning of such routes should encourage the idea that the route is an integral part of the street. Simplification is a key value in creating networks that people can navigate easily to make many kinds of trips.
5. **Walk Distances.** Although opinions differ about how far one should be asked to walk to a transit stop, the industry experience overwhelmingly indicates that the vast majority of riders will walk up to ¼ mile. Each transit route should be seen, then, as serving a band ½ mile wide (up to ¼ mile to each side of the route), except where the road network prevents reasonably direct pedestrian access.
6. **Minimum Bus Stop Design.** All bus stops should be clearly marked with proper signage including the designated route number(s). Benches should be considered for individual stops where the average daily boardings exceed 30 passengers. Priority should

be given to bus stops serving senior apartments, activity centers, and group residences designed for persons with disabilities.

7. **Recovery Time.** All route schedules should include a minimum of 10% recovery time to ensure on-time performance. When headway-based scheduling is being applied, good practice is to ensure recovery time of one headway at each end of the route to ensure the ability to operate buses at the design frequency. It should be noted this design parameter is intended to ensure schedule reliability, not necessarily to provide rest periods for operators. Best practices in transit scheduling recognize that transit operators can be afforded rest periods without adding to the number of buses necessary to maintain schedule reliability: buses continue to move and operators rest.

Design Standards for Fixed Route Services

This section identifies the specific service design standards that have been identified for each service category. Figure 6-3 details the specific design and operating standards applicable to each fixed route classification.

Figure 6-3 Fixed Route Design Standards

	Intercity Express Bus Services	Intercity Arterial Routes	Urban Area Trunk Routes	Community Circulators
Location Characteristics <i>Dwelling Units per Acre</i> <i>Employees per Acre</i>	Along major corridors	>4 >1	>10 >7.5	Neighborhood/Feeder >5 University >10 Neighborhood/Feeder >3 University >10
Frequency of Service <i>Weekday Commute Periods</i> <i>Midday & Weekend Periods</i> <i>Night Services</i>	30 min 60 min 60 min	30 min 60 min 60 min	10-20 min 10-60 min 30-60 min	As appropriate - typically no more than every 60 min. (University circulators may operate more frequently)
Travel Time Ratio to Autos*	1.3	1.3	1.75	3.0
Stop Spacing <i>Urban Areas</i> <i>Suburban Areas</i> <i>Rural Areas</i>	½ mile +5 miles +5 miles	½ mile ½ - 2 miles 2 - 5 miles	¼ mile ¼- ⅓ mile	⅙ - ¼ mile ¼ mile As needed
Scheduling Practices	Meet Demand Clockface Timed Transfer	Meet Demand Clockface Timed Transfer	Meet Demand Clockface Timed Transfer	Meet Demand Clockface (or frequent for university circulators) Timed Transfer
Target Route Speed – Average speed that the route should achieve	>25 mph	>20 mph	>14 mph	>12 mph

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	Intercity Express Bus Services	Intercity Arterial Routes	Urban Area Trunk Routes	Community Circulators
Guideline for Amenities Along Route	Shelters at stops with at least 20 boardings per day	Shelters where needed	Shelters where needed	Shelters at major transfer points and high boarding locations only

*The travel time ratio to autos compares the travel time for a bus to travel from one end of the route to the other end with the time the same trip can be accomplished during afternoon commute periods when traveling by auto.

By inclusion in the approved set of measures and standards, each metric is considered an important gauge of system performance and should be monitored on a regular basis. A concise and comprehensive monthly report should be available for informal review by B-Line staff and the BCAG Board. Reports may contain trend data in addition to formal performance monitoring measures. Based on this information, key performance indicators could be derived, such as cost per trip, cost per hour, and cost per mile. It would also be possible to compare the budgeted expenditures to actual costs year-to-date.

In addition to shorter-term reactive actions aimed at problem resolution using monthly examinations of performance data, B-Line should formalize a process to focus on longer-term proactive performance improvement measures.

BICYCLE & PEDESTRIAN PRACTICES & POLICIES

In 2014, the California Active Transportation Program (ATP) consolidated and replaced the Bicycle Transportation Account. Jurisdictions in Butte County do not currently need an active transportation plan to be eligible for ATP grants. However, jurisdictions in Butte County will eventually need to adopt an active transportation plan to remain eligible for ATP grants. Figure 6-4 summarizes ATP requirements for active transportation plans.

Figure 6-4 Active Transportation Plan Requirements

Description
The estimated number of existing bicycle trips and pedestrian trips in the plan area, both in absolute numbers and as a percentage of all trips, and the estimated increase in the number of bicycle trips and pedestrian trips resulting from implementation of the plan.
The number and location of collisions, serious injuries, and fatalities suffered by bicyclists and pedestrians in the plan area, both in absolute numbers and as a percentage of all collisions and injuries, and a goal for collision, serious injury, and fatality reduction after implementation of the plan.
A map and description of existing and proposed land use and settlement patterns which must include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, major employment centers, and other destinations.
A map and description of existing and proposed bicycle transportation facilities
A map and description of existing and proposed end-of-trip bicycle parking facilities.
A description of existing and proposed policies related to bicycle parking in public locations, private parking garages and parking lots and in new commercial and residential developments.
A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These must include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.

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A map and description of existing and proposed pedestrian facilities at major transit hubs. These must include, but are not limited to, rail and transit terminals, and ferry docks and landings.
A description of proposed signage providing wayfinding along bicycle and pedestrian networks to designated destinations.
A description of the policies and procedures for maintaining existing and proposed bicycle and pedestrian facilities, including, but not limited to, the maintenance of smooth pavement, freedom from encroaching vegetation, maintenance of traffic control devices including striping and other pavement markings, and lighting.
A description of bicycle and pedestrian safety, education, and encouragement programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the law impacting bicycle and pedestrian safety, and the resulting effect on accidents involving bicyclists and pedestrians.
A description of the extent of community involvement in development of the plan, including disadvantaged and underserved communities.
A description of how the active transportation plan has been coordinated with neighboring jurisdictions and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, general plans and a Sustainable Community Strategy in a Regional Transportation Plan.
A description of the projects and programs proposed in the plan and a listing of their priorities for implementation, including the methodology for project prioritization and a proposed timeline for implementation.
A description of past expenditures for bicycle and pedestrian facilities and programs, and future financial needs for projects and programs that improve safety and convenience for bicyclists and pedestrians in the plan area. Include anticipated revenue sources and potential grant funding for bicycle and pedestrian uses.
A description of steps necessary to implement the plan and the reporting process that will be used to keep the adopting agency and community informed of the progress being made in implementing the plan.
A resolution showing adoption of the plan by the city, county or district. If the active transportation plan was prepared by a county transportation commission, regional transportation planning agency, MPO, school district or transit district, the plan should indicate the support via resolution of the city(s) or county(s) in which the proposed facilities would be located.

STEPS TO ATP COMPLIANCE FOR JURISDICTIONS

Elements of the BCAG Transit and Non-Motorized Plan can be used to fulfill some Active Transportation Plan requirements. In general, jurisdictions in Butte County can complete the following steps to develop their own Active Transportation Plan.

- Reference BCAG Transit and Non-Motorized Plan for estimates of existing bicycle and pedestrian trips.
- Reference BCAG Transit and Non-Motorized Plan for summary of bicycle and pedestrian collisions.
- To create a map of existing and proposed land use and settlement patterns, use General Plan land use map and add schools, shopping centers, public buildings, and major employment centers.
- Reference the BCAG Transit and Non-Motorized Plan’s maps of existing and proposed bicycle facilities. Inventory new bicycle facilities using aerial imagery, revise the proposed bicycle facilities as necessary, and create a GIS map. The GIS data files used in the BCAG Transit and Non-Motorized Plan’s are available to jurisdictions upon request.
- To create a map of existing and proposed end-of-trip bicycle parking facilities, conduct a bicycle or windshield survey of bicycle parking at major bicycle trip generators and attractors (transit centers, schools, shopping centers, public buildings, major

- employment centers, etc.). Identify the locations of proposed end-of-trip bicycle parking facilities and create a GIS map.
- Identify the jurisdictions plan for ensuring that bicycle parking is included as a feature of new development. Reference BCAG Transit and Non-Motorized Plan for a recommended policy.
 - Perform a walking audit of major pedestrian activity areas, such as downtowns, major transit hubs, or schools. Note existing pedestrian infrastructure and needs for proposed pedestrian infrastructure.
 - Describe maintenance policies and procedures for existing and proposed bicycle and pedestrian facilities.
 - Describe bicycle and pedestrian safety, education and encouragement programs.
 - Conduct outreach for development of the active transportation plan, in particular describing outreach to disadvantaged and underserved communities
 - Prioritize proposed bicycle and pedestrian facilities according to criteria that reflect local values. Refer to the Bicycling and Walking Suitability maps in the BCAG Transit and Non-Motorized Plan for areas of high bicycling and walking suitability. Describe plan implementation steps and reporting process.
 - Describe past expenditures for bicycle and pedestrian facilities and forecast financial needs for proposed projects and programs. Include a description of anticipated revenue sources and potential grant funding.
 - Describe wayfinding signage practices in the jurisdiction's active transportation plan and consider a policy for wayfinding signage. Decide on most frequented destinations by bicyclists and pedestrians. Review proposed projects and determine most appropriate areas for wayfinding signage.
 - Submit plan to city, county or district for formal adoption.

The above steps describe a general framework for completing an Active Transportation; however, refer to Figure 6-4 for a complete list of Active Transportation Plan requirements.

Policies to Guide Bicycle & Pedestrian Access Planning

BCAG can support jurisdictions to promote non-motorized modes by adopting the following policies:

- Encourage jurisdictions to revise local bikeway plans to become compliant with the Active Transportation Program (ATP) by requiring ATP compliance as a condition for regional funding.
- Rank project funding requests higher for projects that are identified in a jurisdiction's active transportation plan or equivalent plan (bicycle and pedestrian plan, etc.).
- Encourage jurisdictions to modify bicycle parking codes according to the *2010 California Green Building Standards Code*.

CONCLUSION

B-Line's, goals, objectives and performance standards provide a basis for establishing transit system design and operations policies, offer a methodology for evaluating services, and provide a rationale for service expansions, reductions and eliminations as part of an effort to further build a sustainable program of transportation services in Butte County. The goals and performance standards do not specify CO₂ emissions reduction measures, however the overall MTP/SCS will establish them countywide as part of the overarching strategy to reduce GHG emissions.

While both performance and design standards need to reflect the best thinking of agency staff, it is critically important that they be understood and adopted by the BCAG Board. Once adopted, these policies give decision-makers a rationale for supporting or rebuking proposed service changes; they also offer transparency for Butte County residents, allowing them to understand the basis for transit service decision-making. By having adopted standards, they can be written into approved service and operating policies, and offer B-Line and its service jurisdictions a good justification for implementing route changes or discontinuing service on some routes. The adoption process can sometimes be eased when members of the BCAG Board understand that standards inform, but do not dictate, decisions.

Standards will need to be periodically revisited and updated as operating conditions and B-Line's priorities evolve and financial conditions change. While there are benefits from maintaining a consistent set of standards, it is a good idea to consider whether they continue to reflect the community's priorities about every three years.

7 TRANSIT SERVICE PLAN

This chapter discusses proposed changes for B-Line services over the short- (by 2016), mid- (2017 through 2027), and long-term (to 2040) time horizons. The services described in this section are based on the iterative draft service plan proposals discussed with BCAG staff in 2014, and are also informed by the extensive data collection effort and passenger survey conducted in the fall of 2013. The focus of this chapter is on fixed-route transit services; B-Line's paratransit services are anticipated to remain essentially unchanged.

For planning purposes, the short-term service plan assumes that funding levels will remain at the status quo. Funding in the mid- and long-term assumes only a very modest increase in funding over existing levels.

Figures that illustrate the use of resources in the short- and mid-term periods are shown in Appendix C.

The plan lays out a series of enhancements and efficiencies to encourage ridership, provide more direct bus links between key destinations within Butte County (and within the major population centers in the county), and support a mode shift from single-occupancy vehicles to transit and other modes that support transit (walking and bicycling). In some areas with lower population densities and low ridership, routes are proposed for reduction or elimination so that resources can be redirected to areas likely to benefit more from improved/direct transit links, thus contributing to a shift from automobiles to transit, supporting a reduction in VMT and fuel consumption, and making a small dent in GHG emissions.

The recommendations endeavor to support the goals outlined in Chapter 6 and the overall goal of reducing VMT and creating more sustainable communities. Ridership estimates by route suggest some potential growth where key changes are proposed but the BCAG Travel Demand Model does not forecast exceptionally high levels of transit ridership growth, primarily due to the fact that investments in transit (available resources) are not projected to increase dramatically and land uses/population characteristics are expected to change only modestly. As a result, the mode shift is not dramatic and GHG emissions—although they show a reduction—are small (less than .3%). Modeled ridership by route and GHG emissions calculations are included in Appendix D.

THE B-LINE SERVICE PLANNING PROCESS

In many ways, B-Line's existing system is positioned well for the future, and many routes, particularly the intercity trunk Routes 20, 40, and 41, as well as the University Circulator Routes 8 and 9, are already performing well and do not need to be adjusted. In other cases, however, opportunities exist to adjust both local and regional routes to satisfy the service and performance standards detailed in Chapter 6 to better meet observed demand.

Some of the challenges encountered during the service planning process are a function of how much the existing street network limits options for improving/enhancing transit service. The

sheer limitations of a street system with a limited number of arterials suitable for transit – combined with an extremely limited number of options for locating bus layover points and turn-back areas – significantly reduces the number of options that can be considered. For example, Route 16 must travel almost 3 miles farther (round trip) than demand would suggest (along Esplanade to Highway 99) simply because there are very few suitable locations in the area for turning around a 40-foot bus. While this limitation and others throughout Chico may be reduced in the mid- to long-term timeframes as increased development extends the road network on the edges of the city, it nevertheless may continue to pose problems in designing service for Chico’s eastern neighborhoods, where there are few crossings of SR 99 and Bidwell Park.

SHORT-TERM SERVICE PLAN (BY 2016)

The short-term service plan describes how B-Line will transform over the next two years.¹ This plan begins to introduce elements that are seen in the mid- and long-term service plans, while also addressing immediate needs as determined through this planning process.

With a few exceptions noted below, regional services perform well on their current route alignments and at their current frequencies. The bulk of recommendations concern local services in Chico and Oroville.

Service criteria for the short-term service plan include:

- Assume an average layover rate (i.e., the percentage of time added to scheduled running time for layover, rest, and recovery periods) of 13%.
- Maintain existing levels of service on and/or make minimal changes to the most productive routes, including the CSUC Routes 8 and 9, intercity Routes 20, 40, and 41, and Oroville Routes 24 and 27.
- Maintain the existing span of service on all days, but increase the operating consistency/frequency on some routes (i.e., Route 7).
- Improve local service in Chico and Oroville by targeting route changes that maximize B-Line’s existing resources.

Figure 7-1 shows the recommended short-term service changes in Chico and Oroville. Figure 7-2 shows that despite the fact that services have been simplified, the majority of areas that are currently served by B-Line Transit will retain service under this plan.

¹ In response to early drafts of this plan, B-Line made preparations for modest changes to Route 15S in the immediate short-term timeframe (2015).

Figure 7-1 Short-Term Service Plan Recommendations

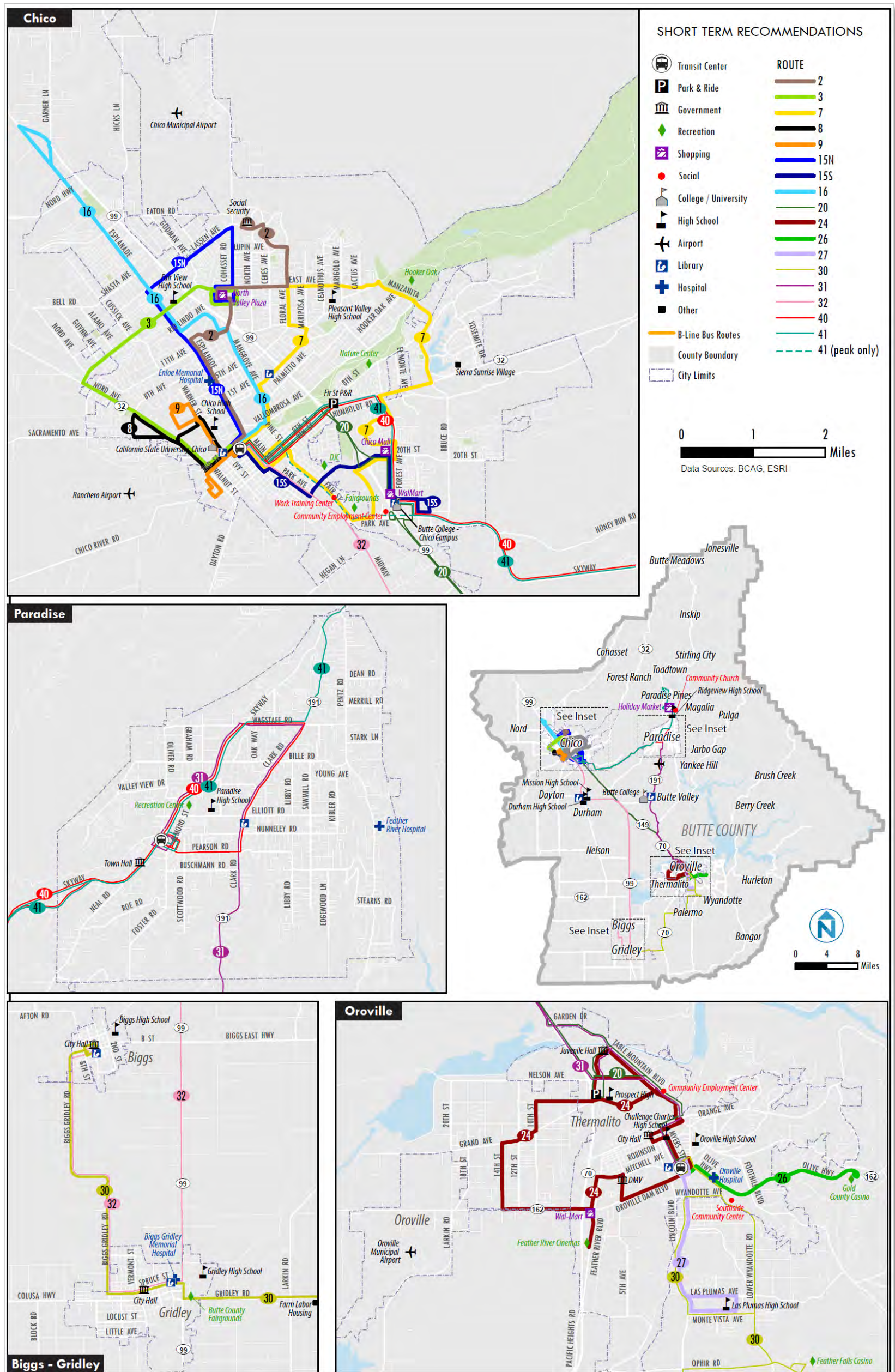
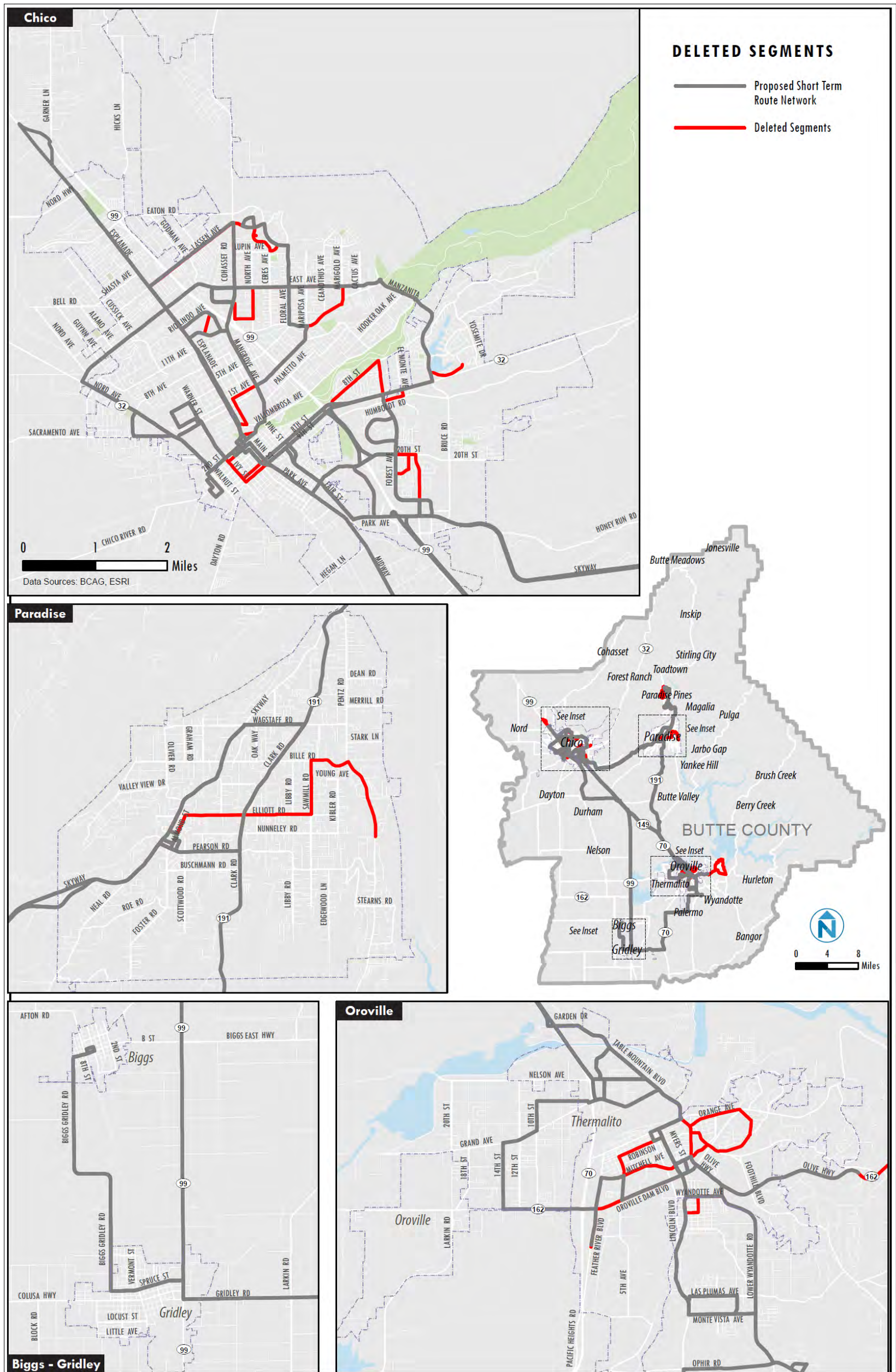


Figure 7-2 Short-Term Service Plan: Deleted Segments



Short-Term Service Overview

The following describes the short-term service plan's new routes. It highlights key changes between these services and today's existing services, demarcating them by service area.

Chico

Recommendations in Chico are designed to better match demand for certain types of travel with the right types of services, and as much as possible to route more frequent trunk route services on streets that are appropriate for transit service. As an example, local service along Mulberry Street is more appropriately served by a community circulator (i.e., Route 7) than a regional intercity service (i.e., Routes 40/41). Recommended services are as follows:

- **Route 15S “Downtown/CSU/Mall”**
Service Type: Urban Area Trunk Route
Serves: Chico Transit Center, Park, 20th, Forest, Raley's, the Skyway loop, and return.
Frequency (Peak/Base, in minutes): 15/30
Span: Same as current span. It is assumed that 15S's “peak period” will remain the same as today – a span of 9 hours (i.e., 6:18am – 10:37am & 2:18pm – 6:57pm).
Key Changes: Does not serve MLK Jr. Parkway or Springfield Drive.
- **Route 15N “Downtown/CSU/Lassen/Esplanade Express”**
Service Type: Urban Area Trunk Route
Serves: Chico Transit Center, Esplanade (express²), Lassen, Cohasset, North Valley Plaza, and return.
Frequency: 30/30
Span: Same as current span.
Key Changes: Northern terminus moved to North Valley Plaza transfer point/anchor; serves Cohasset instead of Ceres & Eaton loop; operates “express” along Esplanade.
- **Route 2 “Downtown/CSU/Ceres/Esplanade Local”**
Service Type: Neighborhood Circulator
Serves: Chico Transit Center, Esplanade (local), Cohasset, North Valley Plaza, East, Floral, Ceres/Lassen loop, and return.
Frequency: 30/60
Span: Same as current span.
Key Changes: As a complement to Route 15N, Route 2 will provide “local” service on the Esplanade and will no longer serve Mangrove Avenue or the Parmac loop. Route 2 serves areas currently served by Routes 7 and 15N.
- **Route 3 “Nord/East”**
Service Type: Urban Area Trunk Route
Serves: Same as current Route 3

² The route would function as an “express” within the Esplanade section, operating in the primary traffic lanes with one or two stops at key locations on the corridor. For these stops, the bus would either pull out to the side roads or stop at new stops in the main lanes, assuming a stop agreement can be reached with the City.

Frequency: 60/60

Span: Same as current span. No changes, except frequency would be a uniform 60 minutes.

- **Routes 4 & 5: Deleted**

Most segments of Routes 4 and 5 are replaced in the short-term service plan by an expanded Route 7. However, service on Manzanita between Mariposa and Marigold Avenues, and on Notre Dame Boulevard between Forest Avenue and 20th Street, along with other short segments, will not be replaced.

- **Route 7 “Downtown/CSU/Manzanita Loop CW/CCW”**

Service Type: Neighborhood Circulator

Serves: Bi-directional loop serving eastern neighborhoods, Forest, MLK, and Mulberry areas. In the clockwise direction, Chico Transit Center, Mangrove, 1st, Manzanita, Floral, East, Manzanita (Hooker Oak), Bruce, SR 32, Forest Avenue, Skyway, MLK Parkway, 20th, Mulberry, 8th Street, Main Street.

Frequency: 60/60

Span: Same as current span, but service will be consistent throughout the day.

Key Changes: Most notably, Route 7 absorbs parts of deleted Routes 4 and 5, as well as the Springfield Drive and MLK Jr. Parkway segments of current Route 15S. Route 7 no longer serves Sierra Sunrise Village.

Note: This expansion puts the route right at a 60-minute cycle time, including the 13% layover/recovery rate.

- **Routes 8/9/9c: University Circulators**

No changes are planned for these services.

- **Route 16 “Downtown/CSU/Mangrove/North Esplanade”**

Service Type: Urban Area Trunk Route

Serves: Chico Transit Center, Mangrove, Rio Lindo, Esplanade, Leora Court/Nord Highway, and return.

Frequency: 60/60

Span: Same as current span.

Key Changes: Serves Mangrove instead of Esplanade south of Rio Lindo.

Oroville

In Oroville, the short-term service plan primarily builds on the findings of the fall 2013 data collection effort, concentrating service in areas of strong demand and cutting unproductive routes. In particular, Route 24 has been expanded and Route 27 has been retained, essentially unchanged.

- **Route 24 “Thermalito”**

Service Type: Neighborhood Circulator/Feeder

Serves: Oro Dam Boulevard, DMV, Wal-Mart, Feather River Cinemas, Thermalito, Butte County Center, Downtown Oroville, Oroville Transit Center.

Frequency: 60/60

Span: Longer than current span.

Key Changes: Route extended to Feather River Cinemas to provide more direct service to Wal-Mart.

Note: at present, several minutes of remaining slack still exist in the Route 24 cycle time. Although expanding this route further is not recommended, it should be noted that this slack time could be used to serve additional destinations along the proposed route, if desired.

- **Route 25: Oro Dam**

Deleted. Parts of Route 25 – the spur to Feather River Cinemas, and service along Oro Dam Boulevard between Oroville Transit Center and 5th Avenue – are provided by Route 24.

- **Route 26: Olive Highway**

Service Type: Feeder

Serves: Oroville Transit Center, Oroville Hospital, Gold Country Casino, and return.

Frequency: 60/60

Span: Same as current span.

Key Changes: Low performing 26a (Kelly Ridge) and 26b (Orange & Acacia) routes, as well as South Oroville service, are no longer provided.

Note: Through-routed with Line 27. At present, several minutes of remaining slack exist in the Route 26-27 cycle time. This slack time could be used to serve additional destinations along Oro Dam Boulevard, if desired.

- **Route 27: South Oroville**

Service Type: Neighborhood Circulator

No changes are proposed for Route 27, which will be through-routed with Route 26.

Regional Routes

Most of the major regional routes, including Routes 20, 40, and 41, all perform strongly and as a result the short-term service plan recommends relatively few changes to these services (mostly minor routing changes in Chico, as shown in Figure 7-1). However, the regional coverage routes – Routes 30, 31, and 32 – do not perform quite as well and are slated for more substantial service changes in the short- and mid-term timeframes.

All regional routes are classified as “Intercity Arterial Routes.”

- **Route 20: Chico-Oroville**

No changes to Route 20 in the short-term timeframe. Consider rebranding and/or eliminating special Route 20 services (i.e., commute runs, Oroville Park & Ride service, weekend Oroville local service).

- **Route 30: Oroville - Biggs**

No route changes to Route 30 in the short-term timeframe. However, we recommend that BCAG reduce Saturday service to three trips daily (down from four) for scheduling consistency.

- **Route 31: Paradise - Oroville**

Deleted. Service is recommended to be converted to an employee vanpool.

- **Route 32: Gridley - Chico**

No changes to Route 32 in the short-term timeframe, although the service should be operated using a paratransit vehicle/small bus instead of a standard 40-foot bus.

- **Route 40/40X: Paradise – Chico**

All operational characteristics are the same as current service.

Key Route Changes: In Chico, Routes 40/40X will now operate on Forest Avenue, SR 32, and 8th/9th Streets at all times.

- **Route 41: Magalia – Chico**

All operational characteristics are the same as current service.

Key Route Change: In Chico, Route 41 will now operate on Forest Avenue, SR 32, and 8th/9th Streets for most runs. The existing peak run on Park Avenue, Fair Street, and Mulberry Street will remain. Route 41 no longer serves the Carnegie/Colter flag-stop loop.

- **Route 46: Feather River Hospital**

Deleted.

Other General Short-Term Recommendations

- Consolidate and/or eliminate bus stops for improved service and to reduce customer confusion.
- Coordinate with the City of Chico and Chico High School for improved Esplanade service.
- Redesign brochure, map, and schedules to improve user-friendliness and clarity.

Resource Allocation in the Short-Term

The short-term service plan during peak service (i.e., when CSUC is in session) will require a total of **25 peak buses** (one fewer than today) and approximately **260 revenue hours** on a school service weekday. This total is slightly increased from current revenue hours, approximately 257 revenue hours. Again, if Route 31 were converted to a vanpool service, a total of two (2) revenue hours and one (1) peak period bus could be recovered for use elsewhere in the system. Weekend hours would remain on par with current totals.

See Figure 7-3 below for an overview of annual resource allocation by route for the short-term timeframe.

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Figure 7-3 Short-Term Annual Resource Allocation

Route Number	Route Name	Annual Revenue Hours*		Change	% Change
		2013 (Scheduled)	2016 (Proposed)		
Chico Local					
2	Esplanade/Ceres	4,400	5,927	1,527	35%
3	Nord/East	4,419	4,525	106	2%
4	First/East	5,094	0	(5,094)	-100%
5	East 8th Street	5,224	0	(5,224)	-100%
7	Manzanita Loop CW	0	4,142	4,142	100%
7	Manzanita Loop CCW	1,849	4,142	2,293	124%
8	Nord	1,359	1,359	0	0%
9 / 9c	Oak/Warner/Cedar	2,460	2,460	0	0%
15N	NVP/Lassen Express	8,160	8,477	317	4%
15S	Park & Mall Loop	8,160	11,344	3,267	40%
16	Esplanade/Mangrove	3,402	3,453	50	1%
Subtotal		44,527	45,829	1,301	3%
Oroville Local					
24	Thermalito Loop CW	1,836	2,805	969	53%
25	Oro Dam	1,046	0	(1,046)	-100%
26-27	Hospital/Casino & S Oroville	2,945	3,060	115	4%
Subtotal		5,827	5,865	38	1%
Intercity					
20	Chico - Oroville	7,360	7,360	0	0%
30	Oroville - Biggs	1,642	1,642	0	0%
31	Oroville - Paradise	472	472	0	0%
32	Chico - Gridley	510	510	0	0%
40 / 40x	Chico - Paradise	5,233	5,233	0	0%
41	Chico - Magalia	4,012	4,012	0	0%
46	Feather River Hospital	344	0	(344)	-100%
Subtotal		19,573	19,092	(344)	-2%
Grand Total		69,927	70,785	858	1%

* Includes 13% assumed layover rate for 2016 data. Shaded rows indicate routes that will not be substantially changed in the short-term timeframe. Totals do not include Route 90 (Jesus Center) services.

Major Short-Term Initiatives

In addition to the service changes described above, we recommend that BCAG undertake several additional initiatives designed to speed up transit service and provide additional customer enhancements in the short-term. They are:

- **Butte Regional Operations Center.** BCAG and Butte Regional Transit are already in the process of developing and designing a new transit maintenance and operations center, which will also house BCAG's administrative offices. It involves the acquisition of approximately 7.5 acres surrounding the existing facility on Hegan Lane in Chico for a total facility size of 10 acres at full buildout. The facility and all adjacent improvements are scheduled to be completed in 2016.
- **Implementing BCAG's new bus stop spacing policy.** As described in Chapter 3, B-Line currently does not have a policy for locating and spacing bus stops, although B-Line has been working to consolidate stops. There are many examples of "legacy" bus stops that exist simply because they have always existed, and lead to erratic and inconsistent bus stop spacing along key routes. An example of this is along Route 15N at the intersection of Lassen Avenue and Esplanade, where a new sheltered bus stop on Esplanade was built as part of the CVS development, but the old stop on Lassen just after the route's right turn onto that street was retained. In the short-term timeframe and as part of restructuring the B-Line system, BCAG should consider implementing the new bus stop spacing and location policy outlined in Chapter 6 (i.e., a minimum distance between stops of one-quarter mile in general, or closer to one-sixth of a mile in denser areas). In practice, implementing the policy might include first updating BCAG's bus stop inventory, then following TriMet's methodology for assessment of stop locations described on page 6-9 of this report. Consolidation of stops could happen incrementally to reduce delay on key routes, or could be done wholesale as part of the upcoming route restructuring strategy. In any event, stop locations that we have already identified as redundant and which could be removed immediately include:
 - Cohasset & Christi; Cohasset & Cyndi (Route 15N)
 - Lassen & Santos, near CVS (Route 15N)
 - South side of East Ave, just east of Ceres Ave (Route 4)
 - East side of Forest, near the old Social Security office (Routes 5, 7, 15S, 20, 40, 41)
- **Improvements to the North Valley Plaza transfer center.** The North Valley Plaza bus stop is already an important transfer point between Routes 2, 3, and 4, as well as between B-Line, Butte College bus services, and Glenn Ride. In the short-term, the NVP transfer center will be served by Route 2 and will be the terminus for Routes 3 and 15N. In terms of amenities, the stop already has shelters, benches, and trash receptacles on both the north and south sides of Pillsbury Avenue. The south side stop also features bike parking. However, the stops are about 250 feet apart. To the extent possible, the stops should be re-sited to be across the street from each other, connected by a highly visible crosswalk. Shelters should also be re-labeled to show the B-Line name and logos, replacing the "Chico Area Transit" name that remains. Additionally, BCAG may consider adding additional bike parking facilities at this location, such as keyed or electronic bike lockers.
- **School tripper services.** "School tripper" services are routes that operate during peak school commute hours to provide access to and from schools. They are available to all

- members of the public, but their primary purpose is to get students to school before the first bell and to pick them up and return them to their residential neighborhood after the last bell. Many transit systems operate school trippers as a way to maximize limited resources when schools are located in out-of-the-way locations or in areas with low ridership. By operating buses to and from schools during limited hours, regular bus routes do not need to serve schools when students are not riding and can instead be employed in areas where ridership potential is greater. In Chico, morning and afternoon school tripper services may be implemented either along future fixed routes or along special alignments between residential neighborhoods and local schools. This strategy maximizes the benefits of transit as an alternative to driving for students while ensuring that regular fixed routes continue to effectively serve the general population.
- **Coordinate with regional casinos to share costs.** B-Line serves two casinos in the Oroville area: Gold County Casino, on Route 26, and Feather Falls Casino, on Route 30. In the short-term, BCAG should explore creating cost and/or service sharing partnerships with the casinos, which could help B-Line use cost savings to improve local service elsewhere (i.e., in central Oroville or Chico).

MID-TERM PLAN (2017 – 2027)

In the mid-term, B-Line would largely build on the short-term investments in transit service and amenities. In Chico, this would consist of combining Routes 15N and 15S to form the “Route 1” “BRT-lite” transit corridor, and regionally, service changes would largely work to ensure that BCAG is running the right type of services and making key infrastructure investments to support longer distance travel.

Service Changes in the Mid-Term

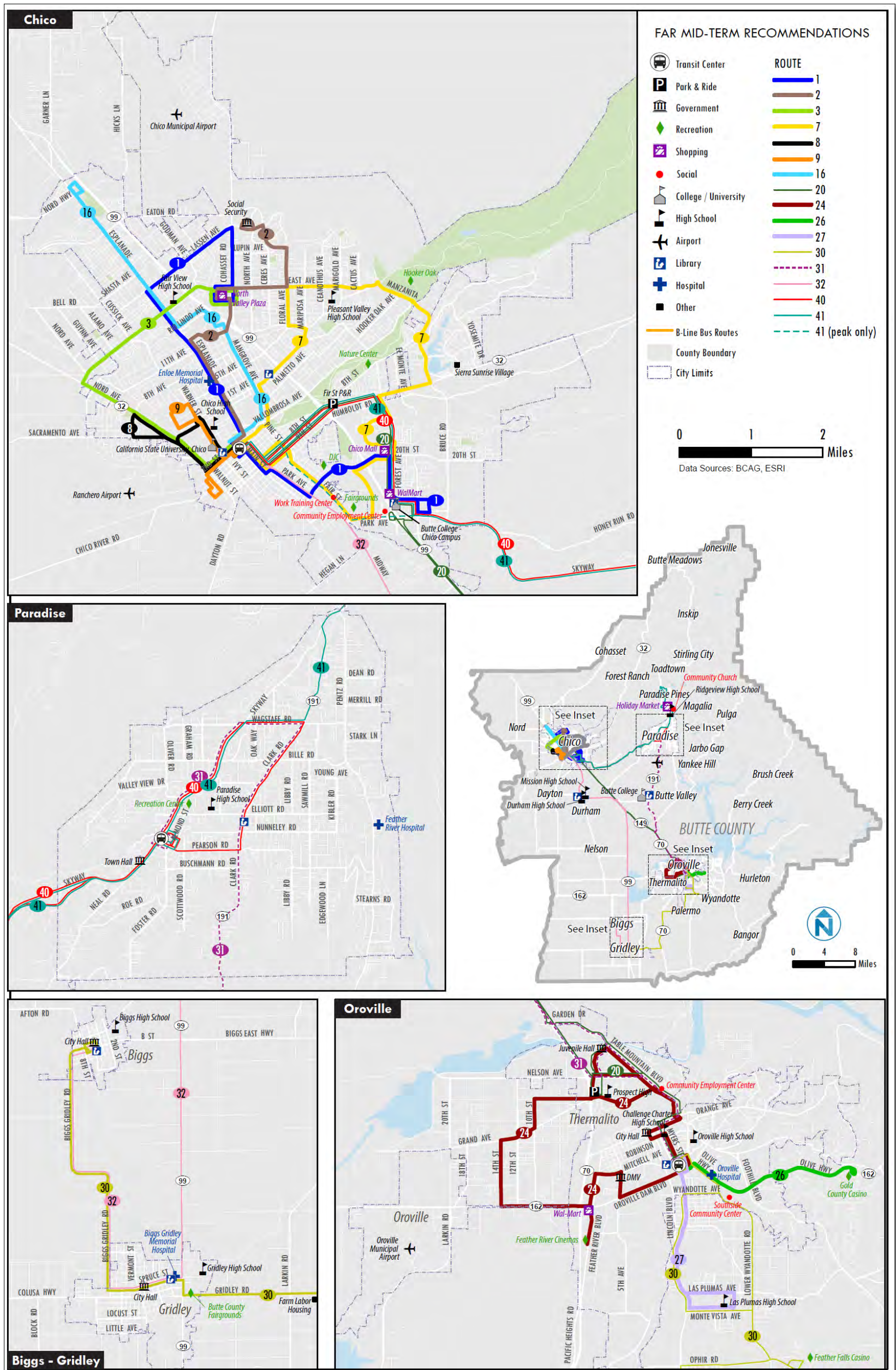
B-Line service changes in the mid-term are largely driven by major initiatives, described below. As seen in Figure 7-4, B-Line service in the mid-term is very similar to the short-term plan, having used the short-term changes as a foundation for enhanced service in key locations. The most significant change is the consolidation of Routes 15N and 15S into a through-routed Route 1, bringing the idea of a true transit corridor to fruition.

The mid-term recommendations for Oroville and Paradise service are much more general, and include:

- Consider additional hours and services on weekends.
- Consider additional cost sharing and/or service partnerships with regional casinos, if not implemented in the short-term timeframe.

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Figure 7-4 Mid-Term Service Plan Recommendations



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Resource Allocation in the Mid-Term

In the mid-term, during peak service (i.e., when CSUC is in session) B-Line will still require a total of **25 peak buses** (one fewer than today and the same as in the short-term) and approximately **254 revenue hours** on a school service weekday. This total is slightly less than current revenue hours, which are approximately 257 revenue hours, and also slightly less than short-term levels (see Figure 7-5) due primarily to speed efficiencies and reduced stops in the new Route 1 corridor.

Figure 7-5 Mid-Term Annual Resource Allocation

Route Number	Route Name	Annual Revenue Hours*			Difference 2016 - 2027	% Difference
		2013 (Scheduled)	2016 (Proposed)	2027 (Proposed)		
Chico Local						
1 "Short"	DTC to Mall	0	0	4,590	4,590	100%
1 "Long"	NVP to Mall via DTC	0	0	13,956	13,956	100%
2	Esplanade/Ceres	4,400	5,927	5,927	0	0%
3	Nord/East	4,419	4,525	4,525	0	0%
4	First/East	5,094	0	0	0	0%
5	East 8th Street	5,224	0	0	0	0%
7	Manzanita Loop CW	0	4,142	4,142	0	0%
7	Manzanita Loop CCW	1,849	4,142	4,142	0	0%
8	Nord	1,359	1359	1359	0	0%
9 / 9c	Oak/Warner/Cedar	2,460	2,460	2,460	0	0%
15N	NVP/Lassen Express	8,160	8,477	0	(8,477)	-100%
15S	Park & Mall Loop	8,160	11,344	0	(11,344)	-100%
16	Esplanade/Mangrove	3,402	3,453	3,453	0	0%
Subtotal		44,527	45,829	44,544	(1,275)	-3%
Oroville Local						
24	Thermalito Loop CW	1,836	2,805	2,805	0	0%
25	Oro Dam	1,046	0	0	0	0%
26-27	Hospital/Casino & S Oroville	2,945	3,060	3,060	0	0%
Subtotal		5,825	5,865	5,865	0	0%
Intercity						
20	Chico - Oroville	7,360	7,360	7,360	0	0%
30	Oroville - Biggs	1,642	1,642	1,642	0	0%
31	Oroville - Paradise	472	472	472	0	0%

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Route Number	Route Name	Annual Revenue Hours*			Difference 2016 - 2027	% Difference
		2013 (Scheduled)	2016 (Proposed)	2027 (Proposed)		
32	Chico - Gridley	510	510	510	0	0%
40 / 40x	Chico - Paradise	5,233	5,233	5,233	0	0%
41	Chico - Magalia	4,012	4,012	4,012	0	0%
46	Feather River Hospital	389	0	0	0	0%
Subtotal		19,573	19,092	19,092	0	0%
<i>Grand Total</i>		<i>69,927</i>	<i>70,785</i>	<i>69,510</i>	<i>(1,275)</i>	<i>-2%</i>

* Includes 13% assumed layover rate for 2016 and 2027 data. Totals do not include Route 90 (Jesus Center) services.

Major Transit Initiatives

Route 1 “Transit-Emphasis Corridor”

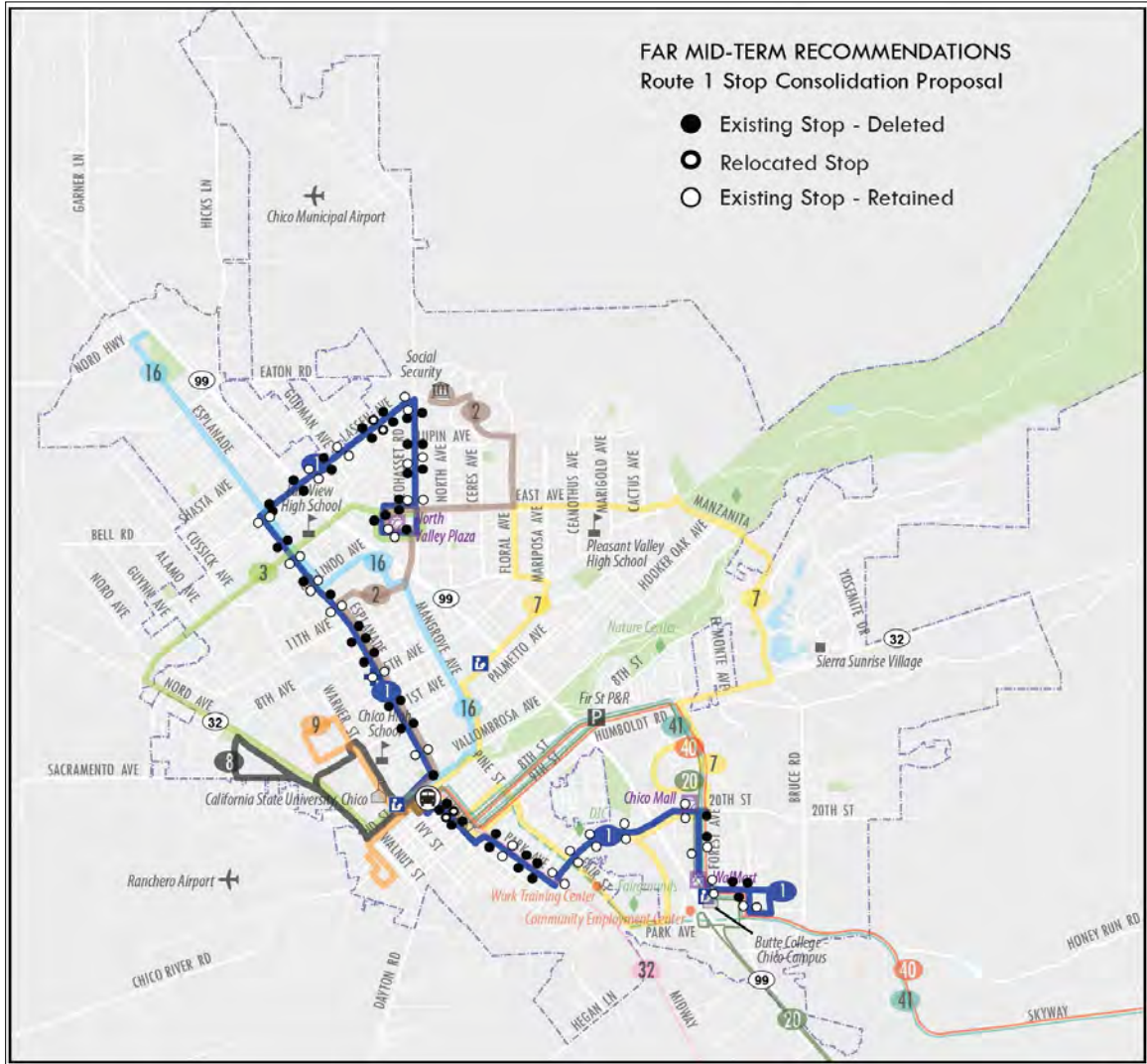
Successful “transit-emphasis corridors” or “transit-priority corridors” are arterials that are served by fast, frequent, and very “identifiable” transit service(s).

- In the short-term, Route 15S will become known as a “transit-emphasis corridor” due to its 15-minute frequency during the peak period and convenient service to and between major popular destinations.
- In the near mid-term, Routes 15N and 15S would be through-routed and rebranded as “Route 1.” Proposed mid-term frequencies would remain as they are in the short-term plan; on weekdays, service on the south end of the route (i.e., between the downtown transit center and the Mall area) would consist of two alternating runs – 1 ‘short’ and 1 ‘long.’ 1 ‘short’ would operate between the Mall area and the downtown transit center every 15 minutes in the peak, and 1 ‘long’ (between the Mall and North Valley Plaza via downtown) would operate every 30 minutes all day.
- In the far mid-term, the next major transit improvement(s) to be funded would be those that increase average operating speeds and improve service reliability. The ultimate goal is to determine how much the average speed needs to be increased to reduce the peak pullout requirement for Route 1 by one (1) bus. Reducing the bus requirement on this route could save as much as \$300,000/year in operating costs. It is possible to determine the Net Present Value of a 10-year cost savings in operating funds and use that to determine how much might be invested in capital projects to achieve the increased speeds. Potential capital program speed improvement projects could include:
 - Transit signal priority
 - Wider/targeted stop spacing
 - Off-board fare payment

Any of these improvements would reinforce the strength of the transit corridor, helping to solidify it in riders’ minds as the “backbone” of B-Line’s Chico operations. Figure 7-6 below shows a recommended approach to reduce bus stops along Route 1 in the far mid-term.

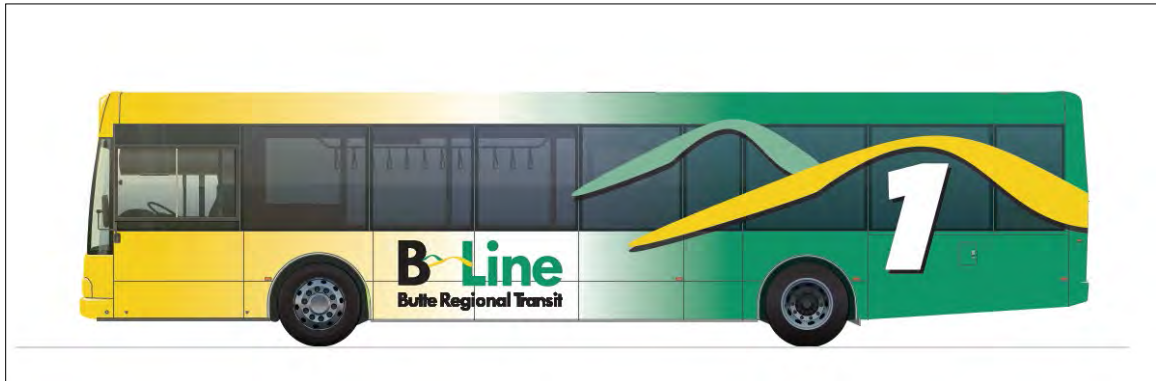
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Figure 7-6 Potential B-Line Route 1 Stop Spacing



Finally, another strategy to cement the importance of this corridor would be to implement special bus stop and vehicle branding. For illustration only, a sample mockup of a Route 1 “BRT lite” bus is provided as a concept to show how it could be distinguished from the other routes (see Figure 7-7 below).

Figure 7-7 B-Line Route 1 Bus: Sample Branding Concept



Expanded Park & Ride Strategy

B-Line currently serves two Caltrans park & rides in Butte County – Fir Street Park & Ride in Chico, and Oroville Park & Ride, located at Highway 70 and Grand Avenue. Park & rides are a convenient and very visible access point to transit service for commuters who have access to an automobile but do not wish to commute via car. In the mid-term, there are several opportunities to increase the role of park & rides as multimodal hubs within Butte County.

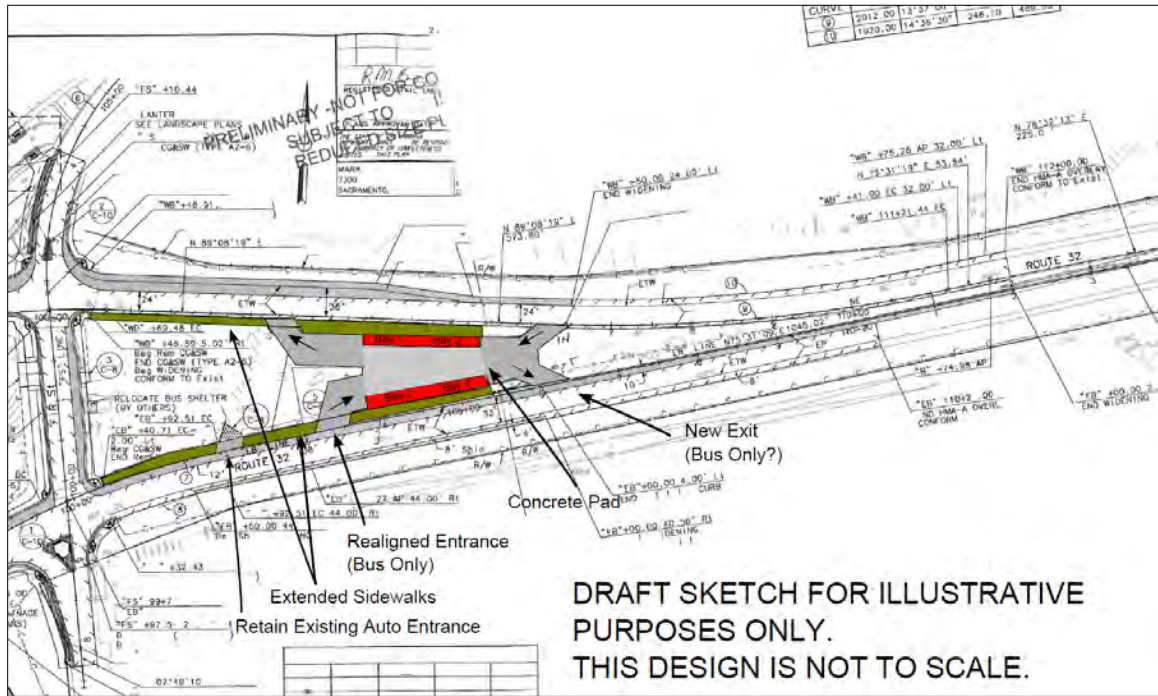
Chico: Fir Street “Park & Bike or Ride”

Currently, only Routes 5, 20, and 40X serve the Fir Street Park & Ride, which is owned and maintained by Caltrans. The current location of the Fir Street Park & Ride bus stop makes expanding services at the park & ride difficult. However, with a few targeted changes to the design of the east parking lot, the Fir Street Park & Ride could be converted to a key resource for both the city of Chico and B-Line; perhaps it could even morph into an “eastside” multimodal station with a transit facility, park & ride lot, bike facilities and better pedestrian crossings on SR 32.

In the far mid-term, the east lot at the park & ride could be rebuilt following the “sketch” proposal below (Figure 7-8). Streamlining the stops to allow for easy entry from the inner lanes of SR 32 permits the following:

- Rerouting Route 20 off of Highway 99 to follow Routes 40/41 up Forest Ave and down SR 32 into downtown Chico at all times
- Allowing Routes 40/41 to also serve the park & ride at all times
- Additionally, due to its proximity to Lower Bidwell Park (particularly the multi-use path entrance off of 8th Street adjacent to the park & ride), the Fir Street Park & Ride could be marketed as a regional entry point for the park for hikers and bicyclists, underscoring the benefits of enabling Routes 20, 40, and 41 to serve the park & ride.
- Given the very wide right of way, an opportunity exists to provide a multiuse path connecting Fir St. and Forest Ave. or Bruce St. along the north side of SR 32.

Figure 7-8 Proposed Fir Street Park & Ride Relocation/Expansion



Regional Park & Rides

Park & rides can also serve as hubs for different types of service; in addition to being served by fixed routes, they can also function as vanpool start points. In fact, in the mid- to long-term, there are several opportunities for additional park & rides throughout Butte County:

- **Oroville.** The current park & ride lot adjacent to Highway 70 has a total of 30 parking spaces. If there were demand for additional parking spaces in this area, BCAG could explore a shared parking agreement with Home Depot at Nelson Avenue & 3rd Street to provide additional capacity. If this option were pursued, Route 20 would need to be slightly modified to serve this lot.
- **Paradise.** There is an opportunity to pair a park & ride lot with a new transit center in Paradise, which will help simplify transit routing in the area, in addition to attracting potential new riders. The new facility could be located on Black Olive Drive, north of Birth Street and adjacent to Paradise Community Park. The small gravel parking lot just north of the park could be repurposed to serve BCAG customers.
- **Gridley.** Route 32 will remain in service (albeit with a small bus/paratransit vehicle) in the short-term timeframe, serving Gridley and Biggs via Durham. In the mid-term timeframe and if applicable given employment demographics, it may make more sense to implement vanpools between these locations (see below). Regardless of the service type, BCAG could work with Gridley to install a park & ride using shared parking spaces at the Butte County Fairgrounds. This park & ride lot could support either fixed route or vanpool services, or a combination of both.

In the long-term, BCAG may choose to implement a Butte County-to-Sacramento commute service, possibly using park & rides as major stops within the county.

New Downtown Transit Center

In the mid-term, and possibly in conjunction with the City's upcoming Downtown Access Plan planning processes, BCAG should work with the City to establish a new transfer location in downtown designed to expedite transit services (by reducing the amount of circling to reach the location) and to make connections between routes more intuitive.

Ultimately, the objective of a new downtown transit center in Chico would be to elevate the visibility of transit, and improve the experience of being a transit user in Chico. It would allow for better-timed connections among routes, offer a comfortable passenger facility, allow B-Line service to be streamlined, and promote development and activity in downtown Chico. When transit centers have been developed in central urban locations adjacent to key activity centers and shopping areas, they have provided a steady stream of patrons to local businesses while people wait for buses and transfer between buses. In theory, a new transit center should:

- Have space to accommodate the next 20 years of growth.
- Have adequate boarding/alighting space, layover space and circulation space to ensure smooth operations.
- Provide safe and convenient access for pedestrians and bicyclists.
- Provide a pleasant atmosphere for passengers.
- Meet the needs of bus drivers (including driver amenities such as a restrooms and break room).
- Provide an operations outpost for the transit agency, allowing B-Line riders to collect information about the service and talk with a customer service representative.

Potential New Transit Center Location

While identifying and vetting new transfer center locations deserves a separate planning process of its own, one concept for a new location for the transfer center was identified in downtown Chico. Although this is not proposed at this time, looking at new locations in Chico provides context for how future service changes might be implemented.

An example of a conceptual location is on West 4th Street in downtown Chico, between Main and Broadway Streets, immediately adjacent to City Plaza (see Figure 7-9). This location would require shutting this block of 4th Street to through traffic (save for deliveries/loading), and would also require BCAG and the City to work with adjacent businesses to ensure that access to an off-street parking lot from Main Street alone would be sufficient.

Figure 7-9 Sketch Concept of 4th Street Transit Center



Source map: Google

While relocating the transit center would involve coordinating with several entities including the City, adjacent businesses, and other stakeholders, and would incur moderate capital costs, the benefits likely would outweigh the costs. Relocating the transit center to 4th Street would result in the following:

- **Reduce bus-turning movements, thereby increasing safety for all modes downtown.** According to this analysis, during one peak hour (e.g., 7 a.m. to 8 a.m.), current B-Line bus routes operating both to and from the Downtown Transit Center make a total of approximately 100 turns. A 4th Street transit center, by contrast, would require 50% fewer turning movements.³ Reducing the number of turning movements also reduces route running times and minimizes opportunities for collisions with drivers, bicyclists, and pedestrians.
- **Increase visibility of B-Line bus service.** By centralizing B-Line bus operations in downtown Chico, the service could attract more riders. Additionally, the presence of B-

³ Assuming that Routes 1 and 7 would serve stops on Broadway and Main Streets, buses in the mid-term would make a total of 44 turning movements to/from the transit center during one morning peak hour.

Line buses near the city park would help residents and visitors alike better understand the ingrained nature of the transit system with the city and region.

Implementing Vanpool Service

Vanpool programs are cost effective means for providing commute transportation to employment sites. In Butte County, the most practical implementation of a vanpool service would be as a replacement for Route 31 (Paradise – Oroville) in the short- to mid-term timeframe. BCAG may also consider implementing vanpool service along Route 32 (Biggs – Gridley – Chico) in the mid-term timeframe. In the late mid-term timeframe, BCAG may also consider introducing vanpool services in Magalia and other flag-stop service areas.

Typically, vanpool programs may be managed by local or regional transit agencies, which provide vehicles, fuel, maintenance and full insurance coverage but charge a fare that is divided among the passengers. However, private options are available as well, with national operators such as VRide and Enterprise able to facilitate small (i.e., one vehicle) vanpool operations if appropriate. Additionally, some employers subsidize vanpool fares as an employee benefit or when addressing congestion or parking problems. For both public and private operations, the vanpool must identify a driver, who typically does not pay part of the fare. Ridematching services can also help facilitate and promote vanpooling; these services can be operated by public, private, or nonprofit organizations. Regardless of whether a vanpool program is operated in-house or by a contractor, a small administrative staff is needed to manage vanpool records, service issues, etc.

In practice, vanpools offer a higher degree of flexibility than fixed route services. For example, the precise route and schedule of the service are developed by participants themselves, with the service able to pick up vanpool participants at their residences and drop them off at their workplaces. Additionally, vanpools may be organized in such a way as to originate at and/or serve other park & ride lots.

LONG-TERM SERVICE PLAN (TO 2040)

In the long-term service plan, BCAG would continue to build on the foundations of the short- and mid-term service plans. Service changes would largely be dependent on urbanization and development throughout Chico and the region; in particular, service expansion, such as new coverage routes, would be reliant on new pockets of development on Chico and Oroville's outskirts as well as new roadway connections. New transit-priority corridors could also be added within Chico (and potentially Oroville) pending increased development (or redevelopment) within existing built-up areas.

Major Transit Initiatives

Much of the long-term service plan is speculative as it is highly dependent on future development throughout Butte County.

Figure 7-10 presents the major long-term transit initiatives in context. It includes the following elements:

- **Additional coverage routes.** Pending development on the edges of Chico, particularly along the Eaton Corridor and Bruce Road near Chico Mall, BCAG could expand transit services to include additional coverage routes serving these areas. Ideally, any coverage

routes would take advantage of new roadways connecting development areas with each other as well as older areas of Chico.

- **Additional transit-priority corridors.** Again, subject to increased infill development and/or redevelopment in existing built-up areas, BCAG could expand the “transit-priority corridor” concept in Chico, designating such arterials such as East Avenue and Warner Street as high-quality transit corridors. (Note: a Warner Street transit corridor is dependent on the completion of the street extension between West 7th Avenue and West 11th Avenue.)
- **Transit Village development at North Valley Plaza.** In the long-term, BCAG could work with the City of Chico and other major stakeholders to spearhead higher-density, transit-oriented development at North Valley Plaza. (Refer to the “Community Design Standards in Support of Service Design Standards” on page 6-14 for additional guidance.)
- **Potential regional transit consolidation.** In the long-term timeframe, BCAG may wish to further increase coordination, or pursue service consolidation, with other intra- and inter-regional transit providers, including Butte College, Glenn Ride, and Yuba-Sutter Transit. One option could be to form a regional Joint Powers Agreement (JPA) to oversee all regional transit operations.

CONCLUSION

Proposed changes to B-Line services in the short-term time horizon (by 2016) are focused on streamlining services and providing greater efficiencies. The recommendations for mid- (2017 through 2027), and long-term (to 2040) time horizons include investments to speed transit and to serve portions of Butte County, primarily in Chico, where transit investments will be appropriate given anticipated development.

Several of B-Line’s existing routes perform well and were not modified in the service recommendations. Others can better meet performance standards and address demand. The BCAG Travel Demand Model forecasts an increase in daily ridership, using a FY 2012 base year, with ridership growth at 2% by FY 2015, assuming short-term improvements (does not assume anything other than route changes). By FY 2020, ridership growth within the near mid-term timeframe is calculated to be 7%, with growth doubling to 14% by FY 2027. Assuming the changes made in the mid-term scenario are carried forward to the longer term, even without some potential expansion routes, ridership is calculated to be 24% greater in 2035 than it is today.

Even with modest changes to the system and essentially status quo operating levels, Butte County’s jurisdictions will enjoy some reductions in VMT, along with related reductions in GHG emissions, although the impacts to GHG are small: reductions in emissions overall are estimated to range from about 0.25% to 0.27% of existing emissions (see Appendix D for more information).

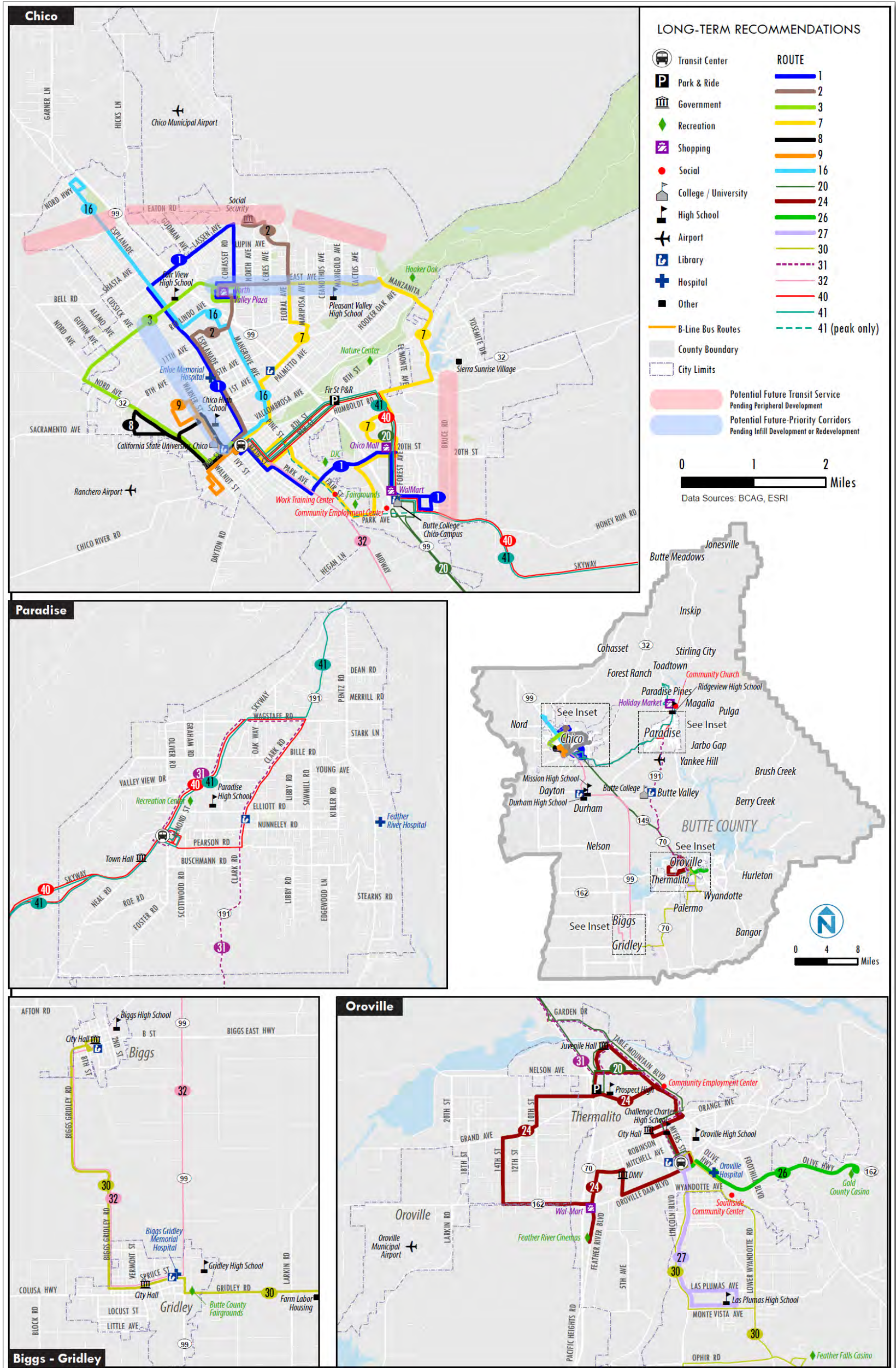
When major investments are made in transit capital projects or service operations, transit has the potential to displace the additional emissions caused by traffic congestion. In other words, as more passengers choose transit and private auto travel declines, cars and trucks will consume less fuel from idling in traffic. Under certain VMT growth scenarios, especially in urban areas already facing substantial congestion, these reductions may be significant. To the extent that B-Line service enhancements may get drivers off the road, traffic volumes may decrease, and congestion would in turn be reduced; however, given recommended investments in transit which are limited

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due to available funding, no major levels of displacement are projected in Butte County over the 25-year horizon of this planning effort.

Implementation of the transit service plan will require investment in several new capital projects, some of which are optional. These include improvements to the North Valley Plaza transfer center and the implementation of Route 1 “BRT lite” improvements. A recommended capital investment for Caltrans includes improvements to the Fir Street “Park & Bike or Ride” in Chico as well as the development of additional park & rides throughout Butte County in Oroville, Paradise, and Gridley. Finally, a new Downtown Chico Transit Center is recommended.

Figure 7-10 Long-Term Service Plan: Potential New Coverage Routes and Transit-Priority Corridors



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8 NON-MOTORIZED SERVICE RECOMMENDATIONS

INTRODUCTION

BCAG plays a key coordination role in the development of non-motorized transportation facilities and programs across the region. BCAG does this through technical assistance and incentivizing jurisdictions to adopt best practice policies, as well as to stress grant eligibility for proposed projects. This chapter provides recommendations on how BCAG can enhance its role in promoting active transportation opportunities throughout the county.

With implementation of the BCAG Transit & Non-Motorized Plan, it is estimated that BCAG can increase the bicycle and walking mode share from 6.9% to 10%, which would represent approximately 2,600 new bicycling or walking commuters and almost one million bicycling or walking commute trips per year (assuming that commuters bicycle or walk 75% of working days and that each day includes a home-to-work trip and a work-to-home trip). This would result in a modest mode shift that would provide measurable impacts in GHG emissions reduction.

Likewise, with implementation of the Transit & Non-Motorized Plan, BCAG aims for a 10 percent reduction in bicycle and pedestrian injuries and fatalities, equivalent to 19 fewer pedestrian injuries, 30 fewer cyclist injuries, and 3 fewer pedestrian or cyclist fatalities over a five-year period.

BICYCLE PARKING

With the exception of Chico, most jurisdictions in Butte County do not have a bicycle parking policy. The *2010 California Green Building Standards Code* (California Building Standards Commission, 2010) provides a best-practice bicycle parking policy. The mandatory provisions include the following language regarding bicycle parking requirements at non-residential buildings:

- **Short-Term bicycle parking.** If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 100 feet of the visitors' entrance, readily visible to passers-by, for five percent of the visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.
- **Long-Term bicycle parking.** For buildings with over ten tenant-occupants, provide secure bicycle parking for five percent of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and may include:
 1. Covered, lockable enclosures with permanently anchored racks for bicycles;

2. Lockable bicycle rooms with permanently anchored racks; and
3. Lockable, permanently anchored bicycle lockers.

BICYCLE ACCESS TO TRANSIT

B-Line provides bicycle storage on buses on a first-come, first-served basis. Bike racks are available on the front of all buses in B-Line's fleet and can accommodate up to three bicycles. The agency does not advertise a policy regarding the ability of passengers to carry bikes with them onto buses. Beyond accommodating bicycles on buses, several bicycle access-to-transit options may be pursued:

- **Bike share.** A transportation service offered where bikes are available at distinct station locations throughout a city to provide customers with the short term use of a bike, which can then be dropped off at any other station in the system. Bike share systems are intended to be used as a form of transportation, with a membership including free trips for the first 30-45 minutes, in order to promote high turnover of bicycles. Bike share can provide improved access to transit, addressing the first and final mile problem. Stations generally hold 5-20 bikes and are placed at key origins and destinations throughout a city or urbanized area.
- **Bicycle station.** These are generally large, indoor bicycle storage facilities that require annual or monthly memberships, but also often offer services such as bike repair, changing rooms and showers. A finite number of memberships are available. Case studies show that the implementation of showers, bike repair stations and educational material kiosks are effective at promoting increased biking. Cities generally have one bicycle station, which is usually located in the central business district or at a major transit center.
- **Bicycle lockers.** These are boxes or lockers where one bike is stored and is generally locked with a unique key or code. Bike lockers therefore prevent both theft and vandalism. Most bike lockers are rented out either annually or monthly. Thus, when that cyclist is not using the locker, it is left empty.
- **Pay-by-the-hour bicycle lockers.** These are similar to bike lockers described above except that fees for use are on a smaller time scale, either hourly or sometimes daily. Fees are generally small, but encourage a quicker turnover of bicycles, which allows for more cyclists to use the facility.
- **Covered/uncovered bicycle racks.** These are the traditional form of bicycle parking that is not secured beyond the use of personal locks. This type of parking is much more space efficient, but does not allow the level of security as the other forms of bicycle parking. This is an especially unappealing option for cyclists leaving their bikes for extended periods of time, which is likely the case at major transit hubs.

Recommendations

- Investigate the possibility of a bike station at the downtown Chico Transit Center.
- Investigate the potential for implementing a small bike share program in Chico. A station would be provided at the Chico Transit Center, Fir Street Park & Ride, and possibly other major origins and destinations throughout Chico. This would allow users to more easily access stations without worrying about securing their own personal bikes from the weather and theft.

- Provide pay-by-the-hour bicycle lockers at transit stations through the region—Chico Transit Center (2nd and Normal), Fir Street and State Route 32 Park and Ride, Paradise Transit Center (Almond Street and Birch Street), Oroville Transit Center (Oro Dam Boulevard and Highway 70), Gridley (SR 99 and Ford Avenue), and Biggs (6th and B Street).

WAYFINDING SIGNAGE

Presently, jurisdictions in Butte County do not have wayfinding signage policies for non-motorized modes. The following wayfinding policies are recommended for jurisdictions:

- Adopt a policy in the jurisdiction’s active transportation plan to establish wayfinding signage such as the one in the City of Oakland’s policy: “Route Signage: Develop an informative and visible signage system for the bikeway network, building on existing bikeway signage, that includes directional and distance information to major destinations.”
- Bikeway signage should follow Manual of Uniform Traffic Control Devices and California Highway Design Manual standards.
- Identify locations for signs at decision points for bikeways and walkways to major destinations. Place signs at decision points approximately 1/2 mile apart within cities; distance should be lengthened for intercity bikeways.
- Identify locations for signs for pedestrian wayfinding to major destinations within areas identified as most suitable for non-motorized modes. Pedestrian signage should guide travelers to nearby, major destinations and may also be educational.

HIGH-PRIORITY PROJECTS

High-Priority Pedestrian Areas and Transit Stops

To identify high-priority pedestrian areas, as shown in Figures 8-1 through 8-3, the regional suitability score (see Chapter 4) was analyzed by calculating the top five and ten percent of scores within each jurisdiction. To provide equity among the jurisdictions, the scores were analyzed separately so that priorities could be identified for each jurisdiction. The results classified the census block data into “high” and “very high” priority pedestrian areas. Using the classified census blocks as a guide, the high priority areas were further refined based on changes in the land use and the location of dense commercial and residential development, commercial corridors, and key origins or destinations. Particularly important land uses included large multi-family complexes, B-Line transit centers, large retail complexes, schools and hospitals. The refined priority areas were classified as high or very high priority based on the influence of the regional suitability score per jurisdiction.

The major influences to the high-priority pedestrian areas from the regional suitability score for all jurisdictions were the land use diversity and urban design (intersections per square mile) variables. Land use diversity and urban design contributed equally to all jurisdictions except for the Town of Paradise and the City of Biggs, where land use diversity contributed more significantly than urban design.

The high-priority transit stops are shown separately from the priority pedestrian areas. The regional transit access score (see Chapter 4) was also analyzed by calculating the top five and ten

percent of scores within each jurisdiction. The priority transit stops demonstrate where investment in pedestrian infrastructure to and from the stops would be the most beneficial.

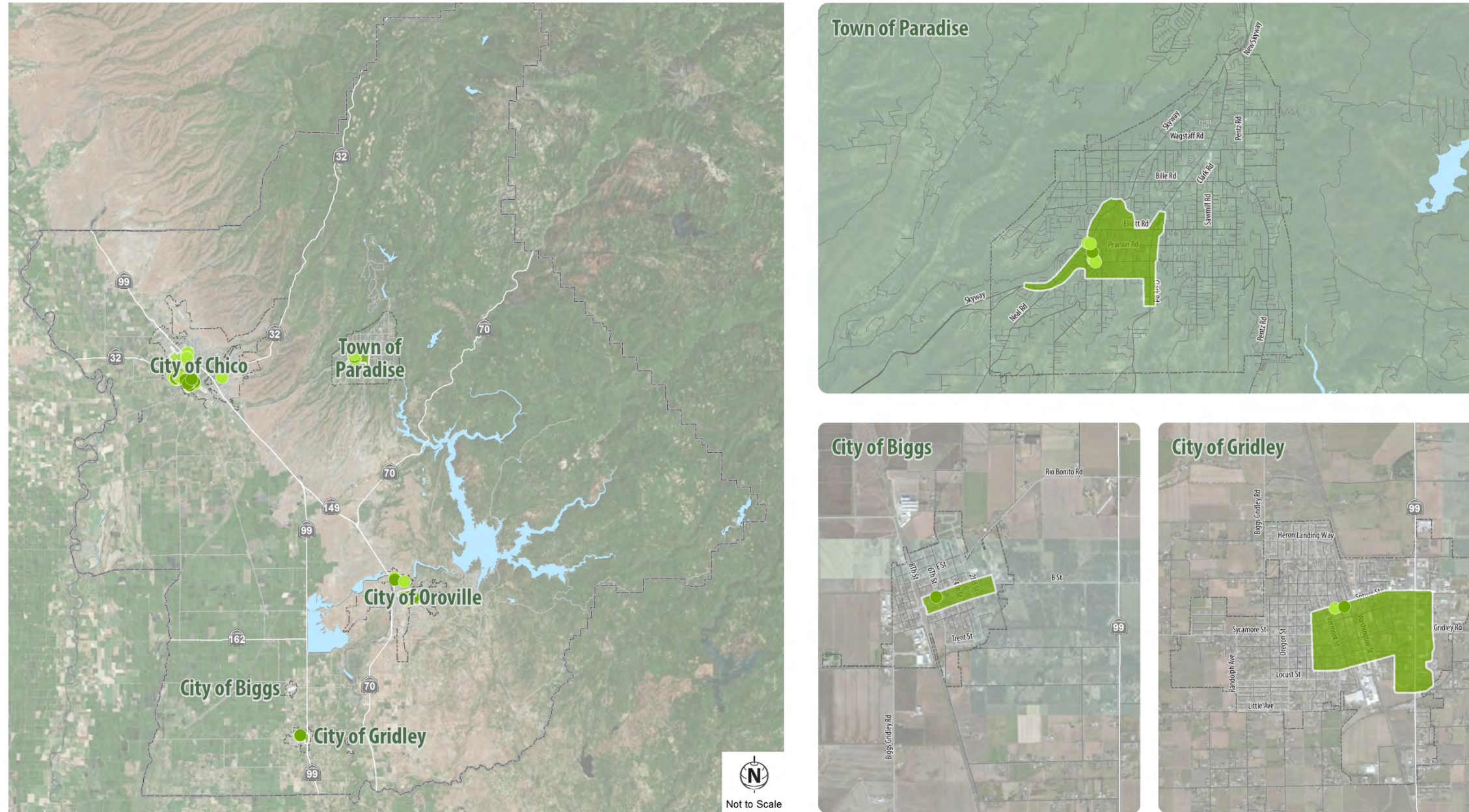
High-Priority Proposed Bikeway Projects

High-priority proposed bikeway projects, as shown in Figures 8-4 through 8-6, were identified by first using the priority pedestrian areas (based on the regional suitability score for walking and bicycling) to select all bikeway project segments that were contained inside or located within ½ mile of these areas. Priority bikeway segments were further refined to ensure that they created a connected and comprehensive bicycle network. High-priority facilities were further amended based on the surrounding land use. The logical termini of bikeways were identified by changes in land use and density, to serve a number of residents or provide access to a denser region of destinations. In many cases, only certain sections of proposed bikeway were designated as high priority, based on this land use criteria.

From these high-priority bikeway projects, transformative projects can be identified that will significantly improve conditions for bicyclists. These are projects that are already identified in existing plans, but would provide the greatest benefits from a regional mobility perspective:

- Chico: Add a bike path along State Route 99 and bike lanes on Mangrove Avenue, Chico River Road, 5th Street, and Holly Avenue.
- Oroville: Add a bike path along the Feather River and the railroad tracks, and bike lanes on Oroville Dam Boulevard, Montgomery Street, Mitchell Avenue and Feather River Boulevard.
- Paradise: Extend the Skyway bike path to the city limits, extend the bike lane on Pearson Road, and add bike lanes to Bille Road, Sawmille Road and Wagstaff Road.
- Gridley: Add a bike path along the railroad tracks and bike lanes on Sycamore Street, State Route 99 and on either side of Sycamore Middle School.
- Biggs: Add a bike path along the railroad tracks and a bike lane on B Street.

Figure 8-1 High-Priority Pedestrian Areas & Transit Stops – Countywide



Not to Scale

Transit Stops

- High Priority
- Very High Priority

Pedestrian Areas

- High Priority
- Very High Priority

FEHR PEERS

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High Priority Pedestrian Areas & Transit Stops

Figure 8-2 High-Priority Pedestrian Areas & Transit Stops – Chico

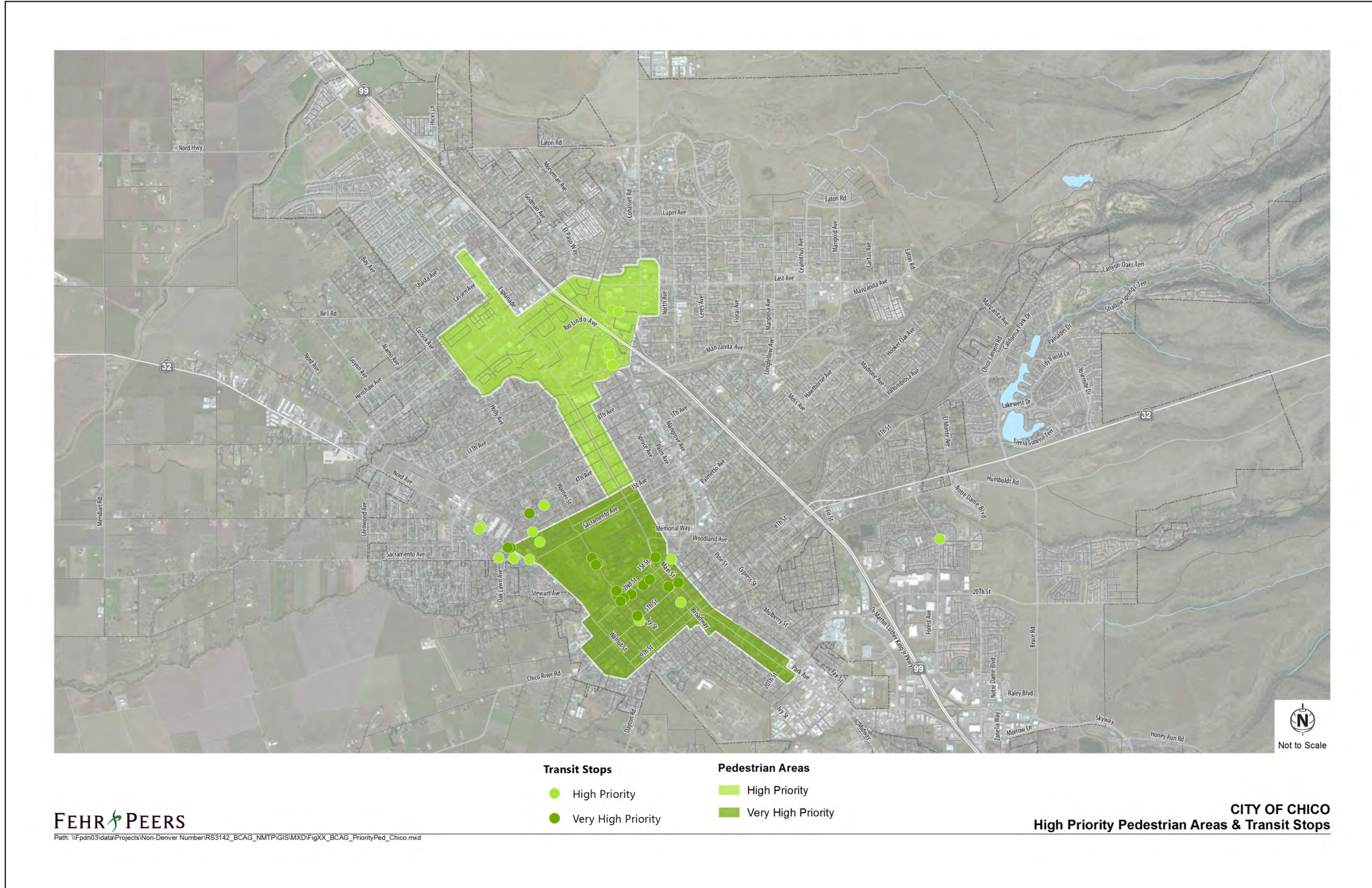


Figure 8-3 High-Priority Pedestrian Areas & Transit Stops – Oroville

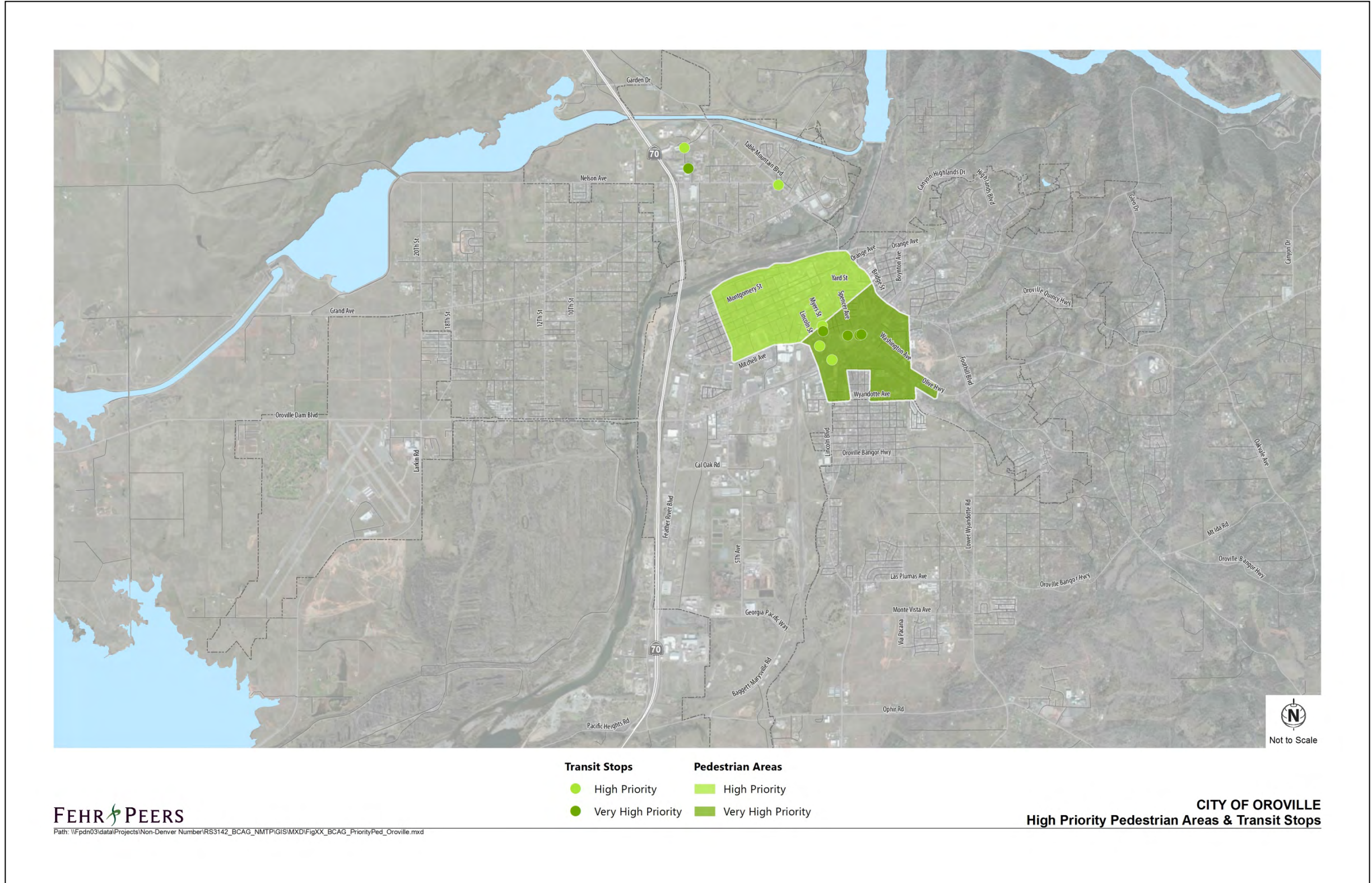


Figure 8-4 High-Priority Proposed Bikeway Projects – Countywide

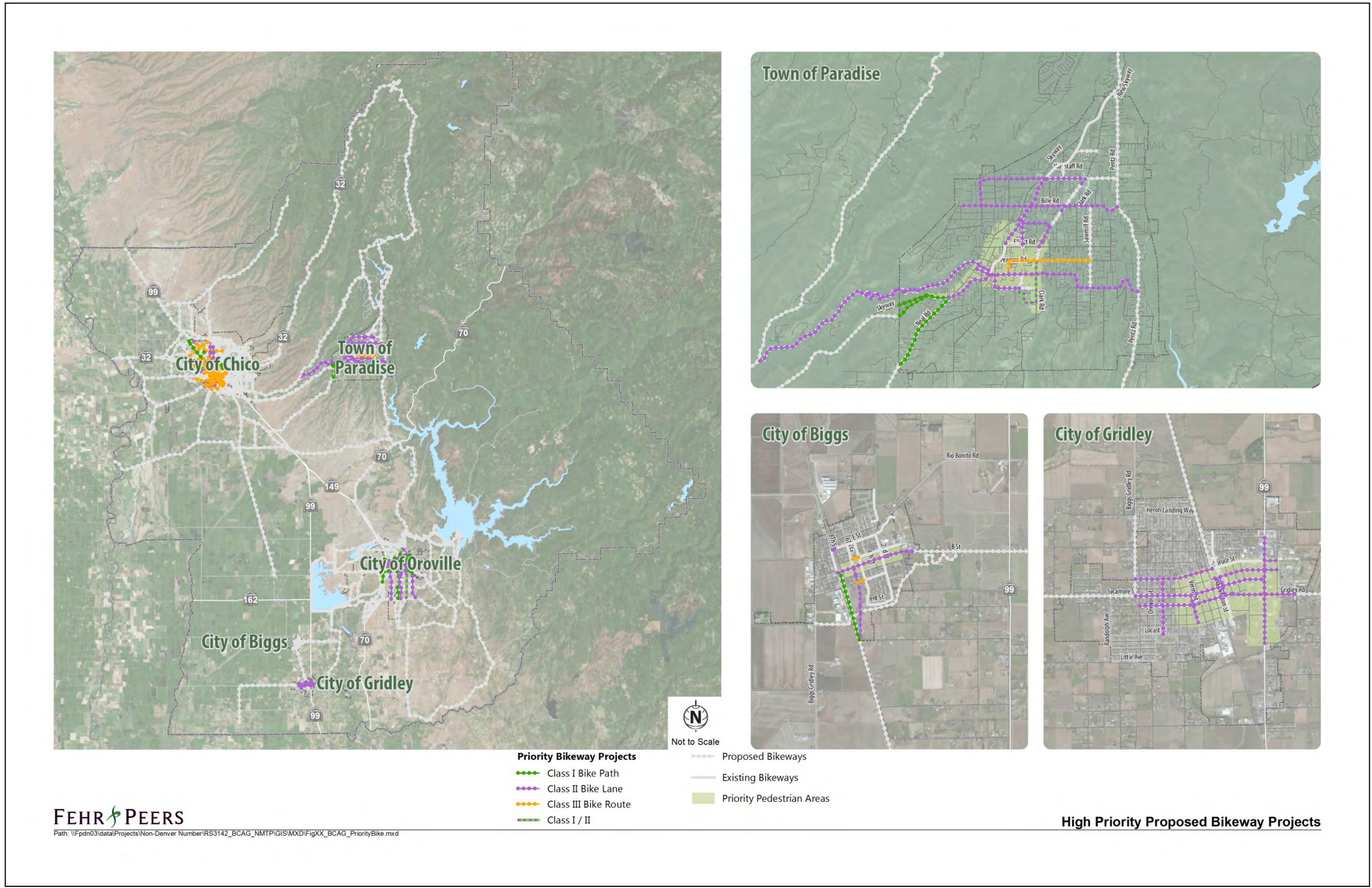


Figure 8-5 High-Priority Proposed Bikeway Projects – Chico

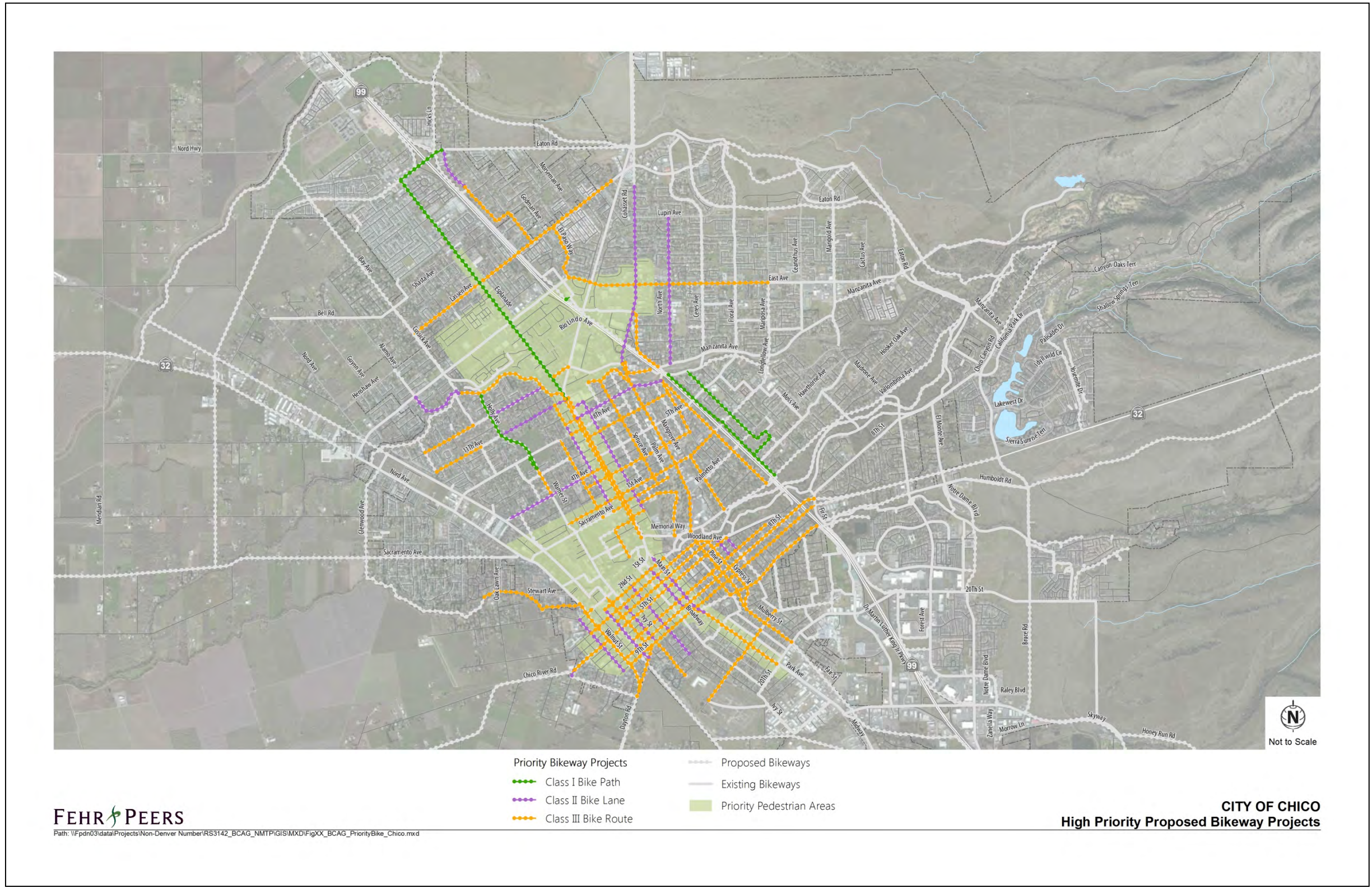
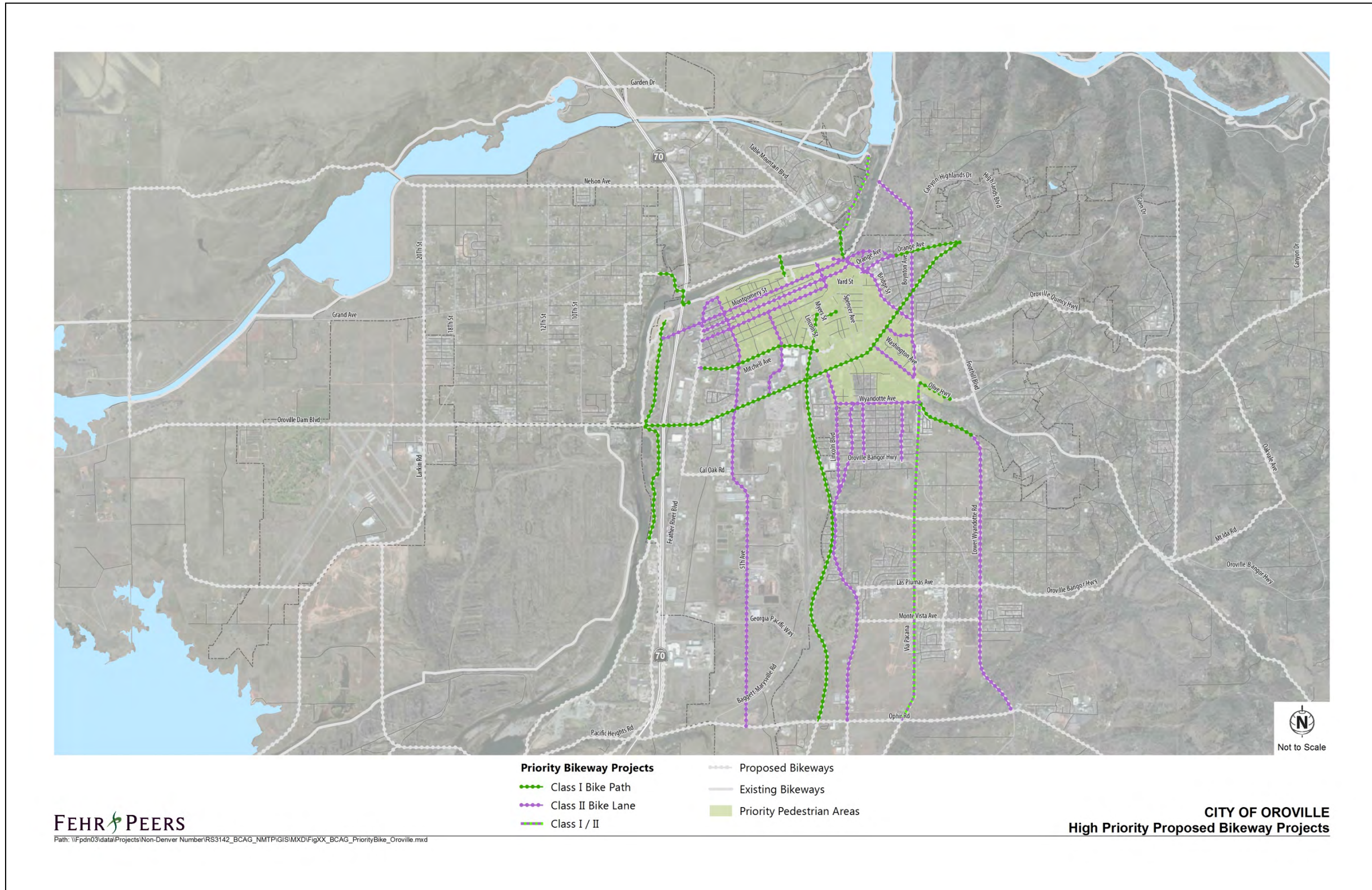


Figure 8-6 High-Priority Proposed Bikeway Projects – Oroville



MAJOR BICYCLE & PEDESTRIAN PROJECTS

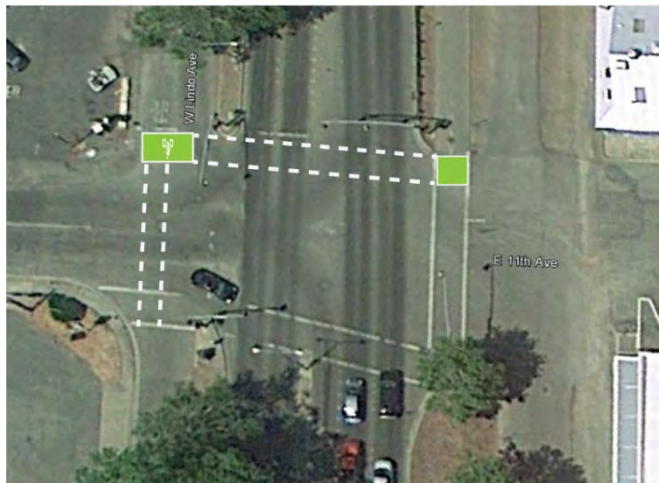
Improved Bicycle Facilities on Esplanade

Chico Airport Trail is a 3.25 mile trail that runs alongside the abandoned Sacramento Northern Railroad right of way from the Chico Municipal Airport at the northern end to the Esplanade/11th Avenue intersection at the southern end. This is a well-used trail that brings cyclists from the dense residential area north of East Avenue and east of State Route 99 to the south toward downtown. There is a frontage road on either side of Esplanade where the trail ends at the Esplanade/11th Avenue intersection. Many riders continue from the path onto the frontage road east of Esplanade, which becomes one way northbound after 9th Avenue. Therefore, wrong-way riding by southbound traveling cyclists along this frontage road occurs frequently.

To encourage southbound cyclists to cross Esplanade to the one-way southbound frontage road to the west, the City could investigate additional crossing enhancements at the Esplanade/11th Avenue intersection, where the bike path terminates. A two-stage turn queue, as described in the *NACTO Urban Bikeway Design Guide*, is a potential traffic control device that could facilitate safe bicycle crossings on the north side of the intersection and to the front of the vehicle queue at Rio Lindo Avenue with the use of a bike box. A bicycle signal head could direct the first crossing stage. Cyclists could then be able to get a head start in front of motorists for the second stage crossing, across 11th Avenue along the frontage road.

The city is currently recommending that the two frontage roads on either side of Esplanade serve as designated bike routes. By implementing sharrows, wayfinding and signage, this facility can provide a continuous, safe and accessible bicycle facility from the Chico Airport Trail into downtown Chico.

Other important considerations for making recommendations at this intersection include the signal timing along this corridor. Given that 11th Avenue is a minor street, bicycle detection could be provided at the termination of the bike path to trigger the bicycle signal phase. This could increase bicycle compliance at the intersection and encourage cyclists to cross there, rather than ride the wrong way along the east frontage road or attempt to run the red light.



To ensure the success of a treatment along the frontage road corridors, it is important to consider the number and location of access points to address conflict points between turning vehicles and bicyclists. A closer examination of the curb-to-curb width, on-street parking and travel lane width will reveal which bike facilities are feasible along this corridor.

Lastly, both frontage roads serve as transit routes for the current B-Line Route 15N. Bicycle facility placement should consider bus stop locations as well as explore the feasibility of a left-side facility to mitigate bus-bike conflicts.

Before moving forward, these recommendations need to be considered by the City of Chico. After these suggestions are refined or supported by the City, BCAG can support the City in finding funding sources to implement this project, such as an Active Transportation Program grant or State Transportation Improvement Program (STIP) funding.

Safe Routes to Transit Plan

A Safe Routes to Transit Plan (SR2T) is a cost-effective way to increase B-Line ridership and address regional traffic relief by providing safe and accessible walking and bicycling routes to transit stops and stations throughout the region. This plan should be completed on a regional scale, covering the extent of Butte County, to capture the catchment area of the B-Line system. Recommendations for a SR2T plan include:

- Begin with the establishment of a community stakeholder group to provide insight during each stage of the process, represent the needs and interests of various local groups and ensure that recommendations are consistent with local goals and values.
- More narrowed study areas within Butte County should be defined based on a determined bicycle and walk catchment area from identified transit stops and stations.
- Extensive data collection of existing conditions within these study areas should include transit stops, stations and services, bicycle and pedestrian facilities (present and missing), bicycle and pedestrian collisions, field observations, vehicle counts, land use characteristics and population characteristics.
- Based on an existing conditions analysis, national best practices should be applied to make project recommendations that increase the safety and accessibility of biking and walking to transit. Recommendations should be made for each of the study areas identified earlier in the process.
- The project recommendations previously identified should be prioritized based on a number of criteria determined with the assistance of the community stakeholder team. These may include: gap closures, safety improvements, access to or from key origins and destinations, and end-of-trip facilities.
- To bring projects to implementation stage, coordination between BCAG, the local jurisdiction, B-Line transit and other agencies (including Caltrans) is required. Once the project is ready for implementation, funding can be acquired through a number of federal or state programs.

Sidewalks and Crossings near B-Line Stops

The area around B-Line stops and stations should have a connected network of bicycle and pedestrian facilities. If there is a large arterial adjacent to a stop or station, enhanced crossing facilities for both bicyclists and pedestrians should be implemented to ensure that users of all ages and abilities feel comfortable crossing the arterial. Large arterials near transit facilities should also have wide or buffered sidewalks, multi-use paths or comfortable on-street bicycle facilities on them. Within a ½-mile buffer from each transit facility, the sidewalk network should be comprehensive and connected, with marked crossings at appropriate locations. Bicycle facilities, which will vary depending on the speed and level of traffic of a road, should be provided within a one-mile buffer of all transit facilities. Specific recommendations include:

- Chico Transit Center (2nd Street and Normal Avenue)

- An additional east-west bike facility on 2nd Street or 3rd Street would supplement the existing north-south facilities.
- Given the large amount of pedestrian traffic coming from CSU Chico, enhanced crossings along 2nd Street would improve access to the Chico Transit Center.
- Oroville Transit Center (Spencer Avenue) – Oro Dam Boulevard is a large arterial adjacent to the transit station. Enhanced crossings should be investigated for Oro Dam Boulevard as well as other surrounding roadways such as Washington Avenue, Myers Street, and Mitchell Avenue.
- Paradise Transit Center (Birch Street and Almond Street)
 - Sidewalk gaps should be completed in the ½-mile buffer surrounding the Transit Center, including along the east side of Almond Street, Black Olive Drive, Birch Street and Foster Road.
 - Crossings should be enhanced with appropriate traffic control devices.
- Biggs Transit Center (B Street and 6th Street) – Gaps in the sidewalk network should be completed.
- Fir Avenue Park and Ride (Fir Avenue and State Route 32)
 - This Park and Ride is located between the eastbound and westbound travel lanes of State Route 32, which has high traffic volumes and speeds. Therefore enhanced crossing facilities are necessary for pedestrians to access to the Park & Ride.
 - A separated multi-use path should be considered along the north side of State Route 32, where there may be sufficient right of way.

Fir Street and Highway 32 Park & Ride Access

Complementing the relocated and expanded Park & Ride facility at Fir Street and State Route 32 as described in Chapter 7, a pedestrian and bicycle facility is recommended on the north side of SR 32 between the Chico Park & Ride and Bruce Road to provide a connection to the transit facility from the residential area to the east. The type of facility recommended will depend on the right-of-way available behind the apartment complexes west of Forest Avenue. The City is currently proposing a designated bike route on SR 32 from Bruce Avenue going west into downtown. However, a separated facility would serve as a more appropriate connection for bicycles and pedestrians, given the traffic volumes and speeds on SR 32.

Regional Bikeways

Regional bikeways play an important role in facilitating non-motorized inter-city travel. Presently, there are no regional bikeways linking jurisdictions within Butte County, however, several have been proposed and are also discussed in Chapter 4 (see page 4-5 under Unincorporated Butte County). The regional bikeways of greatest importance include the Chico-Paradise bike path, Biggs-Gridley bike path, Oroville-Biggs bike lanes, Oroville-Paradise bike lanes and bike route, and Oroville-Chico bike lanes. With the exception of the Biggs-Gridley bike path, these proposed bikeways would likely be used for recreation due to the long distances between jurisdictions.

Figure 8-7 Proposed Regional Bikeways

Bikeway Name	Description
Chico-Paradise bike path	Skyway, Honey Run Road to Paradise Town limits
Biggs-Gridley bike path	Along SPRR tracks from Gridley City limits (Orange Ave.) to Biggs City limits (8th Street)
Chico-Durham Midway Bike Path	Continuation of Midway Bike Path from terminus at Jones to Durham Pentz Rd.
Oroville-Paradise bike lanes	Class II bike lanes on Cherokee Road from Oroville City Limits to SR 70; Class II bike lanes on SR 70 from Cherokee Road to Pentz Road; Class II bike lanes and Class III bike route on Pentz Road from SR 70 to Paradise Town limits
Oroville-Biggs bike lanes	Class II bike lanes on Biggs East from Biggs City limit to Larkin Road and Larkin Road from Biggs East to Oroville City limits

Recreational Bikeways

California’s Strategic Growth Council houses the Health in All Policies (HiAP) Task Force (created by Executive Order in 2010) to ensure the health and wellbeing of the public is considered in the development of plans and policies. The purpose of HiAP is to offer a collaborative approach to improve the health of Californians by integrating health into sustainability planning.

The following regional bikeway projects are identified to highlight their popularity and importance to the region as significant routes used by cyclists. Recreation, cycling safety and health are important quality of life factors.

Figure 8-8 Regional Recreation Facilities

Bikeway Name	Description
Humboldt Rd.	From Bruce Rd. to State Route 32
Honey Run	From Skyway Rd. to Paradise
State Route 32	Altatina Drive to Forest Ranch
Cohasset Rd.	Jack Rabbit Flat to Cohasset General Store

CONCLUSION

Much of the foundation for non-motorized mode planning has already been established by jurisdictions through past bicycle plans. Through coordination by BCAG and movement toward compliance with the Active Transportation Program by jurisdictions, significant progress will be made towards enhancing opportunities for non-motorized modes. Both the improvement of bicycle and pedestrian facilities and the reduction of GHG emissions are priorities that go hand-in-hand. Strategies to reduce GHG emissions influence the built environment, usually in a way that includes investments in new pedestrian facilities and a better bicycle infrastructure.

Primary actions to enhance the environment for bicycles and bicycling as an alternative to single occupancy vehicles include lockers and storage facilities; bicycle routes; paths; employer commitments to showers and storage facilities; and seamless connections with transit.

Implementation of the recommendations will require investment in several new capital projects.

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9 FINANCIAL MODEL

The financial element for the BCAG Transit & Non-Motorized Plan is the subject of this chapter. The first section presents operating cost projections and the capital improvement program to support the short and mid-term service plan and the funding sources to pay for them as a way for transit and non-motorized modes to better contribute to GHG emission-reduction goals. The short-term plan covers the three year period from FY 2014/15 through FY 2016/17. The mid-term plan extends from FY 2017/18 through FY 2026/27. The long-range projection makes assumptions for 2040. This chapter concludes with a series of potential new funding sources that could be pursued by BCAG to help fund service enhancements and capital investments.

SHORT-TERM AND MID-TERM SERVICE LEVELS AND OPERATING COST PROJECTIONS

The short-term and mid-term transit service plans are described in detail in Chapter 7. The short-term service plan describes how B-Line will transform over the next two years and begins to introduce elements that are seen in the mid-term service plan. Most of the short-term service changes are focused on route simplification, improved circulation, creating route terminal points at key destinations, and improving on-time performance of existing routes. In the mid-term, the focus turns to creating transit-priority corridors and developing a rapid bus service along the primary B-Line trunk route connecting North Chico with downtown and the Chico Mall area in southeast Chico.

Figure 9-1 presents operating cost projections from FY 2014/15 to FY 2026/27 for the short-term and mid-term planning horizons. It provides a breakdown of service levels and operating costs for fixed route and paratransit service. Detailed assumptions are defined below.

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Figure 9-1 Operating Cost Projections

	Actual	Short-Term Projections				Mid-Range Projections								
	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Service Levels (service hours)														
Fixed Route Service														
Urban Service	45,873	45,829	45,829	45,829	44,554	44,554	44,554	44,554	44,554	44,554	44,554	44,554	44,554	44,554
Rural Service	25,144	24,957	24,957	24,957	24,957	24,957	24,957	24,957	24,957	24,957	24,957	24,957	24,957	24,957
<i>Total Fixed Route Revenue Hours</i>	71,017	70,785	70,785	70,785	69,510	69,510	69,510	69,510	69,510	69,510	69,510	69,510	69,510	69,510
Paratransit Service														
Urban Service	25,369	26,114	25,591	25,335	25,589	25,845	26,103	26,364	26,628	26,654	26,681	26,708	26,734	26,761
Rural Service	24,565	25,089	24,588	24,342	24,585	24,831	25,079	25,330	25,583	25,609	25,635	25,660	25,686	25,712
<i>Total Paratransit Revenue Hours</i>	49,934	51,203	51,203	49,677	50,174	50,676	51,182	51,694	52,211	52,263	52,316	52,368	52,420	52,473
Estimated Ridership														
Fixed Route Service														
Urban Service	955,237	962,403	972,027	981,747	954,434	963,978	973,618	973,618	983,354	993,188	993,188	1,003,120	1,013,151	1,013,151
Rural Service	409,428	411,784	415,902	420,061	420,061	424,261	428,504	428,504	432,789	437,117	437,117	441,488	445,903	445,903
<i>Total Fixed Route Ridership</i>	1,364,665	1,374,187	1,387,928	1,401,808	1,374,495	1,388,240	1,402,122	1,402,122	1,416,143	1,430,305	1,430,305	1,444,608	1,459,054	1,459,054
Paratransit Service														
Urban Service	70,312	75,729	74,289	73,620	74,430	75,250	76,078	76,916	77,763	77,918	78,074	78,230	78,387	78,544
Rural Service	83,195	85,304	83,682	82,928	83,841	84,764	85,697	86,641	87,595	87,770	87,945	88,121	88,298	88,474
<i>Total Paratransit Ridership</i>	153,507	161,033	157,971	156,547	158,271	160,013	161,775	163,556	165,357	165,688	166,019	166,352	166,685	167,018
Estimated Farebox Revenue														
Fixed Route Service														
Urban Service	\$749,731	\$785,611	793,467	801,402	\$833,643	\$841,980	\$850,400	\$909,928	\$919,027	\$928,217	\$993,192	\$1,003,124	\$1,013,156	\$1,084,076

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	Actual	Short-Term Projections				Mid-Range Projections									
	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	
Rural Service	\$543,063	\$551,769	\$557,287	\$562,860	\$602,260	\$608,282	\$614,365	\$657,371	\$663,944	\$670,584	\$717,525	\$724,700	\$731,947	\$783,183	
<i>Total Fixed Route Revenue</i>	\$1,292,794	\$1,337,380	\$1,350,754	\$1,364,261	\$1,435,903	\$1,450,262	\$1,464,765	\$1,567,298	\$1,582,971	\$1,598,801	\$1,710,717	\$1,727,824	\$1,745,103	\$1,867,260	
Paratransit Service															
Urban Service	\$174,760	\$181,094	\$177,650	\$176,049	\$190,446	\$192,543	\$194,663	\$210,583	\$212,901	\$213,327	\$228,717	\$229,175	\$229,633	\$246,199	
Rural Service	\$173,481	\$179,183	\$175,775	\$174,191	\$188,437	\$190,511	\$192,609	\$208,361	\$210,655	\$211,076	\$226,303	\$226,756	\$227,210	\$243,601	
<i>Total Paratransit Revenue</i>	\$348,241	\$360,277	\$353,425	\$350,240	\$378,883	\$383,055	\$387,272	\$418,943	\$423,556	\$424,403	\$455,020	\$455,931	\$456,843	\$489,800	
Estimated Operating Costs															
Fixed Route Service															
Urban Service	\$3,512,787	\$3,614,689	\$3,723,130	\$3,834,824	\$3,839,979	\$3,955,179	\$4,073,834	\$4,196,049	\$4,321,930	\$4,451,588	\$4,585,136	\$4,722,690	\$4,864,371	\$5,010,302	
Rural Service	\$2,326,266	\$2,378,166	\$2,449,511	\$2,522,996	\$2,598,686	\$2,676,647	\$2,756,946	\$2,839,654	\$2,924,844	\$3,012,589	\$3,102,967	\$3,196,056	\$3,291,938	\$3,390,696	
<i>Total Fixed Route Op Costs</i>	\$5,839,053	\$5,992,855	\$6,172,641	\$6,357,820	\$6,438,665	\$6,631,825	\$6,830,780	\$7,035,703	\$7,246,774	\$7,464,177	\$7,688,103	\$7,918,746	\$8,156,308	\$8,400,998	
Paratransit Service															
Urban Service	\$1,626,467	\$1,724,427	\$1,740,636	\$1,774,927	\$1,846,456	\$1,920,868	\$1,998,279	\$2,078,810	\$2,162,586	\$2,229,691	\$2,298,879	\$2,370,213	\$2,443,760	\$2,519,590	
Rural Service	\$1,562,863	\$1,644,151	\$1,659,606	\$1,692,300	\$1,760,500	\$1,831,448	\$1,905,255	\$1,982,037	\$2,061,913	\$2,125,894	\$2,191,861	\$2,259,874	\$2,329,998	\$2,402,298	
<i>Total Paratransit Op Costs</i>	\$3,189,330	\$3,368,578	\$3,400,242	\$3,467,227	\$3,606,956	\$3,752,317	\$3,903,535	\$4,060,847	\$4,224,500	\$4,355,586	\$4,490,740	\$4,630,087	\$4,773,759	\$4,921,889	
Total System Operating Costs	\$9,028,383	\$9,361,432	\$9,572,883	\$9,825,047	\$10,045,621	\$10,384,142	\$10,734,315	\$11,096,551	\$11,471,274	\$11,819,763	\$12,178,842	\$12,548,833	\$12,930,067	\$13,322,886	

Short-Term Service Levels and Cost Assumptions

Key assumptions for short-term service levels for fixed-route and paratransit services are summarized below:

- Beginning in FY 2014/15, fixed-route service levels are slightly adjusted downward and then remain constant for the next two years. Annual revenue service hours are as follows:
 - Urban fixed-route service hours: 45,829
 - Rural fixed-route service hours: 24,957Paratransit service hours are expected to drop slightly due to refinements the in ADA-eligibility process. In FY 2014/15, a total of 51,203 hours are proposed, with a drop to 49,677 paratransit service hours in FY 2016/17. Consistent with the recent trend, urban paratransit service hours are slightly higher than rural paratransit service hours.
- Fixed-route and paratransit service levels are based on the FY 2013/14 actual hourly costs for urban and rural service with an annual 3% inflation rate.

Based on these assumptions, operating costs in FY 2014/15 are projected at just under \$9.4 million. Two years later, in FY 2016/17 with stable fixed-route service levels and slightly lower paratransit service levels, operating costs are estimated at \$9.8 million.

Mid-Term Service Levels and Cost Assumptions

In the mid-term timeframe, starting in FY 2017/18, urban fixed-route service levels are projected to drop slightly, from 45,829 annual service hours to 44,544 due to efficiencies related to a reconfigured Route 1 that replaces Routes 15N and 15S and includes some operational enhancements that reduce travel time. Urban fixed route service hours are expected to remain stable throughout the mid-term planning period. Rural fixed route service is projected to remain steady at 24,957 annual service hours.

Fixed-route annual operating costs are estimated at \$6.4 million in FY 2017/18 and gradually increase each year to \$8.4 million in FY 2026/27. In FY 2017/18 paratransit service costs are projected at just below \$3.5 million and after ten years climb to \$4.9 million.

Total system operating costs inclusive of fixed-route and paratransit services are estimated at \$9.8 million in FY 2017/18 and increase to \$13.3 million in FY 2026/27, the final year of the mid-term planning horizon.

Key Performance Indicators

Figure 9-2 shows transit system performance measures based on the hourly cost of service and projected ridership assuming implementation of the short-term and mid-term service plans. Minimal fixed route ridership gains in the short-term when service levels remain constant. Consequently, productivity shows minimal gains with urban fixed-route service productivity hovering at about 21 hourly passengers. In the mid-term, passenger productivity is projected to increase from 21 to 23 hourly passengers. As expected, rural fixed route service has lower productivity; in FY 2014/15 rural service is expected to carry about 16 passengers per hour with expected increases to nearly 18 hourly passengers at the end of the mid-term planning horizon.

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After an initial slight drop in FY 2016/17 due to a drop in service hours, paratransit service ridership is projected to increase at a modest annual rate of 1% between FY 2017/18 and FY 2026/27. Urban paratransit service is estimated to carry just under three hourly passengers whereas productivity in rural areas is slightly higher because of shorter travel distances in contained small cities.

The bottom rows of Figure 9-2 displays the projected farebox recovery for fixed-route and paratransit services. It reveals that the farebox recovery ratio for each services meet or exceeds the standards established in this plan, with the exception of paratransit service in the mid-term. Details on fare revenue are presented on page 9-8.

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Figure 9-2 Key Performance Indicators

Performance Indicators	Actual	Short-Term Projections				Mid-Range Projections								
	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Cost/Hour														
Fixed Route Service														
Urban Service	\$76.58	\$78.87	\$81.24	\$83.68	\$86.19	\$88.77	\$91.44	\$94.18	\$97.00	\$99.92	\$102.91	\$106.00	\$109.18	\$112.46
Rural Service	\$92.52	\$95.29	\$98.15	\$101.10	\$104.13	\$107.25	\$110.47	\$113.78	\$117.20	\$120.71	\$124.33	\$128.06	\$131.91	\$135.86
Paratransit Service														
Urban Service	\$64.11	\$66.04	\$68.02	\$70.06	\$72.16	\$74.32	\$76.55	\$78.85	\$81.22	\$83.65	\$86.16	\$88.75	\$91.41	\$94.15
Rural Service	\$63.62	\$65.53	\$67.50	\$69.52	\$71.61	\$73.76	\$75.97	\$78.25	\$80.60	\$83.01	\$85.50	\$88.07	\$90.71	\$93.43
Cost/Passenger														
Fixed Route Service														
Urban Service	\$3.68	\$3.76	\$3.83	\$3.91	\$4.02	\$4.10	\$4.18	\$4.31	\$4.40	\$4.48	\$4.62	\$4.71	\$4.80	\$4.95
Rural Service	\$5.68	\$5.78	\$5.89	\$6.01	\$6.19	\$6.31	\$6.43	\$6.63	\$6.76	\$6.89	\$7.10	\$7.24	\$7.38	\$7.60
Paratransit Service														
Urban Service	\$23.13	\$22.77	\$23.43	\$24.11	\$24.81	\$25.53	\$26.27	\$27.03	\$27.81	\$28.62	\$29.44	\$30.30	\$31.18	\$32.08
Rural Service	\$18.79	\$19.27	\$19.83	\$20.41	\$21.00	\$21.61	\$22.23	\$22.88	\$23.54	\$24.22	\$24.92	\$25.65	\$26.39	\$27.15
Passengers/Hour														
Fixed Route Service														
Urban Service	20.8	21.0	21.2	21.4	21.4	21.6	21.9	21.9	22.1	22.3	22.3	22.5	22.7	22.7
Rural Service	16.3	16.5	16.7	16.8	16.8	17.0	17.2	17.2	17.3	17.5	17.5	17.7	17.9	17.9
Paratransit Service														
Urban Service	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Rural Service	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Farebox Recovery Ratio														
Fixed Route Service														
Urban Service	21.3%	21.7%	21.3%	20.9%	21.7%	21.3%	20.9%	21.7%	21.3%	20.9%	21.7%	21.2%	20.8%	21.6%
Rural Service	23.3%	23.2%	22.8%	22.3%	23.2%	22.7%	22.3%	23.1%	22.7%	22.3%	23.1%	22.7%	22.2%	23.1%
Paratransit Service														
Urban Service	10.7%	10.5%	10.2%	9.9%	10.3%	10.0%	9.7%	10.1%	9.8%	9.6%	9.9%	9.7%	9.4%	9.8%
Rural Service	11.1%	10.9%	10.6%	10.3%	10.7%	10.4%	10.1%	10.5%	10.2%	9.9%	10.3%	10.0%	9.8%	10.1%

SHORT AND MID-TERM REVENUE PROJECTIONS

The projected operating costs through FY 2026/27 can be implemented and sustained with existing financial resources. Discretionary federal and state grant funds will be needed for vehicle replacements and other desirable capital improvements as discussed later in this chapter.

Existing Funding Sources

Funds for this plan come from the following primary sources:

- Federal Transit Administration (FTA)
 - Section 5307 and 5311 funds
- State Transportation Development Act (TDA) Funds
 - Local Transportation Funds
 - State Transportation Assistance Funds
- Fare revenues

BCAG has received funding from each source described in this section, and it is anticipated that these revenue sources will continue to be available in the short-term and mid-term timeframes. These sources and the assumptions in projecting funding levels through FY 2016/27 are discussed below. Figure 9-3 summarizes short-and mid-term transit system operating costs and operating revenues extending from FY 2014/15 through 2026/27.

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Figure 9-3 Projected Operating Costs and Revenues

	Short-Term Projections				Mid-Range Projections								
	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Estimated Operating Costs													
Fixed Route Service	\$5,992,855	\$6,172,641	\$6,357,820	\$6,438,665	\$6,631,825	\$6,830,780	\$7,035,703	\$7,246,774	\$7,464,177	\$7,688,103	\$7,918,746	\$8,156,308	\$8,400,998
Paratransit Service	\$3,368,578	\$3,400,242	\$3,467,227	\$3,606,956	\$3,752,317	\$3,903,535	\$4,060,847	\$4,224,500	\$4,355,586	\$4,490,740	\$4,630,087	\$4,773,759	\$4,921,889
Total System Operating Costs	\$9,361,432	\$9,572,883	\$9,825,047	\$10,045,621	\$10,384,142	\$10,734,315	\$11,096,551	\$11,471,274	\$11,819,763	\$12,178,842	\$12,548,833	\$12,930,067	\$13,322,886
Estimated Operating Revenues													
Total Farebox Revenues	\$1,697,657	\$1,704,178	\$1,714,502	\$1,814,786	\$1,833,317	\$1,852,037	\$1,986,242	\$2,006,527	\$2,023,204	\$2,165,737	\$2,183,755	\$2,201,946	\$2,357,060
<i>Estimated Fixed Route Farebox Revenue</i>	<i>\$1,337,380</i>	<i>\$1,350,754</i>	<i>\$1,364,261</i>	<i>\$1,435,903</i>	<i>\$1,450,262</i>	<i>\$1,464,765</i>	<i>\$1,567,298</i>	<i>\$1,582,971</i>	<i>\$1,598,801</i>	<i>\$1,710,717</i>	<i>\$1,727,824</i>	<i>\$1,745,103</i>	<i>\$1,867,260</i>
<i>Estimated Paratransit Farebox Revenue</i>	<i>\$360,277</i>	<i>\$353,425</i>	<i>\$350,240</i>	<i>\$378,883</i>	<i>\$383,055</i>	<i>\$387,272</i>	<i>\$418,943</i>	<i>\$423,556</i>	<i>\$424,403</i>	<i>\$455,020</i>	<i>\$455,931</i>	<i>\$456,843</i>	<i>\$489,800</i>
FTA 5307	\$2,000,000	\$2,020,000	\$2,040,200	\$2,060,602	\$2,081,208	\$2,102,020	\$2,123,040	\$2,144,271	\$2,165,713	\$2,187,371	\$2,209,244	\$2,231,337	\$2,253,650
FTA 5311	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000
Miscellaneous Revenues	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
LTF/STA (Member Jurisdictions)	\$4,838,775	\$5,023,704	\$5,245,345	\$5,345,233	\$5,644,617	\$5,955,258	\$6,162,269	\$6,495,476	\$6,805,845	\$7,000,734	\$7,330,834	\$7,671,785	\$7,887,176
Total System Revenues	\$9,361,432	\$9,572,883	\$9,825,047	\$10,045,621	\$10,384,142	\$10,734,315	\$11,096,551	\$11,471,274	\$11,819,763	\$12,178,842	\$12,548,833	\$12,930,067	\$13,322,886

Federal Funds

On July 6, 2012, President Obama signed into law new federal transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21). MAP-21 reauthorizes surface transportation funding in the United States. The legislation took effect on October 1, 2012 and will guide surface transportation funding for 27 months until January 1, 2015.

MAP-21 includes several strategic changes as compared with SAFETEA-LU, MAP-21's predecessor. One of MAP-21's central goals was to reverse the proliferation of smaller and more specialized programs and consolidate them into larger programs that give funders more flexibility. Some of the most salient examples of this change of policy direction are apparent in the way transit funds are funded and distributed.

FTA Section 5307, Urban Area Formula Funds

For urbanized areas with populations over 200,000, funds are apportioned and flow directly to a designated recipient selected locally to apply for and receive Federal funds. BCAG is the designated grantee in Butte County as the operator of the B-Line service and thus qualifies for capital and operating Section 5307 funding administered by the FTA. Section 5307 funding apportionments can be used for capital projects and cannot provide more than a 50% subsidy to support operations.

Annually, the B-Line receives just over \$2 million in Section 5307 funds and uses the vast majority for operating and maintenance costs. Based on projected population growth in the county and other factors, FTA 5307 funds are assumed to increase one percent per year.

FTA Section 5311, Rural Area Formula Funds

This program provides funding assistance for public transportation projects in non-urbanized areas with population under 50,000. The program, first established in the late 1970s, remains a key FTA program. Activities eligible under the former Job Access and Reverse Commute (JARC) Program, which provided services to low-income individuals to access jobs, are now eligible under the Section 5311 program. In addition, the method by which FTA allocates funds to the states now includes the number of low-income individuals as a factor. There is no floor or ceiling on the amount of funds that a state has to program on job access and reverse commute activities.

FTA Section 5311 funds can be used to fund capital projects or support operations or combination thereof. This plan assumes that BCAG will continue to use its current annual allocation of \$800,000 in FTA Section 5311 to support fixed-route operations. These funds have been conservatively estimated at a constant level throughout the short and mid-term planning horizon.

State, Regional, and Local Funds

The Transportation Development Act (TDA) provides two major sources of funding for public transportation: the Local Transportation Fund (LTF) and the State Transit Assistance fund (STA). Together, these funds are used to support B-Line service.

Local Transportation Funds

For most California transit services, TDA funds are the largest single source of operating revenue; B-Line is no exception. The Local Transportation Fund revenues are derived from a one-quarter cent sales tax, which is collected by the Board of Equalization, and administered locally through the Butte County Association of Governments (BCAG) which returns it to local jurisdictions. TDA funds can be used for capital expenditures or operations or a combination thereof, and, importantly, they provide an important source of local match for federal capital funding.

Member jurisdictions contribute all or a portion of their apportioned funds to help fund fixed route and paratransit operations and capital investments. In FY 2013/14, member jurisdictions contributed approximately \$4.4 million in LTF and STA funds to help fund the B-Line, representing nearly 50% of operating revenues. In future years, additional financial support from member jurisdictions will be required. Beginning in FY 2014/15, \$4.8 million is needed, accounting for 52% of operating revenues. This amount is projected to gradually increase to \$7.8 million by FY 2026/27.

State Transportation Assistance Funds (STAF)

STAF are revenues derived from sales taxes on gasoline and diesel fuels. STAF is allocated annually by the BCAG. Unlike LTF which may be allocated to other purposes, STAF revenues may be used *only* for public transit or transportation services.

Passenger Fare Revenues

Fares should be raised periodically to keep pace with the inflation rate. The B-Line fixed-route and paratransit services must meet their state-mandated farebox recovery ratios (20% urban and 10% rural for fixed routes) and 10% for paratransit, and thus must regularly increase fares to maintain this requirement. It is also good policy to raise fares incrementally on a regular basis rather than waiting long periods and then increasing fares by a significant amount.

This plan assumes a fare increase every three years with the first increase occurring in FY 2017/18. The last fare increase was on May 25, 2014 and raised cash fares on fixed route service approximately seven percent on local service and ten percent on regional service with slightly higher increases for pre-paid tickets and passes. Paratransit cash fares rose nine percent in May 2014 with larger increases for longer distance (zonal) travel. Proposed fare increases for the short-term and mid-term horizon are presented in Figure 9-4 on the next page.

Figure 9-4 Projected Fare Increases in the Short and Mid-Term

	Current Fare (1)	FY 2017/18	FY 2000/21	FY 2023/24	FY 2026/27
Fixed Route Cash					
Local <i>Regular</i>	\$1.50	\$1.60	\$1.75	\$2.00	\$2.20
Local <i>Discount</i>	\$0.75	\$0.75	\$0.85	\$1.00	\$1.10
Regional <i>Regular</i>	\$2.00	\$2.25	\$2.50	\$2.75	\$3.00
Regional <i>Discount</i>	\$1.00	\$1.10	\$1.20	\$1.25	\$1.35
Paratransit Cash					
Advance Request	\$2.75	\$3.00	\$3.25	\$3.50	\$3.75
Same Day Request	\$4.00	\$4.25	\$4.50	\$4.75	\$5.08
Zone 1	\$7.00	\$7.50	\$8.00	\$8.75	\$9.36
Zone 2	\$9.00	\$10.00	\$11.00	\$12.00	\$12.84
Zone 3	\$11.00	\$12.00	\$13.00	\$14.00	\$14.98

(1) Effective 5/25/14

CAPITAL COSTS AND REVENUE PROJECTIONS

Short-term and mid-term capital projects consist of vehicle replacements and passenger amenities. Figure 9-5 lists the capital projects and their associated projected costs and proposed funding sources for FY 2014/15 through FY 2016/27. Please note that discretionary federal funds, (see page 9-14), will be pursued to pay for vehicle replacements.

Vehicle Replacements

As shown in Figure 9-5, costs vary tremendously by year depending on whether vehicles are being replaced and the number and type of replacements. For fixed-route vehicles, it is assumed that 16 fixed route buses and seven paratransit vehicles are ready for replacement in the short-term having reached or exceed their useful lifecycle. During the ten year mid-term timeframe, 25 fixed-route buses are scheduled for replacement spread over seven years with between five and eight vehicles in four of the fiscal years. In FY 2015/16, seven paratransit vehicles are scheduled for replacement at a cost of nearly \$69,000 per vehicle or approximately \$469,000 for all seven vehicles. In the next ten years, between FY 2017/18 and FY 2026/27, a total of 21 paratransit vehicles will be ready to retire after reaching their useful life.

The size of the B-Line fleet remains unchanged in the short-and mid-term periods. It is assumed that all vehicles will be replaced at the end of their useful life, which is twelve years for fixed-route vehicles and seven years for paratransit vehicles.

Passenger Amenities

In FYs 2020/21 and 2021/22, passenger amenities totaling \$75,000 each year consist of new bus stop signs and passenger shelters. A total of 50 new bus stop signs are recommended at \$1,000 per stop plus ten new passenger shelters at \$10,000 per shelter.

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Figure 9-5 Capital Costs and Revenue Projections

	Short-Term Projections		Mid-Range Projections									
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Capital Costs												
Fixed Route Vehicle Replacements												
<i>Replacement number</i>	6	10				8			6		5	6
Estimated Cost	\$2,781,000	\$4,774,050				\$4,298,588			\$3,522,888		\$3,114,526	\$3,849,554
Paratransit Vehicle Replacements												
<i>Replacement number</i>	7		7				7		7			
Estimated Cost	\$468,650		\$497,191				\$559,593		\$593,672			
Passenger Amenities												
Bus Stop Signs (50 @ \$1000/stop)						\$25,000	\$25,000					
Shelters (10 \$10,000/shelter)						\$50,000	\$50,000					
Total Capital Costs	\$3,249,650	\$4,774,050	\$497,191	\$0	\$0	\$4,373,588	\$634,593	\$0	\$4,116,559	\$0	\$3,114,526	\$3,849,554
Capital Revenues												
Federal												
FTA 5309 Ladders of Opportunity Initiative Grant (1)	\$2,363,850	\$4,057,943	\$0	\$0	\$0	\$3,653,800	\$0	\$0	\$2,994,454	\$0	\$2,647,347	\$3,272,121
FTA 5310 (2)	\$468,650	\$0	\$497,191	\$0	\$0	\$0	\$559,593	\$0	\$593,672	\$0	\$0	\$0
State, Regional and Local Funds												
TDA/LTF	\$417,150	\$716,108	\$0	\$0	\$0	\$719,788	\$75,000	\$0	\$528,433	\$0	\$467,179	\$577,433
Total Capital Revenues	\$3,249,650	\$4,774,050	\$497,191	\$0	\$0	\$4,373,588	\$634,593	\$0	\$4,116,559	\$0	\$3,114,526	\$3,849,554

Notes:

Lifecycle for fixed route vehicles is 12 years and it is seven years for paratransit vehicles.

Annual inflation rate is assumed to be 3%.

1) BCAG will apply for FTA 5309 Ladders of Opportunity Initiative Grant funds to replace fixed route vehicles. If successful, then federal funds will cover 85% of the cost and TDA funds will be used for the required 15% match.

2) BCAG will apply for FTA 5310 Grant funds to replace paratransit vehicles. Assumes 100% federal funds when replacing ADA vehicles.

In 13/14 five CNG fixed route vehicles were programmed and funded for replacement at estimated cost of \$2.25 M.

In 08/09 three diesel fixed route vehicles were programmed and funded for replacement. Anticipated replacement year is 2015.

In 2012/13 six paratransit vehicles were programmed and funded.

LONG-TERM SERVICE PLAN COST PROJECTIONS

The long-term planning projections assume further expansion of fixed-route service hours to 55,529 annual hours in 2040. Service changes would largely be dependent on urbanization and development throughout Chico and the region; in particular, service expansion, such as new coverage routes, would be reliant on new pockets of development on Chico and Oroville’s outskirts as well as new roadway connections. New transit-priority corridors could also be added within Chico (and potentially Oroville) pending increased development (or redevelopment) within existing built-up areas. To fund the long-term service plan would require either a significant increase in financial contributions from member jurisdictions (LTF/STA funds) and/or increased federal formula funds.

Operating Costs

Operating costs projected for 2040 would increase significantly due an conceptual increase of approximately 13,000 fixed route service hours plus about 3,000 more hours of paratransit service. Figure 9-6 shows the projected operating costs as well as passenger productivity for the long-term service plan.

Figure 9-6 Long-Term Service Plan Operating Cost Projection and Performance

		Long-Range Projection - 2040
Service and Operating Costs		
Service Levels (service hours)		
<i>Fixed Route Revenue Hours</i>	82,981	
<i>Paratransit Revenue Hours</i>	55,096	
Estimated Ridership		
<i>Fixed Route Ridership</i>	1,917,011	
<i>Paratransit Ridership</i>	173,278	
Estimated Farebox Revenue		
<i>Total Fixed Route Revenue</i>	\$2,928,322	
<i>Total Paratransit Revenue</i>	\$622,516	
Estimated Operating Costs		
<i>Total Fixed Route Op Costs</i>	\$12,744,833	
<i>Total Paratransit Op Costs</i>	\$6,370,036	
Total System Operating Costs	\$19,114,868	
Performance Indicators		
Cost/Hour		
<i>Fixed Route Service</i>	\$150.14	
<i>Paratransit Service</i>	\$115.24	

Passengers/Hour	
<i>Fixed Route Service</i>	21.8
<i>Paratransit Service</i>	3.2
Farebox Recovery Ratio	
<i>Fixed Route Service</i>	24%
<i>Paratransit Service</i>	10%

Capital Costs

The projected capital costs for the long-term service plan are shown in Figure 9-7. The projects consist solely of vehicle replacements: 35 fixed-route vehicles and 14 paratransit vehicles at an estimated cost of nearly \$25 million.

Figure 9-7 Long-Term Service Plan Capital Cost Projection

Capital Costs	FY 2034-2035
Fixed Route Replacement Vehicles (35)	\$23,129,406
Paratransit Replacement Vehicles (14)	\$1,336,366
Total Capital Costs	\$24,465,772

Funding Strategy

Since it is difficult to predict federal and state funding levels in 2040, no specific funding plan is identified. In the future, additional analysis will be needed to evaluate the cost-effectiveness and potential fundability of the services outlined in the long-term service plan.

The following section of this chapter discusses potential new local funding sources that could be used in the mid- and long-term.

POTENTIAL NEW FUNDING SOURCES

The primary existing funding sources are Federal Transit Administration (FTA) Sections 5307 and 5311 and TDA Article 4. Federal formula funds are projected to remain constant or increase only one percent in the short and mid-term timeframe. Discretionary federal funds are competitive and are not guaranteed and tend to be used for capital improvement projects. In this current economic climate of fiscal austerity it will be challenging for BCAG to fund its current and projected operations and all of its scheduled vehicle replacement projects without some additional funding.

Potential funding sources that BCAG can pursue to supplement transit service and pay for capital investments are presented in Figure 9-8. The figure first presents new federal funding opportunities followed by potential new revenues derived from state, regional and local sources. It then reviews opportunities for generating private funds. For each funding source identified in the figure, its purpose is stated, how funds can be used and applicability for the B-Line’s service needs and capital requirements. Some of the revenue sources are currently being explored by BCAG although there are no firm commitments at this time.

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Figure 9-8 Potential Funding Sources

Program Fund Source	Funding Purpose	Allowable Use of Funds	Applicability for B-Line Service and Capital Enhancements	Comments
Federal Fund Sources				
FTA Section 5309 Capital Program (Congressional Earmarks)	Provides Federal funds for bus and bus facilities and New Rail Starts	Transit capital projects	Potential for funding replacement vehicles, new transit centers and other capital projects	Work with Congressional delegation to secure federal funding for high priority large-scale capital projects in the transportation bill (2012). Projects may be positioned to receive "earmarks" in the next funding cycle if they are high profile and have local and regional support.
FTA Section 5309 Ladders of Opportunity Initiative Grant	As part of the FTA 5309 discretionary program, approximately \$100 million is available	Transit capital projects	Potential for funding replacement vehicles, new transit centers and other capital projects	BCAG is pursuing a Ladders of Opportunity Grant for replacement vehicles.
FTA Section 5309 State of Good Repair Initiative	To improve and maintain buses and bus facilities in good physical condition; as part of the FTA 5309 discretionary program, approximately \$650 million is available	Transit capital projects	Potential for funding replacement vehicles and rehabilitation of intermodal facilities	This funding is intended to support FTA's new requirement for a transportation asset management plans that requires systematic process of operating, maintaining, and improving the physical assets of a system to achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum possible cost
FTA Small Starts	To fund corridor-based bus projects that cost less than \$250M, and no greater than \$75M	Transit capital projects	Potential for funding BRT or LRT capital investments	Small Starts funding is very competitive, and has high administrative and reporting requirements. Projects with transit-supportive policies, economic development and strong local commitment are strong competitors.
State, Regional and Local Fund Sources				
Safe Routes to School Grant Funding Program	Projects to increase safety and accessibility for students to use sustainable forms of transportation to get to school	Capital projects only	Funds could be used to pay for infrastructure improvements	BCAG could partner with school districts and submit a SRTS grant application for infrastructure and other related improvements

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Program Fund Source	Funding Purpose	Allowable Use of Funds	Applicability for B-Line Service and Capital Enhancements	Comments
Vehicle Registration Fee (VRF)	SB 83 was signed into law in October 2009. This law authorizes a countywide transportation planning agency to propose an annual VRF of up to \$10 on motor vehicles registered within the County. The revenue generated would be used for specific transportation programs and projects identified in an Expenditure Plan	VRF may only be used to pay for programs/ projects that bear a relationship or benefit to owners of motor vehicles paying the fee and must be consistent with a regional transportation plan.	Fees shall be used to fund projects and programs that improve existing transportation infrastructure or provide alternatives to driving	BCAG can elect to place a VRF before the voters. It would provide Butte County the opportunity to obtain a dedicated local funding source for transportation improvements that benefit or mitigate the automobile. The measure must be approved by a majority of voters.
Sales Tax Measure (countywide tax dedicated to transportation purposes known as "self-help" counties)	Self-help counties generate sales tax revenues to fund high priority transportation projects such as streets/roads improvements, transit enhancements or other projects of significance in Butte County	With the passage of a local sales tax measure, an Expenditure Plan lists all transportation related projects and programs that are to be funded with sales tax revenues.	An Expenditure Plan in Butte County could include transit improvements such as a new transit center or other projects or programs that resonate well with the voters	There are 19 self-help counties in the State. Since self-help counties have control over locally raised sales tax revenues, they can influence the types of transportation projects that benefit their residents.
Parcel Tax	A parcel tax is a tax on property owners for specific purposes, such as road maintenance or transit improvements. As with all specific purpose taxes, a parcel tax would require a 2/3 majority vote.	Revenues can be used for any allowable purpose under the enabling legislation	Tax revenues can be used to support operations or for capital investments	A number of transit agencies in California use parcel taxes to help fund their services. For example, AC Transit in the San Francisco Bay Area levies an annual per-parcel tax. Total annual revenue from the parcel tax is approximately \$65 million. The Bay Area Rapid Transit District (BART) assesses each parcel in the district an ad valorem tax as opposed to a fixed annual amount.

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Program Fund Source	Funding Purpose	Allowable Use of Funds	Applicability for B-Line Service and Capital Enhancements	Comments
Transportation Impact Fee	This is a one-time fee on new residential and non-residential development to mitigate impacts from increased congestion	<p>Primarily capital projects; also operations in some situations</p> <p>Like all developer fees, transportation fees must show a nexus between the development and specified improvement or service provided.</p>	<p>Butte County has a new development impact fee that went into effect in December 2013. The fees are not used for transportation improvements and would need to be revised to include transit as an acceptable mitigation.</p> <p>The City of Chico has a transportation impact fee although it can only be used for street or bicycle-related improvements.</p>	<p>Depending upon the rate of new development approvals, this could be a good source of funds for transit capital projects, especially those linked to infrastructure improvements along major corridors.</p> <p>With the passage of AB 147, transportation mitigation impact fees now include transit, bicycle and pedestrian facilities in addition to road improvements.</p>
Private Sector Sources				
Public/Private Partnerships	<p>Direct or in-kind contributions can provide important marginal support for transit services.</p> <p>Public/private partnerships can increase overall funding by leveraging "outside" dollars</p>	Flexible	Support operations and/or pay for capital improvements	<p>Examples of public/private partnerships are presented for universities colleges, retailers and employers. These include a U-Pass Program and Eco Pass. Other possibilities include hospitals, and other institutions.</p> <p>Public/partnerships can be effective to fund shelter installation and maintenance.</p>
Universal Transit Passes	To provide unlimited rides for low monthly fees, absorbed entirely or partially by employer, school, or developers.	Flexible –helps fund service improvements especially to employers, schools or entities contributing funds.	Can be an effective way to provide a stable source of income with large employers such as government offices in Downtown Chico, Enloe Medical Center or Wal-Mart.	The principle of employee or residential transit passes is similar to that of group insurance plans – transit agencies can offer deep bulk discounts when selling passes to a large group, with universal enrollment, on the basis that not all those offered the pass will actually use them regularly.
Retail and Merchant Contributions	Retailers may share in the cost of transportation improvements especially if one-time capital improvements or contributions.	Flexible	Primarily capital projects; also operations in some situations	May require agreement between BCAG and private interests – public/private partnerships.

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Program Fund Source	Funding Purpose	Allowable Use of Funds	Applicability for B-Line Service and Capital Enhancements	Comments
Employer Contributions	Employers may share in the cost of transportation improvements if beneficial to their employees.	Flexible	Primarily capital projects; also operations especially to subsidize transit passes	Employers sometimes are willing to underwrite transportation to support their workers getting to/from worksite. IKEA currently funds a significant portion of Route X92 operating costs.
Bus Stop Sponsorships	Although not necessarily a large revenue generator, BCAG could consider sponsorships at bus stops and even on buses.	Bus Advertising	Primarily capital	Portland Streetcar has a major private sector bus sponsorship program that generates approximately \$250,000 per year. For bus stop signs, businesses pay \$500 per month for each stop. In return, the business has their name posted at each end of the shelter, an audible announcement of the business over the Streetcar communication system at the sponsored stop location(s) as well as their name printed on brochures.
Partnerships with Advertising Agencies	To increase operating revenue and/or provide passenger amenities	Flexible	Could be an effective strategy for BCAG to partner with the private sector for a small but important element of its infrastructure	AC Transit and MUNI in the San Francisco Bay Area have contracts with ClearChannel to provide shelters and other passenger amenities. Another option is to sell advertising on buses – either panels or bus wraps.
Assessment Districts (Mello-Roos) A property-based improvement district (PBID) collects money from property owners rather than business owners.	Local jurisdictions may form a district and levy a special tax after a 2/3 vote of the property owners. A Mello-Roos special tax provides more flexibility than an impact fee because it does not require that the levy be linked to benefits received.	The taxes may be used to fund a wide variety of infrastructure needs including transit. The revenues can be used for maintenance and operations.	There are <i>no</i> transit or transportation special assessments in Butte County. Once established, the District could advance public/private funding for any strategy provided it benefits residents within the District boundaries.	The hotel industry is considering a tourism tax in Butte County. Business owners often initiate the process to establish an assessment district. However the County Board of Supervisors resolution must establish the intent and activities and its proposed boundaries.

CONCLUSION

The funding plan for the short and mid-term horizon is presented in Figure 9-9. In the short-term and mid-term period, the service plan is fully funded assuming the existing fund sources continue to be available and BCAG successfully secures capital grants for vehicle replacements. If capital grants are not forthcoming, then BCAG may need to postpone some of the scheduled fixed-route and paratransit vehicle replacements.

To help pay for capital improvement projects, BCAG is planning to pursue an FTA Ladders of Opportunity grant and may want to consider seeking other discretionary capital grants to pay for the replacement of vehicles when they reach their useful life. However, given the challenge in successfully securing competitive capital grants and to fund further enhancements in the longer-term; BCAG should consider other opportunities at the local level to generate local revenue sources. BCAG may want to evaluate the efforts pursued by other counties that are “self-help” in which local voters approve a sales tax for enhanced local services, including transportation.

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Figure 9-9 Short and Mid-Term System Funding Plan

	Short-Term Projections		Mid-Range Projections									
	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Operating and Capital Costs												
Total Operating Costs	\$9,572,883	\$9,825,047	\$10,045,621	\$10,384,142	\$10,734,315	\$11,096,551	\$11,471,274	\$11,819,763	\$12,178,842	\$12,548,833	\$12,930,067	\$13,322,886
<i>Fixed Route Service</i>	\$6,357,820	\$6,438,665	\$6,631,825	\$6,830,780	\$7,035,703	\$7,246,774	\$7,464,177	\$7,688,103	\$7,918,746	\$8,156,308	\$8,400,998	\$8,400,998
<i>Paratransit Service</i>	\$3,467,227	\$3,606,956	\$3,752,317	\$3,903,535	\$4,060,847	\$4,224,500	\$4,355,586	\$4,490,740	\$4,630,087	\$4,773,759	\$4,921,889	\$4,921,889
Capital Costs	\$3,249,650	\$4,774,050	\$497,191	\$0	\$0	\$4,373,588	\$634,593	\$0	\$4,116,559	\$0	\$3,114,526	\$3,849,554
Total System Costs	\$12,822,533	\$14,599,097	\$10,542,812	\$10,384,142	\$10,734,315	\$15,470,139	\$12,105,866	\$11,819,763	\$16,295,402	\$12,548,833	\$16,044,593	\$17,172,440
Operating and Capital Revenues												
Federal Sources												
FTA 5307	\$2,020,000	\$2,040,200	\$2,060,602	\$2,081,208	\$2,102,020	\$2,123,040	\$2,144,271	\$2,165,713	\$2,187,371	\$2,209,244	\$2,231,337	\$2,253,650
FTA 5311	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000
FTA 5309 Ladders of Opportunity Initiative Grant	\$2,363,850	\$4,057,943	\$0	\$0	\$0	\$3,653,800	\$0	\$0	\$2,994,454	\$0	\$2,647,347	\$3,272,121
FTA 5310	\$468,650	\$0	\$497,191	\$0	\$0	\$0	\$559,593	\$0	\$593,672	\$0	\$0	\$0
State, Regional and Local Funds												
Miscellaneous Revenues	\$53,895	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
LTF/STA (Member Jurisdictions)	\$5,440,854	\$5,961,453	\$5,345,233	\$5,644,617	\$5,955,258	\$6,882,057	\$6,570,476	\$6,805,845	\$7,529,167	\$7,330,834	\$8,138,964	\$8,464,609
Farebox Revenues												
Fixed Route Service	\$1,350,754	\$1,364,261	\$1,435,903	\$1,450,262	\$1,464,765	\$1,567,298	\$1,582,971	\$1,598,801	\$1,710,717	\$1,727,824	\$1,745,103	\$1,867,260
Paratransit Service	\$353,425	\$350,240	\$378,883	\$383,055	\$387,272	\$418,943	\$423,556	\$424,403	\$455,020	\$455,931	\$456,843	\$489,800
Total System Revenues	\$12,851,428	\$14,599,097	\$10,542,812	\$10,384,142	\$10,734,315	\$15,470,139	\$12,105,866	\$11,819,763	\$16,295,402	\$12,548,833	\$16,044,593	\$17,172,440

APPENDIX A

Saturday and Sunday Ridership Data

APPENDIX A SATURDAY & SUNDAY RIDERSHIP DATA

On Saturday, September 21st, Butte County experienced an uncharacteristic spate of bad weather; very heavy rains fell throughout the day. Nevertheless, in order to maximize the use of trained surveyors and to ensure that data were collected on all day types, including weekday, Saturday, and Sunday, boardings and alighting counts were nevertheless collected on Saturday.

Drivers and surveyors alike reported atypical ridership behavior. On a few intercity routes in particular, drivers noted that ridership on that Saturday was as low as they had ever seen it. Surveyors reported that on several local routes, some passengers would stay aboard the buses over the course of several consecutive runs because it was a warm and dry place.

Figure A-1 below shows a comparison of the total boardings on the 2013 rainy Saturday compared with average ridership on Saturdays in 2012. Overall, ridership on September 21st was three-quarters of ‘normal’ Saturday ridership.

Figure A-1 Saturday Ridership Comparison

Route	2012 Avg Saturday Ridership	2013 Rainy Saturday Ridership	% of 2012 Ridership
2	147.2	125	85%
3	106	231	218%
4	261.8	117	45%
5	137.8	85	62%
9	109.6	128	117%
15	582.2	443	76%
16	145	48	33%
20	253	144	57%
30	58.8	47*	80%
40	165	135	81%
Total	1,974.6	1,503	76%

* Data only provided for Outbound service.

Sources: BCAG & Nelson\Nygaard

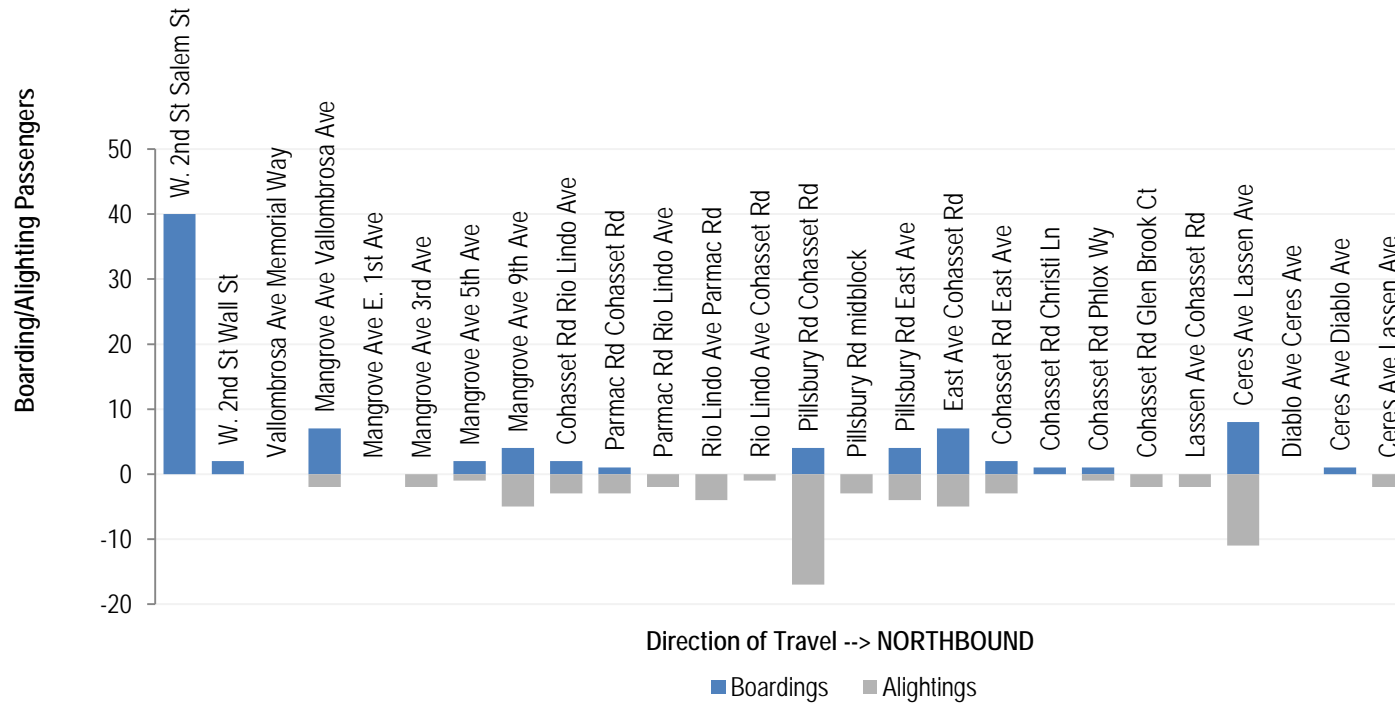
The following graphs depict boarding and alighting activity by stop and boarding activity by trip run on the surveyed Saturday and Sunday. While these data are useful to review to gain a better understanding of where and when boarding/alighting activity occurs on the B-Line system over the weekend, Nelson\Nygaard’s planning assumptions will be based on weekday boardings and alightings by stop.

SATURDAY ROUTE PROFILES

Local (Urban) Routes

Route 2 Mangrove

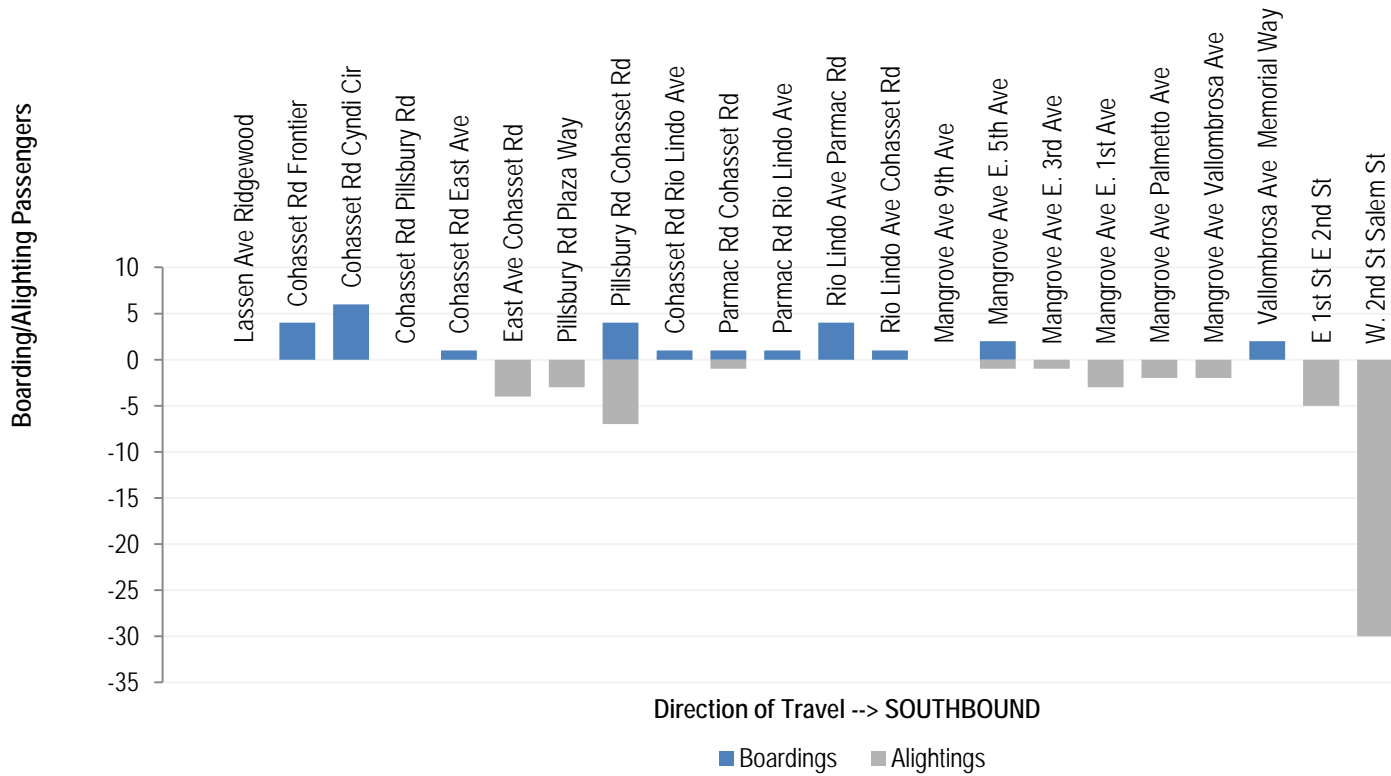
Figure A-2 Route 2 Saturday Boardings & Alightings By Stop - Northbound



Note: a total of 11 passengers joined Route 2 northbound from through-routed buses at Chico Transit Center.

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Figure A-3 Route 2 Saturday Boardings & Alightings By Stop - Southbound

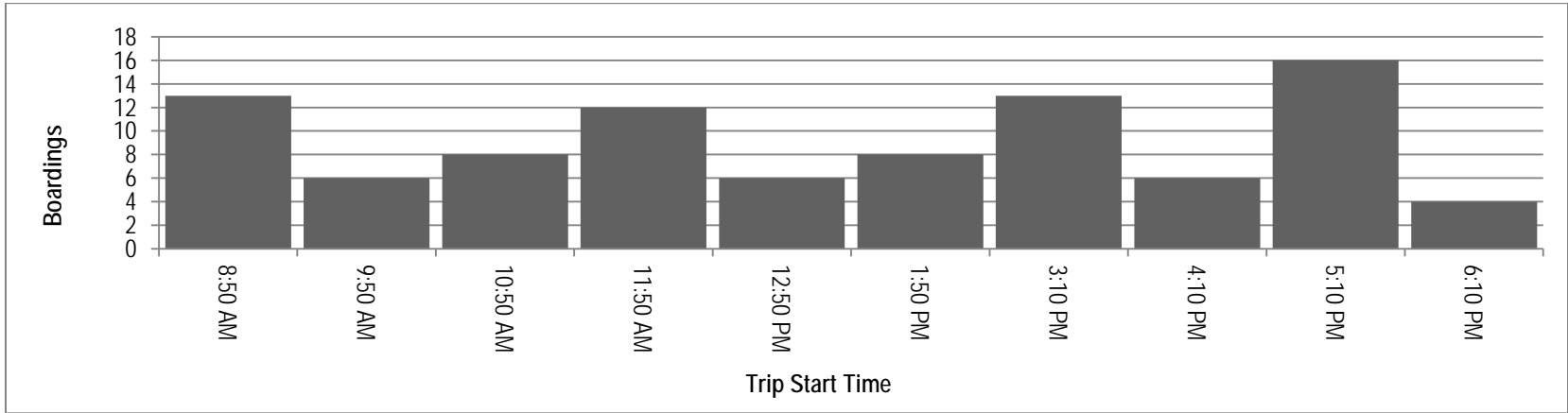


Note: a total of 30 passengers joined Route 2 southbound from through-routed northbound Route 2 buses at Ceres & Lassen.

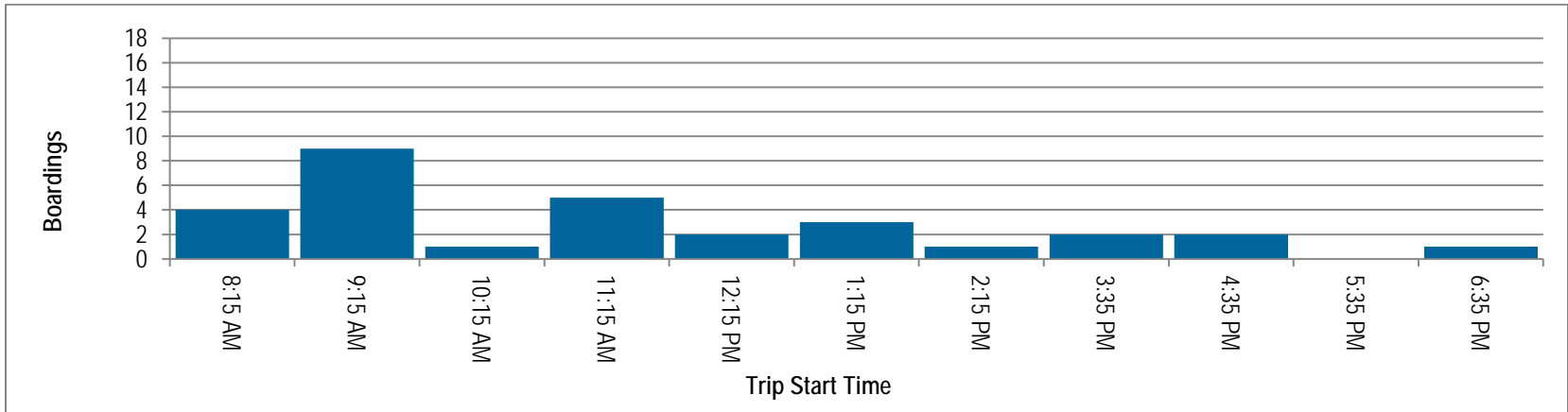
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Figure A-4 Route 2 Saturday Boardings by Trip – Northbound & Southbound

Northbound

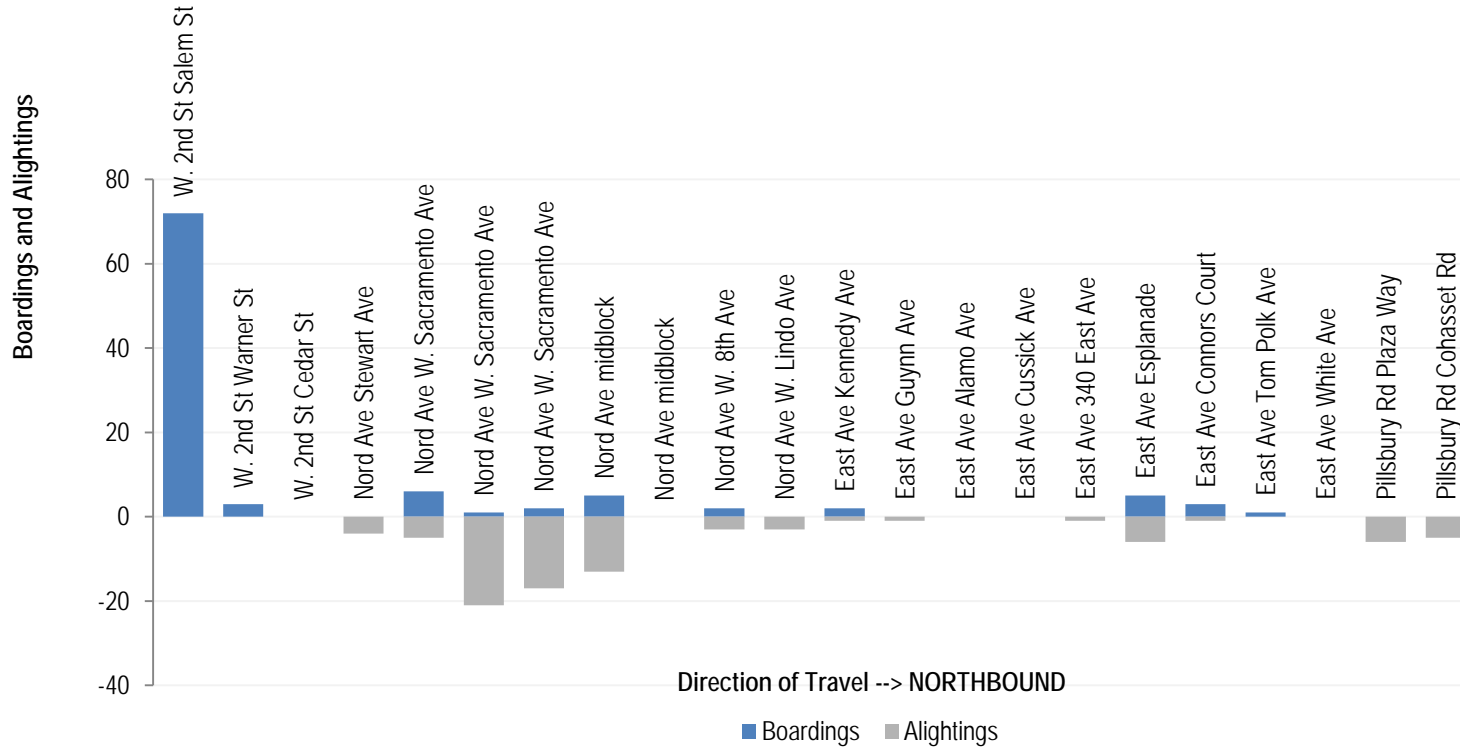


Southbound



Route 3 Nord/East

Figure A-5 Route 3 Saturday Boardings & Alightings By Stop - Northbound



Note: one passenger joined Route 3 northbound from Route 4 buses at the Chico Transit Center.

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Figure A-6 Route 3 Saturday Boardings & Alightings By Stop - Southbound

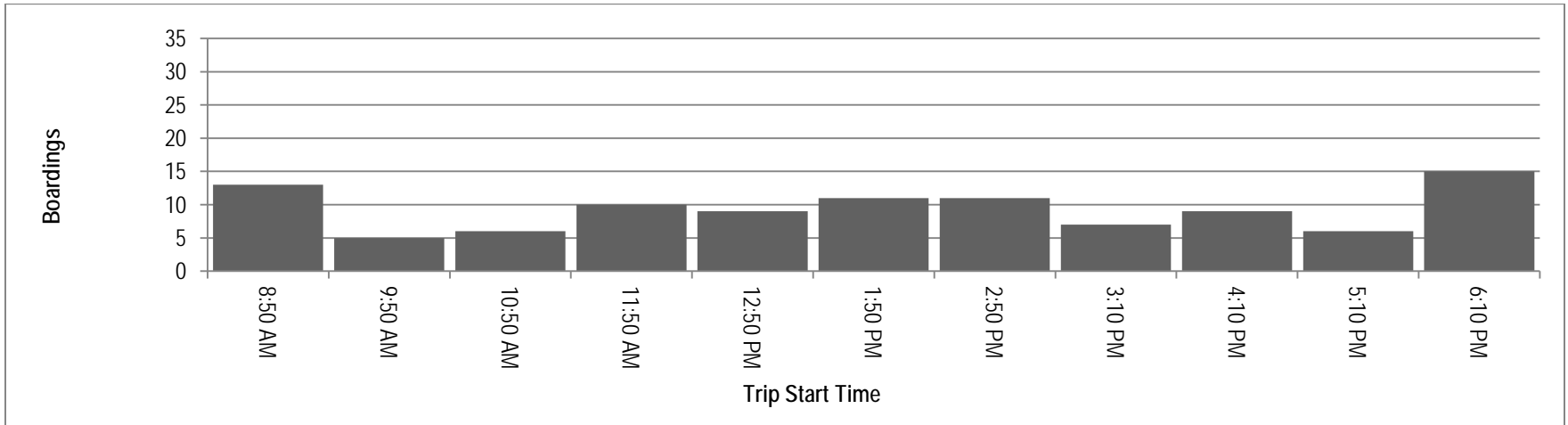


Note: a total of 16 passengers joined Route 3 southbound from through-routed Route 4 buses at North Valley Plaza.

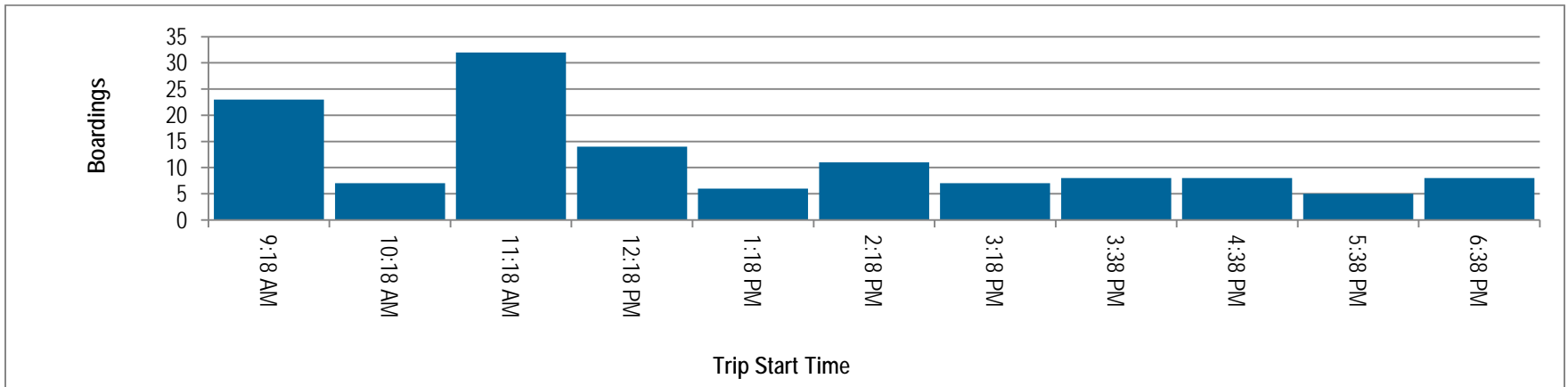
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Figure A-7 Route 3 Saturday Boardings by Trip – Northbound & Southbound

Northbound



Southbound



Route 4 First/East

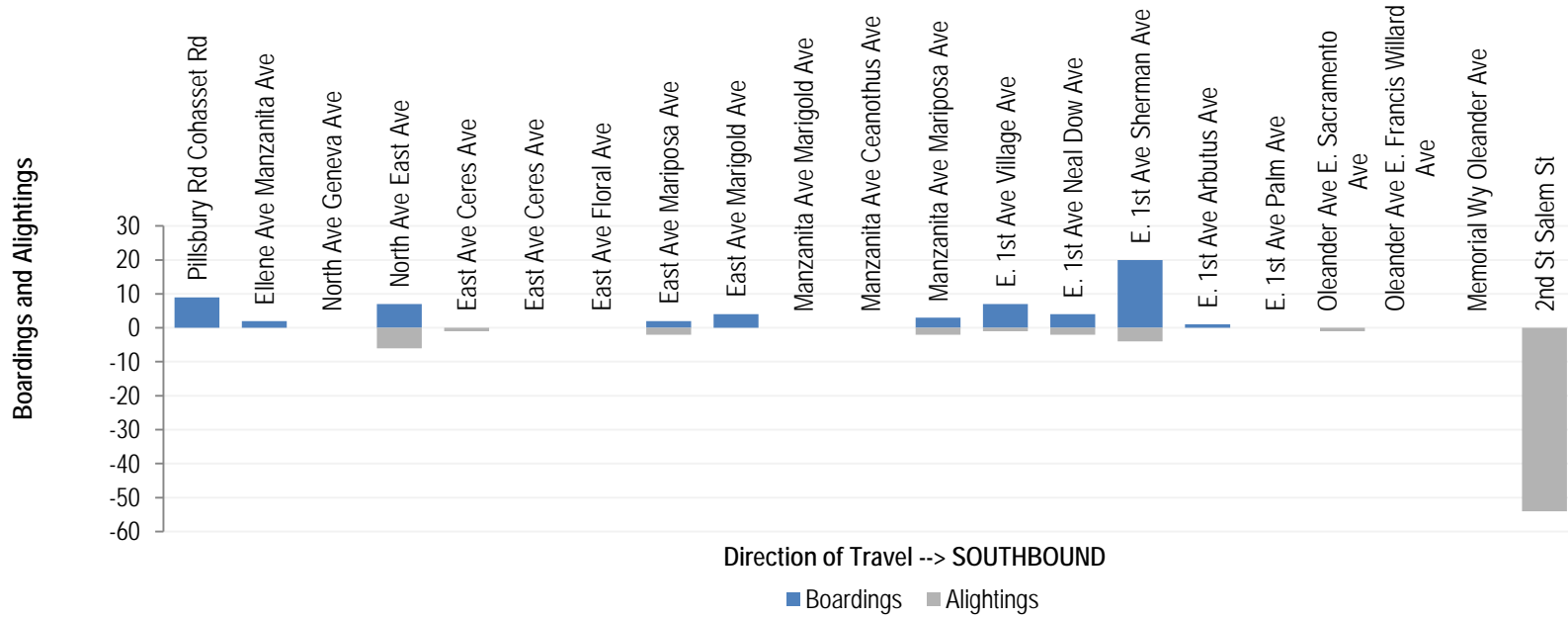
Figure A-8 Route 4 Saturday Boardings & Alightings By Stop – Northbound



Note: one passenger joined Route 4 northbound from Route 3 buses at the Chico Transit Center.

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Figure A-9 Route 4 Saturday Boardings & Alightings By Stop – Southbound

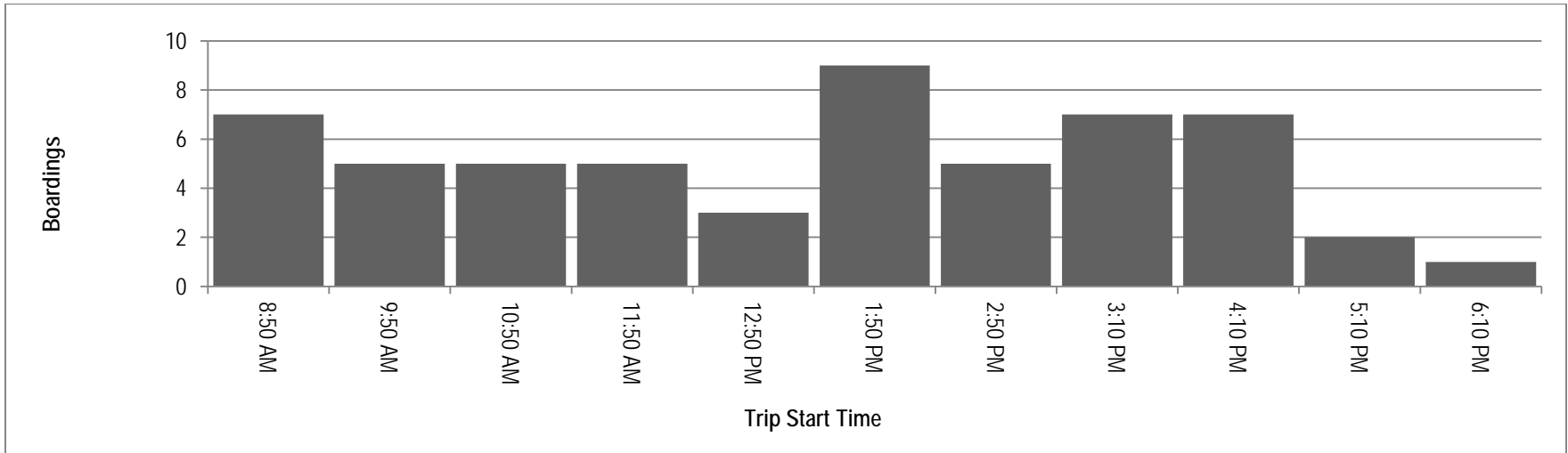


Note: a total of 16 passengers joined Route 4 southbound from through-routed Route 3 buses at North Valley Plaza.

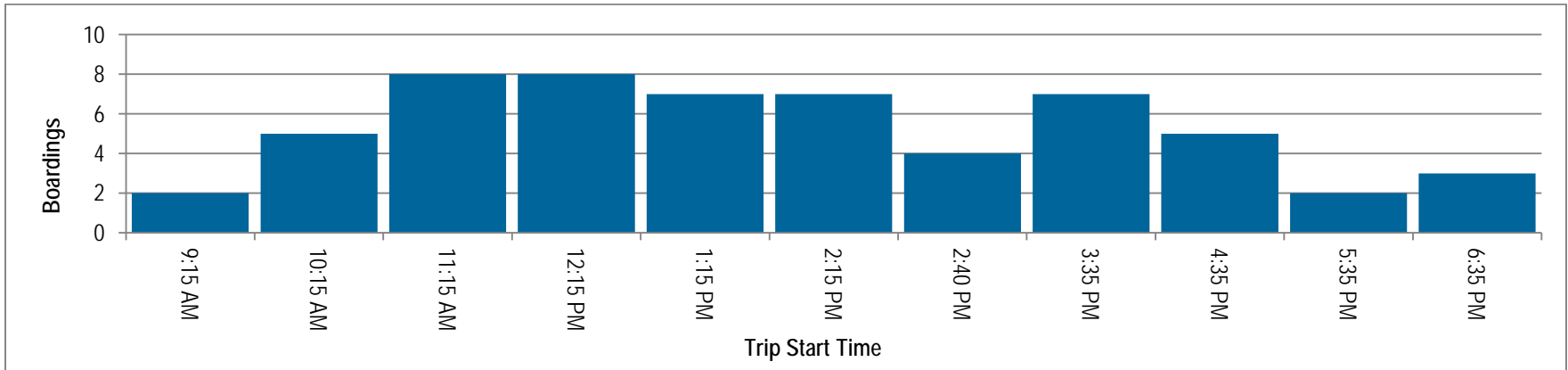
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Figure A-10 Route 4 Saturday Boardings by Trip – Northbound & Southbound

Northbound

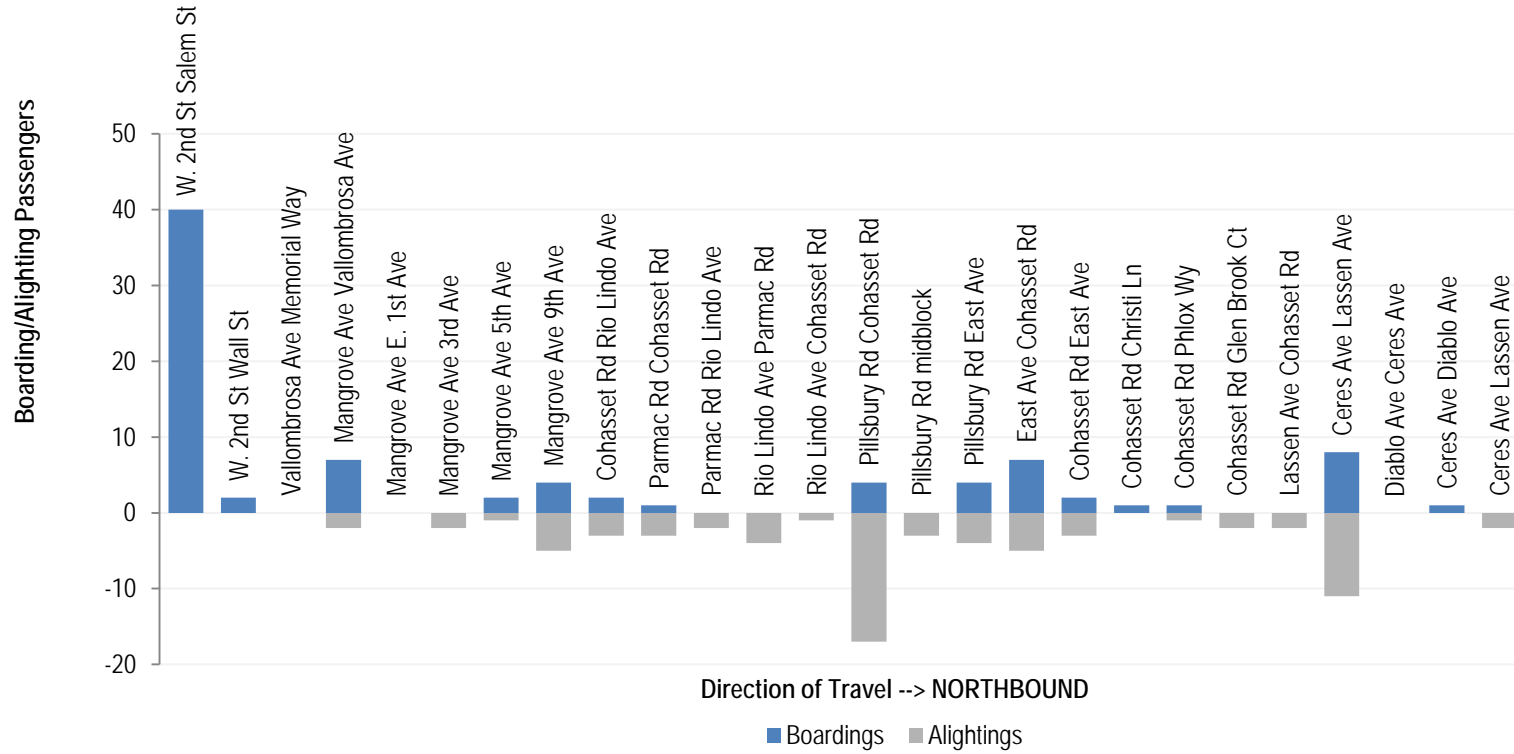


Southbound



Route 5 East 8th Street

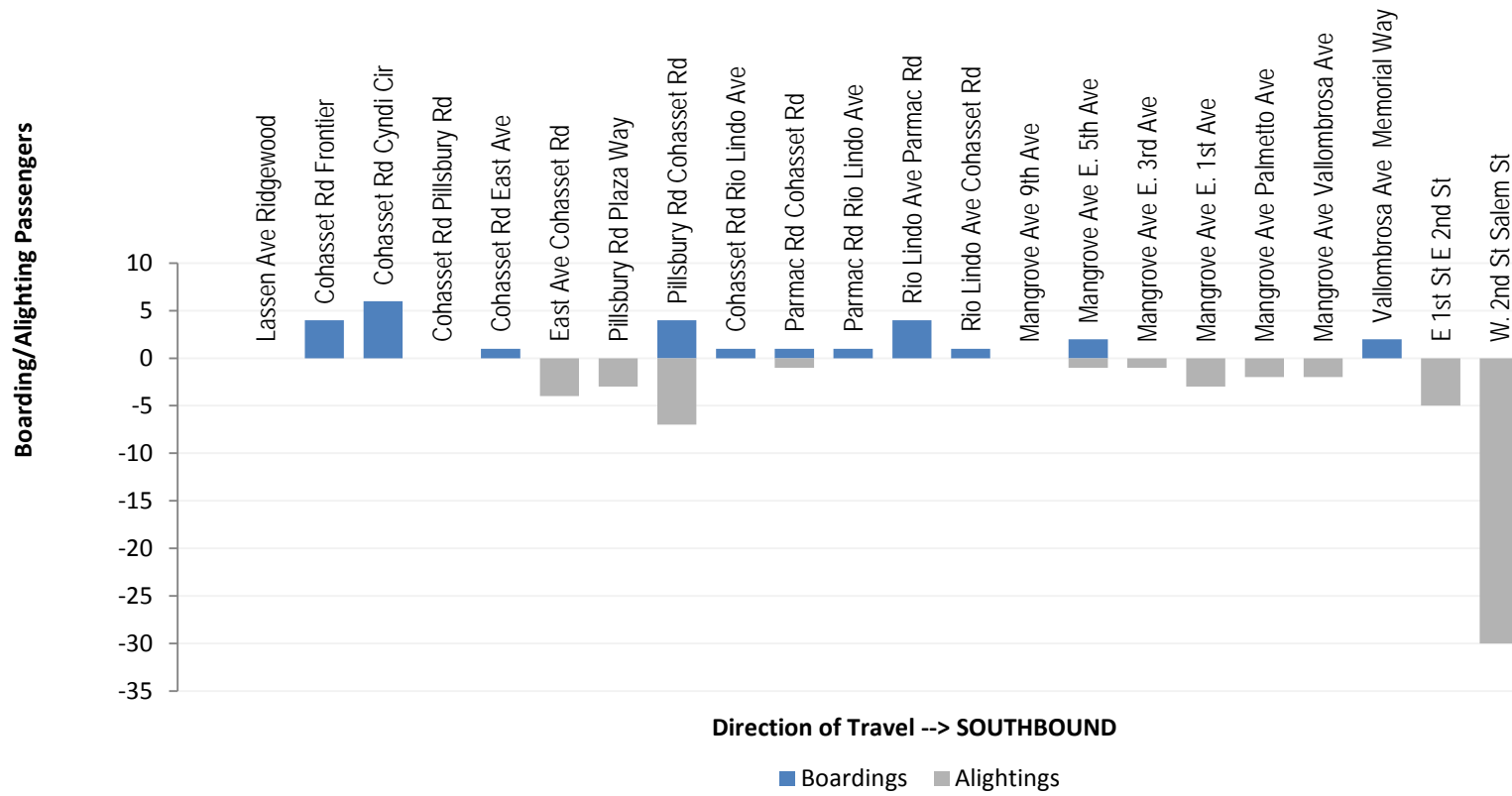
Figure A-11 Route 2 Saturday Boardings & Alightings By Stop – Northbound



Note: a total of 2 passengers carried over onto Route 5 northbound at the Chico Transit Center.

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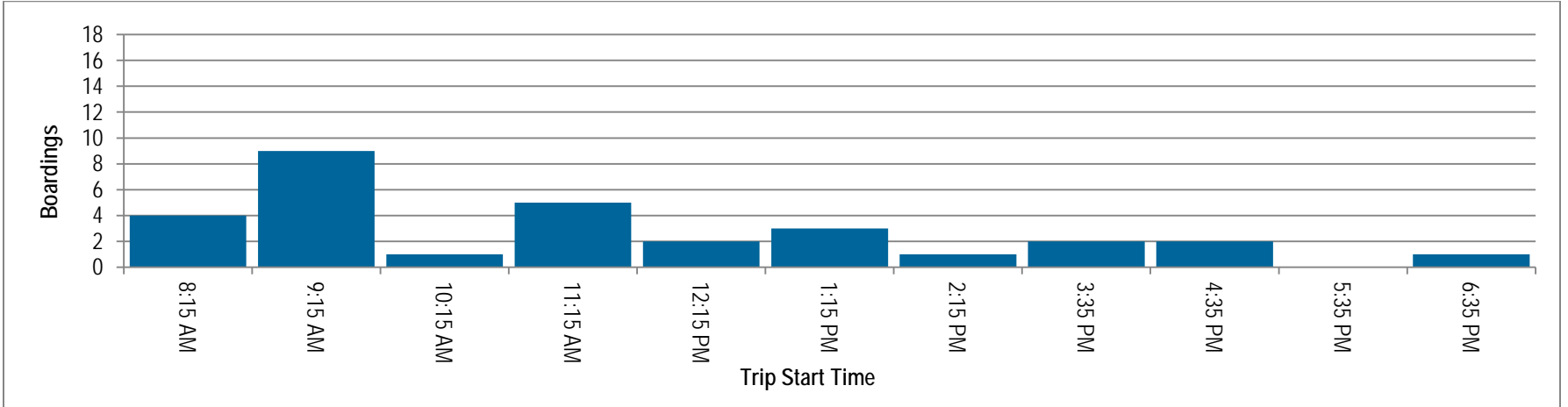
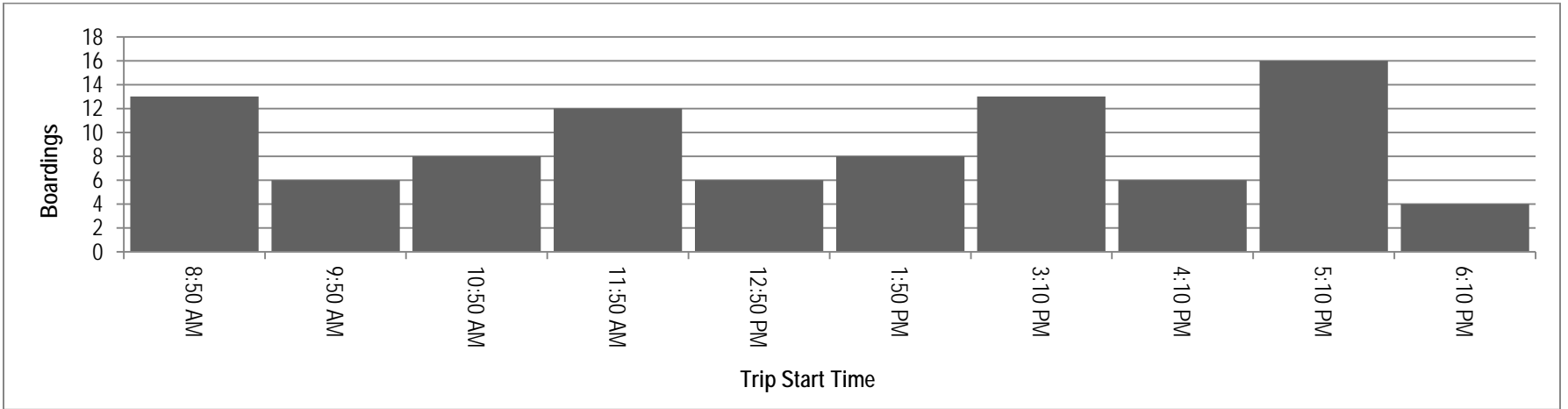
Figure A-12 Route 2 Saturday Boardings & Alightings By Stop – Southbound



Note: a total of 14 passengers joined Route 5 westbound already aboard eastbound Route 5 buses the Forest Avenue Transfer.

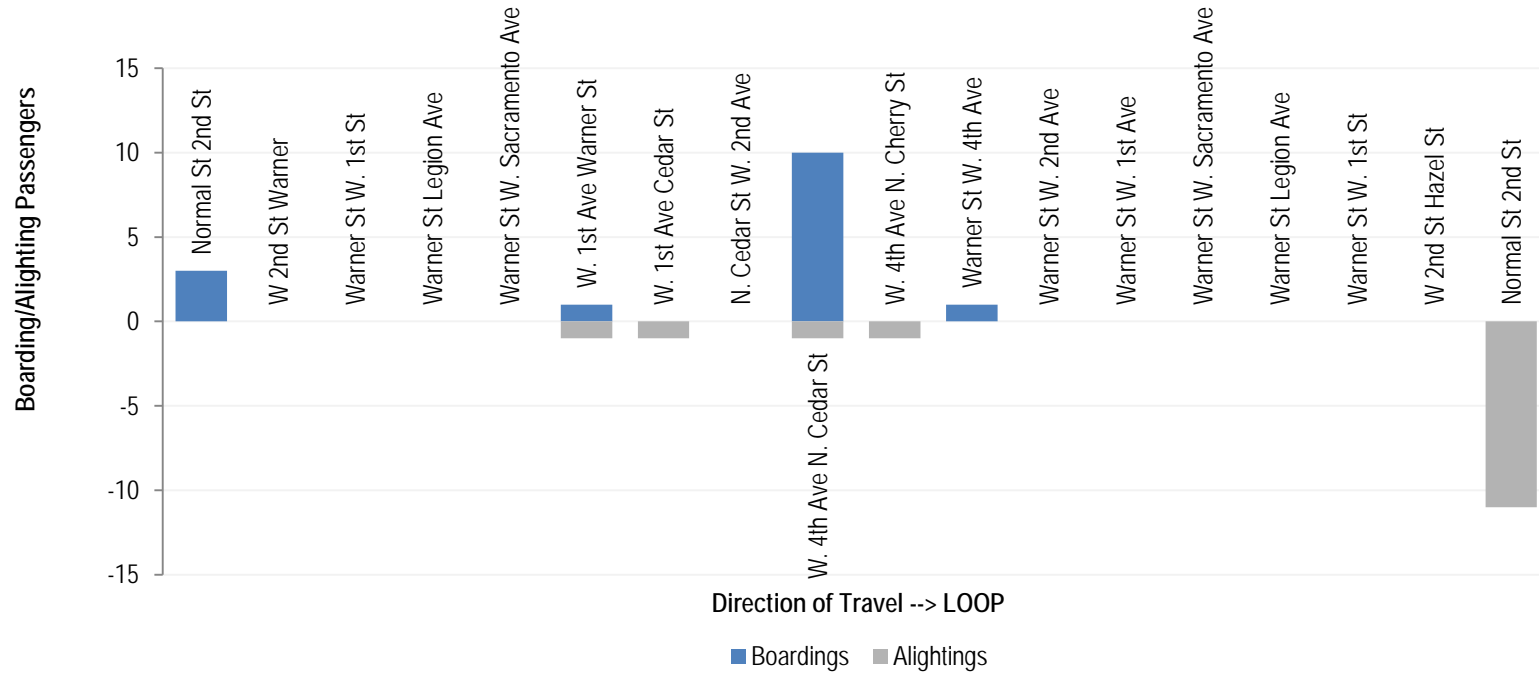
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Figure A-13 Route 2 Saturday Boardings by Trip – Northbound



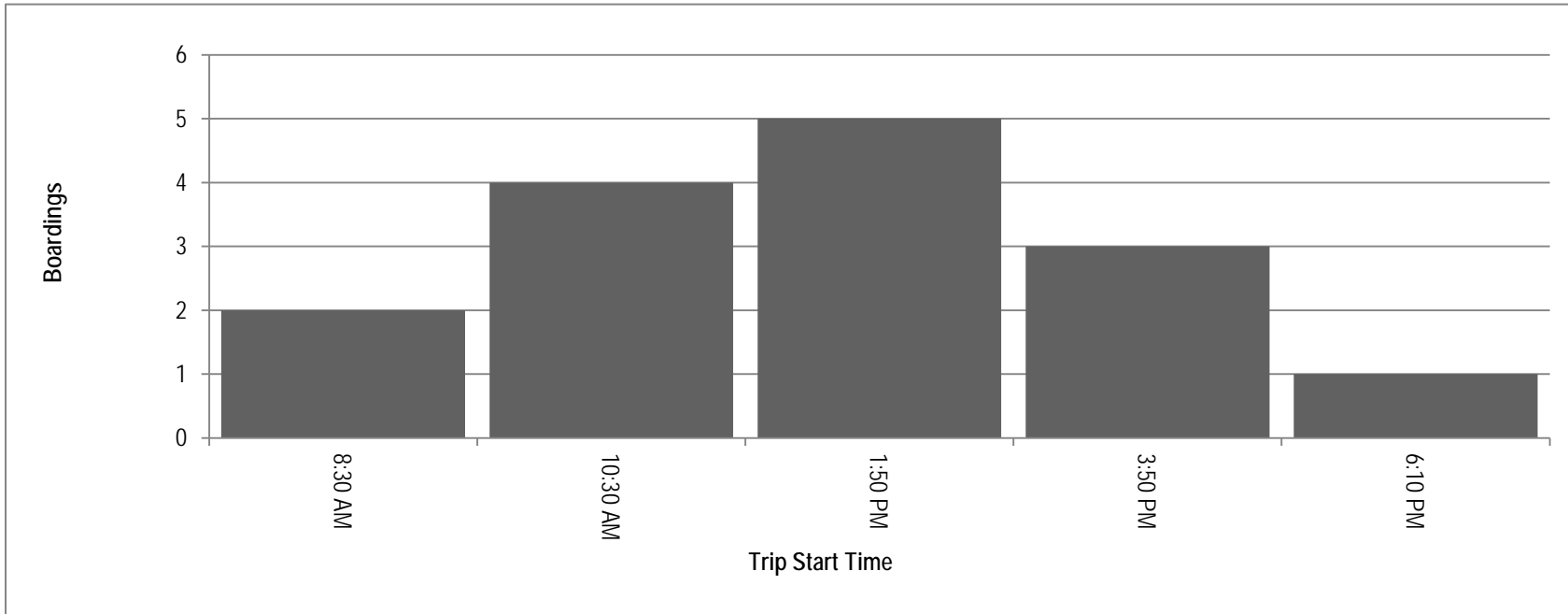
Route 9C Cedar Loop

Figure A-14 Route 9C Saturday Boardings & Alightings By Stop



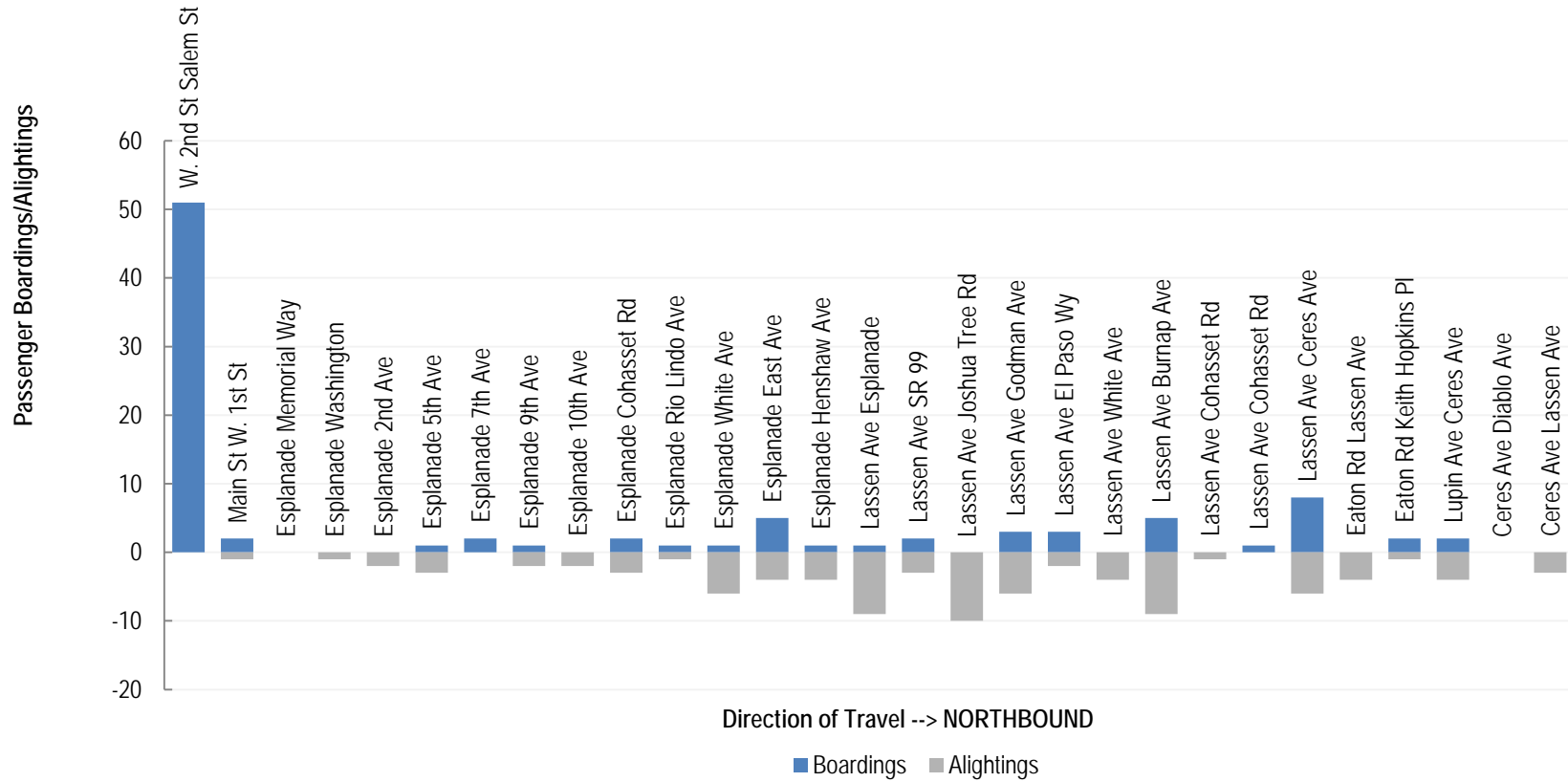
Note: a total of 2 passengers joined Route 9C from through-routed buses at Chico Transit Center.

Figure A-15 Route 2 Saturday Boardings by Trip – Loop



Route 15N Esplanade/Lassen

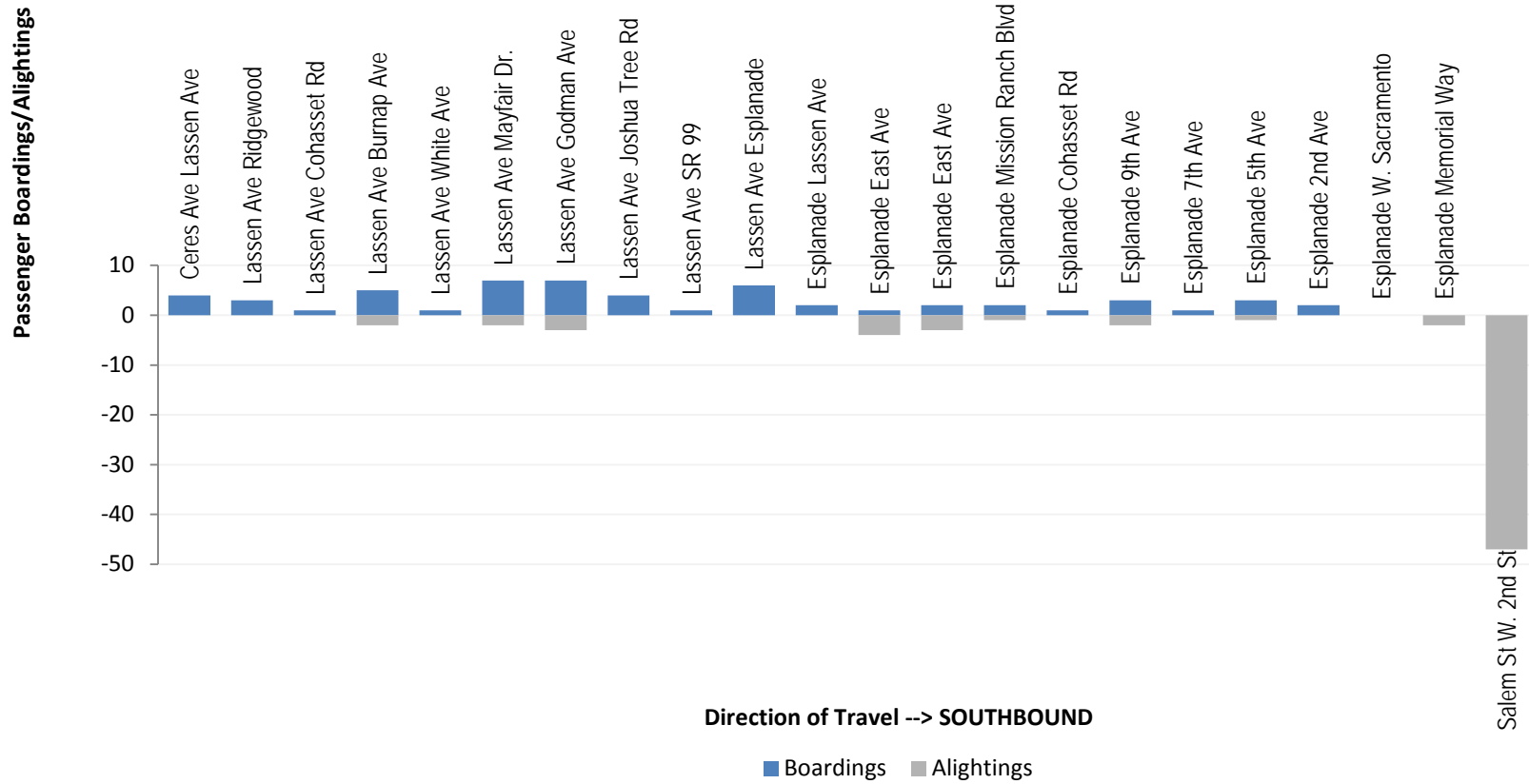
Figure A-16 Route 15N Saturday Boardings & Alightings By Stop – Northbound



Note: a total of 29 passengers carried over onto Route 15N northbound from Route 15S northbound at the Chico Transit Center.

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Figure A-17 Route 15N Saturday Boardings & Alightings By Stop – Southbound

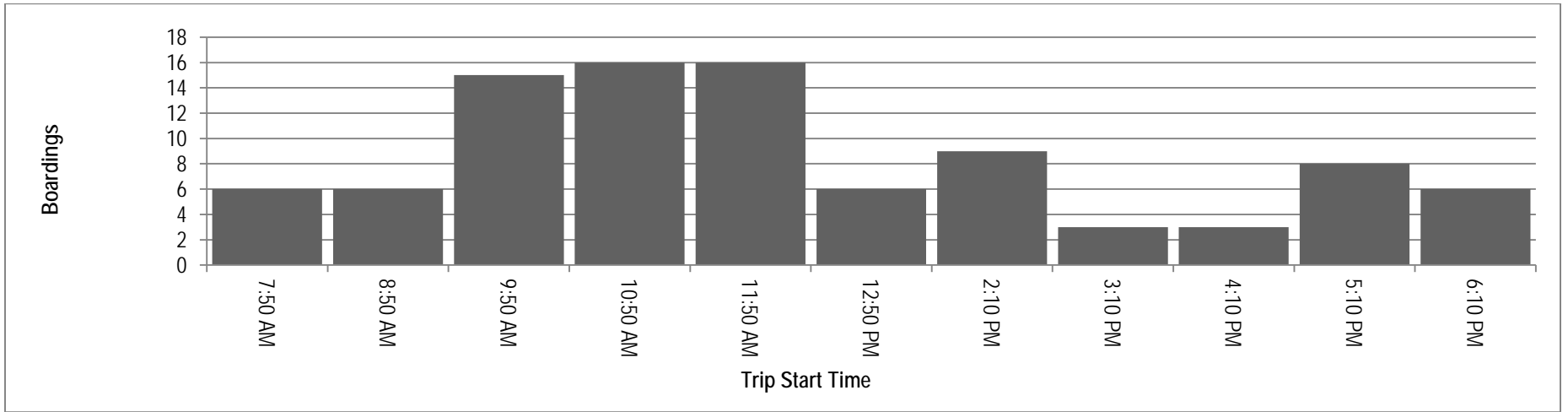


Note: a total of 32 passengers joined Route 15N southbound already on board Route 15N northbound buses at Ceres & Lassen.

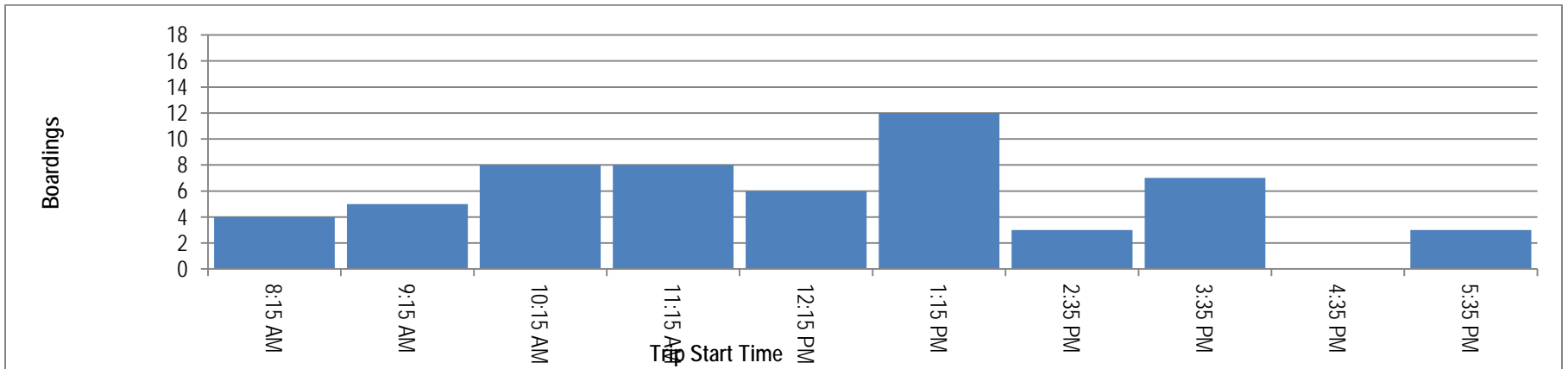
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Figure A-18 Route 15N Saturday Boardings by Trip – Northbound & Southbound

Northbound

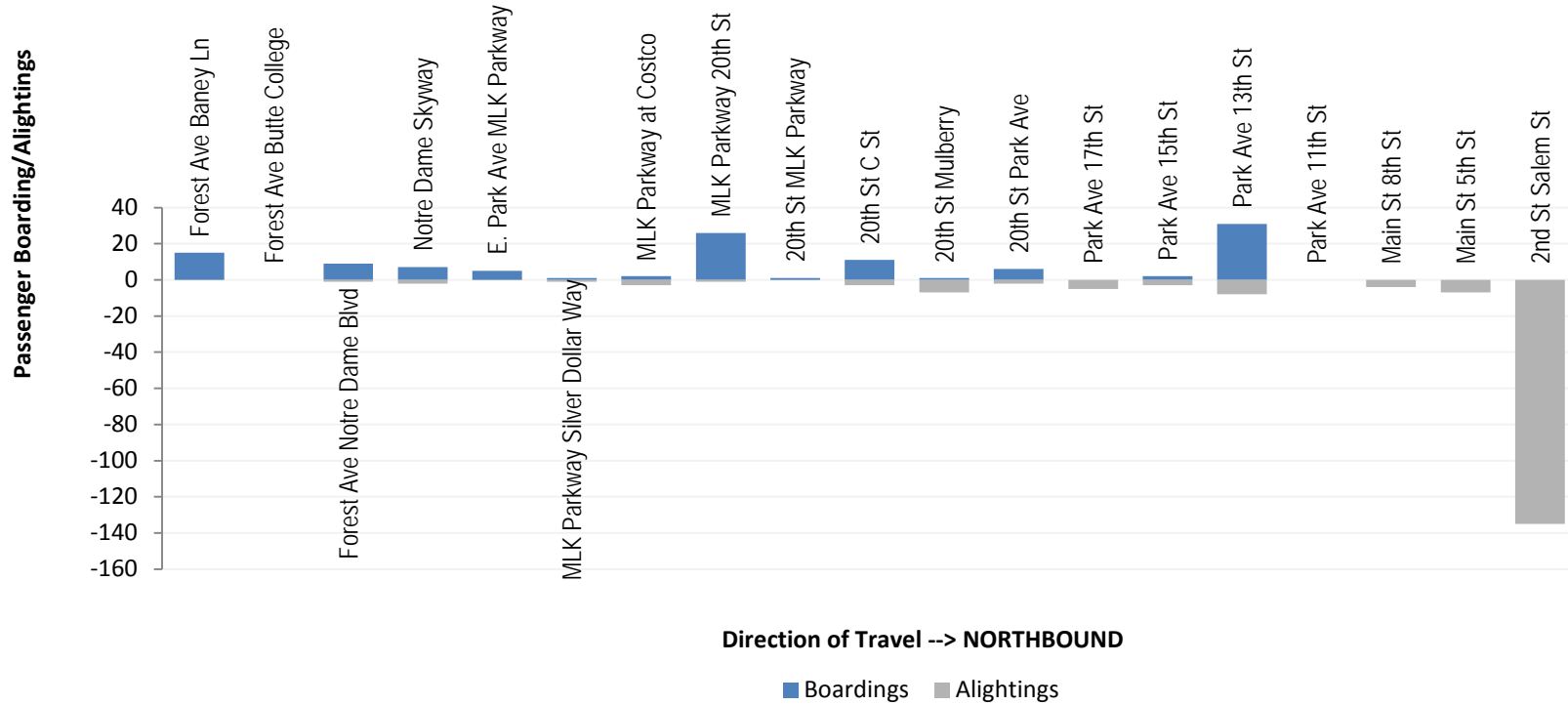


Southbound



Route 15S Forest/MLK/Park

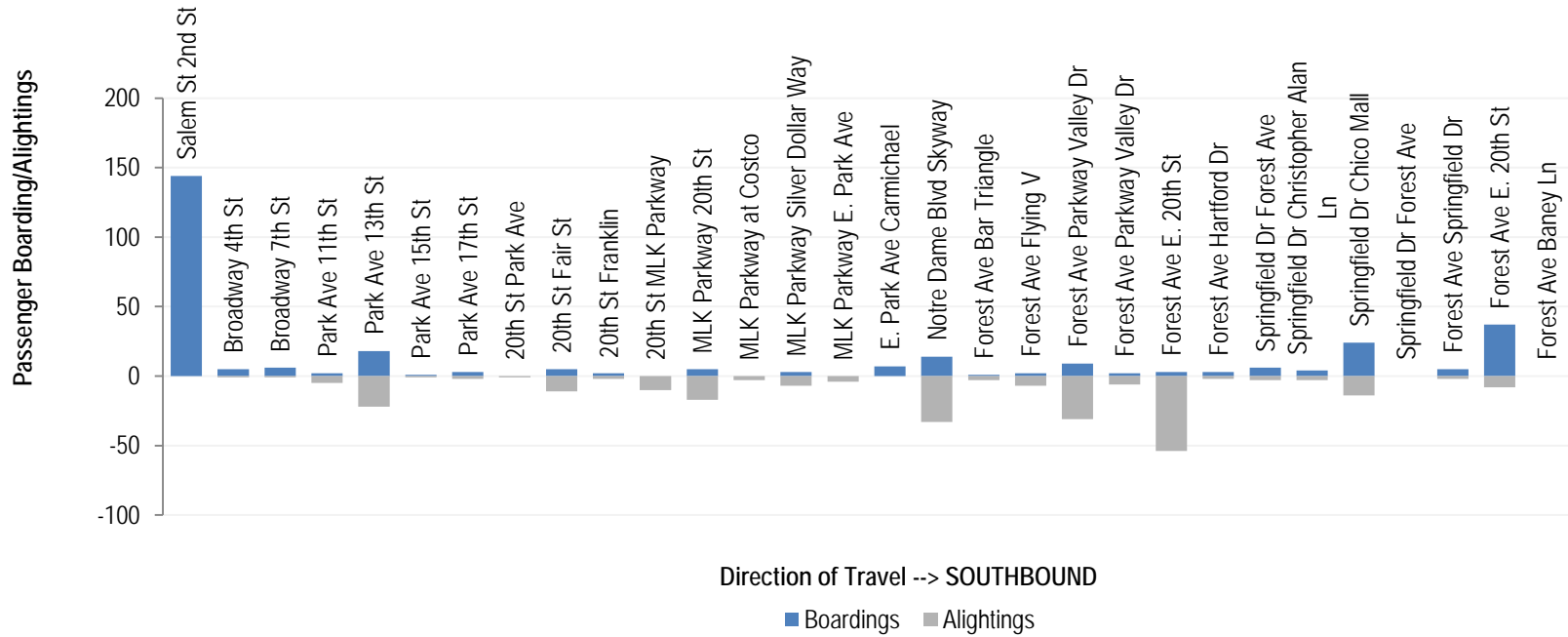
Figure A-19 Route 15S Saturday Boardings & Alightings By Stop – Northbound



Note: a total of 54 passengers carried over onto Route 15S northbound already on board Route 15S southbound buses at the Forest Avenue Transfer.

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Figure A-20 Route 15S Saturday Boardings & Alightings By Stop – Southbound

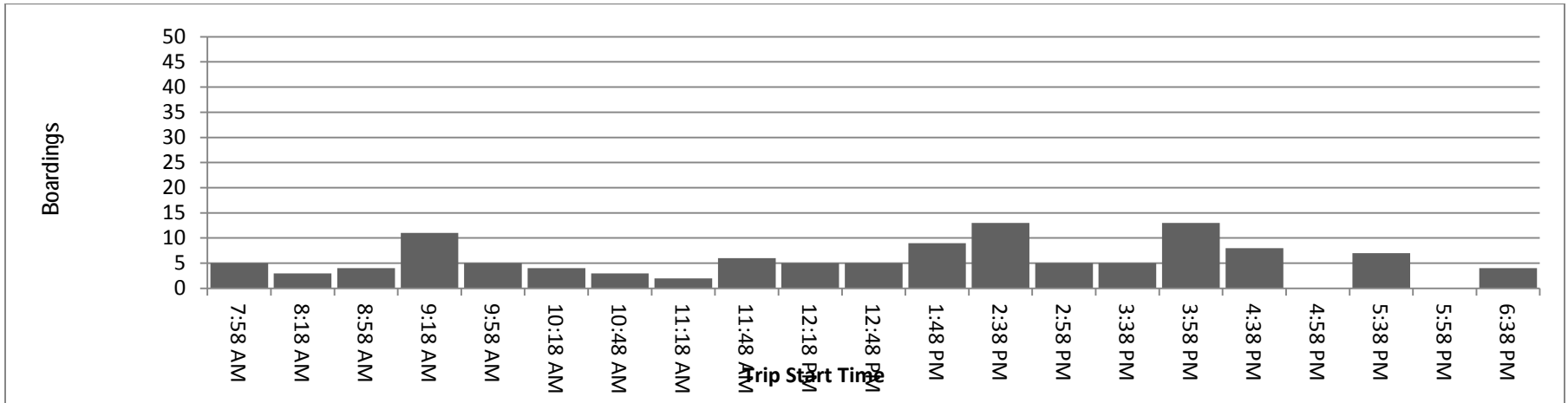


Note: a total of 61 passengers joined Route 15S southbound on board Route 15N southbound buses at the Chico Transit Center.

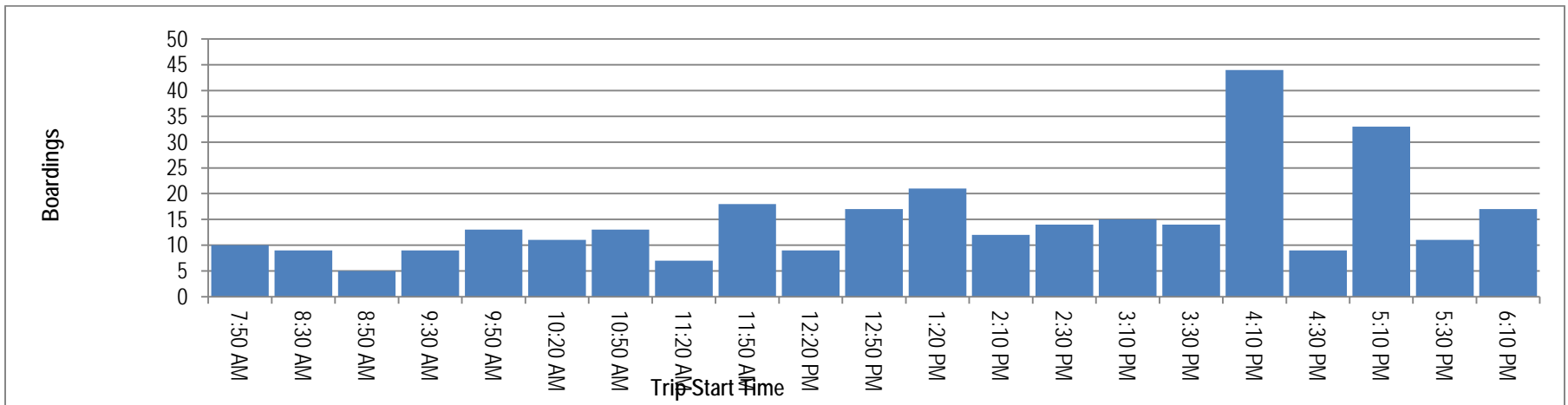
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Figure A-21 Route 15S Saturday Boardings by Trip – Northbound & Southbound

Northbound



Southbound



Route 16 Esplanade/SR 99

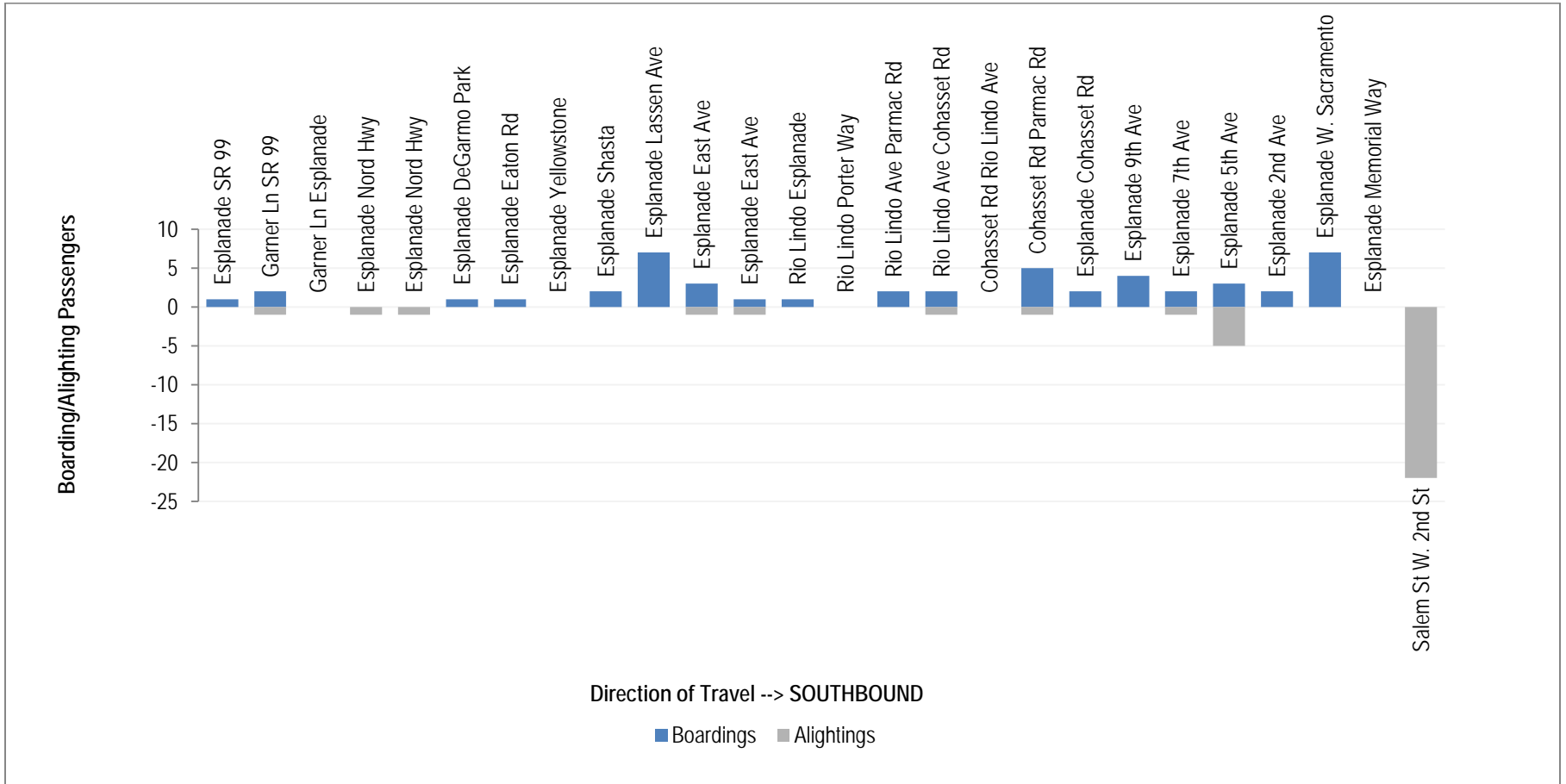
Figure A-22 Route 16 Saturday Boardings & Alightings By Stop – Northbound



Note: a total of 20 passengers carried over onto Route 16 northbound already on board buses at the Chico Transit Center.

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Figure A-23 Route 16 Saturday Boardings & Alightings By Stop – Southbound

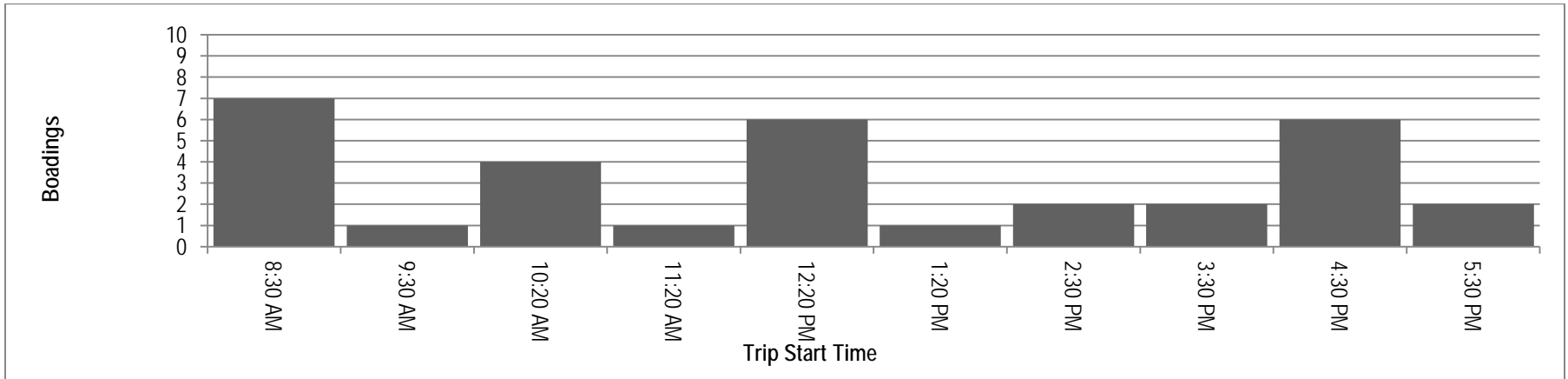


Note: a total of 8 passengers joined Route 16 southbound already on board Route 16 northbound buses at the northern terminus.

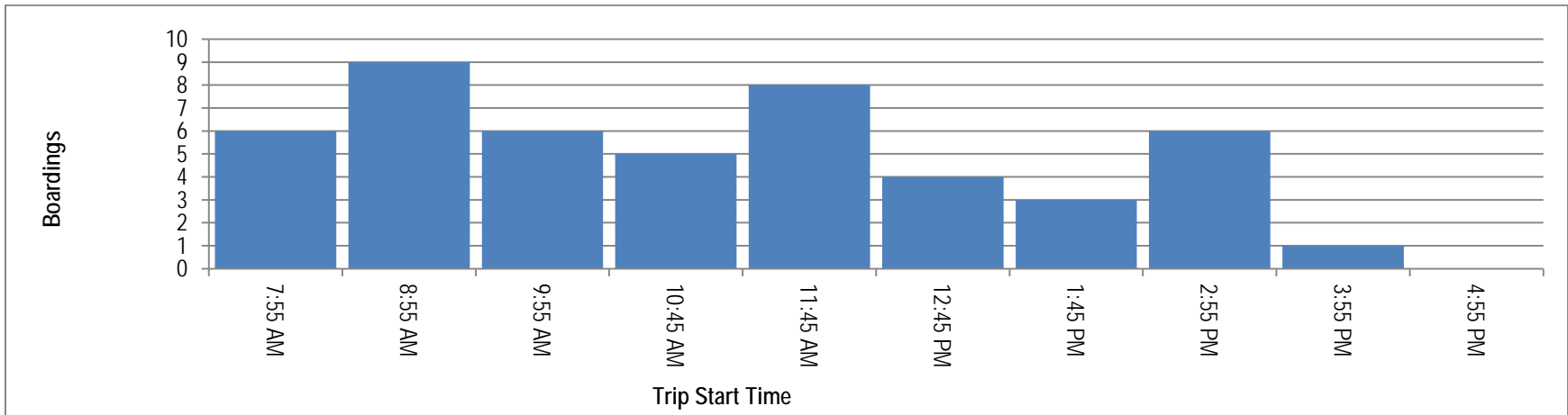
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Figure A-24 Route 16 Saturday Boardings by Trip – Northbound & Southbound

Northbound



Southbound

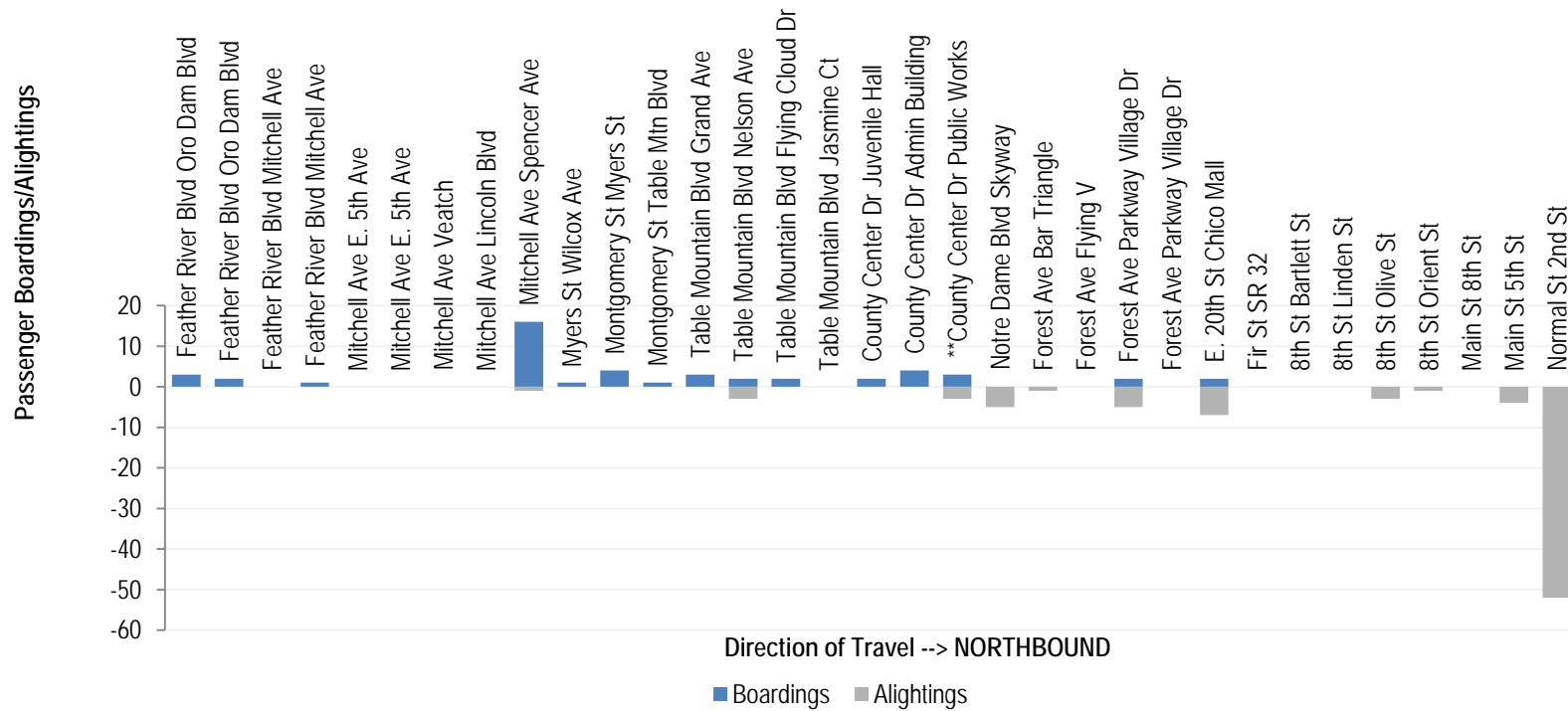


Regional (Intercity) Routes

Route 20 Chico – Oroville

Note: on weekends, Route 20 completes an extra loop within Oroville to the south and west of the transit center, serving WalMart and other destinations along Oro Dam Boulevard before returning to the Oroville Transit Center and Chico.

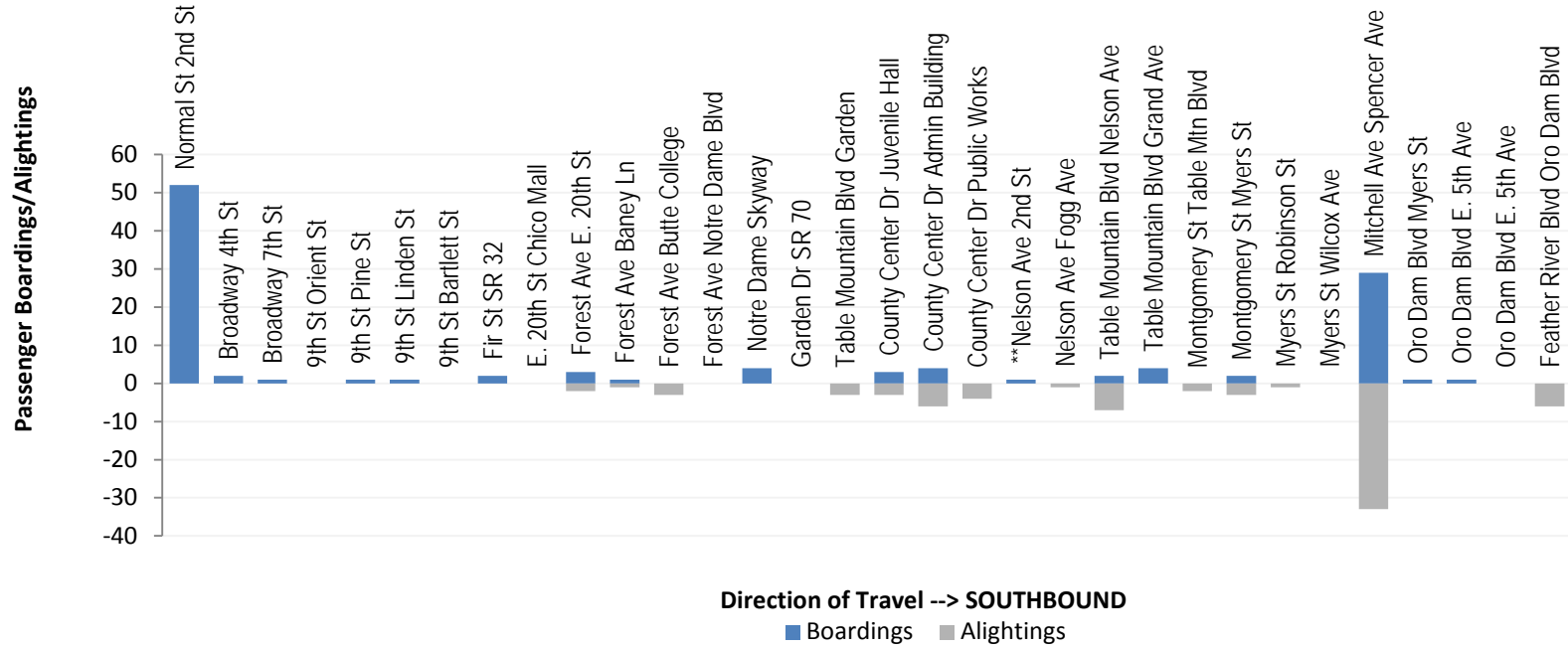
Figure A-25 Route 20 Saturday Boardings & Alightings By Stop – Northbound



Note: a total of 39 passengers carried over onto Route 20 northbound from Route 20 southbound buses at Feather River Boulevard & Oro Dam Boulevard, the Saturday southern terminus.

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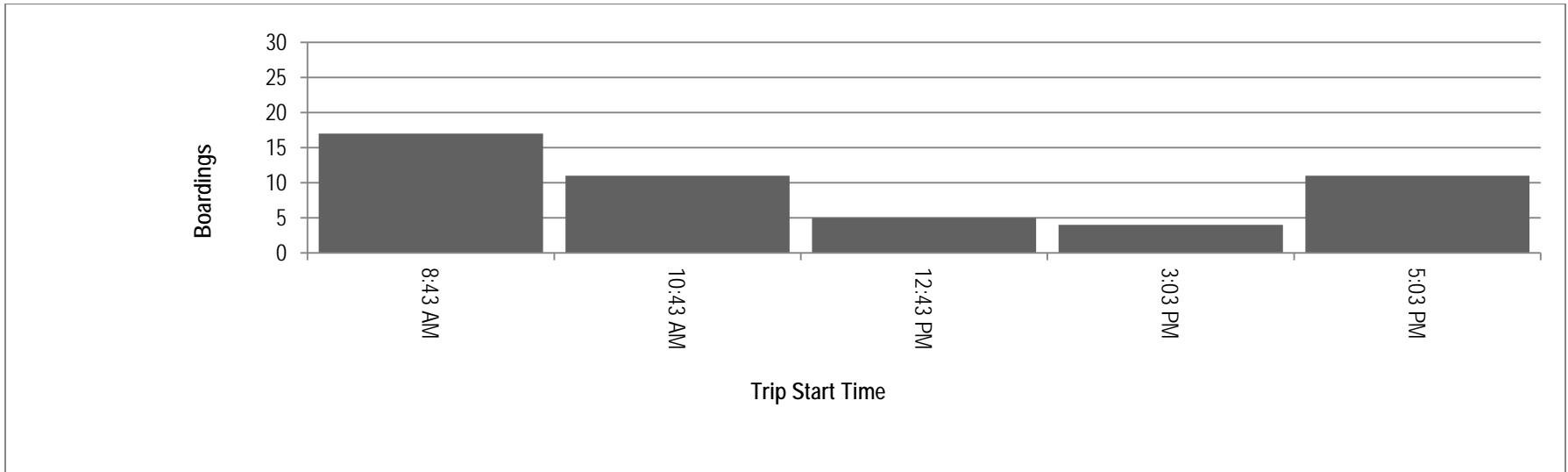
Figure A-26 Route 20 Saturday Boardings & Alightings By Stop – Southbound



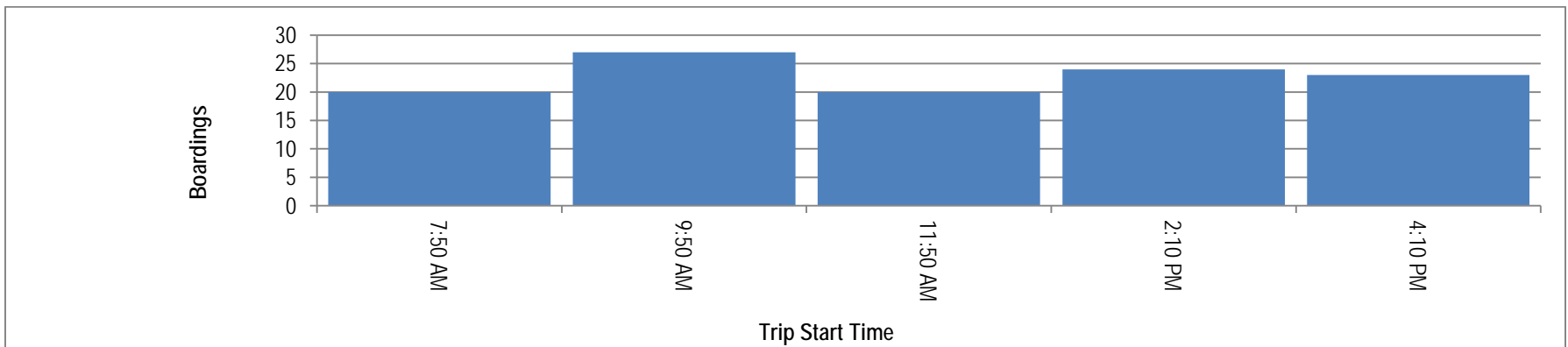
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Figure A-27 Route 20 Saturday Boardings by Trip – Northbound & Southbound

Northbound

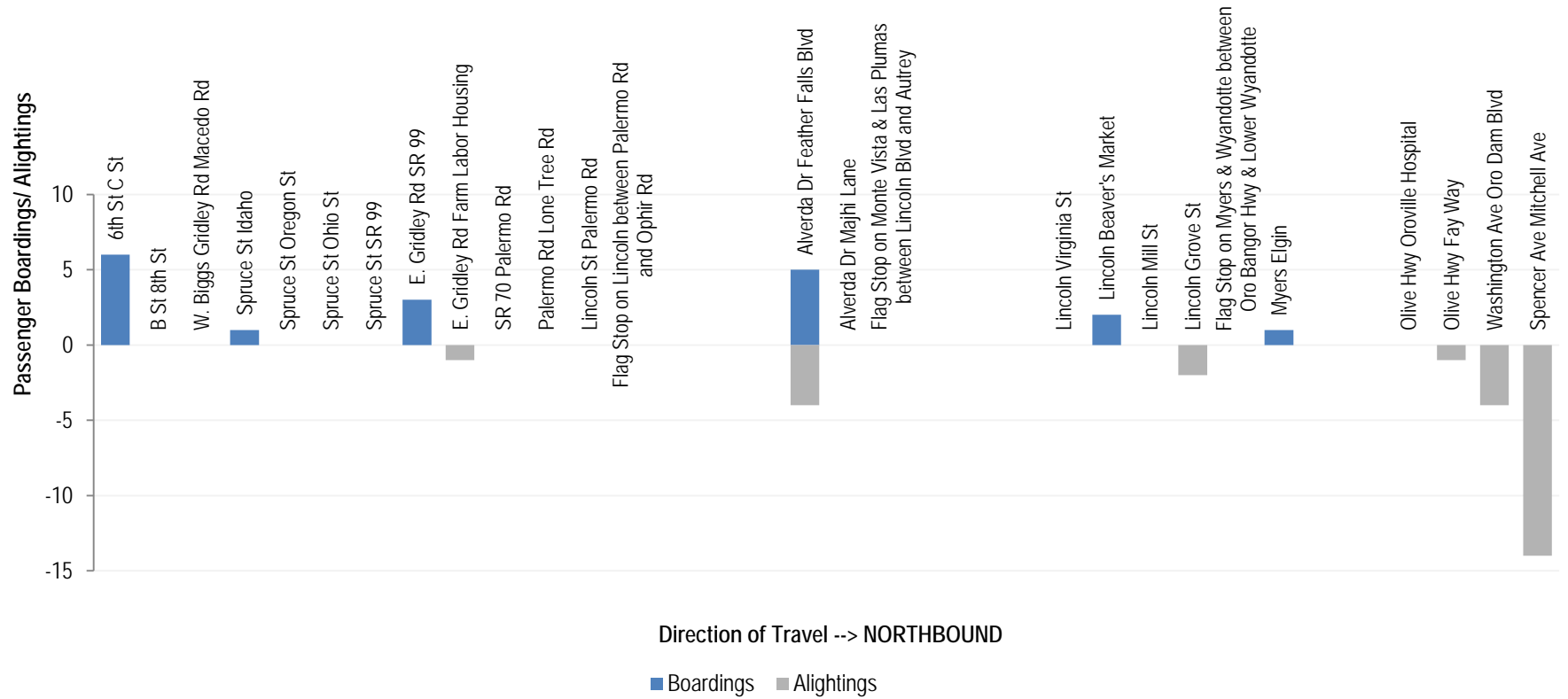


Southbound



Route 30 Oroville – Biggs

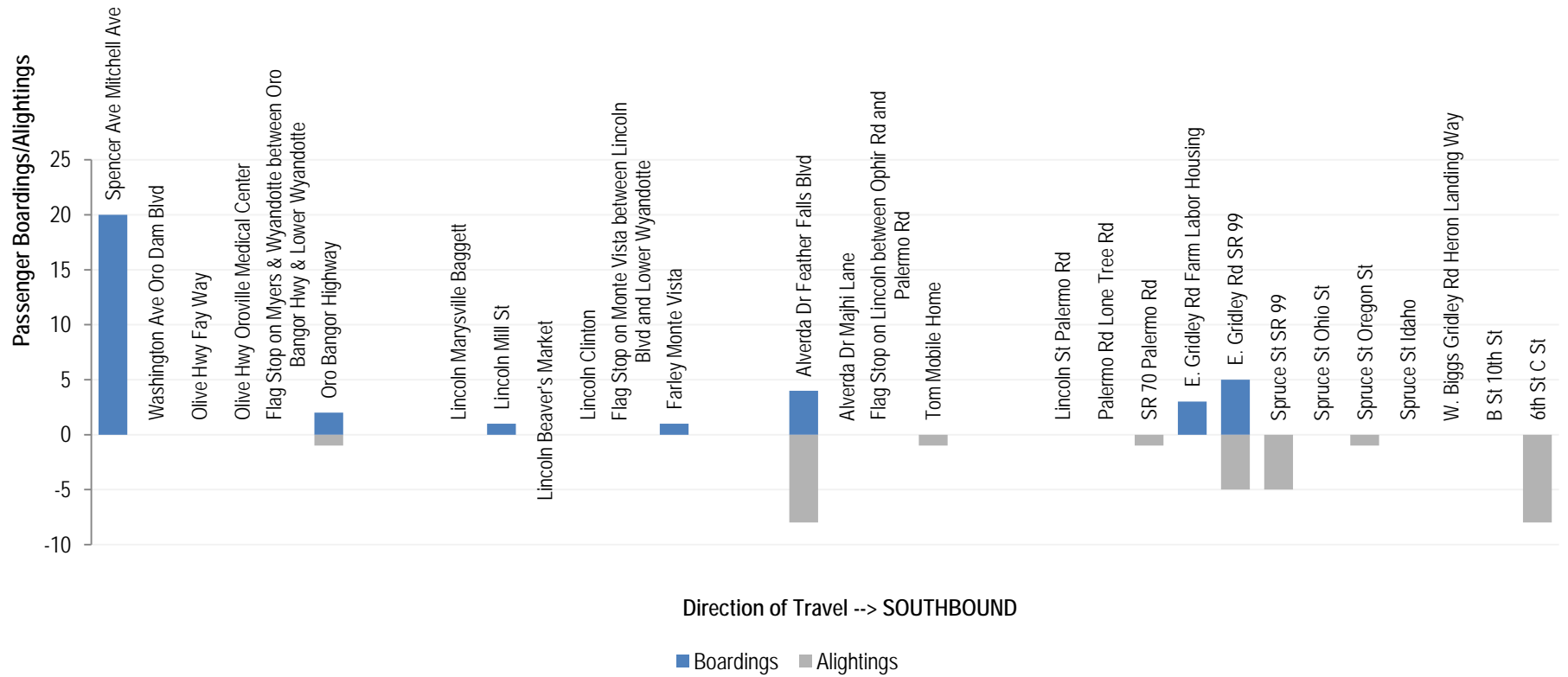
Figure A-27 Route 30 Saturday Boardings & Alightings By Stop – Northbound



Note: a total of 8 passengers carried over onto Route 30 northbound from Route 30 southbound buses in Biggs.

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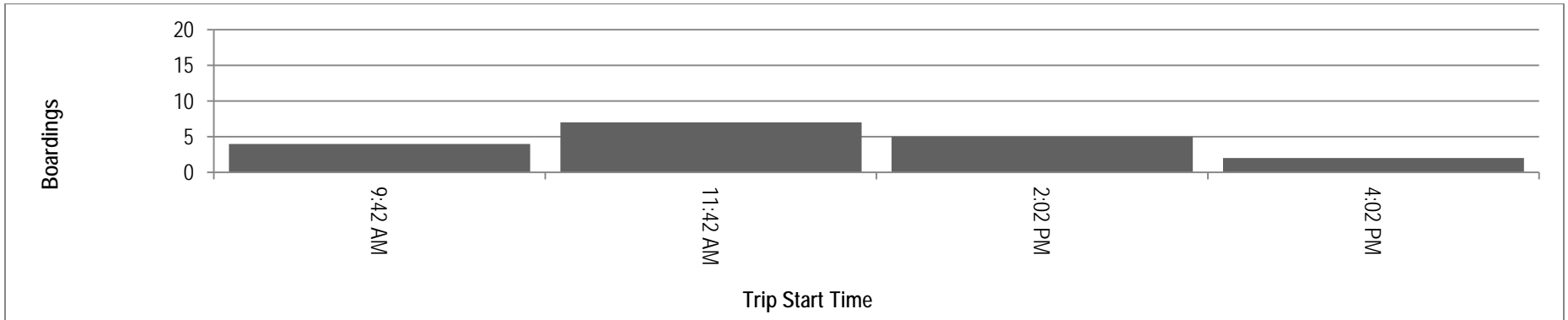
Figure A-28 Route 30 Saturday Boardings & Alightings By Stop – Southbound



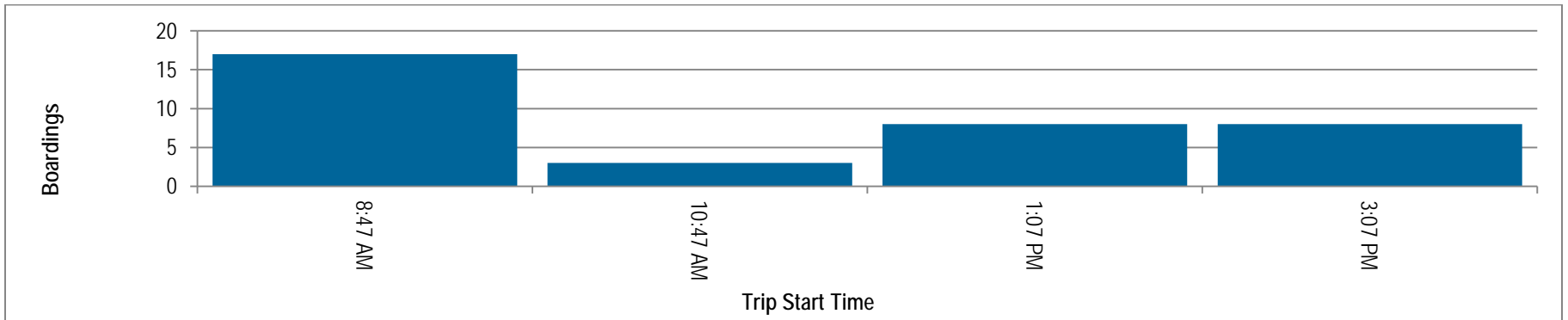
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Figure A-29 Route 30 Saturday Boardings by Trip – Northbound & Southbound

Northbound

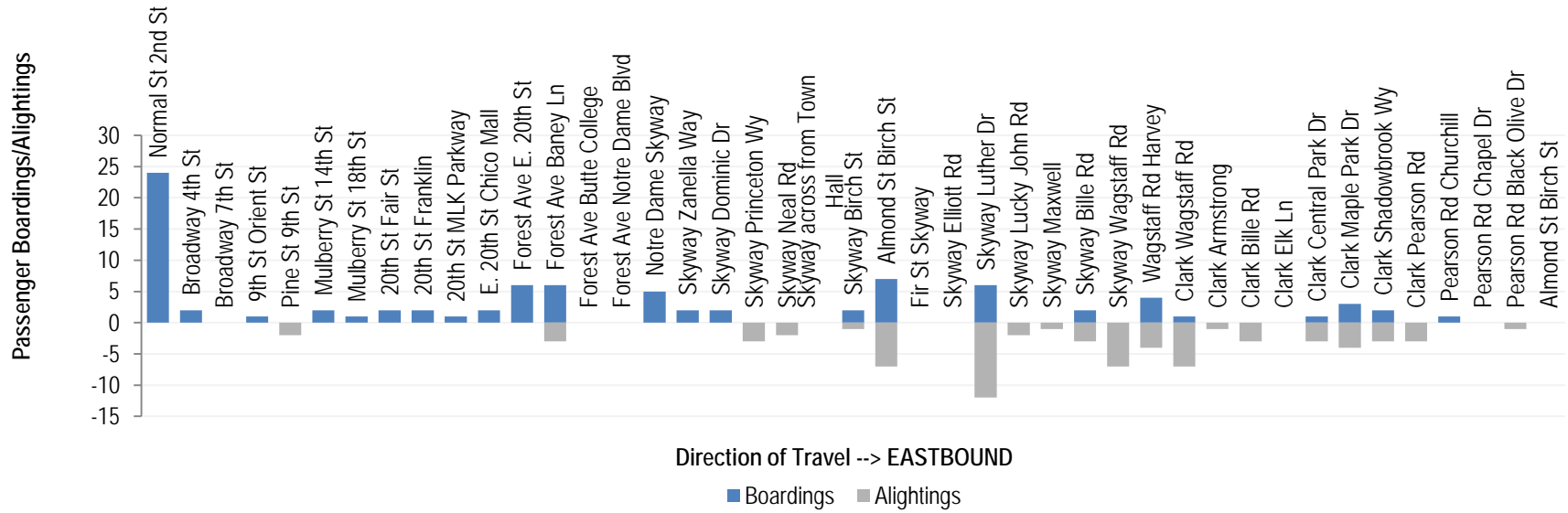


Southbound



Route 40 Paradise – Chico

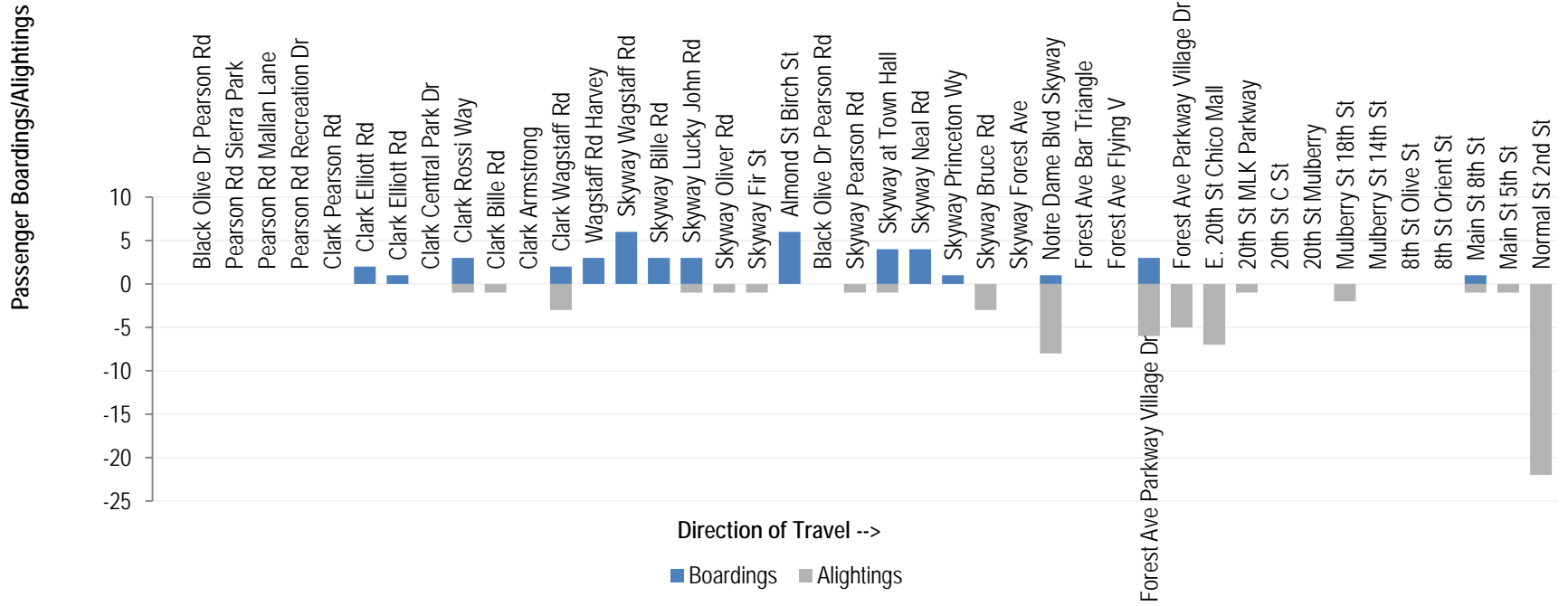
Figure A-30 Route 40 Saturday Boardings & Alightings By Stop – Eastbound



Note: a total of 13 passengers carried over onto Route 40 eastbound already aboard buses at the Chico Transit Center.

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Figure A-31 Route 40 Saturday Boardings & Alightings By Stop – Westbound

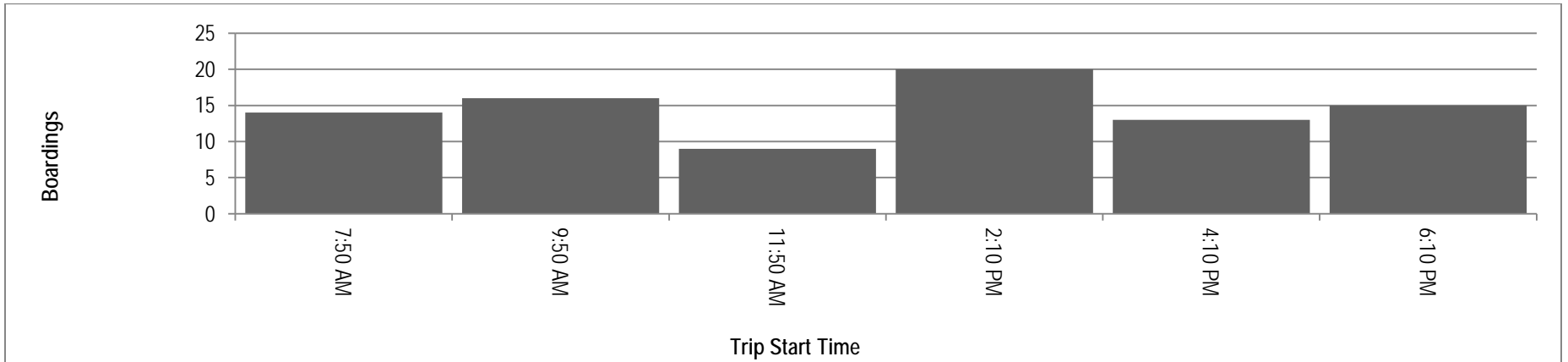


Note: a total of 32 passengers carried over onto Route 40 westbound already aboard Route 40 eastbound buses at the Paradise Transit Center.

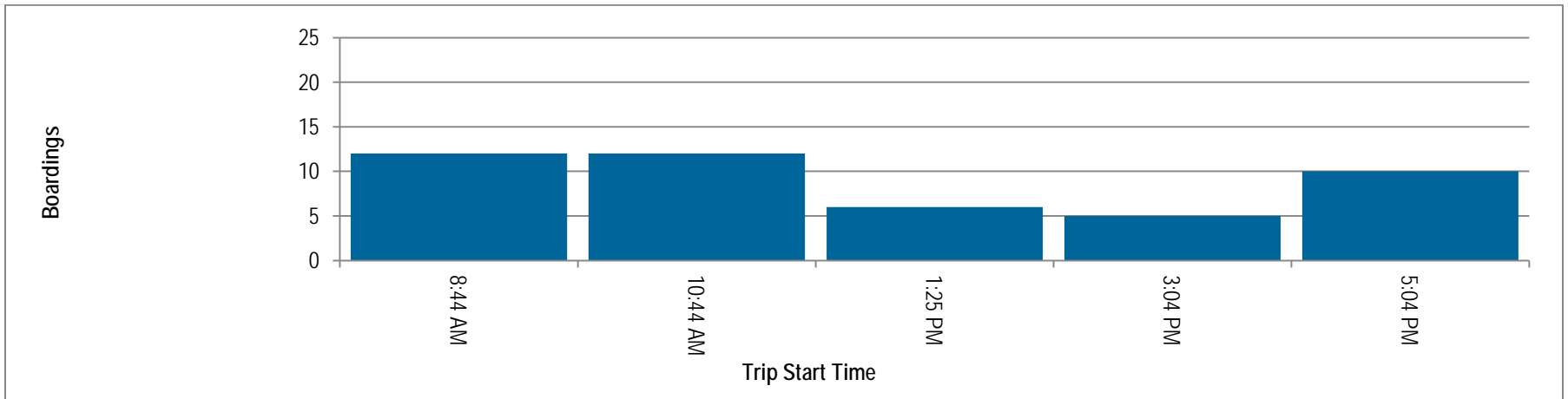
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Figure A-33 Route 40 Saturday Boardings by Trip – Eastbound & Westbound

Eastbound



Westbound

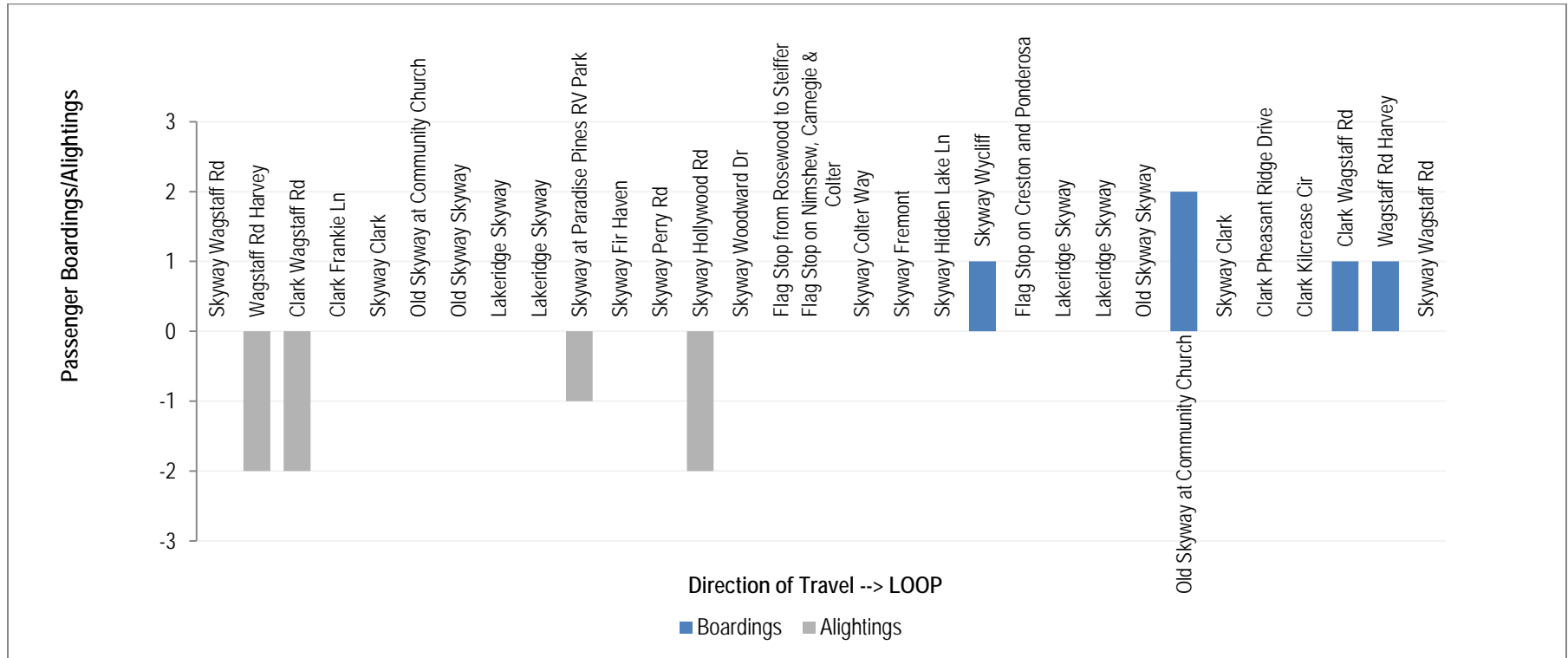


Route 41 Magalia – Chico

On Saturdays, Route 41 essentially functions as a loop between Magalia and Paradise, linking up with Route 40 to provide through service to Chico.

On the surveyed Saturday, there were no boardings on either the 9:45am or 5:18pm runs. 13 passengers carried over onto the 12:32pm Route 41 westbound trip from the 11:50am Route 40 eastbound bus at Skyway & Wagstaff. At the end of the Route 41 loop, this bus becomes Route 40 westbound towards Chico; 11 passengers remained on board for this trip. A total of five (5) distinct passengers boarded Route 41 in Magalia and Paradise on the 12:32pm Route 41 run.

Figure A-32 Route 41 Saturday Boardings & Alightings By Stop



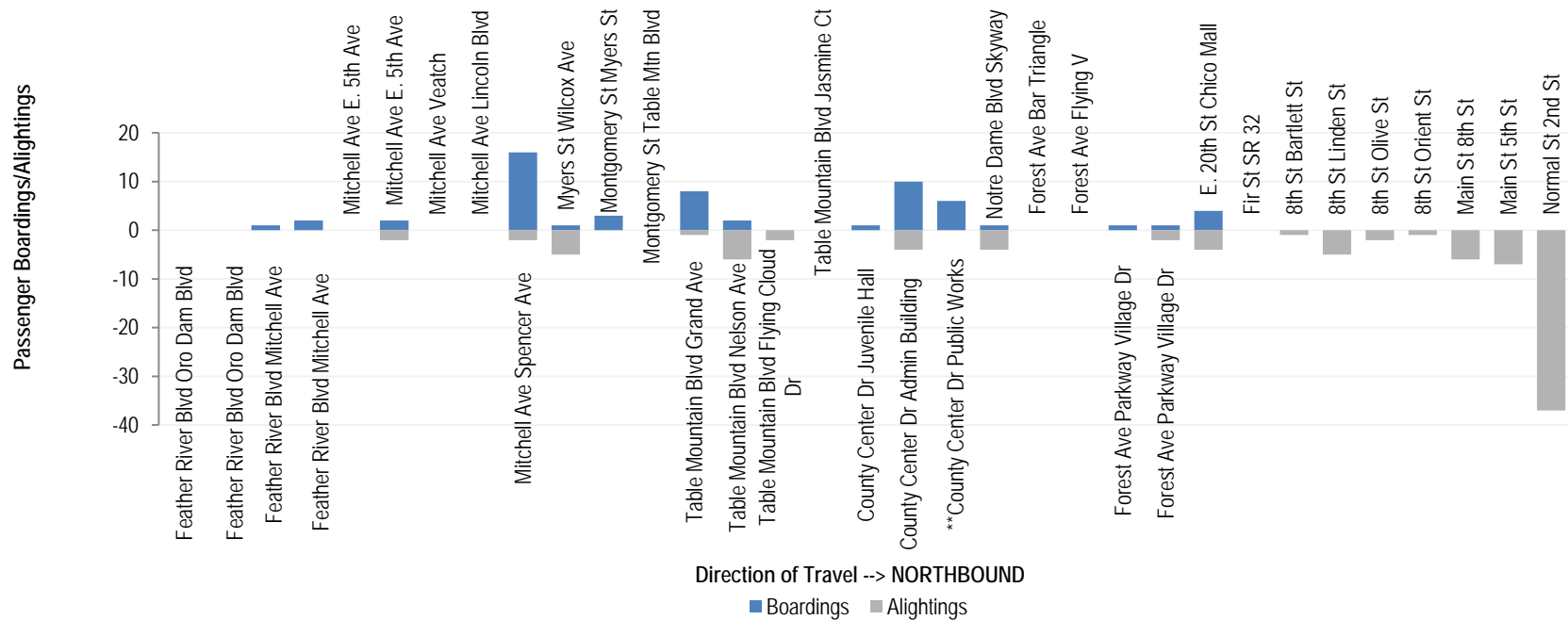
SUNDAY ROUTE PROFILES

Intercity Routes

Route 20 Chico – Oroville

Note: on weekends, Route 20 completes an extra loop within Oroville to the south and west of the transit center, serving WalMart and other destinations along Oro Dam Boulevard before returning to the Oroville Transit Center and Chico.

Figure A-33 Route 20 Sunday Boardings & Alightings By Stop – Northbound



Note: a total of 39 passengers carried over onto Route 20 northbound from Route 20 southbound buses at Feather River Boulevard & Oro Dam Boulevard, the southern terminus on weekends.

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Figure A-34 Route 20 Sunday Boardings & Alightings By Stop – Southbound

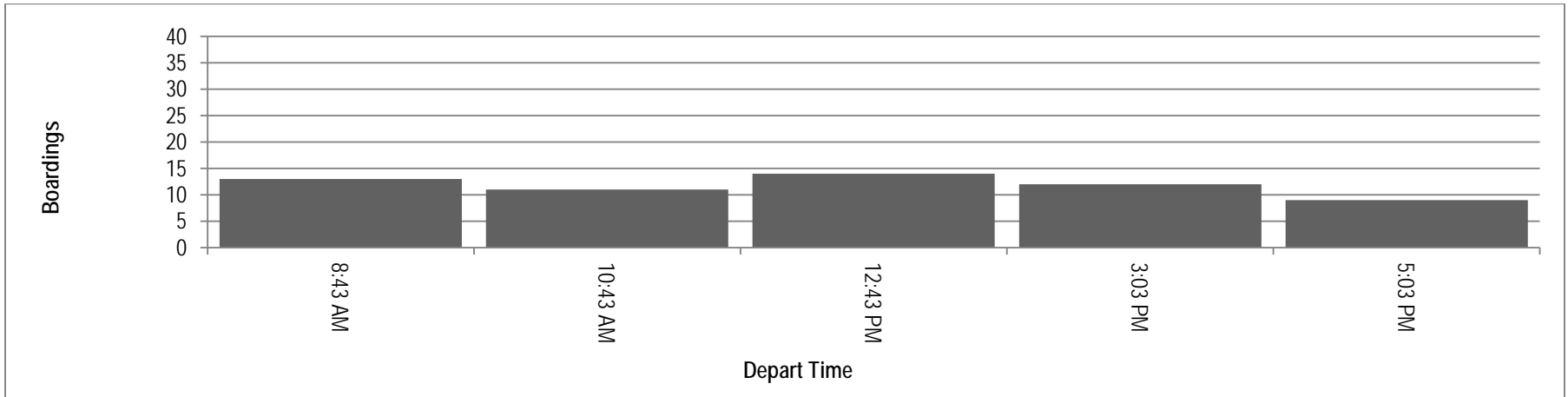


Note: a total of 7 passengers carried over onto Route 20 southbound already aboard buses at the Chico Transit Center.

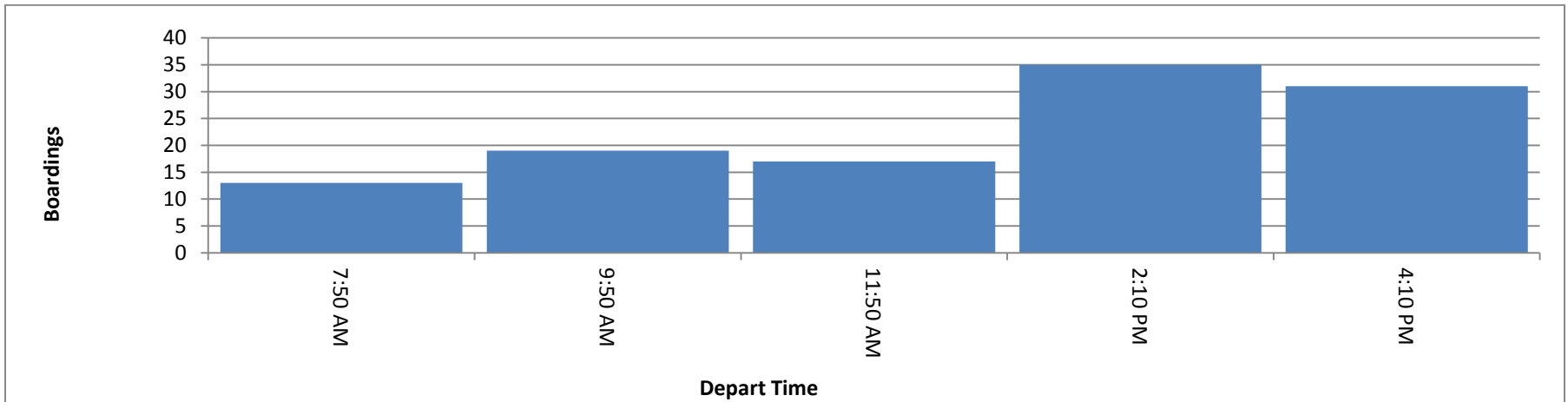
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Figure A-35 Route 20 Sunday Boardings by Trip – Northbound & Southbound

Northbound

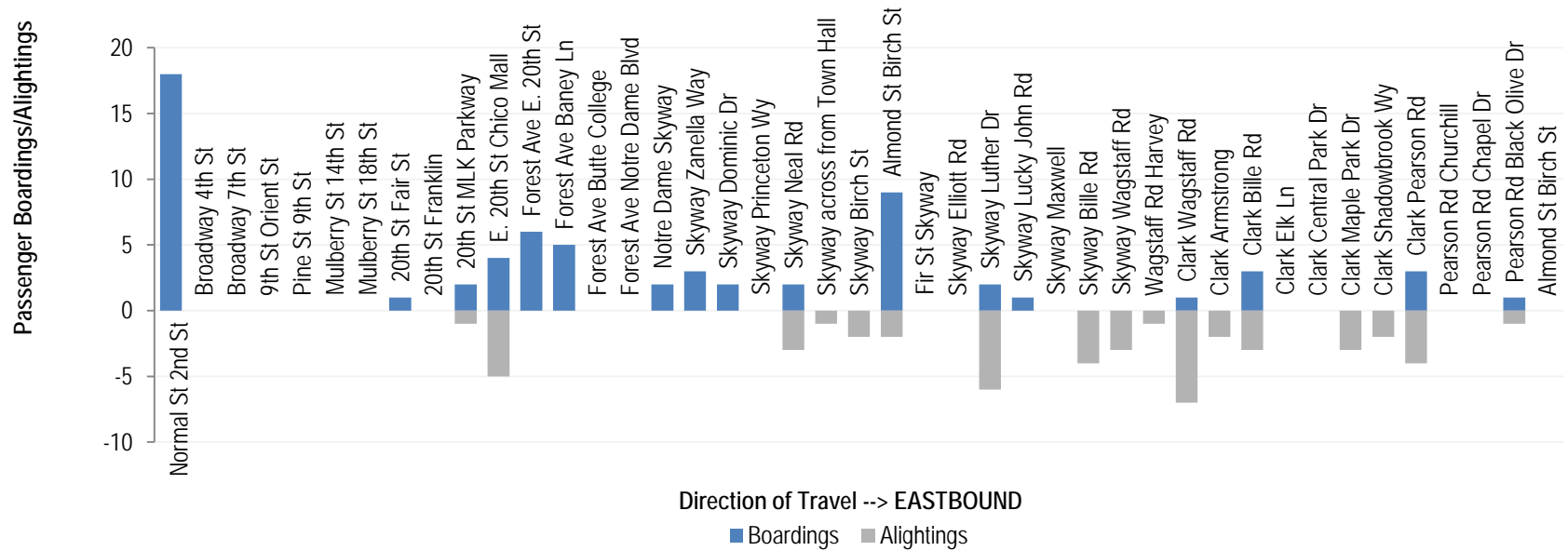


Southbound



Route 40 Paradise – Chico

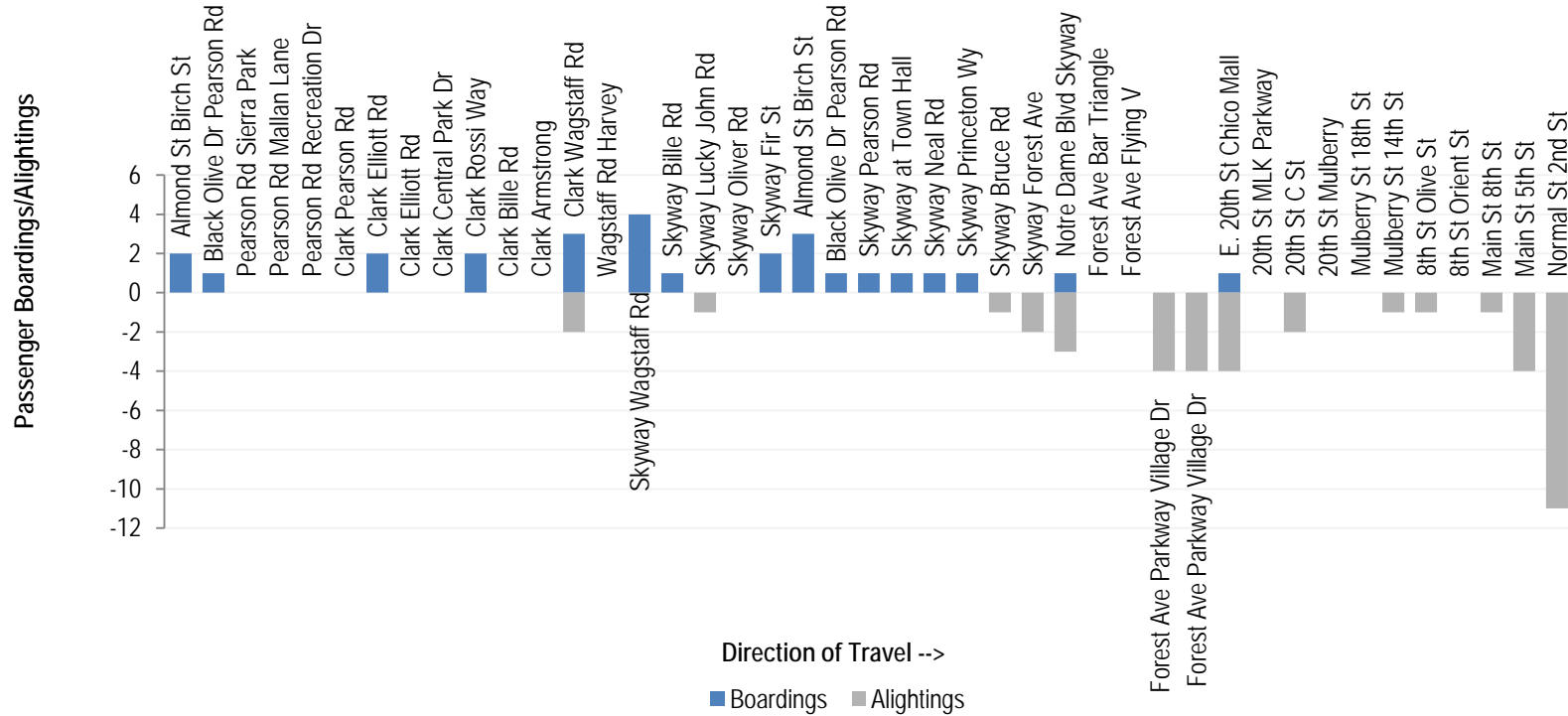
Figure A-36 Route 40 Sunday Boardings & Alightings By Stop – Eastbound



Note: a total of 3 passengers carried over onto Route 40 eastbound already aboard buses at the Chico Transit Center.

TRANSIT & NON-MOTORIZED PLAN | FINAL REPORT
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Figure A-37 Route 40 Sunday Boardings & Alightings By Stop – Westbound

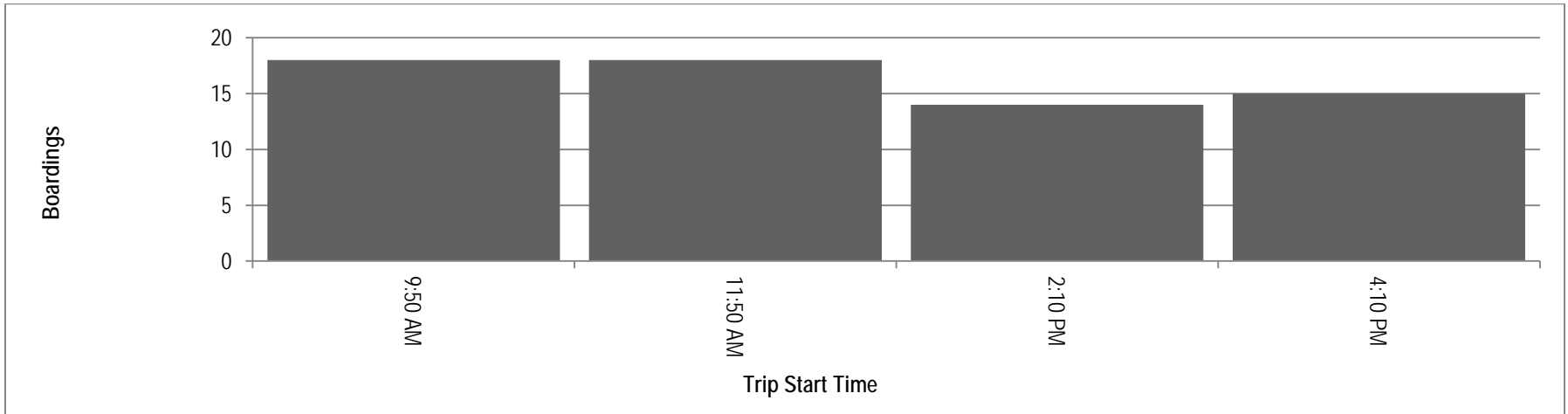


Note: a total of 17 passengers carried over onto Route 40 westbound already aboard Route 40 eastbound buses at the Paradise Transit Center.

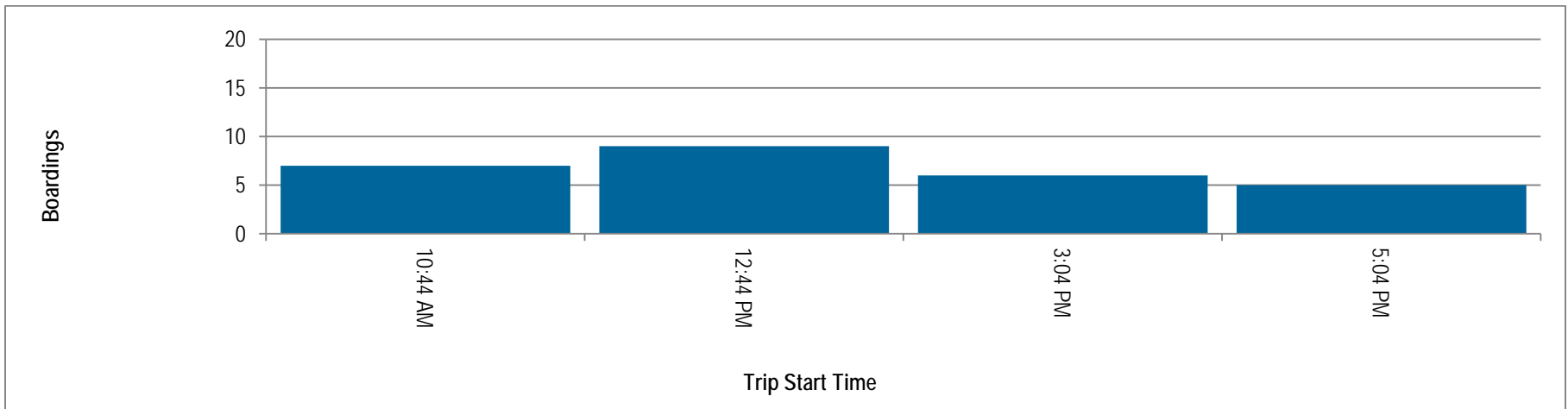
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Figure A-38 Route 40 Sunday Boardings by Trip – Eastbound & Westbound

Eastbound



Westbound



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APPENDIX B

English Language Survey Instruments

(Surveys were also provided in Spanish)

TRANSIT & NON-MOTORIZED PLAN | FINAL REPORT
Butte County Association of Governments

Shift ID _____ SA SU
En Español →

Route _____ MO TU WE

B-Line Passenger Survey

Hi! Your feedback helps us understand how people use B-Line and how we can improve service.
Please tell us about the **one-way** trip you are making now. The answers are completely confidential.

Return the form in the COMPLETED SURVEYS envelope. If you have already filled out a survey this week, please **DO NOT** fill out another one.

JOURNEY START

1. Where are you COMING FROM?

Home Work School
 Shopping Doctor/Medical Recreation/Social
 Personal/Errands Other

Where is that place? What is the nearest intersection or nearest landmark to where you started your trip? (not the bus stop location)

Street Address or Landmark (like Ayres Hall, Chico Mall, or Oroville Hospital)

Intersection (Example: W. 11th Ave & Zuni Ave) City or ZIP Code

3. How did you GET TO the bus stop to board this bus? check one ✓

Transferred from another bus: (Which route? _____)
 Walked (How many minutes? _____)
 Used wheelchair or scooter (How many minutes? _____)
 Drove alone, then parked Someone dropped me off
 Biked Other

5. In a typical week, about how many times do you ride the bus?

Never or rarely 1-2 times 3-4 times
 5 or more times

6. When did you start using B-Line buses regularly?

2013 2012 2011
 2010 2009 or earlier Don't ride regularly

7. What is the main reason you chose to ride B-Line today?

My only transportation Save money Convenience
 Environmental benefits Avoid traffic/parking
 Other

8. Was a car available to you for this particular trip?

No Yes, one was easily available
 Yes, but at an inconvenience to others

9. How did you pay your bus fare today?

Cash 2 or 10-ride pass 30-Day pass
 All-Day Pass CSUC ID Downtown Chico Employee Pass

10. How do you get information about B-Line services?

B-Line website Call B-Line Ask a driver
 Printed schedule+maps Information posted at bus stop
 Other

11. Please rate B-Line service in each of the following categories:

	Very Somewhat				
	Poor 1	Poor 2	Neutral 3	Good 4	Excellent 5
A How quickly your bus gets you there	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B How often your bus runs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C How often your bus is on time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D Safety at bus stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E Shelters at the bus stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F B-Line information at bus stops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G Courtesy of bus drivers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H Ease of transfers between routes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I Bus fare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J Ease/availability of customer service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K Overall, how do you rate B-Line service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

JOURNEY END

2. Where are you GOING now?

Home Work School
 Shopping Doctor/Medical Recreation/Social
 Personal/Errands Other

Where is that place? What is the nearest intersection or nearest landmark to where you started your trip? (not the bus stop location)

Street Address or Landmark (like Ayres Hall, Chico Mall, or Oroville Hospital)

Intersection (Example: W. 11th Ave & Zuni Ave) City or ZIP Code

4. How will you GO FROM this bus to your destination? check one ✓

Transfer to another bus: (Which route? _____)
 Walk (How many minutes? _____)
 Use wheelchair or scooter (How many minutes? _____)
 Drive alone Someone will pick me up
 Bike Other

12. Are you a student? No → Skip to 13 Yes → Continue:
If YES, where?
 Chico State Univ. Butte College High School
 Middle/Junior High Other

13. What city/town do you live in?

Chico Oroville Paradise Gridley
 Biggs Thermalito Magalia Palermo
 Other

14. How would you describe your current employment status? Mark all that apply ✓

Employed full time Employed part time
 Stay-at-home parent Disabled and not employed
 Unemployed Retired

15. How old are you?

12 or younger 13 - 18 19 - 24
 25 - 34 35 - 44 45 - 64
 65 or Older

16. What is your total household income (before taxes)?

\$19,999 or less \$20,000 - \$39,999 \$40,000 - \$59,999
 \$60,000 - \$74,999 \$75,000 - \$99,999 \$100,000 or more

17. Do you have a disability that affects your mobility?

No Yes

18. Which possible improvements to B-Line would help you choose to ride the bus more often? Mark all that apply ✓

More frequent weekday service (On which route(s)? _____)
 Earlier weekday service (On which route(s)? _____)
 Later weekday service (On which route(s)? _____)
 More frequent weekend service (On which route(s)? _____)
 More shelters at bus stops
 If buses went to: _____
 Other improvements/comments: _____

Thank you for your feedback.
We appreciate your input!

IMPORTANT: Please return this survey to the surveyor or drop it in the collection envelope at the front of the bus.
You may also fax this survey to 415-284-1554, or scan and email it to gghansen@nelsonnygaard.com.

TRANSIT & NON-MOTORIZED PLAN | FINAL REPORT
Butte County Association of Governments

In English →



B-Line Encuesta de Pasajeros

¡Hola! Sus comentarios nos ayudan a entender como la gente usa B-Line y como podemos mejorar el servicio. Por favor cuéntenos sobre el viaje sencillo que está haciendo ahora. Las respuestas son completamente confidenciales.

Por favor complete esta encuesta mientras esté dentro del autobús y devuelva el formulario en los sobres para ENCUESTAS COMPLETADAS. Si ya ha llenado la encuesta esta semana, por favor NO llene otra.

COMIENZO DE SU VIAJE	TERMINACIÓN DE SU VIAJE																																																																														
<p>1. ¿DE DÓNDE viene?</p> <p><input type="checkbox"/> Casa <input type="checkbox"/> Trabajo <input type="checkbox"/> Escuela/colegio</p> <p><input type="checkbox"/> De compras <input type="checkbox"/> Doctor/visita médica <input type="checkbox"/> Social/recreativa</p> <p><input type="checkbox"/> Asuntos personales/mandados <input type="checkbox"/> Otro _____</p> <p>¿Dónde queda/se encuentra este lugar? Indique la intersección o el punto de referencia más cercano al comienzo de su viaje. (No es la parada de autobús)</p> <p><small>Dirección de la calle/Nombre o Lugar Sobresaliente (por ejemplo Ayres Hall, Chico Mall, o Oroville Hospital)</small></p> <hr/> <p><small>Calles más cercanas que cruzan (Por ejemplo W. 11th Ave. & Zuni Ave) Ciudad y Código Postal</small></p> <p>3. ¿Cómo LLEGO A la parada de autobús para abordar este autobús? <i>marque una ✓</i></p> <p><input type="checkbox"/> Transbordé de otro autobús: (¿Cuál ruta? _____)</p> <p><input type="checkbox"/> Caminé (¿Cuántos minutos? _____)</p> <p><input type="checkbox"/> Usé una silla de ruedas o silla eléctrica (¿Cuántos minutos? _____)</p> <p><input type="checkbox"/> Manejé solo y me estacioné <input type="checkbox"/> Me dejaron por coche</p> <p><input type="checkbox"/> En Bicicleta <input type="checkbox"/> Otro _____</p>	<p>2. A DÓNDE va ahora?</p> <p><input type="checkbox"/> Casa <input type="checkbox"/> Trabajo <input type="checkbox"/> Escuela/colegio</p> <p><input type="checkbox"/> De compras <input type="checkbox"/> Doctor/visita médica <input type="checkbox"/> Social/recreativa</p> <p><input type="checkbox"/> Asuntos personales/mandados <input type="checkbox"/> Otro _____</p> <p>¿Dónde queda/se encuentra este lugar? Indique la dirección, intersección y el punto de referencia más cercano a la terminación de su viaje. (No es la parada de autobús)</p> <p><small>Dirección de la calle/Nombre o Lugar Sobresaliente (por ejemplo Ayres Hall, Chico Mall, o Oroville Hospital)</small></p> <hr/> <p><small>Calles más cercanas que cruzan (Por ejemplo W. 11th Ave. & Zuni Ave) Ciudad y Código Postal</small></p> <p>4. ¿Cómo va a IR DE este autobús a su destino? <i>marque una ✓</i></p> <p><input type="checkbox"/> Transbordaré a otro bus (¿Cuál ruta? _____)</p> <p><input type="checkbox"/> Caminaré (¿Cuántos minutos? _____)</p> <p><input type="checkbox"/> Usaré una silla de ruedas o silla eléctrica (¿Cuántos minutos? _____)</p> <p><input type="checkbox"/> Manejaré solo <input type="checkbox"/> Me recogerán</p> <p><input type="checkbox"/> En Bicicleta <input type="checkbox"/> Otro _____</p>																																																																														
<p>5. En una semana típica, ¿cuántas veces viaja en el autobús?</p> <p><input type="checkbox"/> Nunca/raramente <input type="checkbox"/> 1-2 veces <input type="checkbox"/> 3-4 veces</p> <p><input type="checkbox"/> 5 o más veces</p> <p>6. ¿Cuándo empezó a usar los autobuses B-Line con regularidad?</p> <p><input type="checkbox"/> 2013 <input type="checkbox"/> 2012 <input type="checkbox"/> 2011</p> <p><input type="checkbox"/> 2010 <input type="checkbox"/> 2009 o antes <input type="checkbox"/> No uso B-Line con regularidad</p> <p>7. ¿Cuál es la razón principal por la que eligió tomar B-Line hoy?</p> <p><input type="checkbox"/> Mi único transporte <input type="checkbox"/> Para ahorrar dinero <input type="checkbox"/> Conveniencia</p> <p><input type="checkbox"/> Beneficios del medio ambiente <input type="checkbox"/> Para evitar tráfico y estacionamiento</p> <p><input type="checkbox"/> Otro _____</p> <p>8. ¿Era un coche a su disposición para este viaje?</p> <p><input type="checkbox"/> No <input type="checkbox"/> Sí, era fácilmente disponible</p> <p><input type="checkbox"/> Sí, pero con inconvenientes para los demás</p> <p>9. ¿Cómo se paga la tarifa del autobús hoy?</p> <p><input type="checkbox"/> En efectivo <input type="checkbox"/> Pase de 2 or 10 días <input type="checkbox"/> Pase de 30 días</p> <p><input type="checkbox"/> Pase de día <input type="checkbox"/> CSUC ID <input type="checkbox"/> Pase para empleados del centro de Chico</p> <p>10. ¿Cómo se obtiene información acerca de los servicios de B-Line?</p> <p><input type="checkbox"/> Sitio web de B-Line <input type="checkbox"/> Por teléfono a B-Line <input type="checkbox"/> Pido al conductor</p> <p><input type="checkbox"/> Horario/mapas publicadas <input type="checkbox"/> Información en la parada de bus</p> <p><input type="checkbox"/> Otro _____</p> <p>11. Por favor califique el servicio de B-Line en cada una de las siguientes categorías:</p> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>Muy Malo</th> <th>Malo</th> <th>Media</th> <th>Buena</th> <th>Muy Buena</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr><td>A Rapidez con la que el autobús lo lleva a su destino</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>B Frecuencia con la que pasa el autobús</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>C Frecuencia con la que el autobús llega a tiempo</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>D Seguridad en la parada</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>E Techos en las paradas</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>F Información de B-Line en la parada</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>G Cortesía de los conductores</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>H Facilidad de transbordar entre las rutas</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>I Tarifa de autobús</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>J Facilidad/disponibilidad de servicio al cliente</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> <tr><td>K ¿Cómo califica usted el servicio de B-Line en general?</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr> </tbody> </table>		Muy Malo	Malo	Media	Buena	Muy Buena		1	2	3	4	5	A Rapidez con la que el autobús lo lleva a su destino	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	B Frecuencia con la que pasa el autobús	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C Frecuencia con la que el autobús llega a tiempo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D Seguridad en la parada	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E Techos en las paradas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F Información de B-Line en la parada	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	G Cortesía de los conductores	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H Facilidad de transbordar entre las rutas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I Tarifa de autobús	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	J Facilidad/disponibilidad de servicio al cliente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	K ¿Cómo califica usted el servicio de B-Line en general?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>12. ¿Es usted un estudiante? <input type="checkbox"/> No → Pase a la 13 <input type="checkbox"/> Sí → Continúe:</p> <p>Si Sí, ¿dónde?</p> <p><input type="checkbox"/> Chico State Univ. <input type="checkbox"/> Butte College <input type="checkbox"/> Escuela secundaria</p> <p><input type="checkbox"/> Escuela intermedia <input type="checkbox"/> Otro _____</p> <p>13. ¿En cuál ciudad/pueblo vive Ud.?</p> <p><input type="checkbox"/> Chico <input type="checkbox"/> Oroville <input type="checkbox"/> Paradise <input type="checkbox"/> Gridley</p> <p><input type="checkbox"/> Biggs <input type="checkbox"/> Thermalito <input type="checkbox"/> Magalia <input type="checkbox"/> Palerme</p> <p><input type="checkbox"/> Otro _____</p> <p>14. ¿Cómo describiría su situación laboral actual? <i>Marque todos los que apliquen ✓</i></p> <p><input type="checkbox"/> Empleado a tiempo completo <input type="checkbox"/> Empleado medio tiempo</p> <p><input type="checkbox"/> Padre amo/ama de casa <input type="checkbox"/> Discapacitado y sin empleo</p> <p><input type="checkbox"/> Sin empleo <input type="checkbox"/> Jubilado</p> <p>15. ¿Qué edad tiene?</p> <p><input type="checkbox"/> 12 o menor <input type="checkbox"/> 13 - 18 <input type="checkbox"/> 19 - 24</p> <p><input type="checkbox"/> 25 - 34 <input type="checkbox"/> 35 - 44 <input type="checkbox"/> 45 - 64</p> <p><input type="checkbox"/> 65 o mayor</p> <p>16. ¿Cuál es su ingreso total del hogar (antes de impuestos)?</p> <p><input type="checkbox"/> \$19,999 or menos <input type="checkbox"/> \$20,000 - \$39,999 <input type="checkbox"/> \$40,000 - \$59,999</p> <p><input type="checkbox"/> \$60,000 - \$74,999 <input type="checkbox"/> \$75,000 - \$99,999 <input type="checkbox"/> \$100,000 o mas</p> <p>17. ¿Tiene usted una discapacidad que afecta su movilidad?</p> <p><input type="checkbox"/> No <input type="checkbox"/> Sí</p> <p>18. ¿Cuáles mejoras posibles de B-Line le ayudarían a elegir viajar en el autobús con mayor frecuencia? <i>Elija todas las que correspondan ✓</i></p> <p><input type="checkbox"/> Servicio más frecuente de lunes a viernes (en ruta(s) _____)</p> <p><input type="checkbox"/> Servicio más temprano por la mañana de lunes a viernes (ruta(s) _____)</p> <p><input type="checkbox"/> Servicio más tarde por la noche de lunes a viernes (en ruta(s) _____)</p> <p><input type="checkbox"/> Servicio más frecuente el fin de semana (en ruta(s) _____)</p> <p><input type="checkbox"/> Más techos en las paradas</p> <p><input type="checkbox"/> Si los autobuses viajaran a: _____</p> <p><input type="checkbox"/> Otras mejoras /comentarios: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
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<p>Gracias por llenar la encuesta.</p> <p>¡Agradecemos sus comentarios!</p>																																																																															

IMPORTANTE: Por favor devuelva esta encuesta al inspector o déjela en el sobre de colección en la parte delantera del autobús. También puede enviar esta encuesta por fax al 415-284-1554, o escanear y enviarla por correo electrónico a ghanzen@nelsonnygaard.com.

TRANSIT & NON-MOTORIZED PLAN | FINAL REPORT
Butte County Association of Governments



Butte County Travel Study

In an effort to help plan future transit, bike and pedestrian transportation, we are conducting a short survey on transportation choices and preferences. We plan to use this information to help the Butte County Association of Governments create a plan for transportation services and programs. This survey should take approximately 5-7 minutes to complete. **At the end of the survey, you will have the option of entering a drawing for one of 10 30-day B-Line Transit bus passes (\$43 value).**

ABOUT YOU AND YOUR COMMUTE

- In which city do you currently live? _____
- Are you currently employed or in school? (check all that apply)
 - Employed (In what city do you work? _____)
 - School (In what city do you attend school? _____)
 - Neither → **Skip to Question #5**
 - Other _____ → **Skip to Question #5**
- For work/school, what is your primary mode of transportation?
 - Drive Alone
 - Walk
 - Bike
 - Public Transportation/B-Line
 - Carpool/Vanpool
 - N/A
 - Other _____
- On a typical day, how long does it take you to travel from your home to your place of work or school?
 - 0-10 Minutes
 - 11-20 Minutes
 - 21-30 Minutes
 - 31-40 Minutes
 - 40-60 Minutes
 - More than 1 hour
 - Don't commute on a regular basis

TRANSPORTATION SERVICES

- Does public transportation currently serve the community where you live?
 - Yes
 - No → If NO: Would you consider using public transportation if it did serve your community?
 - Yes
 - No
 - I don't know
- Have you used public transportation in the past six months?
 - Yes → **If YES: Answer 6a and 6b –**
 - Which service(s) have you used? (Mark all that apply)
 - B-Line Regular Routes
 - B-Line Paratransit
 - Glenn Ride
 - Plumas Transit
 - Yuba-Sutter Transit
 - Other: Which system(s)? Where? _____
 - How often do you ride public transportation? (Check only one)
 - 5-7 days per week
 - A few days a week (2-4 days/week)
 - A few days a month
 - Less than once a month
 - No → **If NO: Why have you not used public transportation? (Mark all that apply)**
 - Prefer to drive
 - Get rides from others
 - Prefer to bike or walk
 - Too far to walk to bus
 - Travel times on bus are too long
 - Service does not operate where I need it
 - Service does not operate when I need it
 - Public transportation is too expensive
 - Public transportation is not safe
 - Not enough information about transit/too confusing
 - Other: _____
- Which factors would encourage you to consider taking B-Line bus routes/ride B-Line more often?

	NO <i>Would not consider</i>	MAYBE <i>Consider somewhat</i>	YES <i>Consider Strongly</i>	N/A <i>Don't Know</i>
B-Line would begin to operate in my community/neighborhood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase in traffic congestion/more difficulty driving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More pedestrian/bike friendly environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Higher price of gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improvements in bus service frequency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More storage space for bikes on the bus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lower fare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Longer bus service hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Limited parking availability at my destination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Passenger amenities (i.e. shelters, benches, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transit would need to go to: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TRANSIT & NON-MOTORIZED PLAN | FINAL REPORT
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8. On an average weekday, how many total minutes do you walk outdoors?
 0-10 minutes 10-30 minutes 30-60 minutes More than 60 minutes
9. As a pedestrian in Butte County, what are the primary issues you experience while walking outdoors? (Mark all that apply)
 Missing sidewalks Unsafe crossings/intersections Personal safety N/A-no concerns; don't walk
 Other (specify) _____
10. Are there specific locations where pedestrian improvements are needed?
 No/Don't Know Yes. Please indicate where: _____
11. On an average weekday, how many total minutes do you bike somewhere outdoors?
 I do not bike Fewer than 10 minutes 10-30 minutes 30-60 minutes
 More than 60 minutes
12. As a bicyclist, the primary issue that you experience while biking in Butte County is:
 No bike paths, bike lanes, etc. High traffic volume or speed
 No place to park/store bicycle at destination Limited capacity to store bicycles on B-Line buses
 Other (please specify) _____ N/A – no concerns, do not bike
13. Are there specific locations where bicycle improvements are needed?
 No/Don't Know Yes. Please indicate where: _____

HOUSEHOLD INFORMATION (FOR CLASSIFICATION PURPOSES ONLY)

14. Including yourself, how many people currently live in your household?
 1-2 3-4 5-6 7+
15. How many are age 65 or older?
 0 1-2 3-4 5-6 7+
16. How many are age 18 or under?
 0 1-2 3-4 5-6 7+
17. How many automobiles (including motorcycles, scooters, etc.) does your household have?
 0 1 2 3 4+
18. What is your annual household income?
 \$19,999 or less \$20,000-\$39,000 \$40,000-\$59,000 \$60,000-\$74,999
 \$75,000-\$99,999 \$100,000+
19. What is your gender?
 Female Male

20. Please share any additional comments:

OPTIONAL: To be entered to win one of 10 B-Line bus passes good for unlimited travel for a 30-day period, please provide the information below. This information is confidential and is kept separate from your responses to the survey. It will ONLY be used to contact you in the event you are selected as one of the winners. Winners will be notified by email or phone and prizes will be mailed to the address below.

Persons who wish to enter without completing the survey may send a postcard with their name, address, phone number and email address to Nelson\Nygaard Associates, 116 New Montgomery St., Suite 500, San Francisco, CA 94105. Only one entry per person regardless of entry method (via in-person survey, on-line survey, or postcard) is allowed.

Name _____

Email _____

Address (Only for mailing prizes)

Phone Number (Only used if we cannot reach you by mail)

APPENDIX C

Resource Allocation: Existing and Proposed

APPENDIX C RESOURCE ALLOCATION

RESOURCE ALLOCATION: SHORT-TERM

Figure C-1 Summary of Short-Term Service Recommendations – Weekday (School in Session)

Current Route Number	New Route Description	Existing Services			Proposed Services			Change	
		Peak Freq. (mins)	Base/Eve Freq. (mins)	Rev Hrs	Peak Freq. (mins)	Base/Eve Freq. (mins)	Rev Hrs (est)	Rev Hrs (approx)	
2	Dntwn/CSU/Ceres/Esplanade Local	60	60	15.2	30	60	21	+	
3	Nord/East	30 SB, 60 NB	60	15.3	60	60	15.5	=	
4	[1 st / East]	30	60	17.7	N/A	N/A	N/A	-	
5	[E. 8 th Street]	30	60	18.4	N/A	N/A	N/A		
7	Dntwn/CSU/Manzanita Loop CW	N/A	N/A	N/A	60	N/A	14		
7	Dntwn/CSU/Manzanita Loop CCW	60	N/A	7.3	60	N/A	14		
8	Nord	30	30	9.4	30	30	9.4	=	
9, 9c	Oak/Warner/Cedar	30	30	14.2	30	30	14.2	=	
15N	Dntwn/CSU/Lassen/Esplanade Express	20/40	60	28.8*	30	30	31	=	
15S	Downtown/CSU/Mall	20	30/60	28.8*	15	30	40	+	
16	Dntwn/CSU/Mangrove/North Esplanade	60	60	11.3	60	60	11.5	=	
<i>Chico Local Subtotals</i>				166.3				170.6	+
24	Thermalito Loop CW	60	60	7.2	60	60	11	+	
25	[Oro Dam]	60	60	4.6	N/A	N/A	N/A	-	
26-27	Hospital/Casino & S Oroville	60	60	11.6	60	60	12	=	
<i>Oroville Local Subtotals</i>				22.9				23	+
20	Chico - Oroville	60	60	24.9	60	60	24.9	=	
30	Oroville - Biggs	3x per day		4.9	3x per day		5.5		
31	Oroville - Paradise	1 NB, 1 SB daily		1.9	1 NB, 1 SB daily		2.1		
32	Chico - Gridley	1 NB, 1 SB daily		2	1 NB, 1 SB daily		2.3		
40	Chico - Paradise	120	120	17.1	120	120	17.1		
41	Chico - Magalia	120	120	15.3	120	120	15.3		
46	Feather River Hospital	3x per day		1.4	N/A		N/A		
<i>Regional Routes Subtotals</i>				67.3				66	
Grand Totals				256.5				259.6	+

* Assumed half of total Route 15 revenue hours.

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Figure C-2 Summary of Short-Term Service Recommendations – Saturday and Sunday

Current Route Number	New Route Description	Existing Services		Proposed Services		Change	
		Freq. (mins)	Rev Hrs	Freq. (mins)	Rev Hrs (est)	Rev Hrs (approx)	
2	Dntwn/CSU/Ceres/ Esplanade Local	60	10.1	60	11	=	
3	Nord/East	60	10.1	60	11	=	
4	[1 st / East]	60	11.4	N/A	N/A	=	
5	[E. 8 th Street]	60	10.4	N/A	N/A		
7	Dntwn/CSU/ Manzanita Loop CW	N/A	N/A	60	11		
7	Dntwn/CSU/ Manzanita Loop CCW	N/A	N/A	60	11		
9c	Oak/Warner	120	1.8	120	1.8		=
15N	Dntwn/CSU/Lassen/ Esplanade Express	60	15.6*	60	11	-	
15S	Downtown/CSU/Mall	30	15.6*	30	22	+	
16	Dntwn/CSU/Mangrove/North Esplanade	60	9.9	60	10	=	
<i>Chico Local Subtotals</i>				<i>84.8</i>		<i>88.8</i>	<i>+</i>
20	Chico – Oroville §	120	19.6	120	19.6	=	
30	Oroville – Biggs	4x per day	7.5	3x per day	4.9	-	
40	Chico – Paradise §	120	18.2	120	18.2	=	
41	Chico – Magalia	3x per day	2.2	3x per day	2.2	=	
<i>Regional Routes Subtotals</i>				<i>47.6</i>		<i>45</i>	<i>-</i>
Grand Totals				132.4		133.8	=

* Assumed half of total Route 15 revenue hours.

§ Operates on Saturday and Sunday

RESOURCE ALLOCATION: MID-TERM

Figure C-3 Summary of Mid-Term Service Recommendations – Weekday (School in Session)

Current Route Number	New Route Description	Short-Term Services			Mid-Term Services			Change
		Peak Freq. (mins)	Base/Eve Freq. (mins)	Rev Hrs	Peak Freq. (mins)	Base/Eve Freq. (mins)	Rev Hrs (est)	Rev Hrs (approx)
1 Short	Dntwn to Mall	N/A	N/A	N/A	30	30	18	N/A
1 Long	North Valley Plaza/Dwntwn/Mall	N/A	N/A	N/A	30	30	48	NA
2	Dntwn/CSU/Ceres/Esplanade Local	30	60	21	30	60	21	=
3	Nord/East	60	60	15.5	60	60	15.5	=
4	[1 st / East]	N/A	N/A	N/A	N/A	N/A	N/A	
5	[E. 8 th Street]	N/A	N/A	N/A	N/A	N/A	N/A	
7	Dntwn/CSU/Manzanita Loop CW	60	N/A	14	60	N/A	14	=
7	Dntwn/CSU/Manzanita Loop CCW	60	N/A	14	60	N/A	14	=
8	Nord	30	30	9.4	30	30	9.4	=
9, 9c	Oak/Warner/Cedar	30	30	14.2	30	30	14.2	=
15N	Dntwn/CSU/Lassen/Esplanade Express	30	30	31	N/A	N/A	N/A	N/A
15S	Downtown/CSU/Mall	15	30	40	N/A	N/A	N/A	N/A
16	Dntwn/CSU/Mangrove/North Esplanade	60	60	11.5	60	60	11.5	=
<i>Chico Local Subtotals</i>				170.6			165.6	-.*
24	Thermalito Loop CW	60	60	11	60	60	11	=
25	[Oro Dam]	N/A	N/A	N/A	N/A	N/A	N/A	NA
26-27	Hospital/Casino & S Oroville	60	60	12	60	60	12	=
<i>Oroville Local Subtotals</i>				23			23	=
20	Chico - Oroville	60	60	24.9	60	60	24.9	=
30	Oroville - Biggs	3x per day		5.5	3x per day		5.5	=
31	Oroville - Paradise	1 NB, 1 SB daily		2.1	1 NB, 1 SB daily		2.1	=
32	Chico - Gridley	1 NB, 1 SB daily		2.3	1 NB, 1 SB daily		2.3	=
40	Chico - Paradise	120	120	17.1	120	120	17.1	=
41	Chico - Magalia	120	120	15.3	120	120	15.3	=
46	Feather River Hospital	N/A		N/A			N/A	NA
<i>Regional Routes Subtotals</i>				66			66	=
Grand Totals				259.6			254.7	-

* Savings from consolidation of 15S/15N into Routes 1 Short/1 Long and assumed speed improvements as a result of BRT-lite amenities such as transit signal priority.

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Figure C-4 Summary of Mid-Term Service Recommendations – Saturday and Sunday

Current Route Number	New Route Description	Short-Term Services		Mid-Term Services		Change
		Freq. (mins)	Rev Hrs	Freq. (mins)	Rev Hrs (est)	Rev Hrs (approx)
1 Long	North Valley Plaza/Dwntwn/Mall	N/A	N/A	30	33	N/A
2	Dntwn/CSU/Ceres/Esplanade Local	60	11	60	11	=
3	Nord/East	60	11	60	11	=
4	[1 st / East]	N/A	N/A	N/A	N/A	=
5	[E. 8 th Street]	N/A	N/A	N/A	N/A	
7	Dntwn/CSU/Manzanita Loop CW	60	11	60	11	
7	Dntwn/CSU/Manzanita Loop CCW	60	11	60	11	
9c	Oak/Warner	120	1.8	120	1.8	=
15N	Dntwn/CSU/Lassen/Esplanade Express	60	11	N/A	N/A	N/A
15S	Downtown/CSU/Mall	30	22	N/A	N/A	N/A
16	Dntwn/CSU/Mangrove/North Esplanade	60	10	60	10	=
<i>Chico Local Subtotals</i>				88.8	88.8	+
20	Chico – Oroville §	120	19.7	120	19.7	=
30	Oroville – Biggs	3x per day	4.9	3x per day	4.9	=
40	Chico – Paradise §	120	18.2	120	18.2	=
41	Chico – Magalia	3x per day	2.2	3x per day	2.2	=
<i>Regional Routes Subtotals</i>			45		45	=
Grand Totals			133.8		133.7	=

* Assumed half of total Route 15 revenue hours.

§ Operates on Saturday and Sunday

APPENDIX D

Ridership and Air Quality Calculations

APPENDIX D RIDERSHIP AND AIR QUALITY CALCULATIONS

IMPACTS OF PROPOSED ROUTING CHANGES ON TRANSIT RIDERSHIP AND GREENHOUSE GAS EMISSIONS

Based on the proposed service changes, B-Line is anticipating a modest increase in ridership and a small reduction in greenhouse gas (GHG) emissions based on data generated by the regional travel model.

The methodology for assessing these impacts is based on the county's travel demand model, maintained by BCAG. The regional travel demand model captures some of the complexity of the individual travel decisions that determine fuel consumption, and also reflect feedback effects within the transportation network. These include changes in route choice, destinations, and trip lengths, based on a variety of factors, including congestion itself. Nevertheless, the model is not designed to address fundamental changes in transit availability, such as significant increases or decreases in system capacity, although it includes a transit forecasting component.

The BCAG Travel Demand Model uses the TransCAD software package to forecast travel activity. The transportation model requires the forecasted allocation of housing and non-residential land uses from the land use allocation model and it requires the regional road network. Inputs are validated to the base year of 2010 and the model is designed to reflect density, diversity, street design, and destination accessibility. It also incorporates census data that reports age of head of household, number of workers, income, household size, and cost of travel. The model's outputs present information during specific intervals (daily, AM peak period, AM peak hour, PM peak period, PM peak hour, mid-day period, and evening).

While the model estimates VMT, it does not calculate GHG. GHG emissions were calculated by BCAG staff using the EMFAC model, the California Air Resource Board's tool for estimating emissions.¹ The primary outputs relevant for this planning effort include total CO₂ emissions and total fuel use based on VMT for the various scenarios presented in this report in two years: 2020 and 2035. For both years, the model assesses a status quo approach and an approach that includes the recommended service changes.

¹ Information about the EMFAC model is available from the Air Resources Board at ww.arb.ca.gov/msei/modeling.htm.

Ridership

Data from the BCAG’s Travel Demand Model bus ridership tool provides individual route forecasts. For the proposed service changes, this tool was modified and updated to generate ridership numbers. The forecast shows an increase in daily ridership, using a FY 2012 base year, with ridership growth at 2% by FY 2015, assuming short-term improvements (does not assume anything other than route changes). By FY 2020, ridership growth within the near mid-term timeframe is calculated to be 7%, with growth doubling to 14% by FY 2027. Assuming the changes made in the mid-term scenario are carried forward to the longer term, even without some potential expansion routes, ridership is calculated to be 24% greater in 2035 than it is today.

Ridership impacts by route are shown in Figure D-1

Figure D-1 Ridership Impacts of Proposed Service Changes

Route	2012 Ridership (NTD)	BCAG Direct Ridership Model Ridership Estimates			
		2016	2020	2027	2035
Chico Local					
1		--	--	919	986
2		505	516	538	563
3		348	359	383	413
7		611	638	689	749
8		414	421	436	454
9 / 9c		204	210	222	237
15N		570	580	--	--
15S		347	355	--	--
16		284	295	320	347
Oroville Local					
24		70	71	74	77
26		55	56	58	61
27		51	51	51	52
Intercity/Paradise					
20		511	547	612	686
30		9	12	14	18
31		16	18	21	26
32		5	5	7	26
40 / 40x		618	662	740	829
41		611	655	732	820
Total	5,103	5,229	5,451	5,816	6,344
% Change	-	2%	4%	7%	9%

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Route	2012 Ridership (NTD)	BCAG Direct Ridership Model Ridership Estimates			
		2016	2020	2027	2035
% Cumulative Change	-	2%	7%	14%	24%

Greenhouse Gas Emissions

BCAG’s travel model includes countywide vehicle miles traveled (VMT) estimates for GHG and air quality emissions. Based on the growth in transit ridership on new and/or modified bus routes (as well as the recommended bicycle and pedestrian improvements highlighted in Chapter 8) estimates for VMT were calculated for 2020 and 2035 using the BCAG TransCAD model.

The analysis shows that implementation of the recommended services are anticipated to result in a reduction in emissions of about 0.25% to 0.27%, as shown in Figure D-2.

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Figure D-2 GHG and Fuel Impacts of Proposed Service Changes

Calendar Year	Title	Vehicles	Vehicle Population	VMT	Trips	Total CO ₂ Emissions		Total Fuel Use	
						Standard Calculation	Pavley I + Low Carbon Fuel Standard ¹	Gasoline (1000 gal)	Diesel (1000 gal)
2020 Status Quo	Includes through trips	All	140,160.97	5,318,727.00	916,379.85	3,202.54	2,500.17	259.07	72.65
	Excludes through trips	All	134,354.96	5,098,405.00	878,419.89	3,069.88	2,396.60	248.34	69.64
	Excludes through trips	LDV (SB 375) ²	114,030.11	4,258,491.43	714,218.89	2,057.48	1,485.44	221.90	0.47
2020 With service changes	Includes through trips	All	139,793.09	5,304,767.00	913,974.64	3,194.13	2,493.61	258.39	72.46
	Excludes through trips	All	133,987.08	5,084,445.00	876,014.68	3,061.47	2,390.04	247.66	69.45
	Excludes through trips	LDV (SB 375) ²	113,717.88	4,246,831.20	712,263.28	2,051.84	1,481.38	221.29	0.47
2035 Status Quo	Includes through trips	All	184,483.13	6,932,093.00	1,205,050.27	4,168.42	3,036.20	336.47	92.89
	Excludes through trips	All	174,709.86	6,564,855.00	1,141,210.93	3,947.59	2,875.35	318.65	87.97
	Excludes through trips	LDV (SB 375) ²	148,352.20	5,492,065.03	928,940.25	2,663.17	1,719.38	284.90	0.58
2035 With service changes	Includes through trips	All	184,082.08	6,917,023.00	1,202,430.56	4,159.35	3,029.60	335.74	92.69
	Excludes through trips	All	174,308.81	6,549,785.00	1,138,591.22	3,938.53	2,868.75	317.92	87.77
	Excludes through trips	LDV (SB 375) ²	148,011.65	5,479,457.68	926,807.81	2,657.06	1,715.43	284.25	0.58

¹ From California Air Resources Board (ARB): In 2007, ARB adopted the Pavley clean-car standards to reduce GHG emission from passenger vehicles. In 2009, ARB adopted a Low Carbon Fuel Standard (LCFS) to reduce the carbon intensity of vehicle fuel. Now, under SB 375, MPOs and local governments are developing plans to reduce our driving needs as our communities grow. This tool allows the MPOs to estimate how the three strategies work together to reduce emissions.

² LDV or Light Duty Vehicles; SB 375 is Sustainable Communities legislation that provides regional GHG reduction targets for LDVs