

Post Camp Fire Regional Population and Transportation Study

Appendix B

Transit and Non-Motorized Plan

FEHR  PEERS

Fehr & Peers Project # RS19-3800

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Memorandum

Date: November 19, 2020
To: Sara Cain – Butte County Association of Governments
From: Greg Behrens – Fehr & Peers
**Subject: Post Camp Fire Regional Population & Transportation Study
Butte County Transit and Non-Motorized Plan Update
Task 6.2 Existing Conditions Summary Memorandum**

RS19-3800

This memorandum provides a summary of existing conditions as they relate to Butte Regional Transit (B-Line) service performance and the regional transit market. This memorandum additionally provides a summary of the County's existing active transportation network. This memorandum is structured in the following sections:

1. Transit Service Performance
 - Transit Network Overview
 - Historical Trends
 - Service Ridership
 - Service Performance
 - Service Quality
2. Transit Market Assessment
3. Active Transportation Network

The information presented in this memorandum is intended to inform various components of the Butte County Transit and Non-Motorized Plan Update.

Key Findings

The following key findings emerged from the existing conditions analysis:

- B-Line performance has declined in recent years and ridership is currently at its lowest levels over the past decade. A variety of factors have likely contributed to this pattern, including Camp Fire and COVID-19 related disruptions, broader societal trends (e.g., increased car ownership), and a potential misalignment between the existing B-Line service delivery model and the Butte County travel market (e.g., in select market areas, ridership patterns than are unable to sustain regular fixed-route bus service).



- A select few B-Line routes exhibit strong performance, particularly those that serve the robust CSU Chico travel market. Conversely, a substantial portion of B-Line routes exhibit poor productivity and financial effectiveness.
- The existing B-Line fixed-route system is designed to maximize geographic accessibility within the finite amount of available operating resources. This strategy relies on transfer centers and transfer points alongside a high degree of schedule coordination to facilitate connectivity throughout the system. While this strategy spreads service equally such that most residents have relatively convenient access to a bus stop, the distribution of service does not differentiate between high-ridership and low-ridership areas, in turn introducing longer travel times and wait times (i.e., low service frequencies) in exchange for service coverage.



1. Transit Service Evaluation

The service evaluation describes existing B-Line service with respect to four topics:

1. **Transit Network Overview.** Describes the existing B-Line system and service levels.
2. **Historical Trends.** Evaluates performance trends for the B-Line system over the past five years.
3. **Service Ridership.** Describes the current use of the B-Line system at the network and route level, including temporal and geographic ridership patterns.
4. **Service Performance.** Evaluates service productivity and financial effectiveness.
5. **Service Quality.** Evaluates service reliability, access, and trip loads.

Transit Network Overview

B-Line operates local and intercity fixed route bus and demand-response paratransit service in the cities of Chico, Gridley, Biggs, Oroville, the Town of Paradise, and portions of unincorporated Butte County. B-Line fixed-route bus services consist of urban routes within Chico and rural routes between other jurisdictions. B-Line service is delivered by a contract transit operator, Transdev, Inc.

Service Characteristics

As of Fall 2019, the B-Line system is comprised of 23 weekday, 13 Saturday, and 1 Sunday fixed-route bus services. Several routes operate on modified schedules when Chico State is not in regular session, including Routes 8, 9, and 9c. Due to the Camp Fire, Route 31 is currently suspended and Routes 40 and 41 operate on reduced schedules. B-Line does not operate on six holidays, including New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas.

Table 1 provides an overview of the service characteristics for existing B-Line fixed-route services in 2020, prior to COVID-19 related service modifications.



Table 1. B-Line Fixed-Route Service Characteristics

Route	Weekday (Mon. – Thu.) ¹		Saturday		Sunday	
	Frequency (Peak/Off-Peak)	Service Span	Frequency	Service Span	Frequency	Service Span
2 – Mangrove	60/60	6 AM – 9 PM	60	8 AM – 7 PM	-	-
3 – Nord/East	30/60	6 AM – 9 PM	60	9 AM – 7 PM	-	-
4 – First/East	30/60	6 AM – 9 PM	60	9 AM – 7 PM	-	-
5 – E. 8 th Street	60/60	6 AM – 9 PM	60	8 AM – 7 PM	-	-
7 – Courthouse/East	60/180	7 AM – 6 PM	-	-	-	-
8 – Nord	30/30	7 AM – 10 PM	-	-	-	-
9 – Oak/Warner/Cedar	30/30	7 AM – 10 PM	-	-	-	-
9c – Cedar Loop	4 daily round-trips		5 daily round-trips		-	-
14 – Park/Forest/MLK	20/60	6 AM – 10 PM	60	8 AM – 7 PM	-	-
15 – Esplanade/Lassen	20/30	6 AM – 10 PM	60	8 AM – 7 PM	-	-
16 – Esplanade/SR99	60/60	7 AM – 7 PM	60	8 AM – 6 PM	-	-
17 – Park/MLK/Forest	30/60	7 AM – 6 PM	60	8 AM – 6 PM	-	-
20 – Chico/Oroville	60/60	6 AM – 8 PM	120	8 AM – 6 PM	120	8 AM – 6 PM
24 – Thermalito	60/60	6 AM – 8 PM	-	-	-	-
25 – Oro Dam	60/60	6 AM – 7 PM	-	-	-	-
26 – Olive Highway	60/60	6 AM – 6 PM	-	-	-	-
27 – South Oroville	60/60	7 AM – 7 PM	-	-	-	-
30 – Oroville/Gridley/Biggs	3 daily round-trips		3 daily round-trips		-	-
31 – Paradise/Oroville	Service currently suspended due to Camp Fire					
32 – Gridley/Chico	1 daily round-trip		-	-	-	-
40 – Paradise/Chico	4 daily round-trips		3 daily round-trips		Suspended	
41 – Paradise Pines/Chico	5 daily round-trips		3 daily round-trips		-	-
52 – Chico Airport Express	60/--	5 AM – 6 PM	-	-	-	-

Source: BCAG, 2020.

Note: ¹ Routes 8, 9, and 9c have modified Friday schedules due to changes to Chico State Friday class schedules.



Fleet

The B-Line fleet consists of 33 standard buses, with two of these vehicles powered by Compressed Natural Gas (CNG). The CNG vehicles are nearing the end of their 12-year useful life and will be replaced by 2021. BCAG has received partial funding to purchase its first battery electric bus through the State of California Low Carbon Transit Operations Program (LCTOP).

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. Table 2 provides a summary of B-Line fixed-route vehicles.

Transdev performs dispatching duties and stores and maintains vehicles at the Butte Regional Operations Center in Chico (BROC). The BROC was completed in 2016 and consists of the transit maintenance facility, operations center, and BCAG’s administrative offices. The BCAG Board Room, conference room, training facility, and bus wash are also on-site.

BCAG is in the process of converting its fleet to 100 percent electric by 2040, and as of October 2020, has secured funding for three zero-emission battery electric buses, charging equipment, and necessary underground upgrades to the BROC.

Table 2. B-Line Fixed-Route Fleet

Make	Model	Vehicle Year	Fuel Type	Capacity	Age (Years)	Count
Orion	Orion VII	2008	CNG	44	12	2
Gillig	Low Floor	2011	Diesel	44	9	6
Gillig	BRT	2014	Diesel	44	6	6
Gillig	BRT	2017	Diesel	44	3	13
Gillig	BRT	2020	Diesel	44	0	6
Total						33

Source: BCAG, 2020.



Transit Centers and Transfer Points

B-Line serves three transit centers that offer timed transfer points in Chico, Oroville, and Paradise. The Chico Transit Center is located on West 2nd Street between Salem Street and Normal Avenue in downtown Chico. The facility, which opened in 2008, features shelters, restrooms, staffed ticket office, and bus boarding areas on each block. The Chico Transit Center is served by most local and intercity B-Line routes, including Routes 2, 3, 4, 5, 8, 9/9C, 14, 15, 16, 17, 20, 32, 40, 41, and 52.

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 and 41.¹ The Paradise Transit Center is a bus shelter only. Improvements to the Paradise Transit Center have been planned and designed and are currently awaiting funding for construction.

In addition to the three transit centers, B-Line serves the following transfer points:

- The Forest Avenue Transfer Point or “Forest Avenue Xfer,” is located on both sides of Forest Avenue at Baney Lane and Parkway Village near the Chico Walmart. Buses on Routes 5, 14, 17, 20, 40, and 41 all serve the Forest Avenue Transfer Point.
- The North Valley Plaza transfer point in Chico connects Routes 2, 3, 4, and 52.
- The Lassen/Ceres transfer point in Chico connects Routes 2, 7, and 15.
- The Butte County Public Works transfer point in Oroville connects Routes 20 and 24.
- The Skyway/Wagstaff and Clark/Wagstaff transfer points in Paradise connect Routes 31, 40, and 41.

Fares

B-Line fixed-route fares vary between service type, with local service fares priced slightly lower than regional service fares (see Table 3). The current B-Line fare structure went into effect on September 1, 2019.

Regular local fares are \$1.75 and regular regional fares are \$2.40. Discounted fares are available to seniors, disabled, individuals with a valid Medicare card, and youth (ages 6 to 18). B-Line offers several types of passes, including 2-ride, 10-ride, and 30-day passes. An all-day pass can be purchased from a bus operator for \$5.00, providing unlimited use of B-Line services during the

¹ Route 31 served the Paradise Transit Center but is currently suspended due to the Camp Fire.



day of purchase. Local tickets, passes, or transfers can be upgraded to a regional fare by paying the fare differential between the two service types.

Transfers are available to passengers who require multiple bus routes to complete a trip and are issued by bus operators upon request. Local transfers are valid for one hour from the time issued and regional transfers are valid for two hours from the time issued.

B-Line offers several specialty passes:

- Chico State students, faculty, and staff ride for free with a valid Wildcat ID card. This pass program is funded by Associated Students and the University.
- Butte College students are eligible to purchase regular 30-day passes at the youth rate.
- City of Chico employees and downtown Chico employees are eligible for the City of Chico Transit Pass, which can be used for bus trips to and from the downtown Chico area.

Tickets and passes may be purchased in-person at the Butte Regional Transit Office, the Chico Transit Center, the Butte County Public Works Department in Oroville, Oroville City Hall, the Town of Paradise Finance Office, and the Gridley City Hall. Ticket and pass purchases are also available by mail. B-Line recently developed a mobile ticketing application (app) that allows riders to purchase tickets from their smartphones. As of September 2020, the app is available to riders.

Table 3. B-Line Fixed-Route Fare Structure

Fare Type		Local Service	Regional Service
Cash	Regular	\$1.75	\$2.40
	Discount ¹	\$0.85	\$1.20
	Youth (6-18)	\$1.25	\$1.75
	Child (under 6)	2 free	2 free
2-Ride Pass	Regular	\$3.50	\$4.80
	Discount ¹	\$1.70	\$2.40
	Youth (6-18)	\$2.50	\$3.50
10-Ride Pass	Regular	\$15.75	\$21.60
	Discount ¹	\$7.65	\$10.80
	Youth (6-18)	\$11.25	\$15.75
30-Day Pass	Regular	\$43.50	\$57.50
	Discount ¹	\$21.50	\$30.00
	Youth (6-18)	\$31.25	\$40.00

Source: BCAG, 2020. The fares shown in this table went into effect on September 1, 2019.

Note: ¹ Discount fares apply to seniors (age 65+), disabled, and those with a valid Medicare card.



Paratransit

B-Line Paratransit is a shared ride service designed to meet the needs of seniors and persons with qualifying disabilities who are unable to use the B-Line fixed-route services. B-Line Paratransit is available in Chico, Oroville, and Paradise. B-Line offers two types of paratransit services:

1. ADA paratransit for individuals who cannot utilize the fixed-route system must receive Americans with Disabilities Act (ADA) certification to utilize this service. This certification ensures trips are given priority status.
2. Dial-a-Ride service for riders who are age 70 or older. Dial-a-Ride trips are not given priority status should individuals with ADA certification need the service.

B-Line Paratransit serves all destinations within $\frac{3}{4}$ of a mile of any B-Line fixed-route service, within Chico, Oroville or Paradise. B-Line also provides supplemental service to areas up to three miles outside the ADA boundaries at an additional cost. In order for service to be provided, there must be a direct, easily accessible route from the core service area. All trips provided outside the core service area are considered non-ADA and are provided on a space available basis.

B-Line Paratransit operates between 5:50 AM and 10:00 PM on weekdays, 7:00 AM and 10:00 PM on Saturdays, and 7:50 AM and 6:00 PM on Sundays. The base fare for B-Line Paratransit is \$3.50 per one-way ride. Fares for rides outside of the ADA boundaries are as follows:

- Supplemental Zone 1 – Up to one mile outside core service area - \$8.75
- Supplemental Zone 2 – One to two miles outside core service area - \$10.75
- Supplemental Zone 3 – Two to three miles outside core service area - \$12.75

B-Line Paratransit trips can be scheduled by calling into dispatch up to one week prior to requested trip.

Paratransit Service Performance

During the 2019 calendar year, B-Line paratransit service generated 131,722 passenger boardings. Service productivity measured slightly above three passengers boardings per revenue hour, while the farebox recovery ratio measured at approximately 11 percent. Generally, rural paratransit service slightly outperformed urban paratransit service.

Historical Trends

Annual revenue hours have been relatively stable between FY 2015/16 and FY 2017/18, but decreased sharply in FY 2018/19 due to service modifications resulting from the Camp Fire. Another major disruption to transit ridership nationwide occurred in March 2020 due to the COVID-19 pandemic. This resulted in overall depressed passenger ridership, fares, and service hours for the latter half of FY 2019/20. B-Line's fixed route service has remained the same for the most part, except for the Student Shuttle (Routes 8 and 9) that were reduced due to Chico State's



cancellation of on-campus classes. B-Line also had to modify service due to reduced driver availability from COVID-19 stay-at-home orders.

Overall, annual revenue hours have decreased by six percent between FY 2015/16 and FY 2019/20, echoing trends experienced by transit agencies across the United States. Despite reductions in service, the cost to deliver B-Line service has steadily increased in recent years, with total operating cost increasing by 24 percent and the operating cost per hour increasing by 33 percent between FY 2015/16 and FY 2019/20. Altogether, these patterns indicate that B-Line is delivering less service at a greater cost.

Table 4 summarizes B-Line fixed-route service operating and performance trends between FY 2015/16 and FY 2019/20. Figure 1 shows trends between FY 2008/09 and FY 2019/20.

Since FY 2015/16, annual fixed-route passenger boardings have decreased by 41 percent to 732,102 passenger boardings in FY 2019/20. This ridership decline contrasts to the previous five-year period examined in the prior Butte County Transit and Non-Motorized Plan (FY 2008/09 to FY 2012/13), which found that ridership was relatively stable around 1,300,000 passenger boardings. While the Camp Fire and the COVID-19 pandemic can likely be attributed to some of this decline, passenger boardings still decreased by 20 percent during the four-year period prior to the Camp Fire. These patterns suggest that other factors are influencing transit demand within Butte County. Factors associated with reduced transit ridership nationwide include a steady economy, the increased prevalence of transportation network companies (e.g., Uber and Lyft), increased car ownership rates, and reduced gasoline prices.

B-Line ridership declines influence a variety of performance indicators. Systemwide productivity has decreased by 38 percent from 18 passengers per hour to 11 passengers per hour. Systemwide financial effectiveness has decreased, with the operating cost per passenger boarding increasing by 112 percent to \$9.58 per passenger, the subsidy per passenger boarding (operating cost per passenger less fare) increasing by 136 percent to \$8.12 per passenger, and the farebox recovery ratio decreasing by 36 percent to 15.2 percent. During FY 2019/20, farebox recovery ratio slipped below the 20 percent urban Transportation Development Act (TDA) requirement but remained above the 10 percent rural TDA requirement.

Both ridership and service performance has declined at a greater rate for rural routes when compared to urban routes. Total passenger boardings for rural routes decreased by 49 percent, compared to a 38 percent decline for urban routes. Moreover, the subsidy per passenger boarding for rural routes increased by 160 percent, compared to a 133 percent increase for urban routes. These performance trends could in part be explained by disruptions caused by the Camp Fire, which significantly altered ridership patterns and service levels for Paradise and surrounding communities, particularly for Routes 30, 40, and 41.

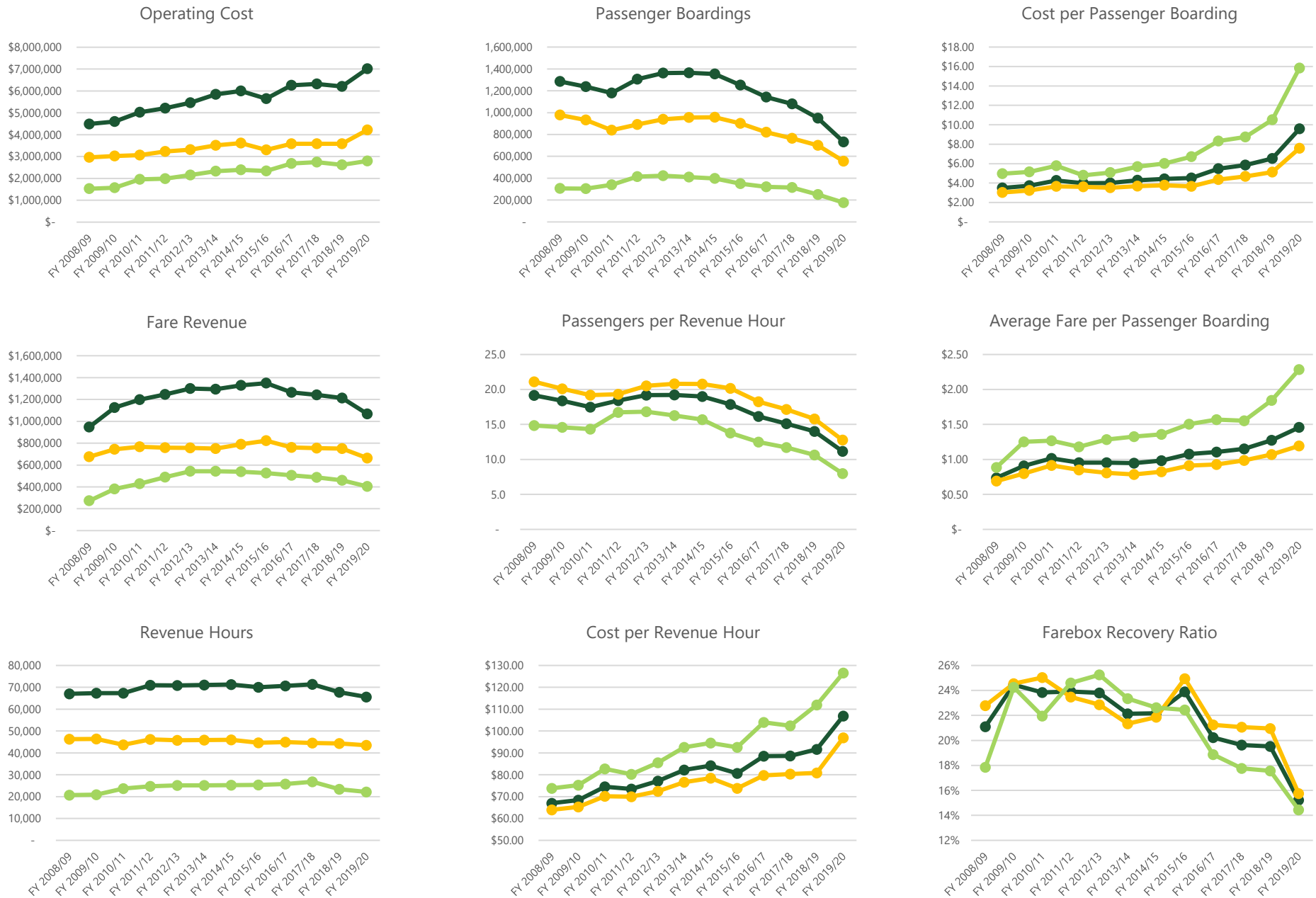
Table 4. B-Line Performance Indicators, FY 2015/16 through FY 2019/20

Performance Indicator	Service Type	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	% Change FY 2015/16 to FY 2019/20
Operating Cost	Total	\$5,643,820	\$6,257,199	\$6,324,145	\$6,208,249	\$7,011,481	24%
	Urban	\$3,299,746	\$3,578,991	\$3,579,351	\$3,583,907	\$4,214,656	28%
	Rural	\$2,344,074	\$2,678,208	\$2,744,794	\$2,624,342	\$2,796,825	19%
Fare Revenue	Total	\$1,348,931	\$1,265,451	\$1,241,356	\$1,211,744	\$1,067,423	-21%
	Urban	\$822,859	\$760,310	\$753,764	\$750,702	\$663,549	-19%
	Rural	\$526,072	\$505,141	\$487,592	\$461,042	\$403,874	-23%
Revenue Hours	Total	70,004	70,684	71,368	67,781	65,595	-6%
	Urban	44,681	44,918	44,570	44,347	43,491	-3%
	Rural	25,323	25,766	26,798	23,434	22,104	-13%
Passenger Boardings	Total	1,250,910	1,142,293	1,079,219	949,871	732,102	-41%
	Urban	901,514	820,459	765,210	700,179	555,442	-38%
	Rural	349,396	321,834	314,009	249,692	176,660	-49%
Passengers per Revenue Hour	Total	17.9	16.2	15.1	14.0	11.2	-38%
	Urban	20.2	18.3	17.2	15.8	12.8	-37%
	Rural	13.8	12.5	11.7	10.7	8.0	-42%
Operating Cost Per Revenue Hour	Total	\$80.62	\$88.52	\$88.61	\$91.59	\$106.89	33%
	Urban	\$73.85	\$79.68	\$80.31	\$80.82	\$96.91	31%
	Rural	\$92.57	\$103.94	\$102.43	\$111.99	\$126.53	37%
Operating Cost Per Passenger	Total	\$4.51	\$5.48	\$5.86	\$6.54	\$9.58	112%
	Urban	\$3.66	\$4.36	\$4.68	\$5.12	\$7.59	107%
	Rural	\$6.71	\$8.32	\$8.74	\$10.51	\$15.83	136%
Average Fare Per Passenger	Total	\$1.08	\$1.11	\$1.15	\$1.28	\$1.46	35%
	Urban	\$0.91	\$0.93	\$0.99	\$1.07	\$1.19	31%
	Rural	\$1.51	\$1.57	\$1.55	\$1.85	\$2.29	52%
Subsidy Per Passenger	Total	\$3.43	\$4.37	\$4.71	\$5.26	\$8.12	136%
	Urban	\$2.75	\$3.44	\$3.69	\$4.05	\$6.39	133%
	Rural	\$5.20	\$6.75	\$7.19	\$8.66	\$13.55	160%
Farebox Recovery Ratio	Total	23.9%	20.2%	19.6%	19.5%	15.2%	-36%
	Urban	24.9%	21.2%	21.1%	20.9%	15.7%	-37%
	Rural	22.4%	18.9%	17.8%	17.6%	14.4%	-36%

Source: B-Line Quarterly Performance Reports, FY 2014/15 through FY 2019/20.



Figure 1. B-Line Performance Indicators, FY 2008/09 through FY 2019/20



Note: Urban routes include Routes 2, 3, 4, 5, 7, 8, 9, 14, 15, 16, and 17. Rural routes include Routes 20, 24, 25, 26, 27, 30, 31, 32, 40, 41, and 52.

Source: B-Line Quarterly Performance Reports, FY 2008/09 through FY 2019/20.



Service Ridership

Detailed B-Line fixed-route trip- and stop-level ridership data was collected by Fehr & Peers during a ridecheck in early November 2019. According to the ridecheck, B-Line currently generates approximately 4,457 passenger boardings during a typical weekday. This represents a 24 percent decrease from the 5,900 weekday passenger boardings reported in the prior Butte County Transit and Non-Motorized Plan (based on ridership data collected in September 2013).

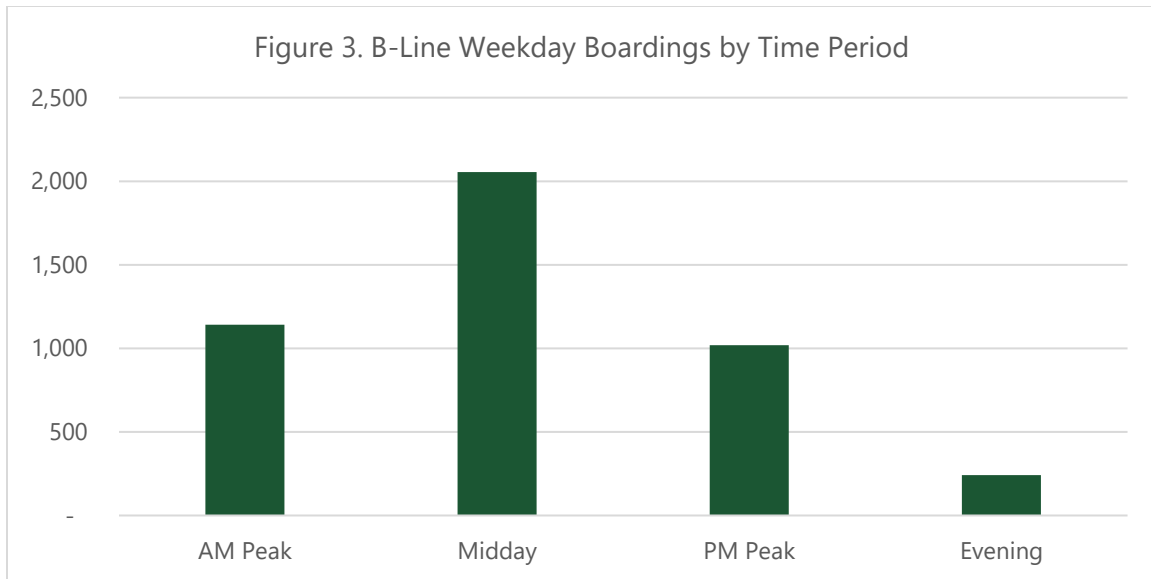
Ridership by Stop

Figure 2 (included at the end of this memorandum) illustrates average weekday system boardings by stop. Higher ridership is concentrated within Chico near the CSU Chico campus, the Chico Mall, and at the Chico Transit Center. Several corridors within Chico also exhibit higher levels of passenger boarding activity, including Mangrove Avenue/Cohasset Road (Route 2), Nord Avenue (Route 3 and Route 8), East Avenue (Route 3), the Esplanade (Route 15 and Route 16), and Lassen Avenue (Route 15). Most of the areas served by these routes meet the criteria for a disadvantaged or low income community as defined by the California Air Resources Board (CARB).

Outside of Chico, higher levels of passenger boarding activity occur in Oroville (Route 20). Elsewhere, passenger boarding activity is relatively low throughout the remaining B-Line service area.

Ridership by Time Period

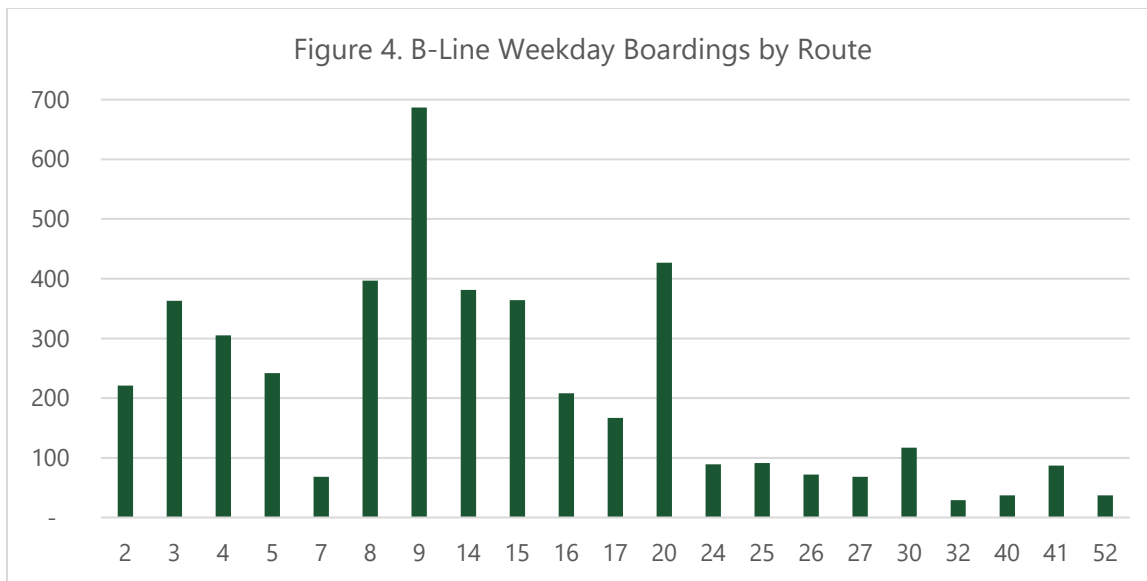
Figure 3 shows the distribution of weekday ridership by time of day. Ridership during the AM (6 to 9 AM) and PM (3 to 6 PM) peak periods is generally consistent, with over 1,000 passenger boardings during each time period. Ridership is sustained throughout the middle of the day, with over 2,000 passenger boardings between 9 AM to 3 PM. Evening ridership is lower at 240 passenger boardings, likely due to the limited amount of service operating after the PM peak period.



Source: B-Line Systemwide Ridecheck, November 2019.

Ridership by Route

Figure 4 shows weekday passenger boardings by route. Route 9 produces significantly higher weekday ridership than any other B-Line route, generating nearly 700 weekday passenger boardings. Seven routes generate 300 to 400 weekday passenger boardings, including Routes 3, 4, 8, 14, 15, and 20. The routes generating the most ridership serve local trips to major destinations within Chico, including CSU Chico, the Chico Transit Center, and the Chico Mall. Route 20 generates over 400 weekday passenger boardings and is the only rural route generating in excess of 100 weekday passenger boardings. Overall, the top 10 routes ranked by weekday passenger boardings account for 80 percent of the system weekday boardings.



Source: B-Line Systemwide Ridecheck, November 2019.

As previously mentioned, B-Line routes that serviced Paradise experienced major changes as a result of the Camp Fire. Before the fire, Route 40 averaged around 193 passengers each weekday and Route 41 averaged 176. Figure 4 explains the loss in ridership on Routes 30, 40, and 41 post Camp Fire. Elsewhere, route-level performance has varied since prior to the Camp Fire. For example, two of the primary routes serving Chico exhibited differing ridership trends – Route 8 decreased from approximately 600 to 400 daily passenger boardings, while Route 9 increased from approximately 500 to 700 daily passenger boardings. Route 15 dipped slightly from 450 to under 400 daily passenger boardings. In Oroville, ridership levels for local routes have increased slightly. Routes connecting Oroville to other Butte County communities have exhibited differing ridership trends – Route 20 to Chico has decreased from approximately 660 to just over 400 daily passenger boardings, while Route 30 to Gridley and Biggs has increased from approximately 80 to over 100 daily passenger boardings. Part of this ridership variation could be explained by population displacement that has occurred throughout the County following the Camp Fire.

Service Performance

Service performance metrics are indicative of how well transit supply is matched to demand. Service performance is typically characterized in terms of service productivity and financial effectiveness.

Service productivity, commonly measured by passengers per revenue hour, evaluates how transit demand (i.e., ridership) utilizes available transit supply (i.e., revenue hours).



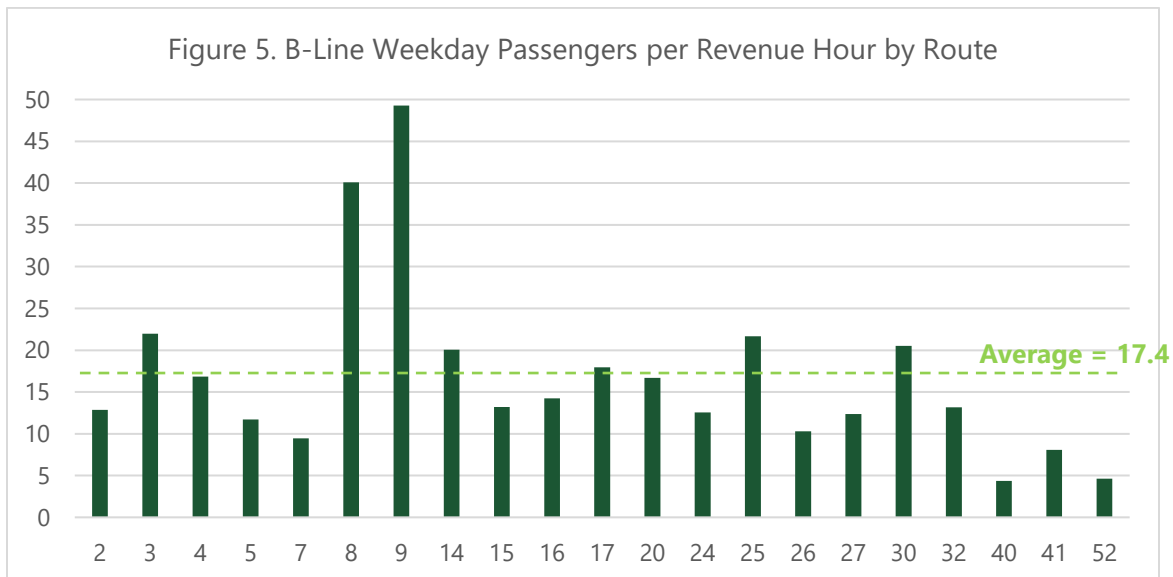
Financial effectiveness evaluates the cost to deliver service relative to the fare revenue generated by that service. This analysis uses two common measures of financial effectiveness. The first, farebox recovery ratio, is the percentage of operating cost that is recouped by passenger fare revenue. The second, subsidy per passenger boarding, is the cost to deliver service for a single passenger boarding, less the fare revenue generated by that passenger.

Service Productivity

Figure 5 shows weekday passengers per revenue hour by route. Routes 8 and 9 are significantly more productive than other B-Line routes, generating approximately 40 and 50 passengers per revenue hour, respectively. These routes are supported by strong ridership demand associated with CSU Chico. Given the very high productivity of these routes, increased service levels may be warranted.

Beyond Routes 8 and 9, B-Line routes generally measure at or below 20 passengers per revenue hour. Four routes measure around 20 passengers per revenue hour, including Routes 3, 14, 25, and 30. Four routes fall below 10 passengers per revenue hour, including Routes 7, 40, 41, and 52.

The average weekday productivity for the B-Line system is 17.4 passengers per revenue hour. Overall, only seven B-Line routes generate passengers per revenue hour above the systemwide average, indicating that the highest performing routes, particularly Routes 8 and 9, bolster systemwide performance.



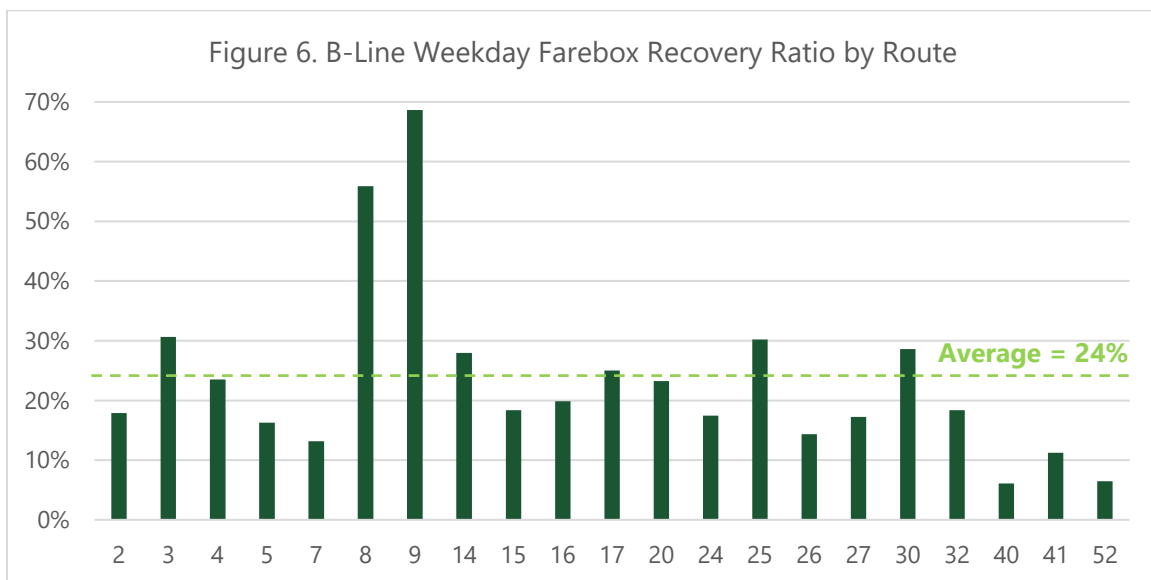
Source: B-Line Systemwide Ridecheck, November 2019.



Financial Effectiveness

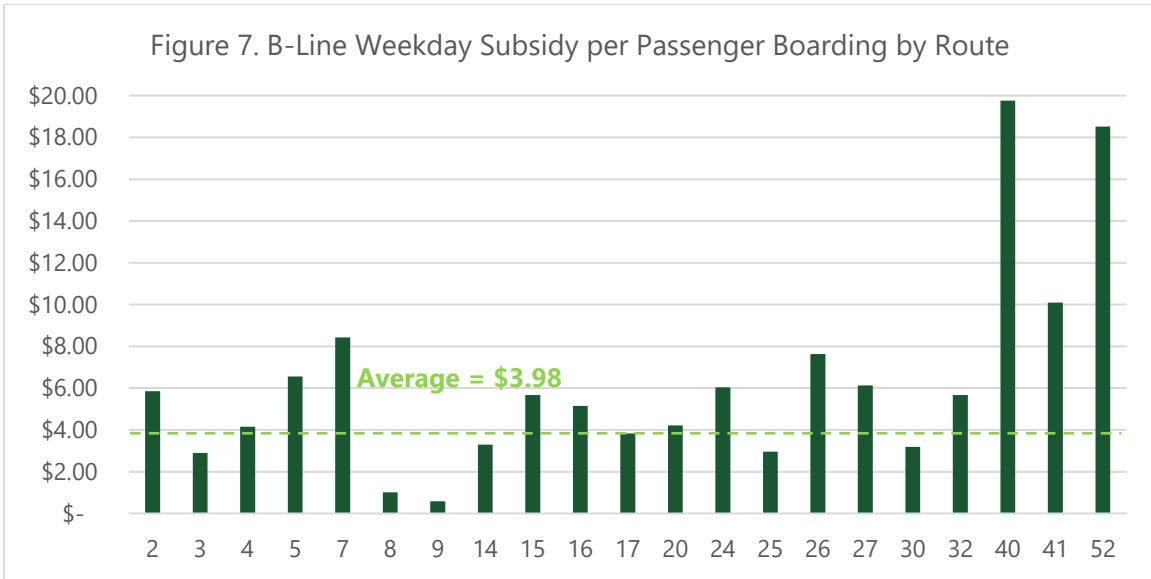
Farebox recovery ratio is defined as the ratio of revenue recovered from a ticket to total operating expenses. The TDA requires that public transit operators achieve a minimum farebox recovery ratio of 20 percent in urban areas and 10 percent in rural areas. Thus, TDA farebox recovery requirements differ between B-Line urban routes (Routes 2 through 17) compared to rural routes (Routes 20 through 52).

Eight B-Line routes have a farebox recovery ratio between 20 and 30 percent and twelve routes have a farebox recovery ratio below 20 percent (see Figure 6). Routes 8 and 9 recoup the majority of their cost, with farebox recovery ratios of 56 and 69 percent, respectively. The systemwide average weekday farebox recovery ratio is 24 percent, which is higher than the 20 percent target, with seven routes measuring above the average and fourteen routes measuring below the average.



Source: B-Line Systemwide Ridecheck, November 2019.

The average subsidy per passenger by route is \$3.98 as seen in Figure 7. The net cost to deliver weekday service on Routes 8 and 9 (accounting for passenger fare revenue) is under \$1.00 per passenger boarding. Routes 40 and 52 exhibit the highest subsidies per passenger boarding at nearly \$20.00 per passenger boarding. Ten routes exhibit subsidies per passenger boarding in the \$5.00 to \$10.00 range. The average weekday subsidy per passenger boarding for the B-Line system is approximately \$4.00 per passenger boarding.



Source: B-Line Systemwide Ridecheck, November 2019.



Service Quality

Service quality refers to the convenience, ease, and comfort with which passengers can utilize transit. Service quality covers topics ranging from walking distance to a transit stop to when and how often a passenger can ride a route.

Service Span

On weekdays, most urban B-Line routes start during the 6 AM hour and end between 8 PM and 10 PM. Nearly all rural routes cease operations by 8 PM on weekdays. In total, B-Line delivers approximately 260 revenue hours of service on weekdays. On Saturdays, 13 B-Line routes operate during shortened service spans, generally between 8 AM and 7 PM. Most rural routes do not operate on Saturdays. Saturday revenue hours are equal to 41 percent of weekday revenue hours. On Sundays, Route 20 is the only B-Line service in operation. Sunday revenue hours are equal to four percent of weekday revenue hours.

Overall, existing service spans limit the availability of transit for rural service passengers during weekday evenings and Saturdays. Moreover, the significantly scaled back Sunday operation limits the availability of transit for the entire B-Line service area, with the exception of Route 20.

Service Frequency

B-Line weekday service frequencies range from 20 minutes to several hours between trips. Routes 15 and 16 are the most frequent routes in the B-Line system, operating every 20 minutes during peak periods. Most other urban routes operate every 30 minutes during peak periods, with several operating at reduced 60-minute frequencies during off-peak periods. All rural routes operate on frequencies of 60 minutes or longer during weekdays. On Saturdays, all routes operate on frequencies of 60 minutes or longer. On Sunday, Route 20 operates every 120 minutes.

None of the existing B-Line routes operate with what is considered to be “spontaneous use” frequencies, typically measured as 15-minutes or better. These higher service levels enable passengers to ride without the need to consult a schedule and can help to attract higher ridership in strong transit markets. Improving service frequencies on high performing B-Line routes, particularly during peak periods, could help to generate additional ridership by increasing spontaneous use of the system. B-Line would likely need to purchase additional buses to increase frequency on certain routes.

The low and very low frequencies provided on most B-Line routes limit the ability for existing and prospective passengers to easily utilize transit for most daily travel needs. Moreover, these frequencies require a high degree of route schedule and alignment coordination in order to enable use of the B-Line network for passengers completing multi-seat trips.



Access to Transit

Figure 8 (included at the end of this memorandum) illustrates the geographic coverage of the existing B-Line fixed-route bus network, including areas within one-quarter and one-half mile of a B-Line bus stop. Overall, 28 and 46 percent of Butte County residents live within one-quarter mile (a five-minute walk) and one-half mile of transit, respectively. Moreover, 51 and 69 percent of Butte County employees work within one-quarter mile and one-half mile of transit, respectively.

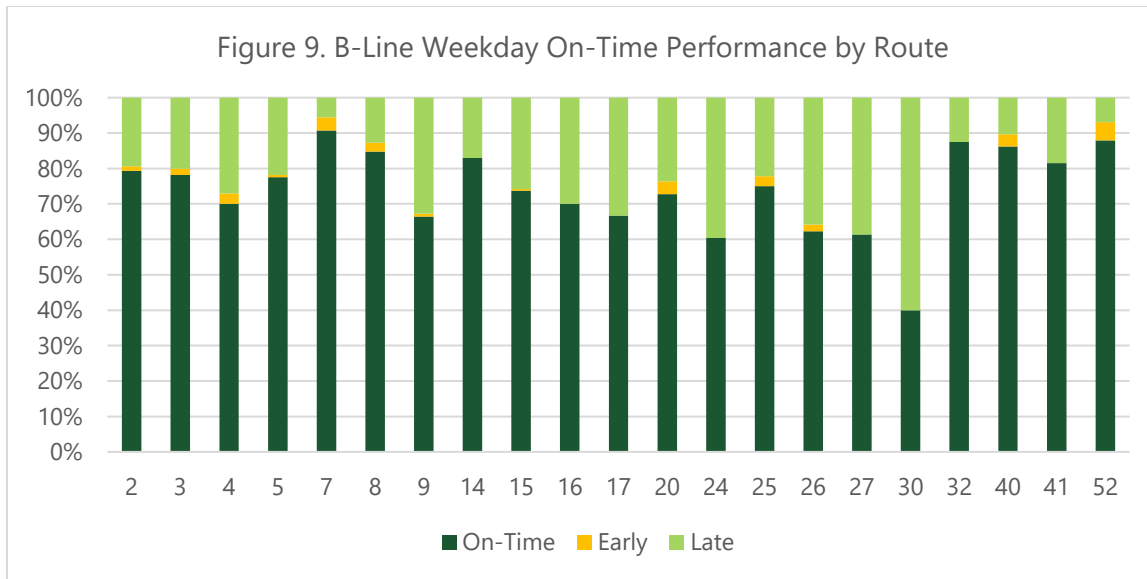
In Chico, transit service is available throughout most of the city, with the exception of portions of the Vallombrosa Avenue, California Park, The Avenues residential neighborhoods, and Hegan Lane Business Park. Transit availability also extends north of the city along the Esplanade corridor.

Outside of Chico, B-Line service is available within downtown Paradise, Oroville, Gridley, and Biggs. Service coverage becomes increasingly sporadic in the rural, peripheral developed areas of these cities, limiting convenient access to transit.

Service Reliability

Figure 9 shows observed on-time performance for each B-Line route during a typical weekday. On-time performance is evaluated based on the actual timepoint departure time relative to the scheduled departure time. A bus is considered to be "on-time" if it departs a scheduled time point between one minute early and five minutes late. Buses that depart a scheduled timepoint more than one minute early are considered to be "early" and buses that depart a scheduled timepoint more than five minutes late are considered to be "late".

Overall, 75 percent of weekday B-Line service is on-time, 23 percent is late, and two percent is early. Route 7 measured above 90 percent on-time, while 14 routes measure below 80 percent on-time. Poor on-time performance can be a symptom of a variety of factors, including congested peak period conditions, long dwell times at bus stops, or constrained schedules that do not provide adequate running time between timepoints or recovery time at the end of a trip.



Source: B-Line Systemwide Ridecheck, November 2019.

Passenger Loads

Passenger loads can affect service quality through a variety of means. Crowded buses can affect dwell times by increasing the length of time required for boarding passengers to find a seat, as well as the amount of time required for alighting passengers to travel from their seat to the exit door. Severely overcrowded vehicles can physically restrict new passengers from boarding due to a lack of capacity. Severely overcrowded vehicles can also result in bus operators bypassing waiting passengers, requiring them to wait for the next available trip in order to board the bus and incurring substantial travel time delays.

Overall, only two weekday B-Line trips were observed to experience maximum passenger loads that exceeded available seated capacity, one trip each for Routes 3 (during the midday time period) and 9 (during the morning peak period). Four weekday trips experienced maximum passenger loads of over 80 percent (i.e., nearing seated capacity), including two trips on Route 8 (both during the morning peak period), one trip on Route 9 (during the morning peak period), and one trip on Route 20 (during the midday time period). The higher passenger loads observed on Routes 8 and 9 are likely a result of surges in peak period passenger demand associated with CSU Chico student travel.



2. Transit Market Assessment

The foundation of determining the transportation needs of residents and workers in Butte 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. Individuals that currently use transit or demonstrate the potential to use transit are commonly referred to as a transit market. This section is a profile of the Butte County transit market.

Chapter 2 of the current *Butte County Transit and Non-Motorized Plan*² provides a thorough discussion of the demographics, major employers, transit generators, and other transit market characteristics throughout Butte County. Therefore, this memorandum will focus only on transit market characteristics that are substantially new or different from those described in the current plan. Existing transit market characteristics discussed in the current plan that are not addressed in this memorandum will be incorporated into the updated Butte County Transit and Non-Motorized Plan.

Effects of the Camp Fire

The Camp Fire caused significant disruptions to population, employment, and travel patterns throughout Butte County, particularly in Paradise and surrounding communities. These disruptions have shifted the overall countywide travel market and, in turn, transit market by relocating people, jobs, activity centers, and travel activity away from Paradise and other affected communities and concentrating them in the primary surrounding communities (e.g., Chico, Oroville, etc.). This has resulted in less travel activity (except for heavy truck travel) between Paradise and other Butte County jurisdictions, and increased travel activity within the primary surrounding communities.

Please refer to the *Post Camp Fire Regional Population and Transportation Study – Report of Pre and Post Camp Fire Conditions*³ (September 2020) for additional details regarding changes to demographics, businesses, and travel patterns resulting from the Camp Fire.

² http://www.bcag.org/documents/planning/Transit_Non_Motor_Plan/Document/Chapter%202.pdf

³ http://postcampfirestudy.com/wp-content/uploads/2020/09/Task-4.2-and-4.3-Memo-Sept-14_Final.pdf



Demographics

As of 2019, Butte County is estimated to have a population of 219,186.⁴ The demographic and socioeconomic information presented in this section are derived from the 2019 American Community Survey (ACS). The County currently exhibits very low bus utilization as a percentage of overall commute activity, with just 0.9 percent of employees currently commuting by bus.

Regarding age, significant proportions of the population fall within the 65+ age group (16 percent) and the youth and young adult cohort under the age of 25 (34.4 percent). These latter findings are reflective of the presence of Butte College and Chico State within the County.

Table 5. Butte County Demographics At-a-Glance

Category	Value
Residents	219,186
Households	86,209
Residents commute by bus	0.9%
Average commute time to work	21 minutes
Households without vehicles	6%
Median household income	\$62,563
People living below the poverty level	16%
People younger than 25 years old	34.4%
People older than 65 years old	18.5%

Source: 2019 American Community Survey, 1-Year Estimates

Population Density

Transit service is most efficient when it connects people and destinations within easy walking distance of bus stops. Fixed route transit typically requires population densities of at least 5,000 people per square mile to warrant service, and works best at densities greater than 10,000 people per square mile (communities with lower densities are sometimes served by dial-a-ride services).

Figure 10 shows the population density across Butte County. 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 2019, with 103,315 residents, or 47 percent of the County population. A significant portion within this population is represented by students at Chico State who live within the vicinity of campus.

⁴ 2019 American Community Survey, 1-Year Estimates.



Employment Density

The location and concentration of jobs presents a strong indicator of potential transit demand, since commuting to and from work is a routine travel pattern. Employment concentrations greater than 2,500 jobs per square mile typically represent minimum densities to support transit service.

Figure 11 shows the employment density across Butte County. The greatest concentration of employment is in Chico, particularly in the Chico State and Downtown Chico vicinity, with smaller pockets of employment concentrations in Oroville, Gridley, and Paradise. Notable employment corridors include the Esplanade, Park Avenue, East 20th Street, Mangrove Avenue, and Skyway Road corridors in Chico.

The largest employers in Butte County are public agencies, educational institutions, medical institutions, retail companies, casinos, and agricultural and manufacturing businesses. Many jobs are focused around and generated by the Chico State, which also brings in a large consumer base in the form of its students. Major public agency employers include Butte County, which primarily operates County departments and services out of locations in Chico and Oroville.

The Enloe Medical Center in Chico is the largest medical provider in Butte County. The Feather River Hospital in Paradise also represented a major employment concentration while in operation prior to the Camp Fire.

Retail employment is concentrated around retail centers such as the Walmart stores in Chico and Oroville, the Costco store in Chico, the Chico Mall, and neighborhood shopping centers in Chico, Oroville, and Gridley. Build.com, a large online retailer, is headquartered in Chico.

Major agricultural and manufacturing businesses include Pacific Coast Producers (Oroville), Sierra Nevada Brewing (Chico), Knife River Corp (Chico), Lundberg Family Farms (Richvale), and Wil-Ker-Son Ranch & Packing (Gridley).

Median Household Income

Transit often appeals to a broad cross-section of the general population yet is particularly useful for households with fewer financial resources and those in poverty. Transit enables access to jobs and services while providing the ability to own fewer cars and spend less on gas, parking, and vehicle maintenance. Figure 12 shows the median household income of neighborhoods across Butte County. Areas with the highest median household income are generally located outside of the major city and town centers. Substantial portions of Oroville and Paradise exhibit median household incomes of less than \$25,000 per year.

Poverty Density

About 16 percent of Butte County residents are living under the federal poverty line. In 2019, the federal poverty level was set at a household income of \$12,490 for a one-person household, plus \$4,420 for every additional person (e.g., \$21,330 for a three-person household). Figure 13 shows



the distribution of people living under the poverty line throughout Butte County. The greatest concentrations of people living under the poverty line are in Chico, Oroville, and Paradise.

Youth, Young Adult, and Senior Density

Youth (under 18 years old), young adults (18 to 25 years old), and seniors (over 65 years old) typically exhibit a higher likelihood of riding transit. Many are unable to drive or lack access to a car. As described previously, B-Line offers a variety of discounted fares and passes for the Butte County youth and elderly populations. In Butte County, 34.4 percent of residents are under age 25, and 18.5 percent of residents are over age 65. Figure 14 shows the distribution of youth, young adult, and senior populations throughout Butte County. These residents are most heavily concentrated in Chico, with more dispersed concentrations in Oroville, Paradise, and Gridley.

Zero Vehicle Households

Households without automobiles depend on transit, active transportation, and carpooling for their travel needs. Six percent of Butte County households do not own a car.⁵ Figure 15 illustrates the concentration of zero vehicle households throughout Butte County. The densest cluster of households without vehicles is located in central Chico and in residential areas populated by Chico State 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.

CalEnviroScreen

CalEnviroScreen is a screening tool developed and maintained by the California Office of Environmental Health Hazard Assessment (OEHHA) that evaluates the burden of pollution from multiple sources in communities while accounting for potential vulnerability to the adverse effects of pollution. CalEnviroScreen ranks census tracts in California based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors and prevalence of certain health conditions. The OEHHA developed CalEnviroScreen as part of CalEPA's environmental justice program. CalEnviroScreen is being used to identify communities that face multiple burdens of pollution and socioeconomic disadvantage. This information helps CalEPA to prioritize its work in the state's most burdened communities.

Figure 16 shows the CalEnviroScreen 3.0 (2018) results for Butte County. Butte County census tracts receiving the highest scores (i.e., those with the greatest burdens of pollution and socioeconomic disadvantage) are located in and around Chico and Oroville. The two census tracts shown in red are additionally identified as disadvantaged communities by CalEPA for the purpose

⁵ 2019 American Community Survey, 1-Year Estimates



of SB 535, since these census tracts are among the 25 percent highest scoring census tracts statewide in CalEnviroScreen 3.0.

Transit Ridership Potential

Transit ridership is broadly influenced by five key factors:

- Service attributes, including service frequency, service span, and route directness
- Ease of access, including service coverage and first-/last-mile access to bus stops
- Land use density, including population and employment density
- Socioeconomics, including median household income, zero vehicle households, and youth and senior population density
- Value relative to other transportation options, including travel time, cost, and convenience

Of these factors, B-Line exercises control over the service that it operates (including attributes such as frequency, travel time, reliability, and fares) and partially influences its perception of value (through its fares relative to the cost of driving and parking). However, B-Line has little influence over the ease of access (such as the quality of sidewalks and crosswalks and perception of safety), land use (the density, linearity, and proximity of residences, jobs, and activities), and socioeconomics (age, income, and vehicle ownership) within its service area.

Figure 17 illustrates these factors throughout Butte County through a composite metric referred to as a transit likelihood index. Based on this index, Chico exhibit the greatest transit ridership potential, along with portions of Oroville and Paradise. Elsewhere, transit ridership potential for traditional fixed route transit is low.

Travel Patterns

Travel patterns (e.g., origin-destination pairs exhibited by travelers) shared by large numbers of travelers can be indicators of transit demand potential. Please refer to the *Post Camp Fire Regional Population and Transportation Study – Report of Pre and Post Camp Fire Conditions*⁶ (September 2020) for additional details regarding travel patterns derived from big data sources. This information will be utilized to identify potential B-Line service improvements throughout the development of the Butte County Transit and Non-Motorized Plan Update.

⁶ http://postcampfirestudy.com/wp-content/uploads/2020/09/Task-4.2-and-4.3-Memo-Sept-14_Final.pdf



3. Active Transportation Network

A contiguous, comfortable, and convenient active transportation network is an essential component of an effective local and regional transportation system. Moreover, a high-quality active transportation network supports the use of transit by providing access to transit stops and first-/last-mile connections to residential neighborhoods and destinations alike.

Chapter 4 of the current *Butte County Transit and Non-Motorized Plan* provides a thorough discussion of the existing and planned active transportation network throughout Butte County. A review of Chapter 4 indicated that the majority of the information is current and up-to-date based on existing active transportation facilities and adopted plans. Therefore, this memorandum will focus only on changes to existing and planned active transportation facilities since the preparation of the current *Butte County Transit and Non-Motorized Plan*, as well as a discussion of bicycle- and pedestrian-involved collisions, since new collision data has become available since the last update to the *Butte County Transit and Non-Motorized Plan*. The relevant discussion of existing and planned active transportation facilities provided in the current plan will be incorporated into the updated *Butte County Transit and Non-Motorized Plan*.

Existing and Planned Bicycle Facilities

Bicycle facilities are typically categorized in the following classifications:

- **Class I Multi-Use Off-Street Paths** (also known as shared-use paths) are paved trails that are separated from roadways and allow for shared use by both cyclists and pedestrians.
- **Class II On-Street Bike Lanes** are designated for use by bicycles by striping, pavement legends, and signs.
- **Class III On-Street Bike Routes** are designated by signage for shared bicycle use with vehicles but do not necessarily include any additional pavement width for bicyclists.
- **Class IV Separated Bikeways** (also known as protected bikeways or cycle tracks) are separated bikeways that improve upon buffered bike lanes by providing vertical separation between bikeways and the adjacent travel lanes. Examples of vertical separation include concrete curb, bollards, and on-street parking.

The following section describes existing and planned bicycle facilities in jurisdictions throughout Butte County. Figure 18 illustrates existing and planned bicycle facilities in 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

The *Biggs Area Bicycle Transportation Plan* (June 2011) identifies planned bicycle facilities throughout the City. 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. Additional bike paths include the Little Chico Creek bike path, the Airport bike path, and the Steve Harrison bike path.

Class II Bike Lanes

Cohasset Road, East Avenue, Nord Avenue, Warner Street, Manzanita Avenue, Eaton Road, 20th Street, Notre Dame Boulevard, 8th Avenue, Bruce Road, Springfield Drive, Forest Avenue, and Skyway Road are all corridors featuring Class II bike lanes along at least a portion of their route.

Class III Bike Routes

Several 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 Chico State. 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 Bicycle Plan 2019 Update* identifies numerous improvements to the City's bicycle network. The plan identifies the following high priority projects:

- Completion of Bikeway 99 Phase 4 and Phase 5
- Esplanade Class IV Protected Bikeway
- Comanche Creek Greenway Phase 2
- Little Chico Creek Bike/Ped Bridge
- Bruce Road Bike Lane
- Humboldt Road Multi-Use Path from El Monte to Bruce Road
- Wayfinding signage design and implementation
- Conversion of Bike Routes to Bike Boulevards, phase 1

Additionally, the plan identifies the following "transformative projects":

- Esplanade to Park north-south Corridor Update:
 - Multi-Use Path AND bike lane on Esplanade from Bodero to Sycamore/Mud Creek Path
 - Protected Bikeway on Esplanade from 11th Street to Bodero Way
 - Protected Bikeways from 1st Street to 9th Street on Main and Broadway
 - Protected Bikeway from 9th Street to 20th Street on Park Avenue
- Cohasset to Mangrove north-south Corridor:
 - Protected Bikeway on Cohasset from Manzanita Court to Eaton Road
 - Protected Bikeway on Mangrove from Manzanita Court to Vallombrossa Avenue
- East Avenue east-west Corridor Update:
 - Protected Bikeway from SR 99 to Mariposa Avenue
- Lindo Channel east-west Corridor:
 - Multi-Use Path from SR 32 to Sycamore Creek Multi-Use Path in Upper Park
- Completion of Sycamore Creek/Mud Creek east-west Corridor:
 - Multi-Use Path from W Eaton Road extension (planned) to Wildwood Roundabout
- Little Chico Creek east-west Corridor:
 - Multi-Use Path from Pomona Ave to existing path at SR 99
 - Multi-Use Path from existing path at Bruce Rd to Picholine



City of Gridley

Existing

An east-west bike path traverses the south side of Heron Landing between Biggs Gridley Road and Kentucky Street. Bike lanes exist on Spruce Street between Biggs Gridley Road and State Route 99, on Hazel Street between Virginia Street and the street's eastern terminus, on Magnolia Street between Vermont Street and Jackson Street, and on Washington Street north of Magnolia Street.

Proposed

The *City of Gridley Bicycle Plan* (January 2011) identifies planned bicycle facilities throughout the City. 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, the Brad Freeman Trail traverses between Riverbend Park and Washington Avenue along the southern banks of the Feather River. Bike lanes are present on sections of Grand Avenue, Orange Avenue, Nelson Avenue, and Foothill Boulevard.

Proposed

The *City of Oroville Bike Plan* (2010) and the *City of Oroville Balanced Mode Circulation Plan* (2015) identify planned bicycle facilities throughout the City. 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 Princeton Way/Skyway Road intersection with the Pentz Road/Skyway Road intersection. The trail parallels Skyway Road for its length. Bike lanes are present on Skyway Road between Pearson Road and Elliott Road. A short bike lane exists on Pearson Road between Black Olive Drive and Clark Road.



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.

Bicycle- and Pedestrian-Involved Collisions

A review of collisions involving bicyclists and pedestrians reveals locations with demonstrated collision records where physical interventions could be necessary to improve the comfort and safety of active transportation facilities. In the context of the *Butte County Transit and Non-Motorized Plan*, locations adjacent to transit stops and transfer centers are of particular interest, because safety concerns associated with walking or biking to transit, whether real or perceived, can pose a major barrier to people choosing to utilize transit.

Figure 19 and 20 illustrate the locations of recorded collisions involving bicyclists and pedestrians, respectively, throughout Butte County from 2014 to 2018. Additionally, Figures 19 and 20 illustrate the locations of collisions where a bicyclist or pedestrian was killed or severely injured. The highest concentration of collisions occurred in Chico, particularly within the vicinity of downtown Chico and the Chico State campus where higher levels of bicycling and walking activity occur. Corridors in Chico with higher concentrations of collisions include the Esplanade, Nord Avenue, Park Avenue, and East Avenue. Collisions in Paradise were primarily concentrated on Skyway Road and Clark Road. In Oroville, collisions were concentrated on Oro Dam Road and Lincoln Boulevard.



Countywide, collisions were concentrated on roadways that serve higher speeds and volumes of vehicle traffic, and that are designed in a manner where bicyclists and pedestrians experience considerable exposure to vehicles (e.g., long pedestrian crossing distances, lengthy bicycle-vehicle mixing zones, high-speed turning movements at intersections and freeway interchanges, etc.).



4. Next Steps

The next step in the development of the Non-Motorized Plan is the preparation of a service planning framework, which will include the key issues and guiding principles that will guide the development of future B-Line service recommendations and improved active transportation connections to transit. Concurrently, community engagement will occur to present the existing conditions analysis findings and solicit feedback on the service planning framework.



Figure 2
 Average Weekday Boardings & Alightings -
 Route 2 Northbound

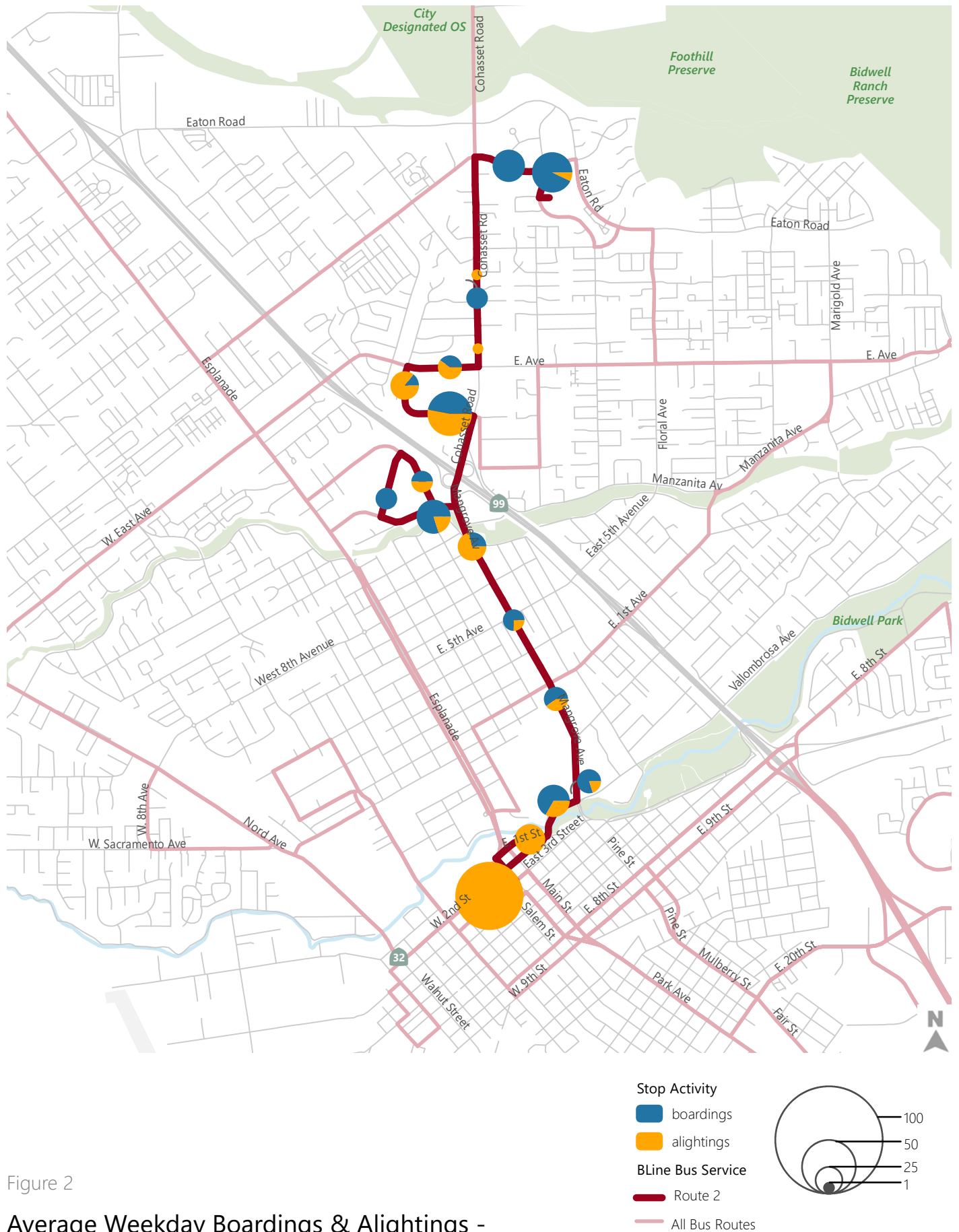


Figure 2

Average Weekday Boardings & Alightings - Route 2 Southbound



Figure 2

Average Weekday Boardings & Alightings - Route 3 Northbound

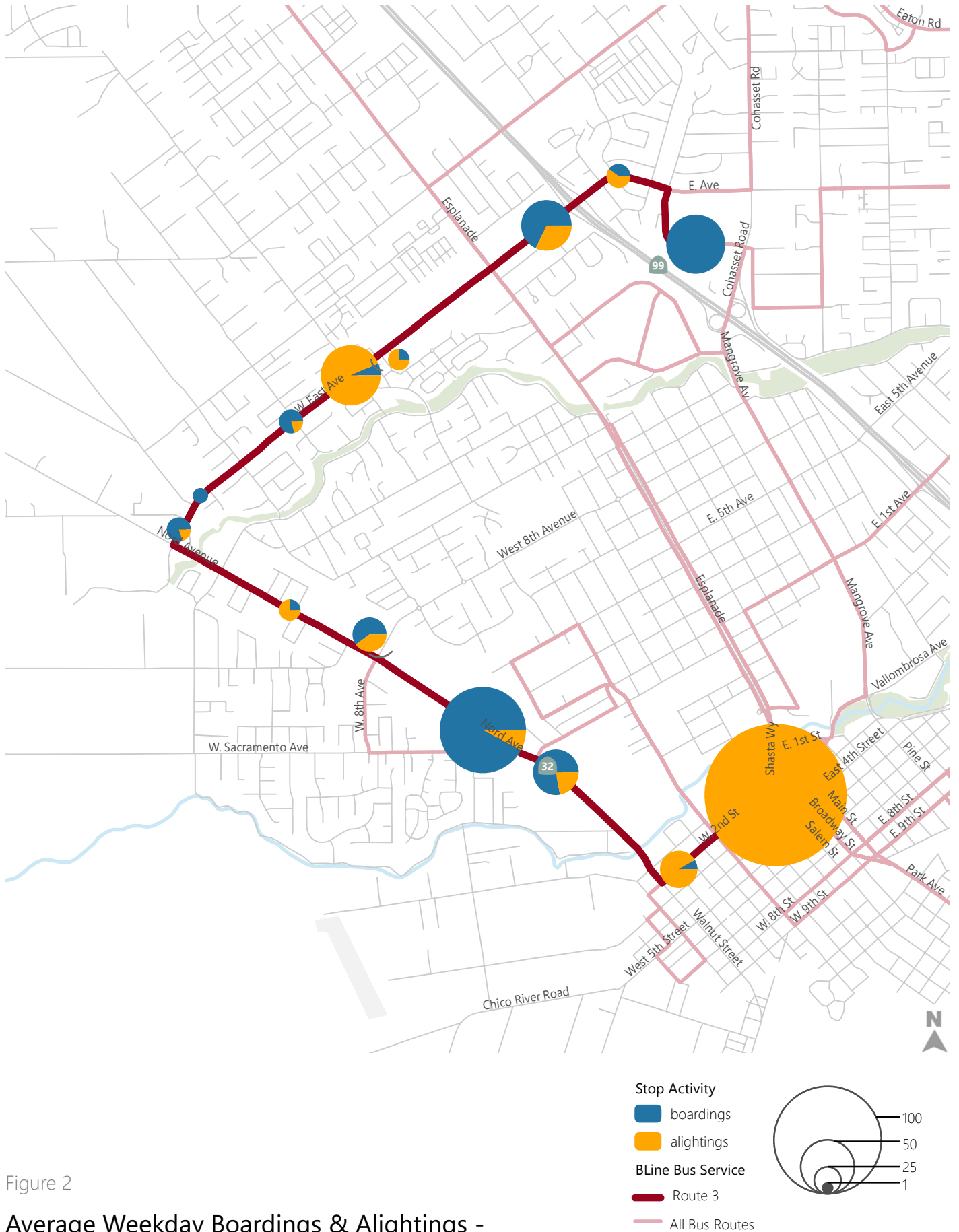


Figure 2

Average Weekday Boardings & Alightings - Route 3 Southbound

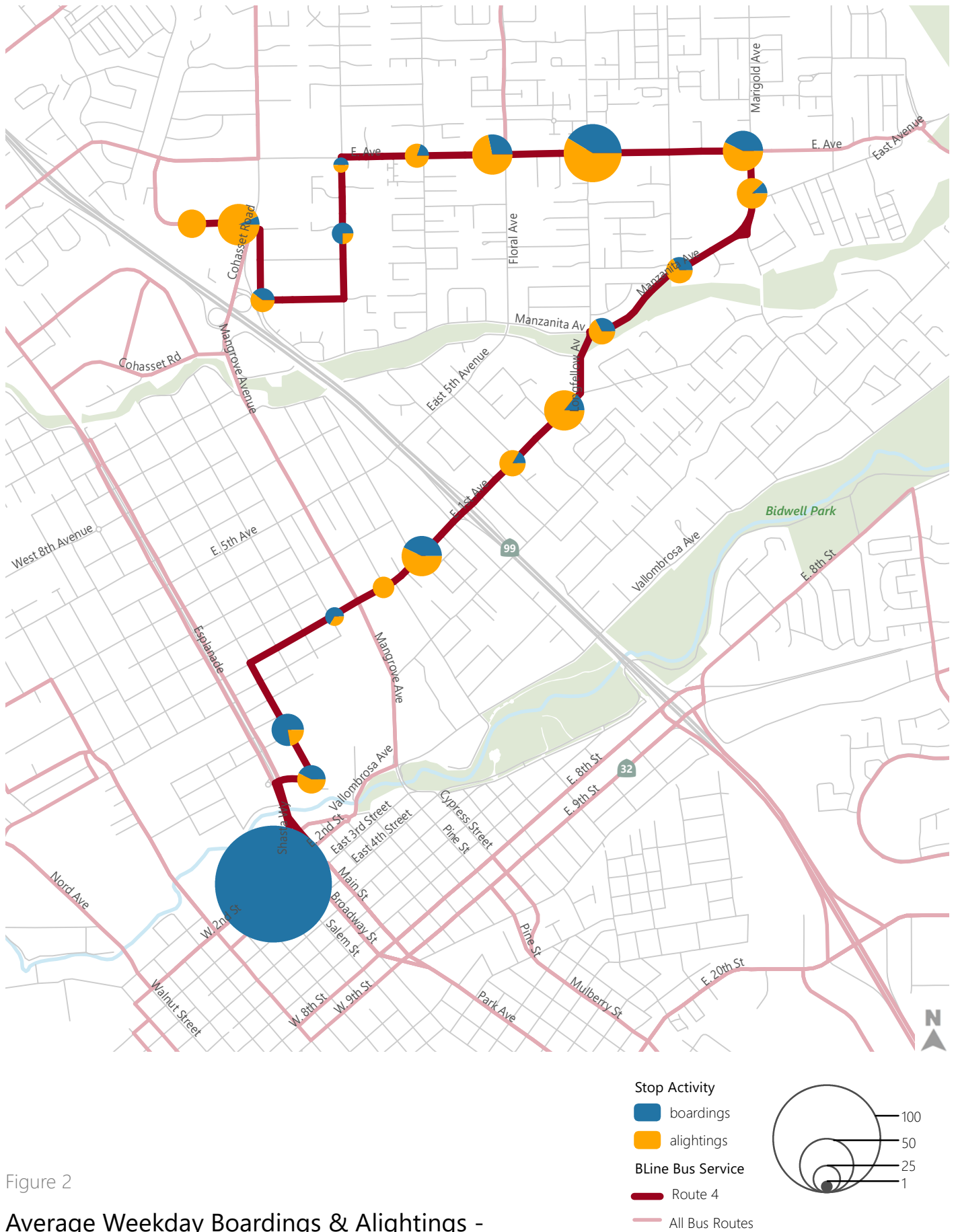


Figure 2
 Average Weekday Boardings & Alightings -
 Route 4 Northbound

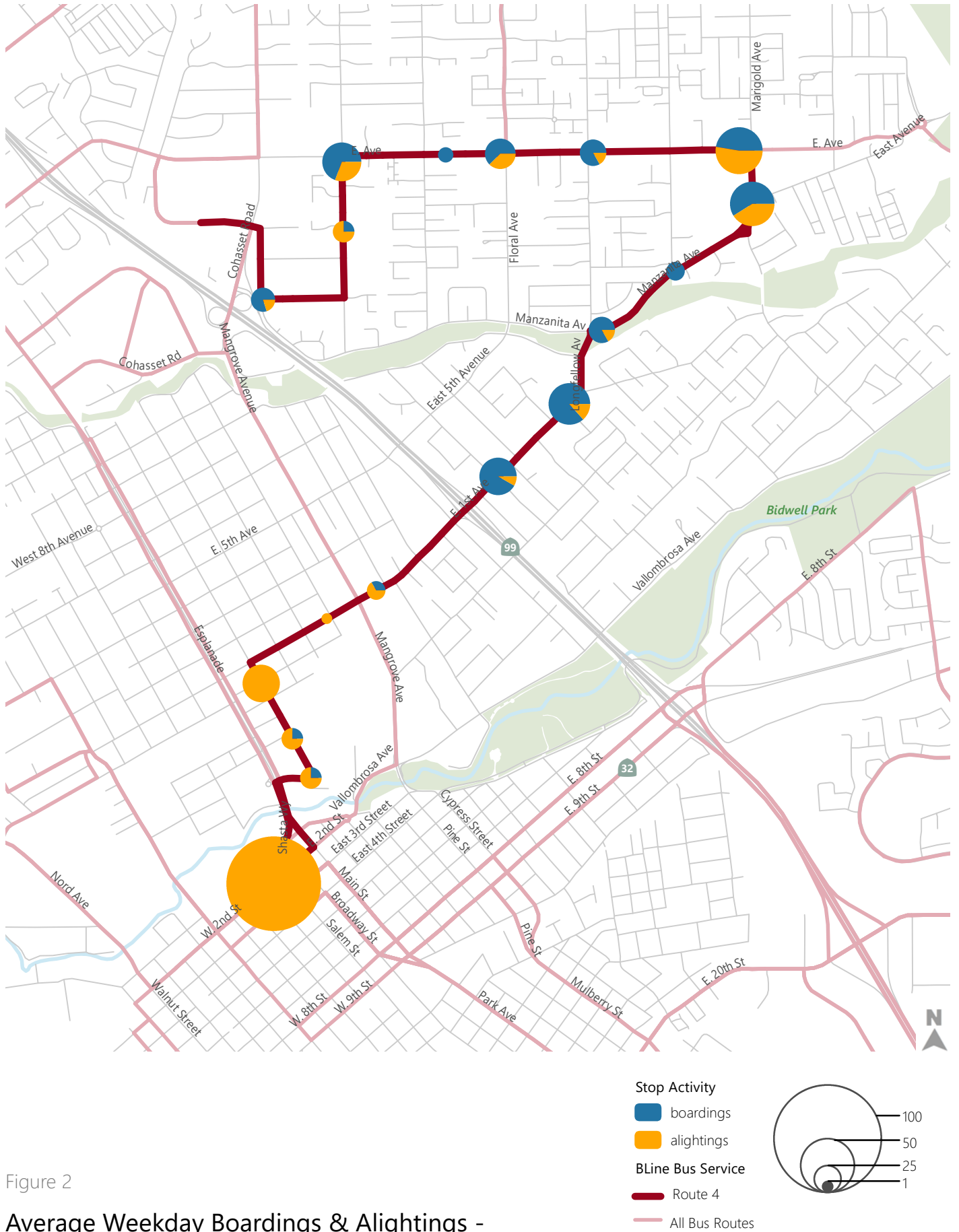


Figure 2
 Average Weekday Boardings & Alightings -
 Route 4 Southbound

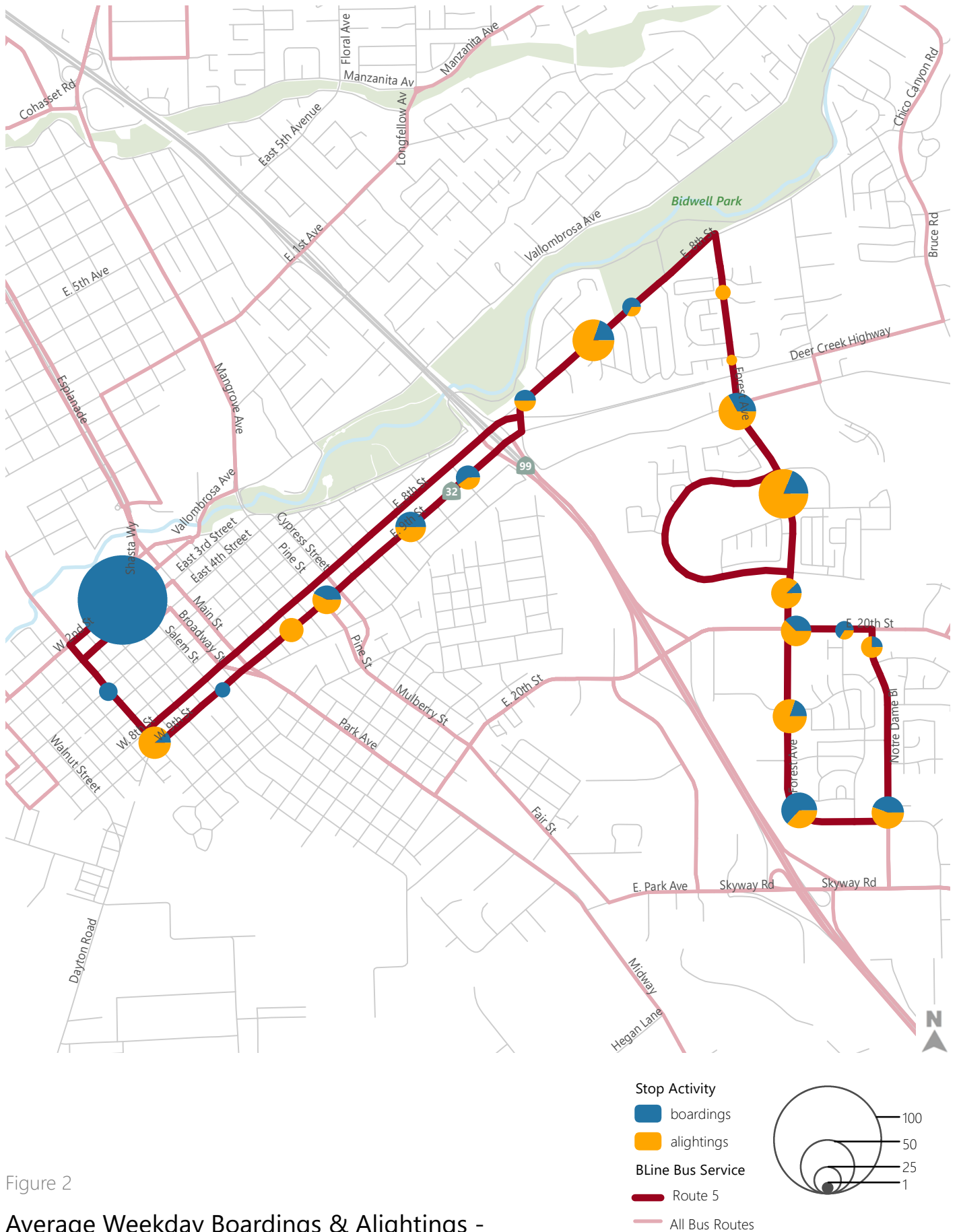


Figure 2
 Average Weekday Boardings & Alightings -
 Route 5 Eastbound

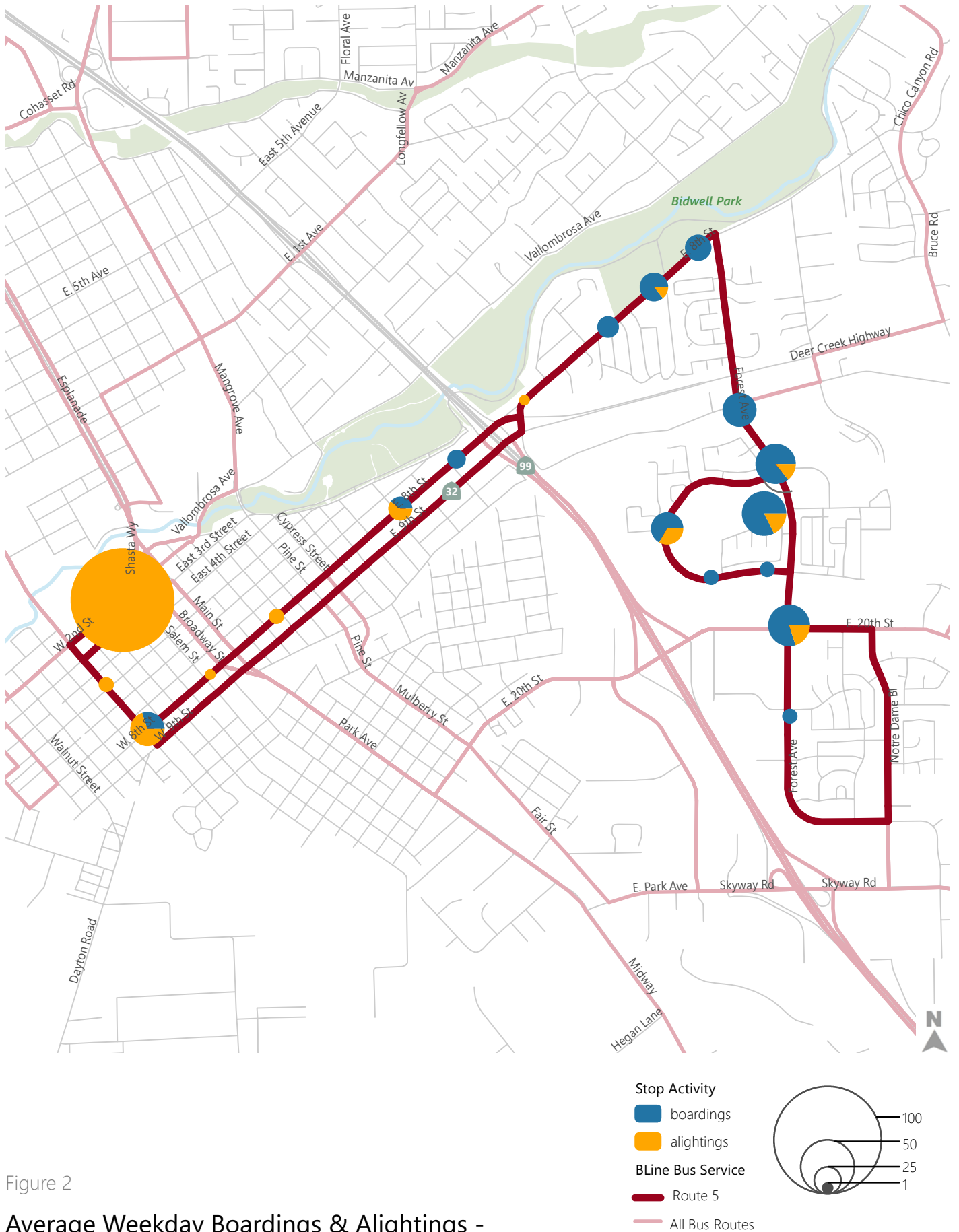


Figure 2

Average Weekday Boardings & Alightings - Route 5 Westbound

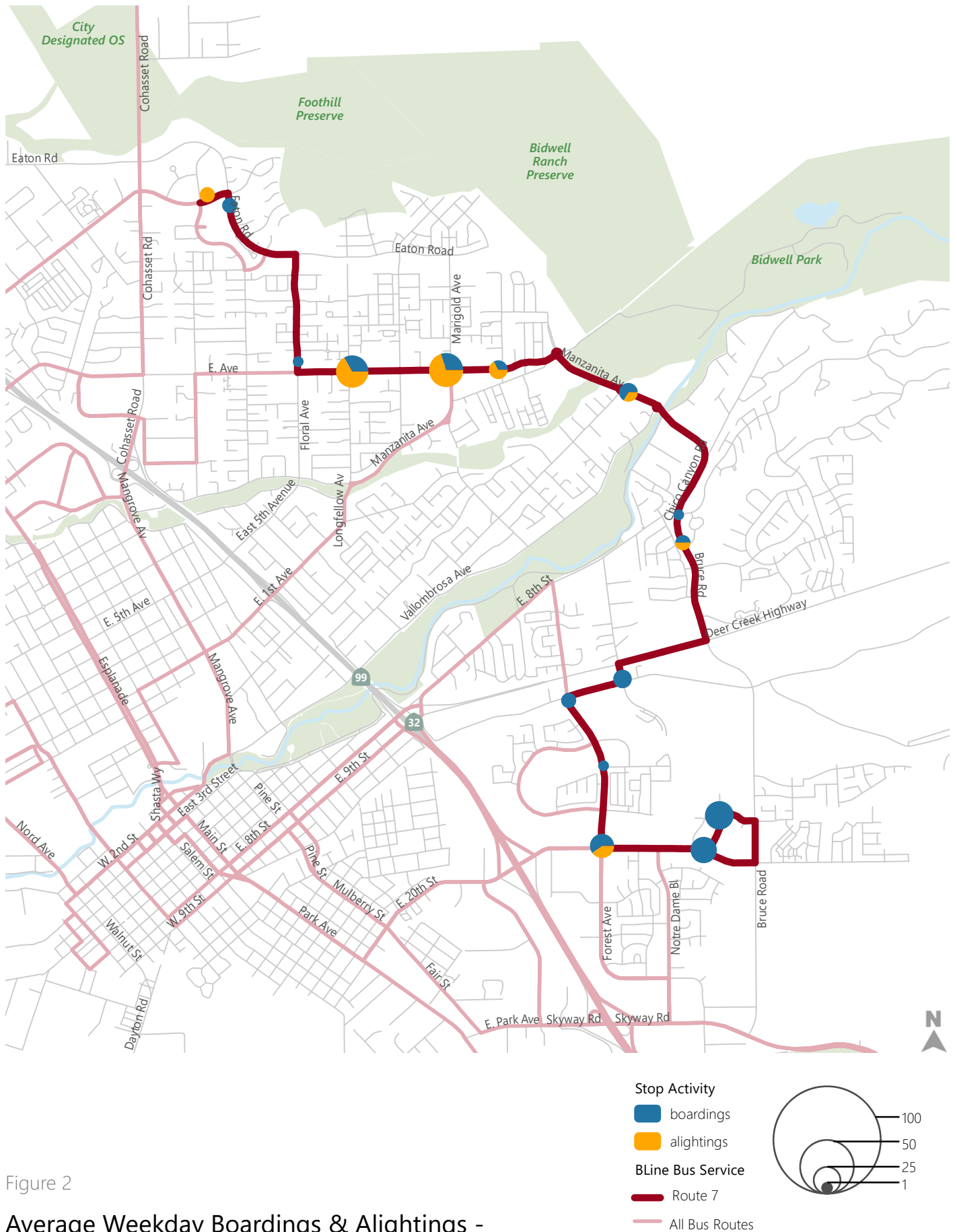


Figure 2

Average Weekday Boardings & Alightings - Route 7 Northbound



Figure 2
 Average Weekday Boardings & Alightings -
 Route 7 Southbound

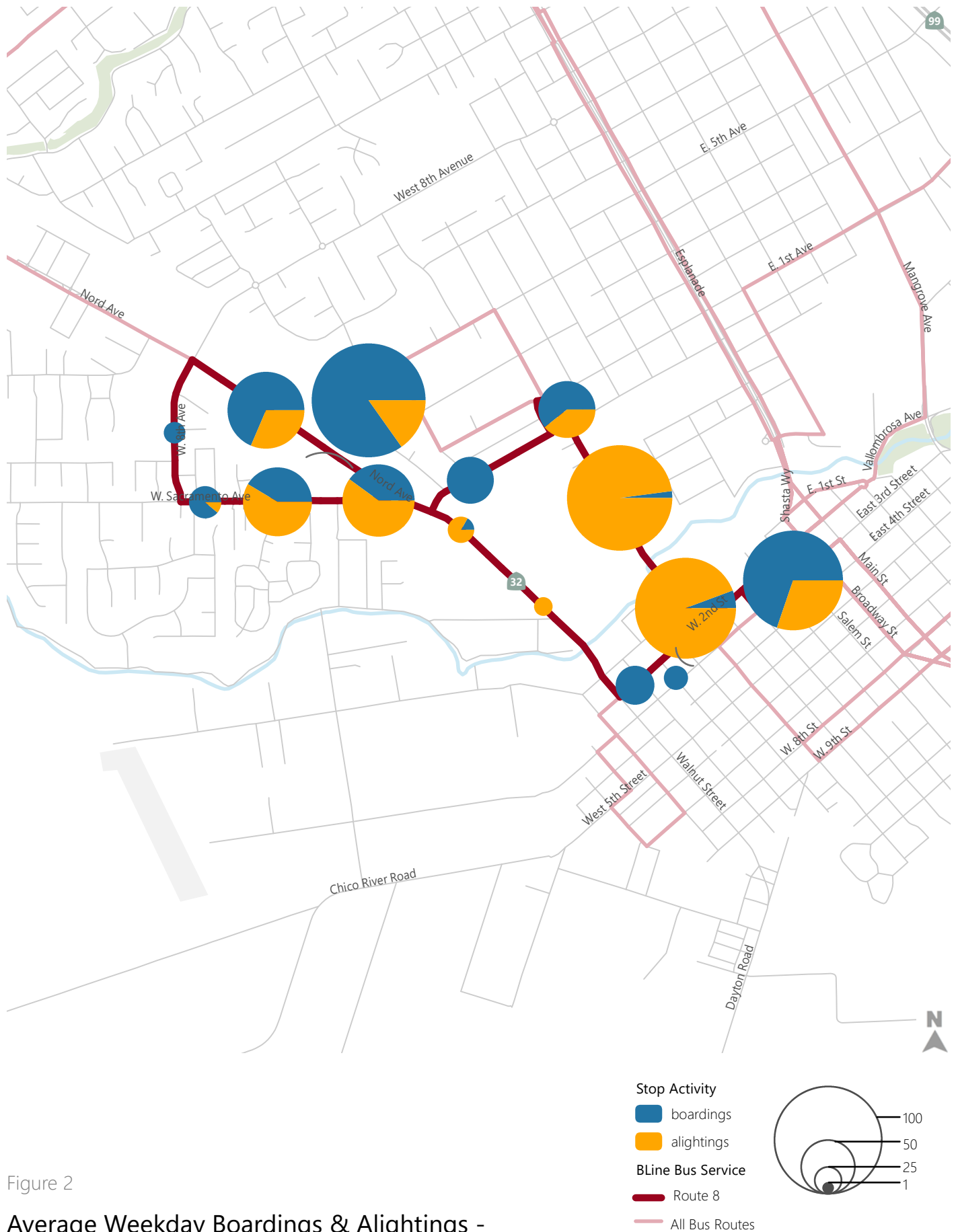


Figure 2

Average Weekday Boardings & Alightings - Route 8

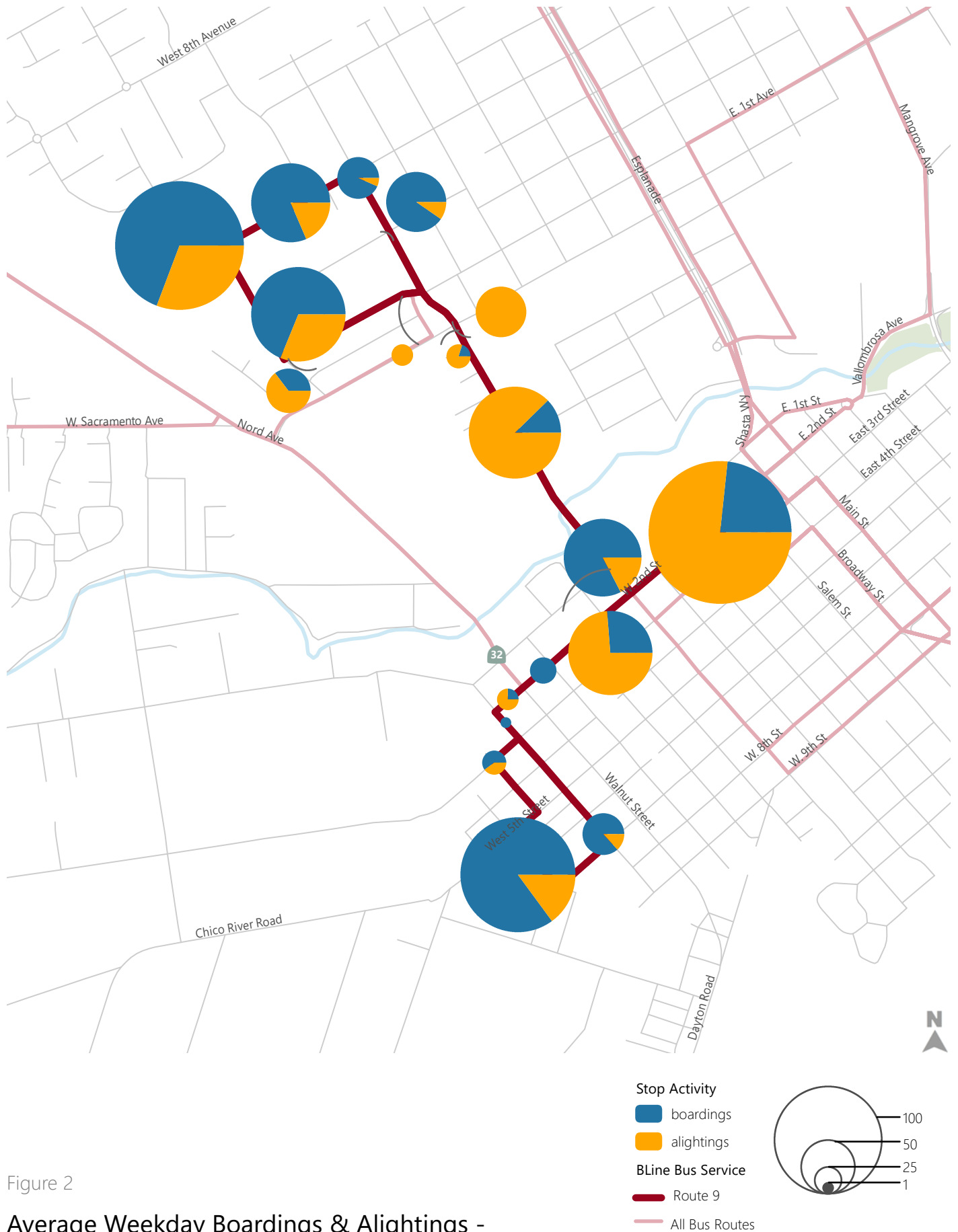


Figure 2

Average Weekday Boardings & Alightings - Route 9

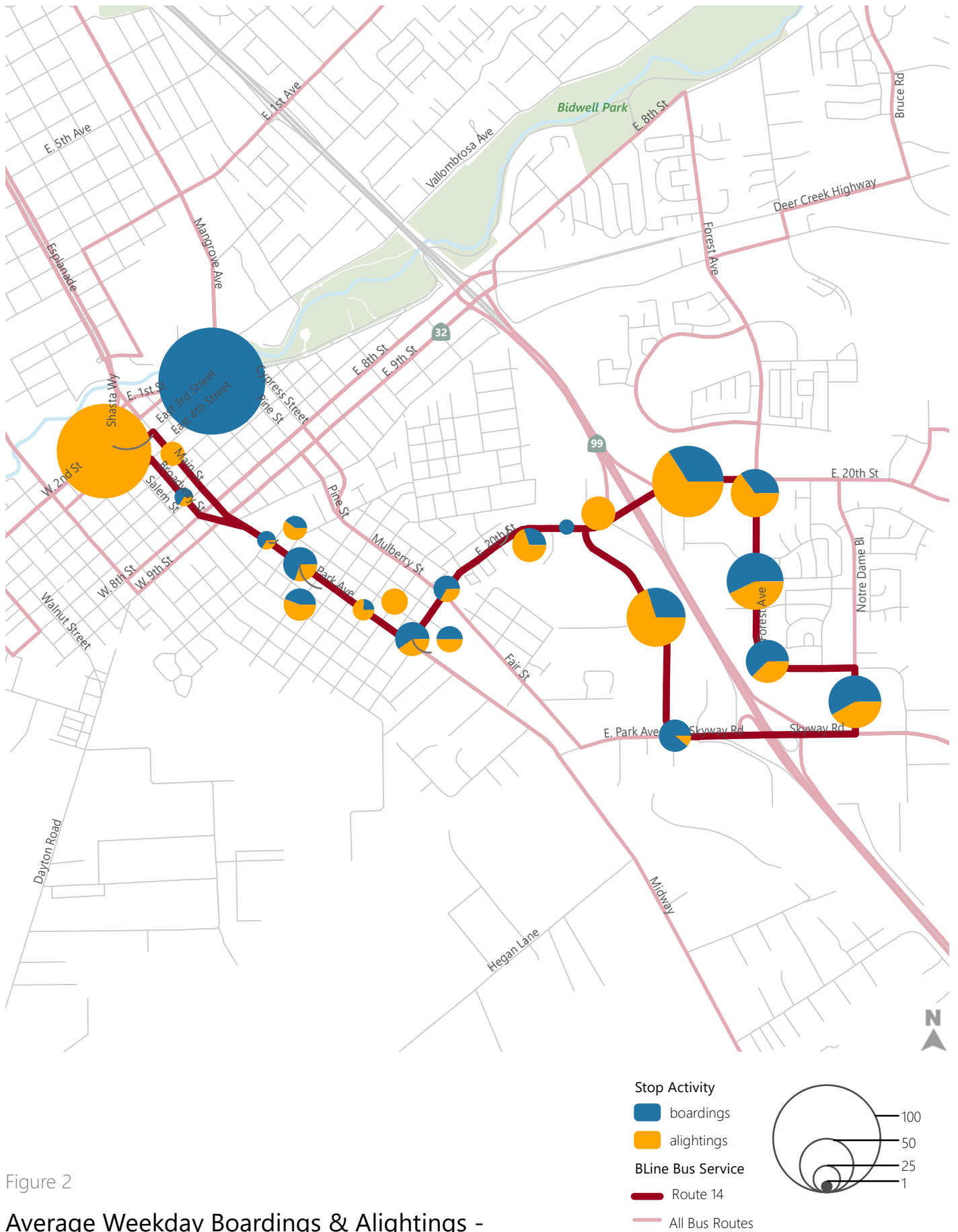


Figure 2
 Average Weekday Boardings & Alightings -
 Route 14

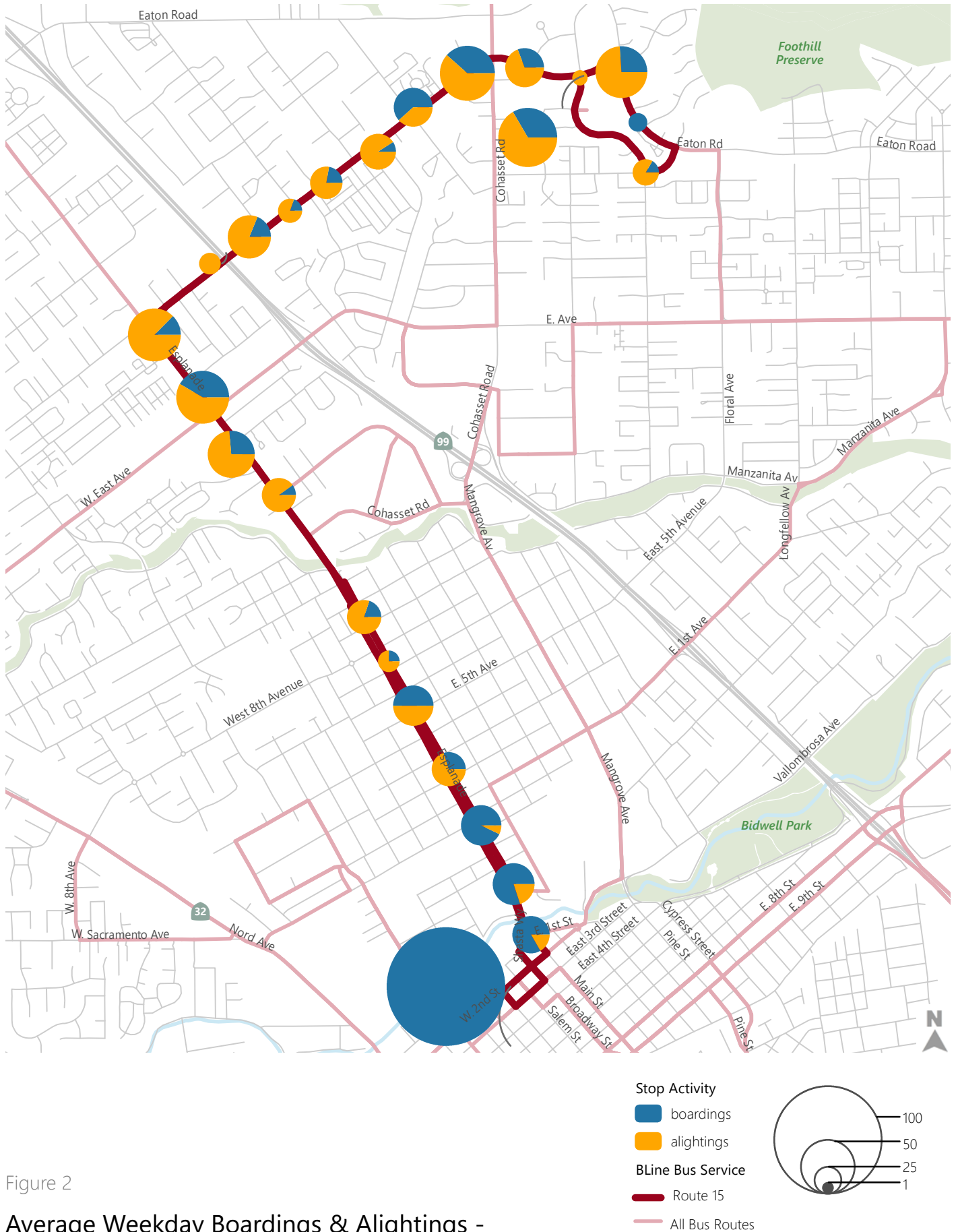


Figure 2
 Average Weekday Boardings & Alightings -
 Route 15 Northbound

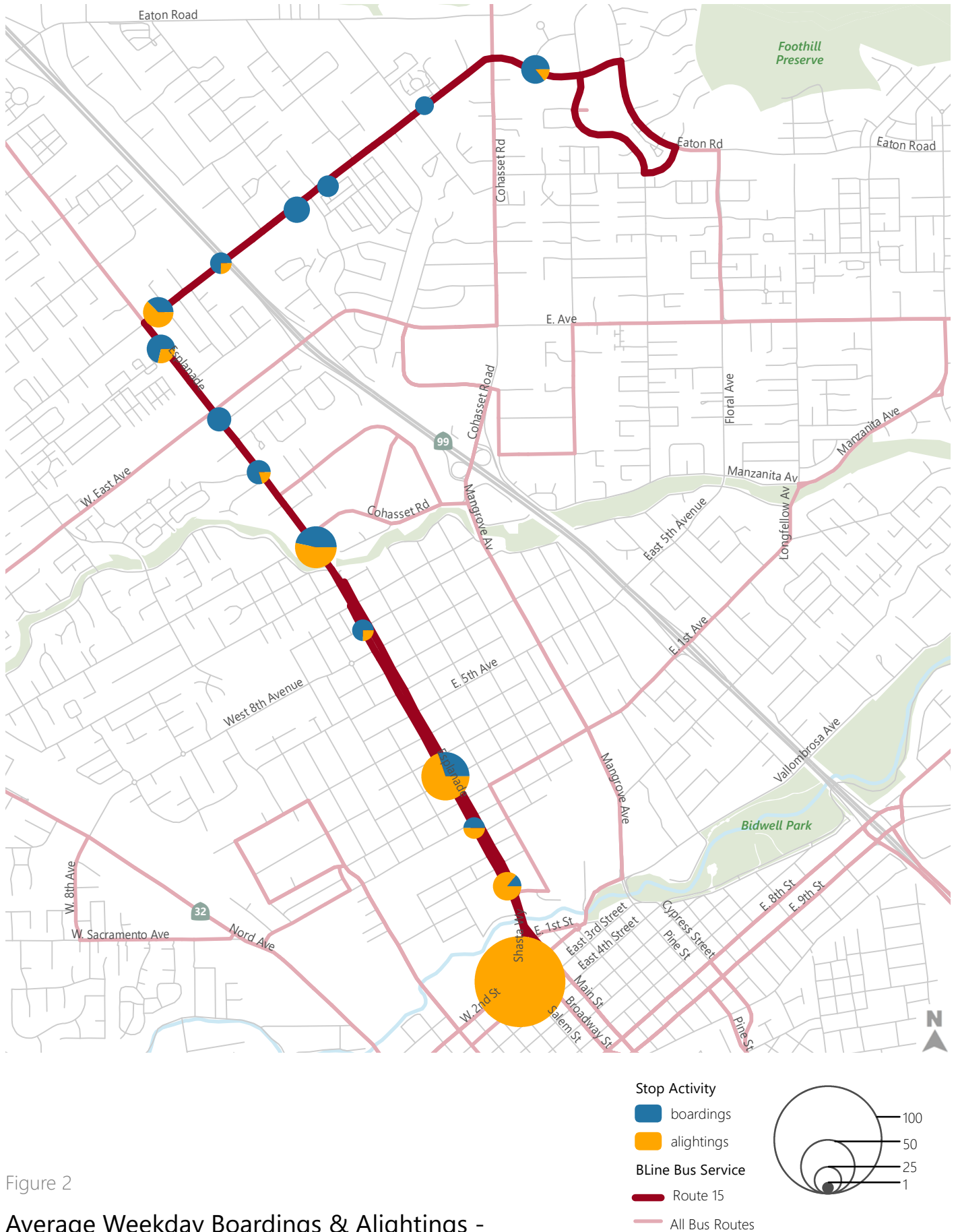


Figure 2

Average Weekday Boardings & Alightings - Route 15 Southbound

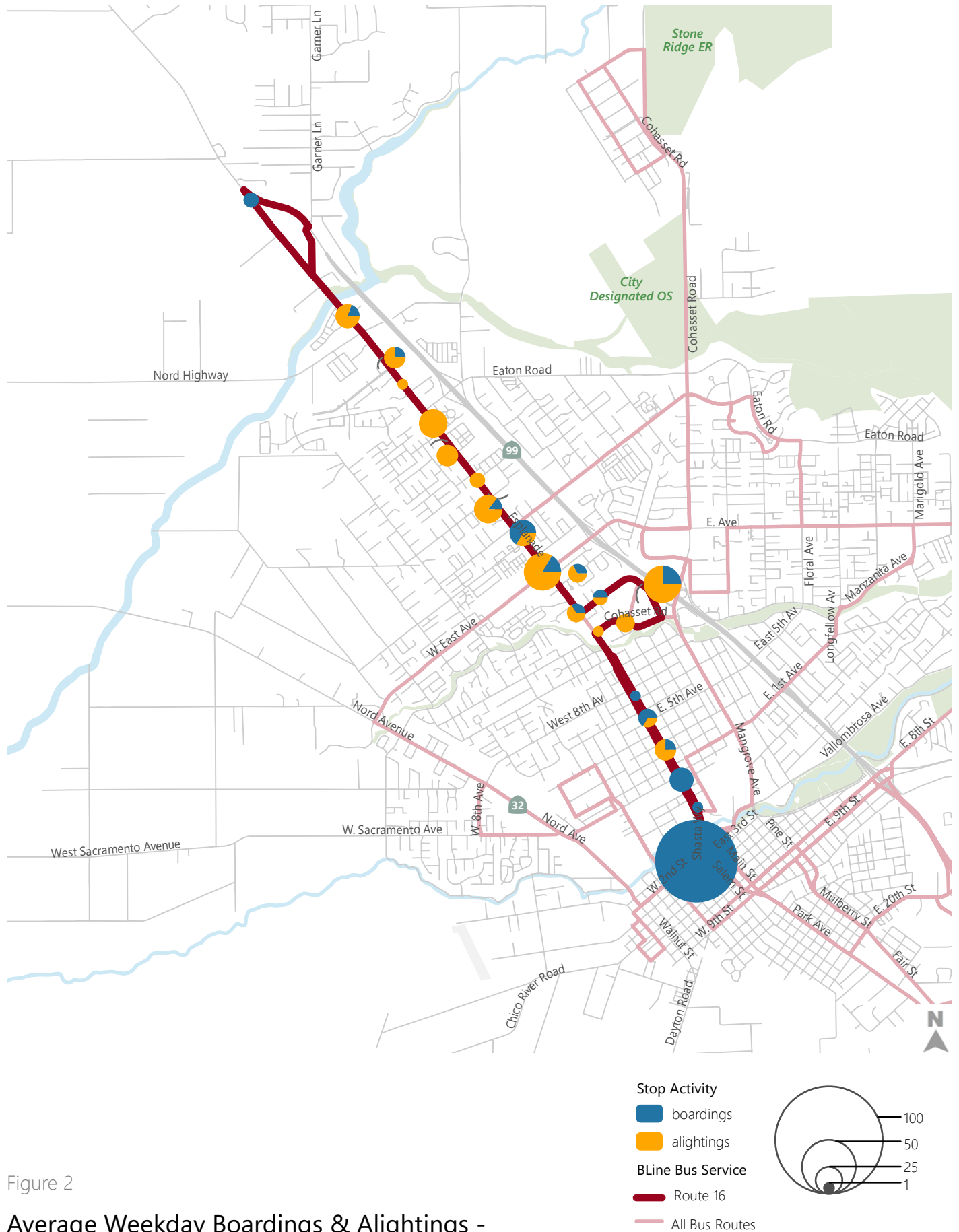


Figure 2

Average Weekday Boardings & Alightings - Route 16 Northbound

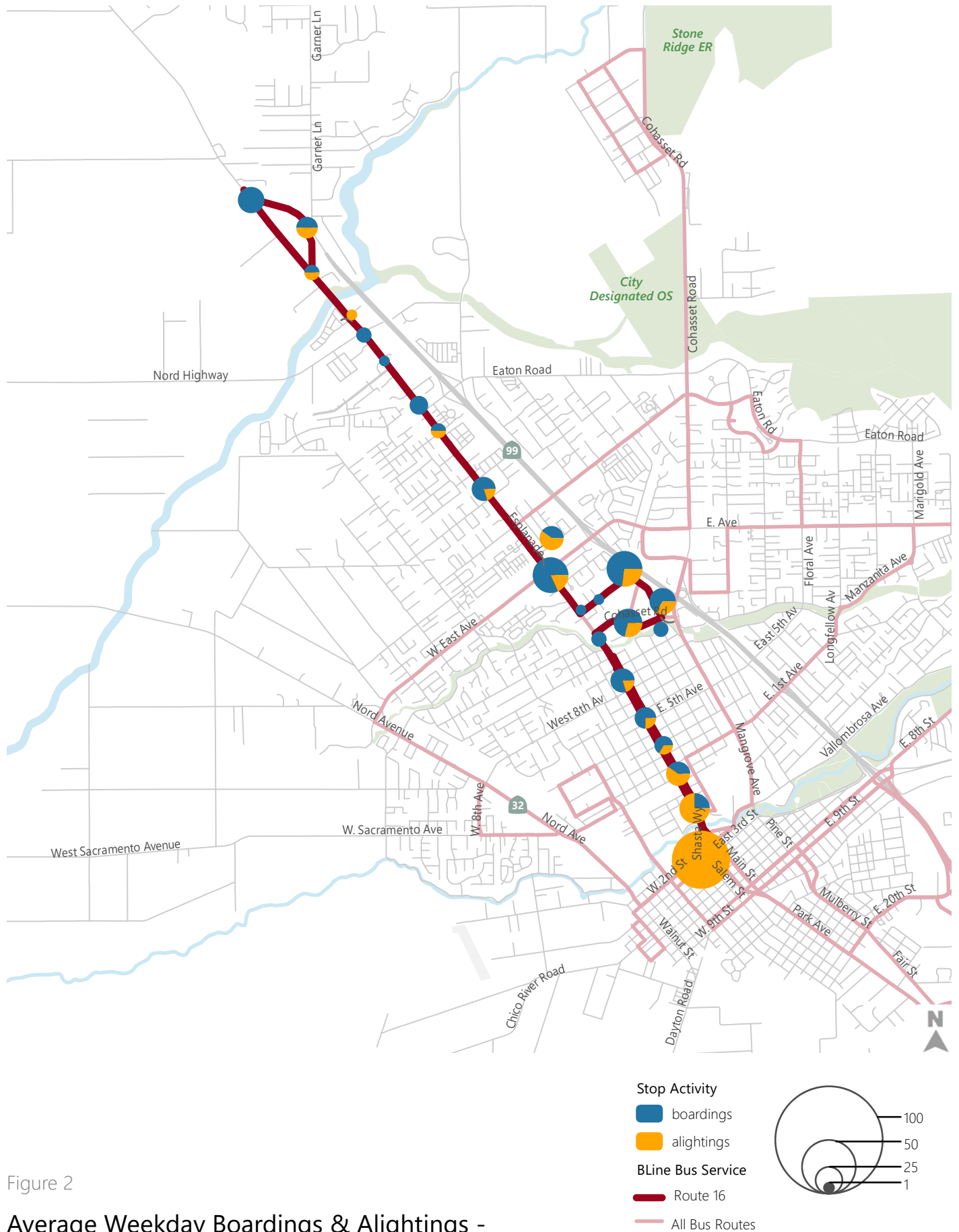


Figure 2

Average Weekday Boardings & Alightings - Route 16 Southbound



Figure 2

Average Weekday Boardings & Alightings - Route 17

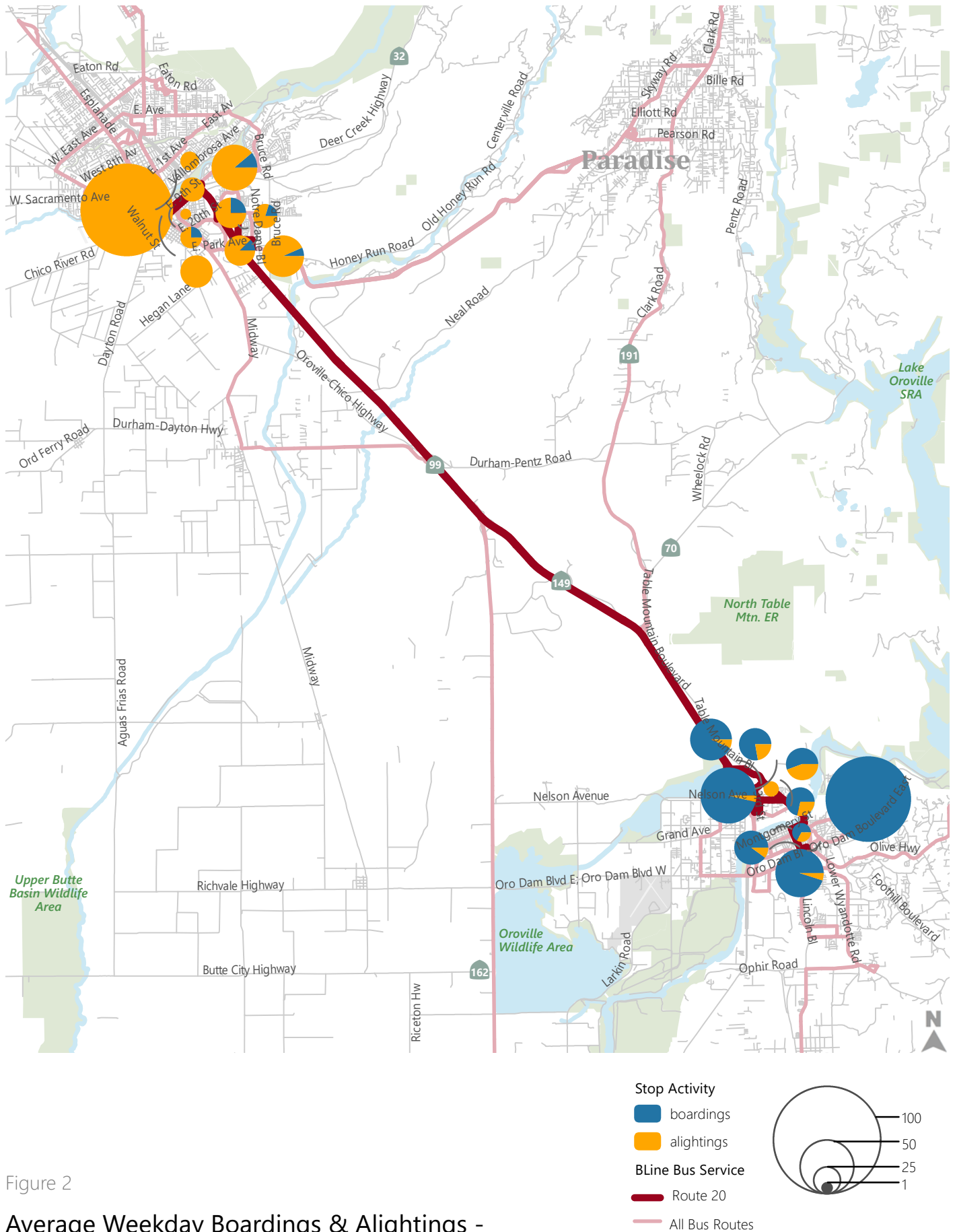


Figure 2
 Average Weekday Boardings & Alightings -
 Route 20 Northbound

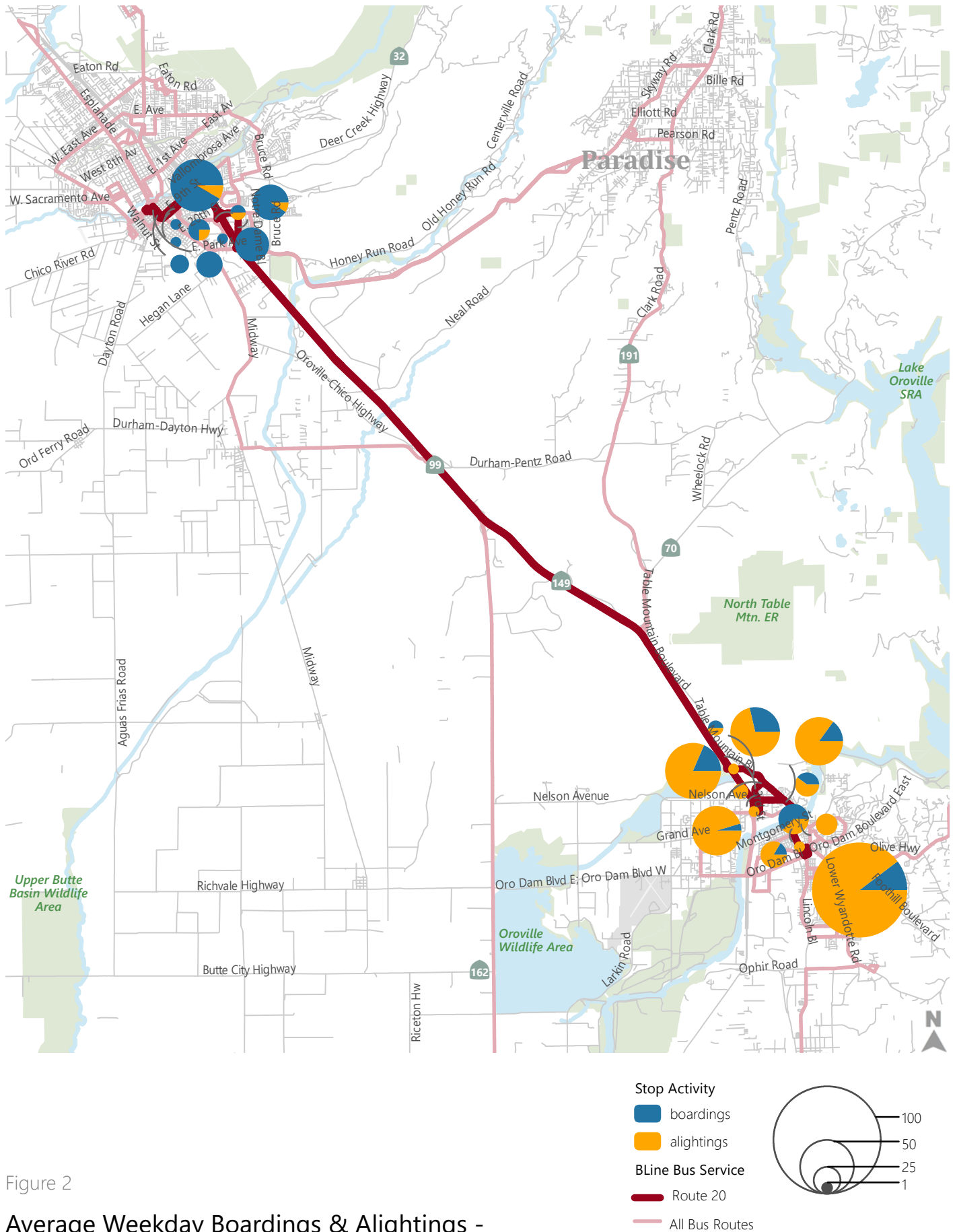


Figure 2

Average Weekday Boardings & Alightings - Route 20 Southbound

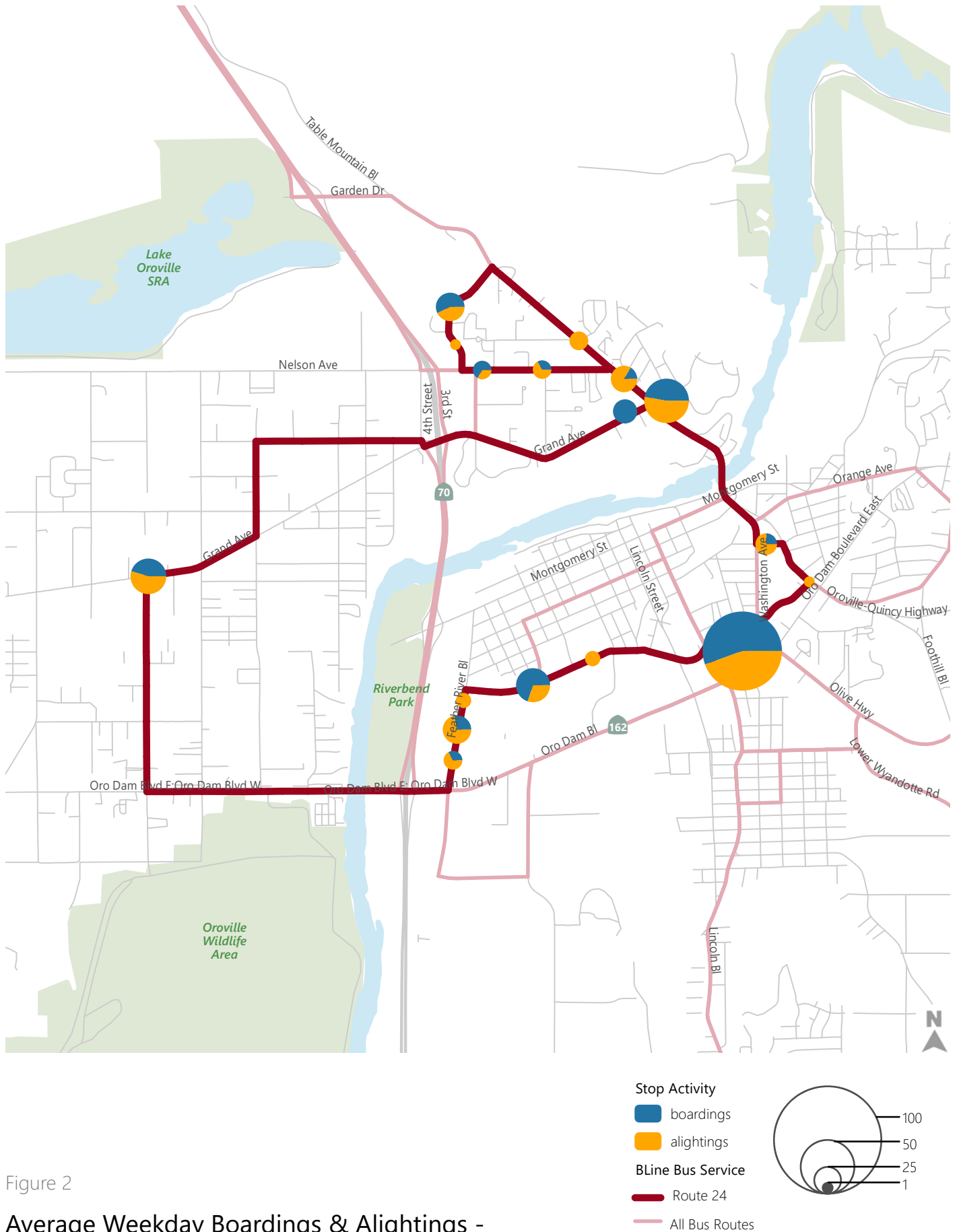


Figure 2

Average Weekday Boardings & Alightings - Route 24

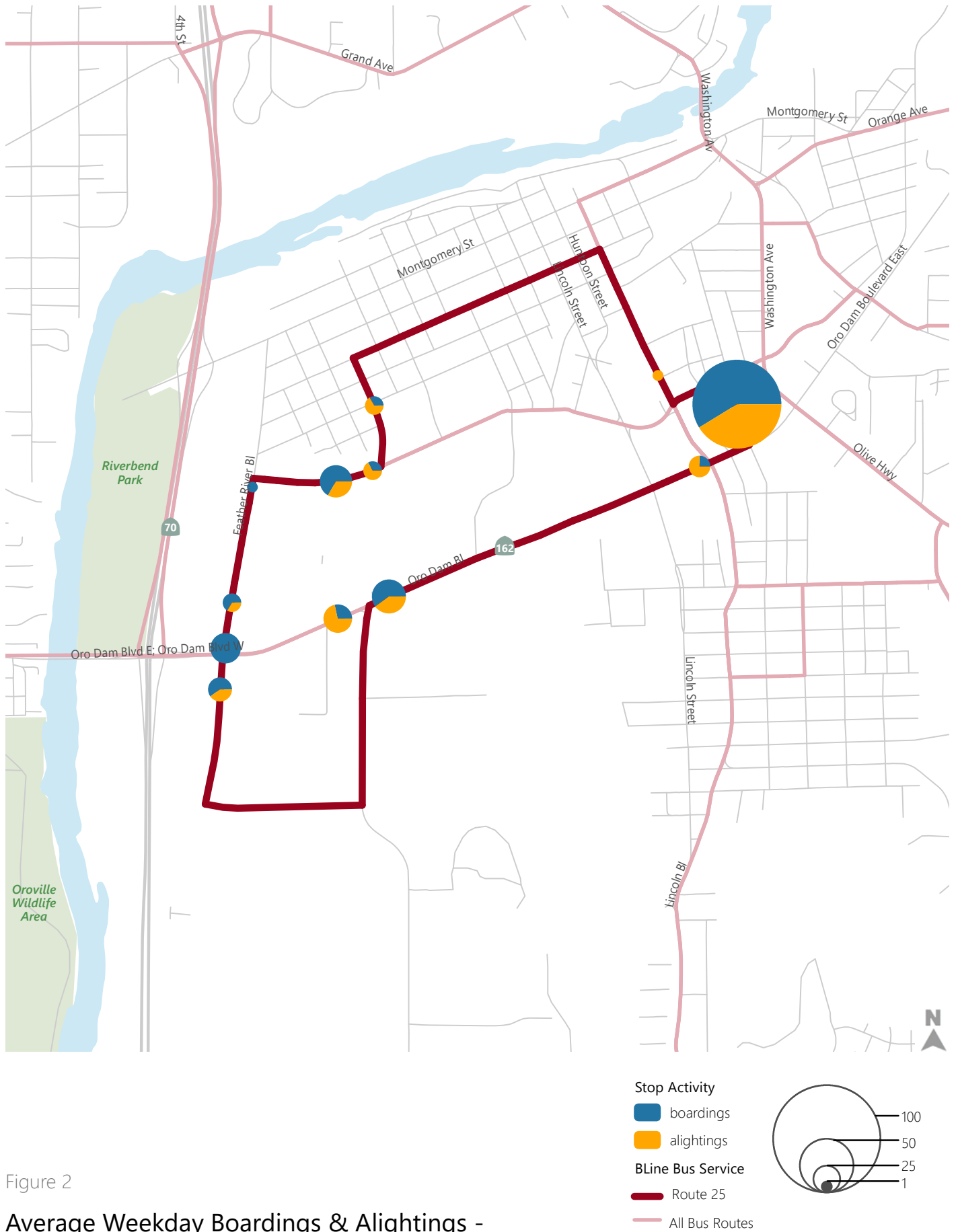


Figure 2
Average Weekday Boardings & Alightings -
Route 25

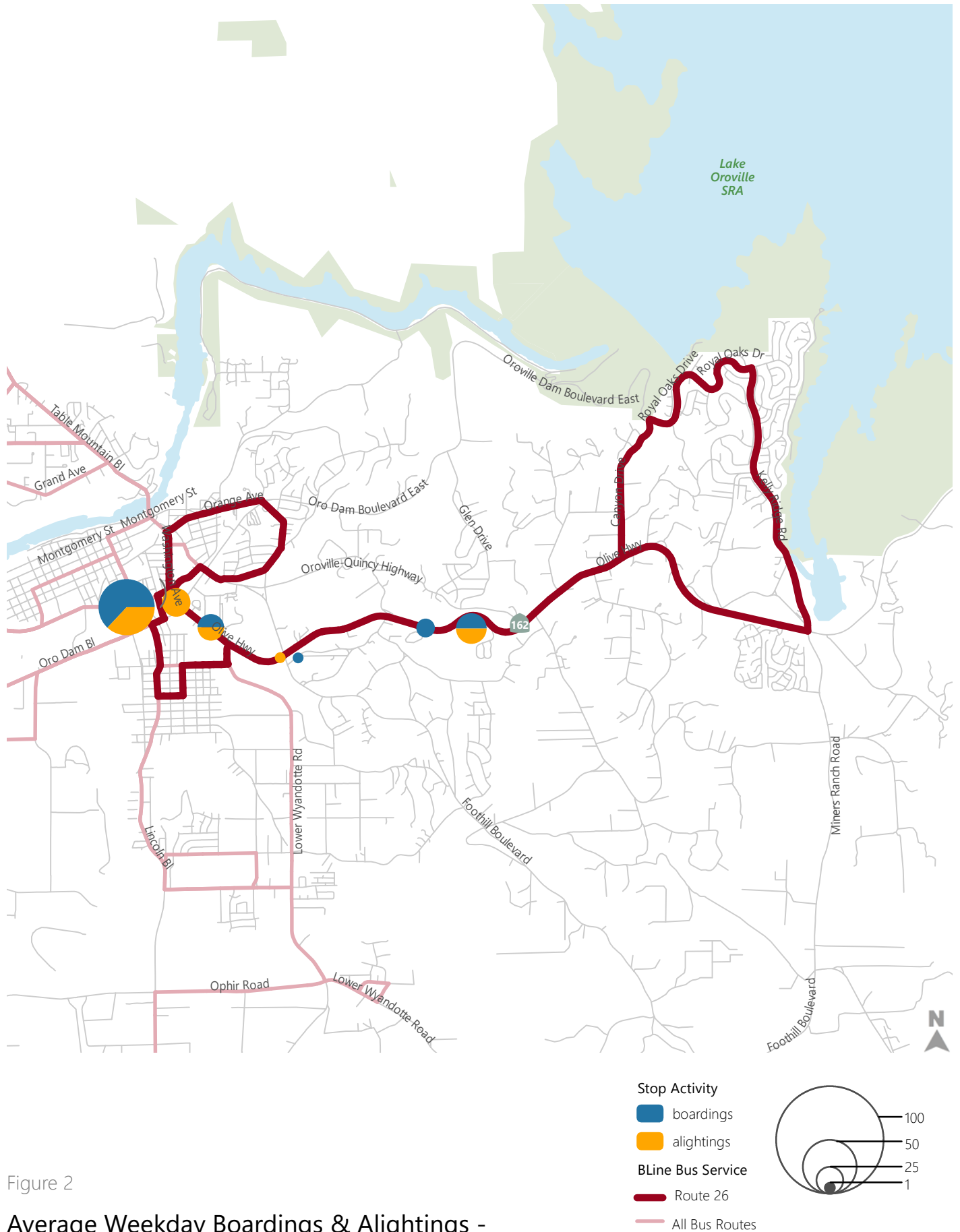


Figure 2

Average Weekday Boardings & Alightings - Route 26 A

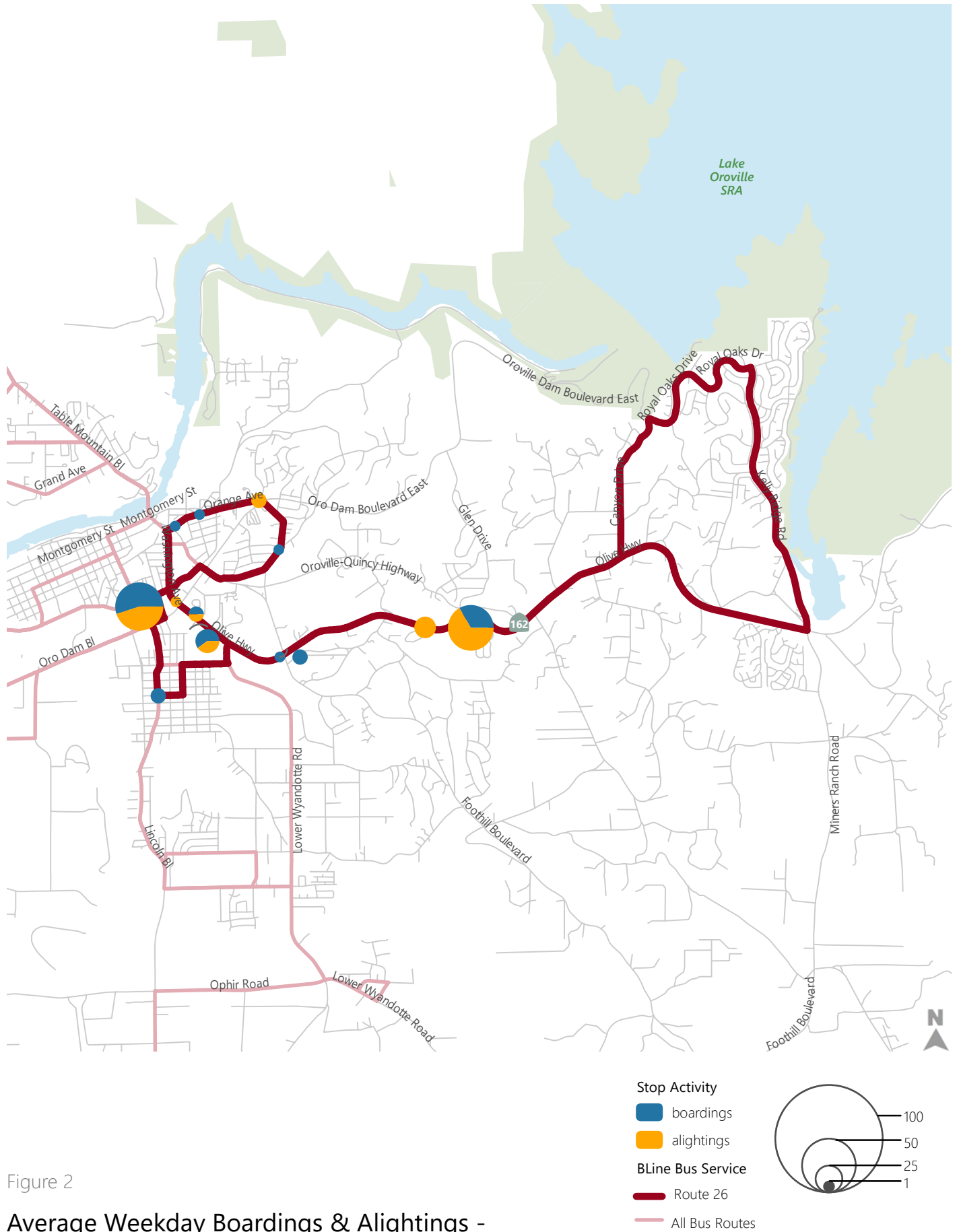


Figure 2

Average Weekday Boardings & Alightings - Route 26 B

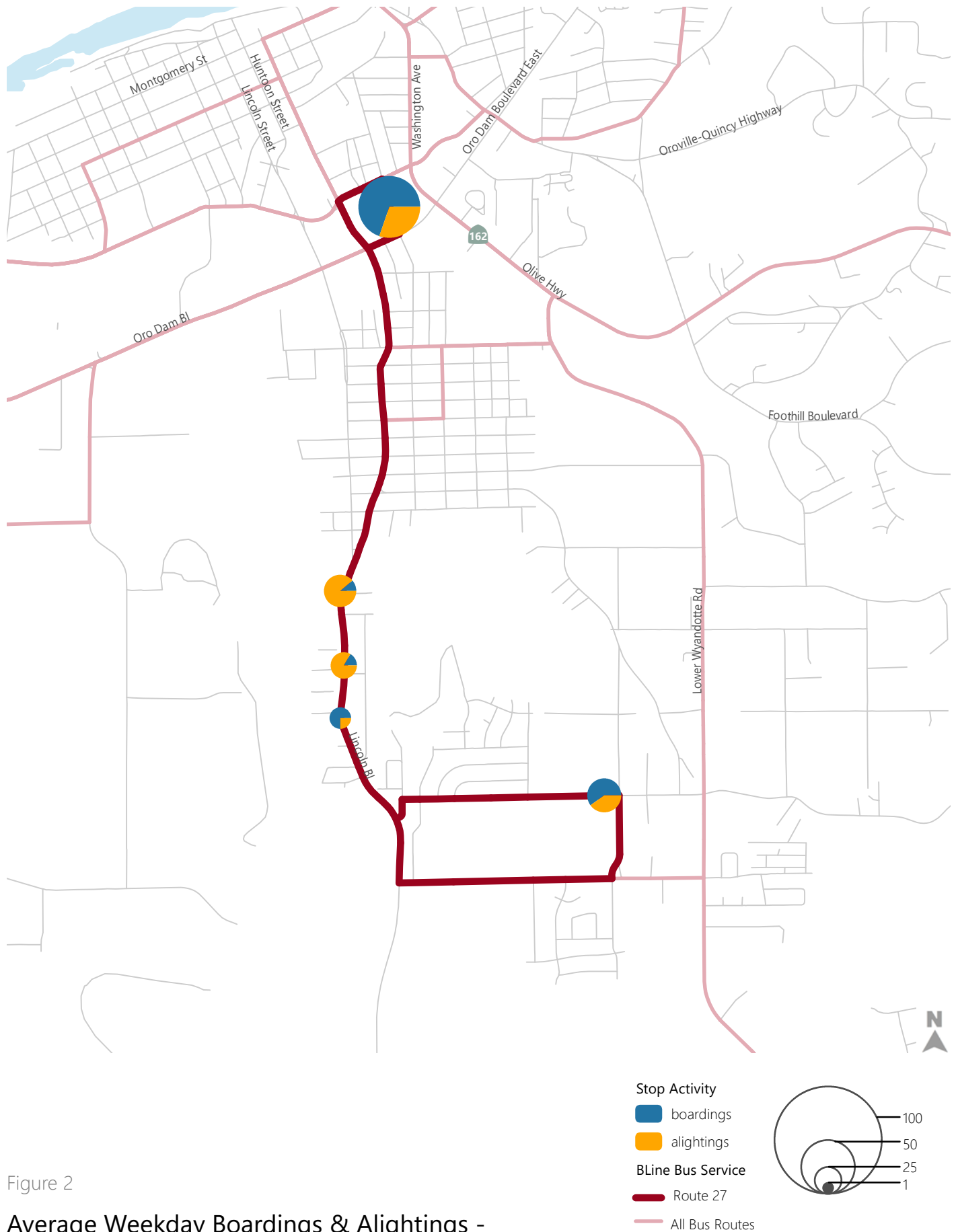


Figure 2

Average Weekday Boardings & Alightings - Route 27

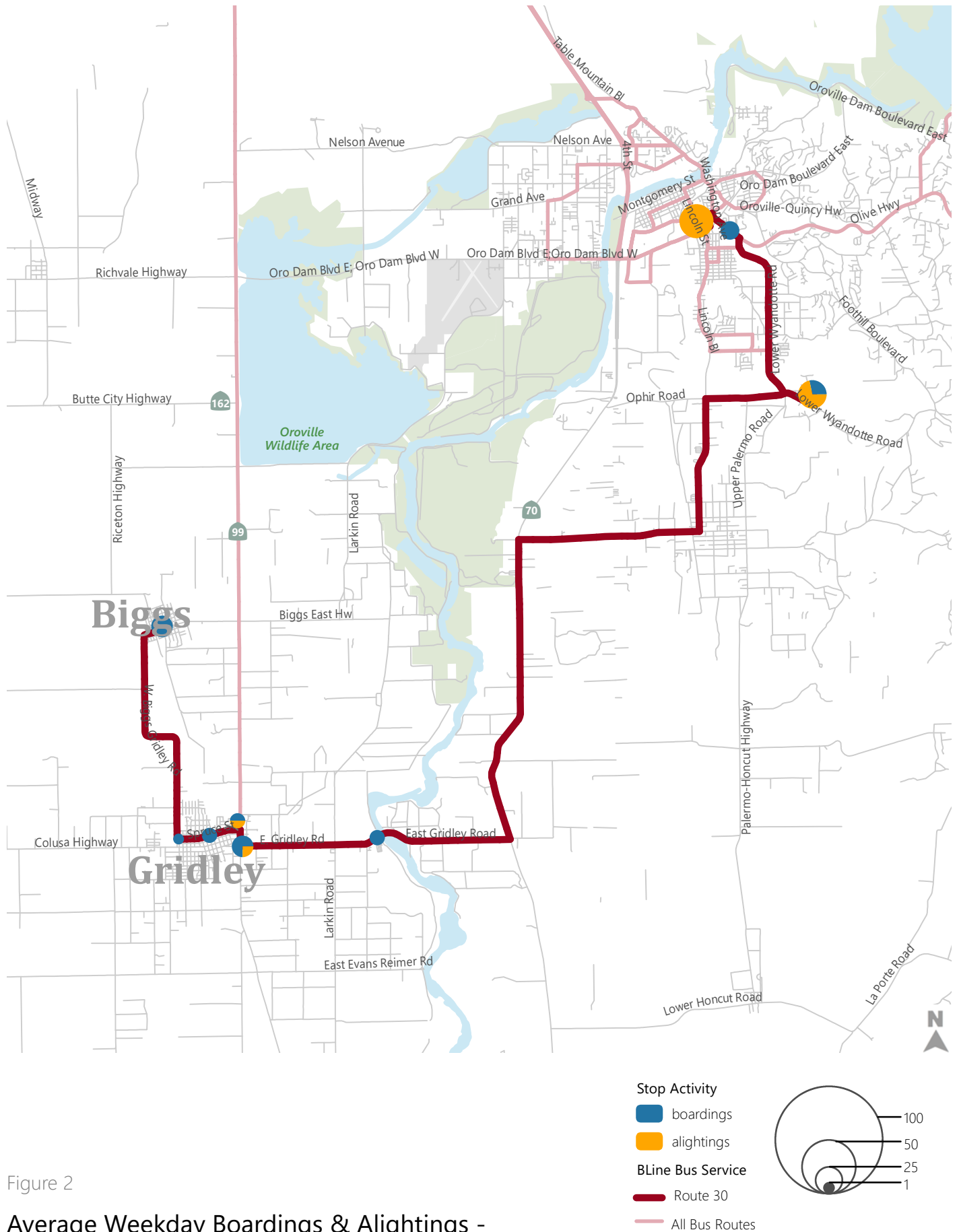


Figure 2
 Average Weekday Boardings & Alightings -
 Route 30 Northbound

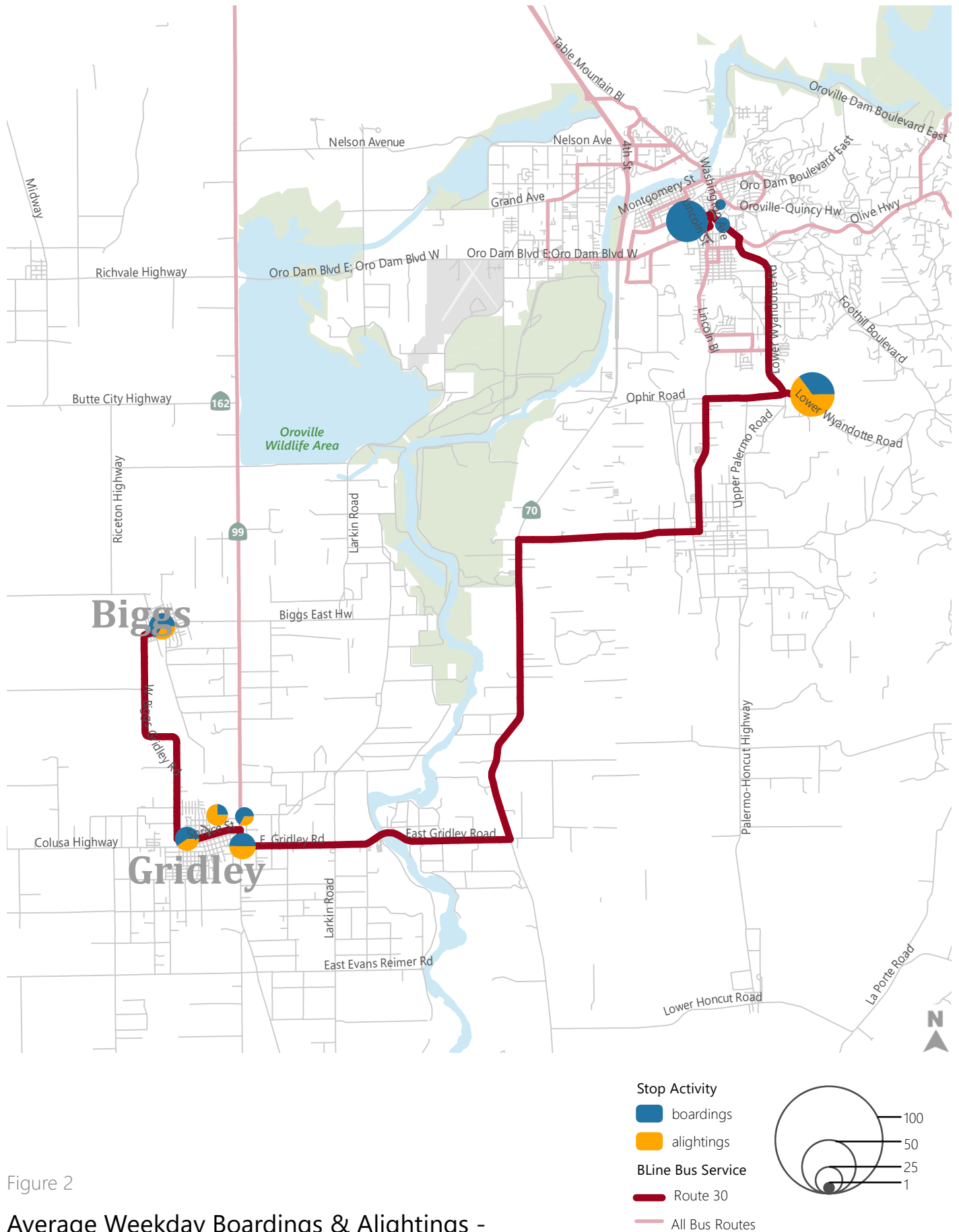


Figure 2

Average Weekday Boardings & Alightings - Route 30 Southbound

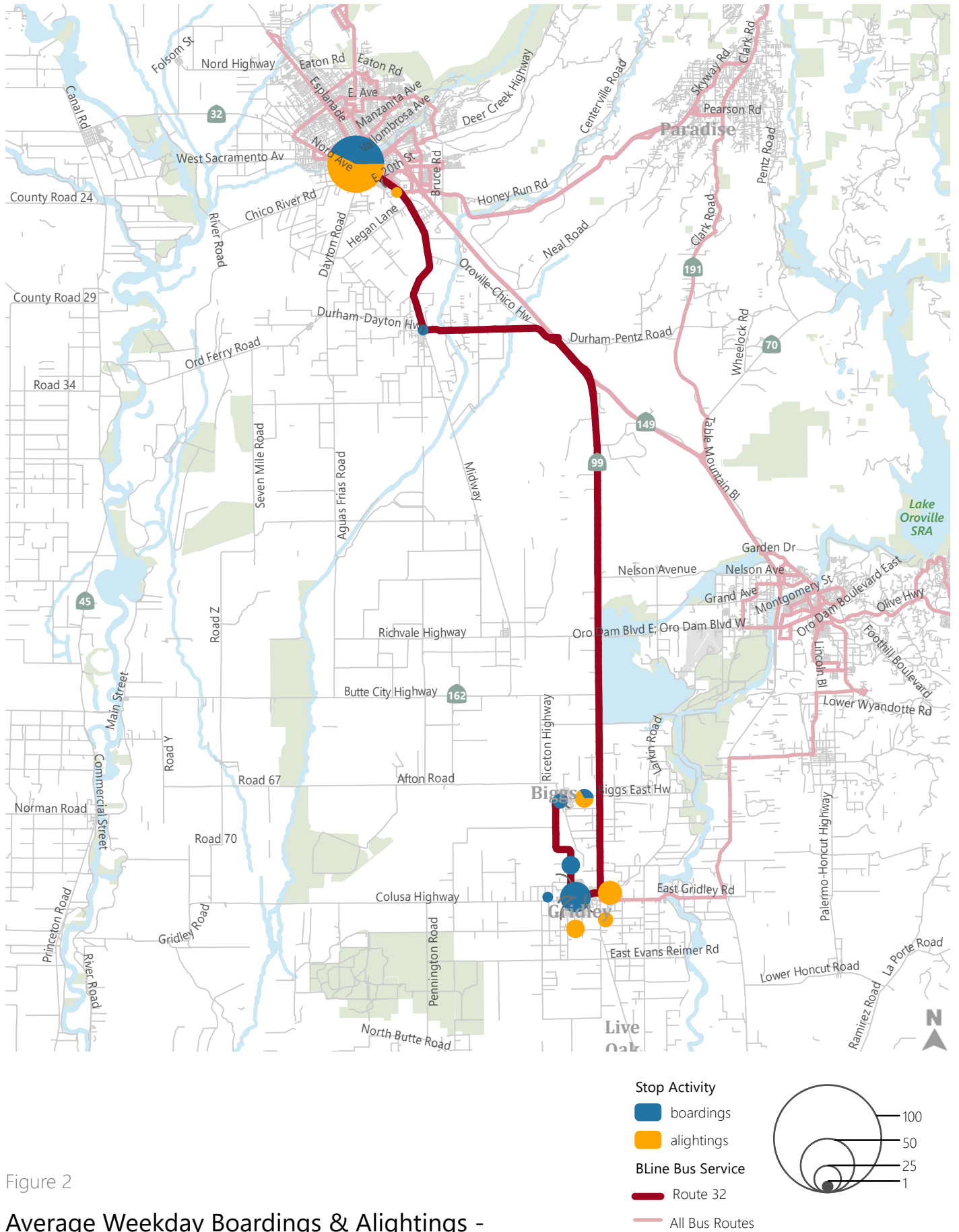


Figure 2

Average Weekday Boardings & Alightings - Route 32

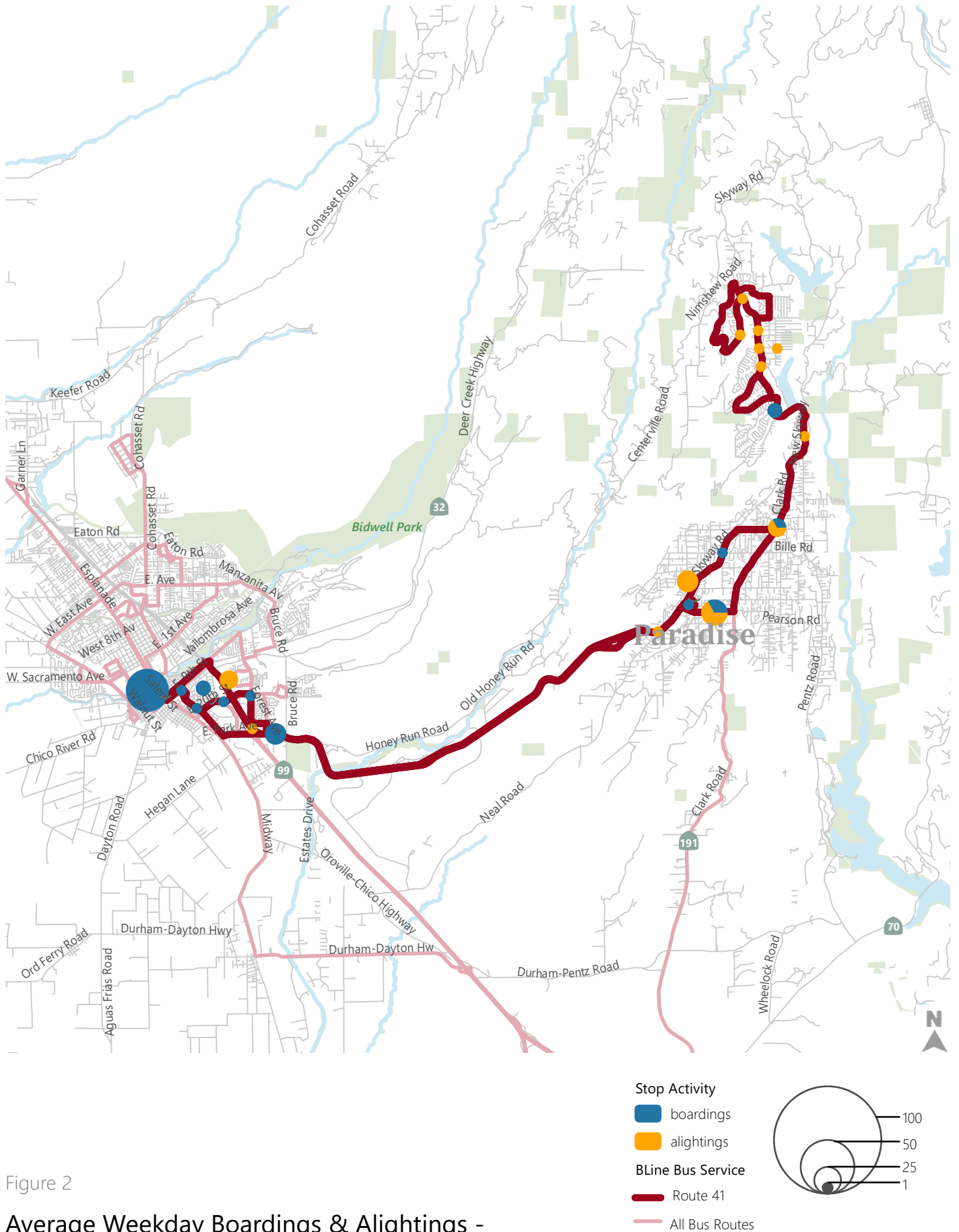


Figure 2

Average Weekday Boardings & Alightings - Route 41 Eastbound

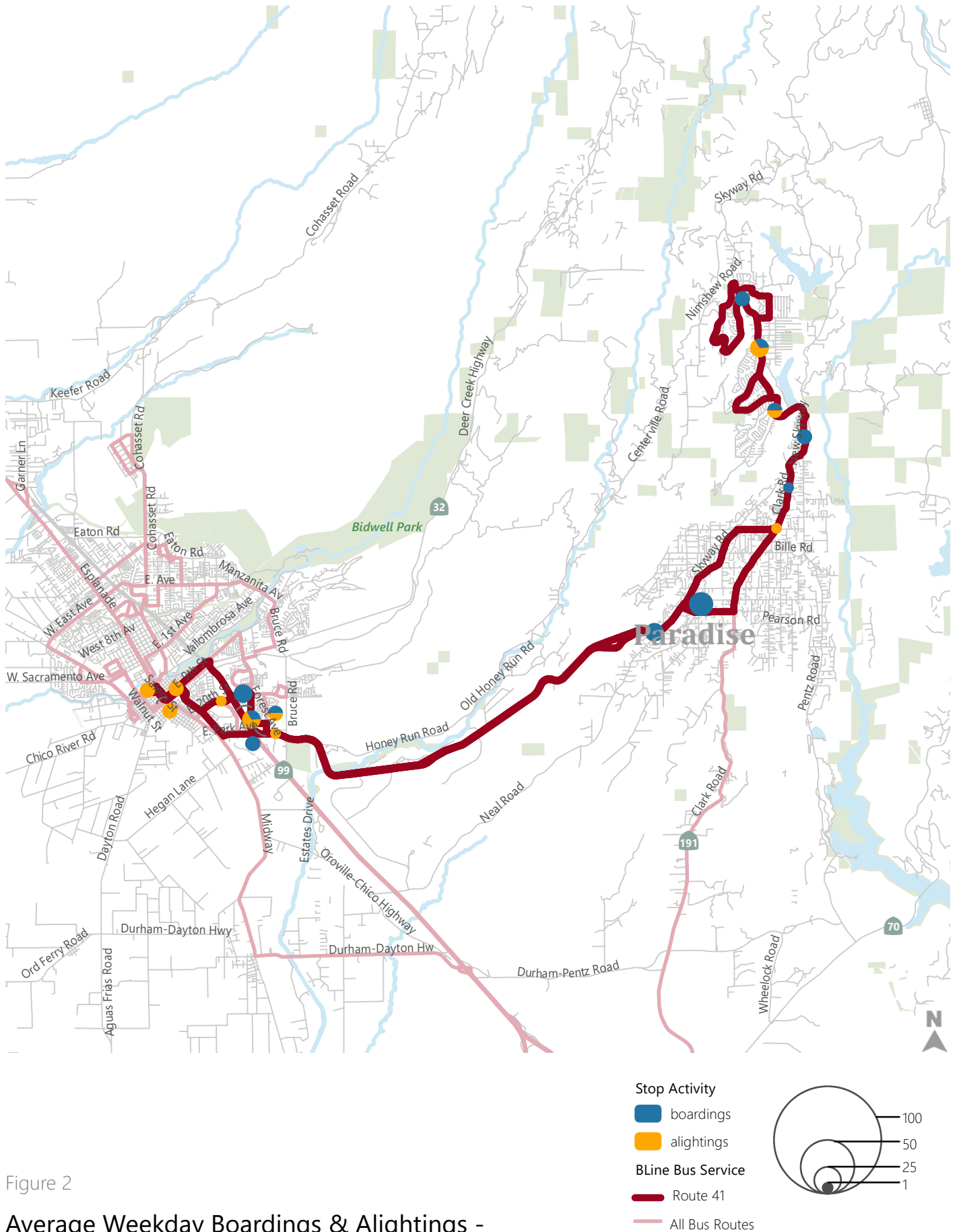


Figure 2

Average Weekday Boardings & Alightings - Route 41 Westbound

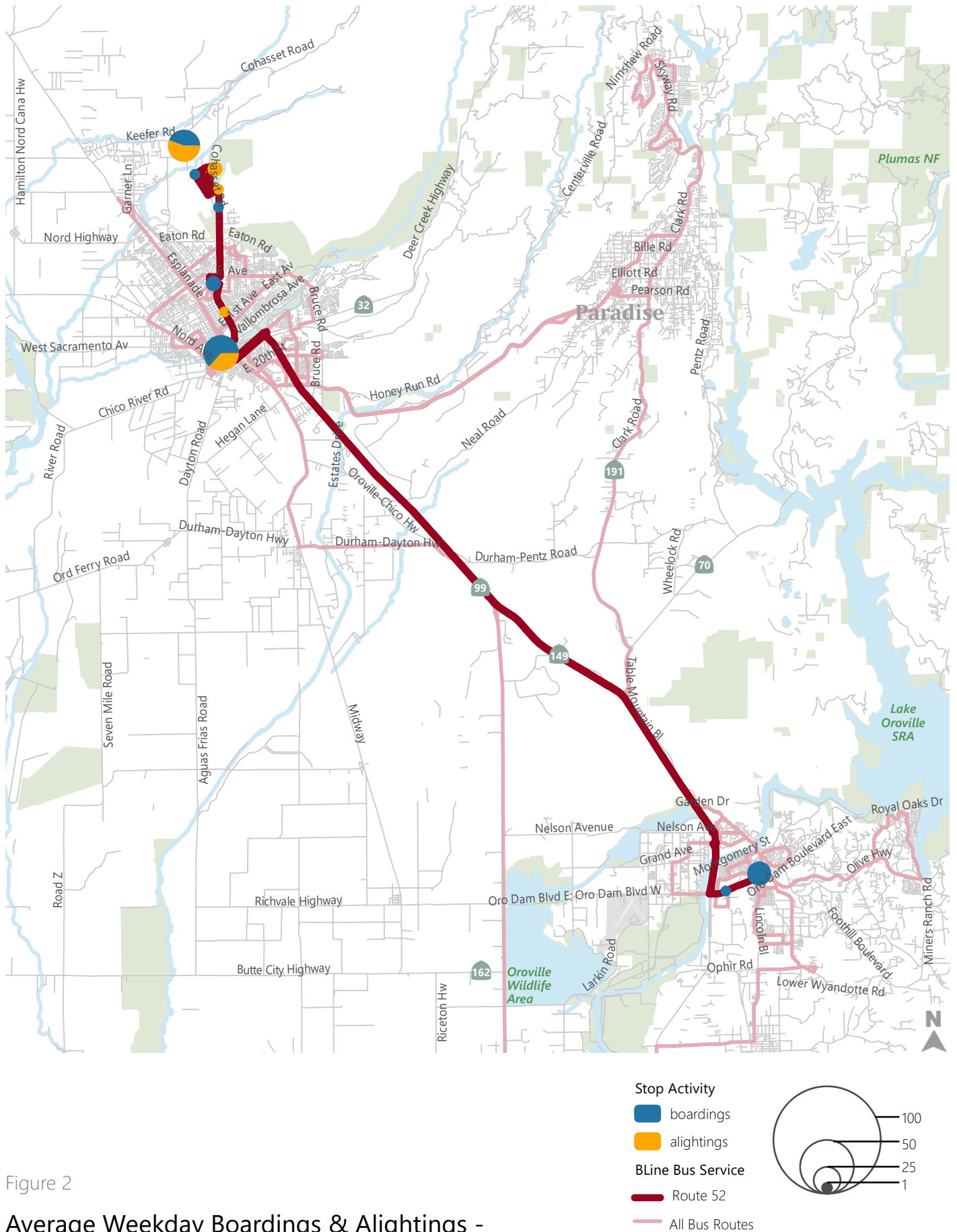


Figure 2
 Average Weekday Boardings & Alightings -
 Route 52 Northbound

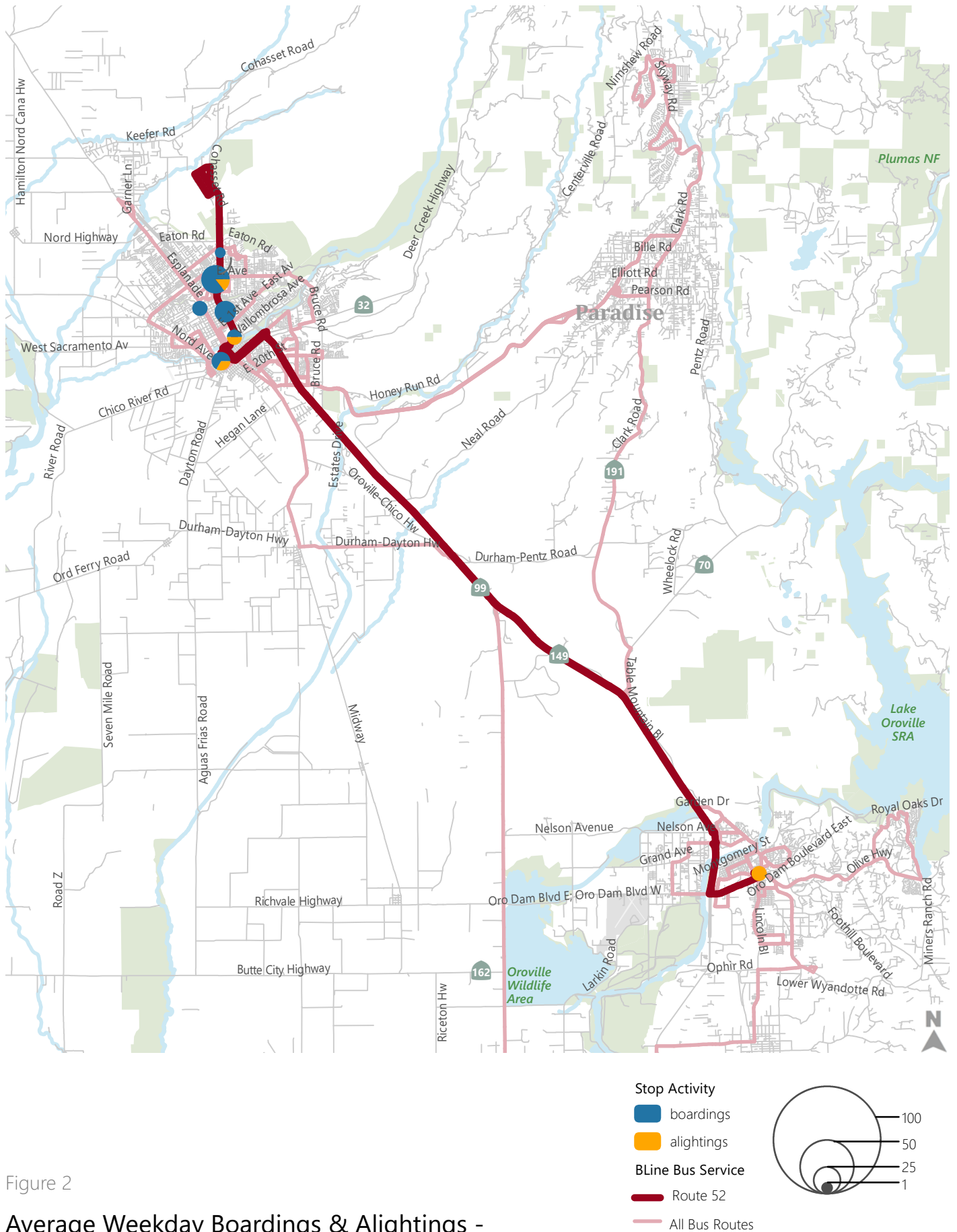


Figure 2

Average Weekday Boardings & Alightings - Route 52 Southbound



Figure 2

Average Saturday Boardings & Alightings - Route 3 Northbound



Figure 2
 Average Saturday Boardings & Alightings -
 Route 3 Southbound

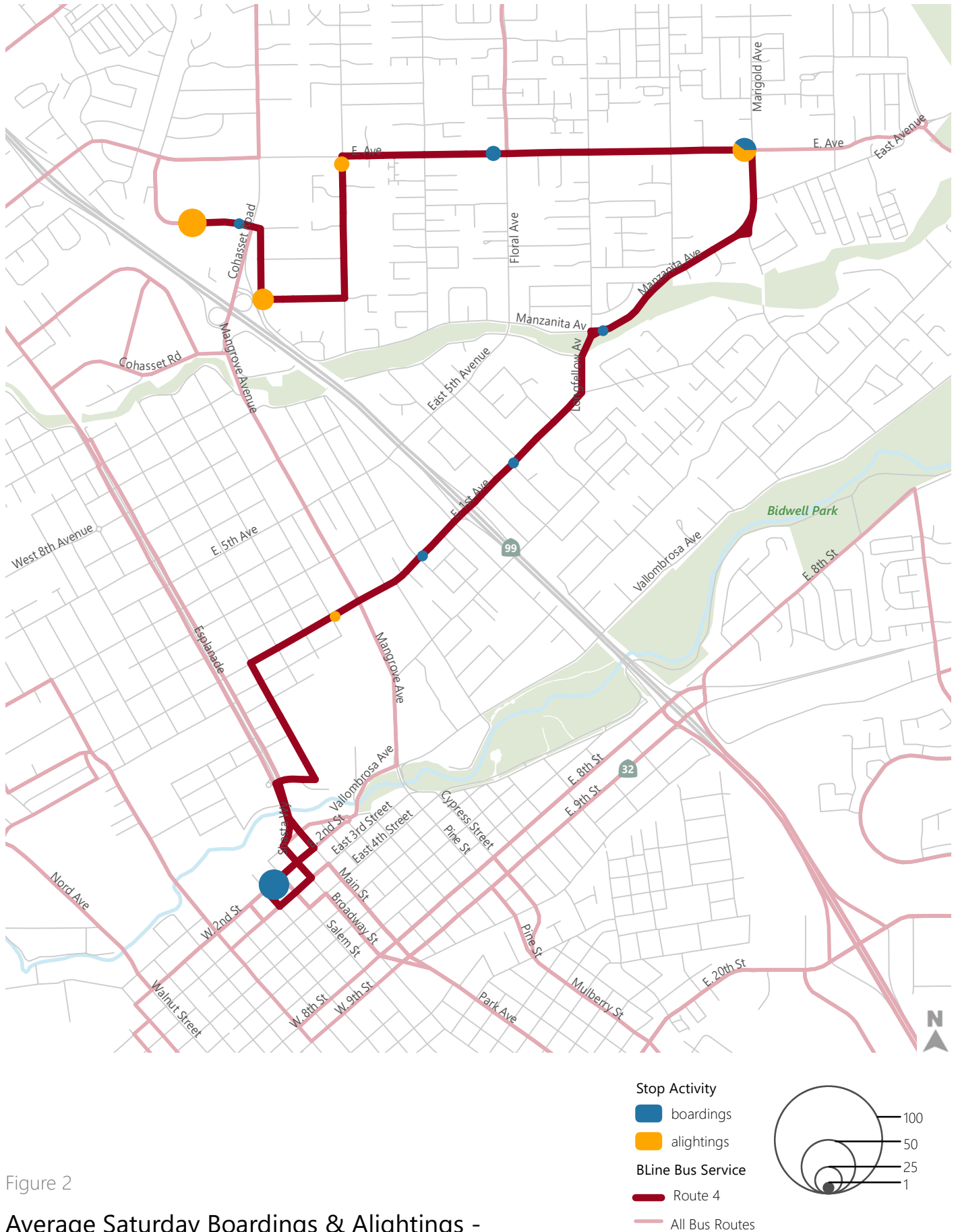


Figure 2

Average Saturday Boardings & Alightings - Route 4 Northbound

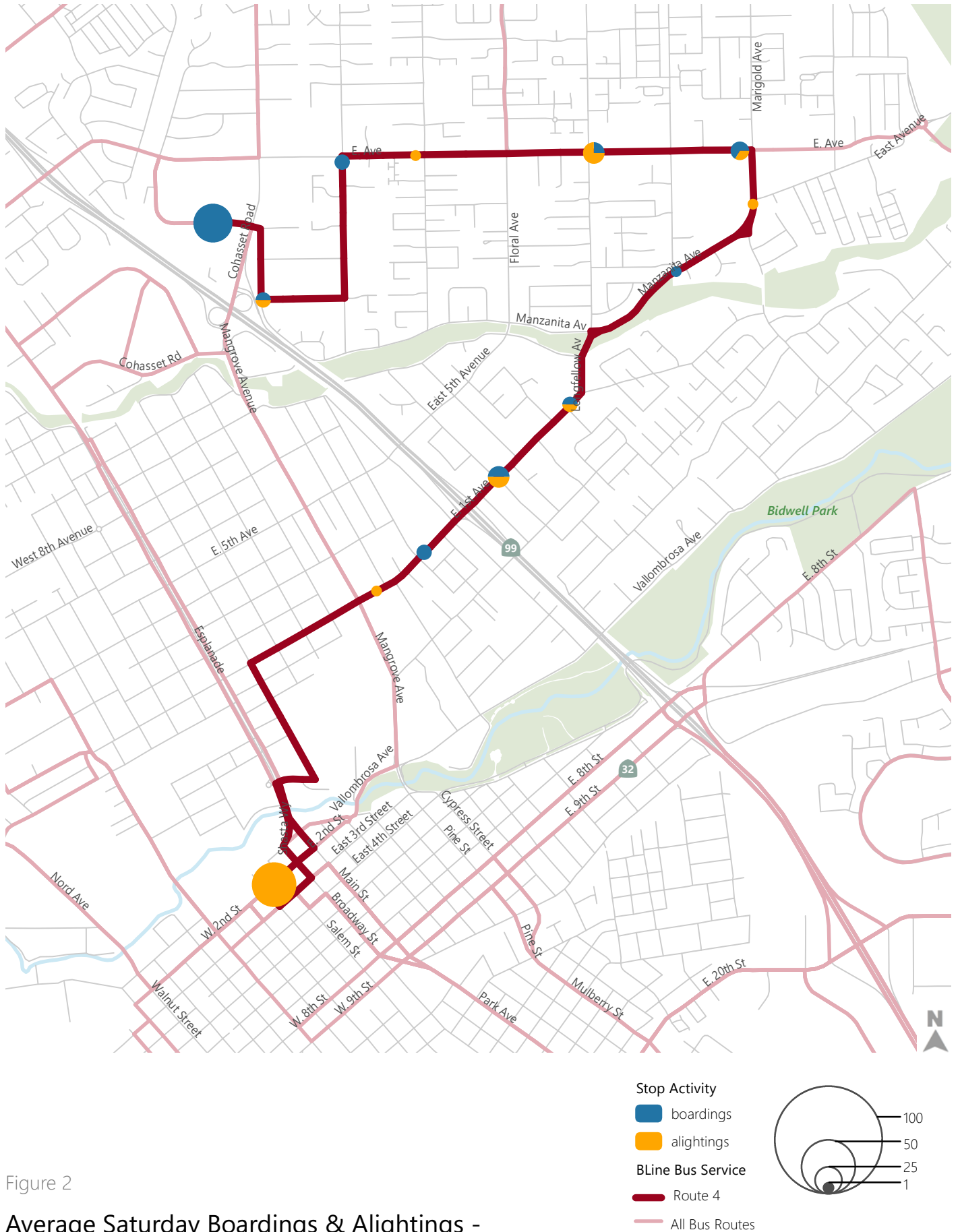


Figure 2
 Average Saturday Boardings & Alightings -
 Route 4 Southbound

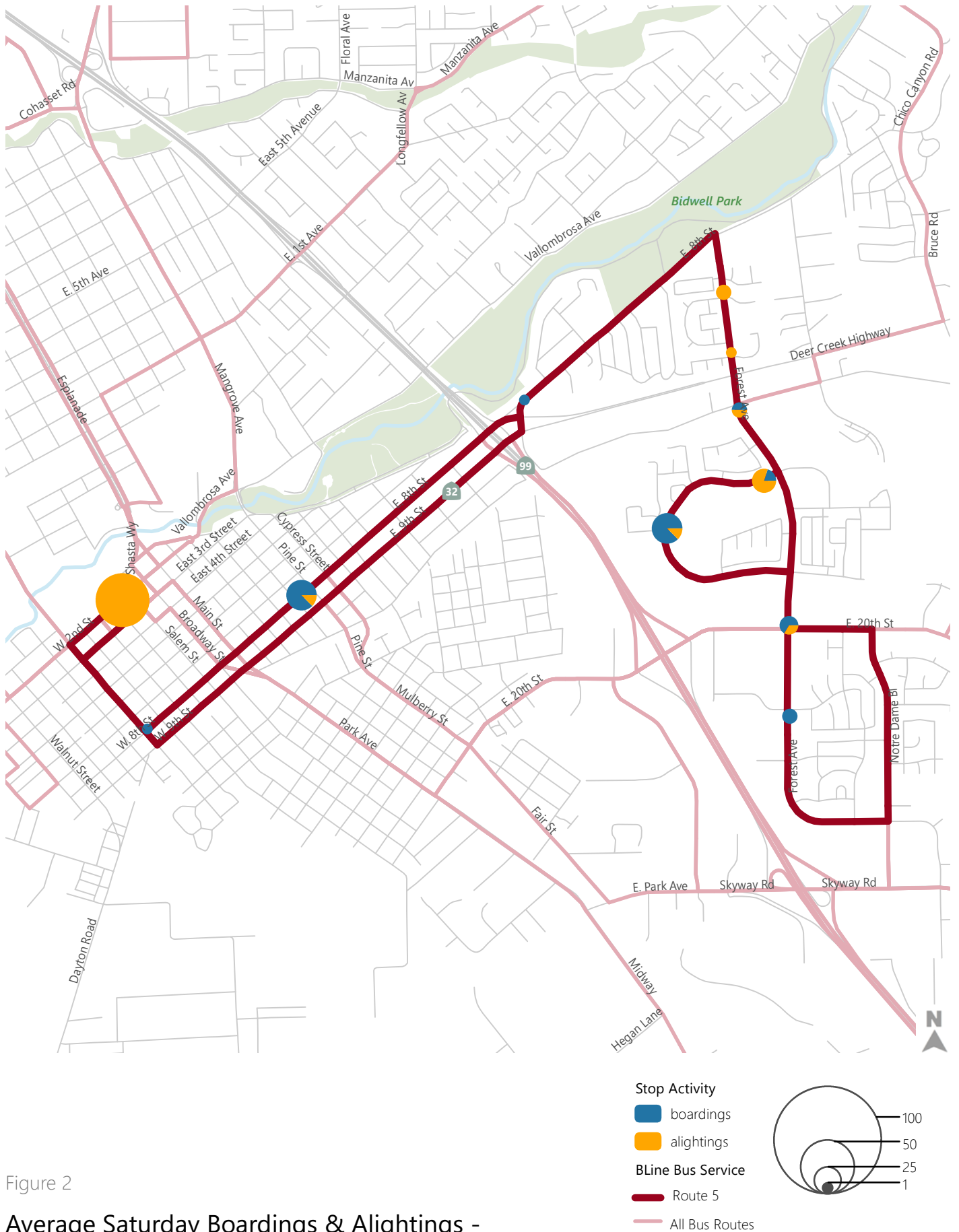


Figure 2
 Average Saturday Boardings & Alightings -
 Route 5 Westbound

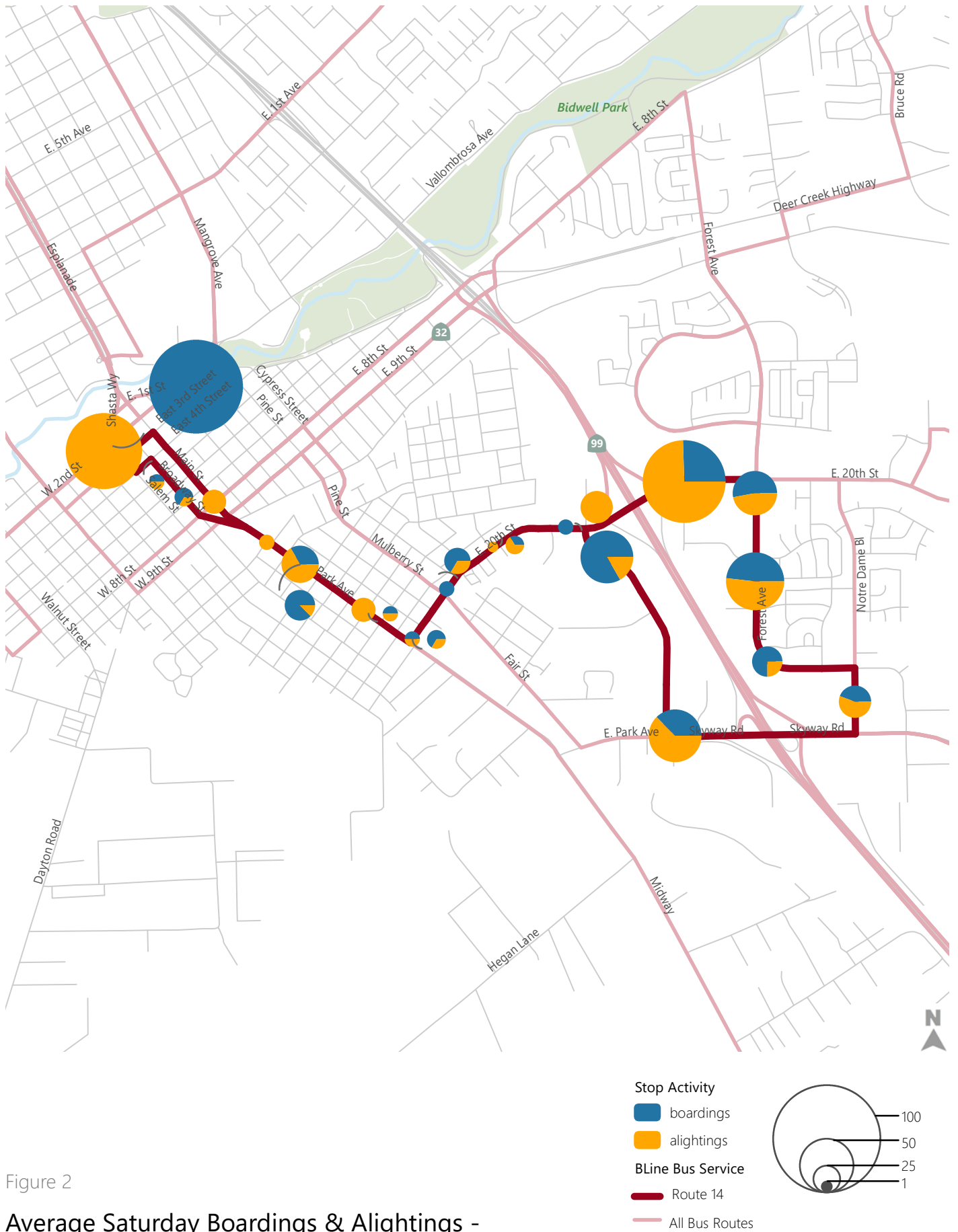


Figure 2
 Average Saturday Boardings & Alightings -
 Route 14

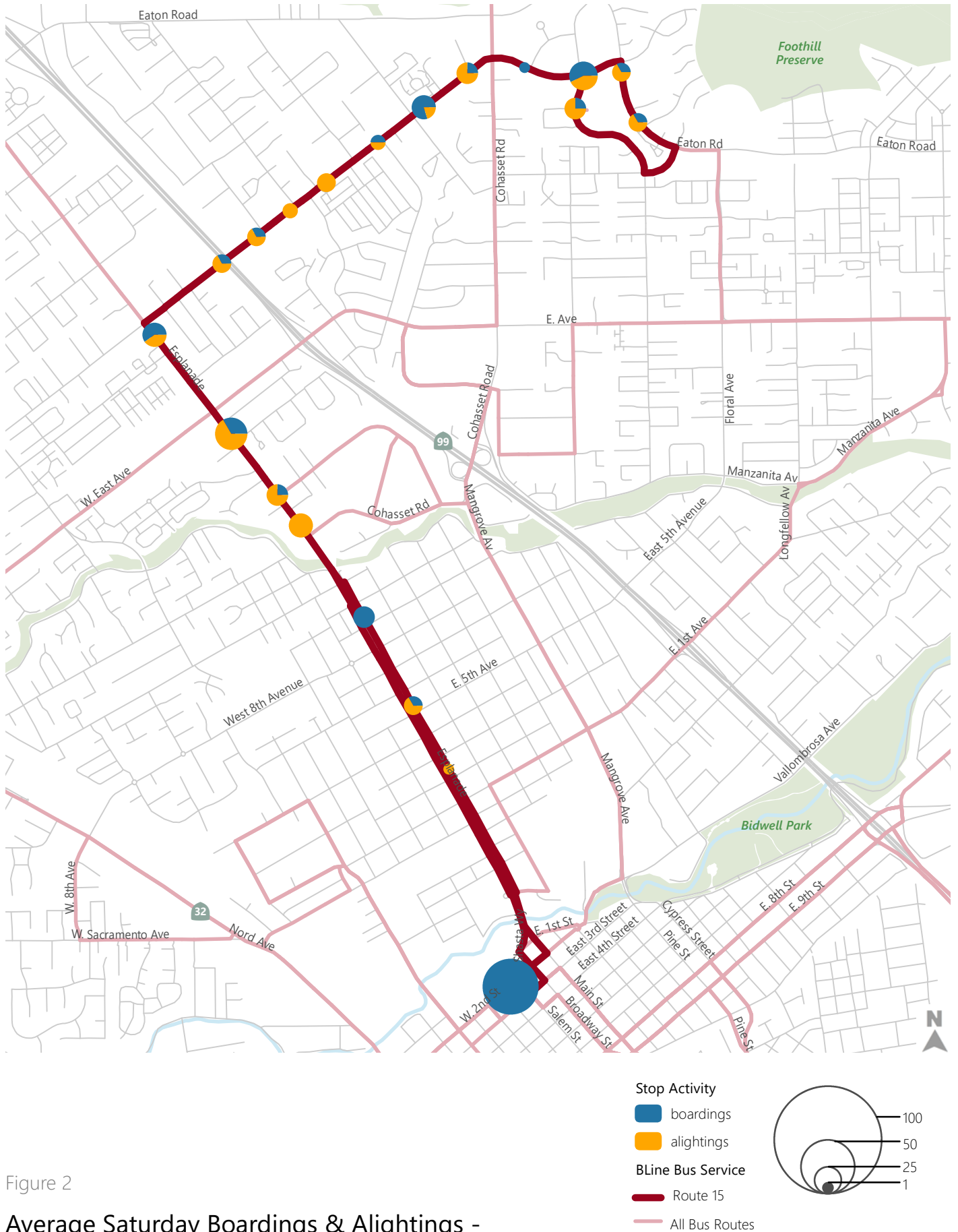
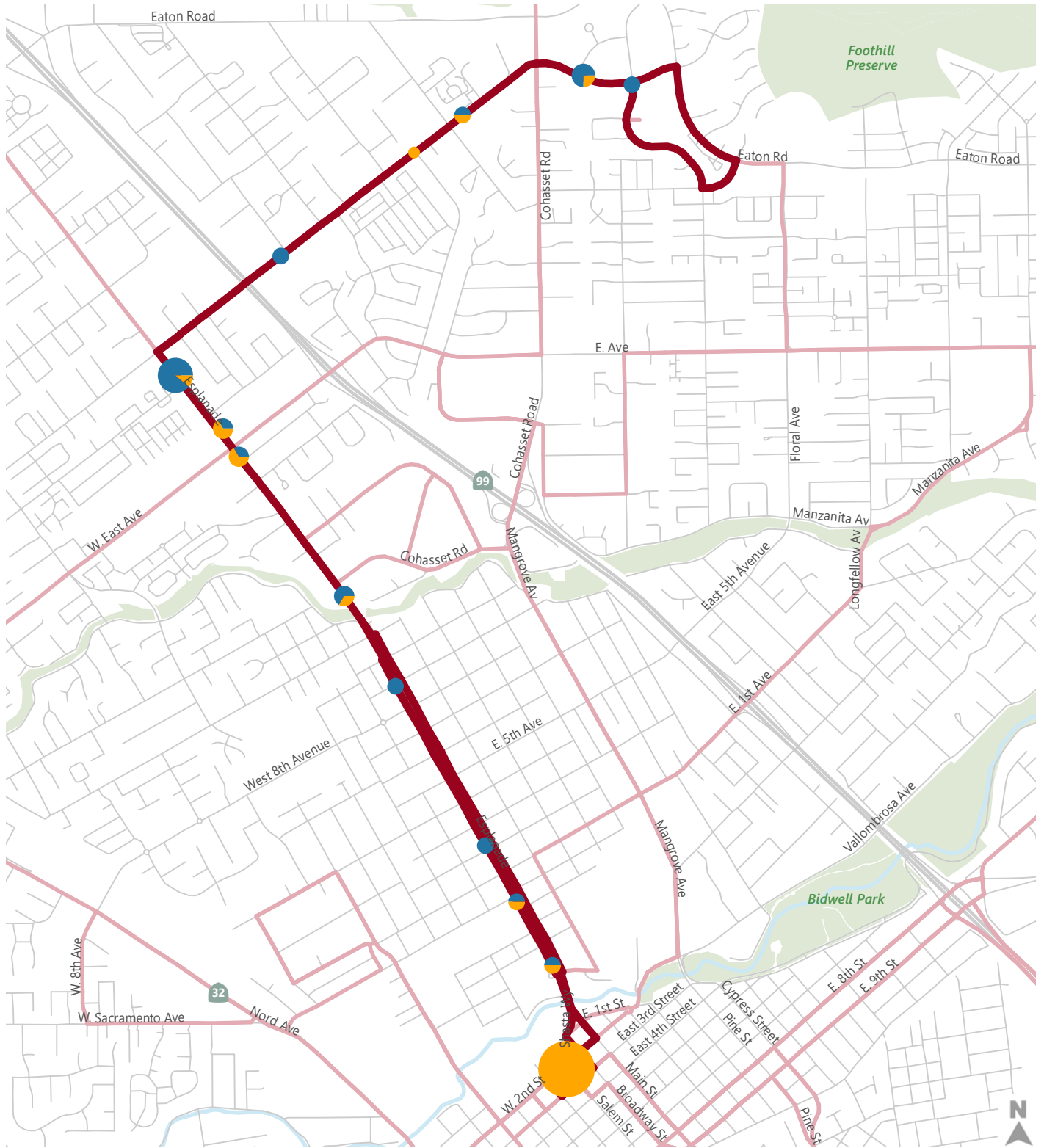


Figure 2

Average Saturday Boardings & Alightings - Route 15 Northbound



Stop Activity

boardings

alightings

BLine Bus Service

Route 15

All Bus Routes

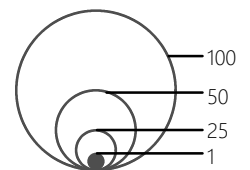


Figure 2

Average Saturday Boardings & Alightings -
Route 15 Southbound



Figure 2

Average Saturday Boardings & Alightings - Route 16 Northbound

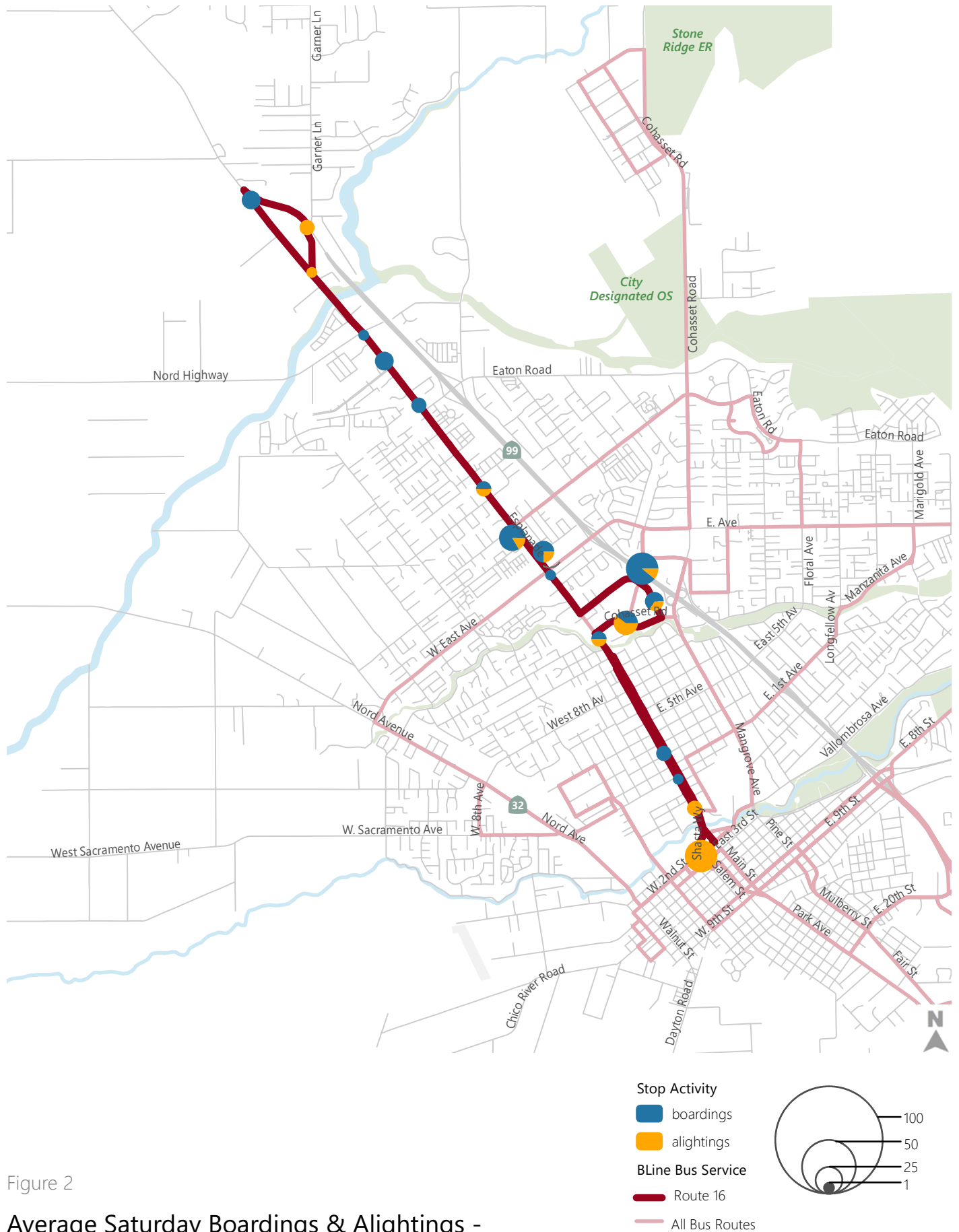


Figure 2
 Average Saturday Boardings & Alightings -
 Route 16 Southbound



Figure 2
 Average Saturday Boardings & Alightings -
 Route 17

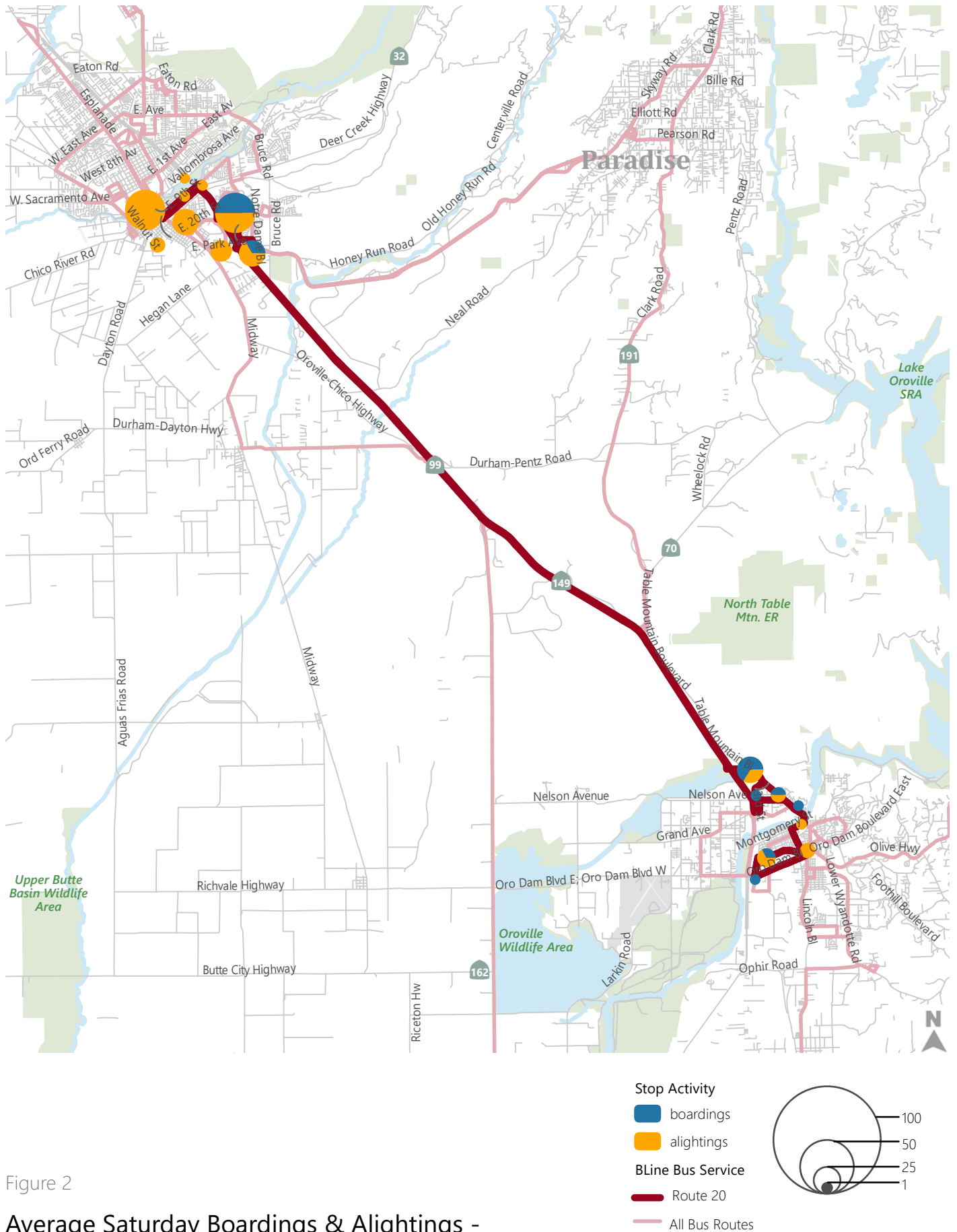


Figure 2

Average Saturday Boardings & Alightings - Route 20 Northbound

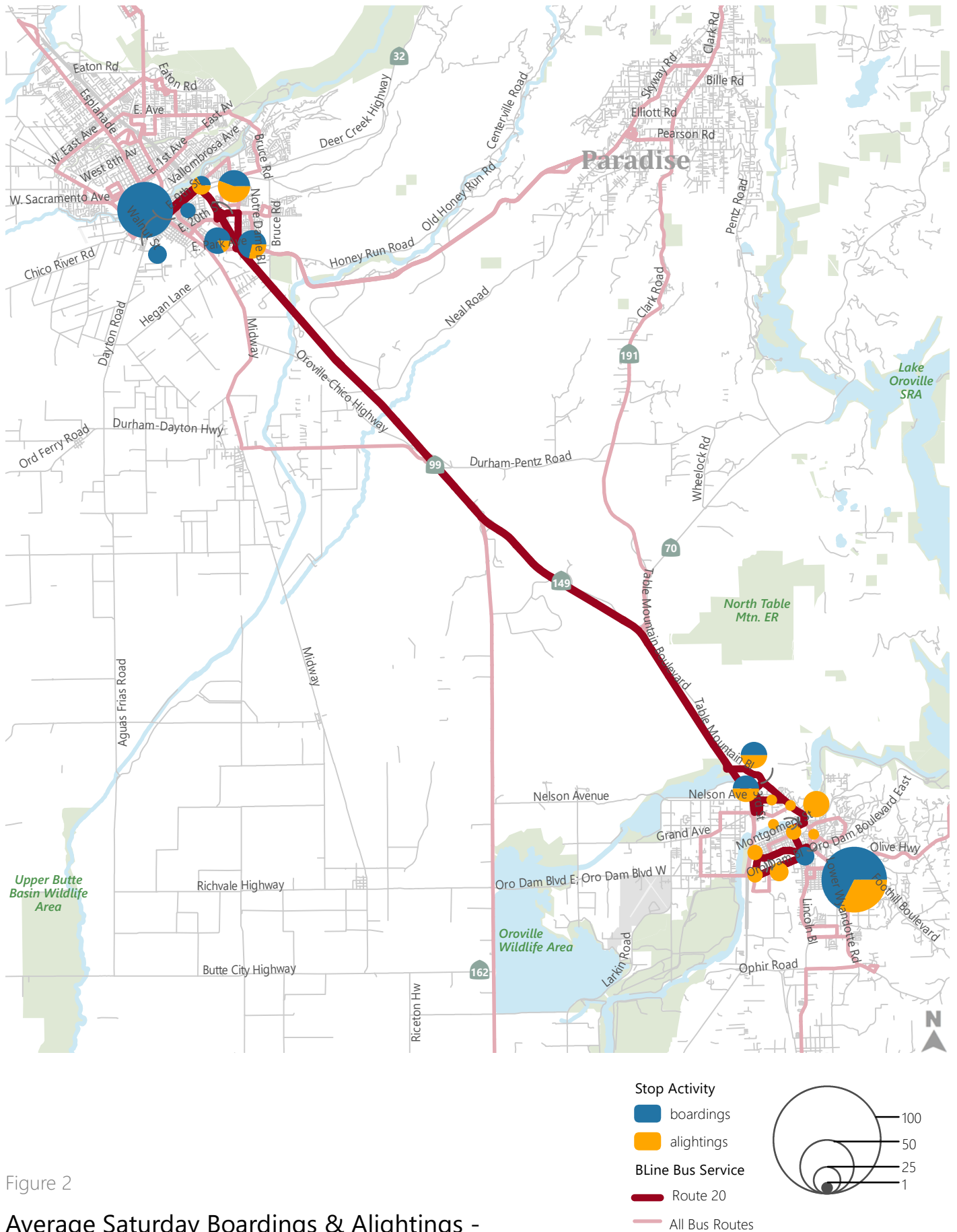


Figure 2

Average Saturday Boardings & Alightings - Route 20 Southbound

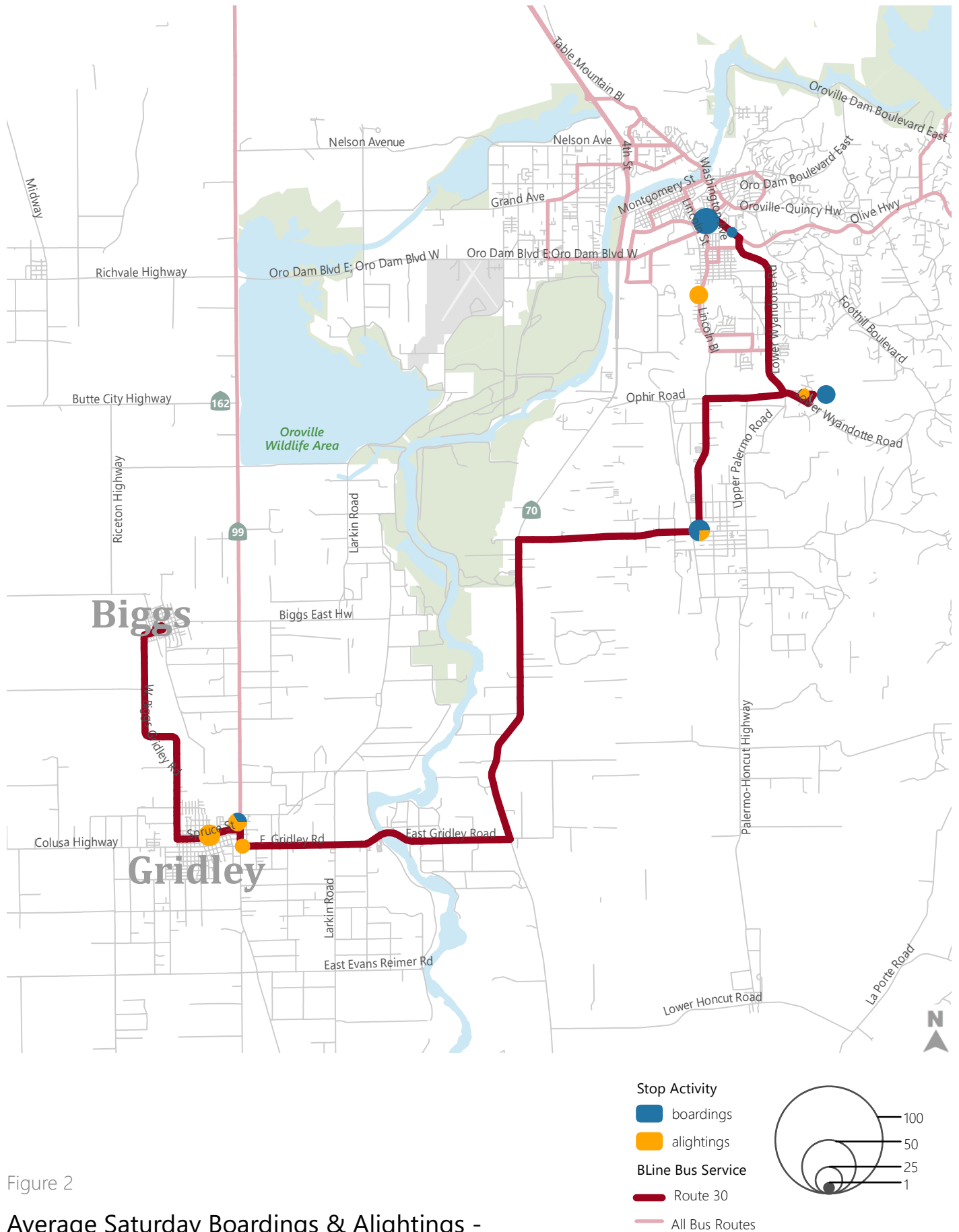


Figure 2
 Average Saturday Boardings & Alightings -
 Route 30 Southbound

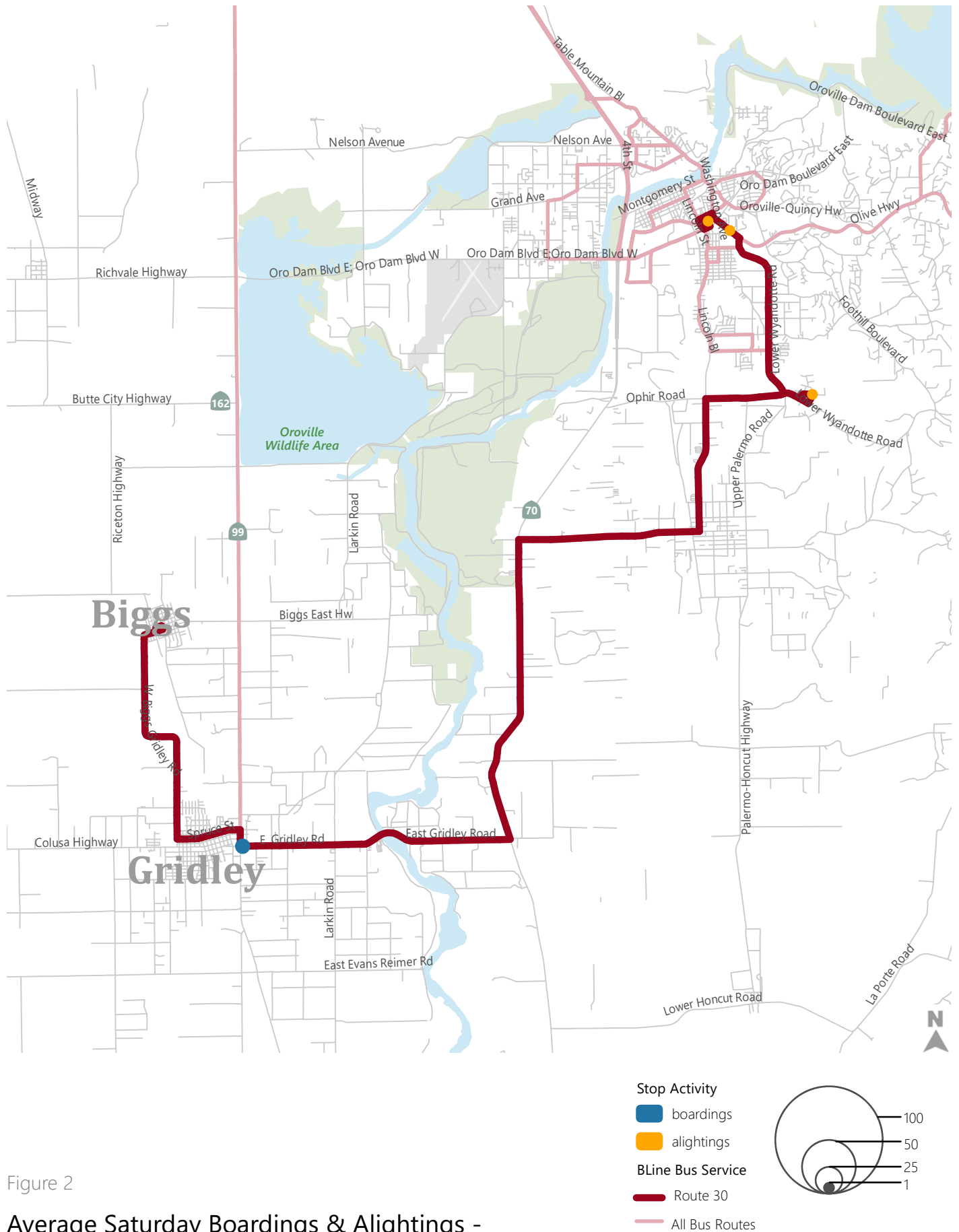


Figure 2

Average Saturday Boardings & Alightings - Route 30 Northbound

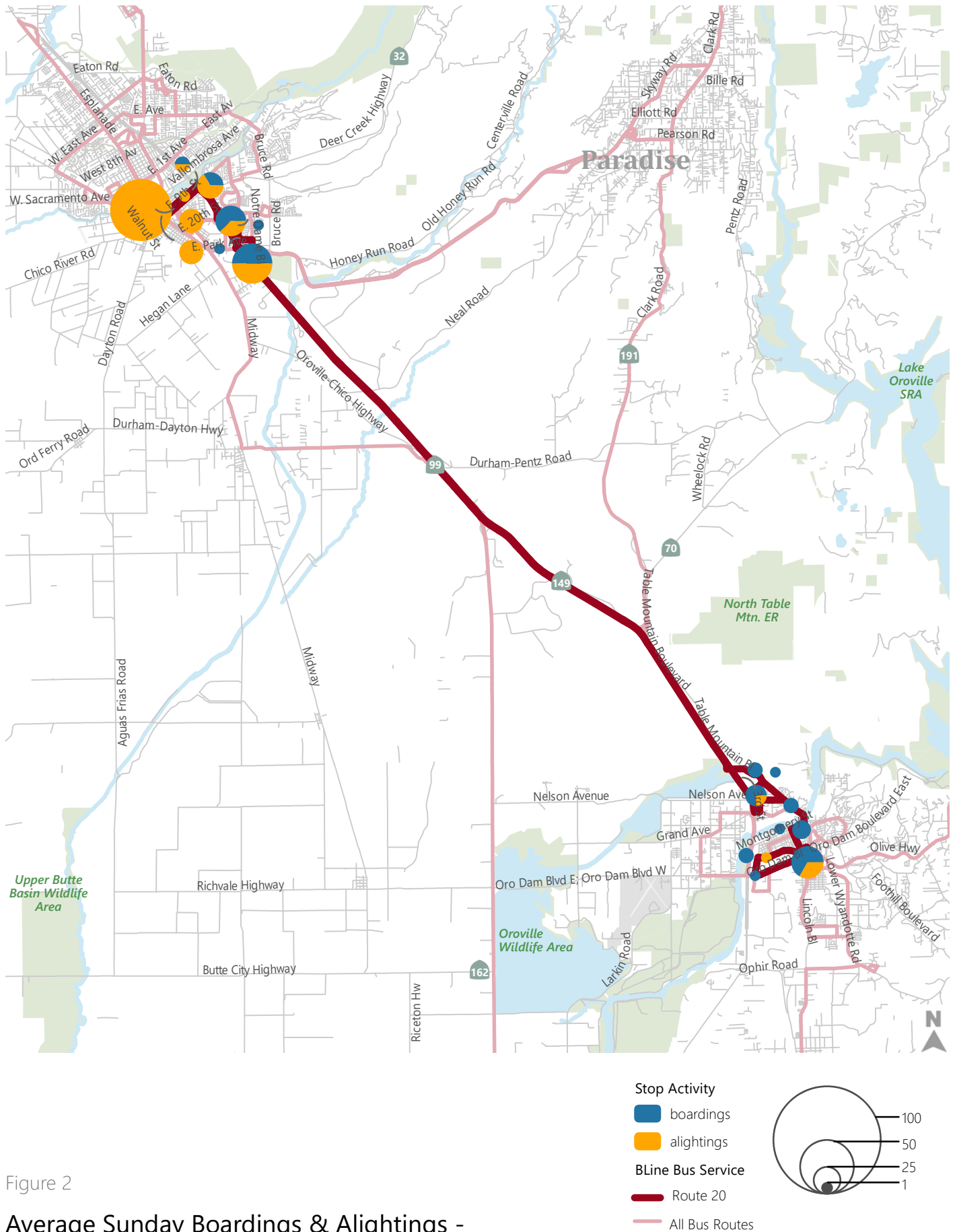


Figure 2

Average Sunday Boardings & Alightings - Route 20 Northbound

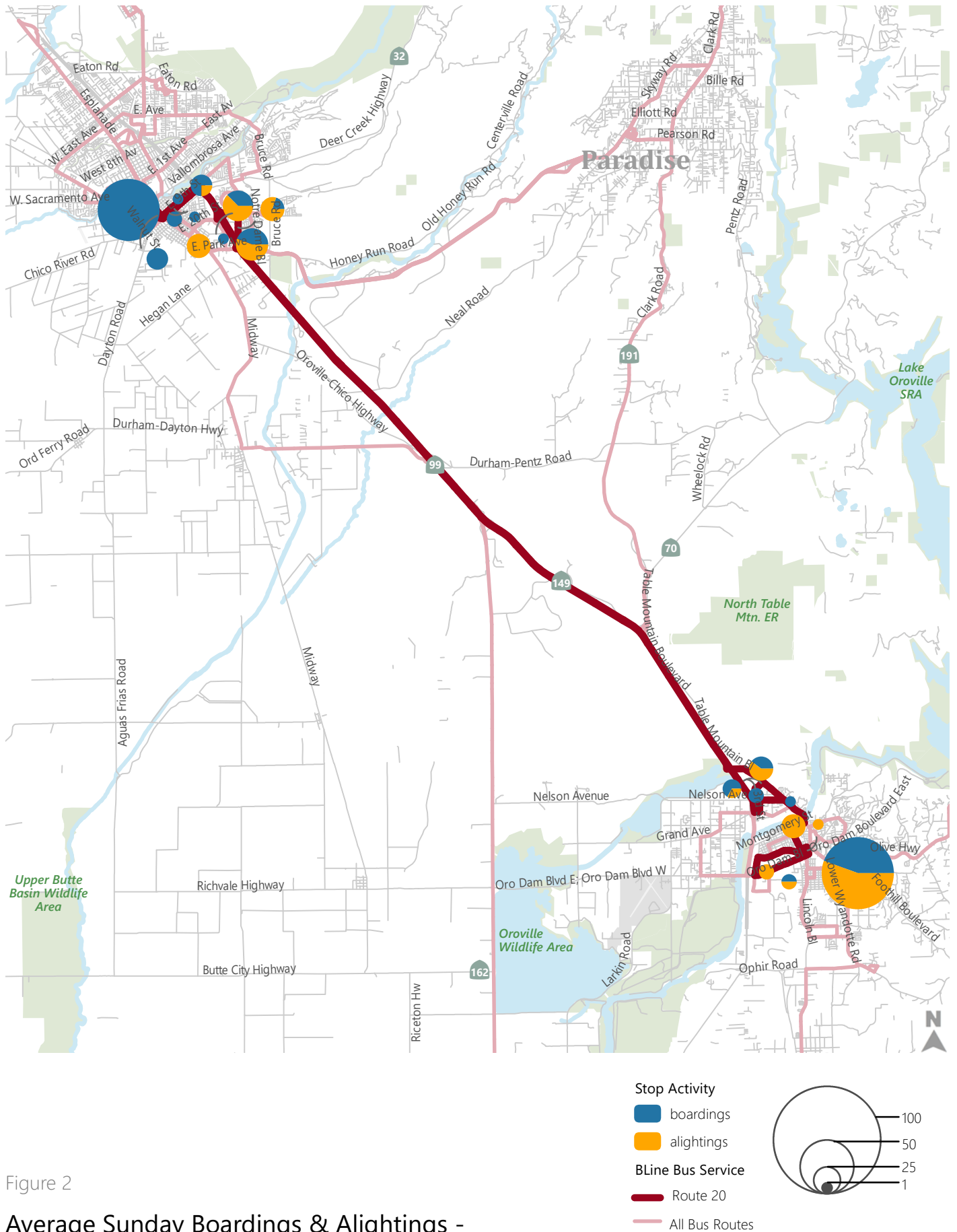
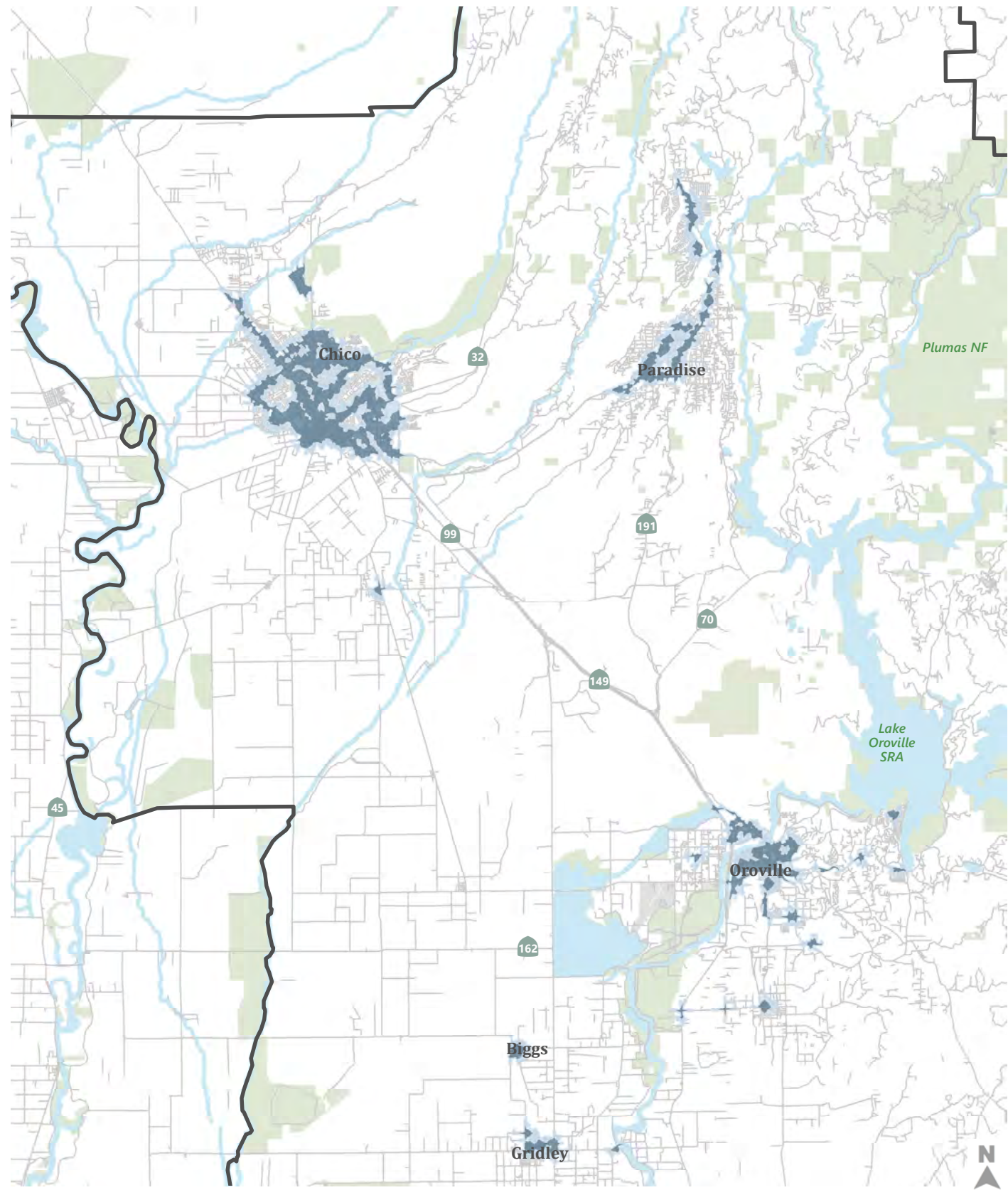


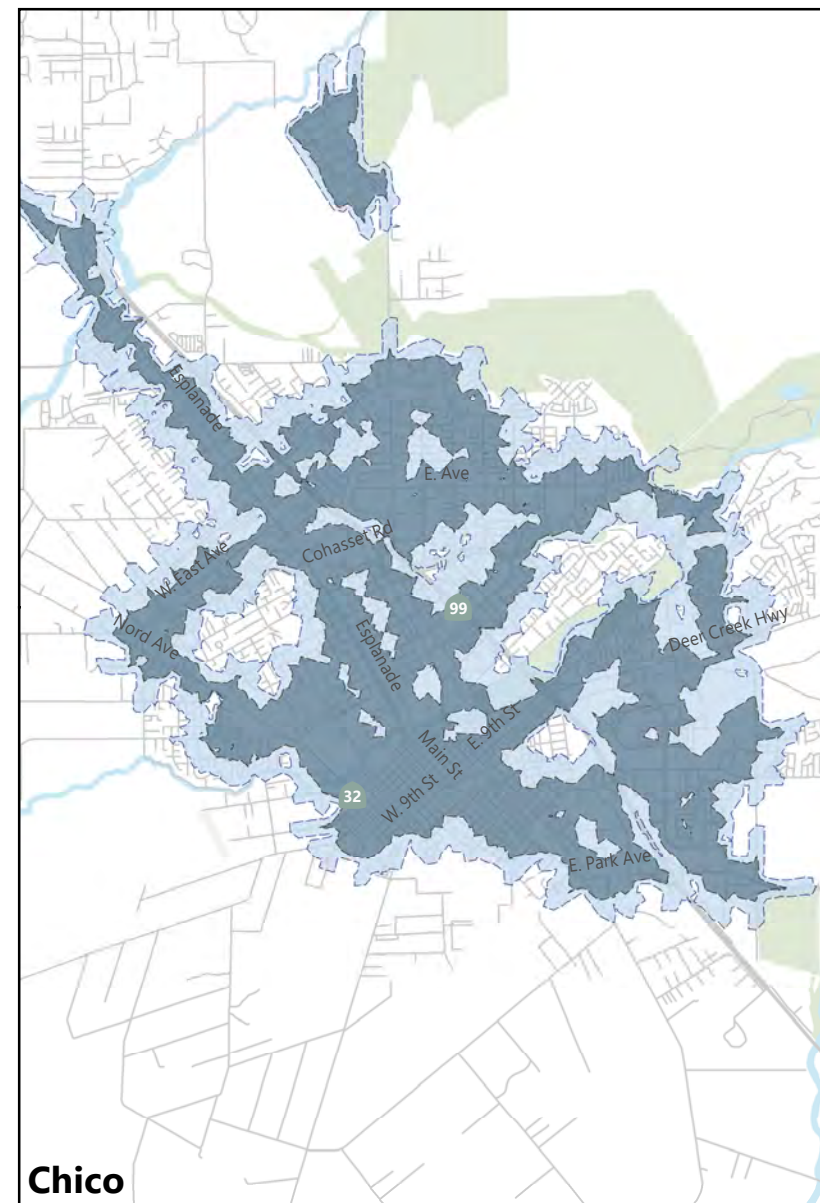
Figure 2

Average Sunday Boardings & Alightings - Route 20 Southbound

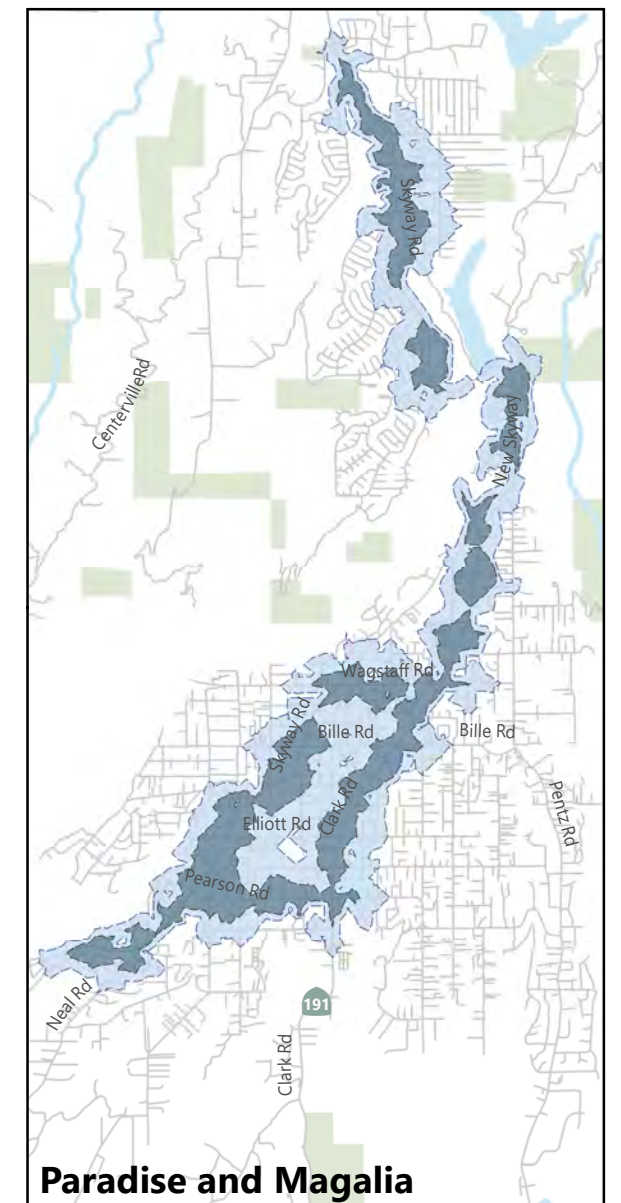


Transit Service Coverage

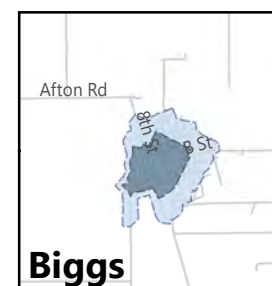
- 1/4 mile from bus stops
- 1/2 mile from bus stops



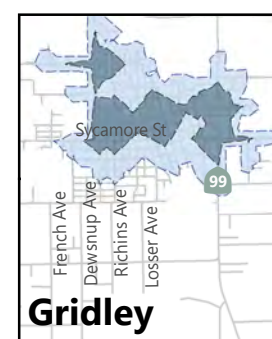
Chico



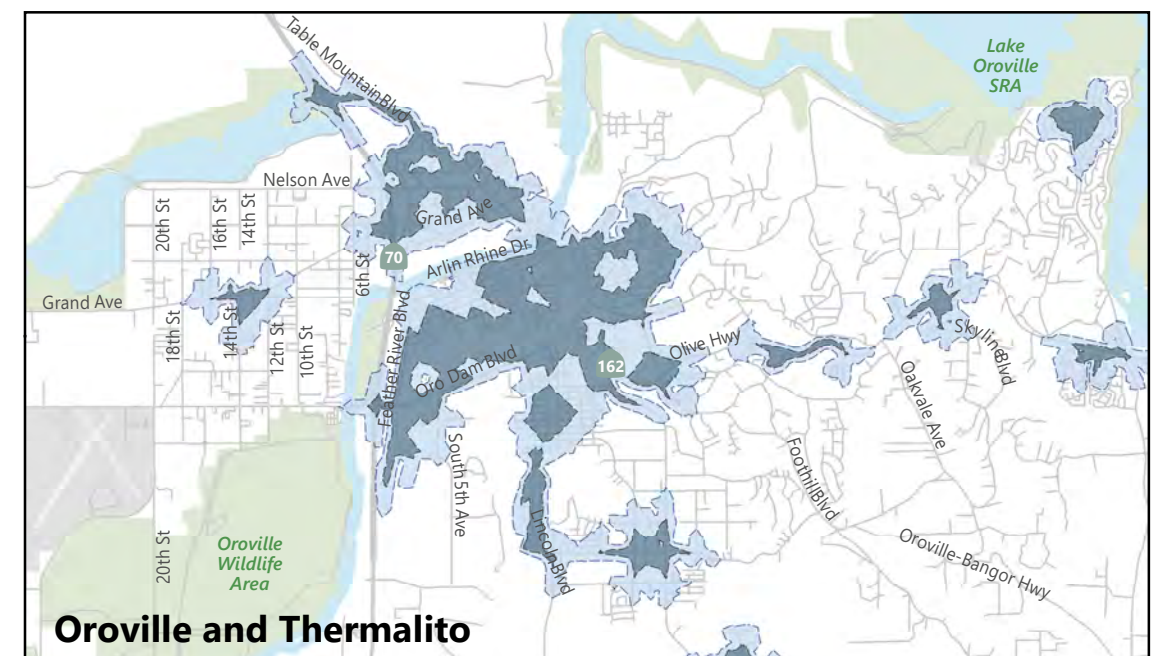
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

Figure 8
System Network Coverage

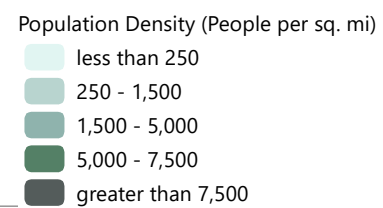
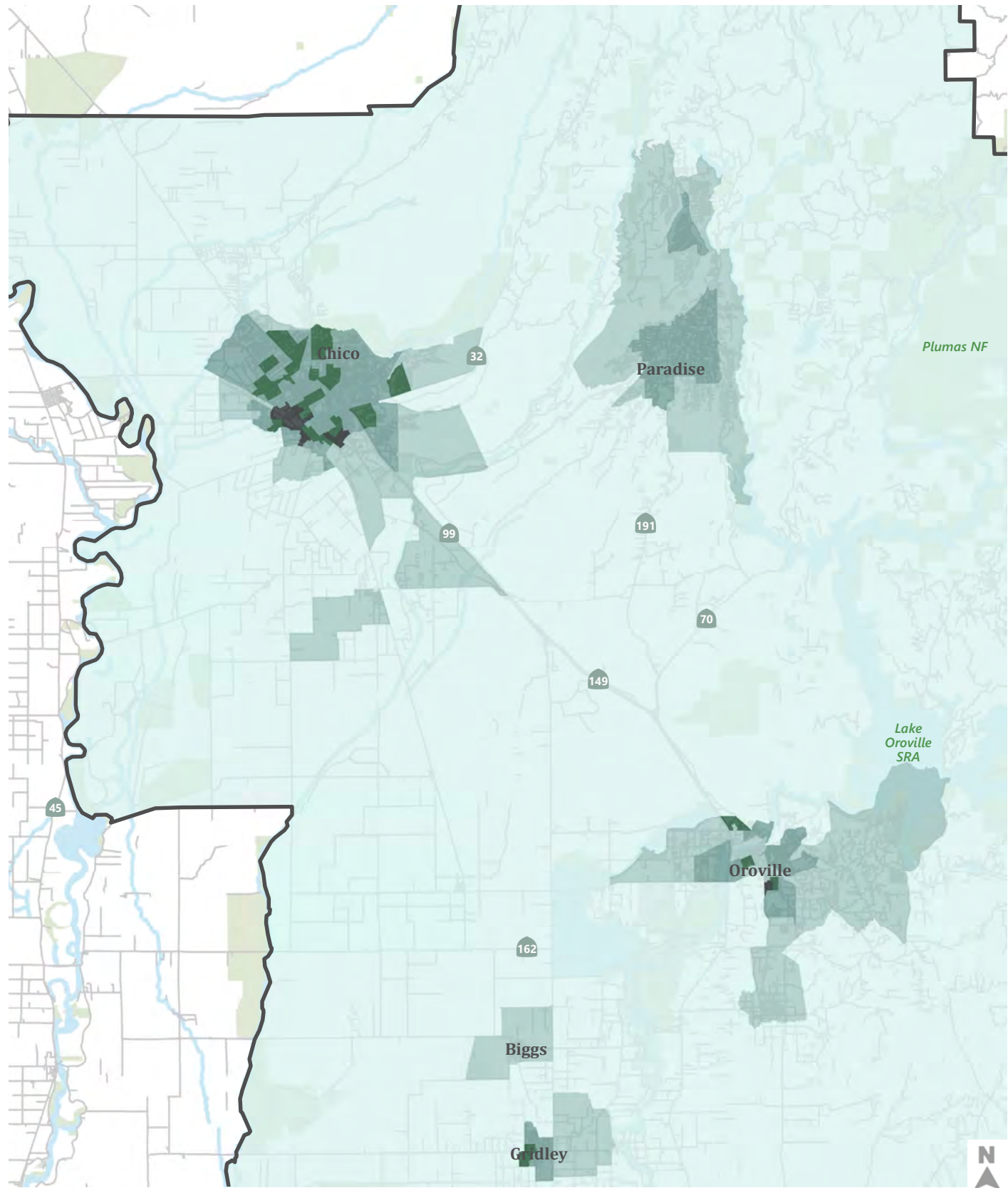
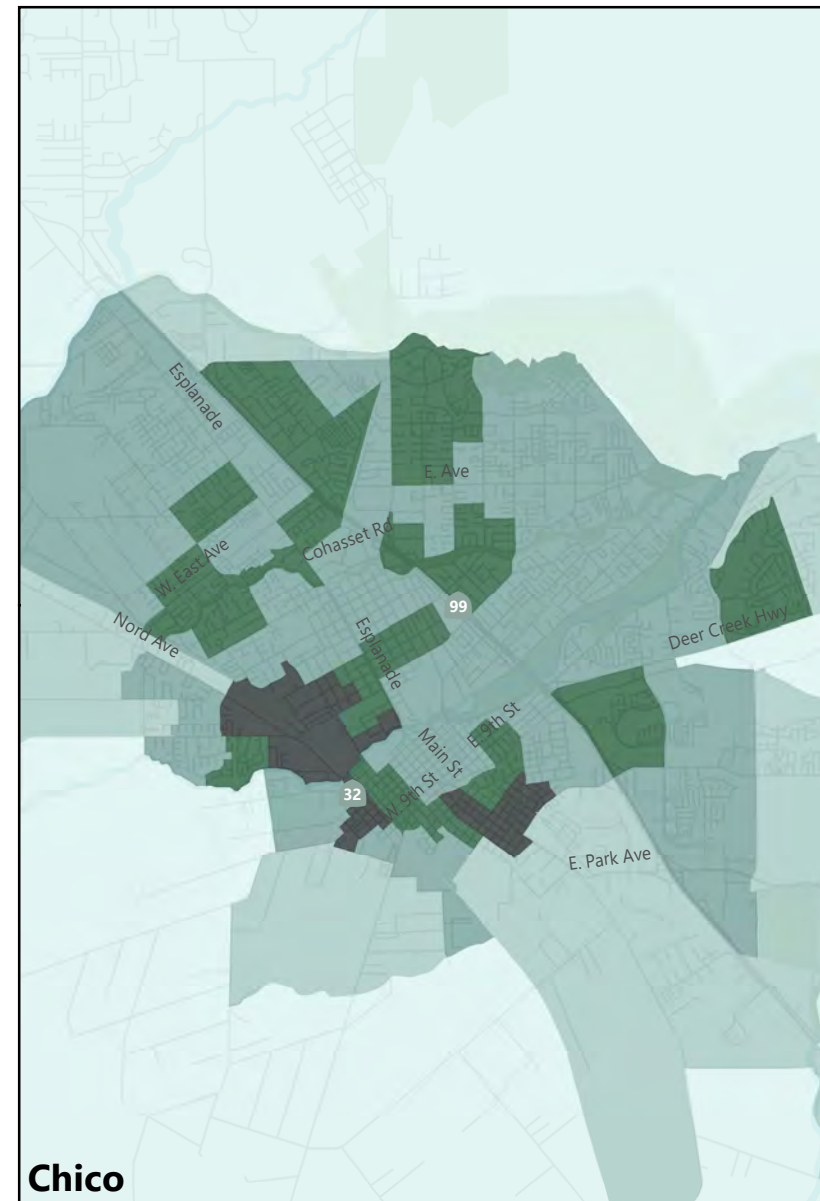
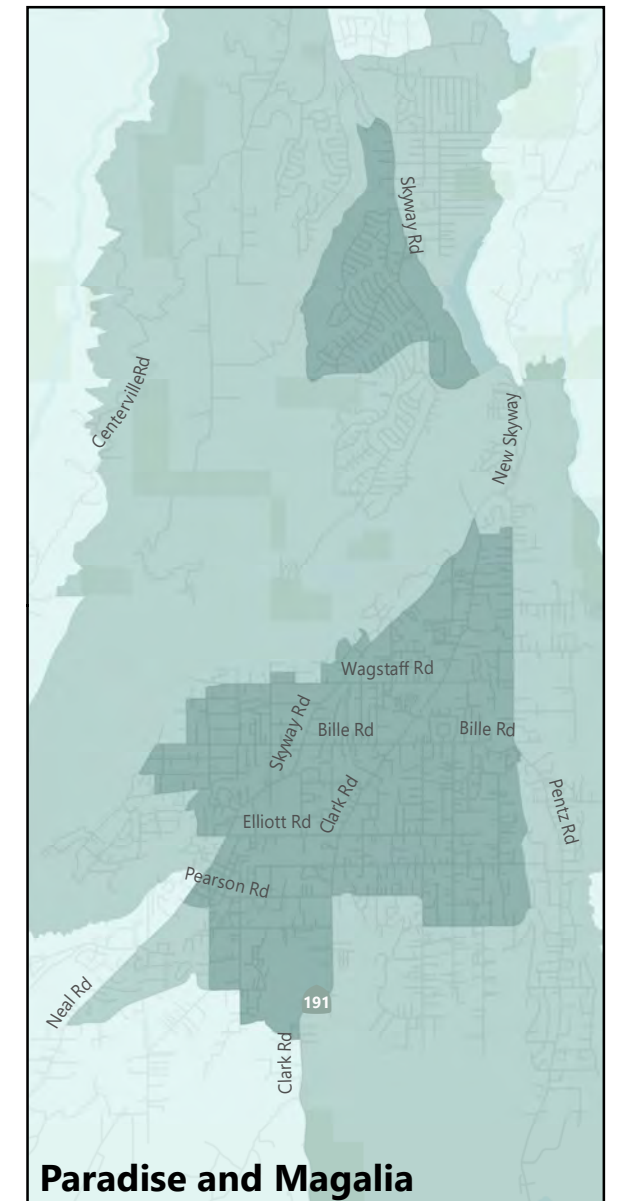


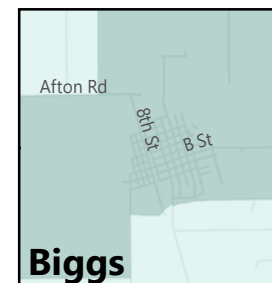
Figure 10
Population Density



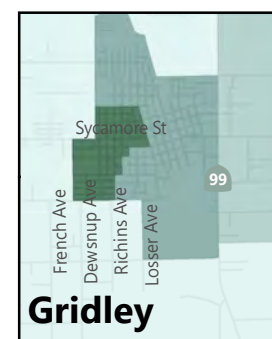
Chico



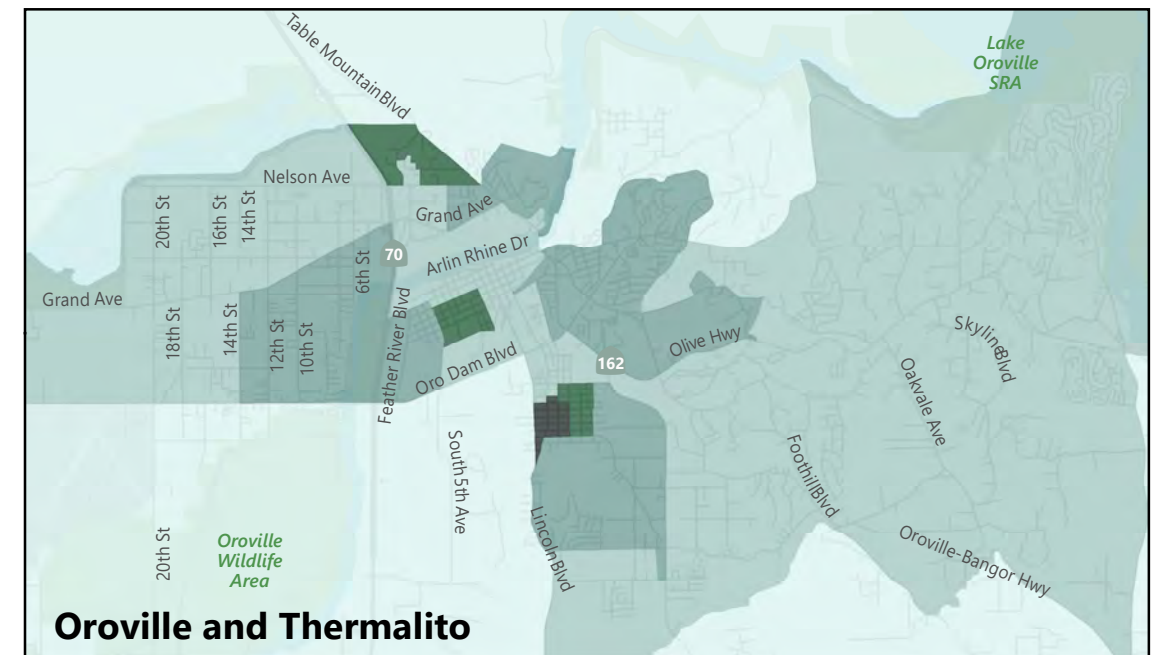
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

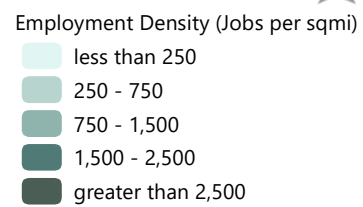
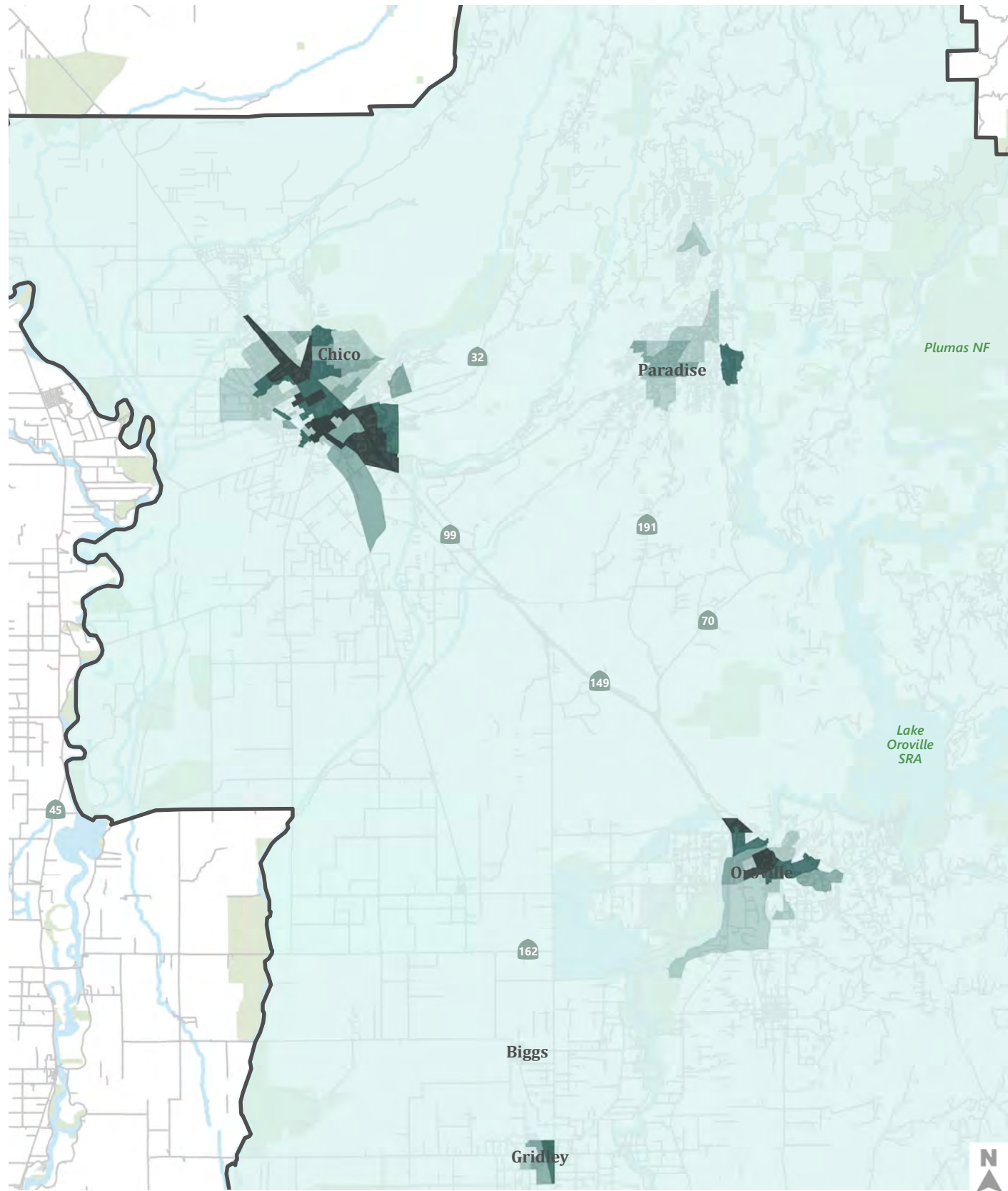
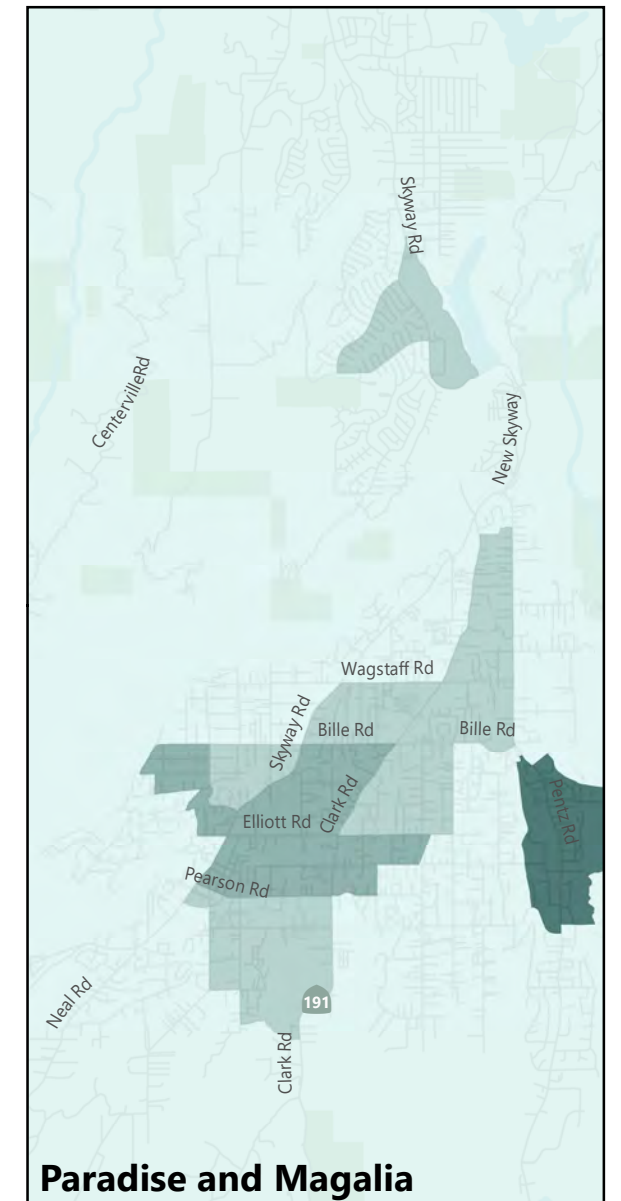


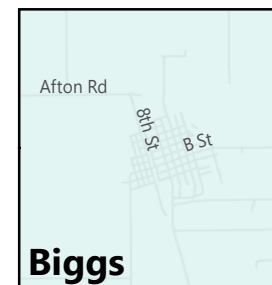
Figure 11
Employment Density



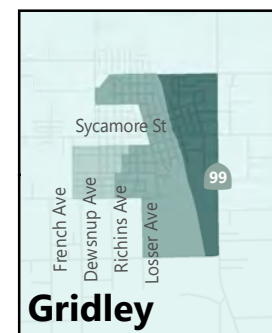
Chico



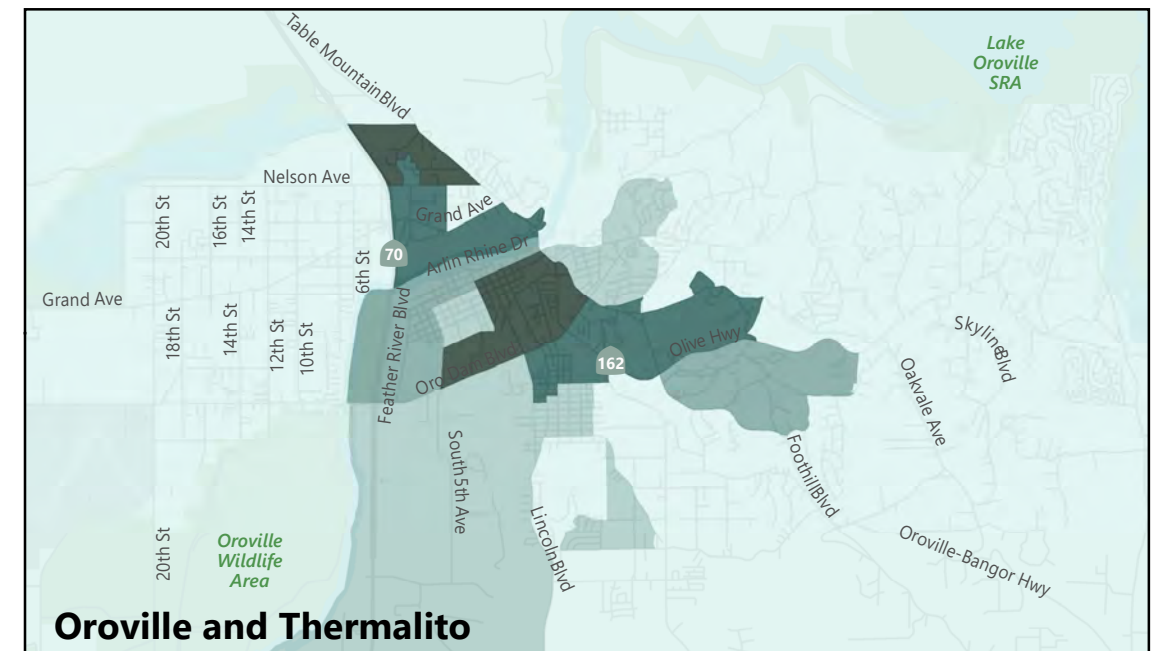
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

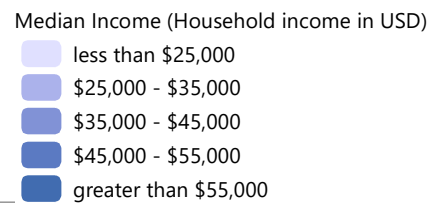
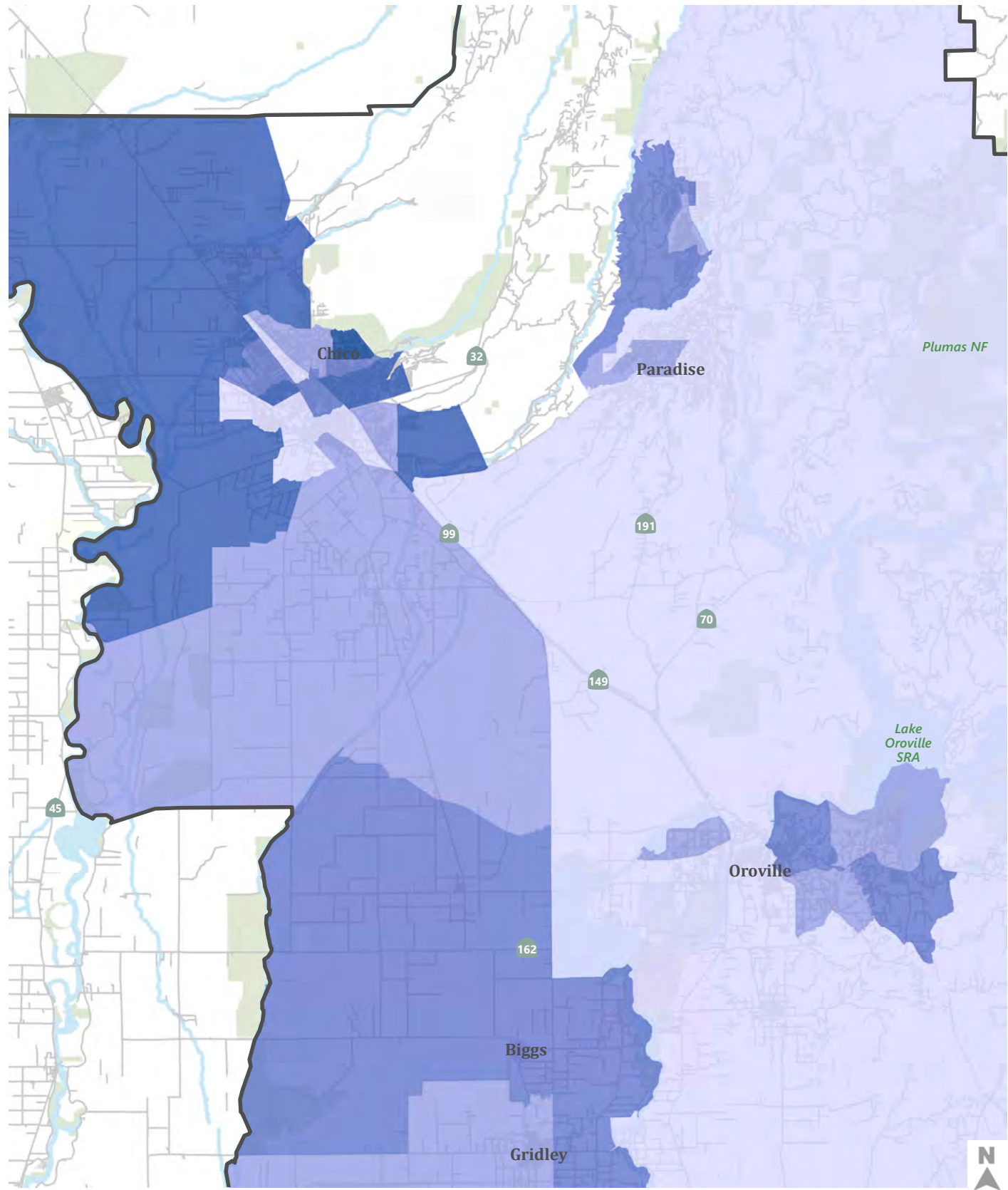
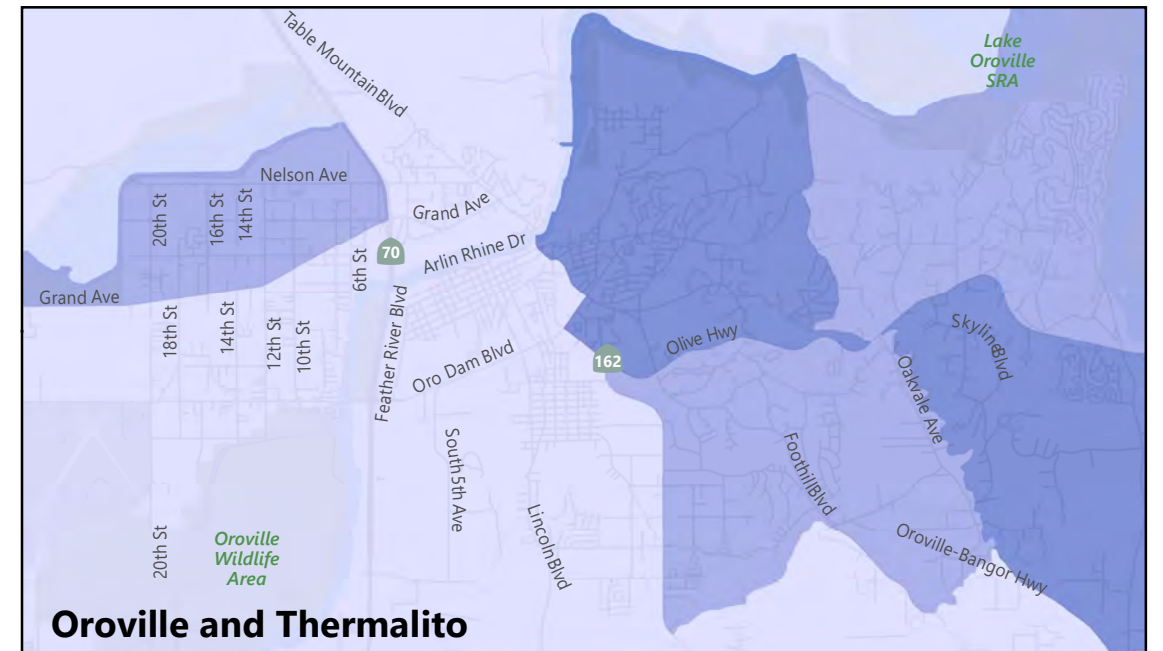
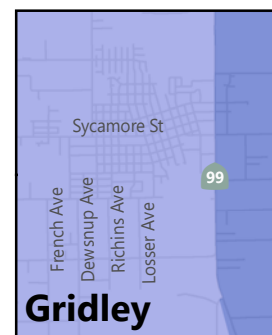
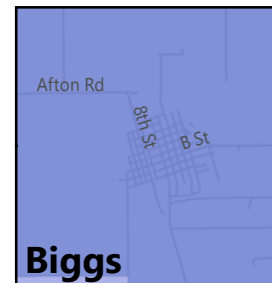
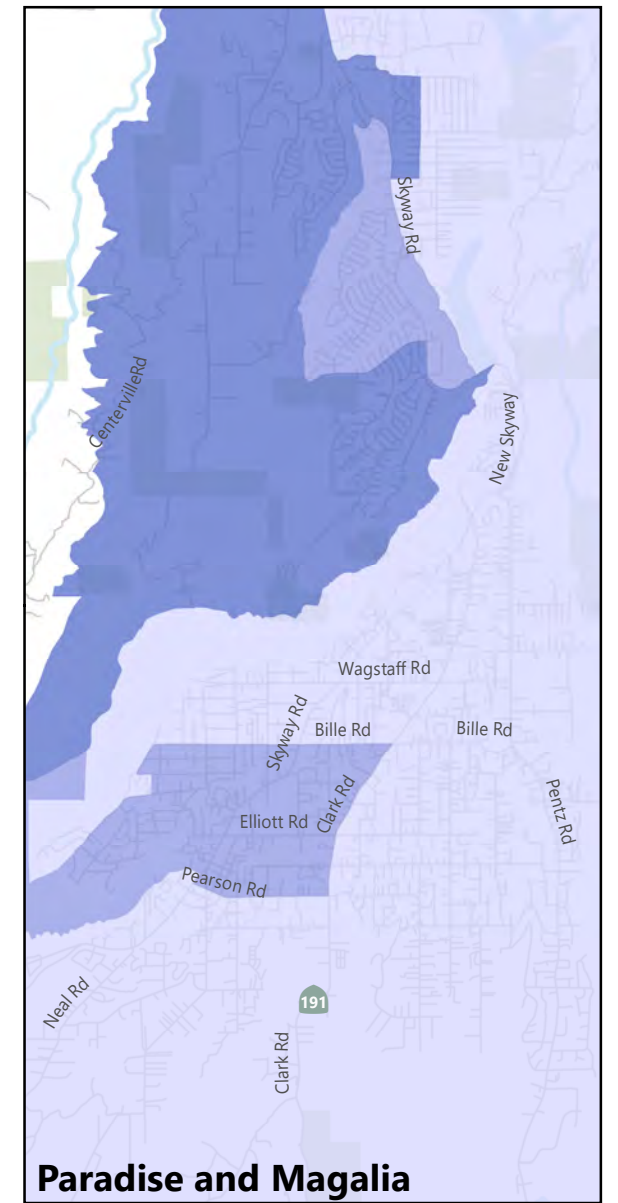
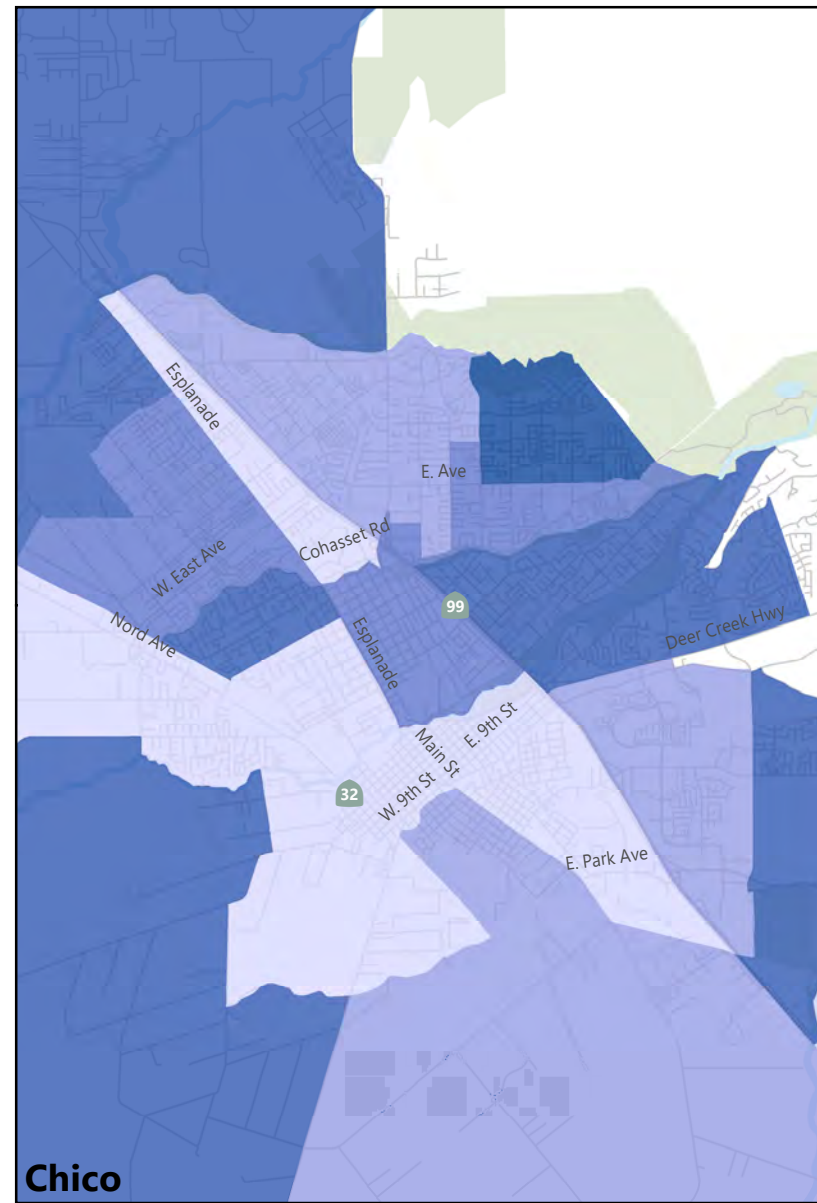
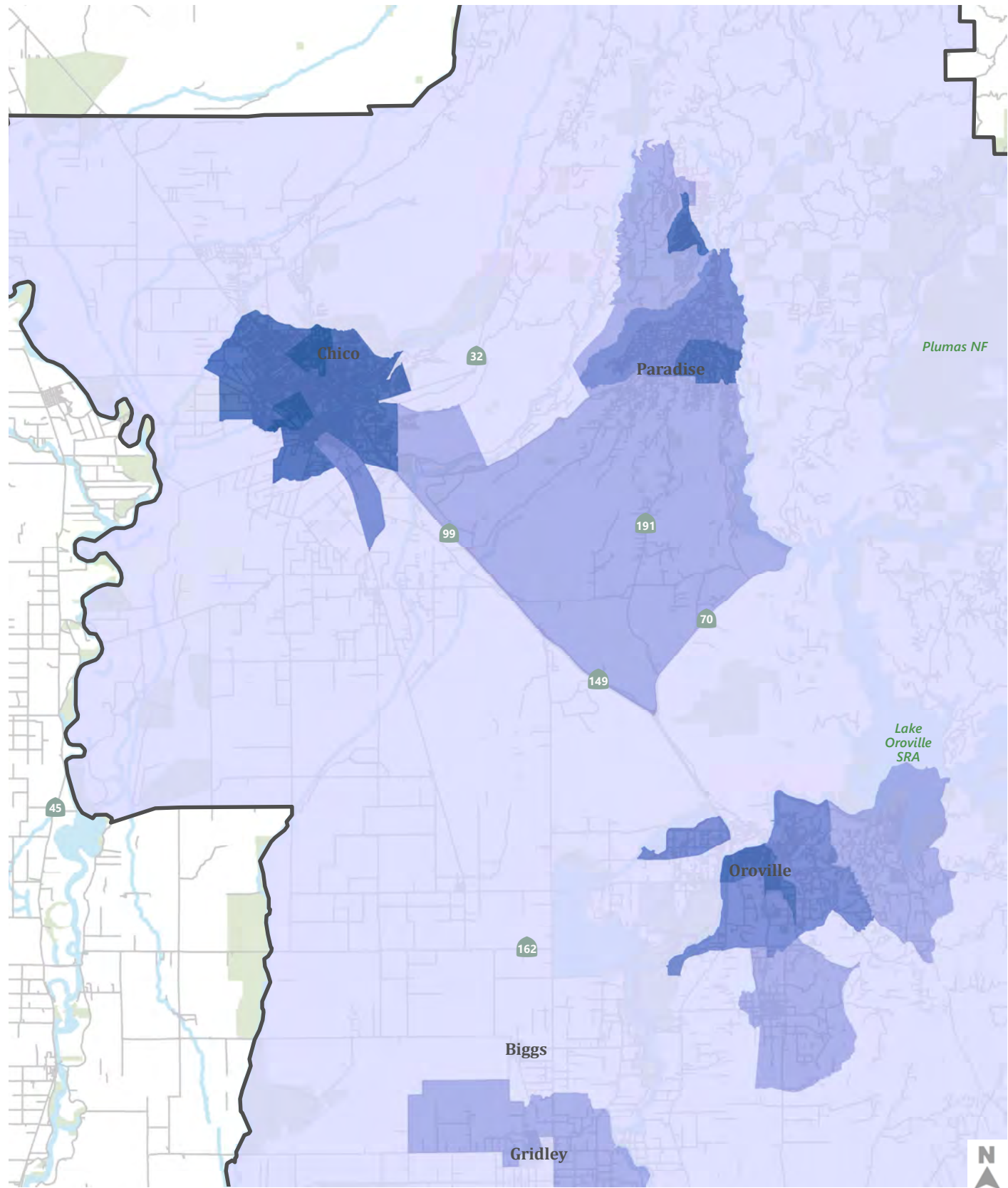


Figure 12
Median Household Income

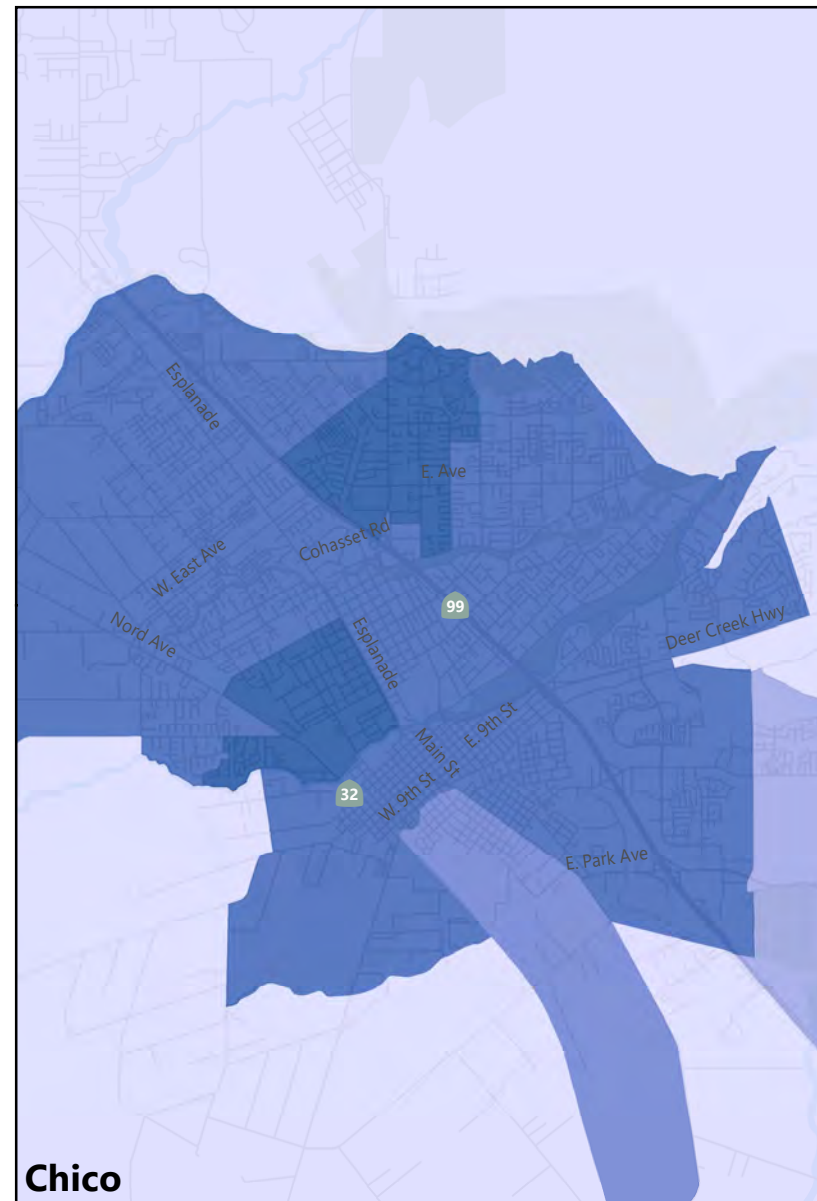




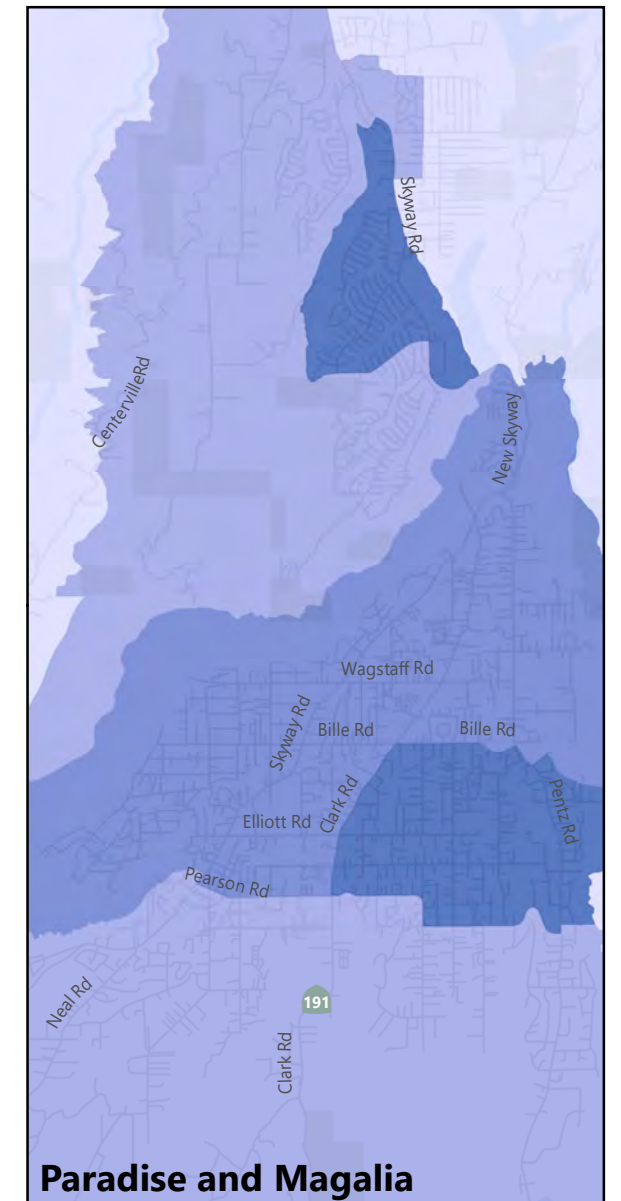
Poverty Density (People per sq. mi.)

- less than 100
- 100 - 500
- 500 - 1,500
- 1,500 - 5,000
- greater than 5,000

Figure 13
Poverty Density



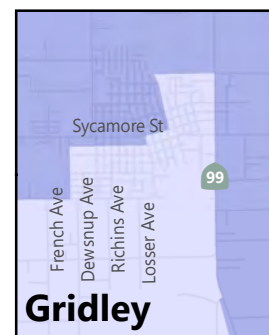
Chico



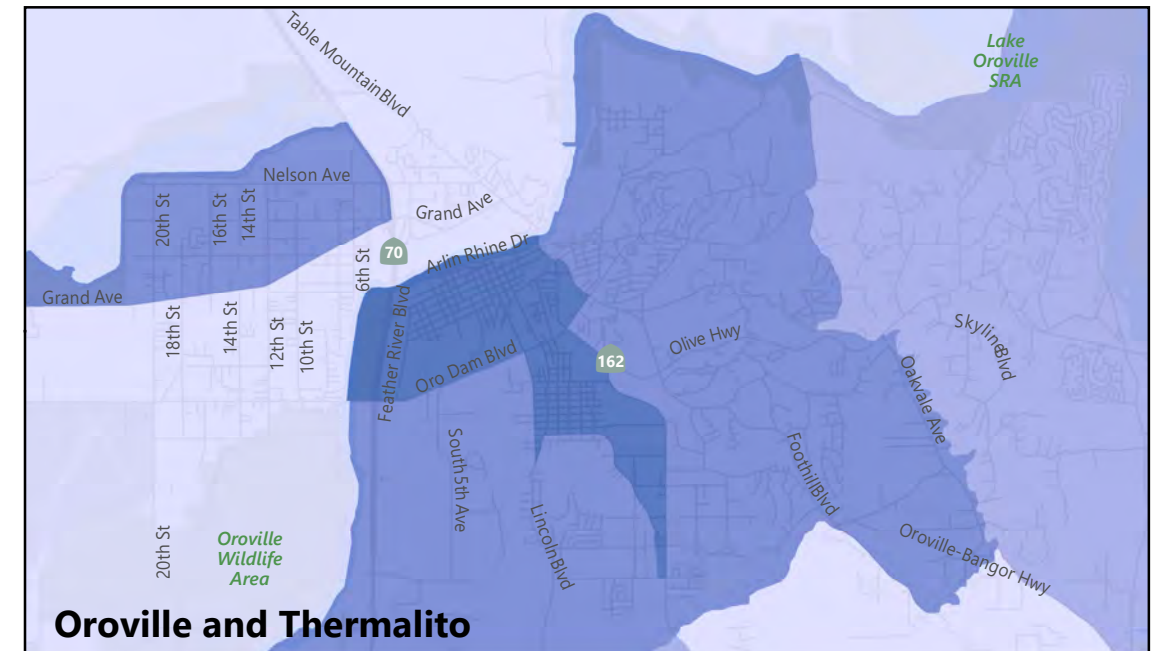
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

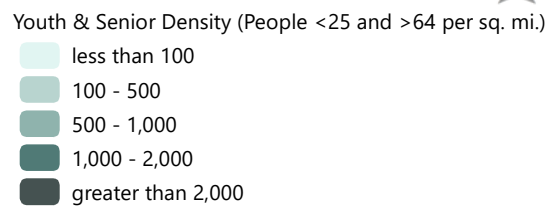
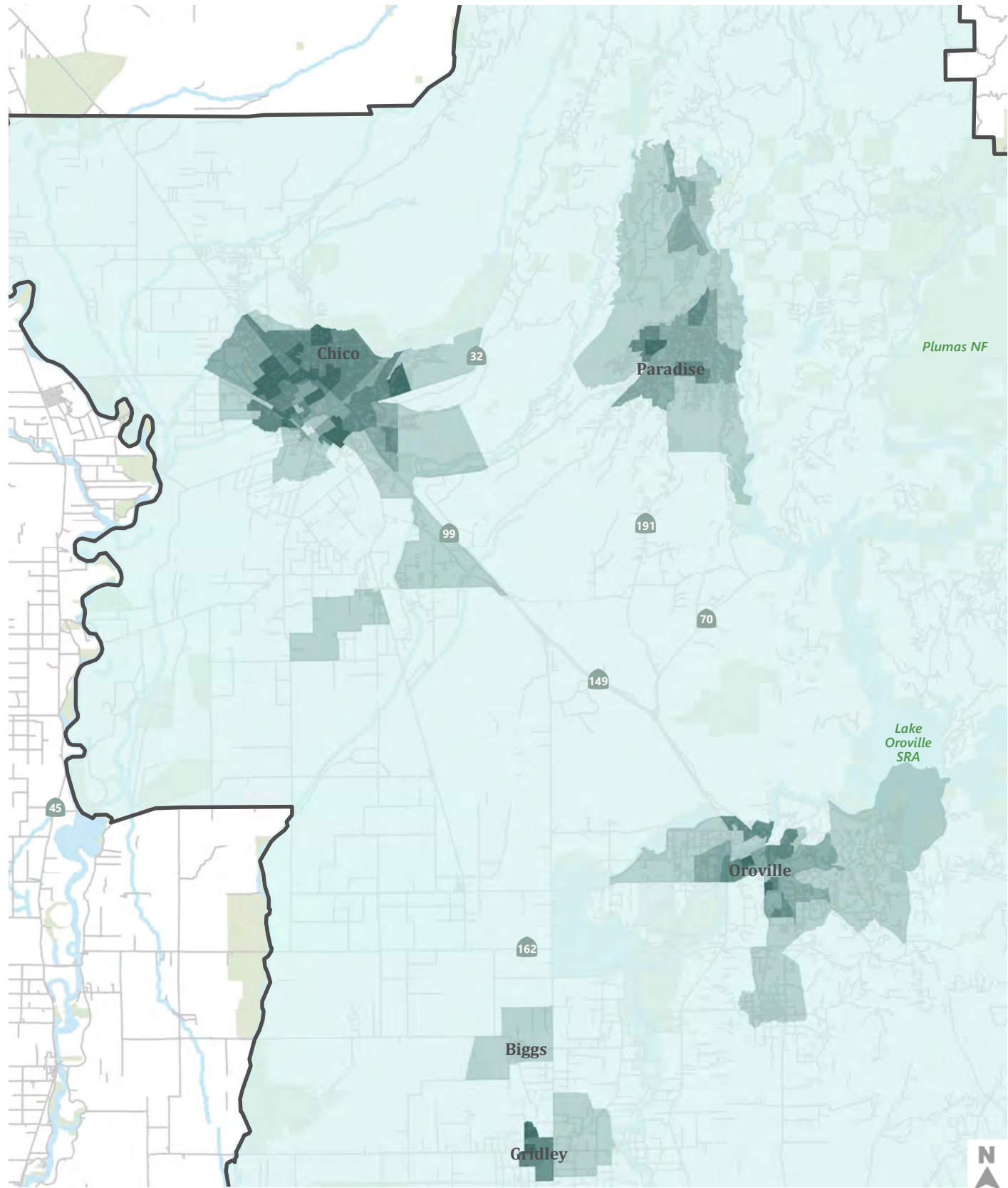
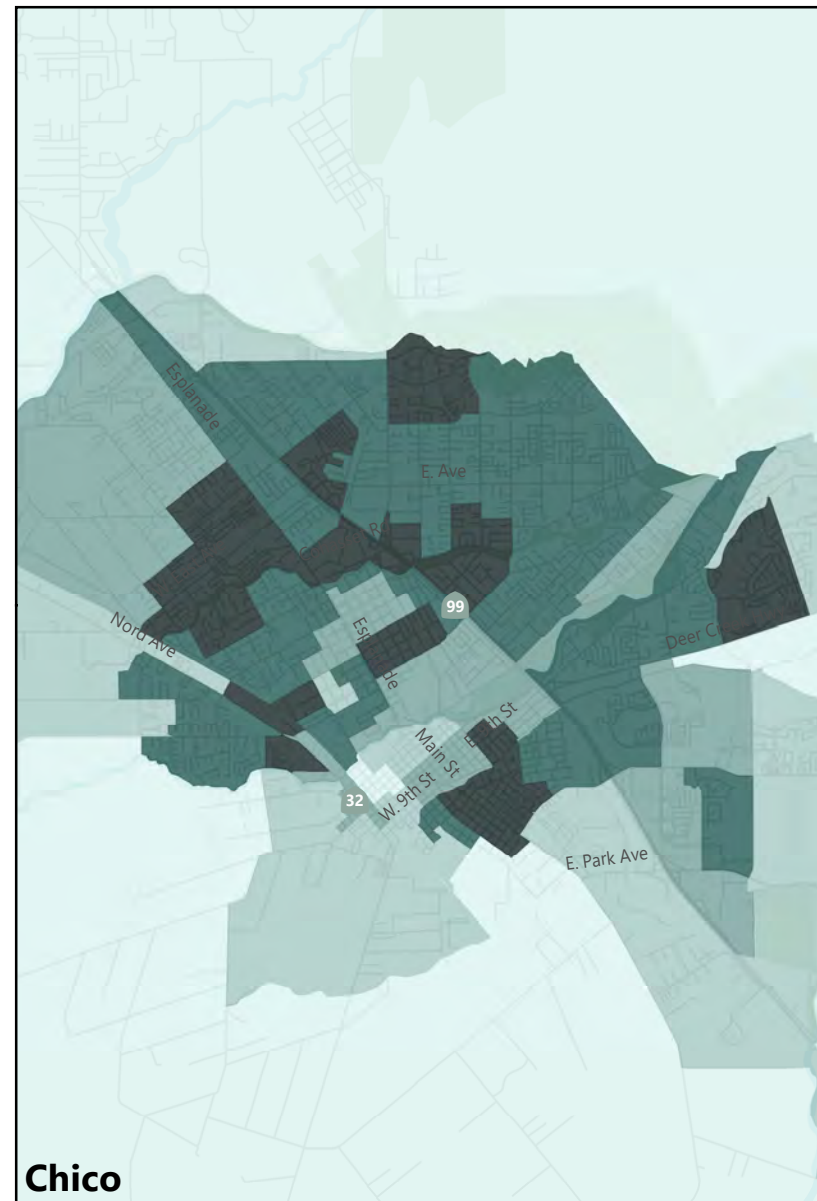
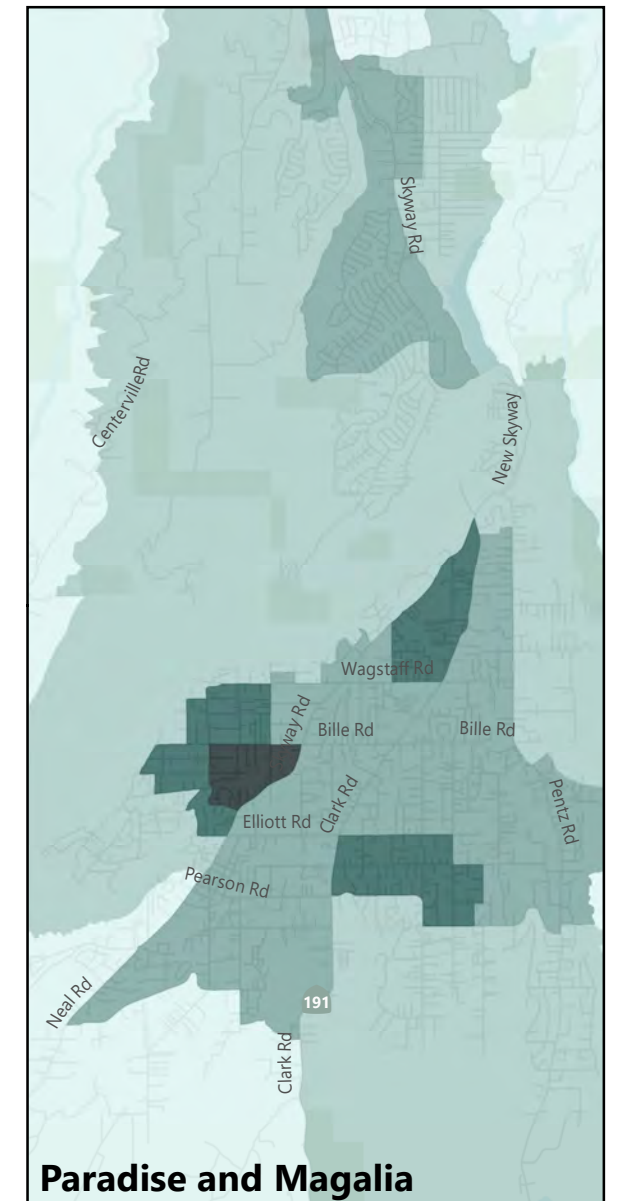


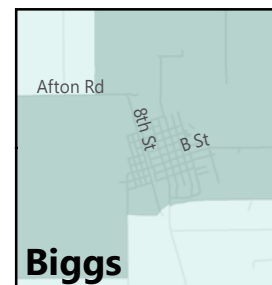
Figure 14
Youth, Young Adult, and Senior Density



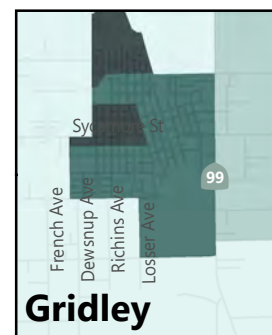
Chico



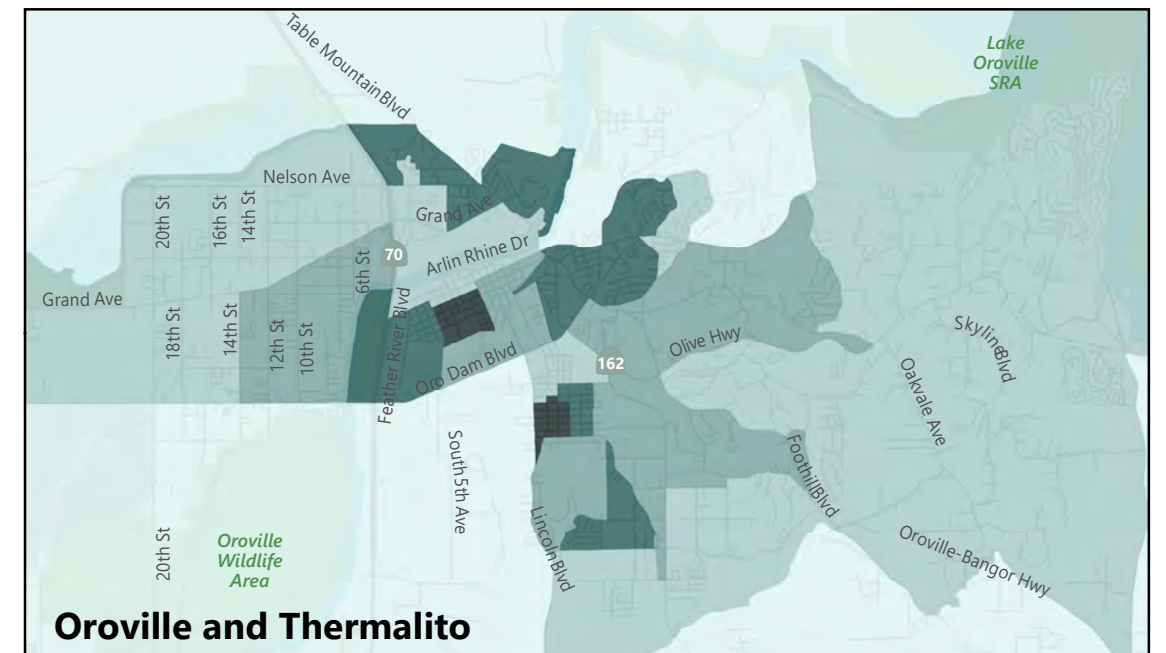
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

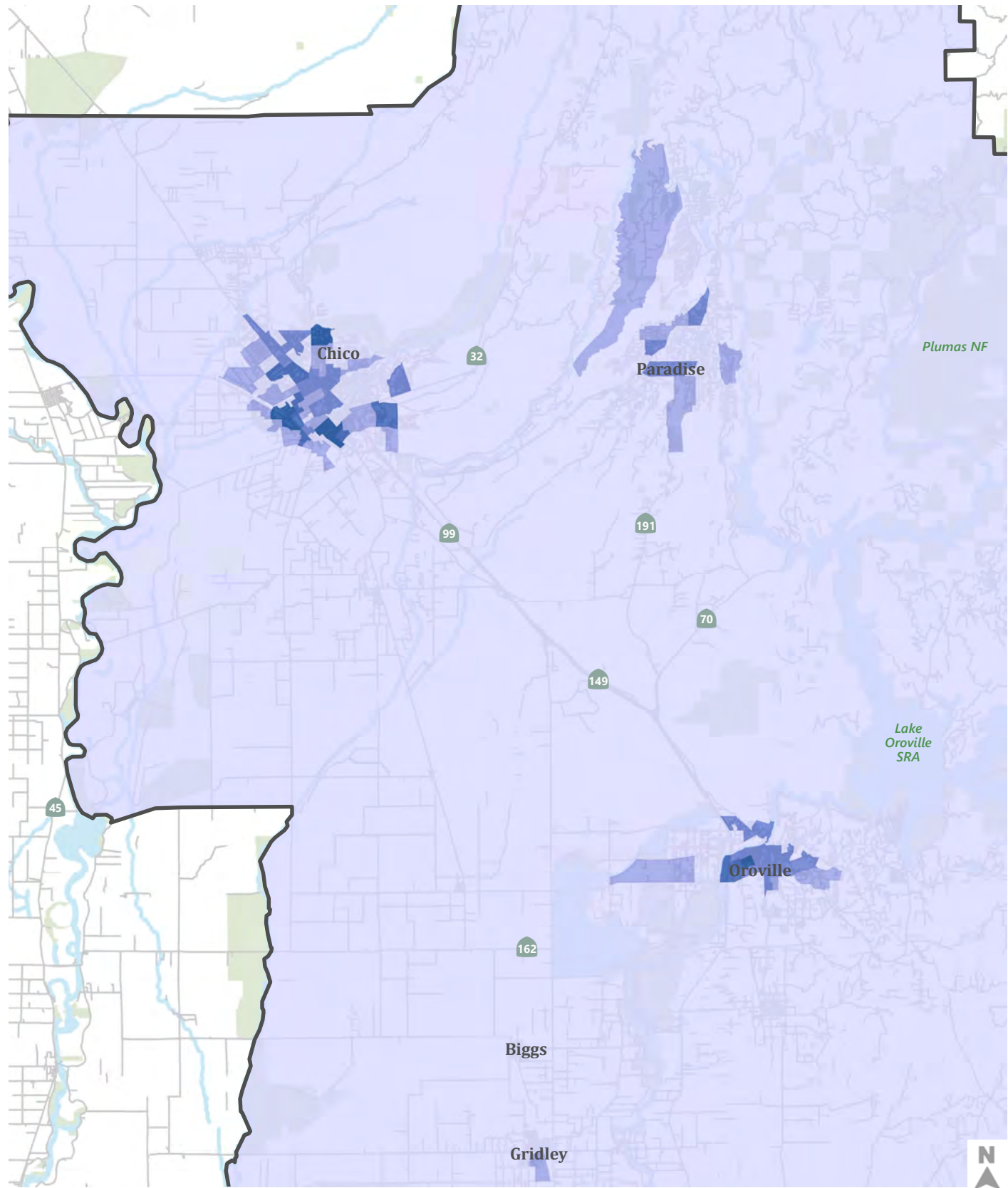
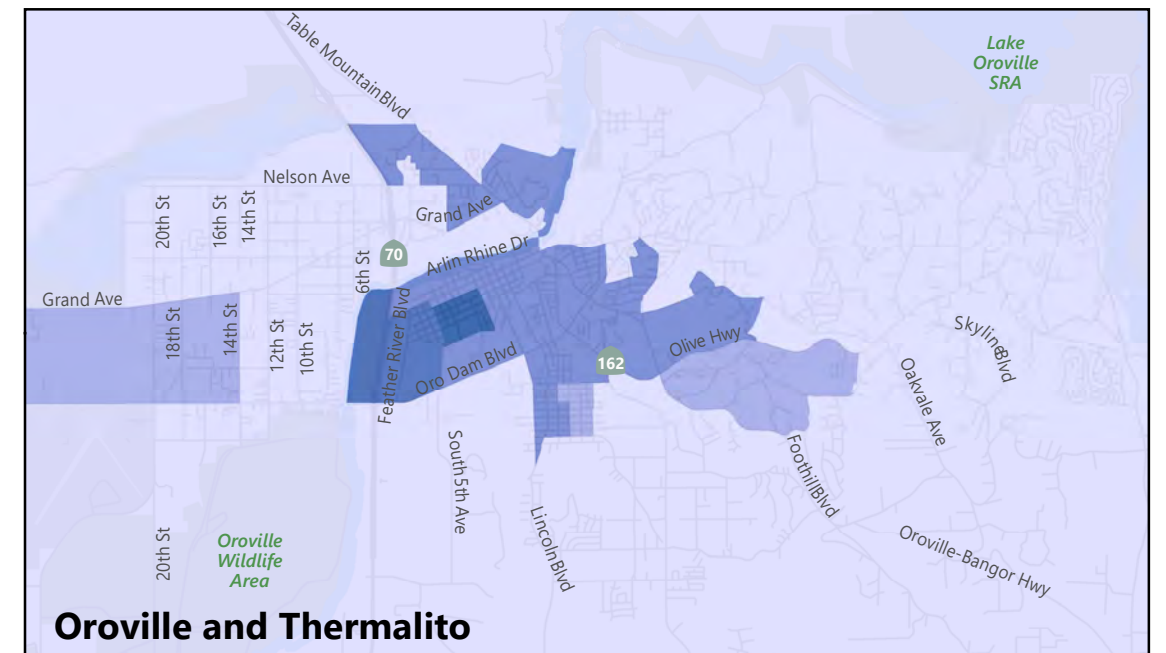
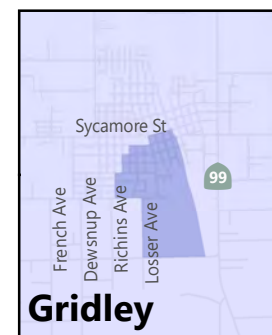
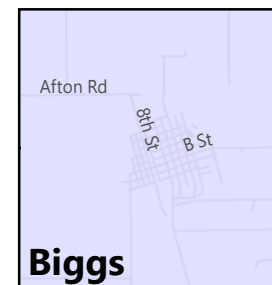
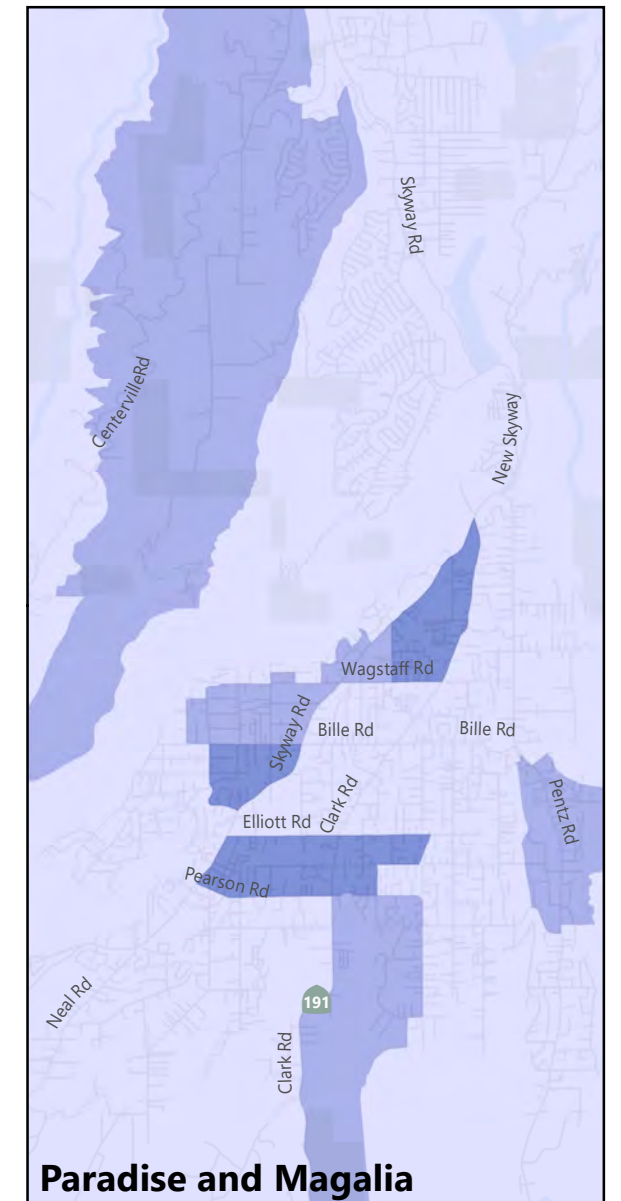
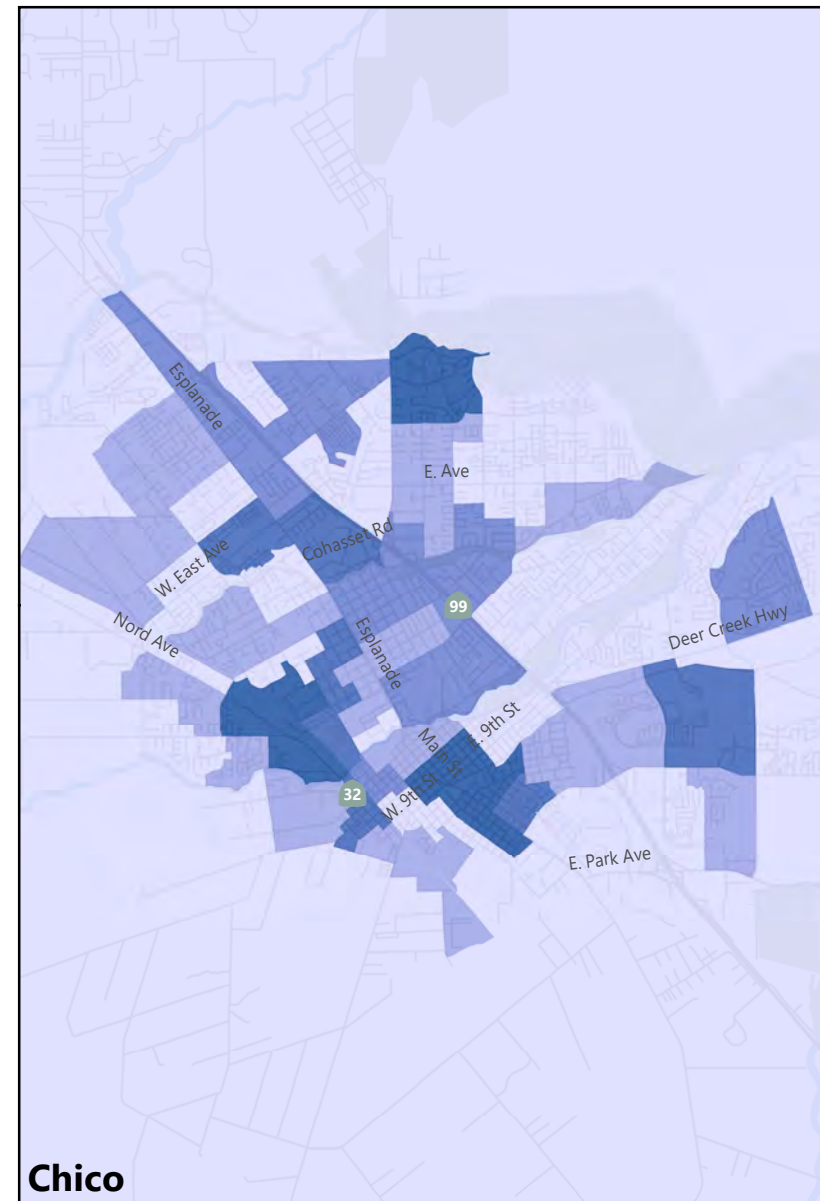


Figure 15
Zero Vehicle Households Density



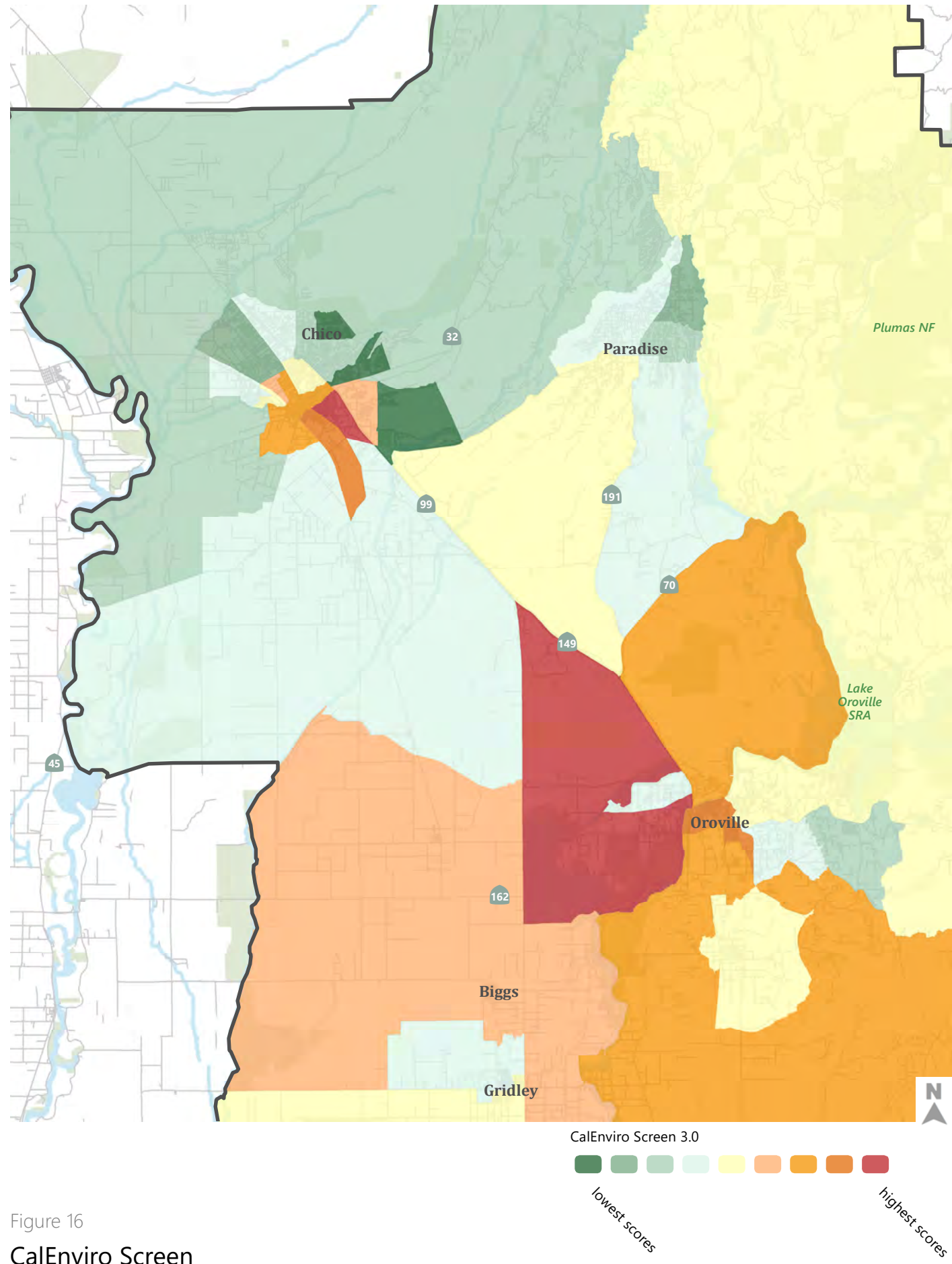
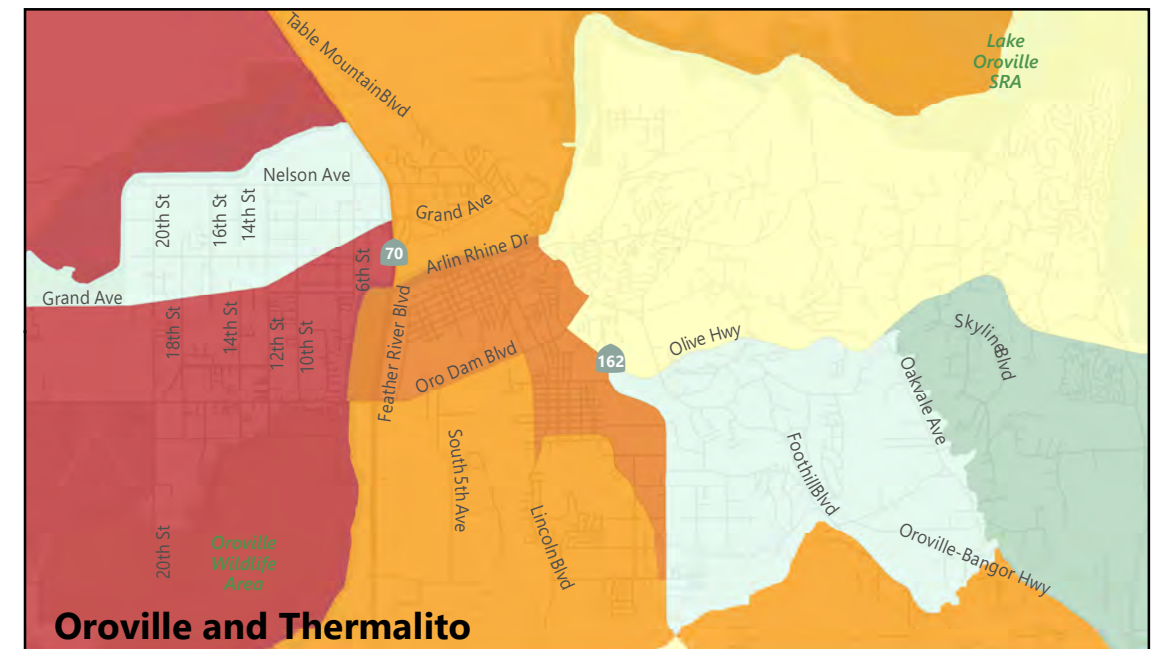
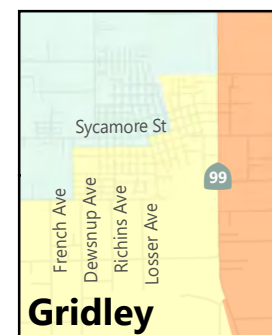
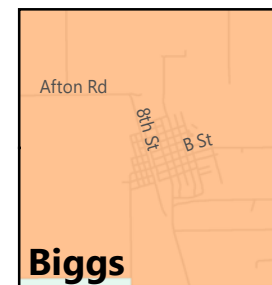
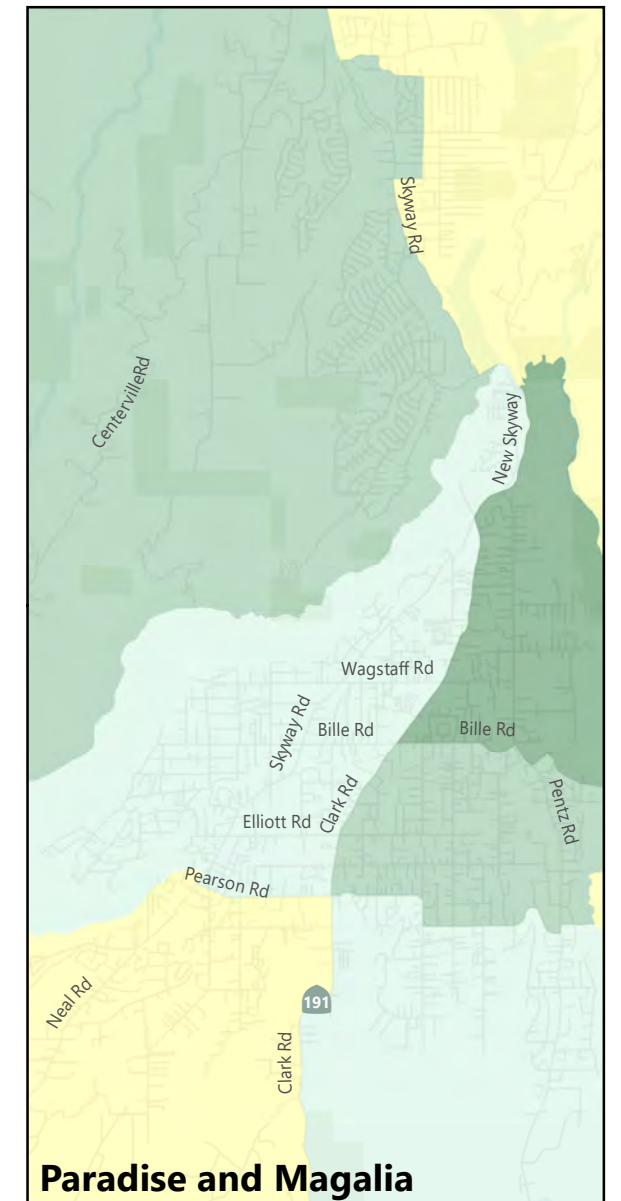
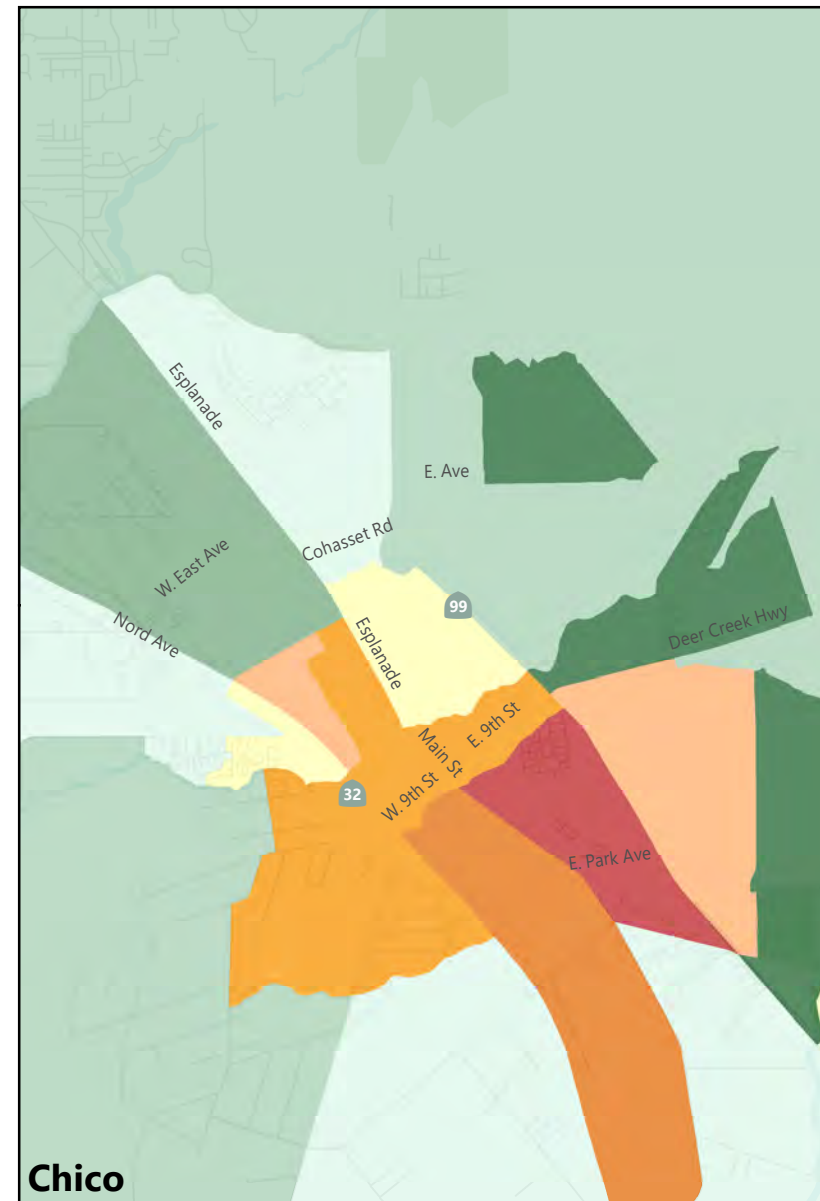


Figure 16
CalEnviro Screen



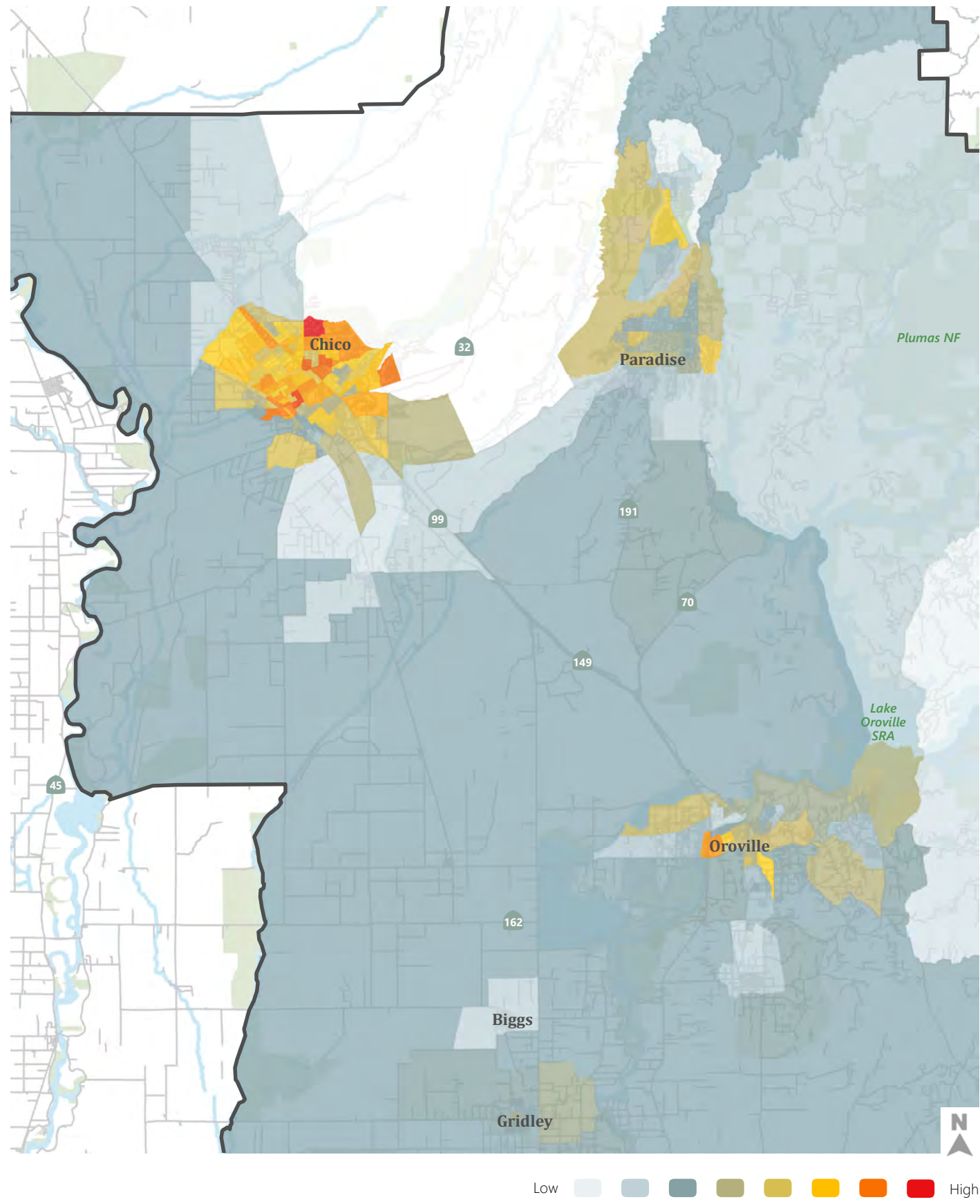
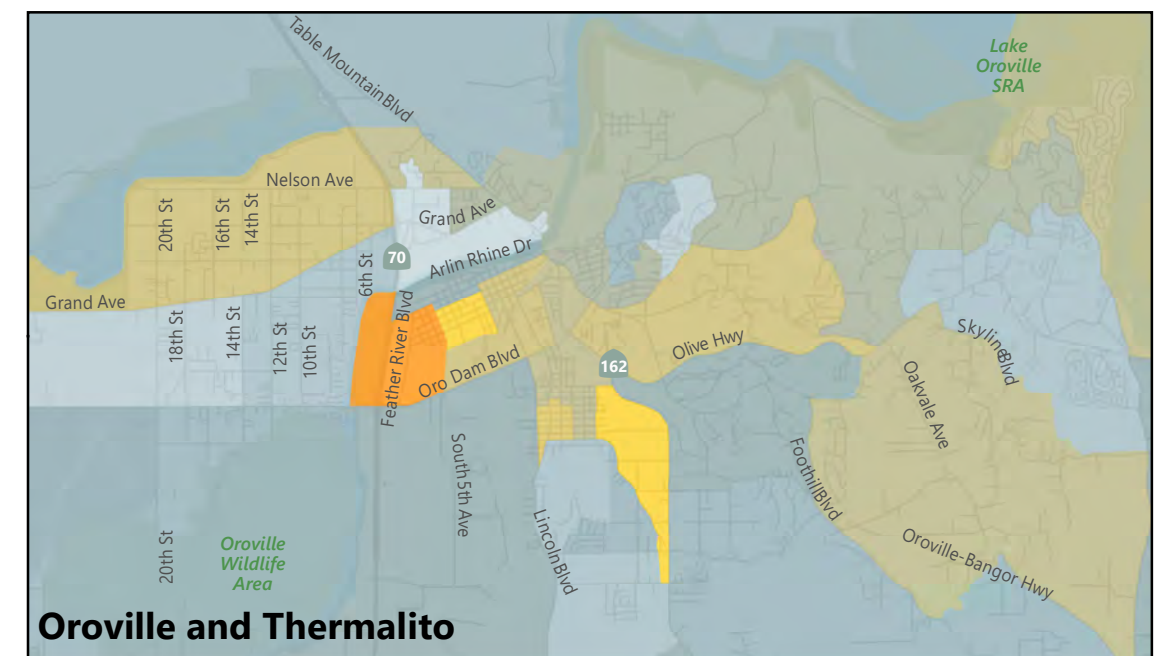
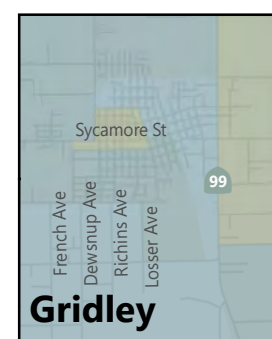
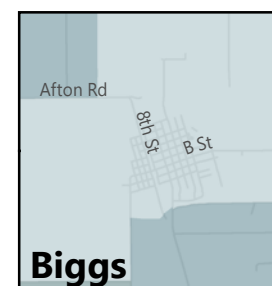
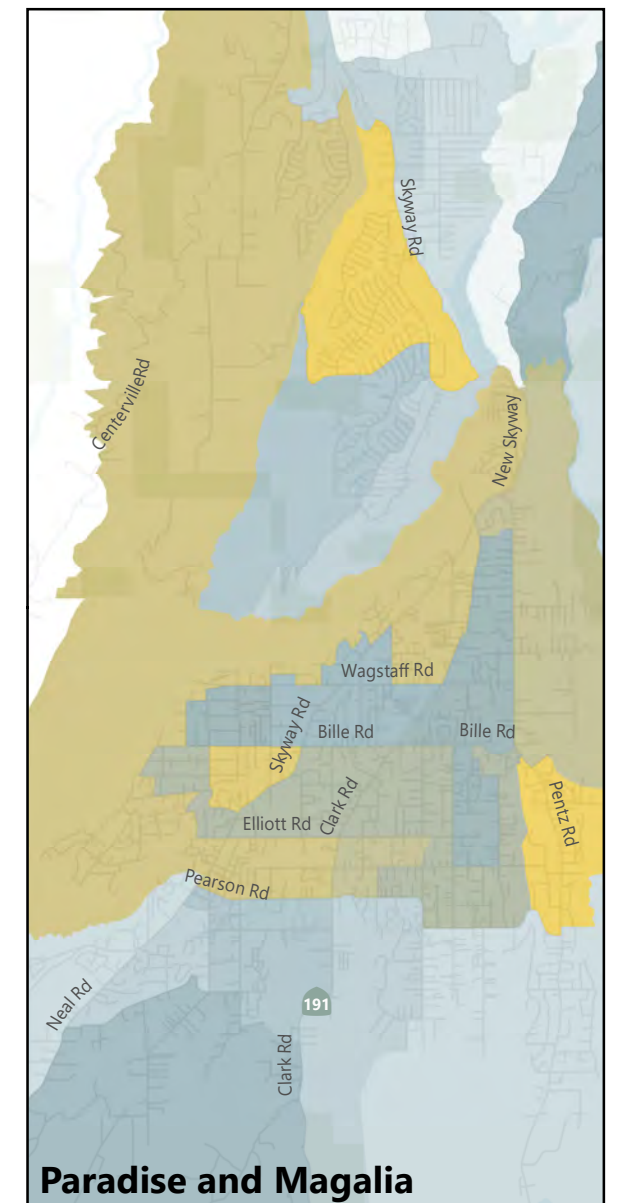
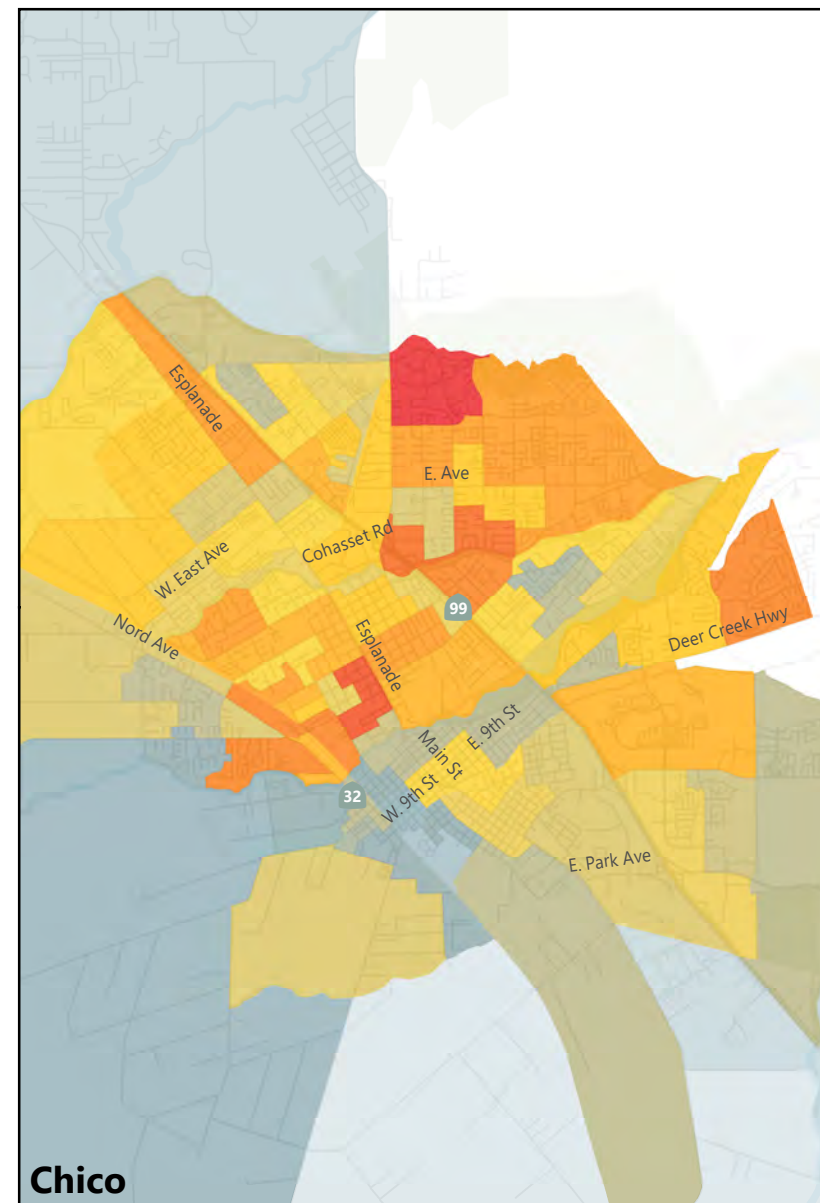
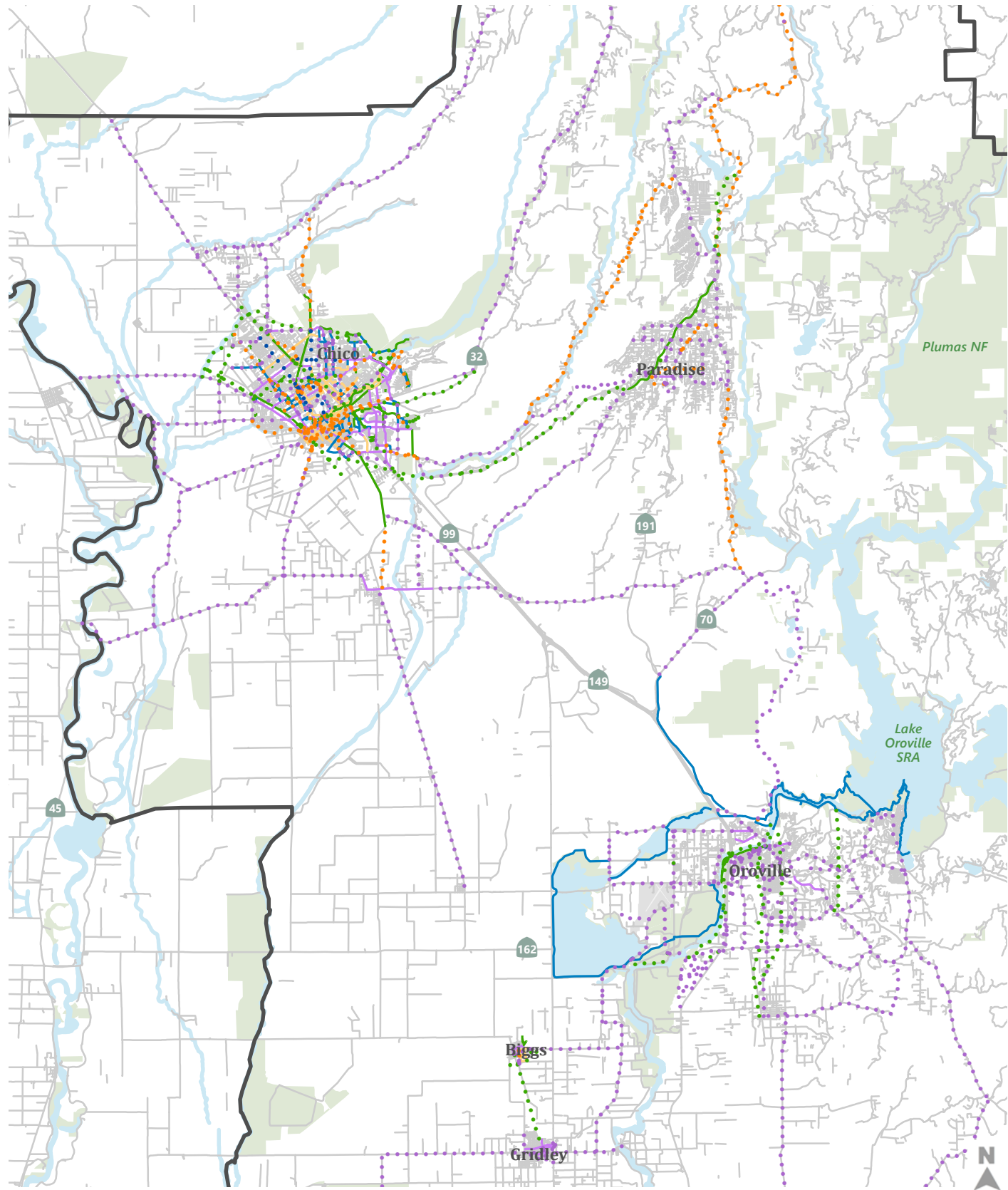


Figure 17
Transit Ridership Potential

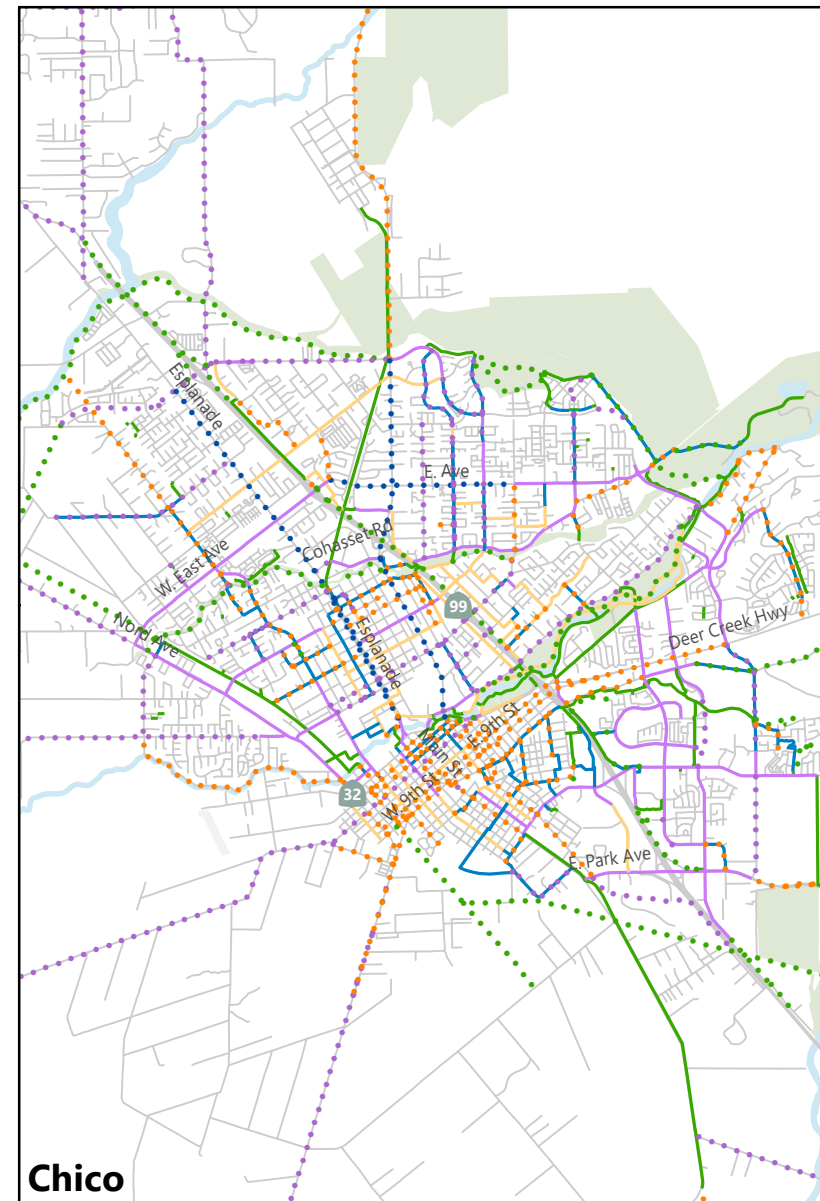




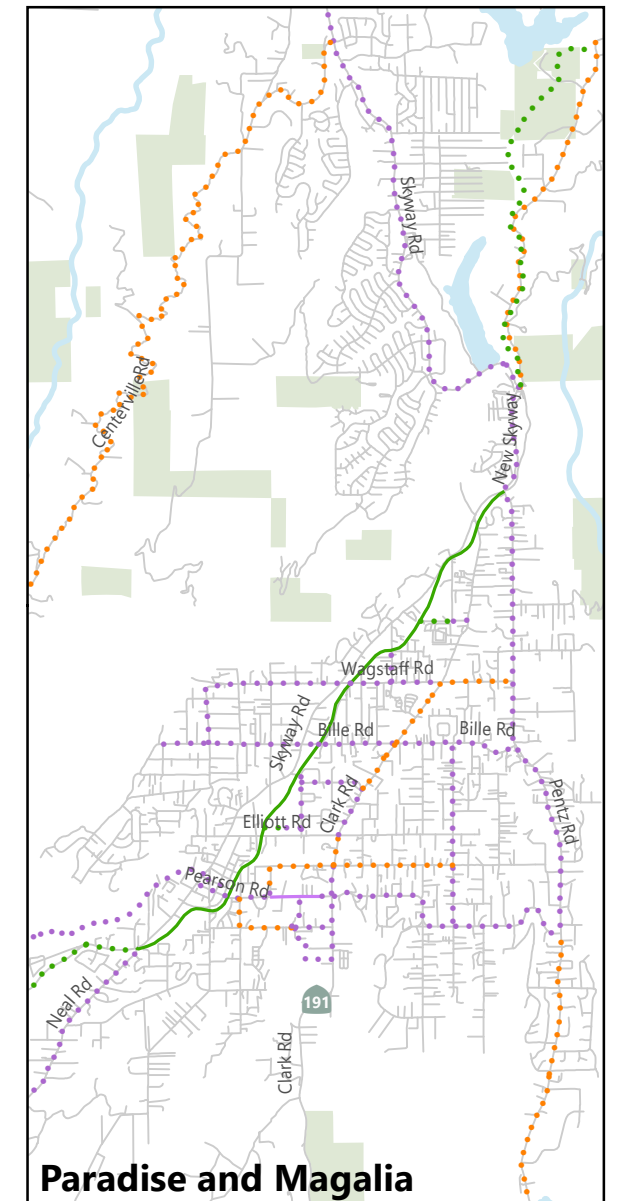
Source: BCAG RTP/SCS GIS Data

Figure 18
Existing & Proposed Bicycle Facilities

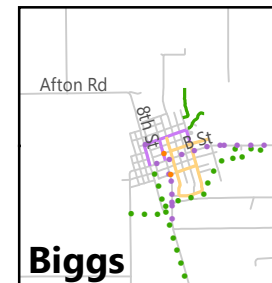
- | Existing Bicycle Facilities | Proposed Bicycle Facilities |
|-----------------------------|-----------------------------|
| Class I - Bike Path | Class I - Bike Path |
| Class II - Bike Lane | Class II - Bike Lane |
| Class III - Bike Route | Class III - Bike Route |
| Multi-Use Trail | Multi-Use Trail |



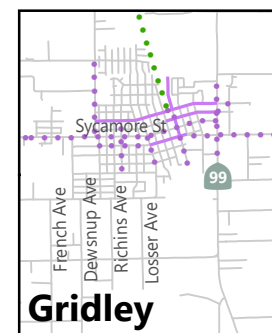
Chico



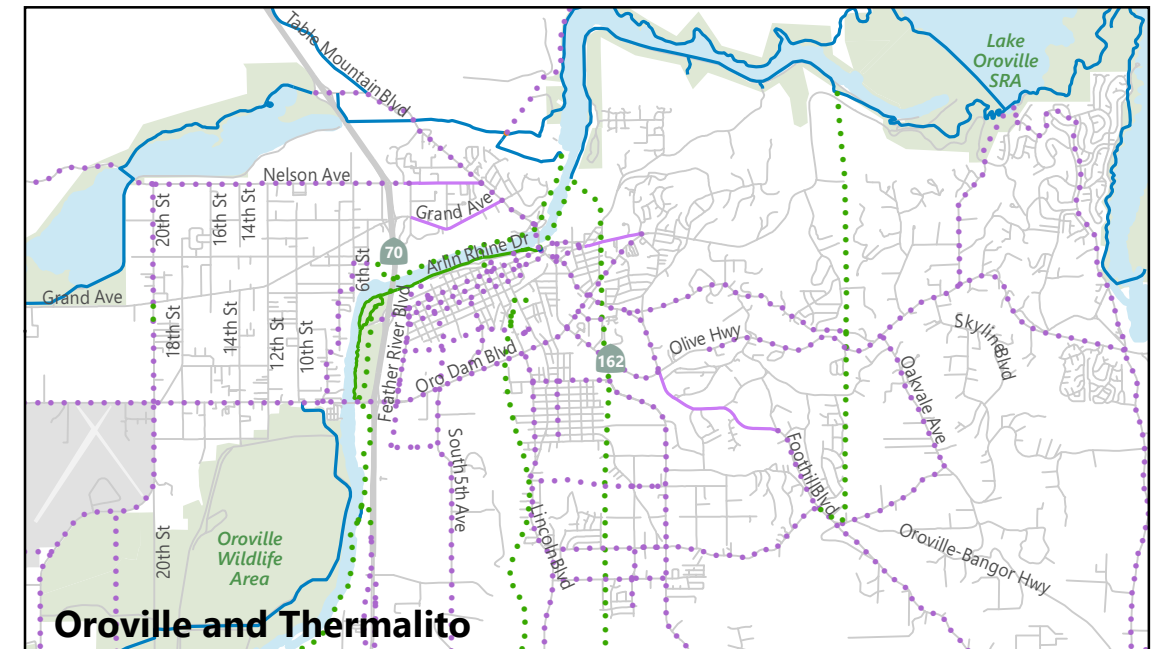
Paradise and Magalia



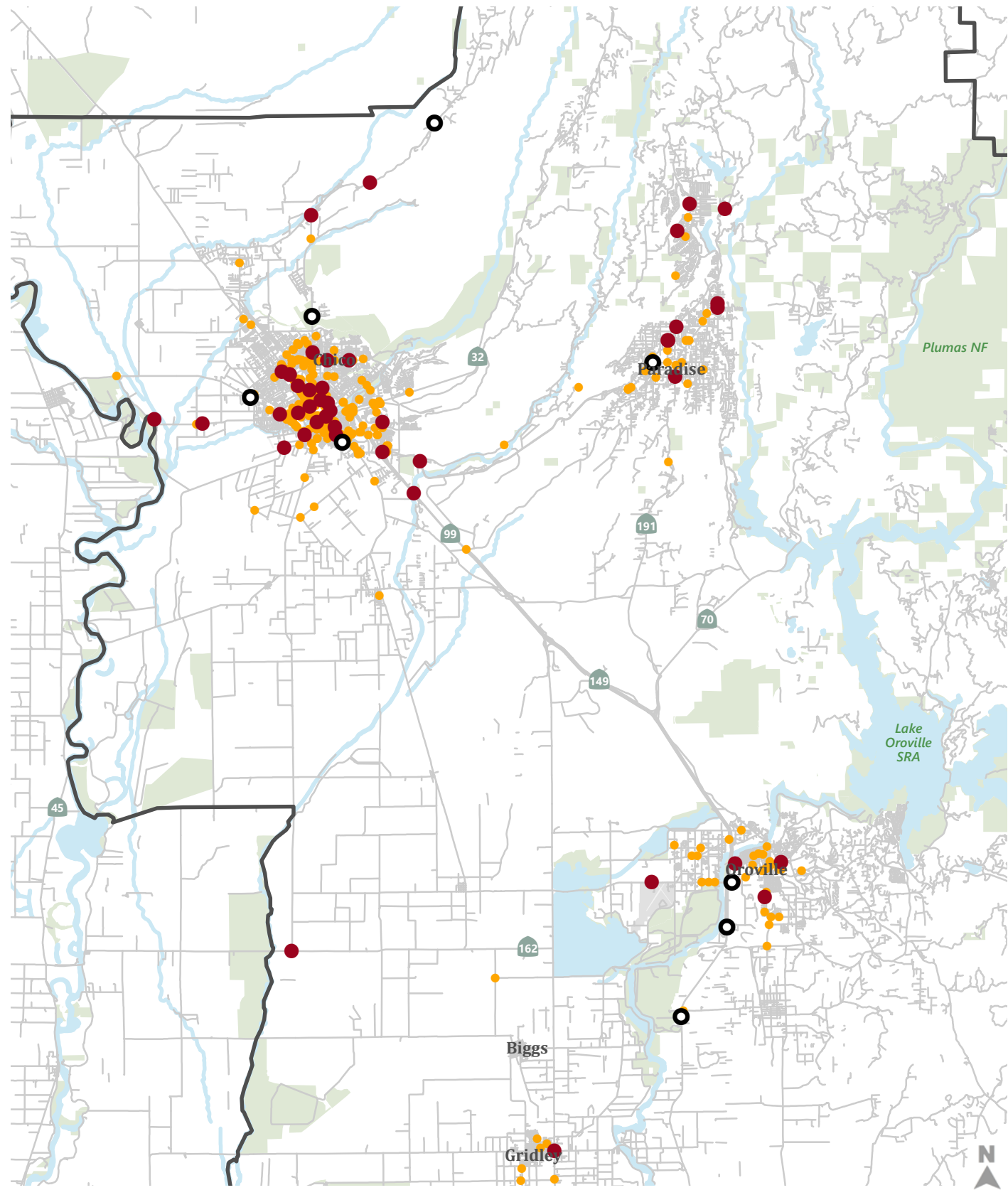
Biggs



Gridley

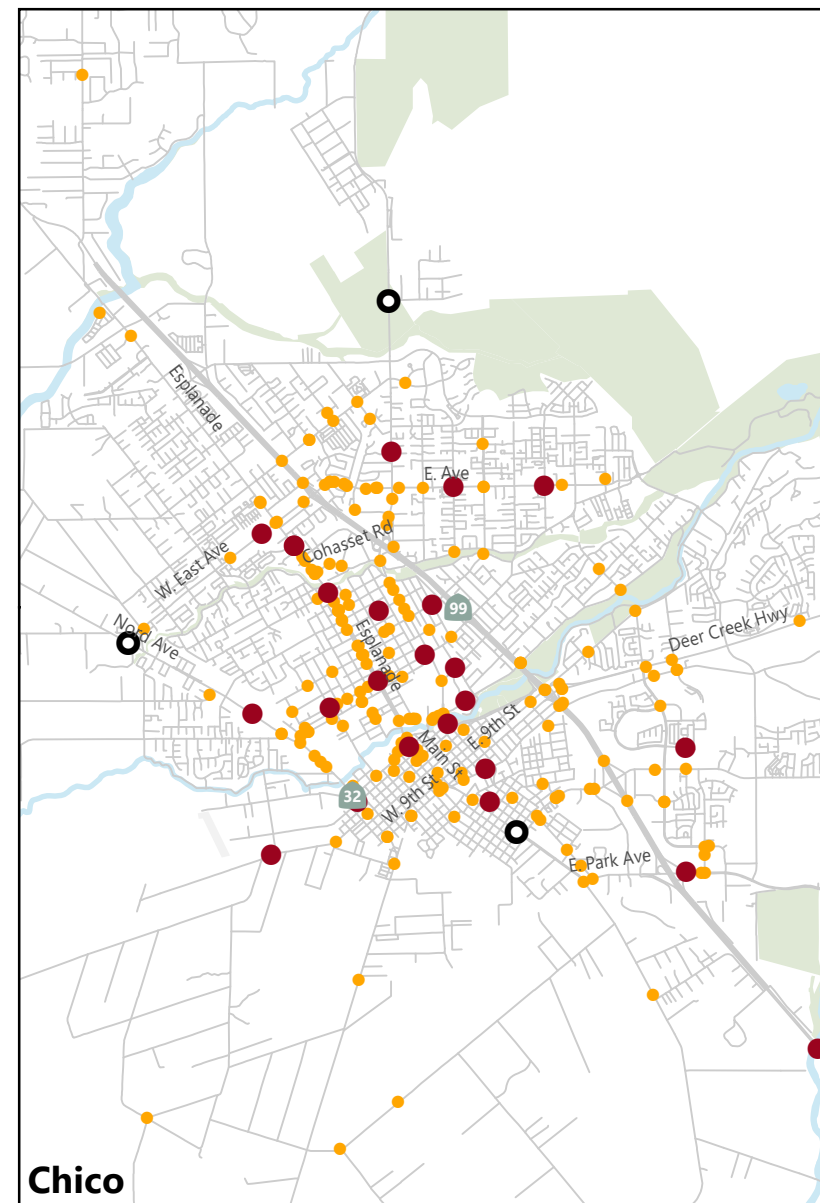


Oroville and Thermalito

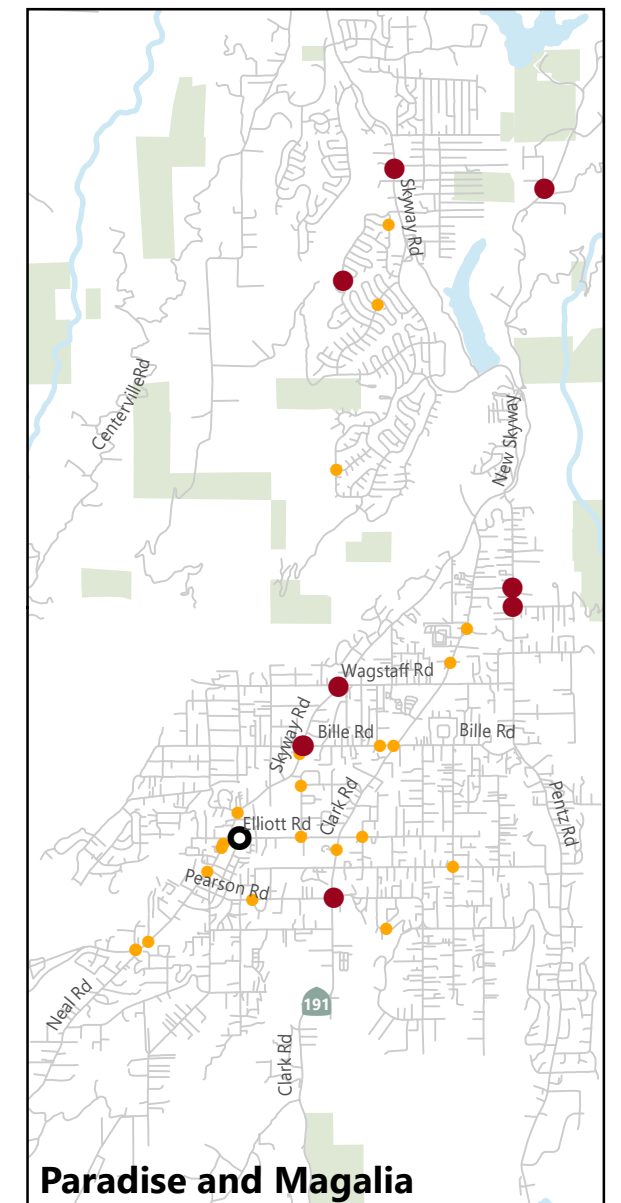


- Bicycle Collision
- Fatal Collision
 - Severely Injured Collision
 - Bicycle Collision

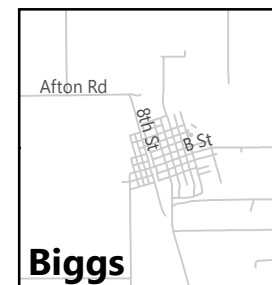
Figure 20
Bicycle Collisions, 2014-2018



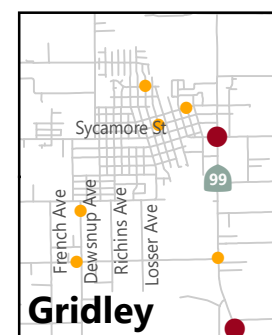
Chico



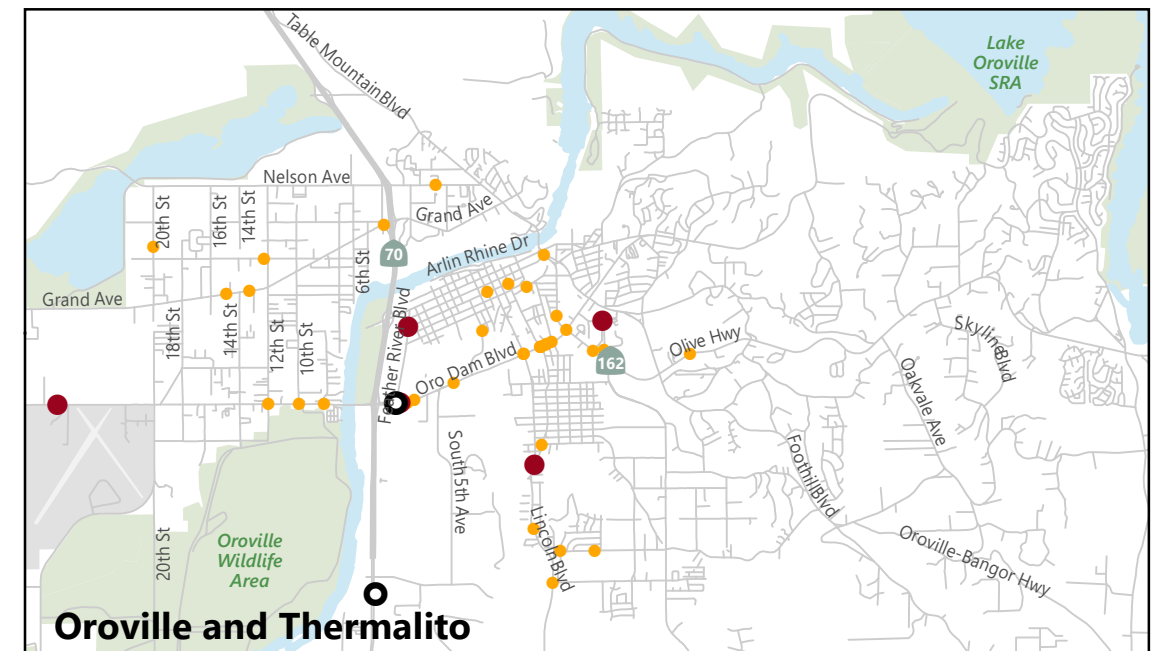
Paradise and Magalia



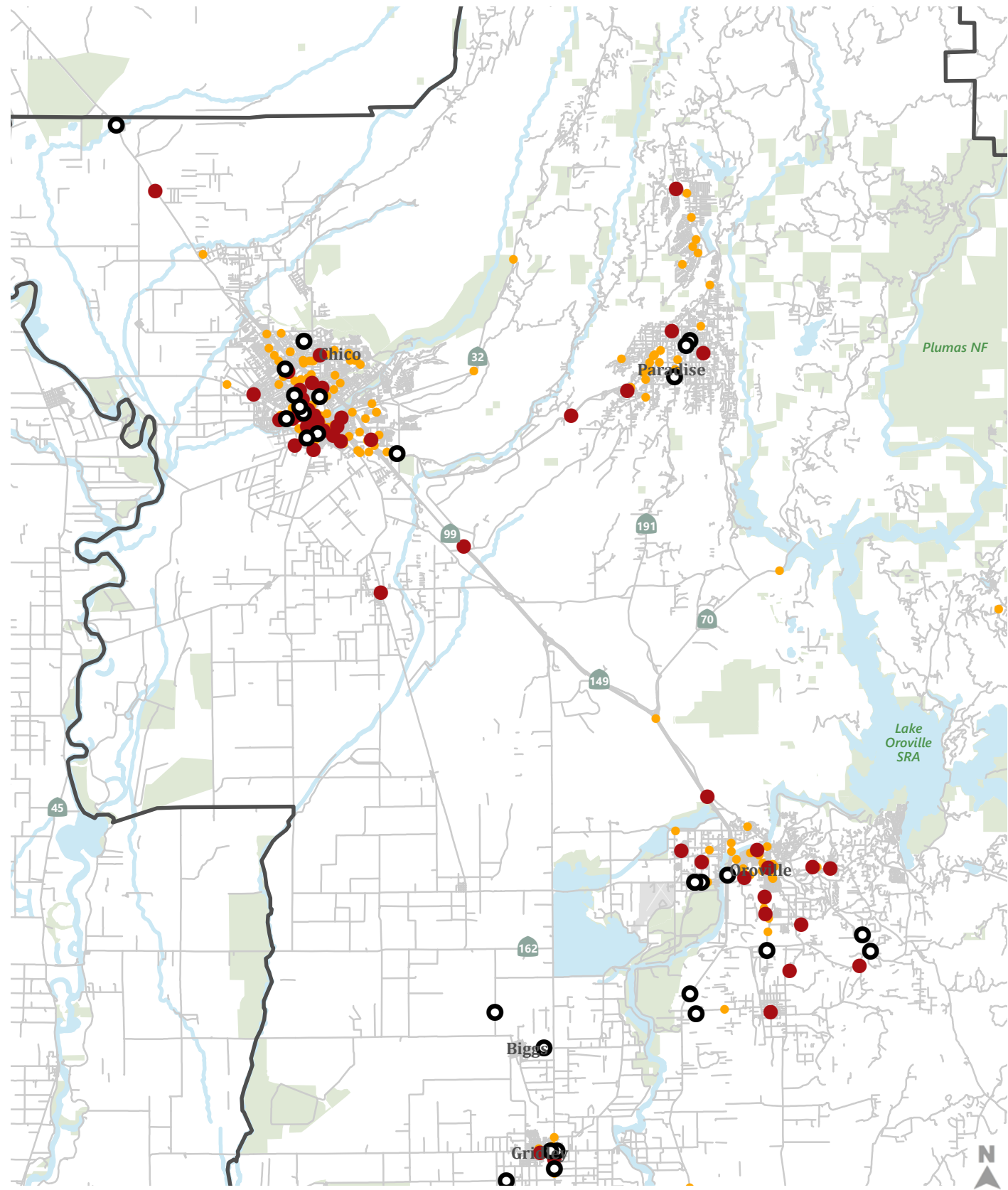
Biggs



Gridley

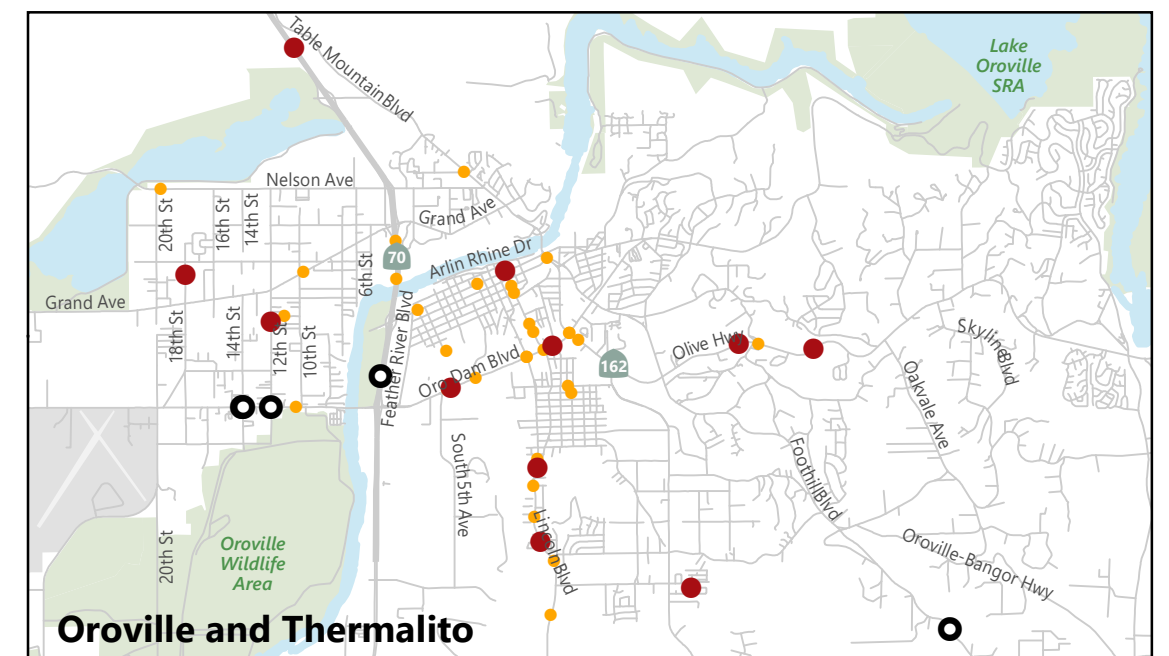
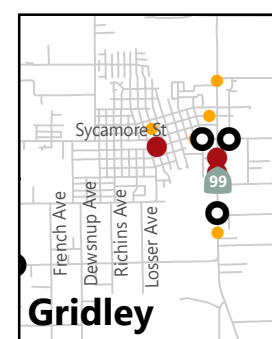
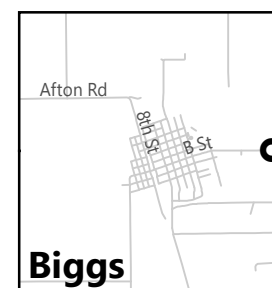
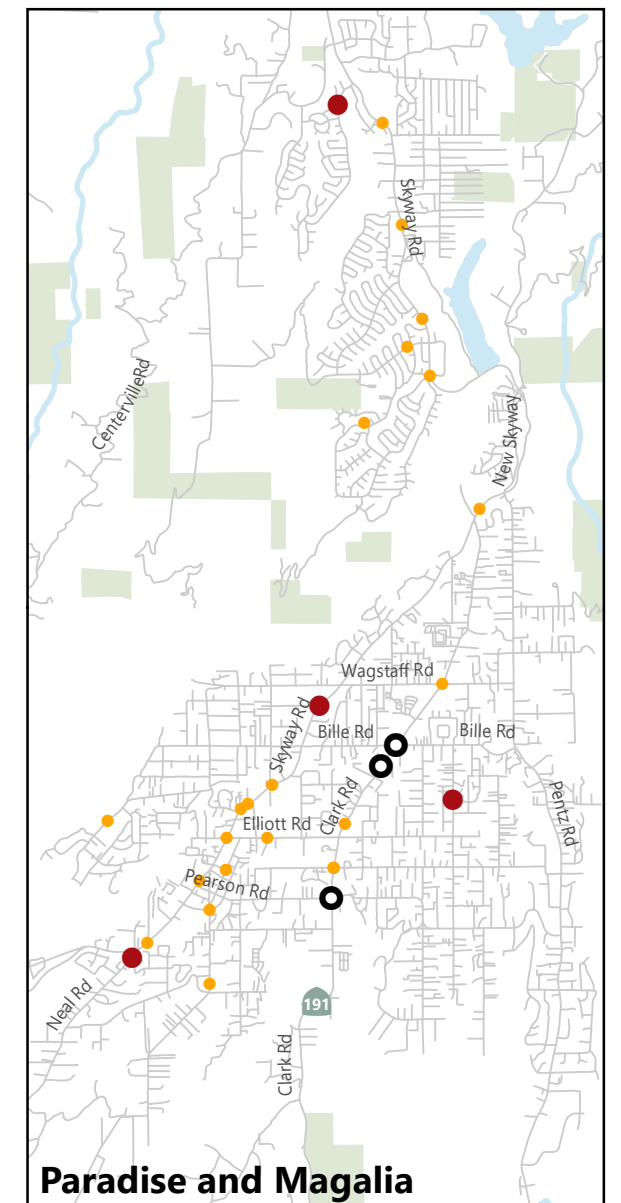
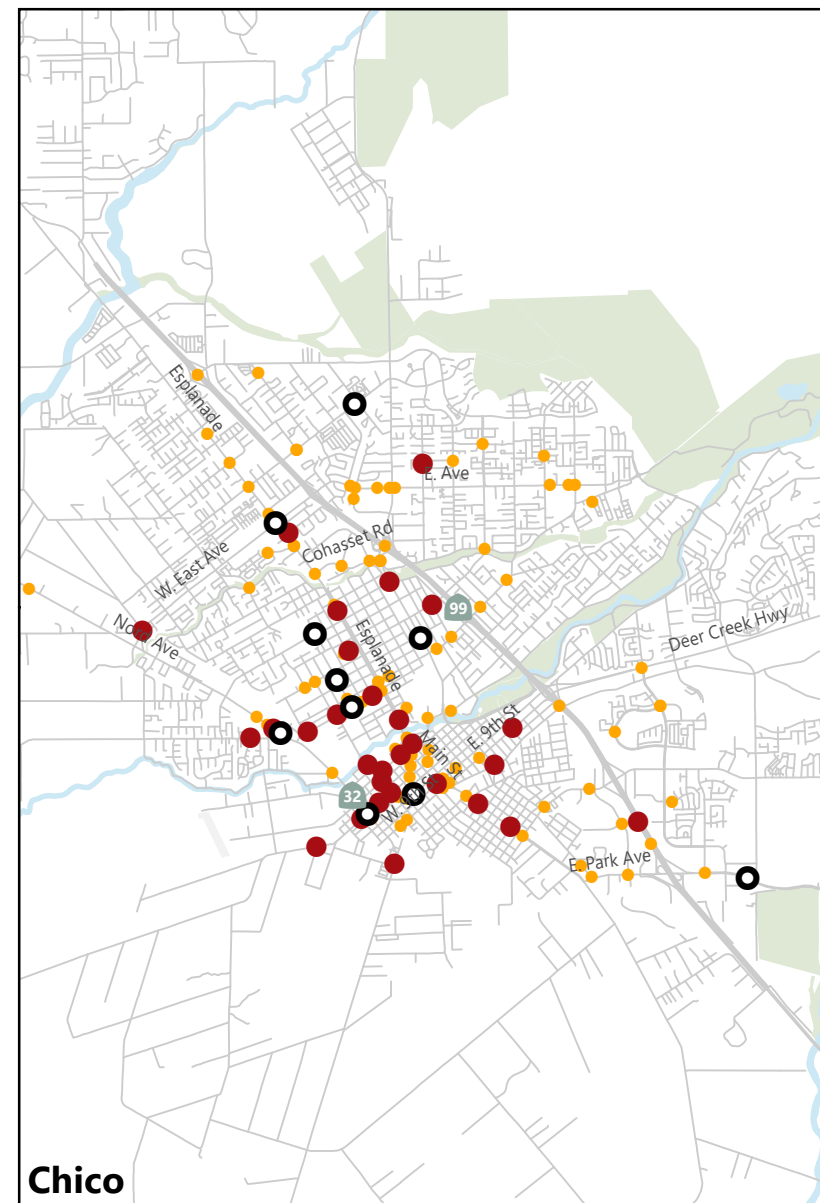


Oroville and Thermalito



- Pedestrian Collisions
- Fatal Collision
 - Severely Injured Collision
 - Pedestrian Collision

Figure 21
Pedestrian Collisions, 2014-2018



Memorandum

Date: November 19, 2020

To: Sara Cain – Butte County Association of Governments

From: Greg Behrens – Fehr & Peers

**Subject: Post Camp Fire Regional Population & Transportation Study
Butte County Transit and Non-Motorized Plan Update
Task 6.3 Planning Framework Memorandum**

RS19-3800

This memorandum provides a summary of the planning framework, which includes the key issues and guiding principles that will guide the development of future B-Line service recommendations. These principles respond to the opportunities and challenges identified for the existing B-Line system and its underlying market conditions. The service framework will help develop specific transit services and the overall B-Line network that meet the plan goals.

At this stage, the service framework is informed by the key findings from the Market Assessment and Service Evaluation. The service framework should be updated to reflect input provided during the community and stakeholder outreach process to ensure that the eventual service plan is reflective of the needs of its existing and prospective riders.

The planning framework is comprised of the following tenets:

- **Service Delivery Model:** Currently, the B-Line system operates with a primarily fixed-route bus service delivery model, where customers plan trips via published schedules and utilize regular routes to access destinations throughout the service area. Under this model, customer travel choice is defined by the availability of transit service as determined by the timing of scheduled trips and the location of transit routes and their associated bus stops. This plan will explore the potential for refinements to the current fixed-route model, as well as the potential for new market-based services, that more closely match customer expectations for transit in and around Butte County. Potential market-based services include demand response transit services in areas with lower transit ridership potential, point-to-point intercity services, and transportation network company (TNC) partnership programs. The plan will also examine measures to optimize the efficiency and effectiveness of paratransit service.
- **Balancing Ridership and Coverage:** B-Line allocates fixed operating resources towards balancing goals of maximizing ridership (the number of people using its buses) and coverage (the amount of area served by its buses). Balancing these goals requires



tradeoffs: a system that only maximizes ridership would focus on areas where transit demand is highest, while a system that only maximize coverage would spread bus routes evenly across the service area. B-Line currently balances these goals by providing more frequent service (peak frequency of 30-minutes or better) on seven routes while providing low frequency service (every 60 minutes) to as many other areas as possible. This plan will evaluate whether this current balance meets the needs of existing and prospective B-Line passengers. A key component of this evaluation will include an assessment of whether existing routes with more frequent service justify this increased investment based on their ridership patterns.

- **Service Span:** While people within the B-Line service area may drive, bike, or walk at any time of day, they may only ride the bus during B-Line operating hours of 6 AM to 10 PM on weekdays (on all 22 B-Line routes), from 8 AM to 7 PM on Saturdays (on 13 of 22 B-Line routes), and from 8 AM to 6 PM on Sundays (on one of 22 B-Line routes). This plan will consider if these hours of operation meet the needs of existing and prospective B-Line passengers.
- **Equity:** The plan will identify transit services that meet the mobility needs of the service area's most vulnerable populations, including low income, minority, and transit dependent populations.
- **Downtown Chico:** Downtown Chico will remain a key part of the B-Line network due to the proximity of Chico State, available transit connections at the Chico Transit Center, and other prevailing market conditions. B-Line operations through Downtown Chico will be evaluated to optimize service reliability and passenger transfer opportunities.
- **Key Corridors:** The plan will explore potential upgrades to services on existing key corridors with higher transit ridership potential, including those where local jurisdictions are planning for land uses that support transit, pedestrian activity, and bicycle use.
- **Service Restoration:** A phased service plan will be developed to re-introduce transit service to Paradise and other communities impacted by recent wildfires. This phased plan will consider the anticipated timing and nature of resettlement in impacted communities. Additionally, this phased plan will consider the role of market-based services as a component of restored service in Butte County.
- **Funding:** In light of current uncertainties related to transit funding sources and the on-going COVID-19 pandemic, care should be taken to invest B-Line's limited financial resources in areas where market conditions will best support transit usage.
- **Amenities:** Transit amenities represent the nexus between transit passengers and transit service. Transit amenities play a significant role in service quality, ease of access, and the overall customer experience. Key areas for focus for B-Line include the provision of safe and comfortable bicycle and pedestrian facilities to provide first-/last-mile active transportation connections to transit, particularly within the vicinity of major transit centers. Additional items may include new or improved shelters and integrated real-time customer information.



- **Network Design:** Successful transit systems share the same basic elements related to network design and service delivery to ensure a positive customer experience. The B-Line system will be configured to incorporate the following guiding principles related to network design:
 - **Regularity:** Regularity refers to the time interval between trips at a given transit stop. Repeating trip intervals are easier for customers to remember, while inconsistent schedule patterns can confuse customers as they plan their trip. For example, regular trip intervals based on basic clockface elements (i.e., 15-, 30-, and 60-minute intervals) are immediately recognizable. On-time performance also affects the regularity of a transit service, since routes that routinely arrive early or late introduce irregularity and uncertainty to a scheduled timetable. Recommendations identified in this plan will maintain a high degree of service reliability while providing service at regular intervals in line with customer mobility needs.
 - **Directness:** Directness refers to the path between a transit trip origin and destination. Route directness correlates with travel time, which is a key factor in a customer's decision to utilize transit service. Routes that minimize the distance between origins and destinations are more attractive than circuitous routes that add unnecessary travel time. Circuitous routes can disorient customers by deviating from familiar travel corridors.
 - **Symmetry:** Symmetry measures how closely a departing transit trip resembles a return transit trip. Symmetrical routes follow similar inbound and outbound paths and allow customers to board and deboard at bus stops in close proximity to each other, improving the legibility of a transit route.
 - **Synchronization:** Synchronization refers to the operation of individual routes to form a unified, cohesive transit system. Synchronized transit systems facilitate coordinated, seamless transfers from one route to another while minimizing redundant routings and service coverage.
 - **Simplicity:** Simple transit systems are highly legible and easy to understand for customers of all ages and abilities. Hallmarks of simple transit systems include a straightforward route structure with distinct routes serving key markets, routes with repetitive trip and schedule patterns, and major origin-destination connections fulfilled by a single route or two routes with a brief, well-coordinated transfer window.

Butte County Transit & Non-Motorized Plan

Prepared for:

Butte County Association of Governments

Final Report

Print Date April 14, 2021

FEHR  PEERS

Fehr & Peers Project # RS19-3800

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1. Introduction

The Butte County Association of Governments (BCAG) *Transit & Non-Motorized Plan* establishes a vision for future transit and non-motorized transportation improvements in communities throughout Butte County. Investments in transit services and facilities and bicycling and walking infrastructure near transit will be necessary to accommodate planned future growth and to support the land use, mobility, and climate goals set forth in the BCAG *2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)*. As the operator of B-Line fixed-route bus and complementary ADA paratransit service throughout Butte County, BCAG has a unique role in implementing this vision. Accordingly, this plan envisions new and expanded local and intercity public transit services, improved bikeways and bicycle paths, and improved pedestrian access to transit.

The need to update this plan emerged following the Camp Fire in November 2018, which devastated several Butte County communities and caused substantial population and employment displacement within Butte County and between Butte County and outlying areas throughout Northern California. Additionally, this plan was prepared in the midst of the COVID-19 pandemic, which has had a profound effect on the day-to-day lives of Butte County residents. Factors such as the restrictions on in-person instruction at Chico State and other local schools to the increased prevalence of remote working have altered travel patterns and changed where and how people travel. Considering these factors, the *Transit & Non-Motorized* plan provides a blueprint for the expansion of transit, walking, and bicycling systems throughout Butte County as rebuilding from the Camp Fire and the recovery from the COVID-19 pandemic unfold.

Summary

This plan identifies near-term (through 2025) and long-term (through 2045) improvements to transit services and facilities throughout Butte County, including the following:

- Maintain or increase service levels on most productive B-Line routes
- Establish a transit-priority corridor in Chico to connect Downtown Chico, the Chico State campus, and other key destinations with frequent and reliable transit service
- Simplify routes to improve the reliability of B-Line service and make transit easier to use
- Increase transit service levels to Paradise and surrounding communities on the Ridge as they continue to recover from recent wildfires
- Explore the implementation of on-demand rideshare and vanpool services
- Expand transit service into new development areas
- Explore new and enhanced intercity bus service, including potential service to Sacramento

Additionally, this plan identifies strategies to improve the comfort and convenience of accessing transit by foot or by bike, including the following:

- Improvements to on- and off-street bicycles facilities serving major transit stops, such as new bike paths, bike lanes, and separated bikeways
- Improvements to sidewalks and road crossings near major transit stops
- Improvements to bicycle parking and storage facilities at transit centers, transfer points, and major destinations

These improvements were developed based on extensive technical analysis and community feedback conducted by BCAG and the project team.

Relevant Plans and Studies

A number of existing plans and planning processes informed the development of the *Transit & Non-Motorized Plan*. 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.

Butte County Transit & Non-Motorized Plan – 2015

The prior *Transit & Non-Motorized Plan* was prepared in 2015. Given the recency of the 2015 plan, this plan serves as an update to the 2015 plan, with an eye towards refining transit and non-motorized transportation improvement recommendations in response to demographic and travel pattern shifts resulting from the Camp Fire, as well as other external factors that have influenced transit, walking, and bicycling activity throughout the County.

BCAG 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) – December 2020

The Butte County Association of Governments (BCAG) *2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)* provides systematic, long-range regional planning for transportation projects and programs in Butte County from 2020 to 2040. The RTP/SCS identifies the following policies related to transit and non-motorized travel:

- **Transit**
 - Provide adequate fixed route transit system to serve the general public, including those populations who rely most on transit.
 - Provide complementary dial-a-ride transit services for the elderly, handicapped, and those residents not served by a fixed route service within the service area.
 - Expand service as necessary to increase overall ridership.

- Evaluate fixed route system and identify best methods for increasing ridership, as needed.
- **Non-Motorized Transportation**
 - Support the construction of bike facilities and access to transit as designated in the local alternative transportation plans.
 - Support projects and policies for bicycles on the fixed route transit system (bike racks, etc.).
 - Support local efforts in complete streets approach towards achieving active transportation project enhancements.
- **Other Relevant Policies**
 - Provide convenient travel choices including transit, driving, ridesharing, walking, and biking.
 - Increase the use of transit, ridesharing, walking and biking in major corridors and communities.
 - Ensure access to jobs, services, and recreation for populations with fewer transportation choices.
 - Work towards reducing greenhouse gas emissions from vehicles and continue to improve air quality in the region.

Unmet Transit Needs Assessment – October 2020

The Unmet Transit Needs Assessment (UTNA) 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 2020/2021 fiscal year, BCAG found no unmet transit needs that were reasonable to meet (based on criteria for cost effectiveness, economy, community acceptance, and operational feasibility). Meetings are ongoing for the 2021/2022 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 percent decrease in vehicle revenue hours
- Reallocation of existing vehicle revenue hours to better meet market needs
- 10 percent 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

Bicycle and Pedestrian Plans

All five of the cities and towns within Butte County, as well as Butte County itself, have bicycle and/or pedestrian plans adopted by their elected officials. Note that the *Transit & Non-Motorized Plan* does not supersede locally adopted plans, but instead prioritizes bicycle and pedestrian improvements identified in local plans based on the extent to which they support transit usage. The plans below include improvements that address both bicycle and pedestrian safety in the County.

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 and towns 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.

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 2019 *Chico Bicycle Plan*, which the City Council adopted on April 16, 2019. The City's previous bicycle plan was released in 2012.

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 2009 *City of Oroville Bicycle Transportation Plan*. The plan serves as an update to the City of Oroville Bicycle Transportation Plan authored by the BCAG and adopted by the Oroville City Council in December 1998.

Town of Paradise

The *Town of Paradise 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.

Plan Elements

This plan is comprised of the following chapters:

- **Chapter 2 – Transit Service Evaluation.** Includes a description and analysis of existing Butte County transit services, with a focus on B-Line fixed-route service performance. 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 3 – Transit Market Assessment.** Examines demographic, socioeconomic, and travel pattern data to identify potential transit markets in Butte County.
- **Chapter 4 – Non-Motorized Transportation Network.** This chapter provides an overview of existing bicycle and pedestrian infrastructure in Butte County.
- **Chapter 5 – Community Engagement Summary.** Provides a summary of community engagement activities conducted over the course of this planning process.
- **Chapter 6 – Planning Framework.** Describes the key issues and guiding principles that guided the development of transit and non-motorized transportation recommendations.
- **Chapter 7 – Transit Service Plan.** Describes the near- and long-term B-Line fixed-route service recommendations.
- **Chapter 8 – Non-Motorized Transportation Improvements.** Describes bicycle and pedestrian infrastructure recommendations.
- **Chapter 9 – Implementation.** Describes implementation considerations specific to the B-Line near- and long-term service recommendations. 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. Transit Service Evaluation

The service evaluation describes existing B-Line service with respect to four topics:

1. **Transit Network Overview.** Describes the existing B-Line system and service levels.
2. **Historical Trends.** Evaluates performance trends for the B-Line system over the past five years.
3. **Service Ridership.** Describes the current use of the B-Line system at the network and route level, including temporal and geographic ridership patterns.
4. **Service Performance.** Evaluates service productivity and financial effectiveness.
5. **Service Quality.** Evaluates service reliability, access, and trip loads.

Transit Network Overview

B-Line operates local and intercity fixed route bus and demand-response paratransit service in the cities of Chico, Gridley, Biggs, Oroville, the Town of Paradise, and portions of unincorporated Butte County. B-Line fixed-route bus services consist of urban routes within Chico and rural routes between other jurisdictions. B-Line service is delivered by a contract transit operator, Transdev, Inc.

Service Characteristics

As of Fall 2019, the B-Line system is comprised of 23 weekday, 13 Saturday, and 1 Sunday fixed-route bus services. Several routes operate on modified schedules when Chico State is not in regular session, including Routes 8, 9, and 9c. Due to the Camp Fire, Route 31 is currently suspended and Routes 40 and 41 operate on reduced schedules. B-Line does not operate on six holidays, including New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas.

Table 1 provides an overview of the service characteristics for existing B-Line fixed-route services in 2020, prior to COVID-19 related service modifications.

Transit & Non-Motorized Plan
Butte County Association of Governments

Table 1. B-Line Fixed-Route Service Characteristics

Route	Weekday (Mon. – Thu.) ¹		Saturday		Sunday	
	Frequency (Peak/Off-Peak)	Service Span	Frequency	Service Span	Frequency	Service Span
2 – Mangrove	60/60	6 AM – 9 PM	60	8 AM – 7 PM	-	-
3 – Nord/East	30/60	6 AM – 9 PM	60	9 AM – 7 PM	-	-
4 – First/East	30/60	6 AM – 9 PM	60	9 AM – 7 PM	-	-
5 – E. 8 th Street	60/60	6 AM – 9 PM	60	8 AM – 7 PM	-	-
7 – Courthouse/East	60/180	7 AM – 6 PM	-	-	-	-
8 – Nord	30/30	7 AM – 10 PM	-	-	-	-
9 – Oak/Warner/Cedar	30/30	7 AM – 10 PM	-	-	-	-
9c – Cedar Loop	4 daily round-trips		5 daily round-trips		-	-
14 – Park/Forest/MLK	20/60	6 AM – 10 PM	60	8 AM – 7 PM	-	-
15 – Esplanade/Lassen	20/30	6 AM – 10 PM	60	8 AM – 7 PM	-	-
16 – Esplanade/SR99	60/60	7 AM – 7 PM	60	8 AM – 6 PM	-	-
17 – Park/MLK/Forest	30/60	7 AM – 6 PM	60	8 AM – 6 PM	-	-
20 – Chico/Oroville	60/60	6 AM – 8 PM	120	8 AM – 6 PM	120	8 AM – 6 PM
24 – Thermalito	60/60	6 AM – 8 PM	-	-	-	-
25 – Oro Dam	60/60	6 AM – 7 PM	-	-	-	-
26 – Olive Highway	60/60	6 AM – 6 PM	-	-	-	-
27 – South Oroville	60/60	7 AM – 7 PM	-	-	-	-
30 – Oroville/Gridley/Biggs	3 daily round-trips		3 daily round-trips		-	-
31 – Paradise/Oroville	Service currently suspended due to Camp Fire					
32 – Gridley/Chico	1 daily round-trip		-	-	-	-
40 – Paradise/Chico	4 daily round-trips		3 daily round-trips		Suspended	
41 – Paradise Pines/Chico	5 daily round-trips		3 daily round-trips		-	-
52 – Chico Airport Express	60/--	5 AM – 6 PM	-	-	-	-

Source: BCAG, 2020.

Note: ¹ Routes 8, 9, and 9c have modified Friday schedules due to changes to Chico State Friday class schedules.

Fleet

The B-Line fleet consists of 33 standard buses, with two of these vehicles powered by Compressed Natural Gas (CNG). The CNG vehicles are nearing the end of their 12-year useful life and will be replaced by 2022. BCAG has received partial funding to purchase its first battery electric bus through the State of California Low Carbon Transit Operations Program (LCTOP).

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. Table 2 provides a summary of B-Line fixed-route vehicles.

Transdev performs dispatching duties and stores and maintains vehicles at the Butte Regional Operations Center in Chico (BROC). The BROC was completed in 2016 and consists of the transit maintenance facility, operations center, and BCAG’s administrative offices. The BCAG Board Room, conference room, training facility, and bus wash are also on-site.

BCAG is in the process of converting its fleet to 100 percent electric by 2040, and as of March 2021, has secured funding for four zero-emission battery electric buses, charging equipment, and necessary underground upgrades to the BROC.

Table 2. B-Line Fixed-Route Fleet

Make	Model	Vehicle Year	Fuel Type	Capacity	Age (Years)	Count
Orion	Orion VII	2008	CNG	44	12	2
Gillig	Low Floor	2011	Diesel	44	9	6
Gillig	BRT	2014	Diesel	44	6	6
Gillig	BRT	2017	Diesel	44	3	13
Gillig	BRT	2020	Diesel	44	0	6
Total						33

Source: BCAG, 2020.

Transit Centers and Transfer Points

B-Line serves three transit centers that offer timed transfer points in Chico, Oroville, and Paradise. The Chico Transit Center is located on West 2nd Street between Salem Street and Normal Avenue in downtown Chico. The facility, which opened in 2008, features shelters, restrooms, staffed ticket office, and bus boarding areas on each block. The Chico Transit Center is served by most local and intercity B-Line routes, including Routes 2, 3, 4, 5, 8, 9/9C, 14, 15, 16, 17, 20, 32, 40, 41, and 52.

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 and 41.¹ The Paradise Transit Center is a bus shelter only. Improvements to the Paradise Transit Center have been planned and designed and are currently awaiting funding for construction.

In addition to the three transit centers, B-Line serves the following transfer points:

- The Forest Avenue Transfer Point or “Forest Avenue Xfer,” is located on both sides of Forest Avenue at Baney Lane and Parkway Village near the Chico Walmart. Buses on Routes 5, 14, 17, 20, 40, and 41 all serve the Forest Avenue Transfer Point.
- The North Valley Plaza transfer point in Chico connects Routes 2, 3, 4, and 52.
- The Lassen/Ceres transfer point in Chico connects Routes 2, 7, and 15.
- The Butte County Public Works transfer point in Oroville connects Routes 20 and 24.
- The Skyway/Wagstaff and Clark/Wagstaff transfer points in Paradise connect Routes 31, 40, and 41.

Fares

B-Line fixed-route fares vary between service type, with local service fares priced slightly lower than regional service fares (see Table 3). The current B-Line fare structure went into effect on September 1, 2019.

Regular local fares are \$1.75 and regular regional fares are \$2.40. Youth (ages 6 to 18) and discount (seniors, disabled, and individuals with a valid Medicare card) fares allow qualifying passengers to ride at a reduced cost. B-Line offers several types of passes, including 2-ride, 10-ride, and 30-day passes. An all-day pass can be purchased from a bus operator for \$5.00, providing unlimited use of B-Line services during the day of purchase. Local tickets, passes, or

¹ Route 31 served the Paradise Transit Center but is currently suspended due to the Camp Fire.

transfers can be upgraded to a regional fare by paying the fare differential between the two service types.

Transfers are available to passengers who require multiple bus routes to complete a trip and are issued by bus operators upon request. Local transfers are valid for one hour from the time issued and regional transfers are valid for two hours from the time issued.

B-Line offers several specialty passes:

- Chico State students, faculty, and staff ride for free with a valid Wildcat ID card. This pass program is funded by Associated Students and the University.
- Butte College students are eligible to purchase regular 30-day passes at the youth rate.
- City of Chico employees and downtown Chico employees are eligible for the City of Chico Transit Pass, which can be used for bus trips to and from the downtown Chico area.

Tickets and passes may be purchased in-person at the Butte Regional Transit Office, the Chico Transit Center, the Butte County Public Works Department in Oroville, the Town of Paradise Finance Office, and the Gridley City Hall. Ticket and pass purchases are also available by mail and by phone. B-Line recently developed a mobile ticketing application (app) that allows riders to purchase tickets from their smartphones. As of September 2020, the app is available to riders.

Table 3. B-Line Fixed-Route Fare Structure

Fare Type		Local Service	Regional Service
Cash	Regular	\$1.75	\$2.40
	Discount ¹	\$0.85	\$1.20
	Youth (6-18)	\$1.25	\$1.75
	Child (under 6)	2 free	2 free
2-Ride Pass	Regular	\$3.50	\$4.80
	Discount ¹	\$1.70	\$2.40
	Youth (6-18)	\$2.50	\$3.50
10-Ride Pass	Regular	\$15.75	\$21.60
	Discount ¹	\$7.65	\$10.80
	Youth (6-18)	\$11.25	\$15.75
30-Day Pass	Regular	\$43.50	\$57.50
	Discount ¹	\$21.50	\$30.00
	Youth (6-18)	\$31.25	\$40.00

Source: BCAG, 2020. The fares shown in this table went into effect on September 1, 2019.

Note: ¹ Discount fares apply to seniors (age 65+), disabled, and those with a valid Medicare card.

Paratransit

B-Line Paratransit is a shared ride service designed to meet the needs of seniors and persons with qualifying disabilities who are unable to use the B-Line fixed-route services. B-Line Paratransit is available in Chico, Oroville, and Paradise. B-Line offers two types of paratransit services:

1. ADA paratransit for individuals who cannot utilize the fixed-route system must receive Americans with Disabilities Act (ADA) certification to utilize this service. This certification ensures trips are given priority status.
2. Dial-a-Ride service for riders who are age 70 or older. Dial-a-Ride trips are not given priority status should individuals with ADA certification need the service.

B-Line Paratransit serves all destinations within $\frac{3}{4}$ of a mile of any B-Line fixed-route service, within Chico, Oroville or Paradise. B-Line also provides supplemental service to areas up to three miles outside the ADA boundaries at an additional cost. In order for service to be provided, there must be a direct, easily accessible route from the core service area. All trips provided outside the core service area are considered non-ADA and are provided on a space available basis.

B-Line Paratransit operates between 5:50 AM and 10:00 PM on weekdays, 7:00 AM and 10:00 PM on Saturdays, and 7:50 AM and 6:00 PM on Sundays. The base fare for B-Line Paratransit is \$3.50 per one-way ride. Fares for rides outside of the ADA boundaries are as follows:

- Supplemental Zone 1 – Up to one mile outside core service area - \$8.75
- Supplemental Zone 2 – One to two miles outside core service area - \$10.75
- Supplemental Zone 3 – Two to three miles outside core service area - \$12.75

B-Line Paratransit trips can be scheduled by calling into dispatch up to one week prior to the requested trip.

Paratransit Service Performance

During the 2019 calendar year, B-Line paratransit service generated 131,722 passenger boardings. Service productivity measured slightly above three passengers boardings per revenue hour, while the farebox recovery ratio measured at approximately 11 percent. Generally, rural paratransit service slightly outperformed urban paratransit service.

Historical Trends

Annual revenue hours have been relatively stable between FY 2015/16 and FY 2017/18, but decreased sharply in FY 2018/19 due to service modifications resulting from the Camp Fire. Another major disruption to transit ridership nationwide occurred in March 2020 due to the COVID-19 pandemic. This resulted in overall depressed passenger ridership, fares, and service hours for the latter half of FY 2019/20. B-Line's fixed route service has remained the same for the most part, except for the Student Shuttle (Routes 8 and 9) that were reduced due to Chico State's

cancellation of on-campus classes. B-Line also had to modify service due to reduced driver availability from COVID-19 stay-at-home orders.

Overall, annual revenue hours have decreased by six percent between FY 2015/16 and FY 2019/20, echoing trends experienced by transit agencies across the United States. Despite reductions in service, the cost to deliver B-Line service has steadily increased in recent years, with total operating cost increasing by 24 percent and the operating cost per hour increasing by 33 percent between FY 2015/16 and FY 2019/20. Altogether, these patterns indicate that B-Line is delivering less service at a greater cost.

Table 4 summarizes B-Line fixed-route service operating and performance trends between FY 2015/16 and FY 2019/20. Figure 1 shows trends between FY 2008/09 and FY 2019/20.

Since FY 2015/16, annual fixed-route passenger boardings have decreased by 41 percent to 732,102 passenger boardings in FY 2019/20. This ridership decline contrasts to the previous five-year period examined in the prior Butte County Transit and Non-Motorized Plan (FY 2008/09 to FY 2012/13), which found that ridership was relatively stable around 1,300,000 passenger boardings. While the Camp Fire and the COVID-19 pandemic can likely be attributed to some of this decline, passenger boardings still decreased by 20 percent during the four-year period prior to the Camp Fire. These patterns suggest that other factors are influencing transit demand within Butte County. Factors associated with reduced transit ridership nationwide include a steady economy, the increased prevalence of transportation network companies (e.g., Uber and Lyft), increased car ownership rates, and reduced gasoline prices.

B-Line ridership declines influence a variety of performance indicators. Systemwide productivity has decreased by 38 percent from 18 passengers per hour to 11 passengers per hour. Systemwide financial effectiveness has decreased, with the operating cost per passenger boarding increasing by 112 percent to \$9.58 per passenger, the subsidy per passenger boarding (operating cost per passenger less fare) increasing by 136 percent to \$8.12 per passenger, and the farebox recovery ratio decreasing by 36 percent to 15.2 percent. During FY 2019/20, farebox recovery ratio slipped below the 20 percent urban Transportation Development Act (TDA) requirement but remained above the 10 percent rural TDA requirement.

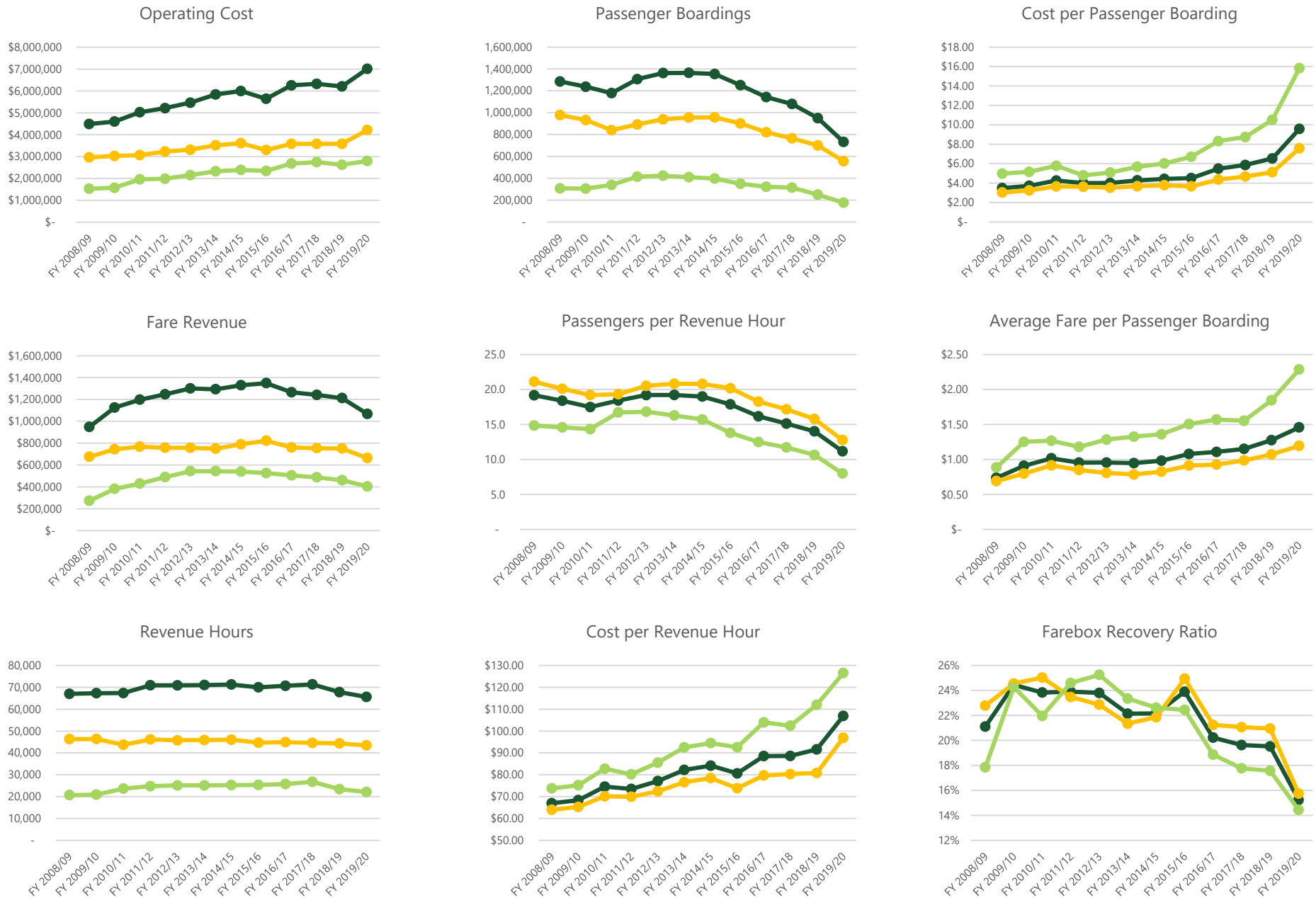
Both ridership and service performance has declined at a greater rate for rural routes when compared to urban routes. Total passenger boardings for rural routes decreased by 49 percent, compared to a 38 percent decline for urban routes. Moreover, the subsidy per passenger boarding for rural routes increased by 160 percent, compared to a 133 percent increase for urban routes. These performance trends could in part be explained by disruptions caused by the Camp Fire, which significantly altered ridership patterns and service levels for Paradise and surrounding communities, particularly for Routes 30, 40, and 41.

Table 4. B-Line Performance Indicators, FY 2015/16 through FY 2019/20

Performance Indicator	Service Type	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	% Change FY 2015/16 to FY 2019/20
Operating Cost	Total	\$5,643,820	\$6,257,199	\$6,324,145	\$6,208,249	\$7,011,481	24%
	Urban	\$3,299,746	\$3,578,991	\$3,579,351	\$3,583,907	\$4,214,656	28%
	Rural	\$2,344,074	\$2,678,208	\$2,744,794	\$2,624,342	\$2,796,825	19%
Fare Revenue	Total	\$1,348,931	\$1,265,451	\$1,241,356	\$1,211,744	\$1,067,423	-21%
	Urban	\$822,859	\$760,310	\$753,764	\$750,702	\$663,549	-19%
	Rural	\$526,072	\$505,141	\$487,592	\$461,042	\$403,874	-23%
Revenue Hours	Total	70,004	70,684	71,368	67,781	65,595	-6%
	Urban	44,681	44,918	44,570	44,347	43,491	-3%
	Rural	25,323	25,766	26,798	23,434	22,104	-13%
Passenger Boardings	Total	1,250,910	1,142,293	1,079,219	949,871	732,102	-41%
	Urban	901,514	820,459	765,210	700,179	555,442	-38%
	Rural	349,396	321,834	314,009	249,692	176,660	-49%
Passengers per Revenue Hour	Total	17.9	16.2	15.1	14.0	11.2	-38%
	Urban	20.2	18.3	17.2	15.8	12.8	-37%
	Rural	13.8	12.5	11.7	10.7	8.0	-42%
Operating Cost Per Revenue Hour	Total	\$80.62	\$88.52	\$88.61	\$91.59	\$106.89	33%
	Urban	\$73.85	\$79.68	\$80.31	\$80.82	\$96.91	31%
	Rural	\$92.57	\$103.94	\$102.43	\$111.99	\$126.53	37%
Operating Cost Per Passenger	Total	\$4.51	\$5.48	\$5.86	\$6.54	\$9.58	112%
	Urban	\$3.66	\$4.36	\$4.68	\$5.12	\$7.59	107%
	Rural	\$6.71	\$8.32	\$8.74	\$10.51	\$15.83	136%
Average Fare Per Passenger	Total	\$1.08	\$1.11	\$1.15	\$1.28	\$1.46	35%
	Urban	\$0.91	\$0.93	\$0.99	\$1.07	\$1.19	31%
	Rural	\$1.51	\$1.57	\$1.55	\$1.85	\$2.29	52%
Subsidy Per Passenger	Total	\$3.43	\$4.37	\$4.71	\$5.26	\$8.12	136%
	Urban	\$2.75	\$3.44	\$3.69	\$4.05	\$6.39	133%
	Rural	\$5.20	\$6.75	\$7.19	\$8.66	\$13.55	160%
Farebox Recovery Ratio	Total	23.9%	20.2%	19.6%	19.5%	15.2%	-36%
	Urban	24.9%	21.2%	21.1%	20.9%	15.7%	-37%
	Rural	22.4%	18.9%	17.8%	17.6%	14.4%	-36%

Source: B-Line Quarterly Performance Reports, FY 2014/15 through FY 2019/20.

Figure 1. B-Line Performance Indicators, FY 2008/09 through FY 2019/20



Note: Urban routes include Routes 2, 3, 4, 5, 7, 8, 9, 14, 15, 16, and 17. Rural routes include Routes 20, 24, 25, 26, 27, 30, 31, 32, 40, 41, and 52.

Source: B-Line Quarterly Performance Reports, FY 2008/09 through FY 2019/20.

Service Ridership

Detailed B-Line fixed-route trip- and stop-level ridership data was collected by Fehr & Peers during a ridecheck in early November 2019. According to the ridecheck, B-Line currently generates approximately 4,457 passenger boardings during a typical weekday. This represents a 24 percent decrease from the 5,900 weekday passenger boardings reported in the prior Butte County Transit and Non-Motorized Plan (based on ridership data collected in September 2013).

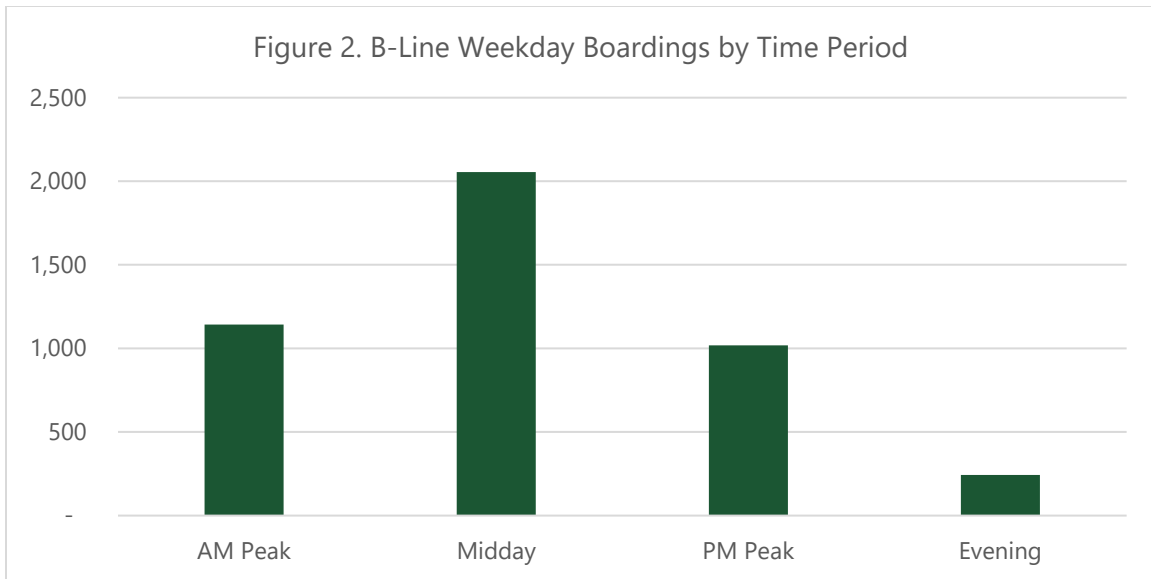
Ridership by Stop

Route level ridership maps (included in the technical appendix) illustrate average weekday system boardings and alightings by stop. Higher ridership is concentrated within Chico near the CSU Chico campus, the Chico Mall, and at the Chico Transit Center. Several corridors within Chico also exhibit higher levels of passenger boarding activity, including Mangrove Avenue/Cohasset Road (Route 2), Nord Avenue (Route 3 and Route 8), East Avenue (Route 3), the Esplanade (Route 15 and Route 16), and Lassen Avenue (Route 15). Most of the areas served by these routes meet the criteria for a disadvantaged or low income community as defined by the California Air Resources Board (CARB).

Outside of Chico, higher levels of passenger boarding activity occur in Oroville (Route 20). Elsewhere, passenger boarding activity is relatively low throughout the remaining B-Line service area.

Ridership by Time Period

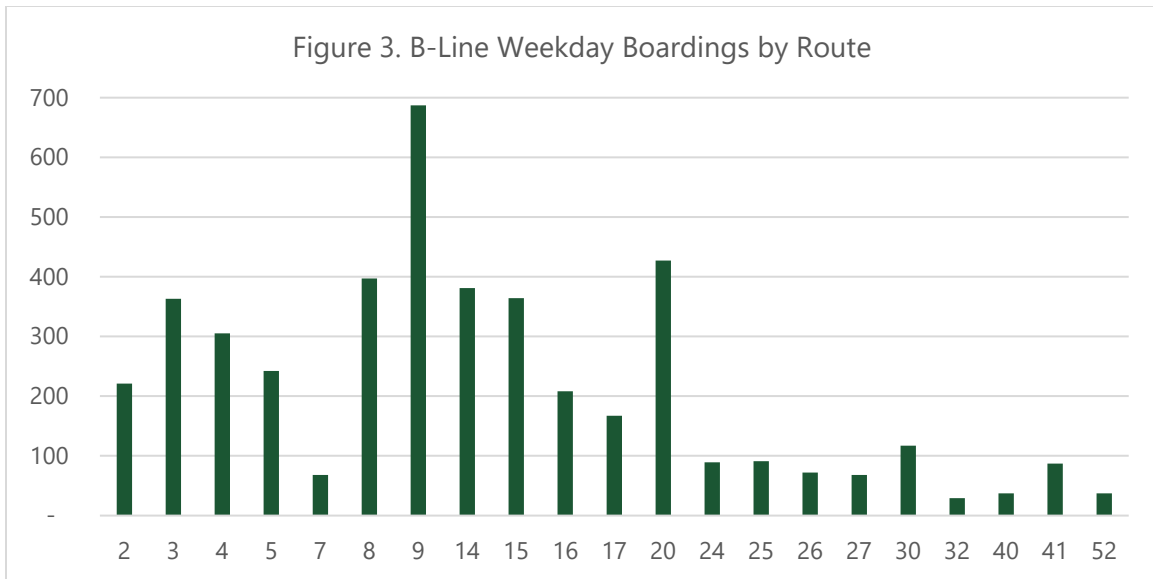
Figure 2 shows the distribution of weekday ridership by time of day. Ridership during the AM (6 to 9 AM) and PM (3 to 6 PM) peak periods is generally consistent, with over 1,000 passenger boardings during each time period. Ridership is sustained throughout the middle of the day, with over 2,000 passenger boardings between 9 AM to 3 PM. Evening ridership is lower at 240 passenger boardings, likely due to the limited amount of service operating after the PM peak period.



Source: B-Line Systemwide Ridecheck, November 2019.

Ridership by Route

Figure 3 shows weekday passenger boardings by route. Route 9 produces significantly higher weekday ridership than any other B-Line route, generating nearly 700 weekday passenger boardings. Seven routes generate 300 to 400 weekday passenger boardings, including Routes 3, 4, 8, 14, 15, and 20. The routes generating the most ridership serve local trips to major destinations within Chico, including CSU Chico, the Chico Transit Center, and the Chico Mall. Route 20 generates over 400 weekday passenger boardings and is the only rural route generating in excess of 100 weekday passenger boardings. Overall, the top 10 routes ranked by weekday passenger boardings account for 80 percent of the system weekday boardings.



Source: B-Line Systemwide Ridecheck, November 2019.

As previously mentioned, B-Line routes that serviced Paradise experienced major changes as a result of the Camp Fire. Before the fire, Route 40 averaged around 193 passengers each weekday and Route 41 averaged 176. Figure 4 explains the loss in ridership on Routes 30, 40, and 41 post Camp Fire. Elsewhere, route-level performance has varied since prior to the Camp Fire. For example, two of the primary routes serving Chico exhibited differing ridership trends – Route 8 decreased from approximately 600 to 400 daily passenger boardings, while Route 9 increased from approximately 500 to 700 daily passenger boardings. Route 15 dipped slightly from 450 to under 400 daily passenger boardings. In Oroville, ridership levels for local routes increased slightly. Routes connecting Oroville to other Butte County communities have exhibited differing ridership trends – Route 20 to Chico has decreased from approximately 660 to just over 400 daily passenger boardings, while Route 30 to Gridley and Biggs has increased from approximately 80 to over 100 daily passenger boardings. Part of this ridership variation could be explained by population displacement that has occurred throughout the County following the Camp Fire.

Service Performance

Service performance metrics are indicative of how well transit supply is matched to demand. Service performance is typically characterized in terms of service productivity and financial effectiveness.

Service productivity, commonly measured by passengers per revenue hour, evaluates how transit demand (i.e., ridership) utilizes available transit supply (i.e., revenue hours).

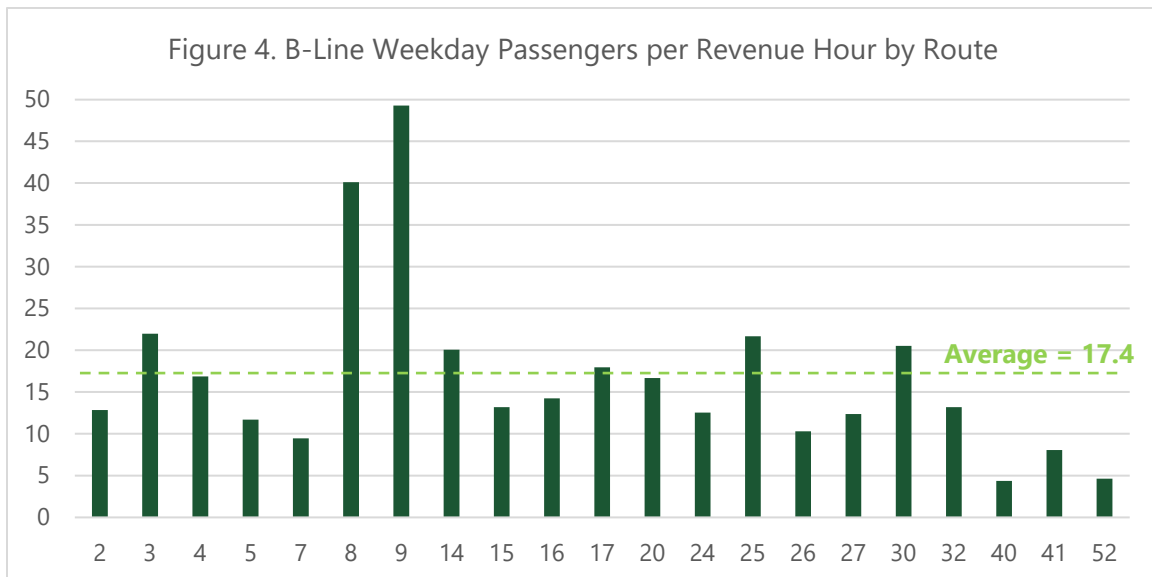
Financial effectiveness evaluates the cost to deliver service relative to the fare revenue generated by that service. This analysis uses two common measures of financial effectiveness. The first, farebox recovery ratio, is the percentage of operating cost that is recouped by passenger fare revenue. The second, subsidy per passenger boarding, is the cost to deliver service for a single passenger boarding, less the fare revenue generated by that passenger.

Service Productivity

Figure 4 shows weekday passengers per revenue hour by route. Routes 8 and 9 are significantly more productive than other B-Line routes, generating approximately 40 and 50 passengers per revenue hour, respectively. These routes are supported by strong ridership demand associated with CSU Chico. Given the very high productivity of these routes, increased service levels may be warranted.

Beyond Routes 8 and 9, B-Line routes generally measure at or below 20 passengers per revenue hour. Four routes measure around 20 passengers per revenue hour, including Routes 3, 14, 25, and 30. Four routes fall below 10 passengers per revenue hour, including Routes 7, 40, 41, and 52.

The average weekday productivity for the B-Line system is 17.4 passengers per revenue hour. Overall, only seven B-Line routes generate passengers per revenue hour above the systemwide average, indicating that the highest performing routes, particularly Routes 8 and 9, bolster systemwide performance.

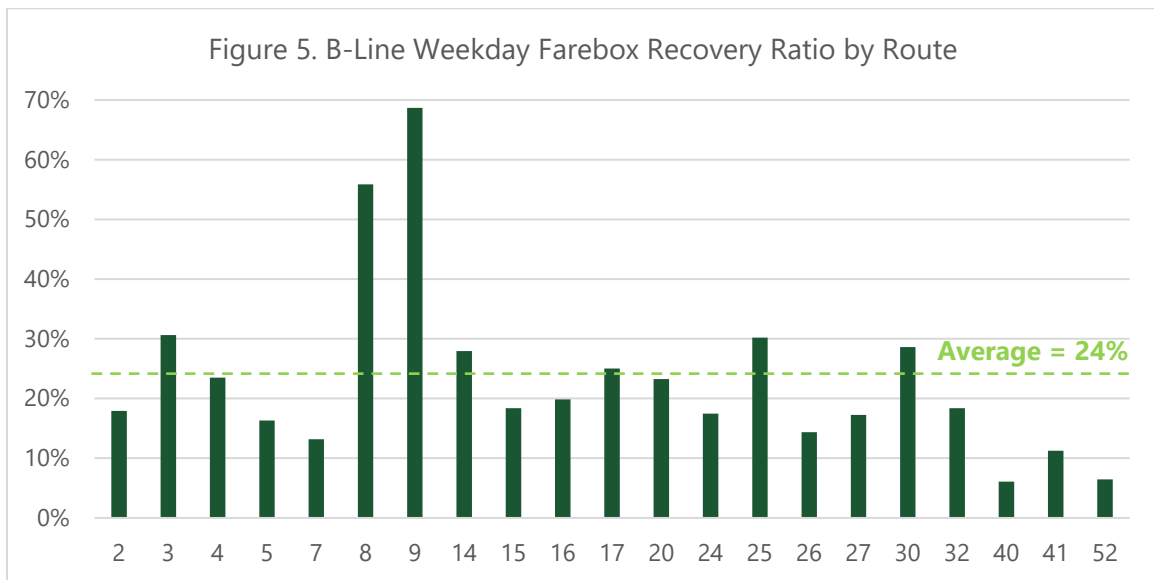


Source: B-Line Systemwide Ridecheck, November 2019.

Financial Effectiveness

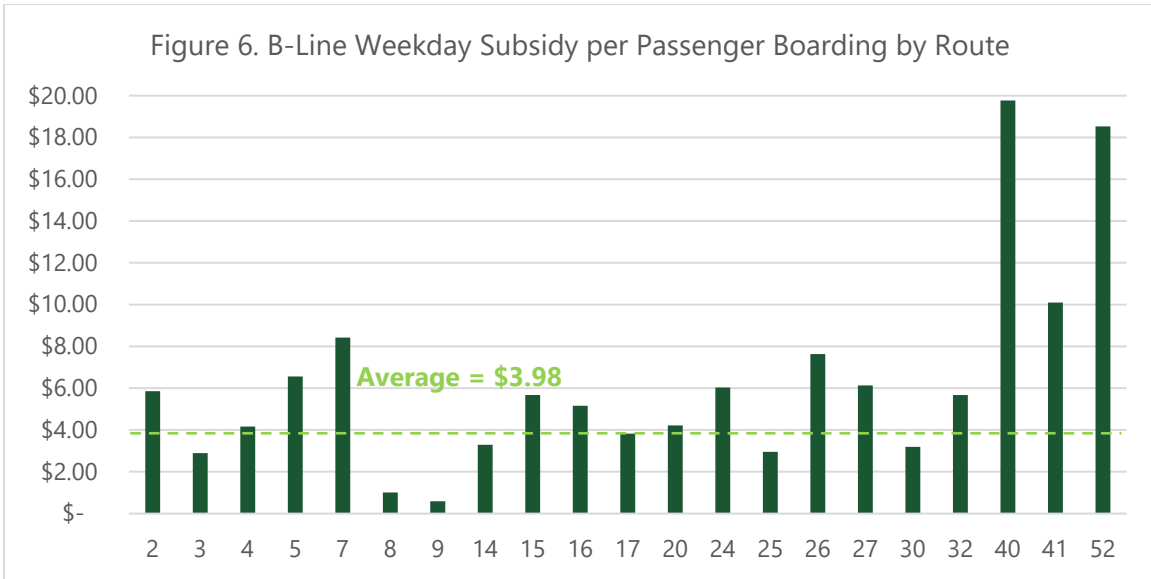
Farebox recovery ratio is defined as the ratio of revenue recovered from a ticket to total operating expenses. The TDA requires that public transit operators achieve a minimum farebox recovery ratio of 20 percent in urban areas and 10 percent in rural areas. Thus, TDA farebox recovery requirements differ between B-Line urban routes (Routes 2 through 17) compared to rural routes (Routes 20 through 52).

Eight B-Line routes have a farebox recovery ratio between 20 and 30 percent and twelve routes have a farebox recovery ratio below 20 percent (see Figure 5). Routes 8 and 9 recoup the majority of their cost, with farebox recovery ratios of 56 and 69 percent, respectively. The systemwide average weekday farebox recovery ratio is 24 percent, which is higher than the 20 percent target, with seven routes measuring above the average and fourteen routes measuring below the average.



Source: B-Line Systemwide Ridecheck, November 2019.

The average subsidy per passenger by route is \$3.98 as seen in Figure 6. The net cost to deliver weekday service on Routes 8 and 9 (accounting for passenger fare revenue) is under \$1.00 per passenger boarding. Routes 40 and 52 exhibit the highest subsidies per passenger boarding at nearly \$20.00 per passenger boarding. Ten routes exhibit subsidies per passenger boarding in the \$5.00 to \$10.00 range. The average weekday subsidy per passenger boarding for the B-Line system is approximately \$4.00 per passenger boarding.



Source: B-Line Systemwide Ridecheck, November 2019.

Service Quality

Service quality refers to the convenience, ease, and comfort with which passengers can utilize transit. Service quality covers topics ranging from walking distance to a transit stop to when and how often a passenger can ride a route.

Service Span

On weekdays, most urban B-Line routes start during the 6 AM hour and end between 8 PM and 10 PM. Nearly all rural routes cease operations by 8 PM on weekdays. In total, B-Line delivers approximately 260 revenue hours of service on weekdays. On Saturdays, 13 B-Line routes operate during shortened service spans, generally between 8 AM and 7 PM. Most rural routes do not operate on Saturdays. Saturday revenue hours are equal to 41 percent of weekday revenue hours. On Sundays, Route 20 is the only B-Line service in operation. Sunday revenue hours are equal to four percent of weekday revenue hours.

Overall, existing service spans limit the availability of transit for rural service passengers during weekday evenings and Saturdays. Moreover, the significantly scaled back Sunday operation limits the availability of transit for the entire B-Line service area, with the exception of Route 20.

Service Frequency

B-Line weekday service frequencies range from 20 minutes to several hours between trips. Routes 15 and 16 are the most frequent routes in the B-Line system, operating every 20 minutes during peak periods. Most other urban routes operate every 30 minutes during peak periods, with several operating at reduced 60-minute frequencies during off-peak periods. All rural routes operate on frequencies of 60 minutes or longer during weekdays. On Saturdays, all routes operate on frequencies of 60 minutes or longer. On Sunday, Route 20 operates every 120 minutes.

None of the existing B-Line routes operate with what is considered to be “spontaneous use” frequencies, typically measured as 15-minutes or better. These higher service levels enable passengers to ride without the need to consult a schedule and can help to attract higher ridership in strong transit markets. Improving service frequencies on high performing B-Line routes, particularly during peak periods, could help to generate additional ridership by increasing spontaneous use of the system. B-Line would likely need to purchase additional buses to increase frequency on certain routes.

The low and very low frequencies provided on most B-Line routes limit the ability for existing and prospective passengers to easily utilize transit for most daily travel needs. Moreover, these frequencies require a high degree of route schedule and alignment coordination in order to enable use of the B-Line network for passengers completing multi-seat trips.

Access to Transit

Figure 7 illustrates the geographic coverage of the existing B-Line fixed-route bus network, including areas within one-quarter and one-half mile of a B-Line bus stop. Overall, 28 and 46 percent of Butte County residents live within one-quarter mile (a five-minute walk) and one-half mile of transit, respectively. Moreover, 51 and 69 percent of Butte County employees work within one-quarter mile and one-half mile of transit, respectively.

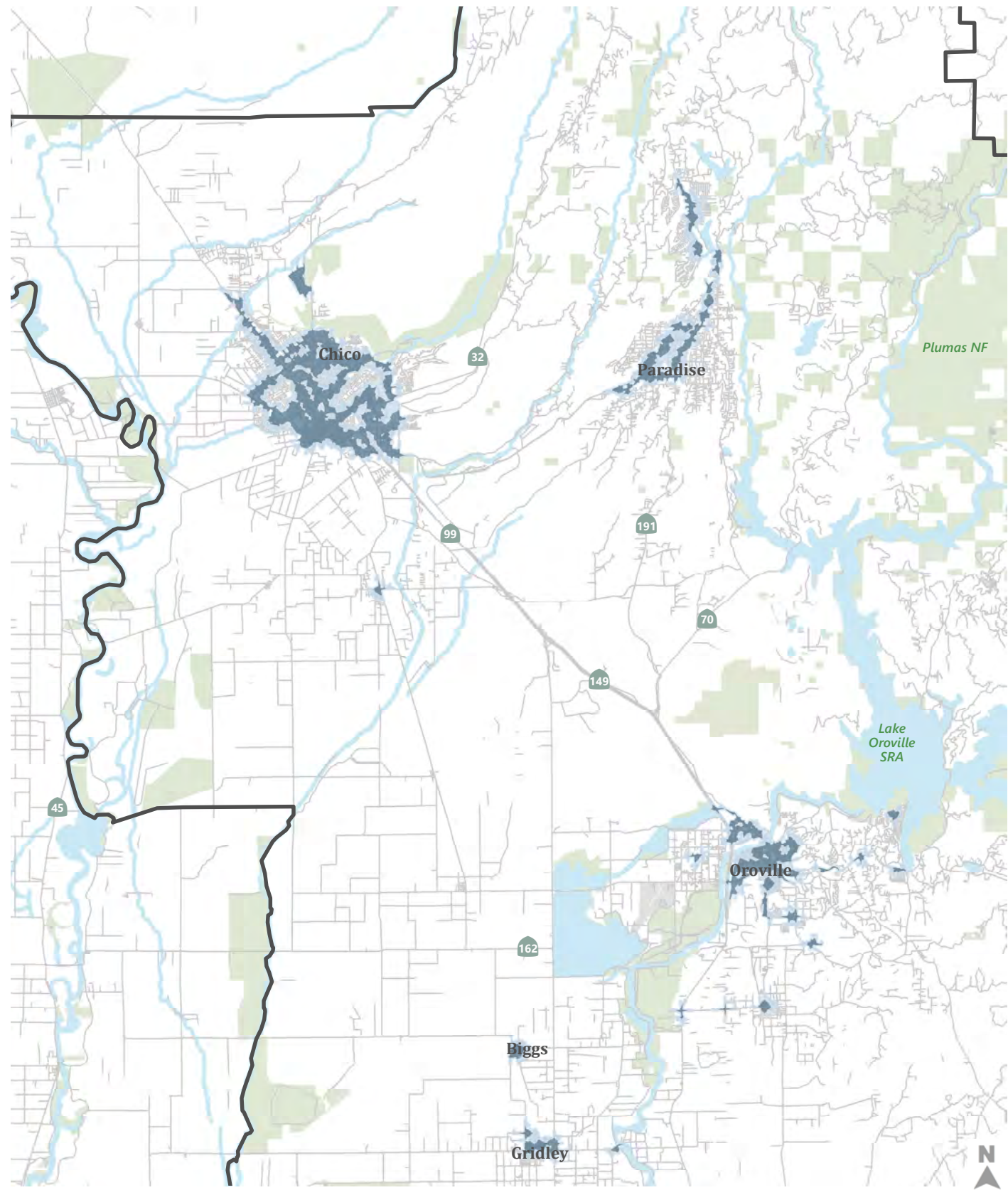
In Chico, transit service is available throughout most of the city, with the exception of portions of the Vallombrosa Avenue, California Park, The Avenues residential neighborhoods, and Hegan Lane Business Park. Transit availability also extends north of the city along the Esplanade corridor.

Outside of Chico, B-Line service is available within downtown Paradise, Oroville, Gridley, and Biggs. Service coverage becomes increasingly sporadic in the rural, peripheral developed areas of these cities, limiting convenient access to transit.

Service Reliability

Figure 8 shows observed on-time performance for each B-Line route during a typical weekday. On-time performance is evaluated based on the actual timepoint departure time relative to the scheduled departure time. A bus is considered to be “on-time” if it departs a scheduled time point between one minute early and five minutes late. Buses that depart a scheduled timepoint more than one minute early are considered to be “early” and buses that depart a scheduled timepoint more than five minutes late are considered to be “late”.

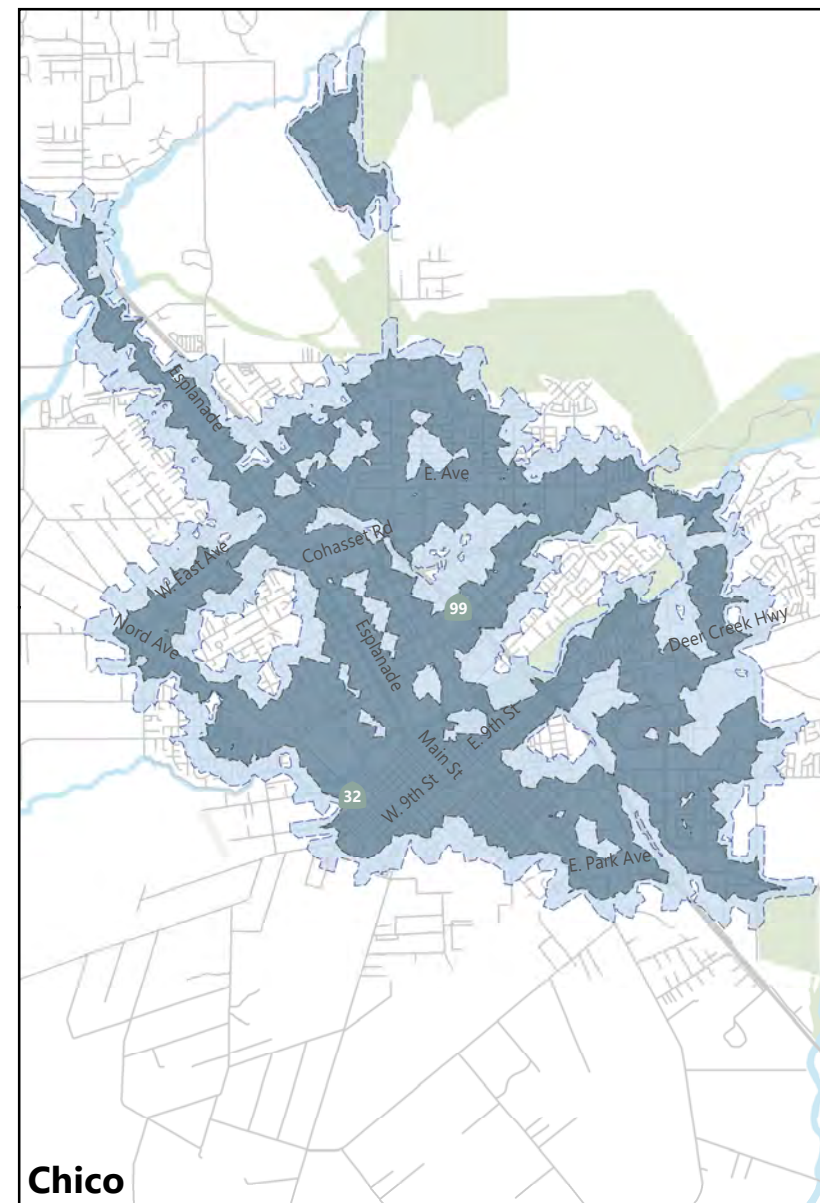
Overall, 75 percent of weekday B-Line service is on-time, 23 percent is late, and two percent is early. Route 7 measured above 90 percent on-time, while 14 routes measure below 80 percent on-time. Poor on-time performance can be a symptom of a variety of factors, including congested peak period conditions, long dwell times at bus stops, or constrained schedules that do not provide adequate running time between timepoints or recovery time at the end of a trip.



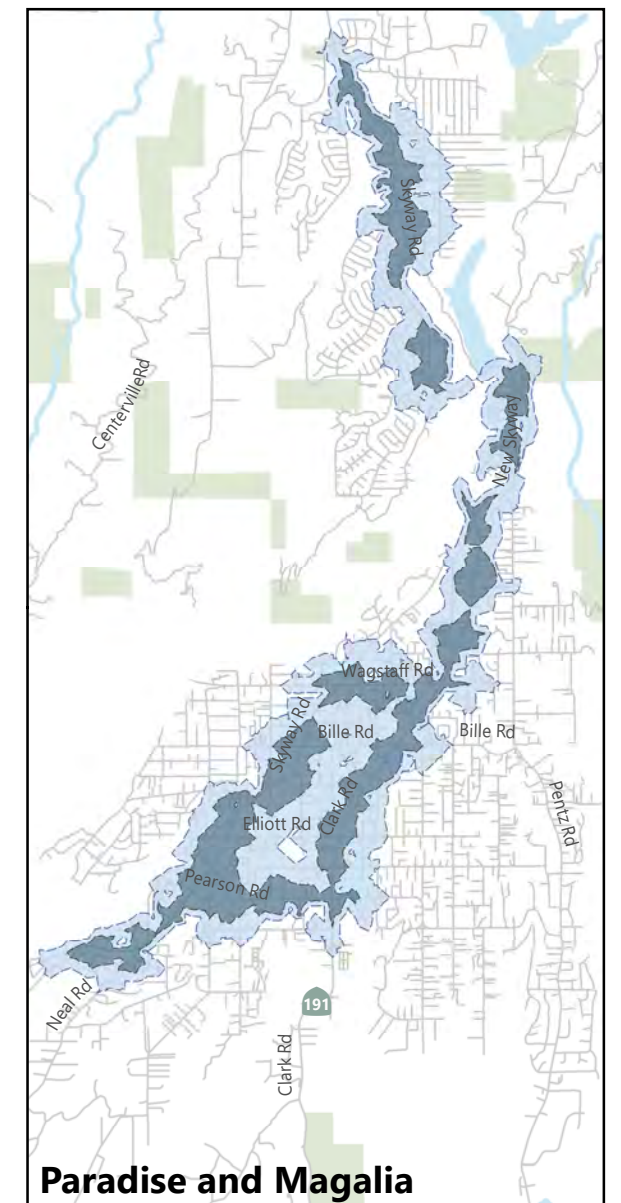
Transit Service Coverage

- 1/4 mile from bus stops
- 1/2 mile from bus stops

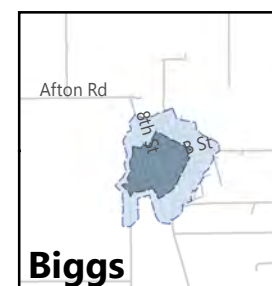
Figure 7
System Network Coverage



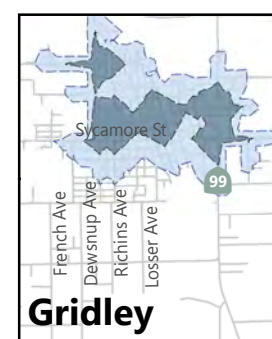
Chico



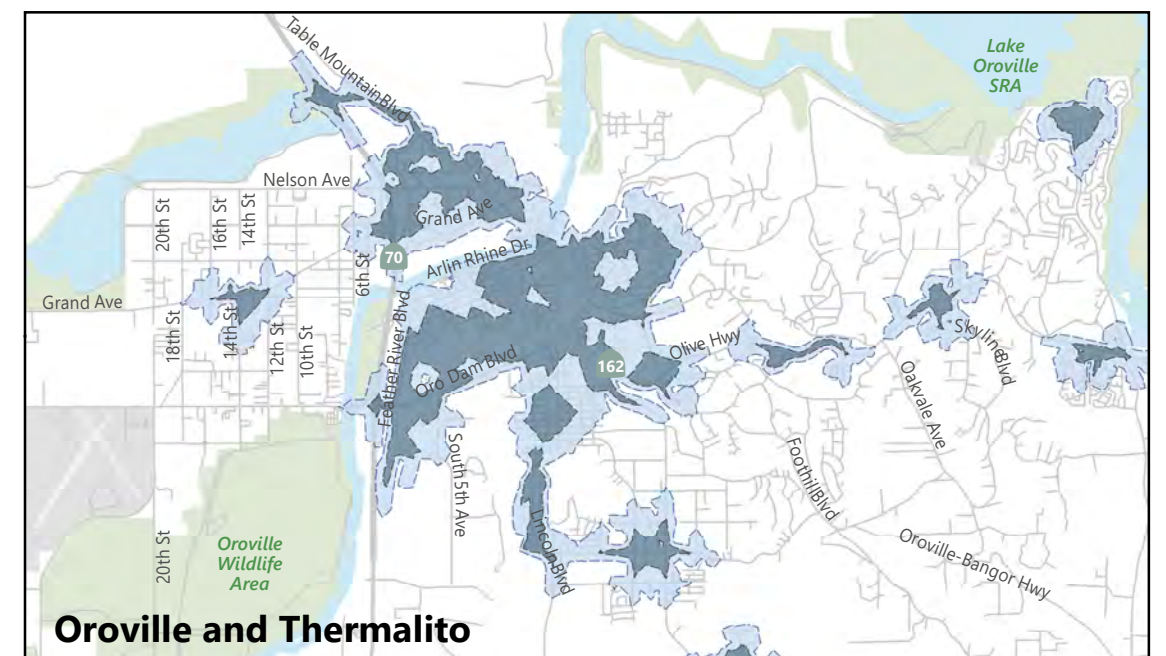
Paradise and Magalia



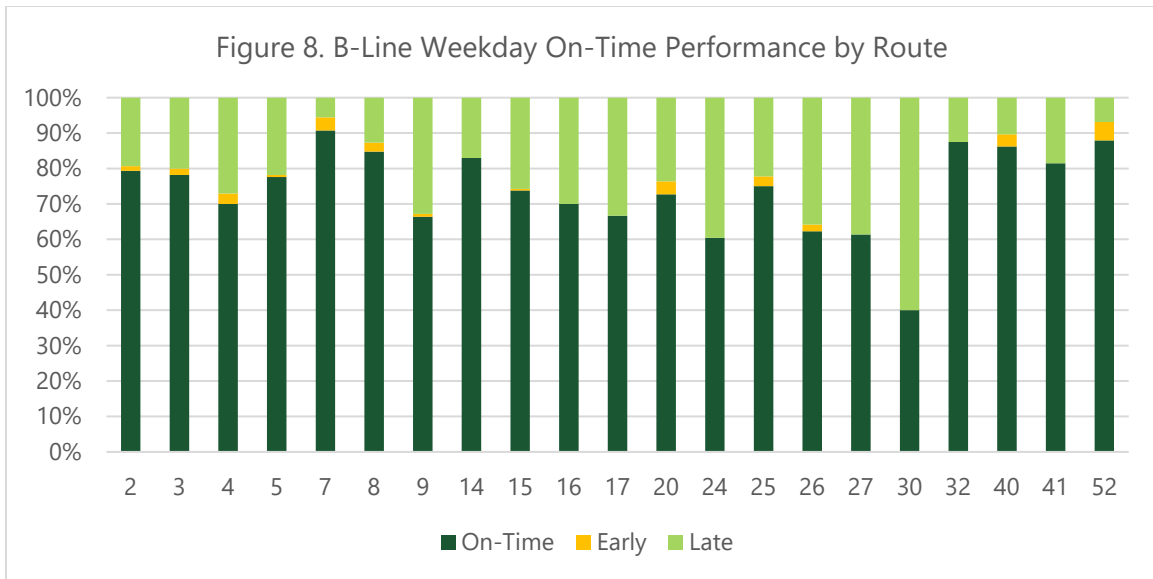
Biggs



Gridley



Oroville and Thermalito



Source: B-Line Systemwide Ridecheck, November 2019.

Passenger Loads

Passenger loads can affect service quality through a variety of means. Crowded buses can affect dwell times by increasing the length of time required for boarding passengers to find a seat, as well as the amount of time required for alighting passengers to travel from their seat to the exit door. Severely overcrowded vehicles can physically restrict new passengers from boarding due to a lack of capacity. Severely overcrowded vehicles can also result in bus operators bypassing waiting passengers, requiring them to wait for the next available trip in order to board the bus and incurring substantial travel time delays.

Overall, only two weekday B-Line trips were observed to experience maximum passenger loads that exceeded available seated capacity, one trip each for Routes 3 (during the midday time period) and 9 (during the morning peak period). Four weekday trips experienced maximum passenger loads of over 80 percent (i.e., nearing seated capacity), including two trips on Route 8 (both during the morning peak period), one trip on Route 9 (during the morning peak period), and one trip on Route 20 (during the midday time period). The higher passenger loads observed on Routes 8 and 9 are likely a result of surges in peak period passenger demand associated with CSU Chico student travel.

3. Transit Market Assessment

The foundation of determining the transportation needs of residents and workers in Butte 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. Individuals that currently use transit or demonstrate the potential to use transit are commonly referred to as a transit market. This section is a profile of the Butte County transit market.

Chapter 2 of the current *Butte County Transit and Non-Motorized Plan*² provides a thorough discussion of the demographics, major employers, transit generators, and other transit market characteristics throughout Butte County. Therefore, this memorandum will focus only on transit market characteristics that are substantially new or different from those described in the current plan. Existing transit market characteristics discussed in the current plan that are not addressed in this memorandum will be incorporated into the updated Butte County Transit and Non-Motorized Plan.

Effects of the Camp Fire

The Camp Fire caused significant disruptions to population, employment, and travel patterns throughout Butte County, particularly in Paradise and surrounding communities. These disruptions have shifted the overall countywide travel market and, in turn, transit market by relocating people, jobs, activity centers, and travel activity away from Paradise and other affected communities and concentrating them in the primary surrounding communities (e.g., Chico, Oroville, etc.). This has resulted in less travel activity (except for heavy truck travel) between Paradise and other Butte County jurisdictions, and increased travel activity within the primary surrounding communities.

Please refer to the *Post Camp Fire Regional Population and Transportation Study – Report of Pre and Post Camp Fire Conditions*³ (September 2020) for additional details regarding changes to demographics, businesses, and travel patterns resulting from the Camp Fire.

² http://www.bcag.org/documents/planning/Transit_Non_Motor_Plan/Document/Chapter%202.pdf

³ http://postcampfirestudy.com/wp-content/uploads/2020/09/Task-4.2-and-4.3-Memo-Sept-14_Final.pdf

Demographics

As of 2019, Butte County is estimated to have a population of 219,186.⁴ The demographic and socioeconomic information presented in this section are derived from the 2019 American Community Survey (ACS). The County currently exhibits very low bus utilization as a percentage of overall commute activity, with just 0.9 percent of employees currently commuting by bus.

Regarding age, significant proportions of the population fall within the 65+ age group (16 percent) and the youth and young adult cohort under the age of 25 (34.4 percent). These latter findings are reflective of the presence of Butte College and Chico State within the County.

Table 5. Butte County Demographics At-a-Glance

Category	Value
Residents	219,186
Households	86,209
Residents commute by bus	0.9%
Average commute time to work	21 minutes
Households without vehicles	6%
Median household income	\$62,563
People living below the poverty level	16%
People younger than 25 years old	34.4%
People older than 65 years old	18.5%

Source: 2019 American Community Survey, 1-Year Estimates

Population Density

Transit service is most efficient when it connects people and destinations within easy walking distance of bus stops. Fixed route transit typically requires population densities of at least 5,000 people per square mile to warrant service, and works best at densities greater than 10,000 people per square mile (communities with lower densities are sometimes served by dial-a-ride services).

Figure 10 shows the population density across Butte County. The population of Butte County is largely distributed between the Cities of Chico, Oroville, , Biggs, and Gridley and the Town of Paradise. 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 2019, with 103,315 residents, or 47 percent of the County population. A significant portion within this population is represented by students at Chico State who live within the vicinity of campus.

⁴ 2019 American Community Survey, 1-Year Estimates.

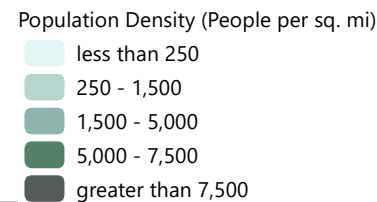
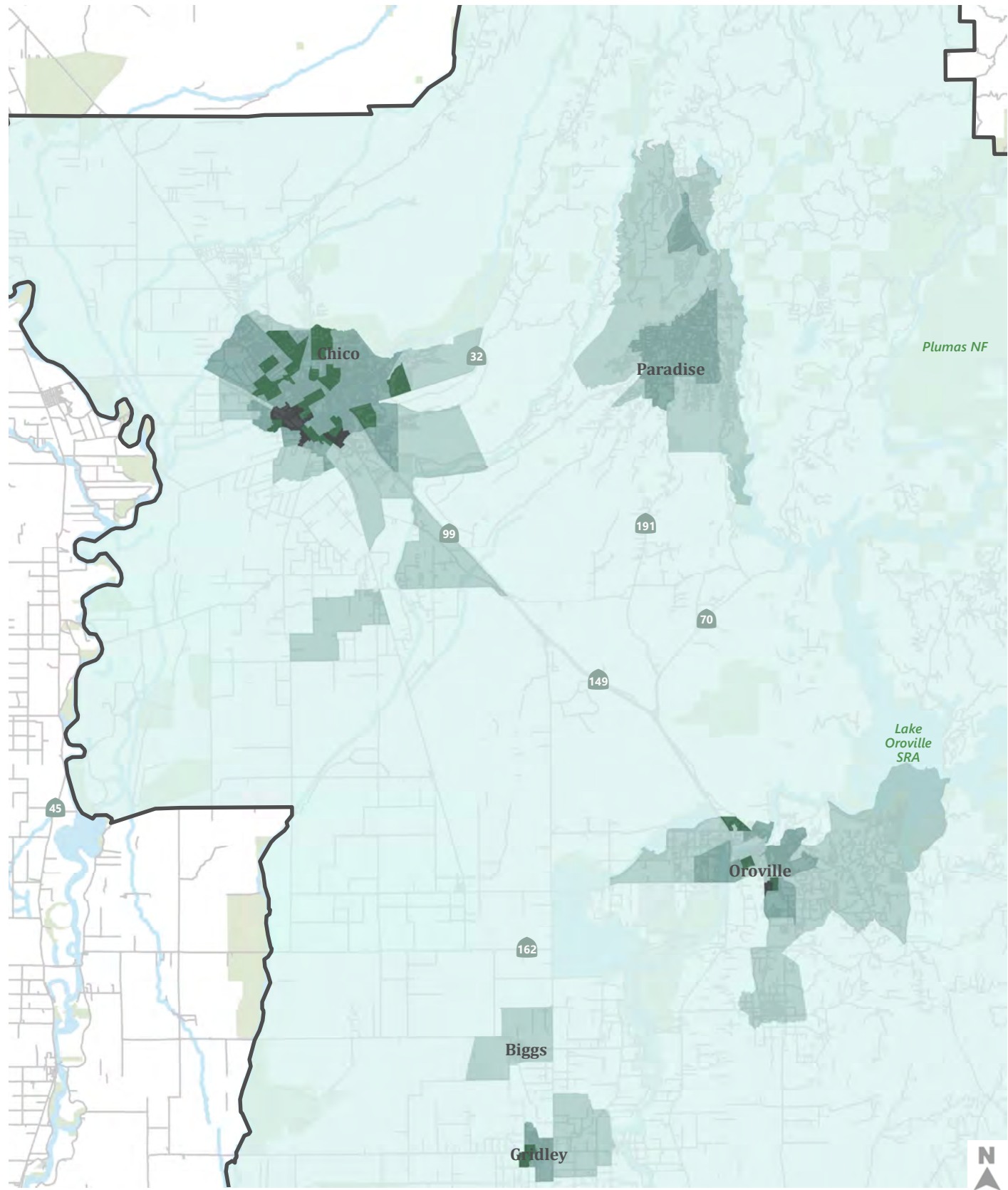
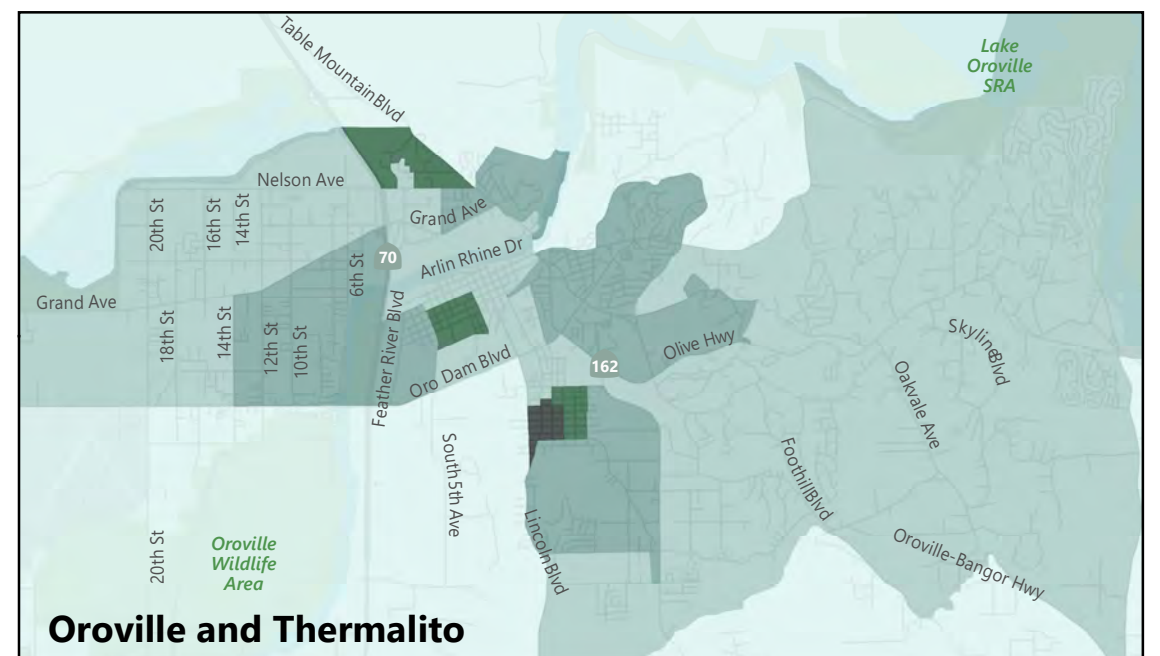
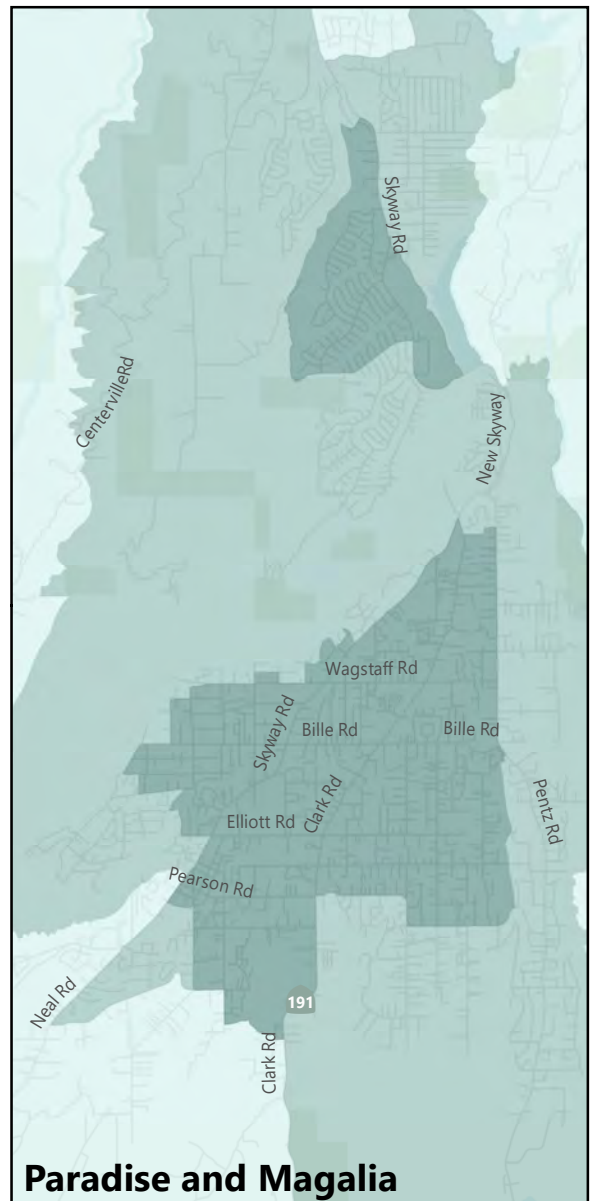
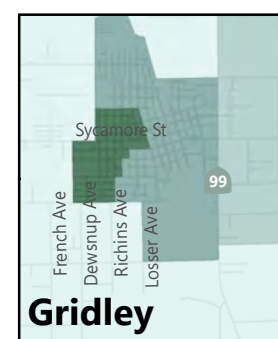
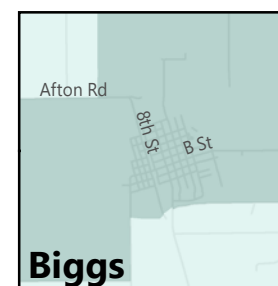
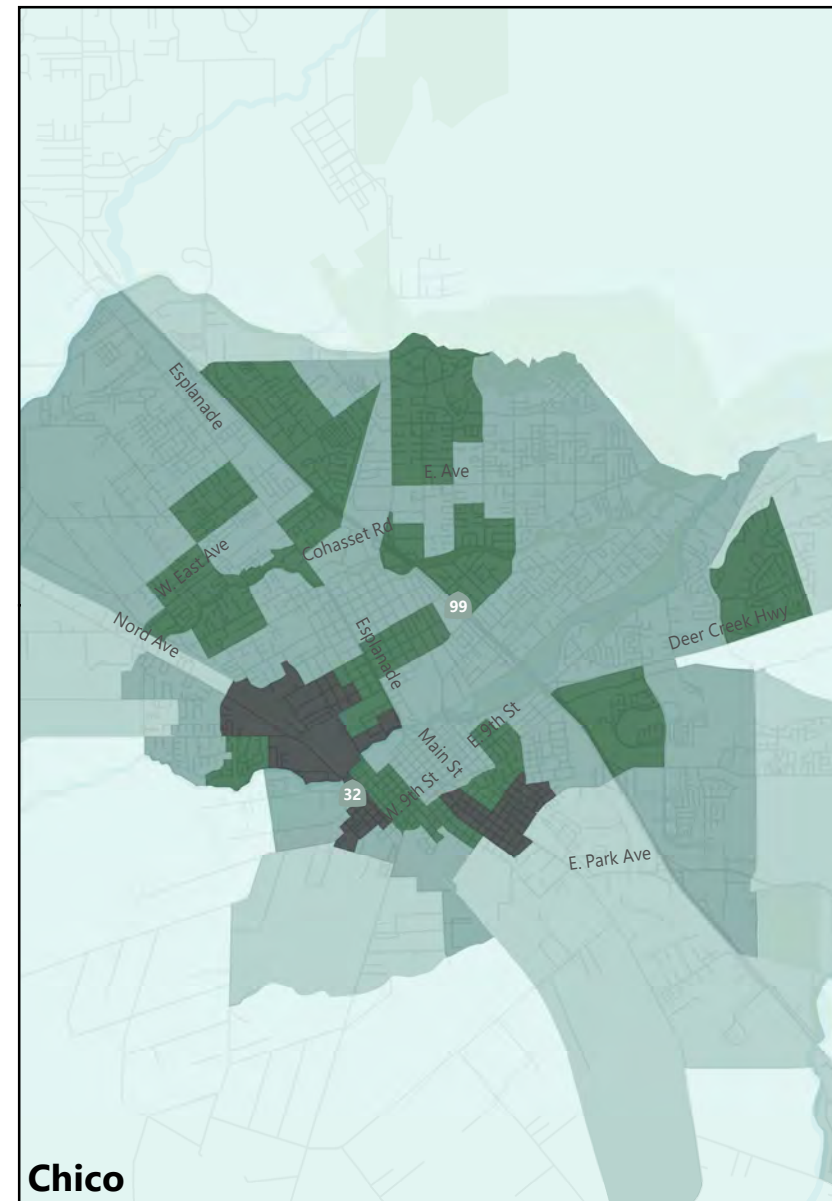


Figure 9
Population Density



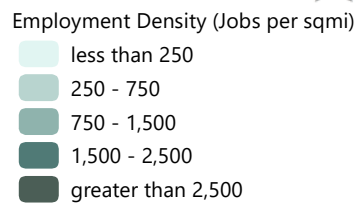
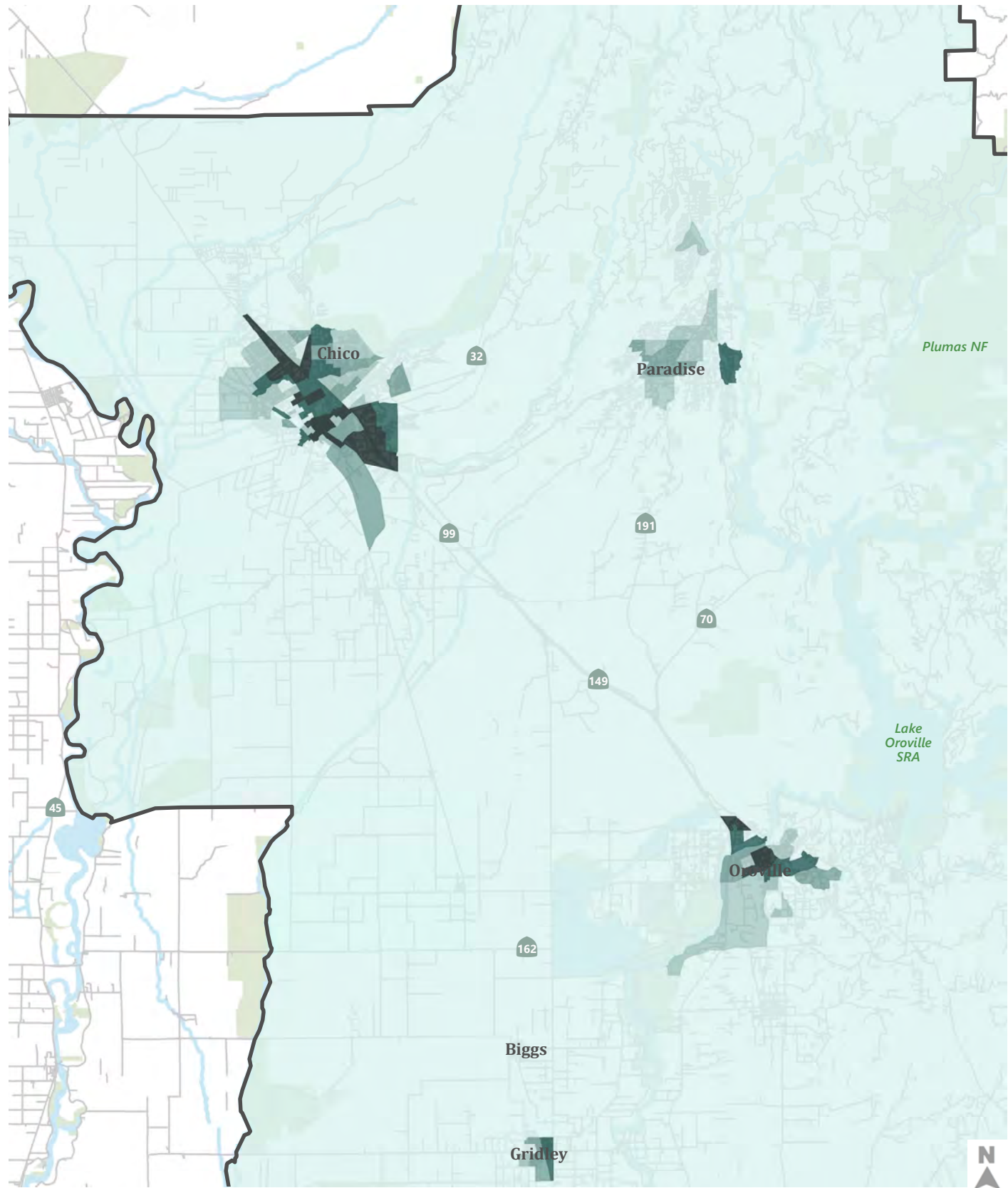
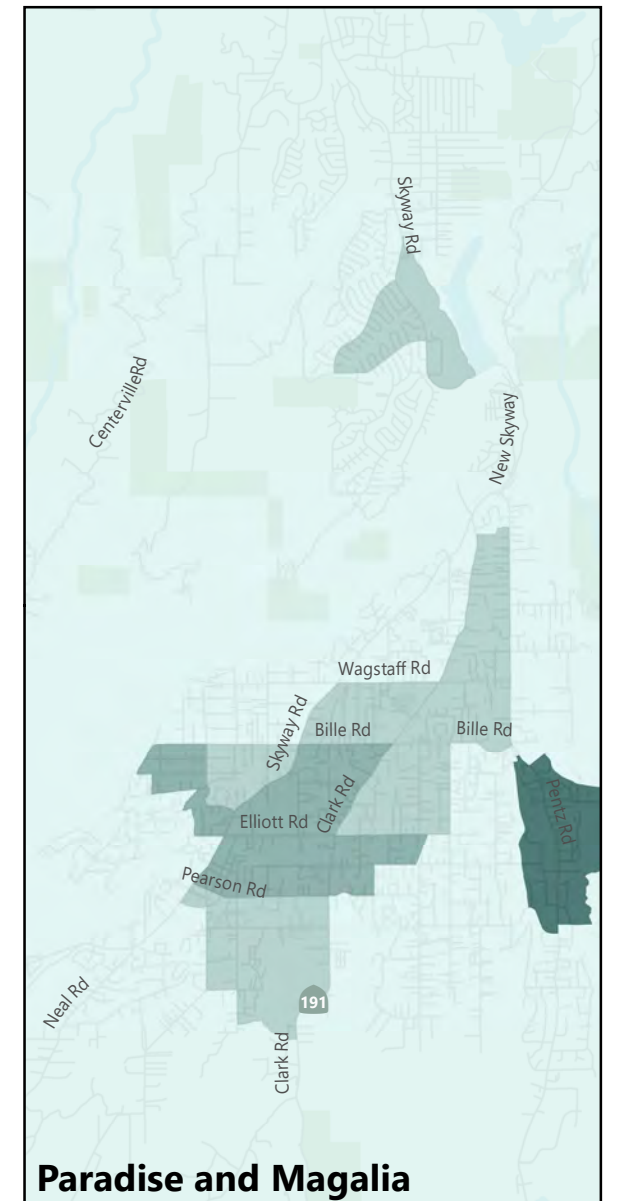


Figure 10
Employment Density



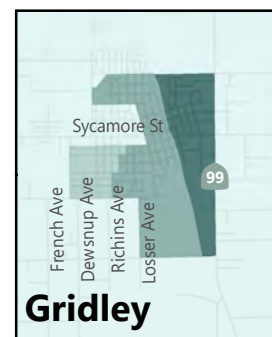
Chico



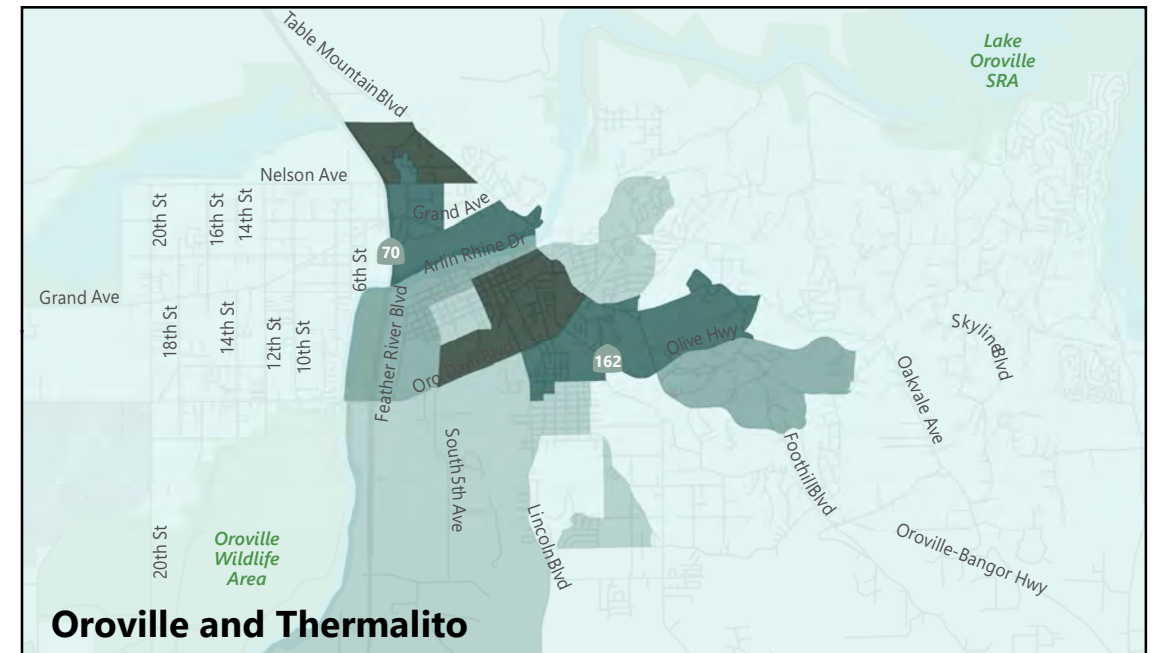
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

Employment Density

The location and concentration of jobs presents a strong indicator of potential transit demand, since commuting to and from work is a routine travel pattern. Employment concentrations greater than 2,500 jobs per square mile typically represent minimum densities to support transit service.

Figure 11 shows the employment density across Butte County. The greatest concentration of employment is in Chico, particularly in the Chico State and Downtown Chico vicinity, with smaller pockets of employment concentrations in Oroville, Gridley, and Paradise. Notable employment corridors include the Esplanade, Park Avenue, East 20th Street, Mangrove Avenue, and Skyway Road corridors in Chico.

The largest employers in Butte County are public agencies, educational institutions, medical institutions, retail companies, casinos, and agricultural and manufacturing businesses. Many jobs are focused around and generated by Chico State, which also brings in a large consumer base in the form of its students. Major public agency employers include Butte County, which primarily operates County departments and services out of locations in Chico and Oroville.

The Enloe Medical Center in Chico is the largest medical provider in Butte County. The Feather River Hospital in Paradise also represented a major employment concentration while in operation prior to the Camp Fire.

Retail employment is concentrated around retail centers such as the Walmart stores in Chico and Oroville, the Costco store in Chico, the Chico Mall, and neighborhood shopping centers in Chico, Oroville, and Gridley. Build.com, a large online retailer, is headquartered in Chico.

Major agricultural and manufacturing businesses include Pacific Coast Producers (Oroville), Sierra Nevada Brewing (Chico), Knife River Corp (Chico), Lundberg Family Farms (Richvale), and Wil-Ker-Son Ranch & Packing (Gridley).

Median Household Income

Transit often appeals to a broad cross-section of the general population yet is particularly useful for households with fewer financial resources and those in poverty. Transit enables access to jobs and services while providing the ability to own fewer cars and spend less on gas, parking, and vehicle maintenance. Figure 12 shows the median household income of neighborhoods across Butte County. Areas with the highest median household income are generally located outside of the major city and town centers. Substantial portions of Oroville and Paradise exhibit median household incomes of less than \$25,000 per year.

Poverty Density

About 16 percent of Butte County residents are living under the federal poverty line. In 2019, the federal poverty level was set at a household income of \$12,490 for a one-person household, plus \$4,420 for every additional person (e.g., \$21,330 for a three-person household). Figure 13 shows the distribution of people living under the poverty line throughout Butte County. The greatest concentrations of people living under the poverty line are in Chico, Oroville, and Paradise.

Youth, Young Adult, and Senior Density

Youth (under 18 years old), young adults (18 to 25 years old), and seniors (over 65 years old) typically exhibit a higher likelihood of riding transit. Many are unable to drive or lack access to a car. As described previously, B-Line offers a variety of discounted fares and passes for the Butte County youth and elderly populations. In Butte County, 34.4 percent of residents are under age 25, and 18.5 percent of residents are over age 65. Figure 14 shows the distribution of youth, young adult, and senior populations throughout Butte County. These residents are most heavily concentrated in Chico, with more dispersed concentrations in Oroville, Paradise, and Gridley.

Zero Vehicle Households

Households without automobiles depend on transit, active transportation, and carpooling for their travel needs. Six percent of Butte County households do not own a car.⁵ Figure 15 illustrates the concentration of zero vehicle households throughout Butte County. The densest cluster of households without vehicles is located in central Chico and in residential areas populated by Chico State 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.

CalEnviroScreen

CalEnviroScreen is a screening tool developed and maintained by the California Office of Environmental Health Hazard Assessment (OEHHA) that evaluates the burden of pollution from multiple sources in communities while accounting for potential vulnerability to the adverse effects of pollution. CalEnviroScreen ranks census tracts in California based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors and prevalence of certain health conditions. The OEHHA developed CalEnviroScreen as part of CalEPA's environmental justice program. CalEnviroScreen is being used to identify communities that face multiple burdens of pollution and socioeconomic disadvantage. This information helps CalEPA to prioritize its work in the state's most burdened communities.

⁵ 2019 American Community Survey, 1-Year Estimates

Figure 16 shows the CalEnviroScreen 3.0 (2018) results for Butte County. Butte County census tracts receiving the highest scores (i.e., those with the greatest burdens of pollution and socioeconomic disadvantage) are located in and around Chico and Oroville. The two census tracts shown in red are additionally identified as disadvantaged communities by CalEPA for the purpose of SB 535, since these census tracts are among the 25 percent highest scoring census tracts statewide in CalEnviroScreen 3.0.

Transit Ridership Potential

Transit ridership is broadly influenced by five key factors:

- Service attributes, including service frequency, service span, and route directness
- Ease of access, including service coverage and first-/last-mile access to bus stops
- Land use density, including population and employment density
- Socioeconomics, including median household income, zero vehicle households, and youth and senior population density
- Value relative to other transportation options, including travel time, cost, and convenience

Of these factors, B-Line exercises control over the service that it operates (including attributes such as frequency, travel time, reliability, and fares) and partially influences its perception of value (through its fares relative to the cost of driving and parking). However, B-Line has little influence over the ease of access (such as the quality of sidewalks and crosswalks and perception of safety), land use (the density, linearity, and proximity of residences, jobs, and activities), and socioeconomics (age, income, and vehicle ownership) within its service area.

Figure 17 illustrates these factors throughout Butte County through a composite metric referred to as a transit likelihood index. Based on this index, Chico exhibit the greatest transit ridership potential, along with portions of Oroville and Paradise. Elsewhere, transit ridership potential for traditional fixed route transit is low.

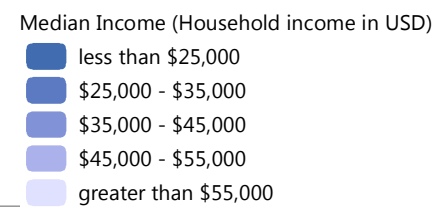
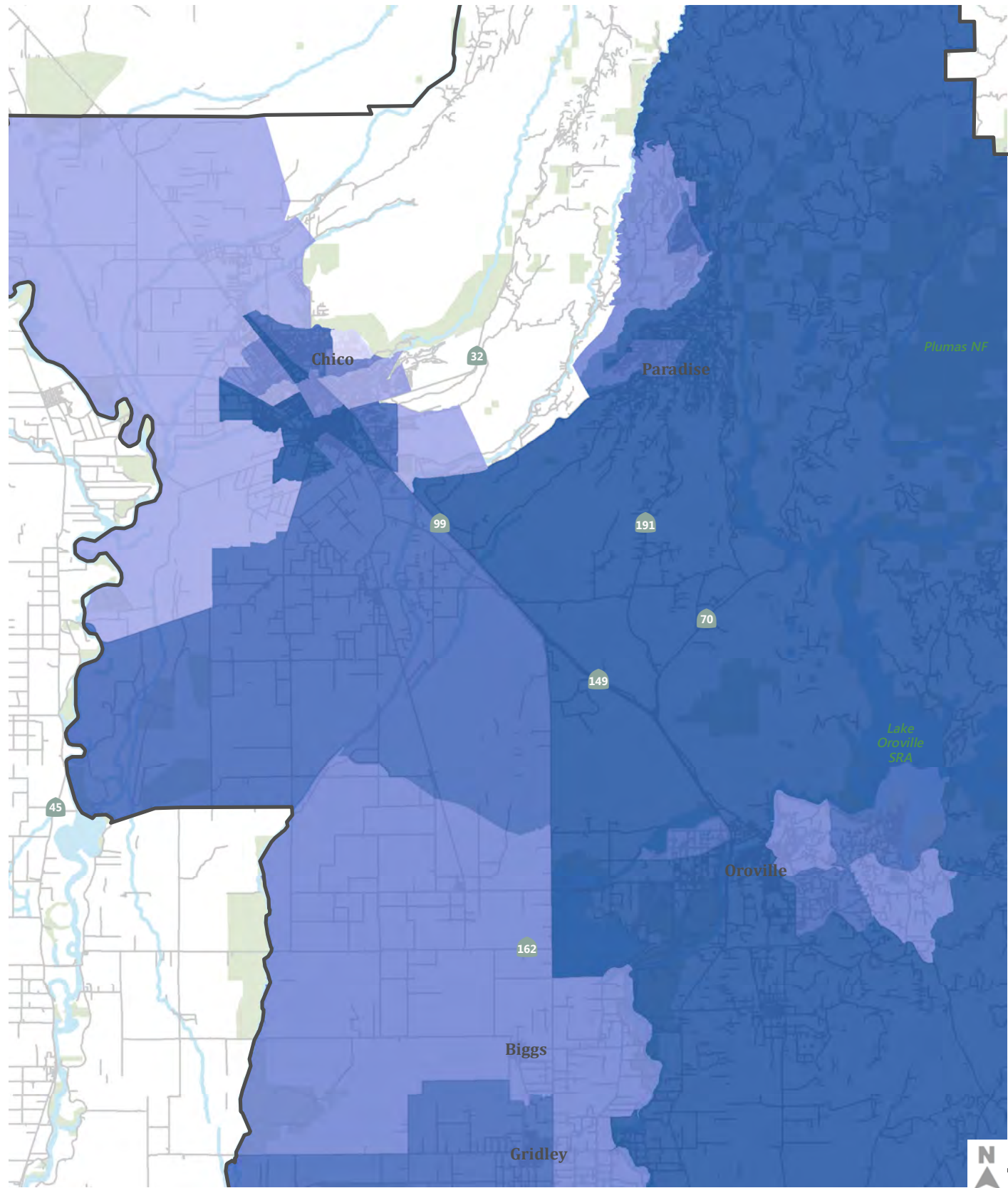
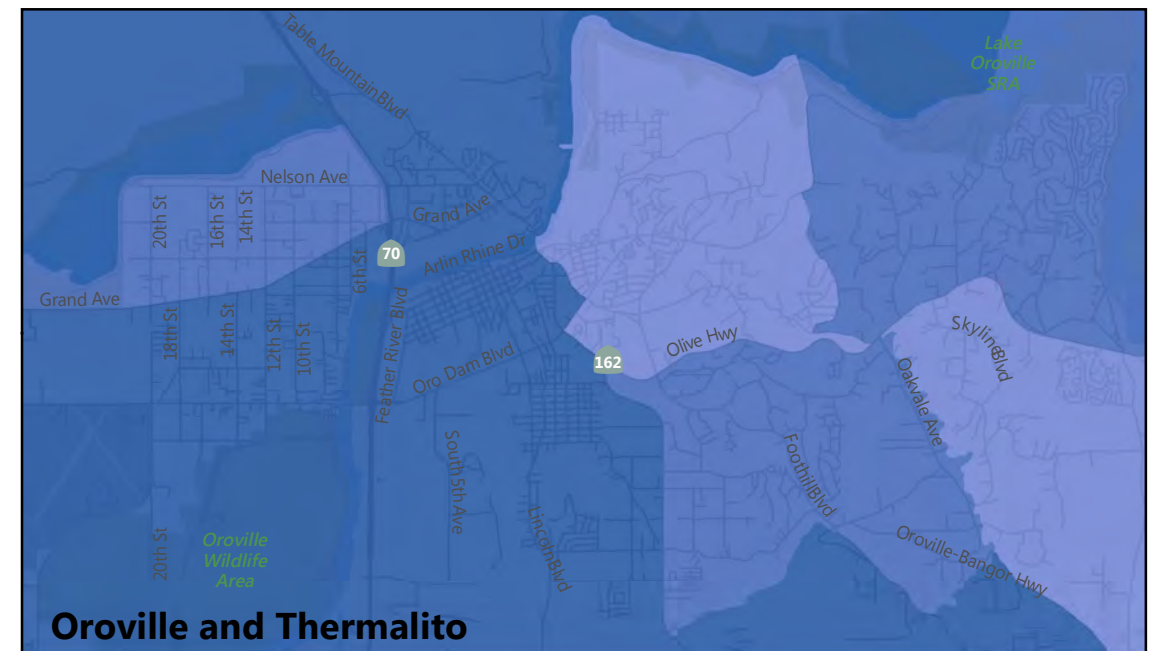
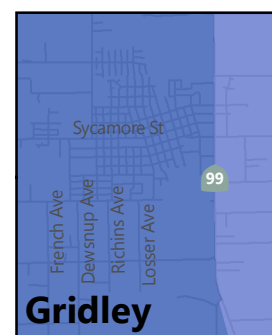
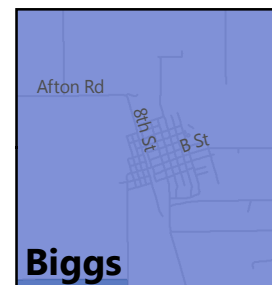
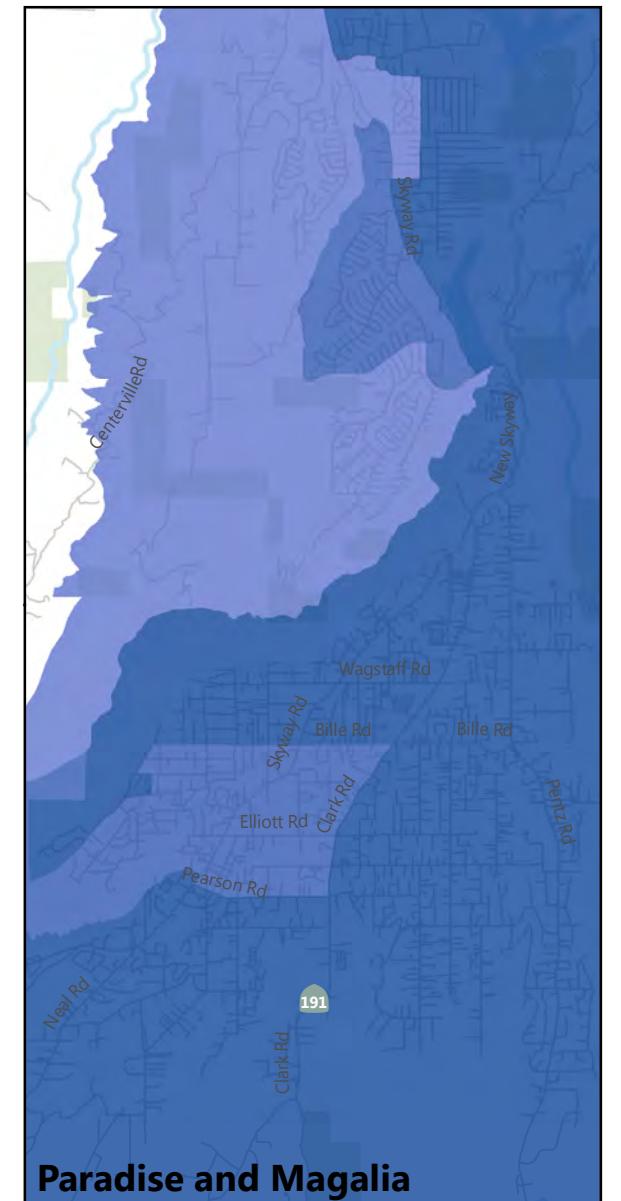
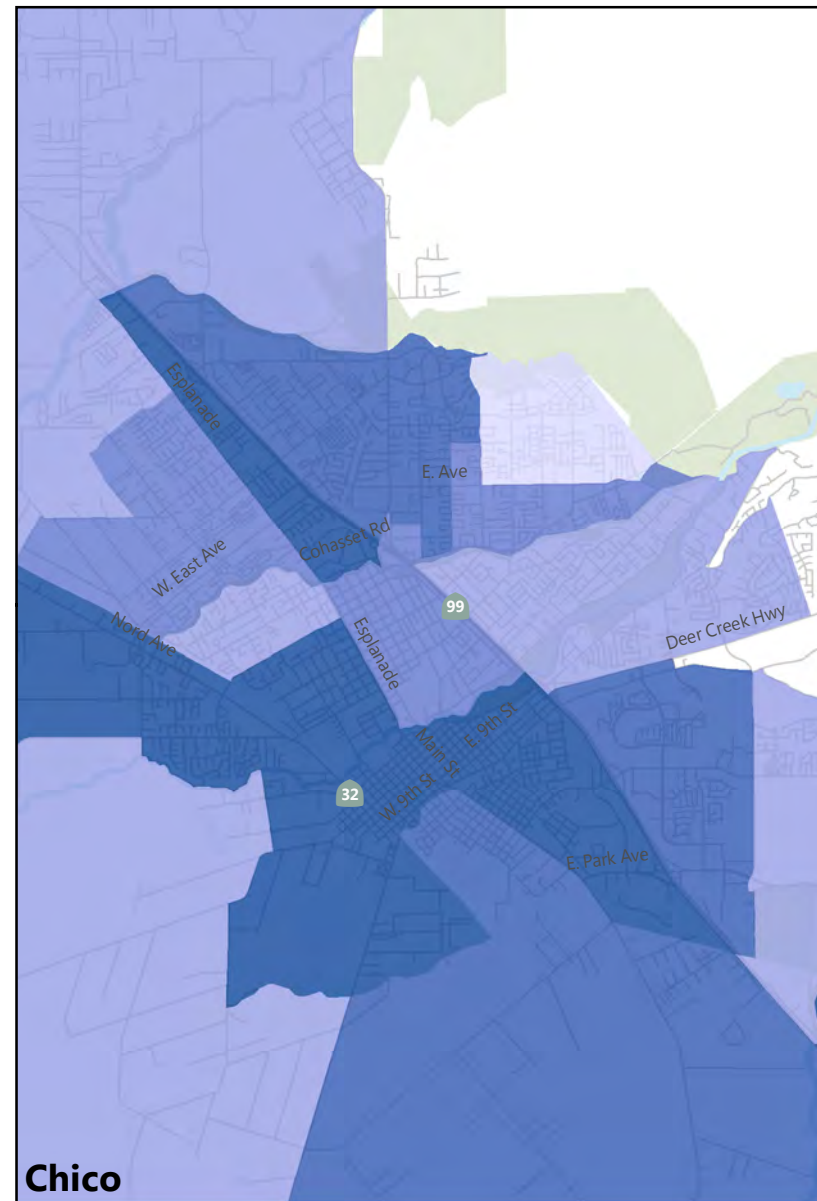


Figure 11
Median Household Income



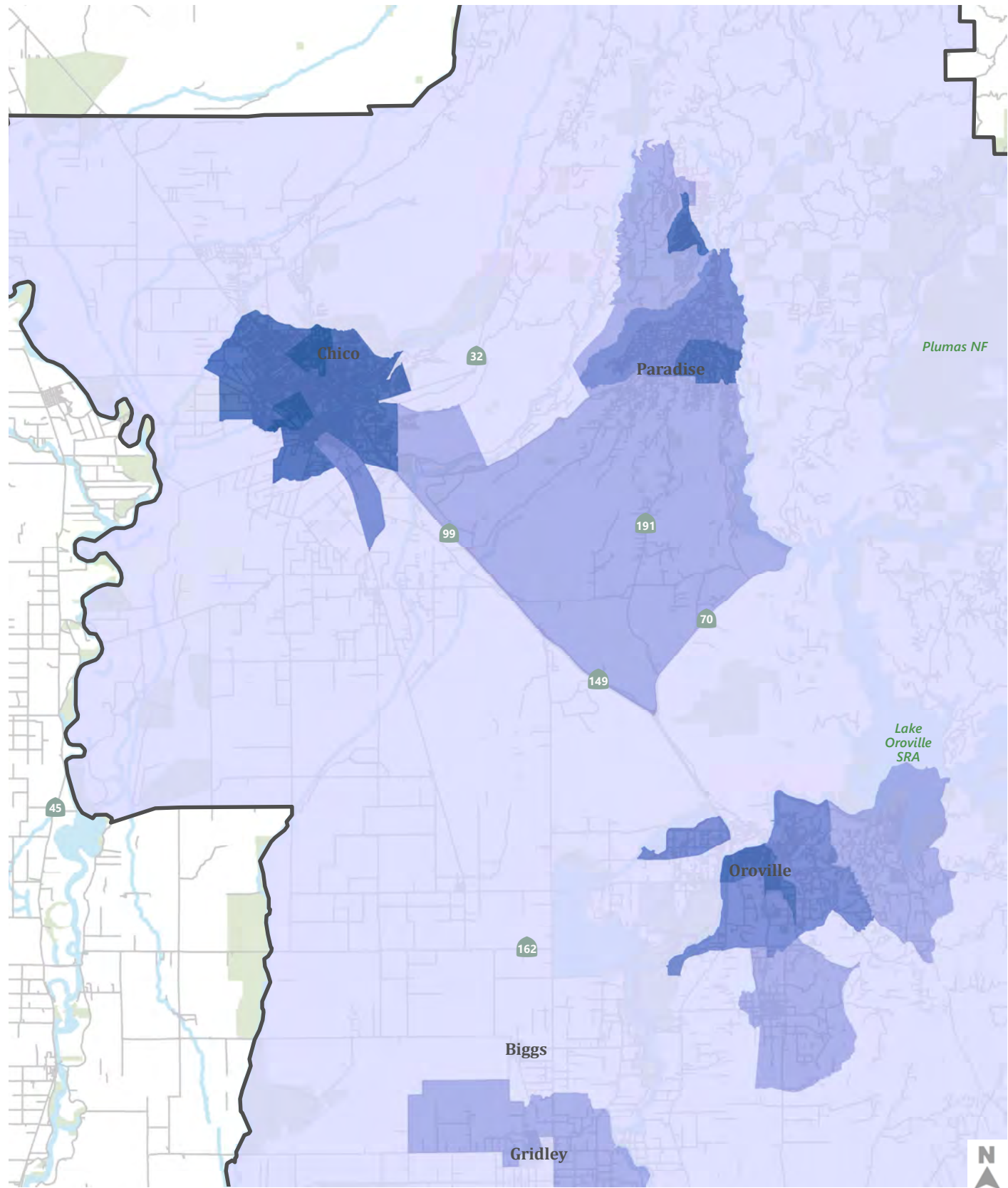
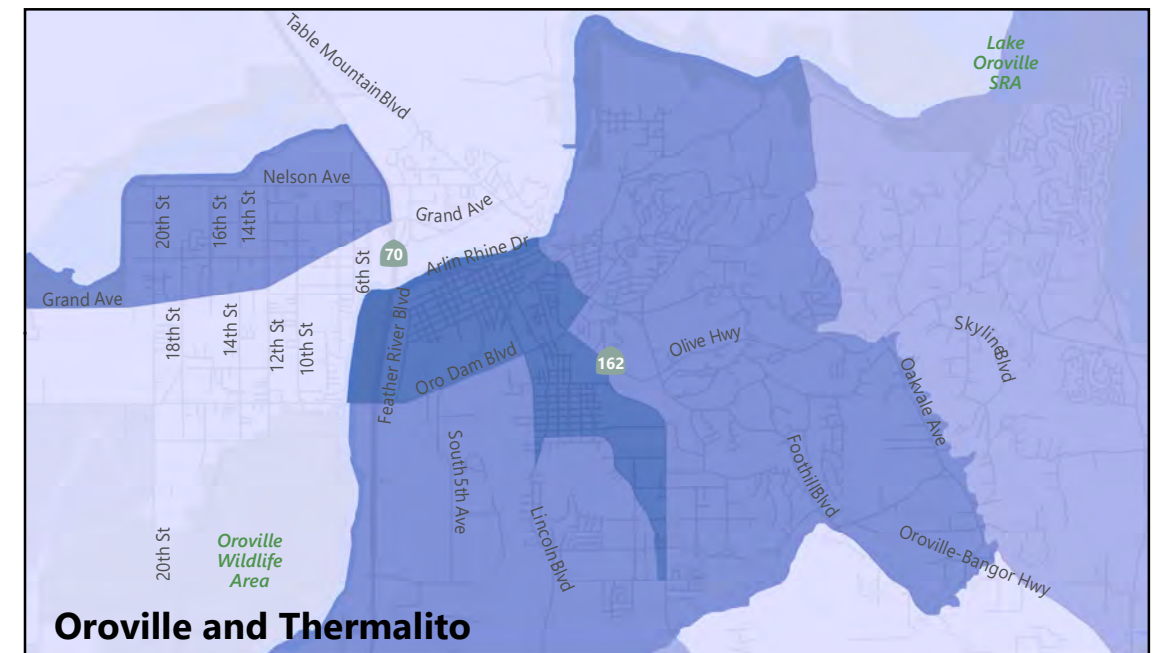
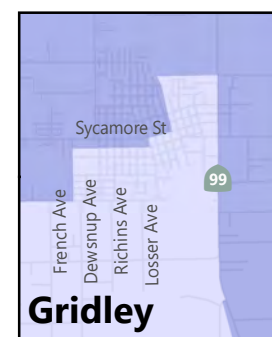
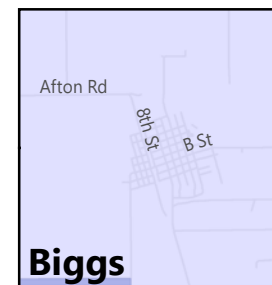
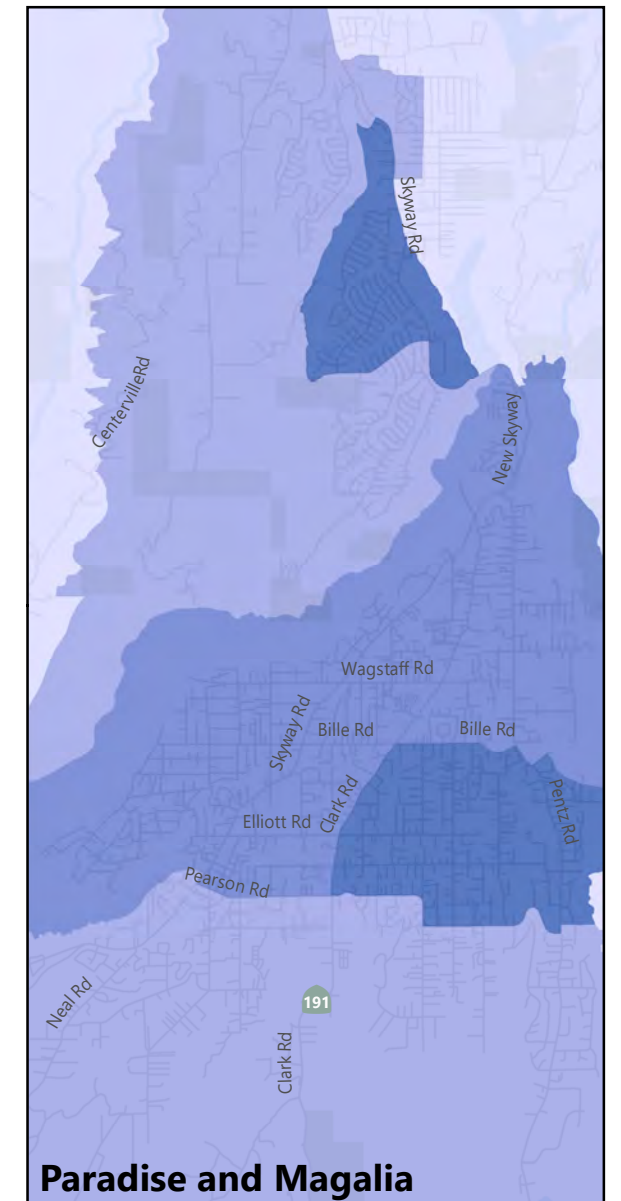
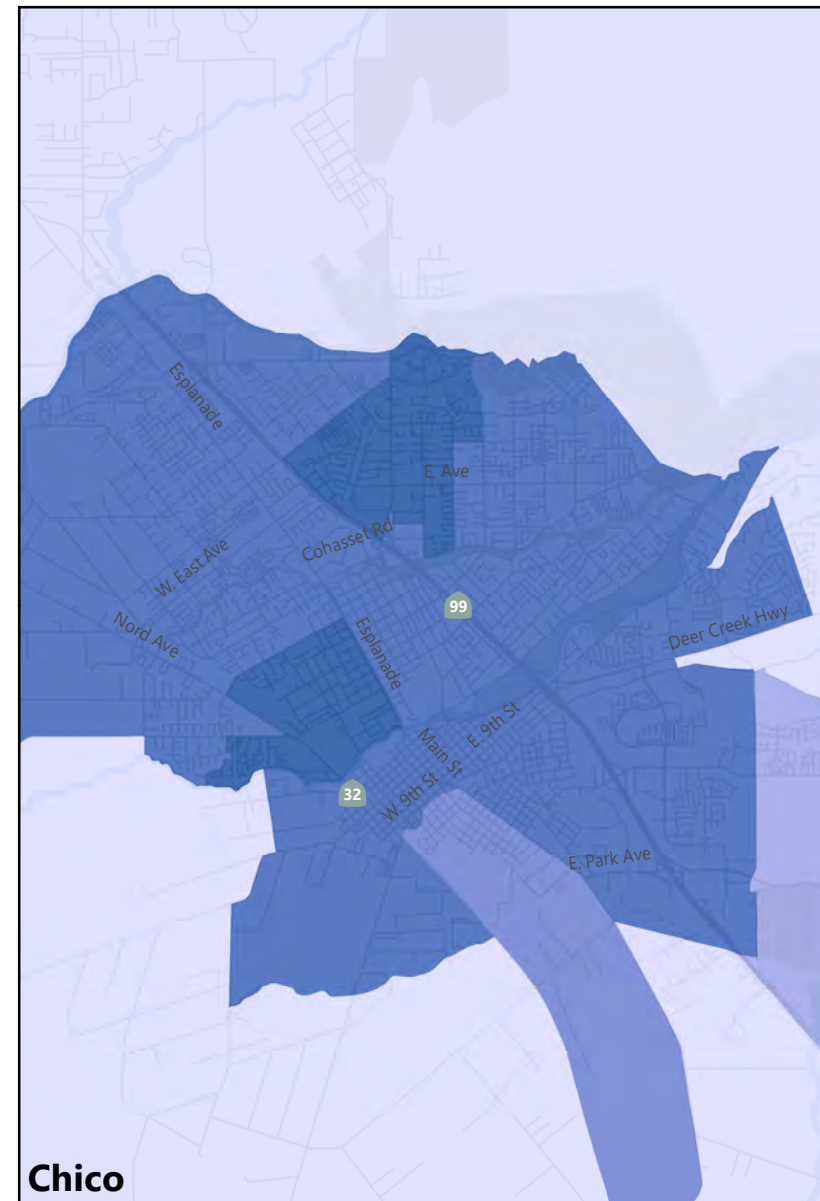


Figure 12
Poverty Density



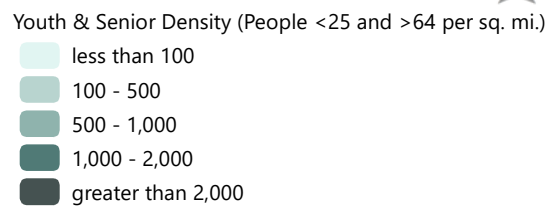
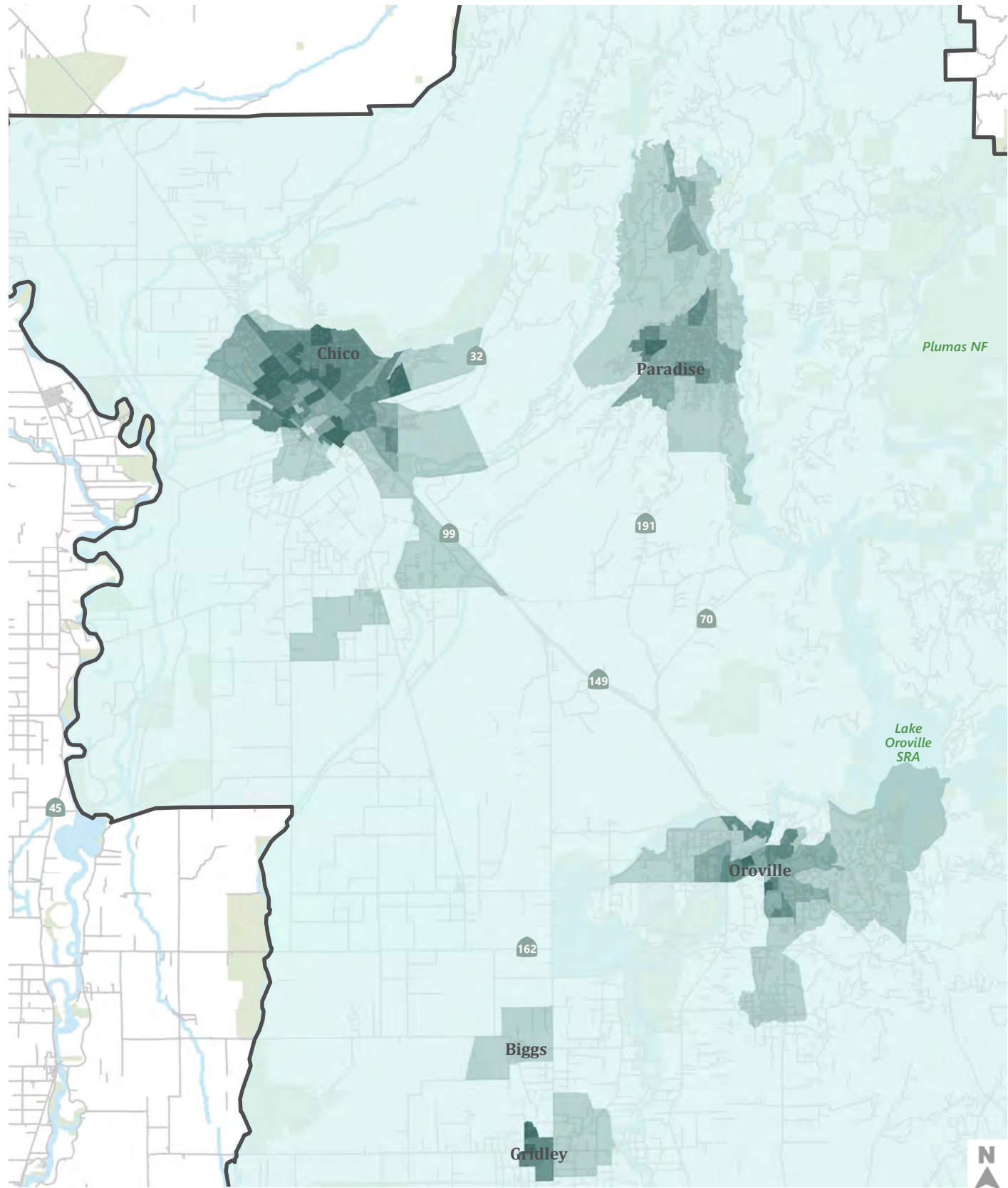
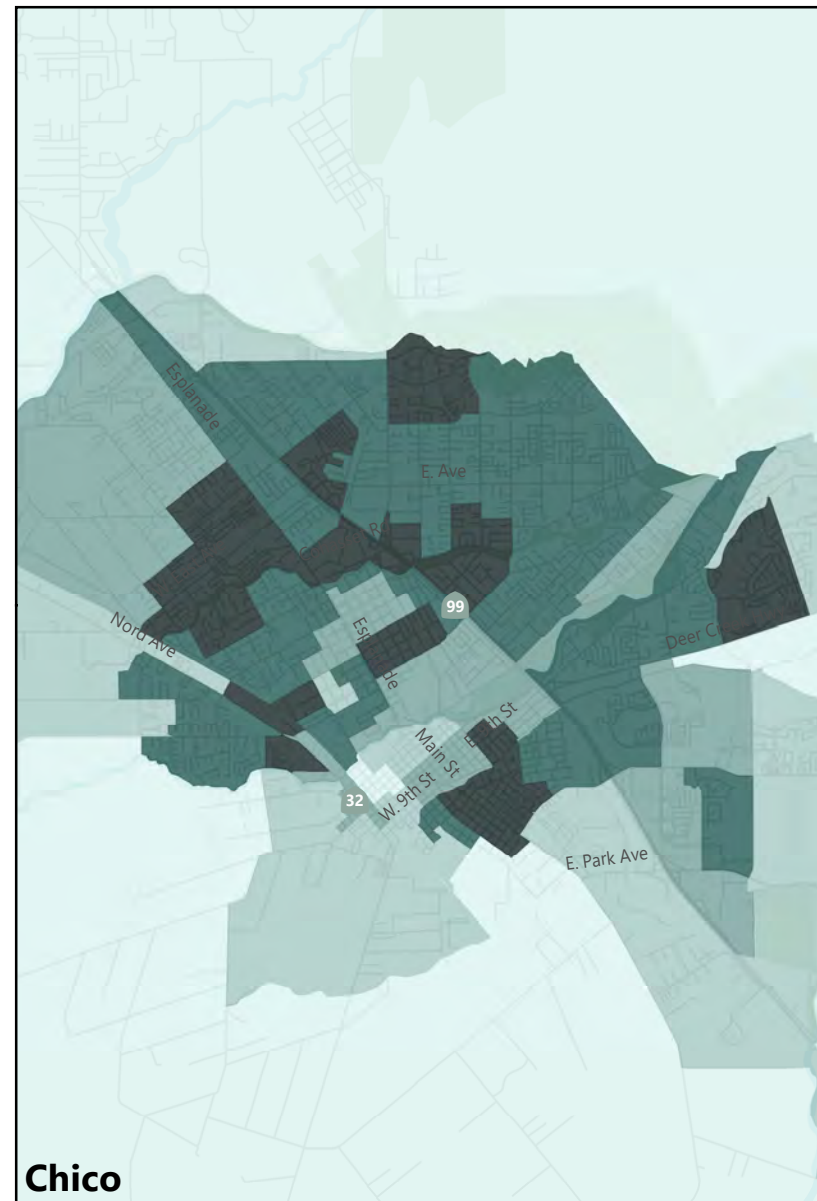
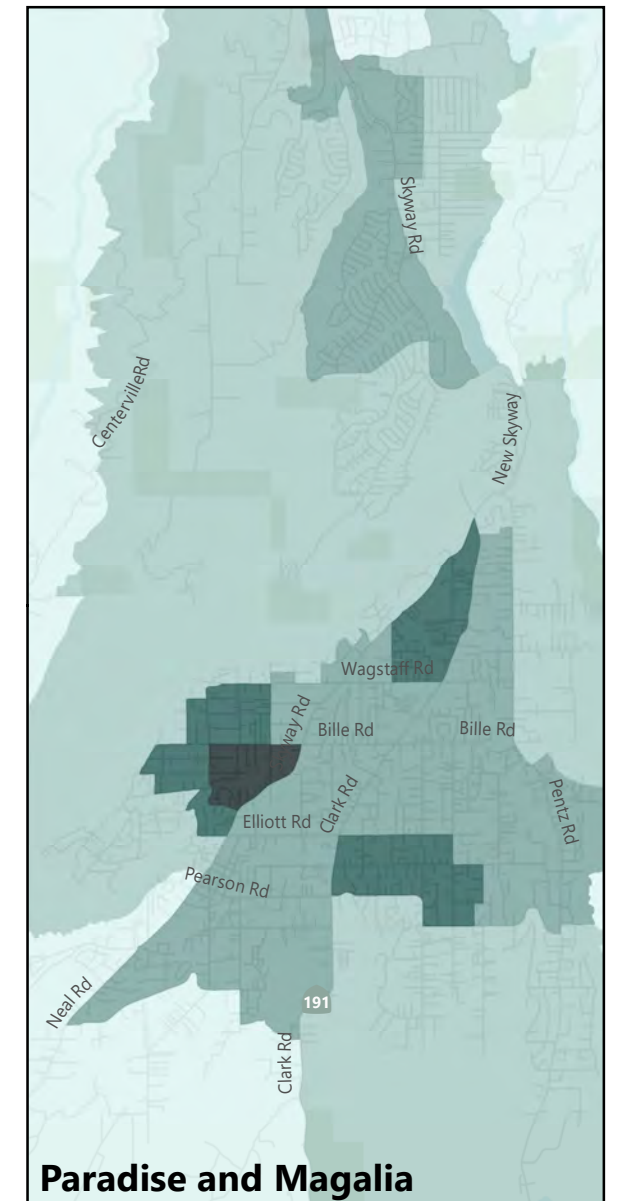


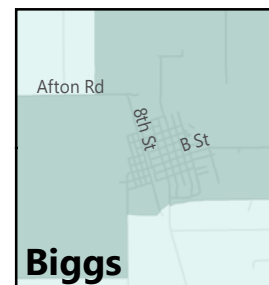
Figure 13
Youth, Young Adult, and Senior Density



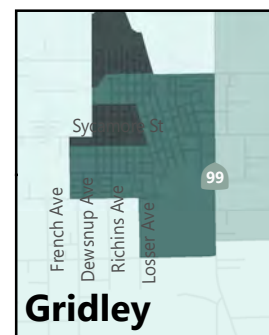
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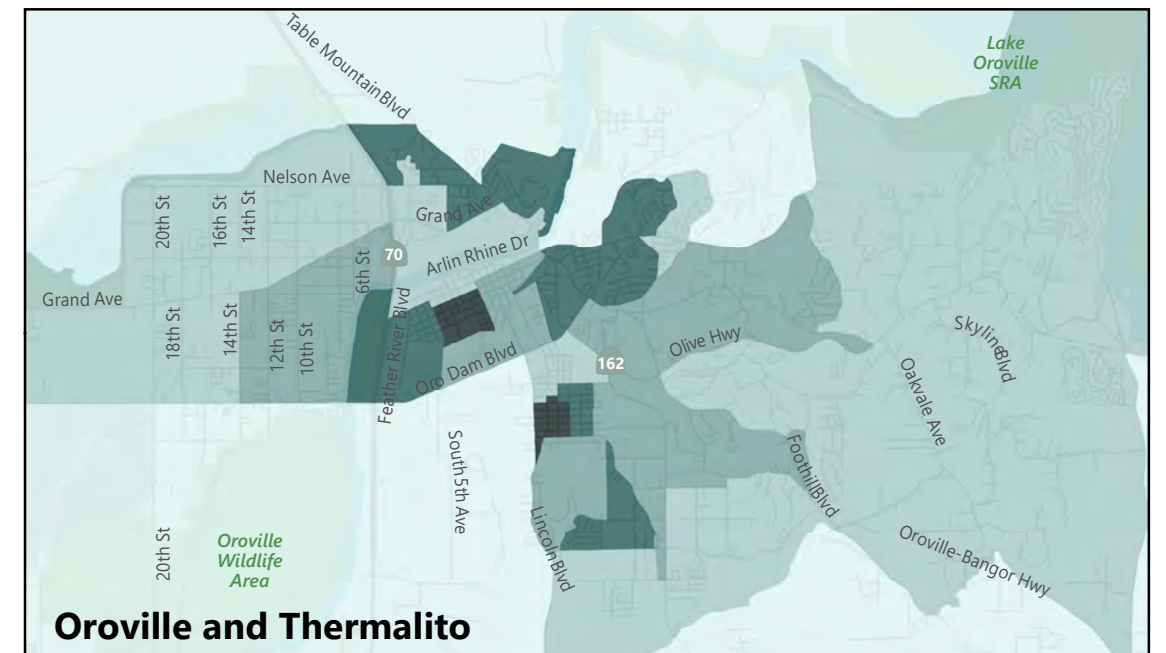
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

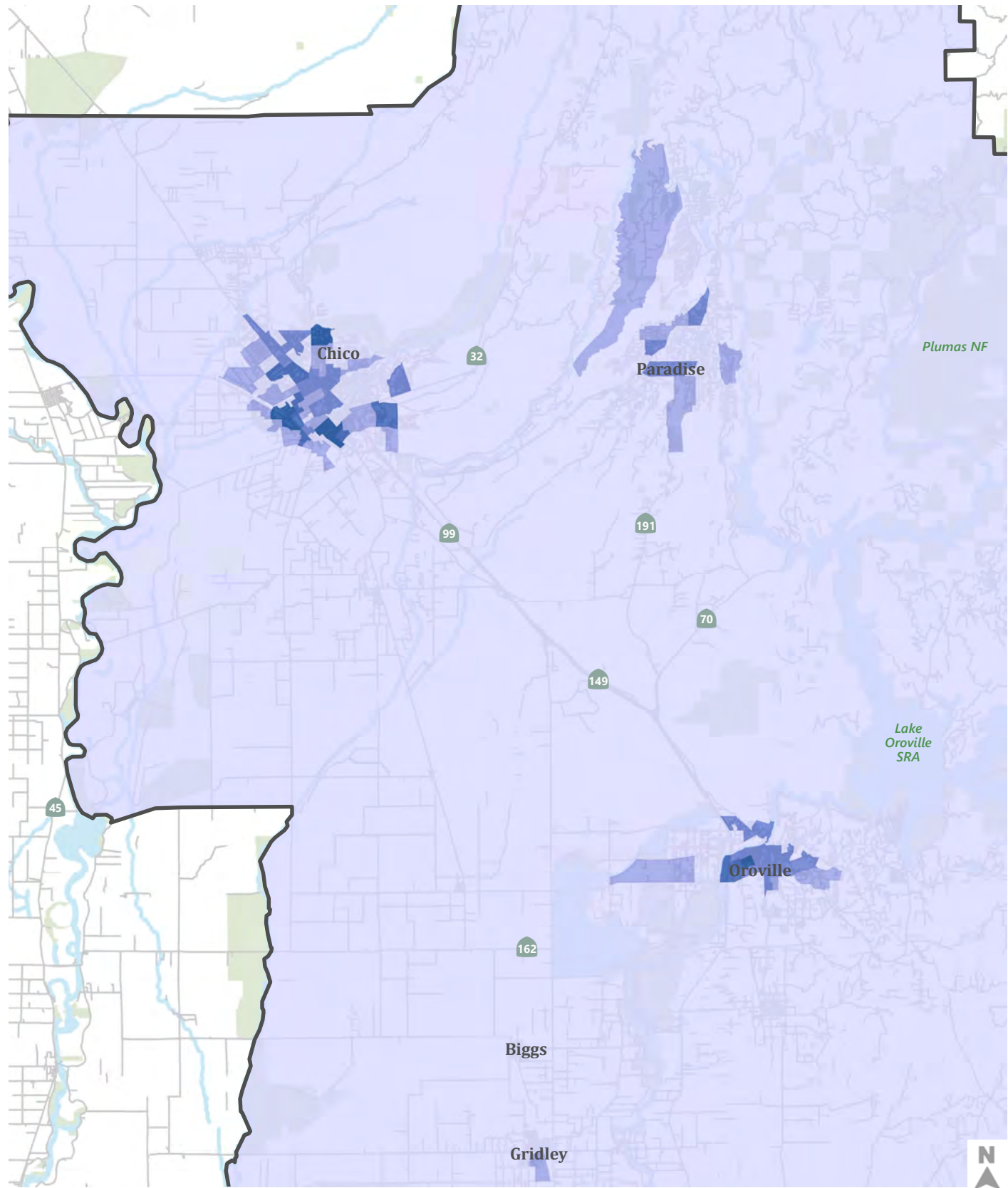
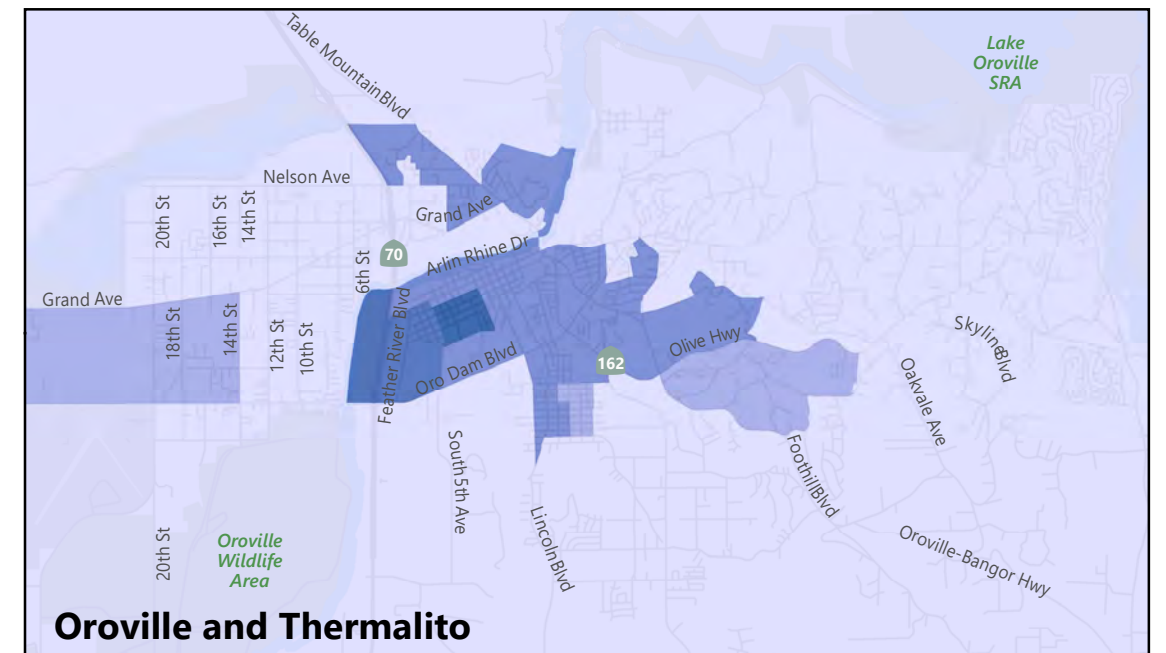
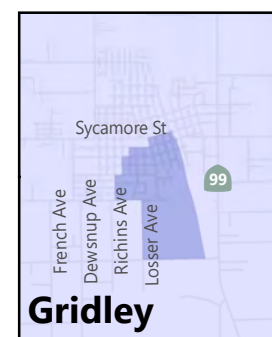
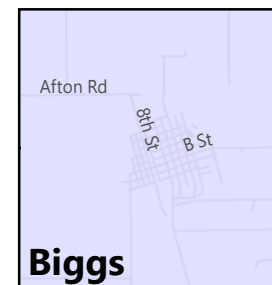
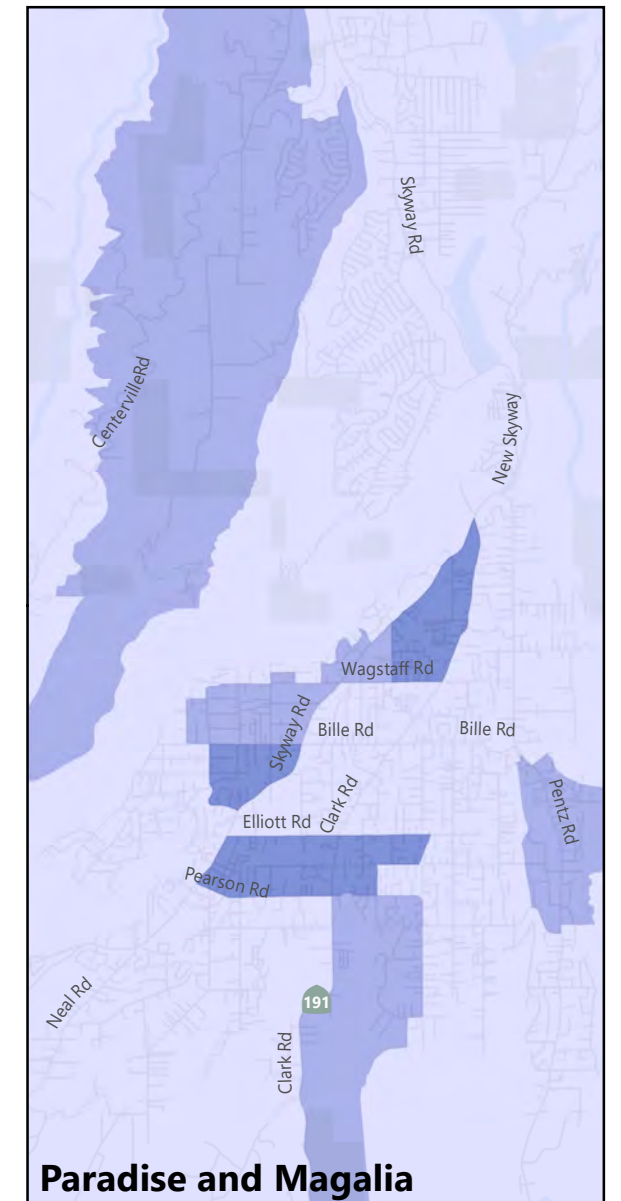
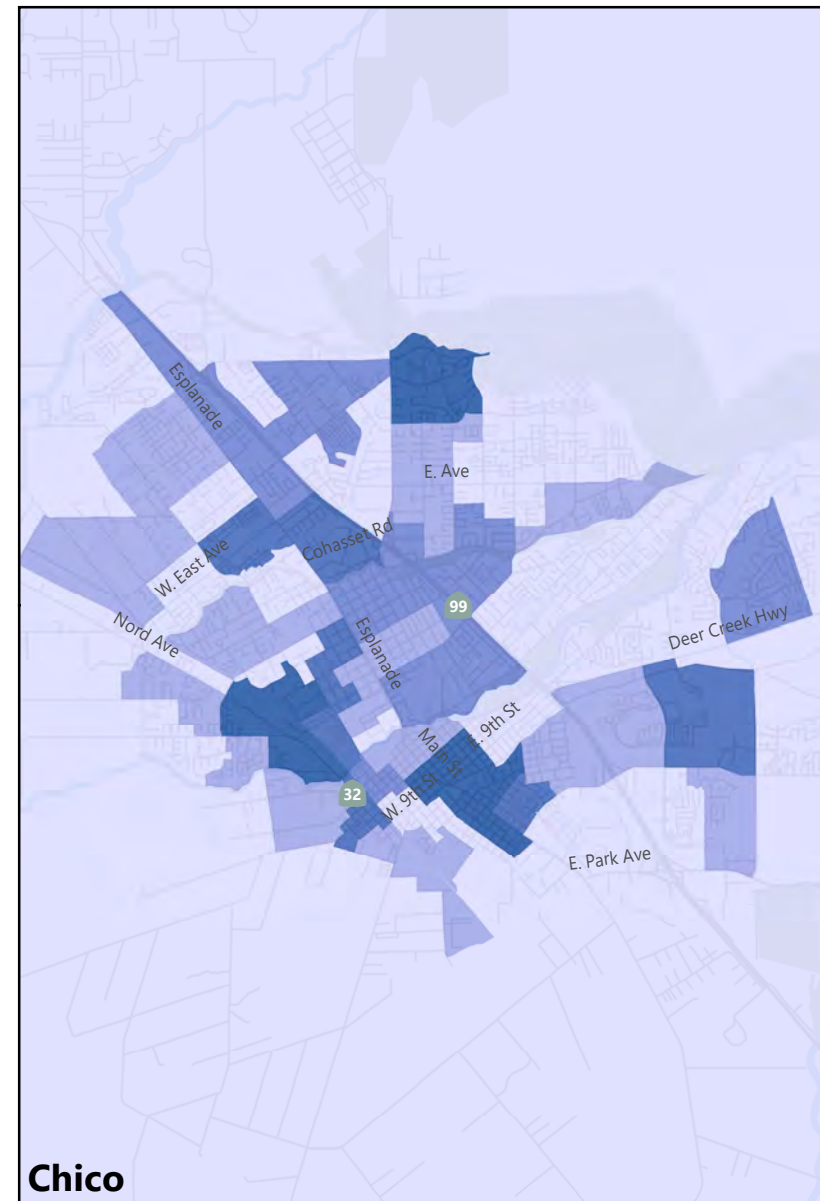


Figure 14
Zero Vehicle Households Density



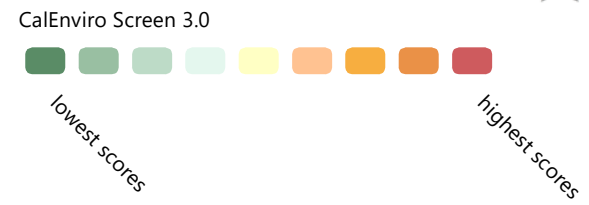
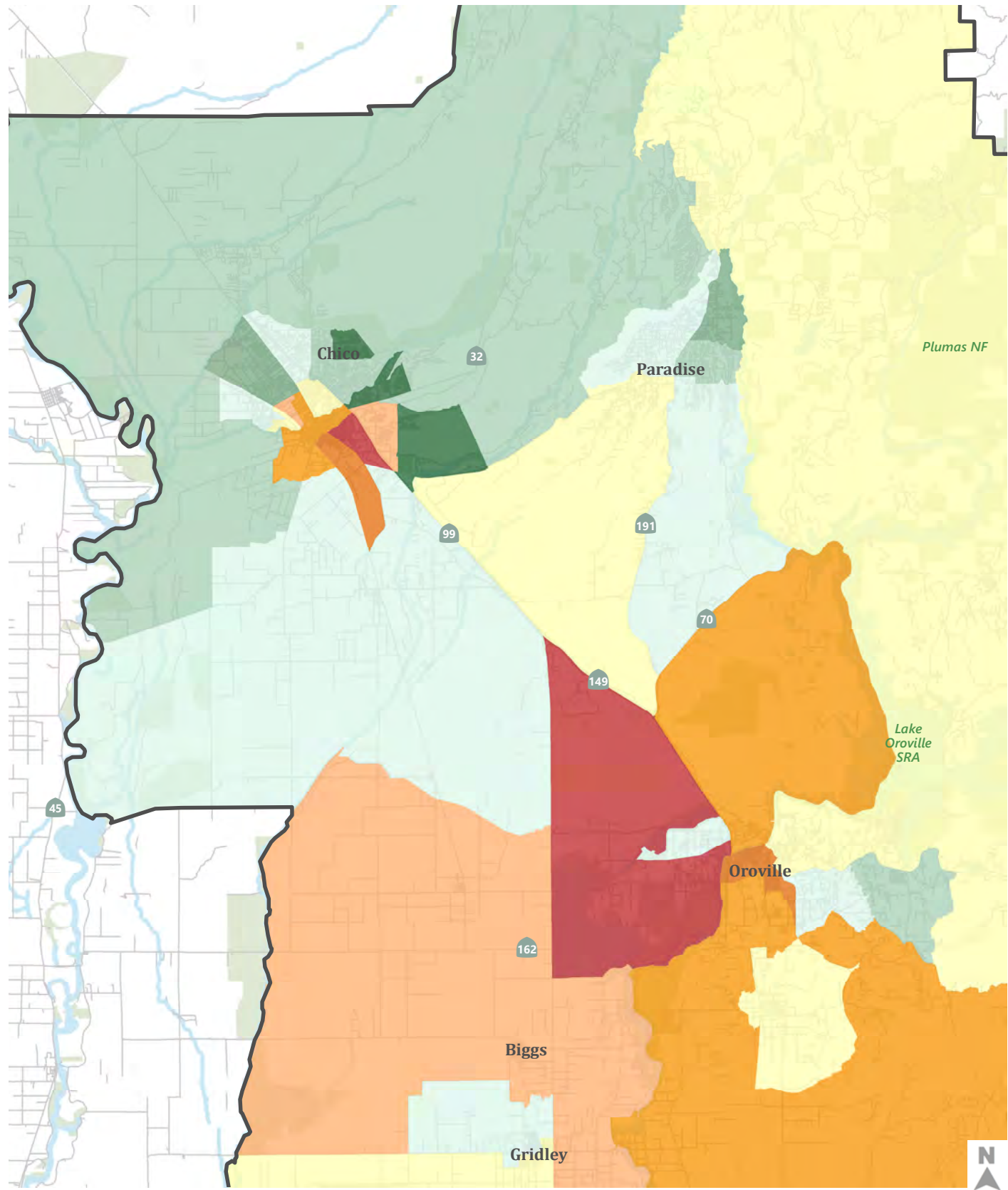
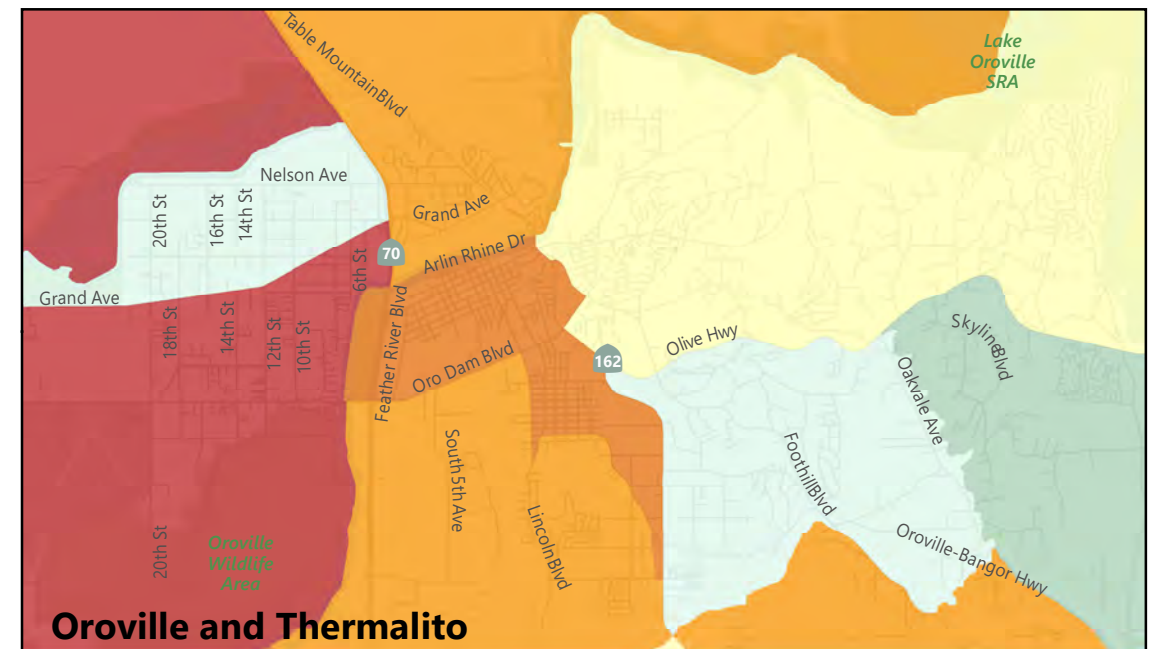
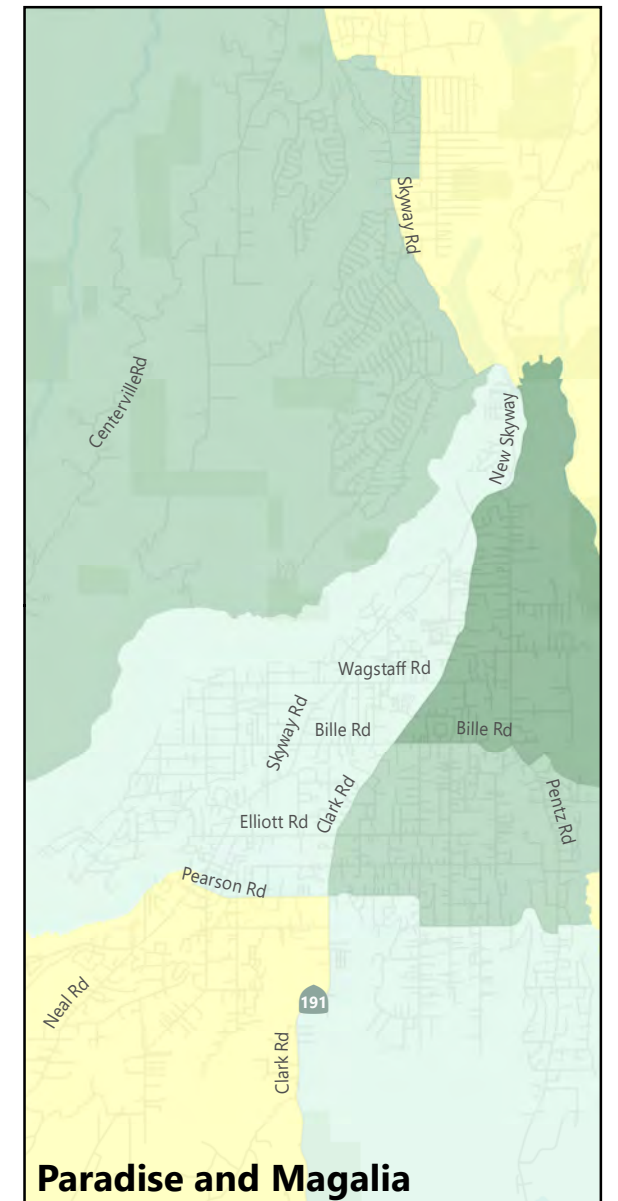
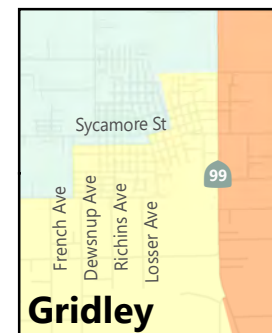
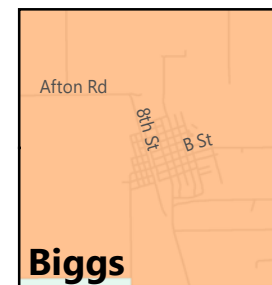
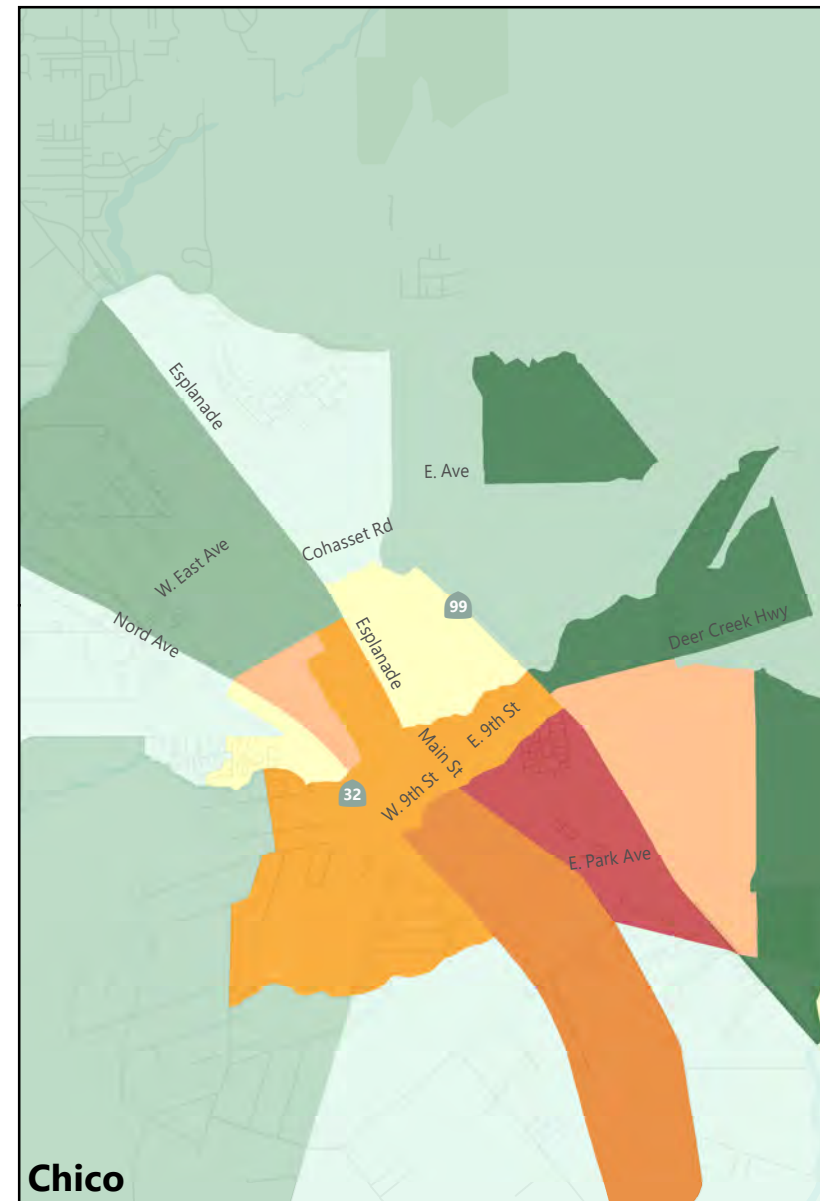


Figure 15
 CalEnviro Screen



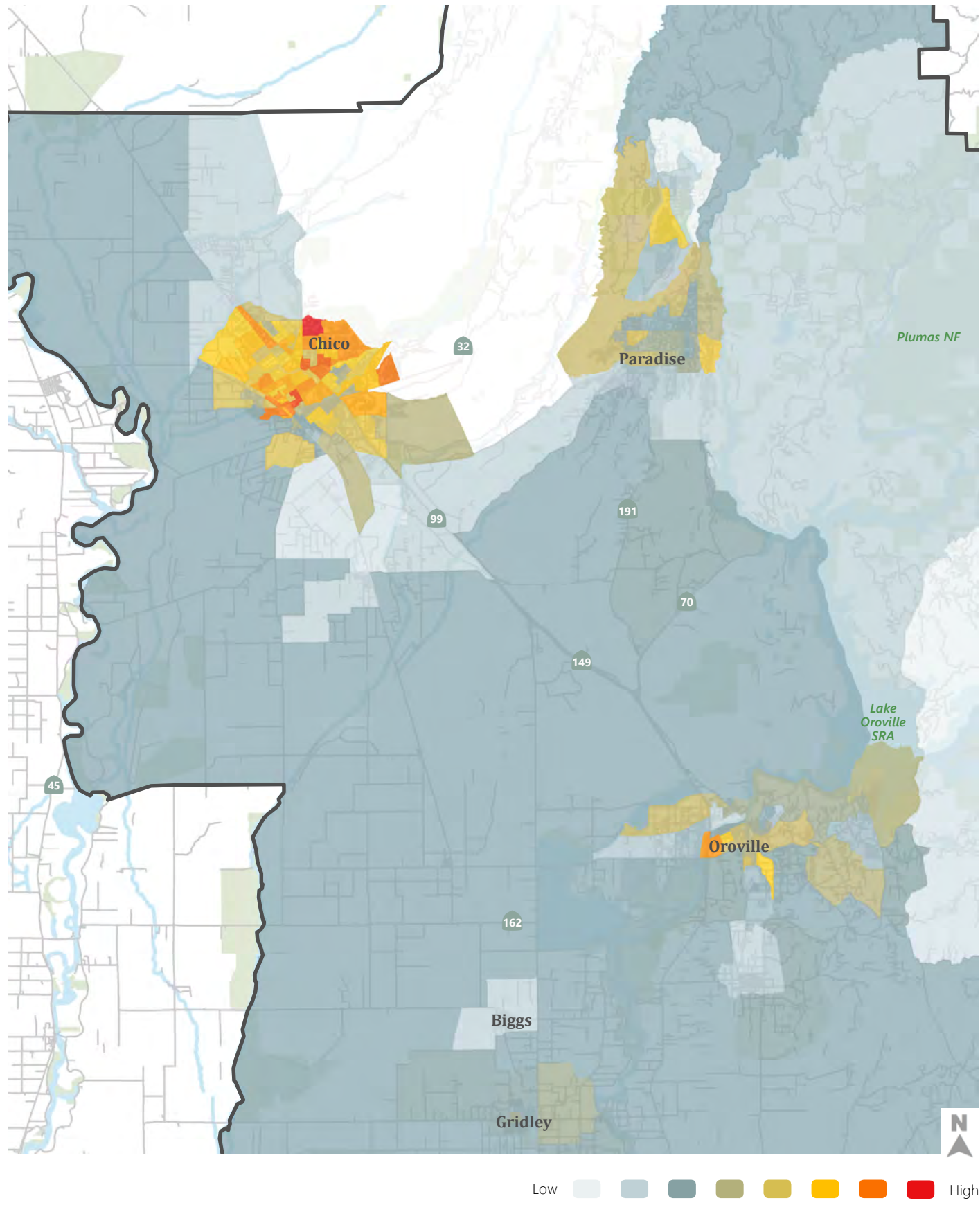
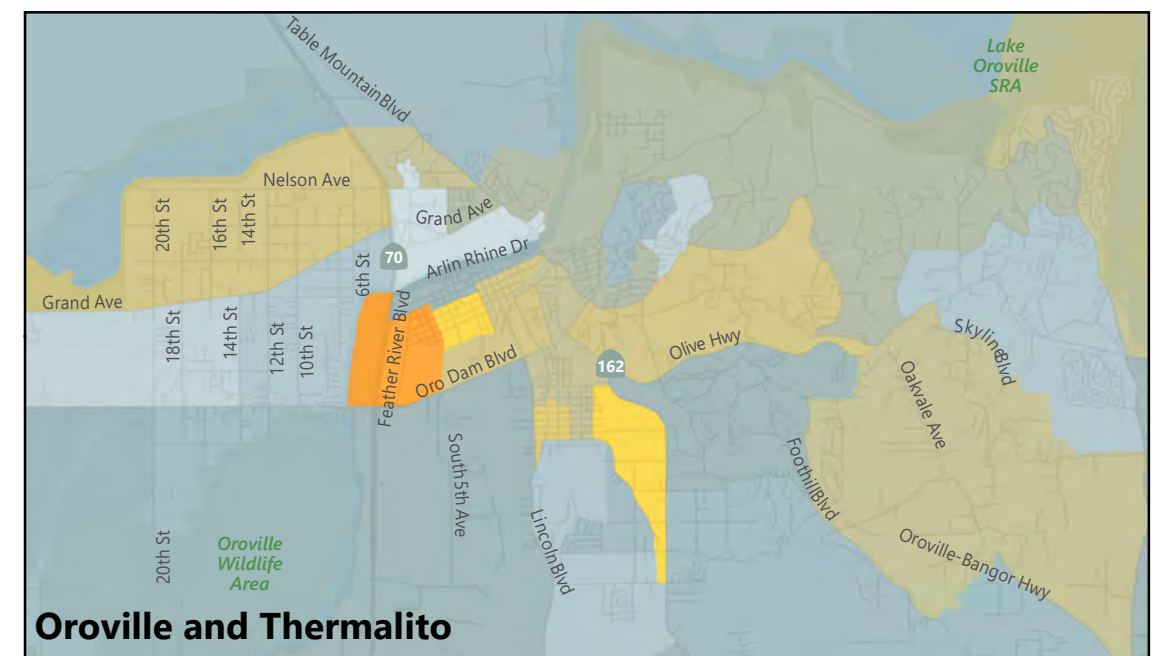
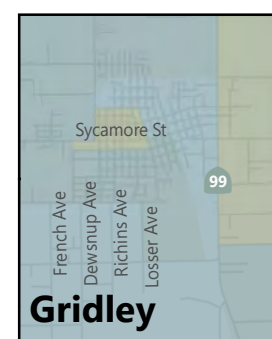
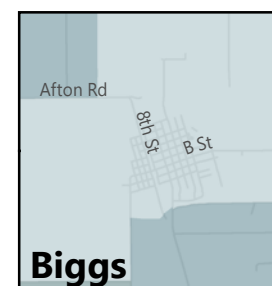
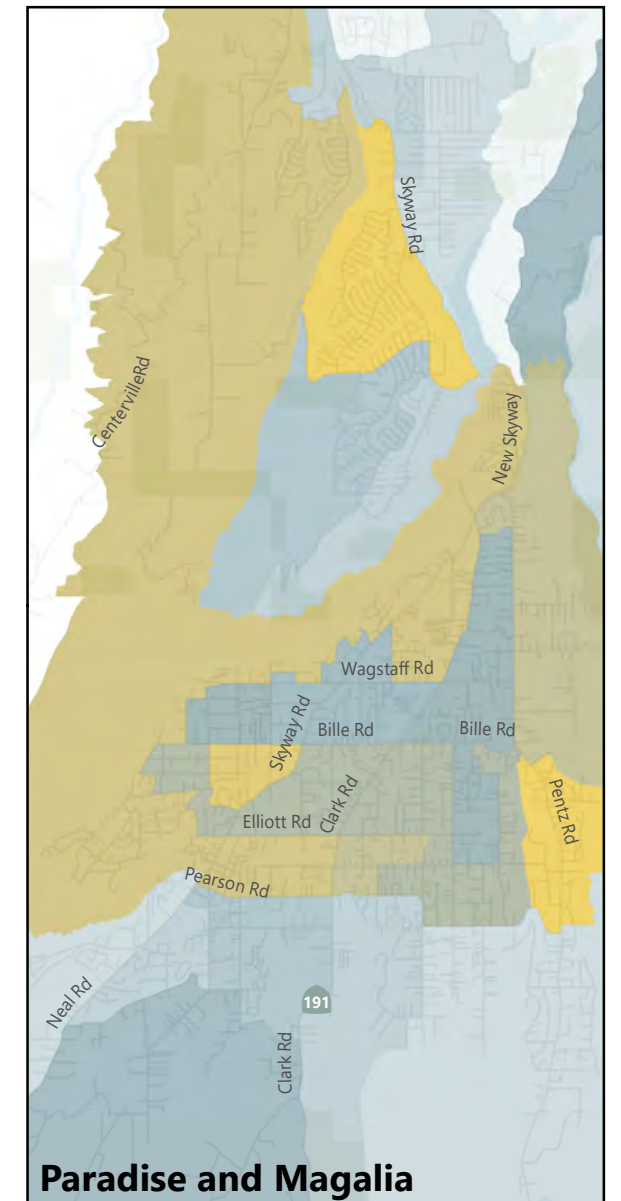
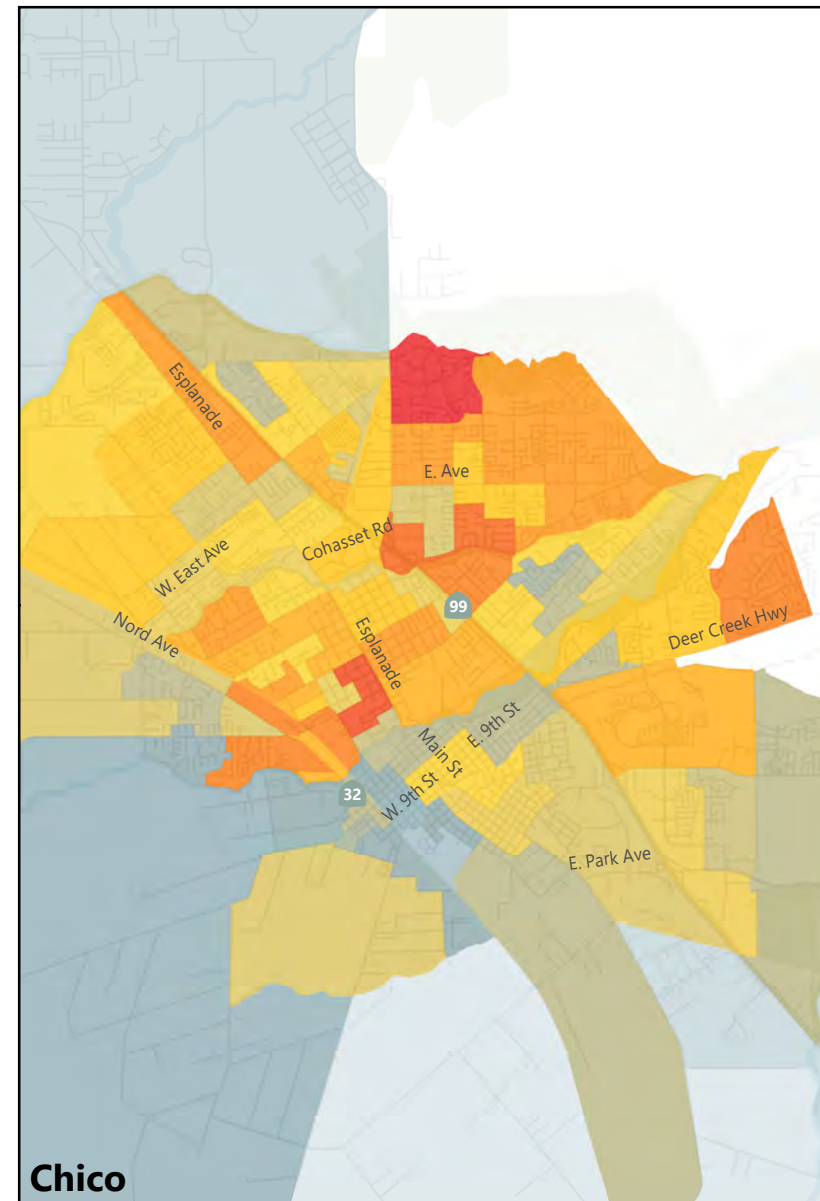


Figure 16
Transit Ridership Potential



Key Destinations

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.

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 2018, the university had a total student enrollment of 16,437 and 2,095 faculty and staff.
- **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 2018, the college had a total student enrollment of 10,445.
- **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.

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 Walmart, both the south of downtown Oroville. Several other strip malls are located in Oroville along Oro Dam Boulevard. Additionally, a Raley's is conveniently located immediately adjacent to the Oroville Transit Center. In Paradise, Save Mart, Dollar Tree, and other shops are located at Paradise Plaza, at the corner of Clark & Wagstaff Roads; Paradise Shopping Center offers the Holiday Market grocery store among other shops on Skyway Road near the Terry Ashe Recreation Center. Finally, B-Line serves the SavMor 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.

Travel Patterns

Travel patterns (e.g., origin-destination pairs exhibited by travelers) shared by large numbers of travelers can be indicators of transit demand potential. Please refer to the *Post Camp Fire Regional Population and Transportation Study – Report of Pre and Post Camp Fire Conditions* (September 2020) for additional details regarding travel patterns derived from big data sources.

Future Development

Residential and commercial development throughout Butte County represent potential new transit market opportunities for B-Line. Between 2020 and 2045, Butte County is projected to add approximately 32,700 dwelling units (38 percent increase), 62,700 residents (30 percent increase), and 17,700 employees (22 percent increase). Please refer to the technical memorandum entitled *Post Camp Fire Regional Growth Forecasts* (January 2021) for additional details regarding future population and employment forecasts in Butte County.

Additionally, communities throughout Butte County have identified numerous significant development projects, as summarized below.

City of 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. 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 areas in Chico as Special Planning Areas (SPAs), which are areas with significant new growth potential. 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.
 - 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 nonresidential uses could be built in the North Chico SPA. Butte County is currently leading a planning effort to determine the preferred land use composition for this 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.
- **Chico Stonegate Project**, which is located within the Doe Mill/Honey Run SPA, envisions 700 dwelling units and 445,000 square feet of commercial development.

- **Chico Valley's Edge Project**, which is located within the Doe Mill/Honey Run SPA, envisions 2,777 dwelling units and 447,155 square feet of commercial development covering 1,448 acres.
- **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.
- **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.

City of 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 Street, 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.

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 **Long-Term Community Recovery Plan** highlights a series of actionable recovery projects that most contribute to the Town's ability to recover from the Camp Fire. The projects strive to further the following five elements from the Community Vision: safer, welcoming, stronger, better, and greener.

4. Non-Motorized Transportation Network

A contiguous, comfortable, and convenient non-motorized transportation network is an essential component of an effective local and regional transportation system. Moreover, a high-quality active transportation network supports the use of transit by providing access to transit stops and first-/last-mile connections to residential neighborhoods and destinations alike.

Existing and Planned Bicycle Facilities

Bicycle facilities are typically categorized in the following classifications:

- **Class I Multi-Use Off-Street Paths** (also known as shared-use paths) are paved trails that are separated from roadways and allow for shared use by both cyclists and pedestrians.
- **Class II On-Street Bike Lanes** are designated for use by bicycles by striping, pavement legends, and signs.
- **Class III On-Street Bike Routes** are designated by signage for shared bicycle use with vehicles but do not necessarily include any additional pavement width for bicyclists.
- **Class IV Separated Bikeways** (also known as protected bikeways or cycle tracks) are separated bikeways that improve upon buffered bike lanes by providing vertical separation between bikeways and the adjacent travel lanes. Examples of vertical separation include concrete curb, bollards, and on-street parking.

The following section describes existing and planned bicycle facilities in jurisdictions throughout Butte County. Figure 17 illustrates existing and planned bicycle facilities in 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

The *Biggs Area Bicycle Transportation Plan* (June 2011) identifies planned bicycle facilities throughout the City. 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. Additional bike paths include the Little Chico Creek bike path, the Airport bike path, and the Steve Harrison bike path.

Class II Bike Lanes

Cohasset Road, East Avenue, Nord Avenue, Warner Street, Manzanita Avenue, Eaton Road, 20th Street, Notre Dame Boulevard, 8th Avenue, Bruce Road, Springfield Drive, Forest Avenue, and Skyway Road are all corridors featuring Class II bike lanes along at least a portion of their route.

Class III Bike Routes

Several 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 Chico State. 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 Bicycle Plan 2019 Update* identifies numerous improvements to the City's bicycle network. The plan identifies the following high priority projects:

- Completion of Bikeway 99 Phase 4 and Phase 5
- Esplanade Class IV Protected Bikeway
- Comanche Creek Greenway Phase 2
- Little Chico Creek Bike/Ped Bridge
- Bruce Road Bike Lane
- Humboldt Road Multi-Use Path from El Monte to Bruce Road
- Wayfinding signage design and implementation

- Conversion of Bike Routes to Bike Boulevards, phase 1

Additionally, the plan identifies the following “transformative projects”:

- Esplanade to Park north-south Corridor Update:
 - Multi-Use Path AND bike lane on Esplanade from Bodero to Sycamore/Mud Creek Path
 - Protected Bikeway on Esplanade from 11th Street to Bodero Way
 - Protected Bikeways from 1st Street to 9th Street on Main and Broadway
 - Protected Bikeway from 9th Street to 20th Street on Park Avenue
- Cohasset to Mangrove north-south Corridor:
 - Protected Bikeway on Cohasset from Manzanita Court to Eaton Road
 - Protected Bikeway on Mangrove from Manzanita Court to Vallombrossa Avenue
- East Avenue east-west Corridor Update:
 - Protected Bikeway from SR 99 to Mariposa Avenue
- Lindo Channel east-west Corridor:
 - Multi-Use Path from SR 32 to Sycamore Creek Multi-Use Path in Upper Park
- Completion of Sycamore Creek/Mud Creek east-west Corridor:
 - Multi-Use Path from W Eaton Road extension (planned) to Wildwood Roundabout
- Little Chico Creek east-west Corridor:
 - Multi-Use Path from Pomona Ave to existing path at SR 99
 - Multi-Use Path from existing path at Bruce Rd to Picholine

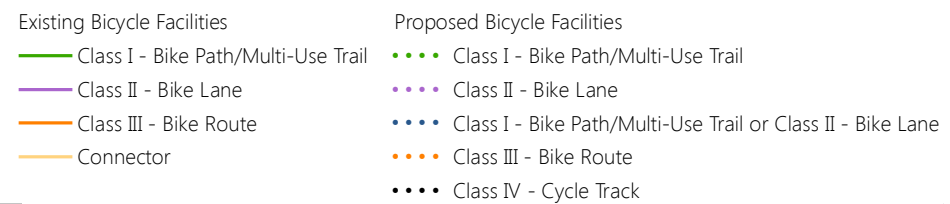
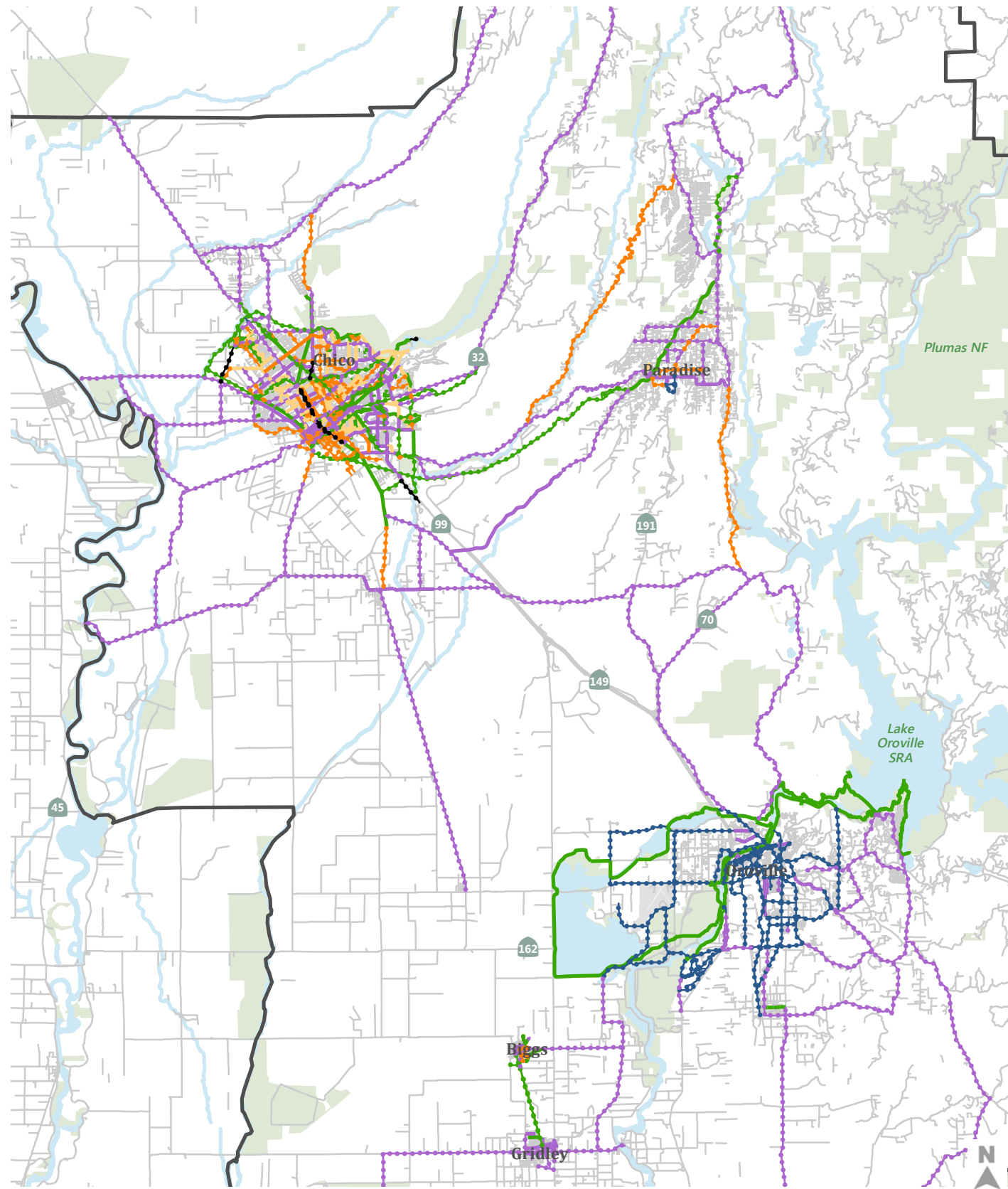
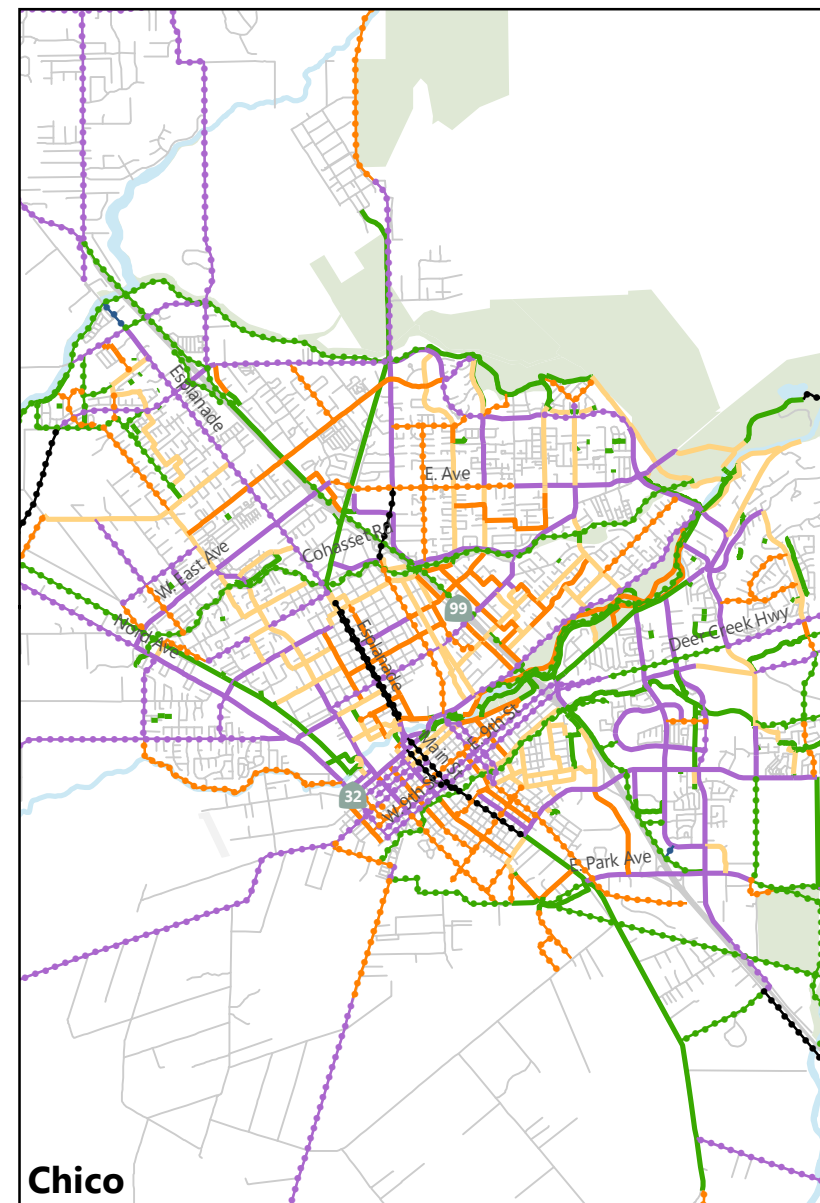
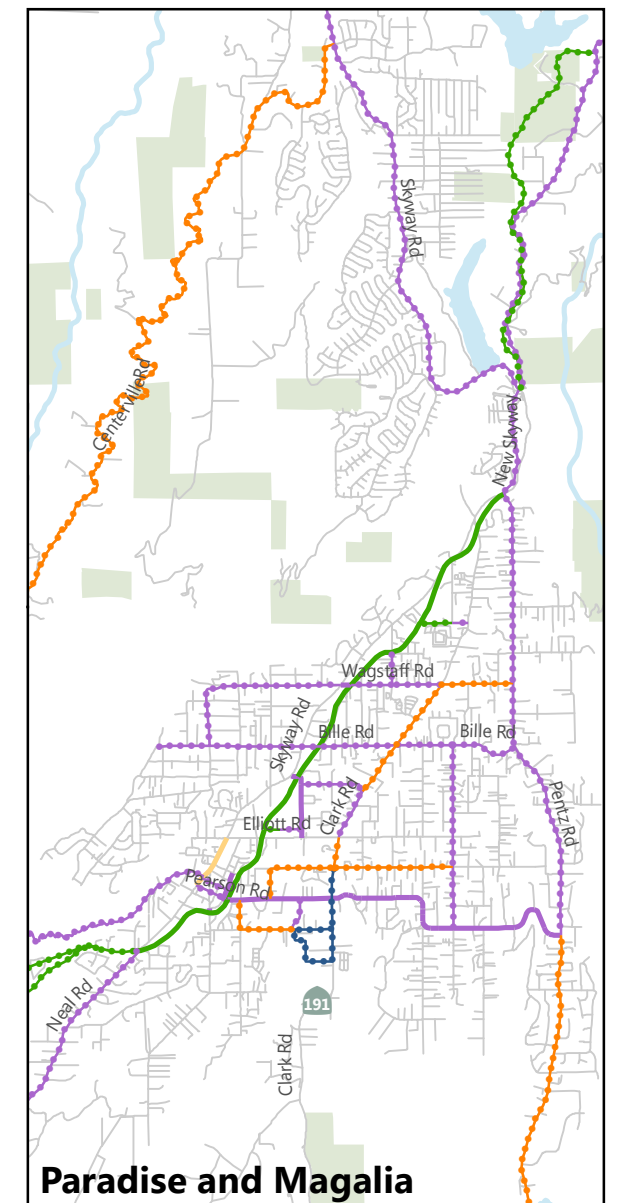


Figure 17
Existing & Proposed
Bicycle Facilities



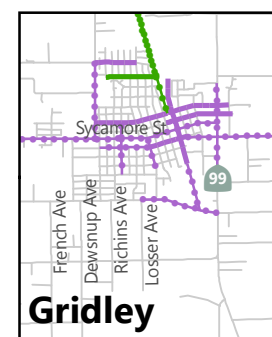
Chico



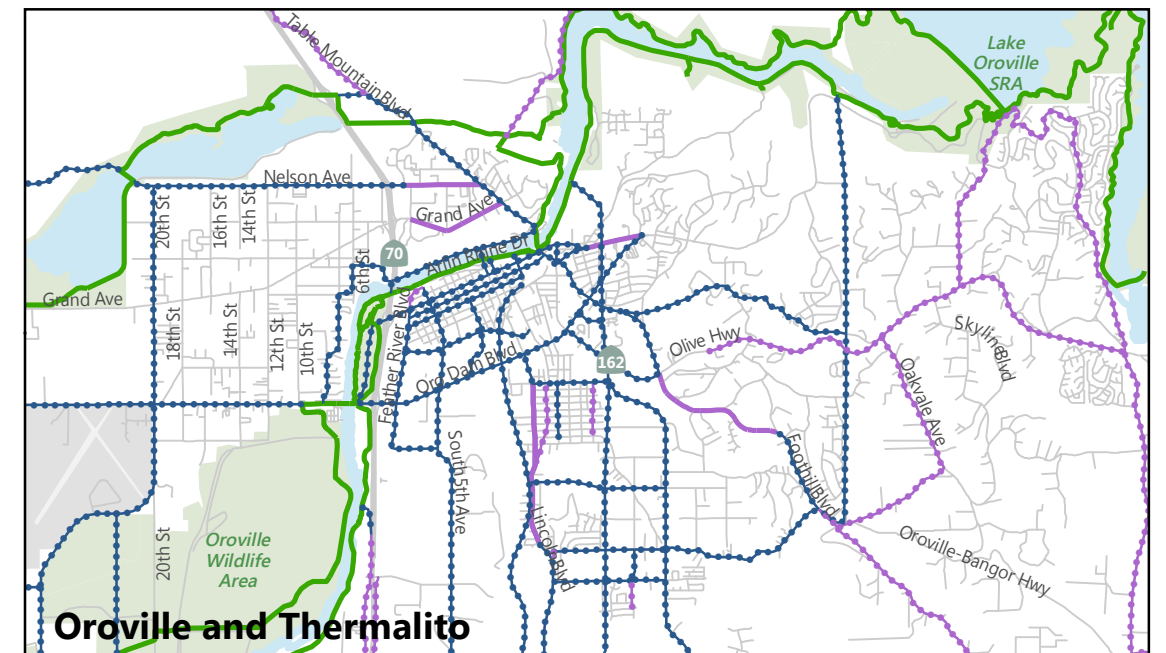
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

City of Gridley

Existing

An east-west bike path traverses the south side of Heron Landing between Biggs Gridley Road and Kentucky Street. Bike lanes exist on Spruce Street between Biggs Gridley Road and State Route 99, on Hazel Street between Virginia Street and the street's eastern terminus, on Magnolia Street between Vermont Street and Jackson Street, and on Washington Street north of Magnolia Street.

Proposed

The *City of Gridley Bicycle Plan* (January 2011) identifies planned bicycle facilities throughout the City. 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, the Brad Freeman Trail traverses between Riverbend Park and Washington Avenue along the southern banks of the Feather River. Bike lanes are present on sections of Grand Avenue, Orange Avenue, Nelson Avenue, and Foothill Boulevard.

Proposed

The *City of Oroville Bike Plan* (2010) and the *City of Oroville Balanced Mode Circulation Plan* (2015) identify planned bicycle facilities throughout the City. 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 Princeton Way/Skyway Road intersection with the Pentz Road/Skyway Road intersection. The trail parallels Skyway Road for its length. Bike lanes are present on Skyway Road between Pearson Road and Elliott Road. A short bike lane exists on Pearson Road between Black Olive Drive and Clark Road.

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

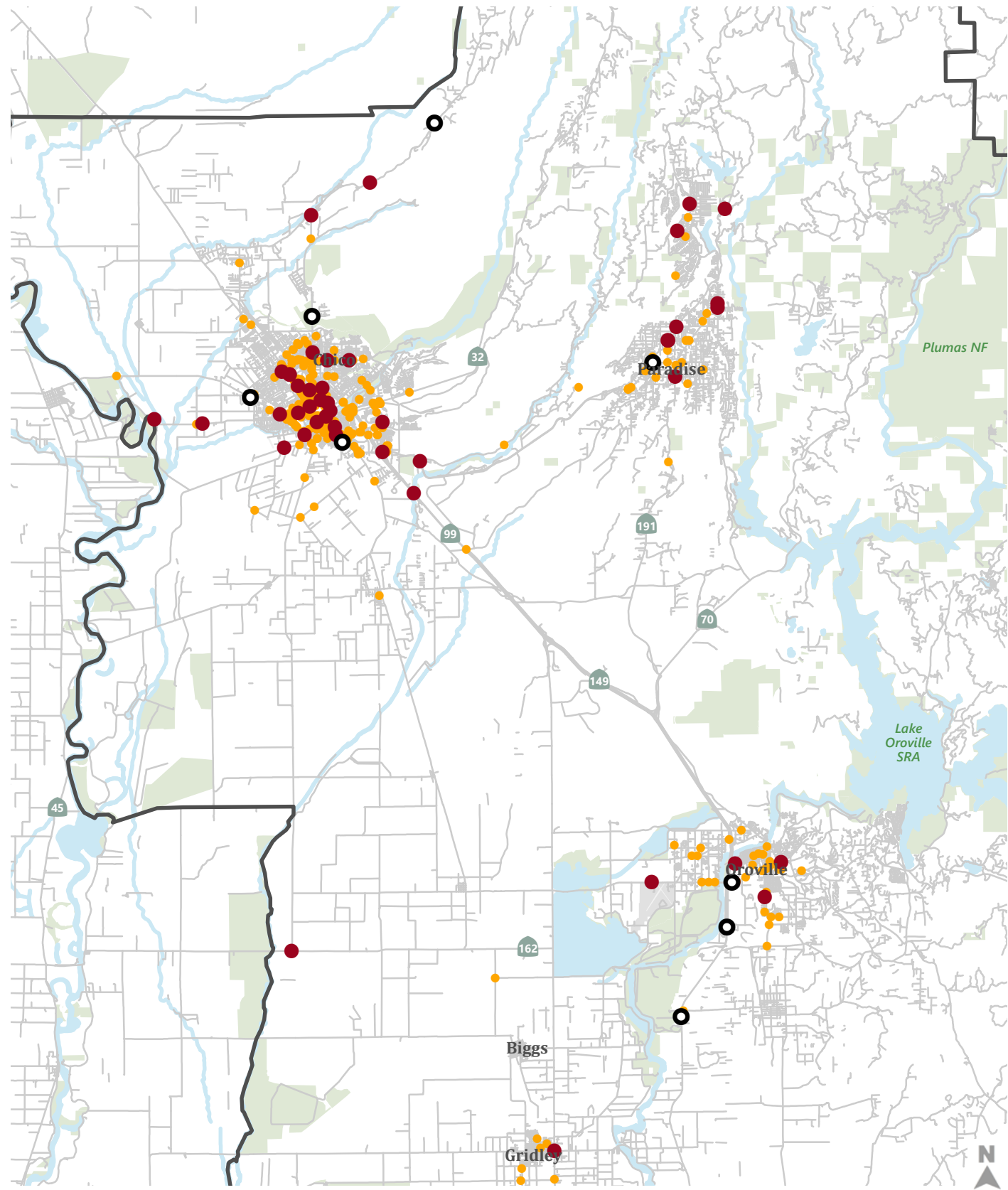
An extensive network of bike paths, bike lanes, bike routes, and multi-use trails is proposed for the unincorporated areas of Butte County. Bike paths are proposed between Chico and Paradise along Skyway Road, and between Biggs and Gridley along the railroad right-of-way. Bike lanes are proposed on several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

Bicycle- and Pedestrian-Involved Collisions

A review of collisions involving bicyclists and pedestrians reveals locations with demonstrated collision records where physical interventions could be necessary to improve the comfort and safety of active transportation facilities. In the context of the *Butte County Transit and Non-Motorized Plan*, locations adjacent to transit stops and transfer centers are of particular interest, because safety concerns associated with walking or biking to transit, whether real or perceived, can pose a major barrier to people choosing to utilize transit.

Figure 18 and 19 illustrate the locations of recorded collisions involving bicyclists and pedestrians, respectively, throughout Butte County from 2014 to 2018. Additionally, Figures 19 and 20 illustrate the locations of collisions where a bicyclist or pedestrian was killed or severely injured. The highest concentration of collisions occurred in Chico, particularly within the vicinity of downtown Chico and the Chico State campus where higher levels of bicycling and walking activity occur. Corridors in Chico with higher concentrations of collisions include the Esplanade, Nord Avenue, Park Avenue, and East Avenue. Collisions in Paradise were primarily concentrated on Skyway Road and Clark Road. In Oroville, collisions were concentrated on Oro Dam Road and Lincoln Boulevard.

Countywide, collisions were concentrated on roadways that serve higher speeds and volumes of vehicle traffic, and that are designed in a manner where bicyclists and pedestrians experience considerable exposure to vehicles (e.g., long pedestrian crossing distances, lengthy bicycle-vehicle mixing zones, high-speed turning movements at intersections and freeway interchanges, etc.).



- Bicycle Collision
- Fatal Collision
 - Severely Injured Collision
 - Bicycle Collision

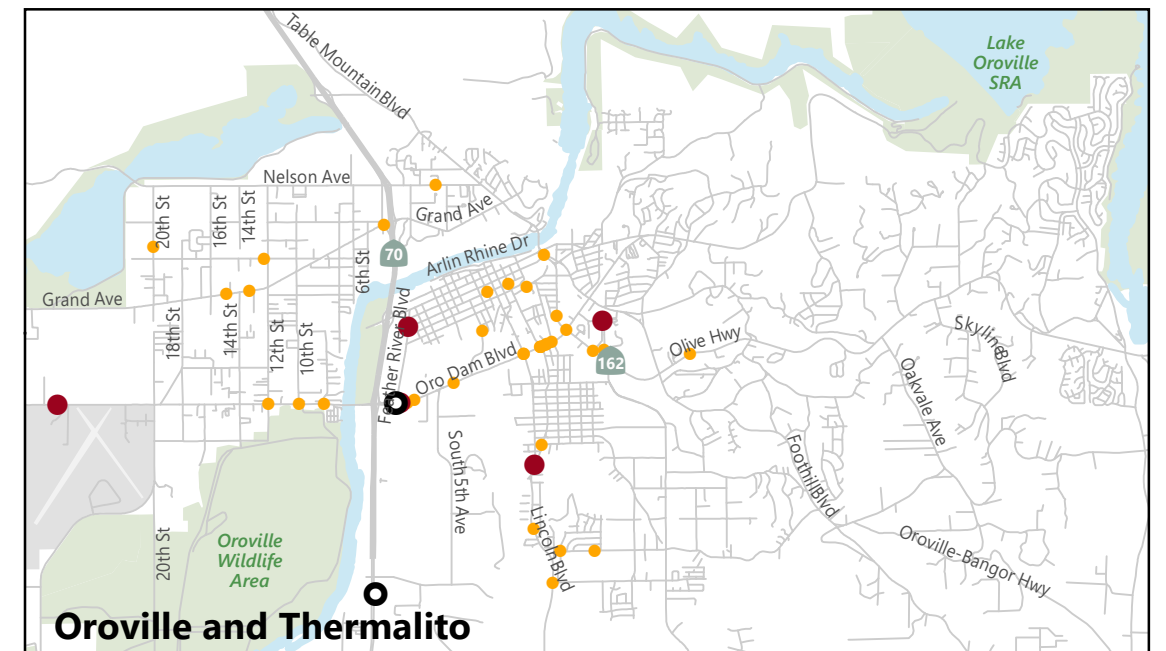
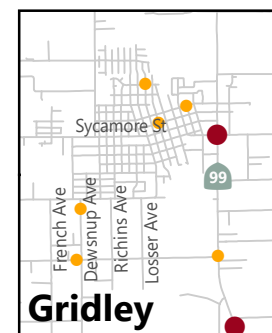
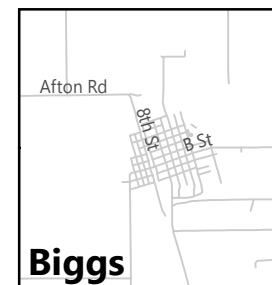
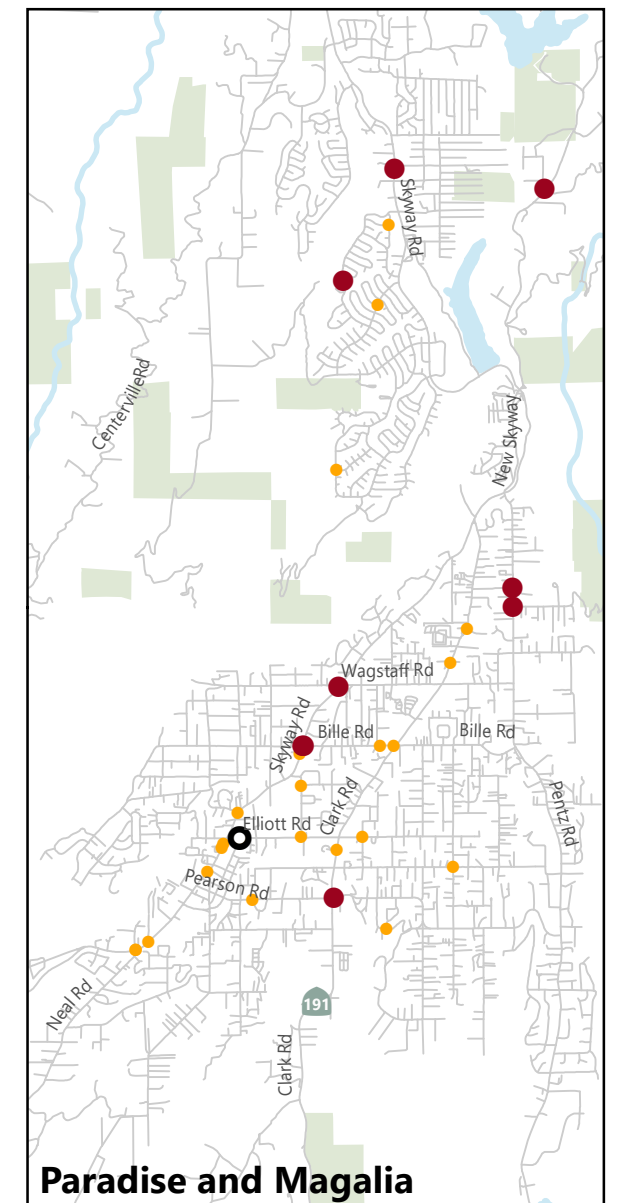
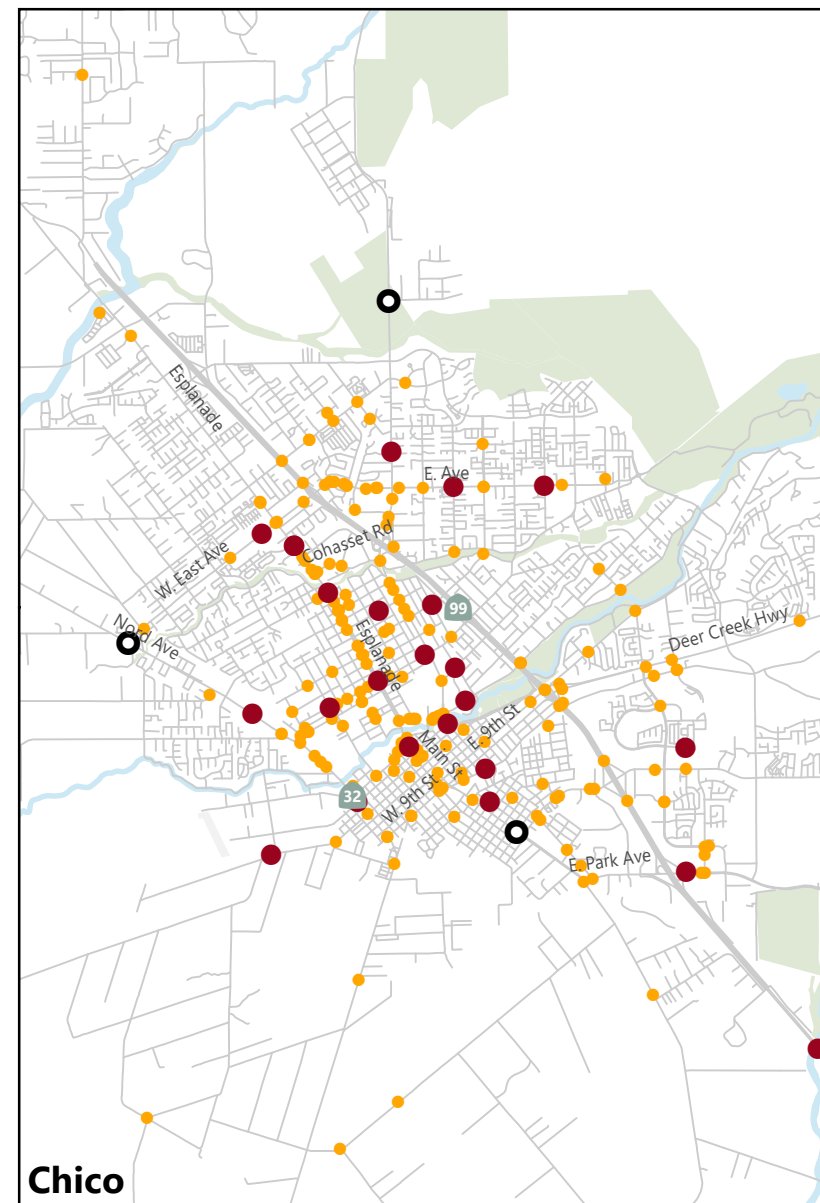
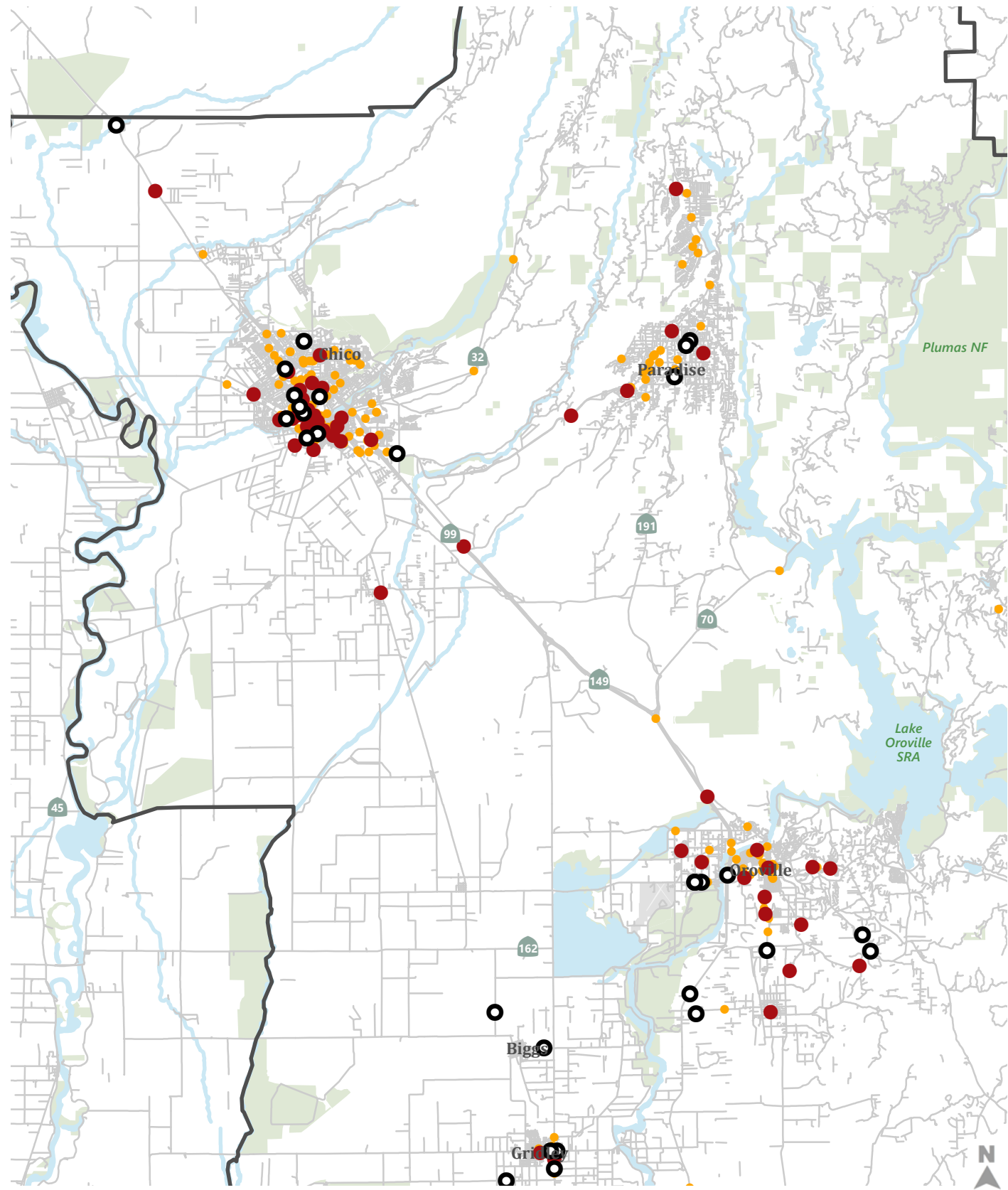
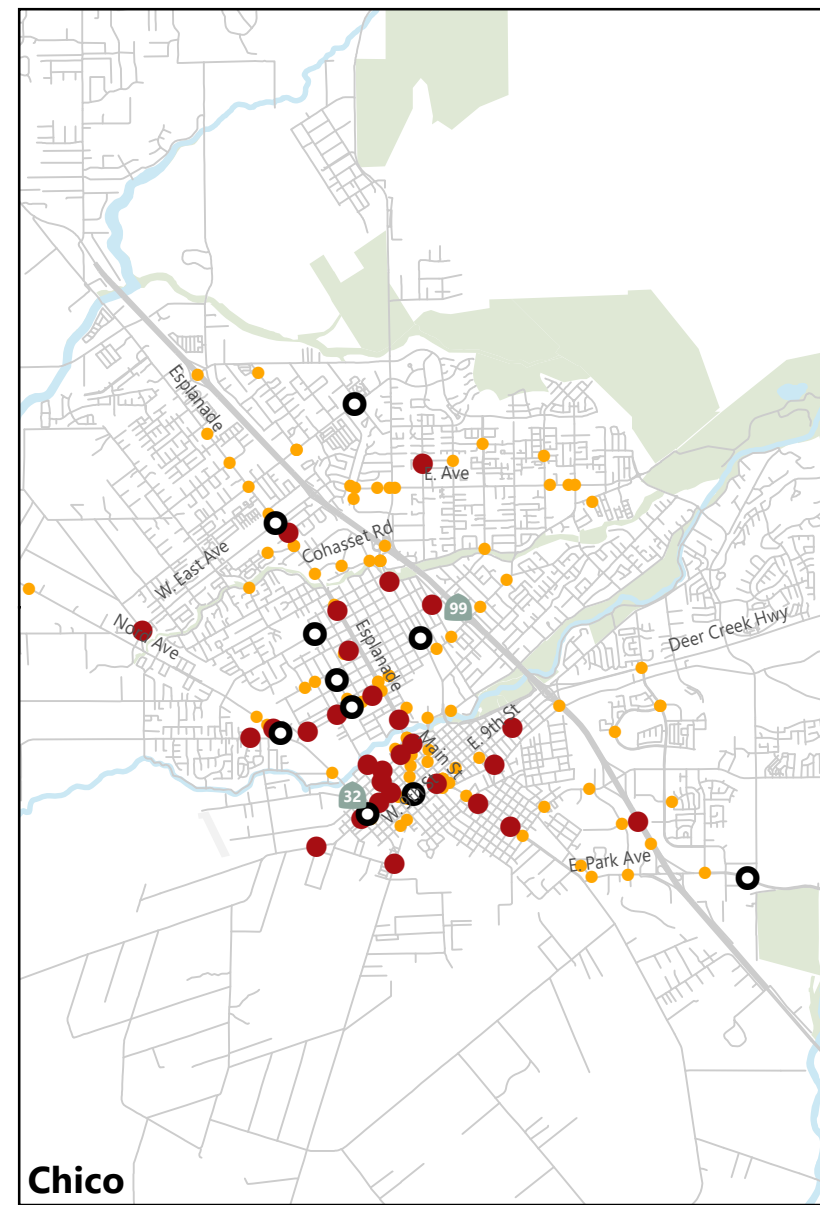


Figure 18
Bicycle Collisions, 2014-2018

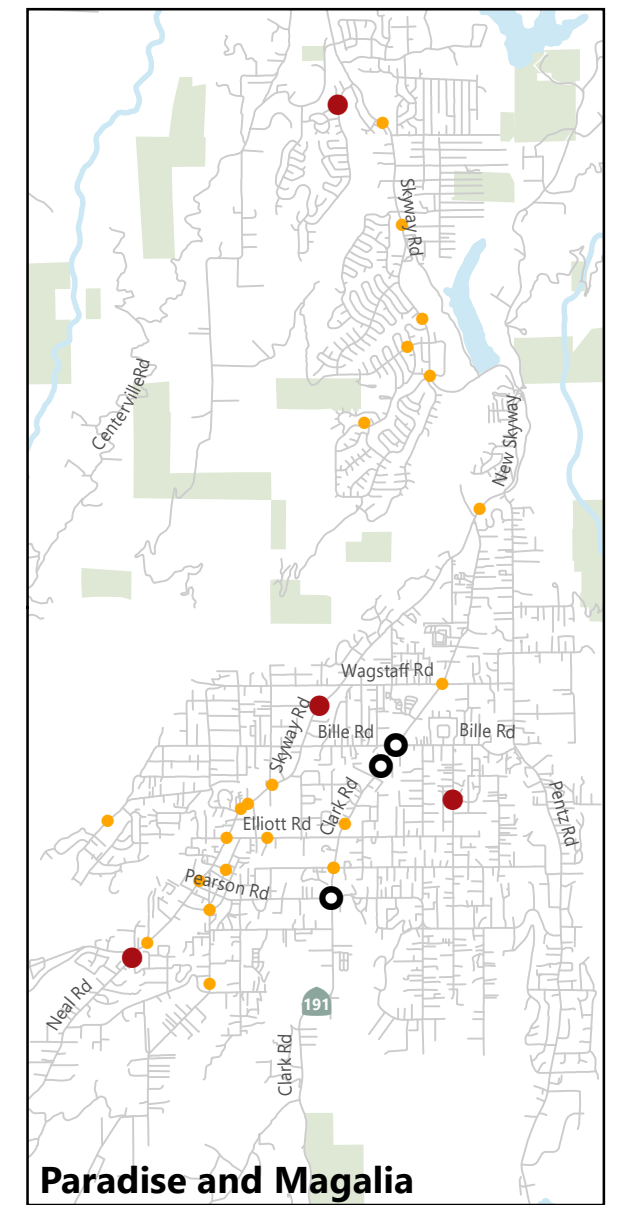


- Pedestrian Collisions
- Fatal Collision
 - Severely Injured Collision
 - Pedestrian Collision

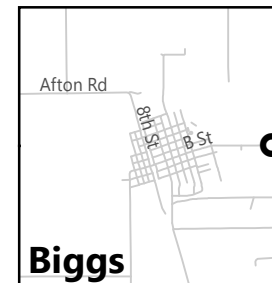
Figure 19
Pedestrian Collisions, 2014-2018



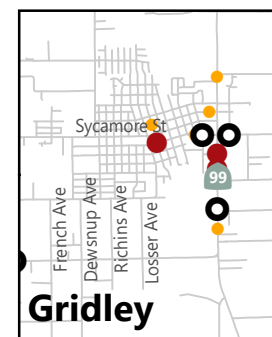
Chico



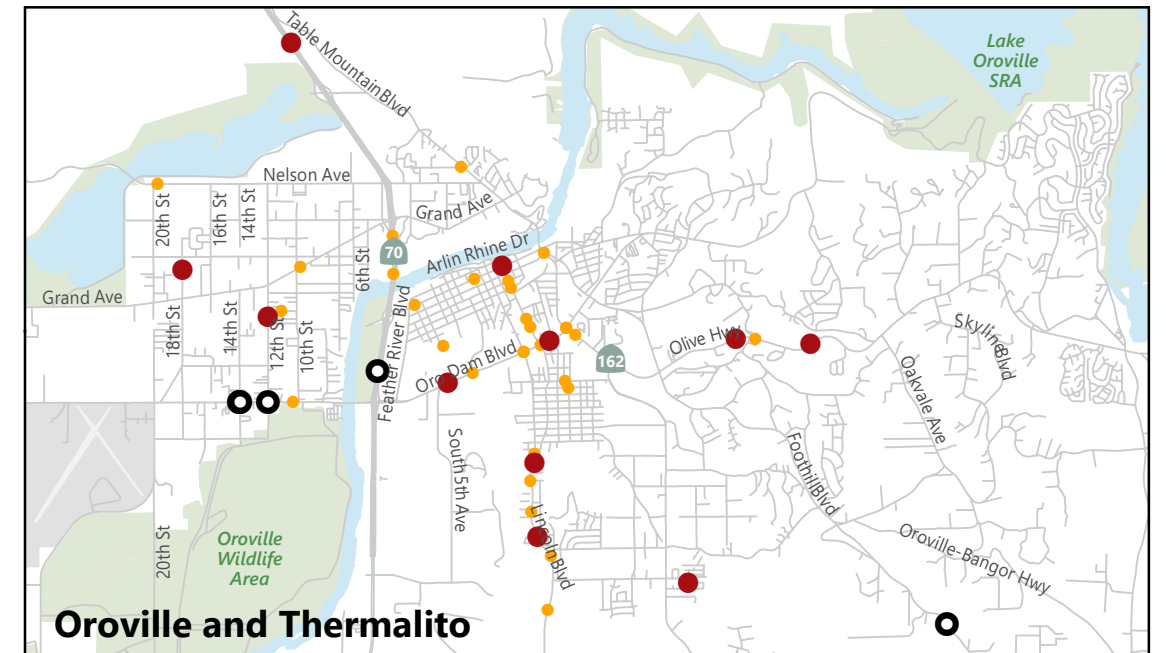
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

Walking and Bicycling to Transit

B-Line 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. Supporting bicycle and pedestrian facilities are available at some of the B-Line transit centers.

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

Chico Transit Facilities

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 the Chico State campus, 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 (Routes 5, 14, 17, 20, 40, and 41). 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 and 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. Currently, only B-Line Routes 5 and 20 serve this Park and Ride. Fir Street connects the Park and Ride to existing bike paths in Chico. New sidewalks and pedestrian crossings are present on Fir Street and State Route 32 within the immediate vicinity of the Park and Ride. There are no bicycle facilities on State Route 32.

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 and bike lanes are present on Pearson Road east of Black Olive Drive. 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.

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.

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, the 2015 *Transit & Non-Motorized Plan* included an analysis of Butte County 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.

According to the suitability screening scores shown in Figure 20, 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 Chico State campus and Downtown Chico, the commercial and residential area in north Chico bound loosely by Cohasset, White Ave., and Highway 99. The corridor along Highway 99 and Esplanade scores well and is also important as it connects several other smaller areas suitable for non-motorized travel.

Gridley

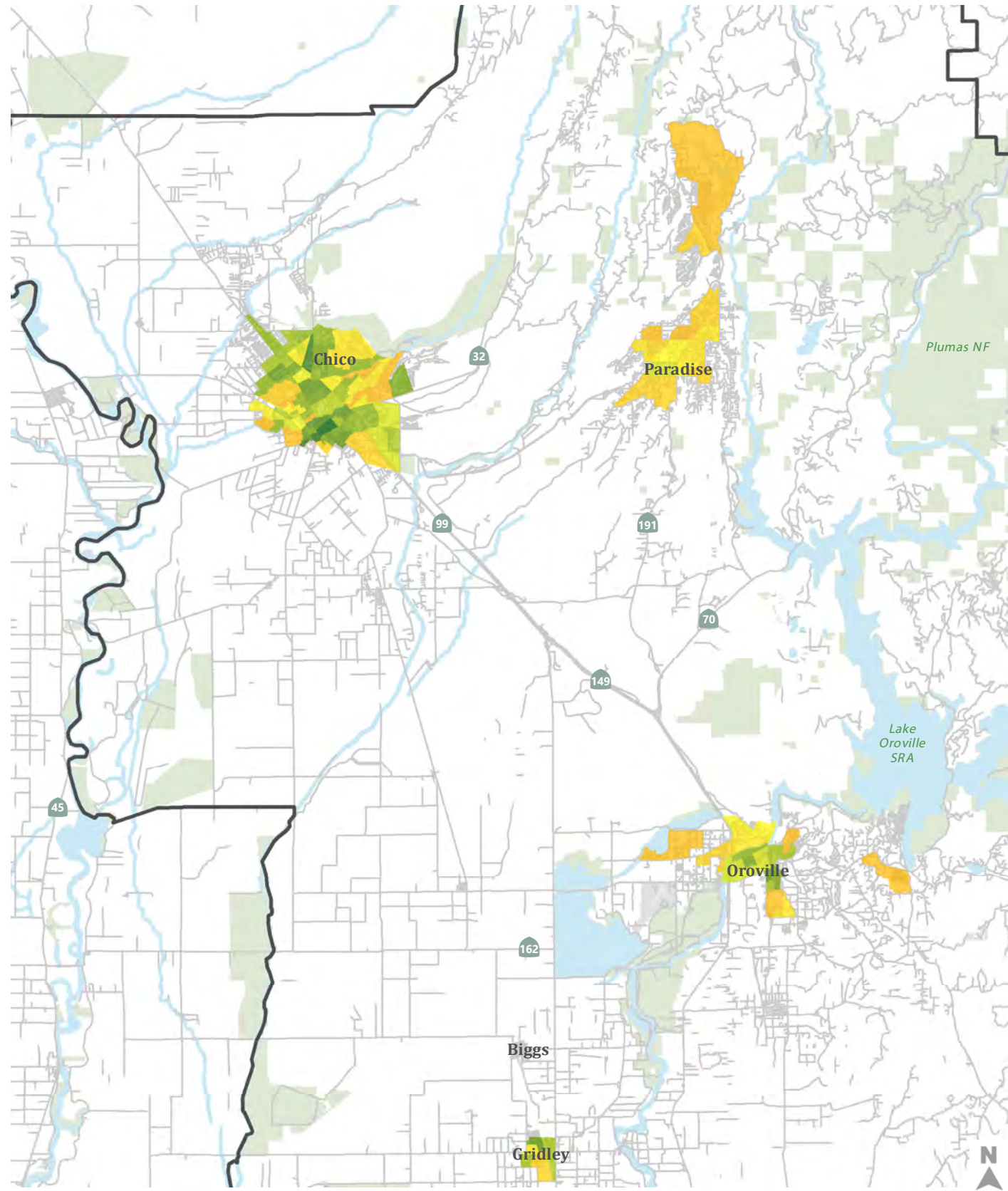
The most suitable area for non-motorized modes is in northwest Gridley in the commercial zone along Washington Street and the residential neighborhood to the northwest. Two areas score moderate-high: the eastern area between the railroad and Hwy 99; and in west Gridley, the area bound by Sycamore, Randolph, 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, Highway 70, Mitchell Avenue, and Lincoln Street; and in South Oroville, southeast of the Lincoln and Wyandotte Ave. intersection.

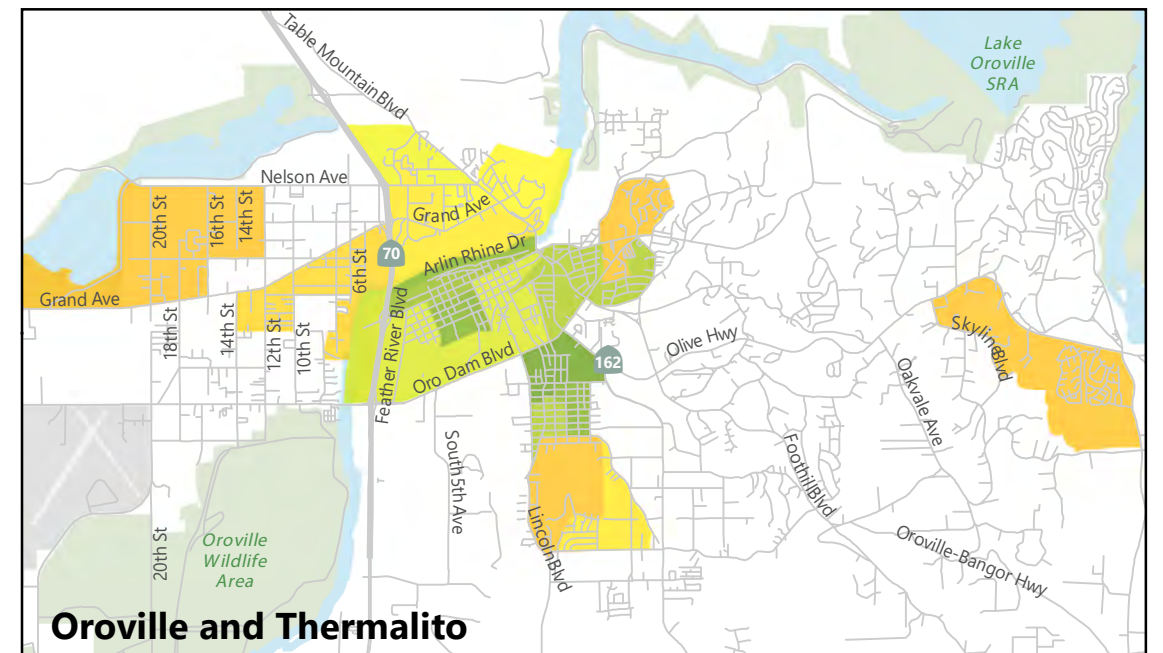
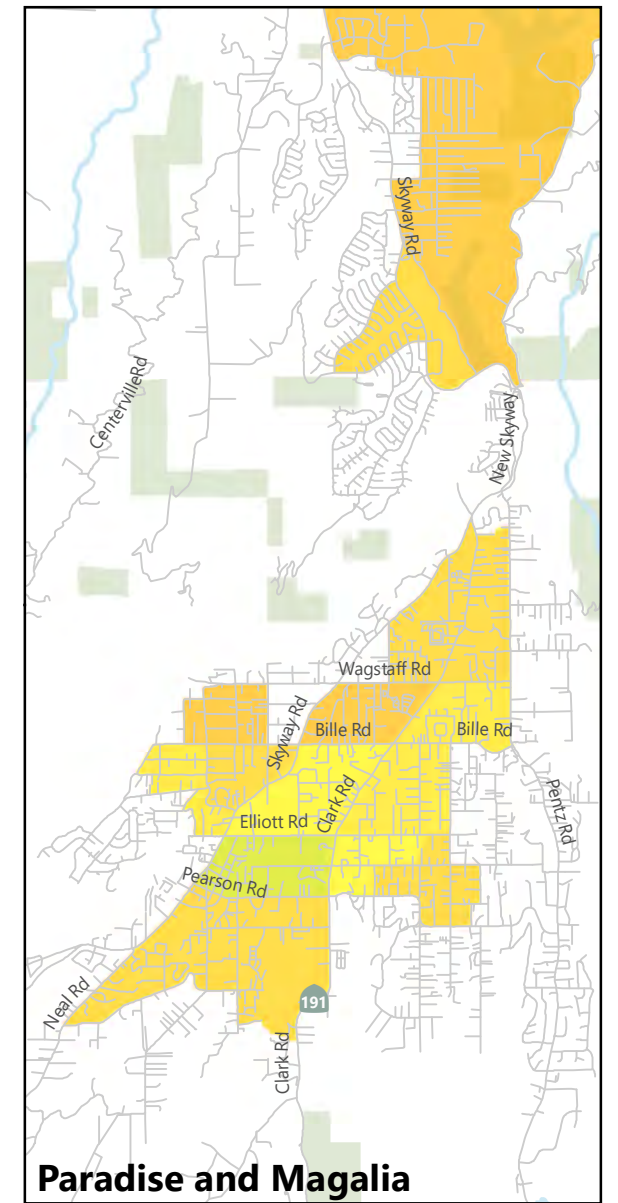
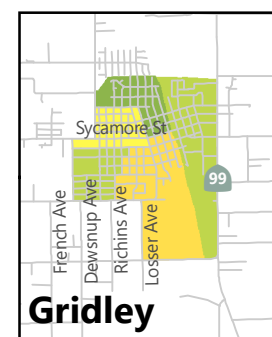
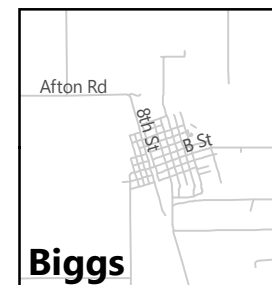
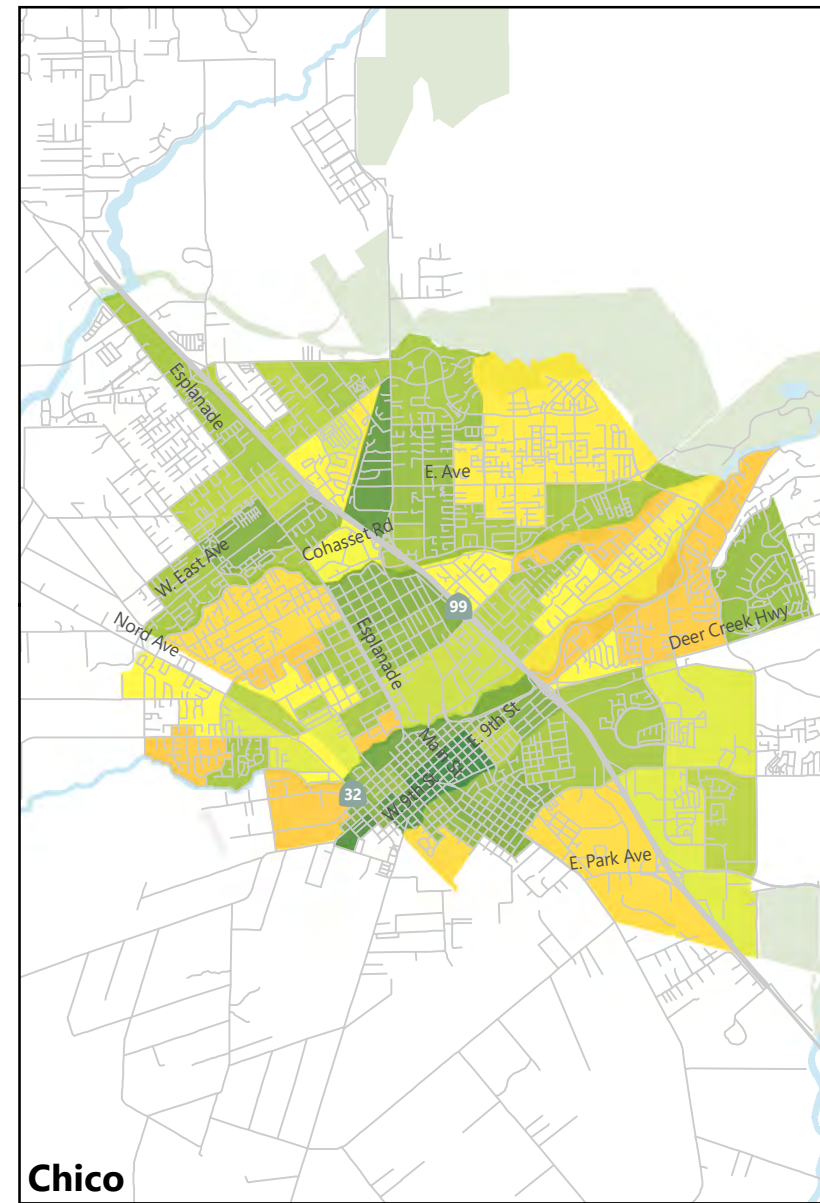
Paradise

The commercial and residential area bound by Feather River, west of the railroad tracks, and Mitchell Avenue scores moderately well on the suitability index.



Suitability
 High
 Low

Figure 20
 Regional Suitability Screening Score



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, the 2015 *Transit & Non-Motorized Plan* included the development of a transit access score 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 20) 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.

Figure 21 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.

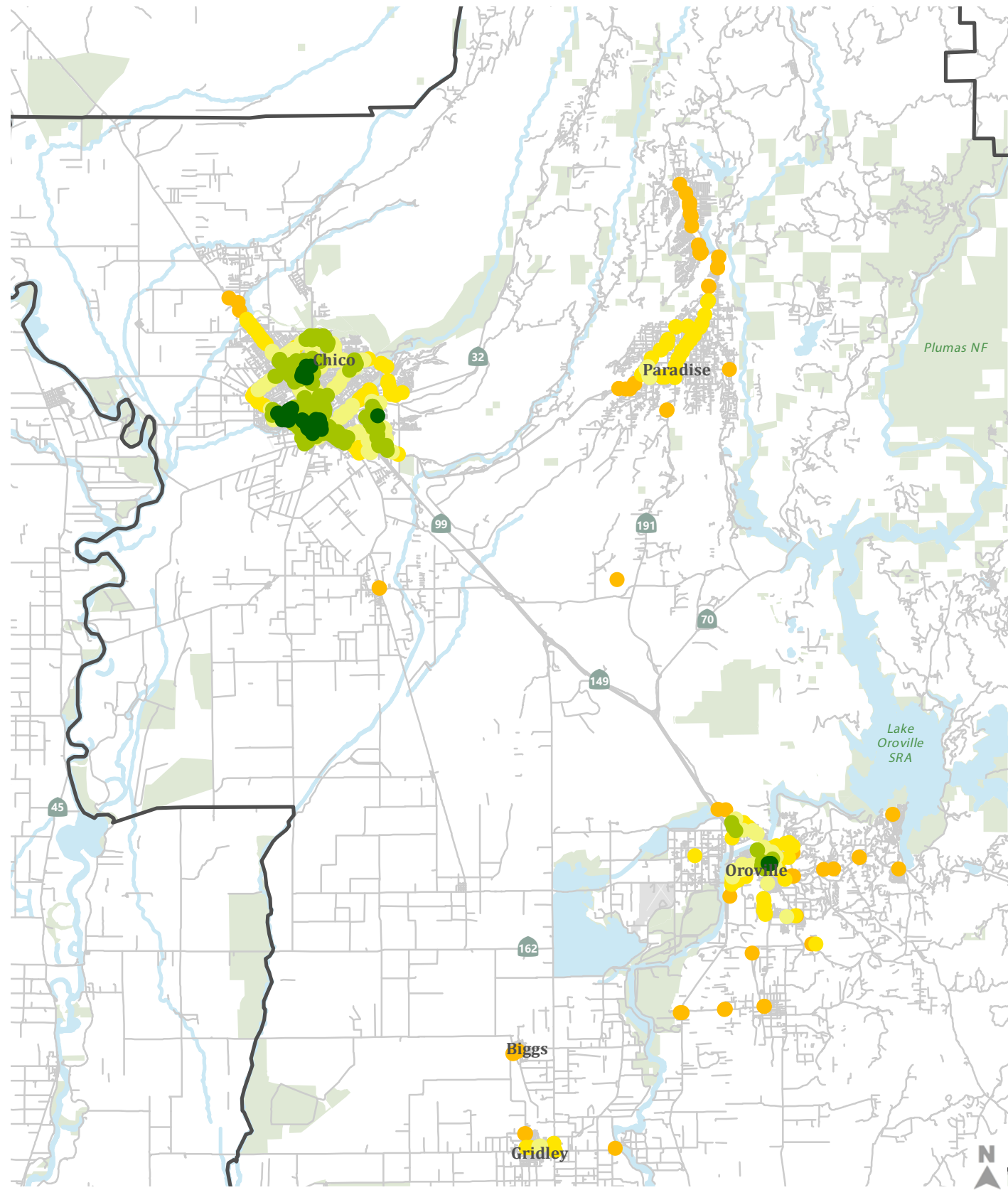
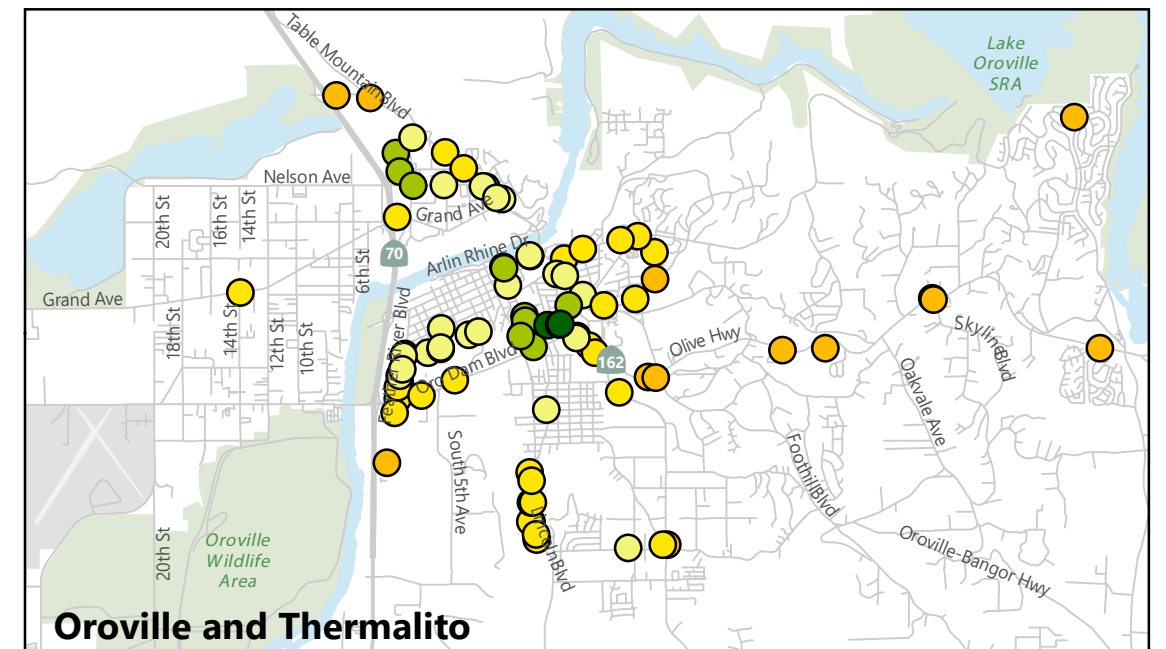
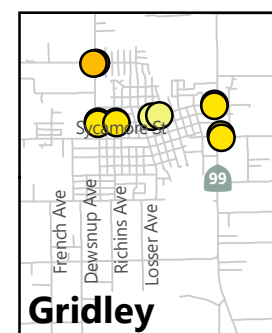
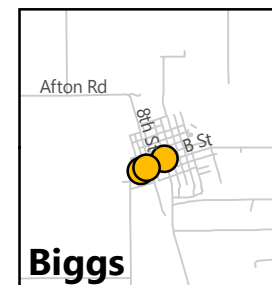
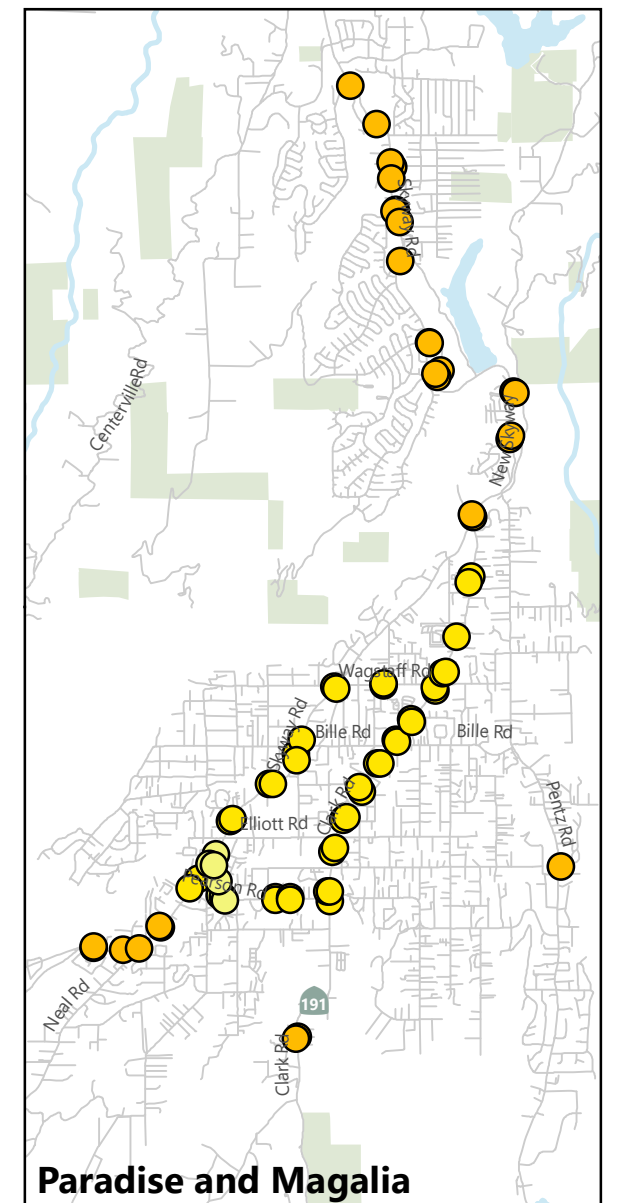
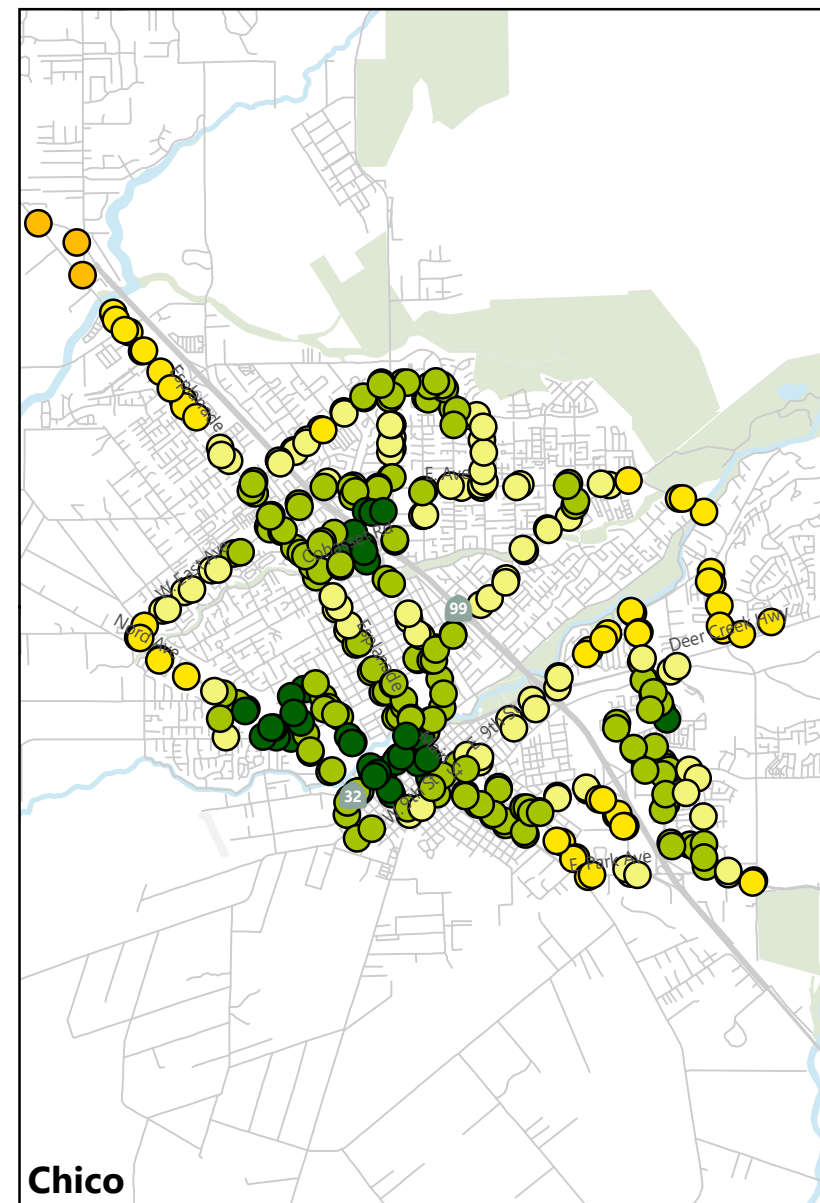


Figure 21
Regional Transit Access Score



5. Community Engagement Summary

The following community engagement activities were conducted throughout the *Transit & Non-Motorized Plan* process:

- On-board passenger survey in Fall 2019
- Two in-person pop-up workshops in early 2020
- Two online community meetings. The first online community meeting was held in November 2020 and provided an overview of the existing transit and non-motorized transportation conditions. The second online community meeting was held in February 2021 and provided an overview of the near- and long-term transit service plans and the non-motorized transportation recommendations.
- Virtual community workshop in November and December 2020, including an online survey

Please refer to the technical appendix for detailed summaries of community engagement activities conducted over the course of this planning process.

On-Board Passenger Survey Summary

The on-board passenger survey yielded the following key findings:

- The survey generated 85 total responses which does not represent a statistically significant sample of Butte County residents. However, the survey responses can still provide useful indicators of overall attitudes towards B-Line transit and potential service modifications that could encourage greater use of B-Line services.
- Nearly 70 percent of B-Line passengers walk to access a bus stop
- B-Line passengers were asked to rate various facets of B-Line service on a scale from one to five, with a score of one representing “very poor” and five representing “excellent.” Passengers were most satisfied with the courtesy of B-Line bus drivers, which received a composite score of 4.20. Passengers were least satisfied with shelters as bus stops, which received a composite score of 3.11. All other criteria received a composite score in the range of 3.50 to 4.00, including speed of service, frequency of service, service reliability, bus stop safety, and bus fare. Overall, B-Line received a composite score of 3.95
- Approximately 36 percent of B-Line passengers have been riding since 2014 or earlier, while 32 percent began riding in 2018 or later.
- Many B-Line passengers are dependent on B-Line service. Nearly 39 percent indicated that B-Line is their only transportation option and 84 percent indicated that they did not have a car available. Over 12 percent indicated that they would not make their trip if B-Line service was not available.

Online Survey Summary

The purpose of the online survey was to receive feedback from existing and prospective B-Line riders regarding their travel behavior and propensity to use transit after the conclusion of the COVID-19 pandemic. The survey also included questions regarding what types of service modifications would encourage people to utilize B-Line service.

The following key takeaways can be gleaned from the online survey responses:

- The survey generated 175 total responses, which does not represent a statistically significant sample of Butte County residents. However, the survey responses can still provide useful indicators of overall attitudes towards B-Line transit and potential service modifications that could encourage greater use of B-Line services.
- The majority of respondents (58 percent) envision themselves using B-Line service after the conclusion of the COVID-19 pandemic.
- Generally, respondents expressed a preference for increased service frequency over other potential modifications to B-Line service. This indicates that respondents place a higher value on their time than they do on ease of accessing a bus stop. As such, the Butte County Transit and Non-Motorized Plan Update should explore opportunities to increase service frequencies where warranted by transit ridership potential and where operating resources allow.
- Respondents expressed a preference for the provision of sidewalks near bus stops and transfer centers over other pedestrian facility improvements such as improved crossings.
- Respondents expressed a preference for the provision of bicycle storage at bus stops and transfer centers over other bicycle facility improvements such as the provision of bike lanes and/or separated bikeways.
- Of the new transit service options presented in the survey, respondents were substantially more in favor of on-demand rideshare services compared to vanpool programs and/or electric vehicle carshare programs. As such, the Butte County Transit and Non-Motorized Plan Update should explore opportunities to introduce on-demand rideshare services where warranted by transit ridership potential and where operating resources allow.

6. Planning Framework

The planning framework includes the key issues and guiding principles that were used to guide the development of future B-Line service recommendations. These principles respond to the opportunities and challenges identified for the existing B-Line system and its underlying market conditions. The service framework helped with the development of specific transit services and the overall B-Line network that meet the plan goals.

The service framework was informed by the key findings from the Market Assessment and Service Evaluation, as well as from input received during community engagement activities.

The planning framework is comprised of the following tenets:

- **Service Delivery Model:** Currently, the B-Line system operates with a primarily fixed-route bus service delivery model, where customers plan trips via published schedules and utilize regular routes to access destinations throughout the service area. Under this model, customer travel choice is defined by the availability of transit service as determined by the timing of scheduled trips and the location of transit routes and their associated bus stops. This plan will explore the potential for refinements to the current fixed-route model, as well as the potential for new market-based services, that more closely match customer expectations for transit in and around Butte County. Potential market-based services include demand response transit services in areas with lower transit ridership potential, point-to-point intercity services, and transportation network company (TNC) partnership programs. The plan will also examine measures to optimize the efficiency and effectiveness of paratransit service.
- **Balancing Ridership and Coverage:** B-Line allocates fixed operating resources towards balancing goals of maximizing ridership (the number of people using its buses) and coverage (the amount of area served by its buses). Balancing these goals requires tradeoffs: a system that only maximizes ridership would focus on areas where transit demand is highest, while a system that only maximize coverage would spread bus routes evenly across the service area. B-Line currently balances these goals by providing more frequent service (peak frequency of 30-minutes or better) on seven routes while providing low frequency service (every 60 minutes) to as many other areas as possible. This plan will evaluate whether this current balance meets the needs of existing and prospective B-Line passengers. A key component of this evaluation will include an assessment of whether existing routes with more frequent service justify this increased investment based on their ridership patterns.

- **Service Span:** While people within the B-Line service area may drive, bike, or walk at any time of day, they may only ride the bus during B-Line operating hours of 6 AM to 10 PM on weekdays (on all 22 B-Line routes), from 8 AM to 7 PM on Saturdays (on 13 of 22 B-Line routes), and from 8 AM to 6 PM on Sundays (on one of 22 B-Line routes). This plan will consider if these hours of operation meet the needs of existing and prospective B-Line passengers.
- **Equity:** The plan will identify transit services that meet the mobility needs of the service area's most vulnerable populations, including low income, minority, and transit dependent populations.
- **Downtown Chico:** Downtown Chico will remain a key part of the B-Line network due to the proximity of Chico State, available transit connections at the Chico Transit Center, and other prevailing market conditions. B-Line operations through Downtown Chico will be evaluated to optimize service reliability and passenger transfer opportunities.
- **Key Corridors:** The plan will explore potential upgrades to services on existing key corridors with higher transit ridership potential, including those where local jurisdictions are planning for land uses that support transit, pedestrian activity, and bicycle use.
- **Service Restoration:** A phased service plan will be developed to re-introduce transit service to Paradise and other communities impacted by recent wildfires. This phased plan will consider the anticipated timing and nature of resettlement in impacted communities. Additionally, this phased plan will consider the role of market-based services as a component of restored service in Butte County.
- **Funding:** In light of current uncertainties related to transit funding sources and the on-going COVID-19 pandemic, care should be taken to invest B-Line's limited financial resources in areas where market conditions will best support transit usage.
- **Amenities:** Transit amenities represent the nexus between transit passengers and transit service. Transit amenities play a significant role in service quality, ease of access, and the overall customer experience. Key areas for focus for B-Line include the provision of safe and comfortable bicycle and pedestrian facilities to provide first-/last-mile active transportation connections to transit, particularly within the vicinity of major transit centers. Additional items may include new or improved shelters and integrated real-time customer information.

- **Network Design:** Successful transit systems share the same basic elements related to network design and service delivery to ensure a positive customer experience. The B-Line system will be configured to incorporate the following guiding principles related to network design:
 - **Regularity:** Regularity refers to the time interval between trips at a given transit stop. Repeating trip intervals are easier for customers to remember, while inconsistent schedule patterns can confuse customers as they plan their trip. For example, regular trip intervals based on basic clockface elements (i.e., 15-, 30-, and 60-minute intervals) are immediately recognizable. On-time performance also affects the regularity of a transit service, since routes that routinely arrive early or late introduce irregularity and uncertainty to a scheduled timetable. Recommendations identified in this plan will maintain a high degree of service reliability while providing service at regular intervals in line with customer mobility needs.
 - **Directness:** Directness refers to the path between a transit trip origin and destination. Route directness correlates with travel time, which is a key factor in a customer's decision to utilize transit service. Routes that minimize the distance between origins and destinations are more attractive than circuitous routes that add unnecessary travel time. Circuitous routes can disorient customers by deviating from familiar travel corridors.
 - **Symmetry:** Symmetry measures how closely a departing transit trip resembles a return transit trip. Symmetrical routes follow similar inbound and outbound paths and allow customers to board and deboard at bus stops in close proximity to each other, improving the legibility of a transit route.
 - **Synchronization:** Synchronization refers to the operation of individual routes to form a unified, cohesive transit system. Synchronized transit systems facilitate coordinated, seamless transfers from one route to another while minimizing redundant routings and service coverage.
 - **Simplicity:** Simple transit systems are highly legible and easy to understand for customers of all ages and abilities. Hallmarks of simple transit systems include a straightforward route structure with distinct routes serving key markets, routes with repetitive trip and schedule patterns, and major origin-destination connections fulfilled by a single route or two routes with a brief, well-coordinated transfer window.

7. Transit Service Plan

This section presents proposed service changes for B-Line services over the near- (by 2025) and long-term (by 2045) time horizons as part of the Butte County Transit and Non-Motorized Plan Update. These service plan proposals are informed by the existing transit service and market analyses, the planning framework, and input received during public and stakeholder outreach. The transit service planning process is an iterative process during which the following factors are considered:

- Frequency and span of service
- Connectivity within the B-Line system and between service providers
- Access to jobs, destinations, and housing, especially for transit-dependent populations
- Stop design, spacing, and accessibility
- Simplicity and legibility
- Travel time, reliability, and recovery time
- Existing and projected ridership
- Capital and operating costs

Route- and network-level recommendations are provided relative to FY 2019/2020 route alignments and schedules (temporary service changes were enacted in FY 2020/2021 due to the on-going COVID-19 pandemic). Ridership and performance figures reported in this memorandum reflect data collected during the on-board ridecheck conducted in Fall 2019. The recommendations in this report are also informed by the on-board, countywide, and employer surveys and pop-ups events in Fall 2019, in addition to a second round of surveys, including a virtual community workshop in November 2020.

Note that these service plans address modifications to B-Line fixed-route services. It is expected that B-Line paratransit service would remain largely unchanged with the implementation of these proposed service plans.

For the purposes of this study, the near-term service plan assumes that fixed-route funding levels would be largely unchanged to those during FY 2019/2020. Funding levels during FY 2020/2021 are not proposed for use as a baseline due to the service reductions in place during that time period in response to the COVID-19 pandemic. The long-term service plan anticipates increases to funding levels to accommodate service expansion required to respond to emerging transit markets. This memorandum presents operating cost estimates measured in 2020 nominal dollars.

Near-Term Service Plan (by 2025)

This section summarizes the proposed near-term (by 2025) service modifications by route and by service area. As described previously, the near-term service plan strives to remain within existing B-Line fixed-route operating resources (annual revenue hours and peak vehicle requirement).

The proposed near-term service changes are explained in more detail below and illustrated in Figure 22.

Chico

The near-term service plan in Chico strives to increase levels of service on B-Line routes that exhibit strong productivity and financial effectiveness, particularly the student shuttles (Routes 8 and 9). Additionally, the near-term service plan strives to streamline route alignments for services that experience reliability issues to reduce running times, improve schedule adherence, and enhance service reliability. Finally, the near-term service plan extends weekday service spans to provide uniform 6 AM to 8 PM service across all Chico local routes, providing flexibility for a greater variety of trip-making via transit for trips within Chico.

- **Route 2 (Mangrove)** – No proposed changes.
- **Route 3 (Nord/East)** – No proposed changes.
- **Route 4 (First/East)** – Realign route from Oleander Drive to Mangrove Avenue. This minor route realignment would provide service to the Park Plaza shopping center and simplify the north-south B-Line network structure immediately north of Downtown Chico. The modification would not require additional operating or capital resources.
- **Route 5 (E. 8th Street)** – Reduce peak period frequency and eliminate Saturday service. With a 30-minute peak period frequency, Route 5 generates an average of seven passenger boardings per trip during peak periods. These ridership patterns do not warrant 30-minute peak period frequencies. Therefore, it is recommended that peak period frequencies be reduced from 30 minutes to 60 minutes (thus providing 60-minute all day service), and that operating resources be reallocated elsewhere into the system. Note that BCAG implemented this schedule modification in August 2020 due to low peak period ridership and ridership disruptions caused by the COVID-19 pandemic.
- **Route 7 (Bruce/Manzanita)** – No proposed changes. Route 7 currently exhibits poor performance, generating only 68 daily passenger boardings and 8.5 passenger boardings per revenue hour. Moreover, 10 of the 15 daily trips generate five or less passenger boardings per trip. However, BCAG staff determined that continuing to operate the route as-is is desirable due to the fixed-route service coverage that it provides to Marsh Junior High School, Pleasant Valley High School, the North Butte County Courthouse, and Meriam Park (currently a COVID-19 vaccination site). Continued mixed-use development of the Meriam Park neighborhood should support future ridership growth on Route 7.

- **Routes 8 (Nord), 9 (Warner/Oak), and 9c (Cedar Loop)** – No proposed alignment changes. Extend weekday service span on Routes 8 and 9 from 6 AM to 10 PM. Add additional trip during each peak hour on Routes 8 and 9 to better accommodate peak passenger loads. Extended service spans and increased peak hour trips are warranted by very high levels of existing ridership, productivity, and passenger loads on Routes 8 and 9. Route 8 generates approximately 400 weekday passenger boardings and 36 passenger boardings per revenue hour, and peak period maximum passenger loads reach as high as 43 passengers (full seated capacity on a standard 40-foot bus). Route 9 generates approximately 700 weekday passenger boardings and 55 passenger boardings per revenue hour, and peak period maximum passenger loads reach as high as 60 passengers (approximately 130 percent of seated capacity on a standard 40-foot bus). Allocating additional peak period resources also provides B-Line with flexibility to utilize resources to improve Route 8 and 9 on-time performance if so desired.
- **Route 14 (Park/Forest/MLK)** – No proposed changes.
- **Route 15 (Esplanade/Lassen)** – No proposed changes.
- **Route 16 (Esplanade/SR99)** – No proposed alignment changes. Extend weekday service span from 6 AM to 8 PM. Route 16 ridership drops off substantially north of Mud Creek. However, given the configuration of the roadway system on the northern segment of Route 16, it must extend north of Mud Creek to turn around at its current terminus using the SR 99/Garner Lane loop. While viable turnaround options south of Mud Creek are not available at this time, it is recommended that BCAG coordinate with the City of Chico to establish a viable turnaround location in the vicinity of the Esplanade/Nord Highway intersection in the future. This could occur as part of the on-going implementation of the North Chico Specific Plan, particularly as a component of future commercial development along Esplanade. Provision of a turnaround in the vicinity of the Esplanade/Nord Highway could reduce the round-trip distance of Route 16 by approximately 2.5 miles and the round-trip running time by approximately 10 minutes, providing potential operating resource savings that be reinvested elsewhere in the B-Line system.
- **Route 17 (Park/MLK/Forest)** – No proposed alignment changes. Extend weekday service span from 6 AM to 8 PM.

Oroville

The low-density, dispersed development patterns in Oroville make it difficult to achieve targets related to conventional performance measures such as ridership, productivity, and financial effectiveness with traditional fixed-route transit service. This is evidenced by the relatively low ridership generated by the four Oroville local routes, which combined generate fewer than 350 daily passenger boardings and 15 passenger boardings per revenue hour during a typical weekday.

As such, the near-term transit service strategy for Oroville strives to maximize service coverage to residential areas and key destinations using the limited operating resources currently allocated to

Oroville (a total of two peak vehicles and approximately 23 revenue hours across the four Oroville local routes during a typical weekday). This approach maximizes opportunities for transit-dependent and disadvantaged populations in Oroville to utilize transit for daily travel needs.

- **Route 24 (Thermalito) – No proposed changes.** While there are no proposed changes to the Route 24 alignment or schedule, it is recommended that the route be interlined with Route 26 instead of with Route 27. This will reduce the combined natural cycle time for the 60-minute routes from 64 minutes to 59 minutes, which should help to improve on-time performance for Route 24. This modification can be accommodated without additional operating or capital resources.
- **Route 25 (Oro Dam) – Realign route to serve Oroville High School and the Oroville Adult Education Career and Technical Center.** This modification would improve the directness of service from Central Oroville to Oroville High School and the Oroville Adult Education Career and Technical Center. This connection is currently provided by Route 24 but requires substantial out-of-direction travel through Thermalito and the Butte County Government Center. The route realignment would follow the existing Route 24 alignment via Yard Street, Bridge Street, and Mitchell Avenue. Additionally, it is recommended that Route 25 be interlined with Route 27 instead of with Route 26 as it is today. This will result in a combined natural cycle time of 54 minutes for the two 60-minute routes. The additional schedule slack could be utilized to serve additional destinations in Central Oroville. This modification can be accommodated without additional operating or capital resources.
- **Route 26 (Olive Highway) – Discontinue Kelly Ridge and Orange Avenue loop segments. Discontinue Myers Street, D Street, Roseben Avenue, and Wyandotte Avenue loop segment.** The Kelly Ridge and Orange Avenue segments generate very little ridership; therefore, they are recommended for discontinuation. Based on Fall 2019 ridership data, the Kelly Ridge loop generates two passenger boardings and the Orange Avenue loop generates three passenger boardings during weekdays. The discontinued Myers Street segment would be picked up by Route 27. The new eastern terminus would occur at Gold Country Casino Resort and the route would primarily operate along Olive Highway. Additionally, it is recommended that Route 26 be interlined with Route 24 instead of with Route 25 as it is today (refer to Route 24 discussion). This modification can be accommodated without additional operating or capital resources.
- **Route 27 (South Oroville) – Realign route to serve Myers Street, D Street, Roseben Avenue, and Wyandotte Avenue loop segment.** This modification would pick up the discontinued Route 26 alignment through South Oroville. Additionally, it is recommended that Route 27 be interlined with Route 25 instead of with Route 24 as it is today (refer to Route 25 discussion). This modification can be accommodated without additional operating or capital resources.

Regional Routes

The near-term service strategy for regional routes focuses on maintaining existing service levels for intercity routes connecting more isolated Butte County communities. Additionally, the near-term service plan considers the potential for service restoration in Paradise and surrounding communities that have been affected by recent wildfires, including the Camp Fire and the North Complex Fire.

- **Route 20 (Chico-Oroville)** – No proposed changes.
- **Route 30 (Oroville-Biggs)** – No proposed changes
- **Route 31 (Paradise-Oroville)** – Consider resuming service as an employer vanpool. Route 31 was temporarily discontinued in the aftermath of the Camp Fire. Route 31 performance prior to the fire was not sufficient to sustain fixed-route transit service (15 passenger boardings, 9.1 passenger boardings per revenue hour, and 7.5 passenger boardings per trip on weekdays). However, as rebuilding continues and ridership demand grows, Route 31 could be reinstated as an employer vanpool service. It is conceivable that reinstatement of Route 31 as a vanpool service would not occur until the long-term planning horizon (after 2025).
- **Route 32 (Gridley-Chico)** – No proposed changes.
- **Routes 40 (Paradise-Chico) and 41 (Paradise Pines-Chico)** – Consider resuming routes to pre-Camp Fire service levels. Service levels on Routes 40 and 41 were temporarily reduced in the aftermath of the Camp Fire. Route 40 performance prior to the fire was stable, with 284 daily passenger boardings and 18.3 passenger boardings per hour. Similarly, Route 41 generated 246 daily passenger boardings and 17 passenger boardings per hour. As rebuilding continues, and ridership demand grows, Routes 40 and 41 could be reinstated to pre-Camp Fire service levels. It is conceivable that reinstatement of Routes 40 and 41 to pre-Camp Fire service levels would not occur until the long-term planning horizon (after 2025).
- **Route 52 (Chico Airport Express)** – Discontinue route. Eliminate route due to poor performance (37 daily passenger boardings and five passenger boardings per revenue hour). Local ridership in Chico between Downtown Chico and the Lassen/Cohasset transfer point will be served by Route 2.

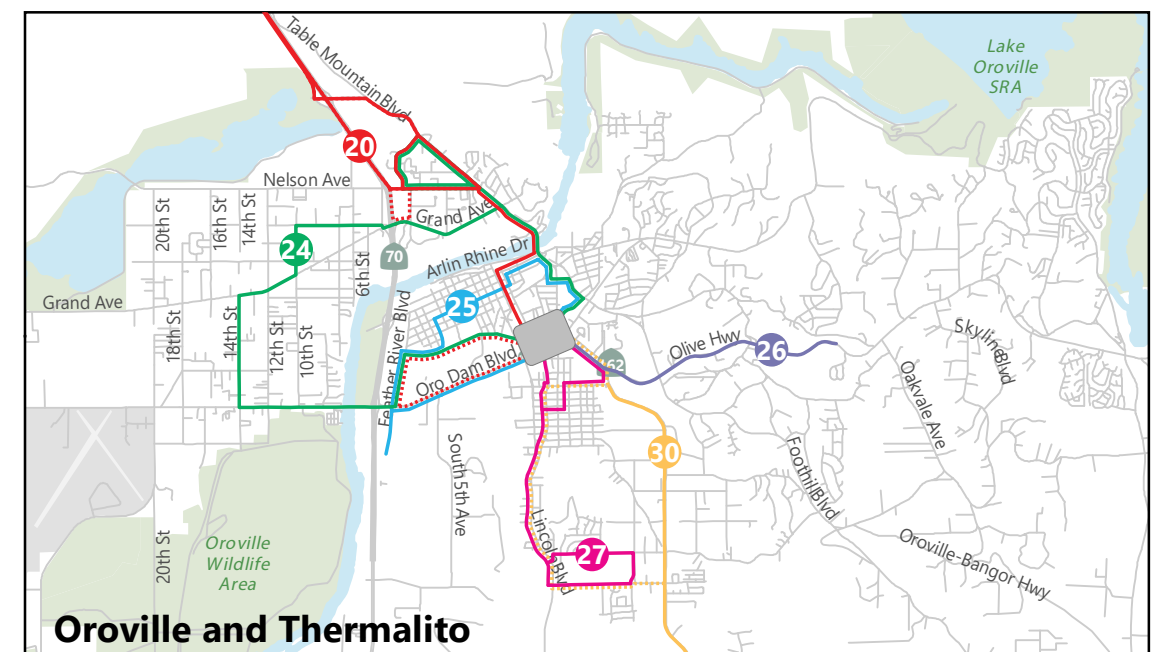
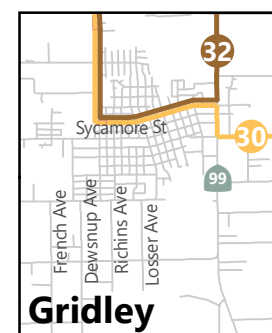
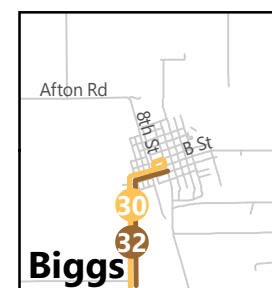
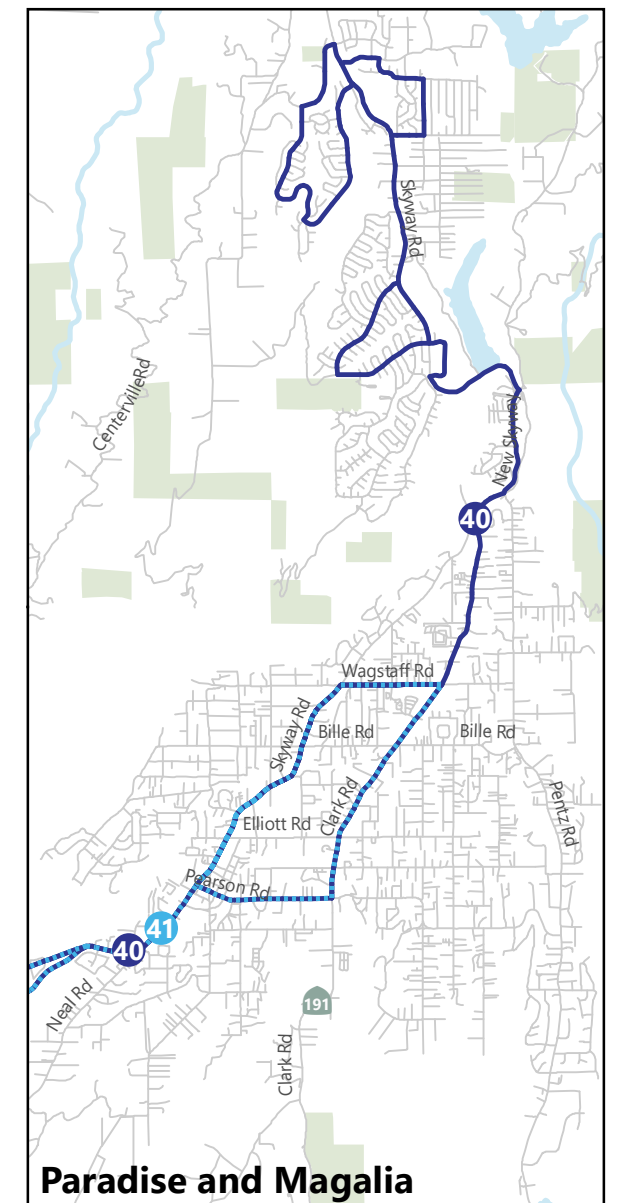
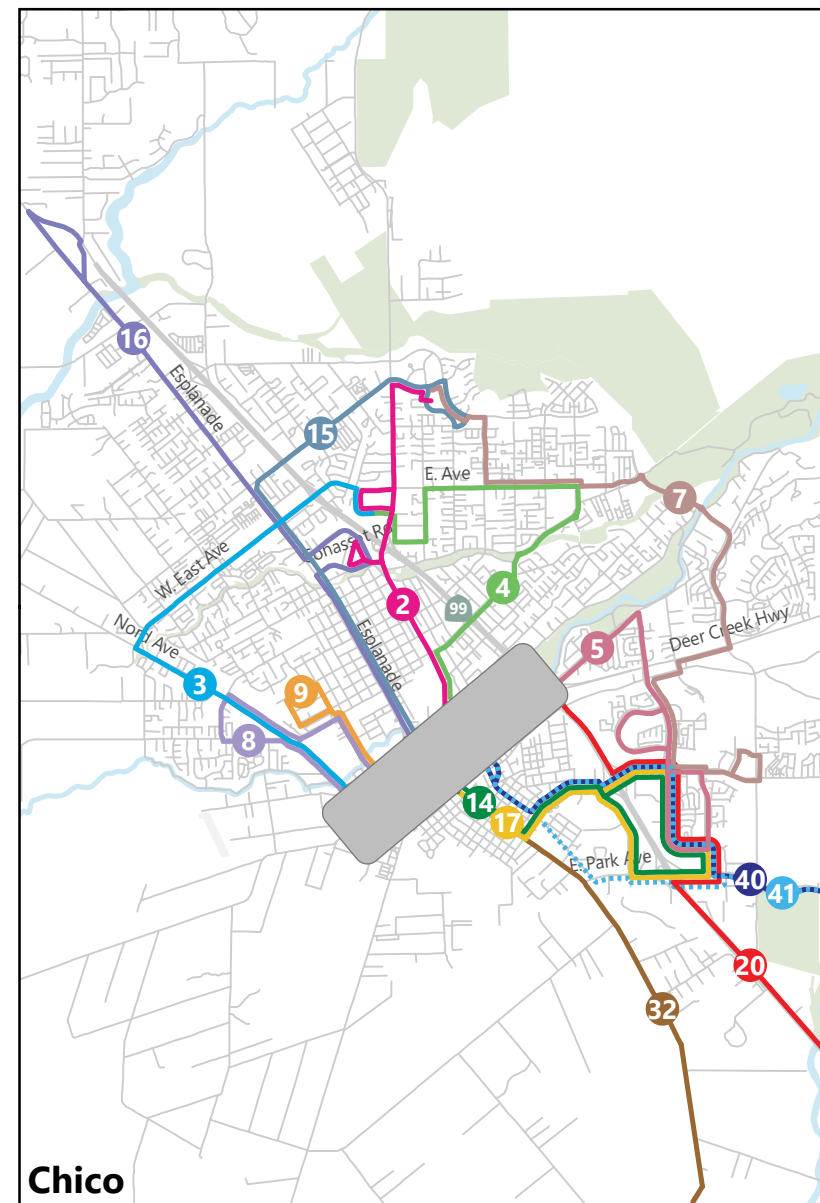
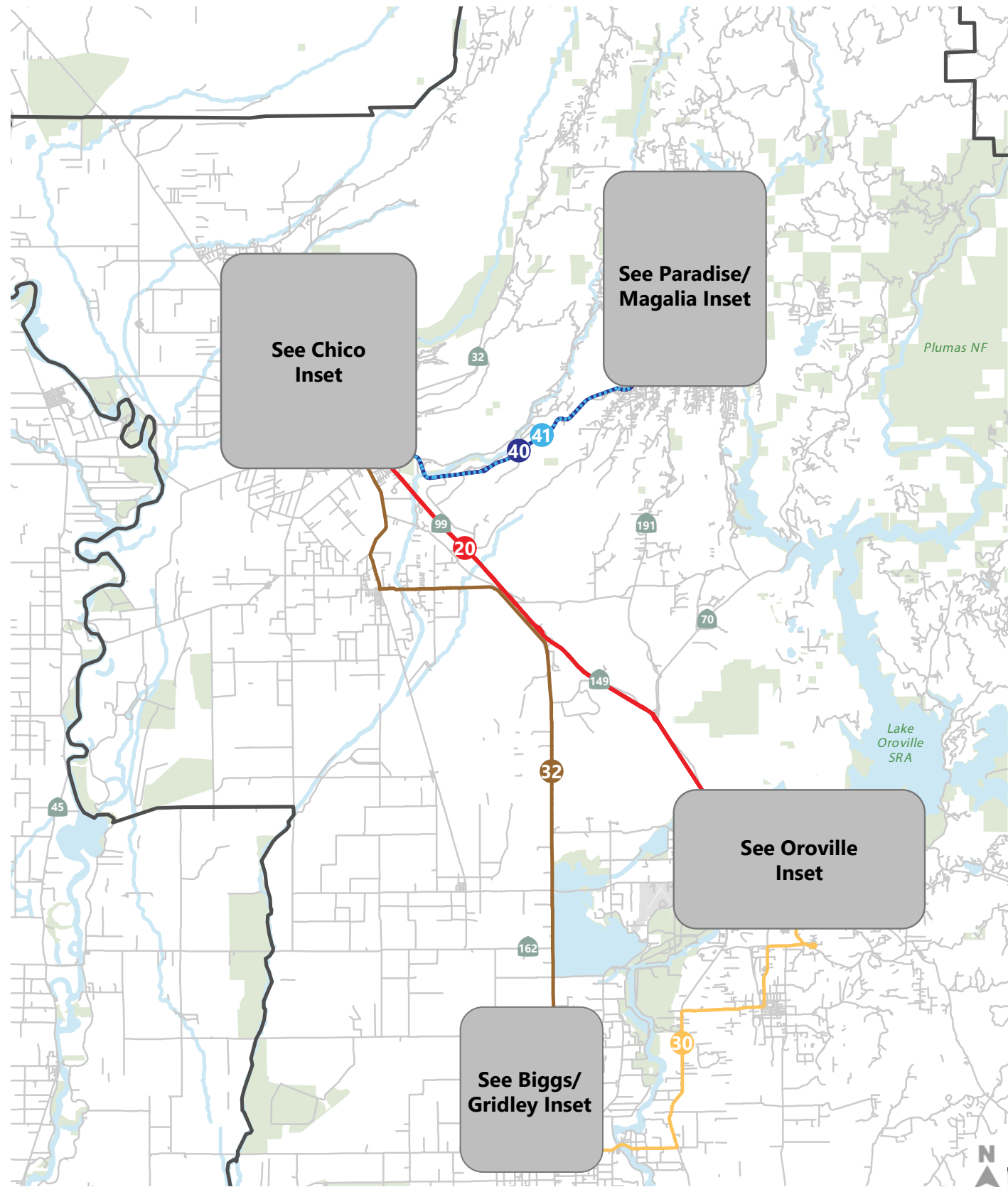


Figure 22
Near-Term Transit Service Plan

Additional Recommendations

Beyond the service modifications described above, the following topics should be considered as the near-term service plan is implemented:

- **Explore Potential for Alternatives to Fixed-Route Transit Service** - Given on-going transportation trends, including increased automobile ownership rates, increased prevalence of transportation network companies (TNCs), etc., traditional fixed-route transit services are likely to struggle to meet conventional transit service performance targets related to ridership, productivity, and cost effectiveness in transit markets that lack the underlying land use, demographic, and travel patterns to support such services. This is particularly the case in areas with low-density, dispersed development patterns where infrequent fixed-route transit services with long door-to-door travel times experience difficulties competing with driving as a viable mode of transportation. Portions of the B-Line service area are typified by such development patterns (e.g., Oroville, Chico periphery, etc.).

B-Line should conduct a focused feasibility study to explore the potential for alternative service delivery models to replace or supplement local fixed-route transit services in areas with lower transit demand potential. In particular, on-demand rideshare and/or dial-a-ride services could prove to be viable alternatives to fixed-route transit service by offering a higher quality service to passengers (often reservation-based door-to-door service) as well as potential cost savings based on hourly rates charged by new service providers that have emerged in recent years (the City of West Sacramento pays approximately \$43 per service hour to their on-demand rideshare service provider compared to over \$100 per service hour that was previously charged by their contract fixed-route service operator). While on-demand transit services typically exhibit modest productivity (three to six passenger boardings per revenue hour), they can vastly improve access to transit and provide a high-quality alternative to drive alone travel. During the public outreach process for this plan, survey respondents indicated strong support for such services in Butte County.

The feasibility study should consider the following topics:

- Potential service areas, including but not limited to existing areas served by Routes 5 and 7 in Chico, Routes 24, 25, 26, and 27 in Oroville, future development areas on the peripheries of Chico, Oroville, and Paradise (e.g., Valley's Edge), and more sparsely populated Butte County communities (e.g., Biggs, Gridley, Concow, Magalia etc.).
- Potential service providers, including existing B-Line contract operator, operators that specialize in on-demand rideshare services (e.g., Via), and TNCs (i.e., TNC partnerships).

- Potential operating models, including zone-based, point-deviation, and route-deviation models.
 - Service levels.
 - Passenger fare(s).
 - Hours and days during which the service would be provided.
 - Procurement requirements.
 - Contractual and monitoring arrangements between BCAG and the service provider.
 - Potential to integrate with existing fixed-route services (i.e., so as to avoid drawing passengers away from core routes).
- **Implement Changes to Stop Spacing** – As recommended in the 2015 *Transit and Non-Motorized Plan*, B-Line should consolidate stops to improve stop spacing on its routes. The 2015 plan recommends that B-Line should strive to provide a minimum distance between stops of one-quarter mile in general, or closer to one-sixth of a mile in denser areas (e.g., Downtown Chico). Consolidation of stops could happen incrementally to reduce delays on key routes or could be done wholesale as part of subsequent route restructuring. Consideration should be given to walksheds resulting from discontinuous street networks as well as terrain/elevation changes that can influence the quality, comfort, and directness of first-/last-mile walk access to a bus stop.
 - **Improvements to the North Valley Plaza transfer center** – As recommended in the 2015 *Transit and Non-Motorized Plan*, the North Valley Plaza bus stops should be reconfigured to re-site stops across the street from each other. This is critical to facilitating transfers between the numerous routes that meet at the transfer point, including Routes 2, 3, and 4 in the near-term service plan, as well as Routes 1 and 7 in the long-term service plan. Enhancements to the transfer center should also include pedestrian crossing improvements between the new stop locations. Shelters, benches, and trash receptacles present at the existing stops should be relocated to the new stops.
 - **Explore Partnership Opportunities** – The 2015 *Transit and Non-Motorized Plan* recommended that B-Line explore the creation of cost and/or service sharing partnerships with the two casinos in its service area, namely Gold County Casino (served by Route 26) and Feather Falls Casino (served by Route 30). Additionally, it is recommended that B-Line engage other major employers and institutions within its service area to explore potential partnership opportunities. For example, the Chico State 2030 Campus Master Plan requires that the university implement transportation demand management strategies to reduce vehicle miles traveled (VMT) generated by campus affiliates. B-Line could leverage its position as the local and regional transit provider to help Chico State achieve its TDM/VMT goals while also potentially increasing financial support from Chico State to increase B-Line operating resources. Such partnerships could help B-Line subsidize the costs of routes serving these major destinations and improve mobility and transit access for their affiliates.

- **Explore Fare Policy and Technology Changes** – Public input provided during the development of the plan indicated support for changes to the existing B-Line fare policy and technology. Specifically, the public expressed support for the introduction of family transit passes, the introduction of low-income transit passes, and for the consolidation of transit information and fare payment mobile apps. BCAG should consider the feasibility of these actions as part of subsequent updates to the B-Line fare policy and transit information/passenger education initiatives.

Long-Term Service Plan (2021 to 2045)

This section summarizes the proposed long-term service modifications by route and by service area. The long-term service plan considers future transit markets, travel patterns, and ridership potential that were revealed in the housing, population, and employment forecasting effort conducted as part of Task 5. Key features of the long-term service plan include transit capacity increases on the main Chico trunk line corridor as well as service expansions into new development areas. Expanded weekend service is also recommended, which was mentioned by stakeholders at multiple outreach events.

The proposed long-term service changes are explained in more detail below and illustrated in Figure 23.

Chico

The long-term service plan for Chico includes the establishment of a high-capacity transit corridor between the Chico Mall area, Downtown Chico, Chico State, Esplanade, and North Valley Plaza along key north-south roadways. Additionally, the long-term service plan for Chico includes the expansion of service into new development areas such as Meriam Park, Valley's Edge, and Stonegate.

- **Routes 1 (Esplanade/Park/Forest/MLK) and 2 (Mangrove/Park/Forest/MLK) –** Reconfigure Routes 2, 14, 15, and 17 into new Routes 1 and 2, respectively. Route 1 would cover the existing alignments of Routes 14 and 15, with an alignment modification to provide a new northern terminus at North Valley Plaza (instead of at the Eaton Road loop). Route 2 would cover the existing alignment of Route 17 plus a modified version of the existing Route 2 alignment north of Downtown Chico. This modified alignment would run between the Chico Transit Center and North Valley Plaza via Esplanade, Cohasset Road, and Pillsbury Road. Both Routes 1 and 2 would operate with 30-minute frequencies during peak periods and 60-minute frequencies during off-peak periods, yielding a combined 15-minute frequency during peak periods and 30-minute frequency during off-peak periods where Routes 1 and 2 overlap.

This addresses feedback received throughout the public outreach process, where participants indicated a preference for increased frequencies (where warranted) over other service modifications. 60-minute all-day service would be provided on Saturdays and Sundays. This also implements additional feedback received from stakeholders that indicated a preference for expanded weekend service, particularly to shopping and recreational destinations. Altogether, these modifications would provide a high-capacity transit corridor between the Chico Mall area, Downtown Chico, Chico State, Esplanade, and North Valley Plaza, serving many disadvantaged and low-income residents. Note that transit priority measures such as transit signal preemption, intersection queue jumps, etc. should be considered alongside this service proposal in order to maximize the efficiency

of this high-capacity bus route, as well as to maximize its ridership potential. Also note that this proposal is contingent upon the redevelopment and densification of opportunity sites along Esplanade and at North Valley Plaza, as well as the completion of development projects in the southeastern portion of the City such as Stonegate and Valley's Edge.

- **Route 3 (Nord/East)** – No proposed changes from near-term plan.
- **Route 4 (First/East)** – No proposed changes from near-term plan.
- **Route 5 (E. 8th Street)** – Discontinue Notre Dame Boulevard and Springfield Drive loops. Interline with expanded Route 7 to serve new transit markets in southeastern Chico. Future development in the southeastern portion of Chico will warrant transit service expansion, including increased service levels and new service coverage, to provide access to new residential areas and employment opportunities. It is recommended that Route 5 be interlined with Route 7 to serve as the primary transit services for new residential and commercial development east of Bruce Road. It is recommended that Route 5 (together with Route 7) operate with a 60-minute all-day frequency.
- **Route 7 (Forest/Bruce/Manzanita)** – Realign and extend route via Bruce Road, East 20th Street, Valley's Edge, Skyway, and Forest Avenue to serve new transit markets in southeastern Chico. Relocate northern terminus to North Valley Plaza. Interline with Route 5. As described previously, future development in the southeastern portion of Chico will warrant transit service expansion, including increased service levels and new service coverage, to provide access to new residential areas and employment opportunities. It is recommended that Route 7 be extended into and through the Valley's Edge and Stonegate neighborhoods, and then onto the Forest Avenue Transfer Point via Skyway, where it will be interlined with Route 5 for through routing to Downtown Chico. It is recommended that Route 7 (together with Route 5) operate with a 60-minute all-day frequency.
- **Routes 8 (Nord), 9 (Warner/Oak), and 9c (Cedar Loop)** – No proposed changes from near-term plan.
- **Route 14 (Park/Forest/MLK)** – Consolidate with Routes 1 and 2 (see above).
- **Route 15 (Esplanade/Lassen)** – Consolidate with Routes 1 and 2 (see above).
- **Route 16 (Esplanade/SR99)** – No proposed changes from near-term plan. Note that Route 16 could be extended further east if warranted by transit demand generated by the implementation of the on-going North Chico Village Vision Plan (and if determined to be feasible based on planned roadway connections across Mud Creek).
- **Route 17 (Park/MLK/Forest)** – Consolidate with Routes 1 and 2 (see above).

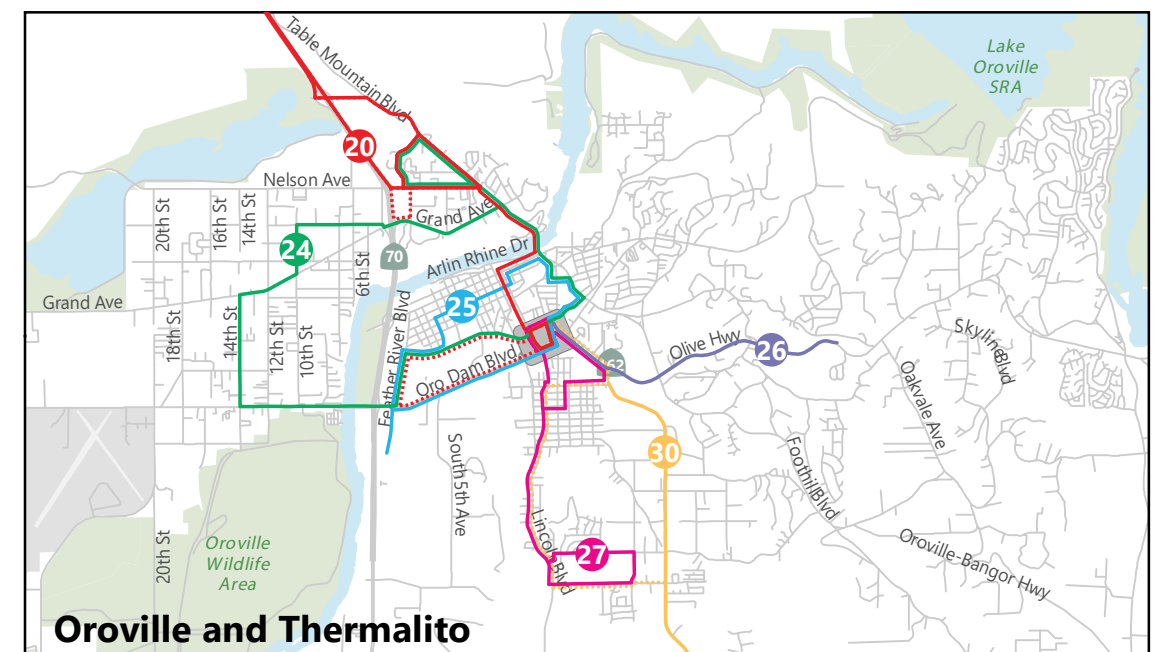
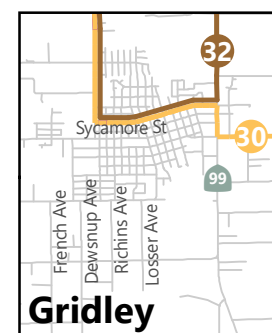
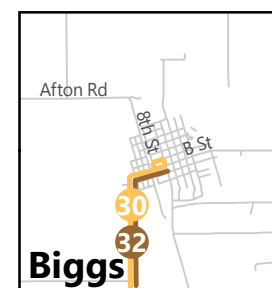
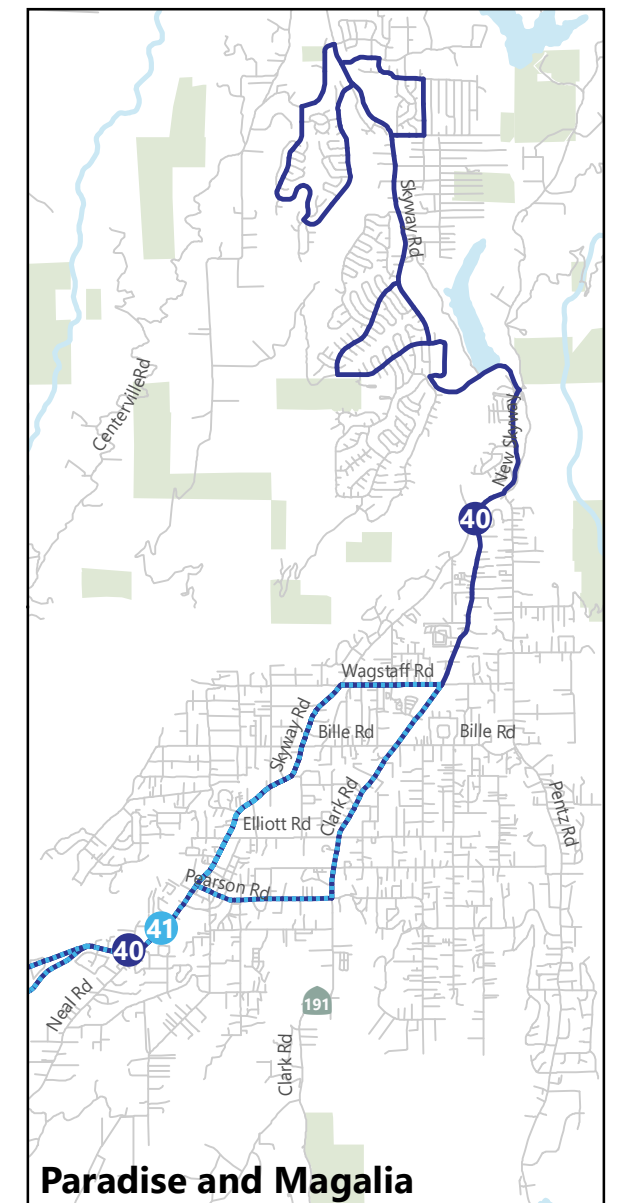
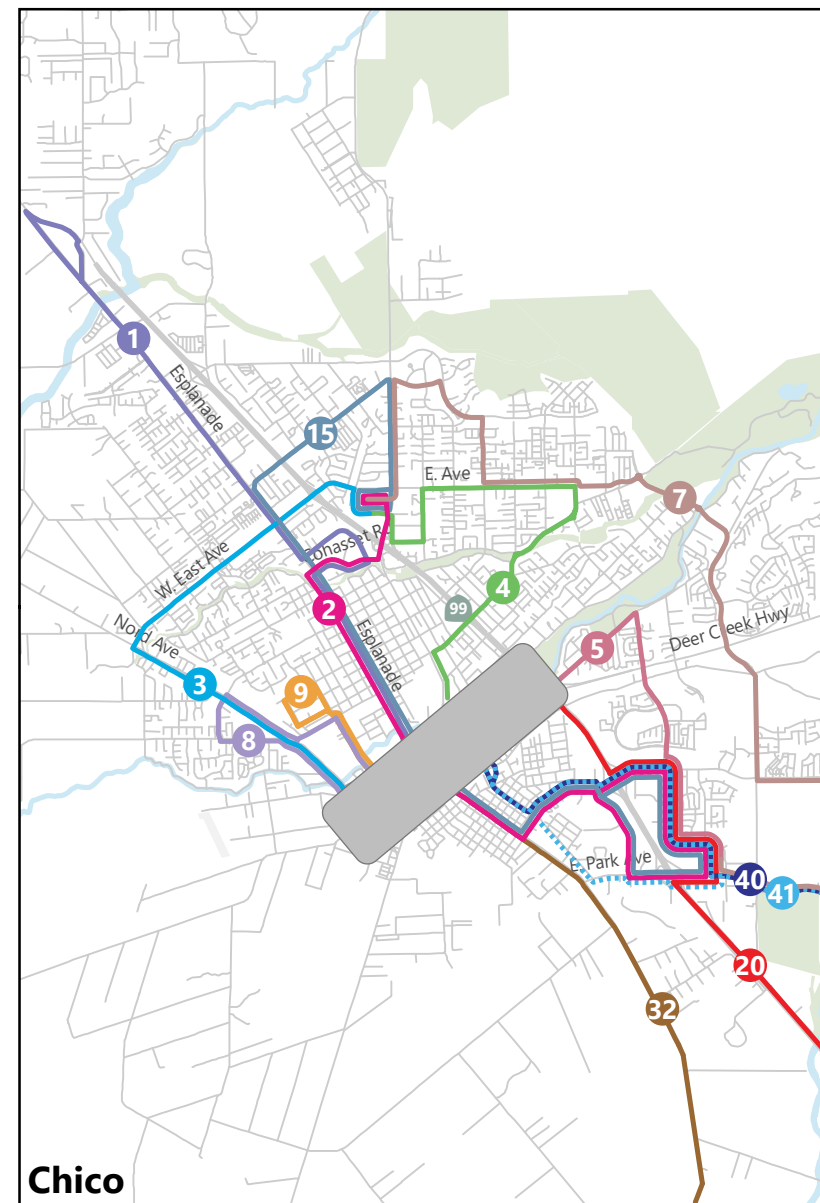
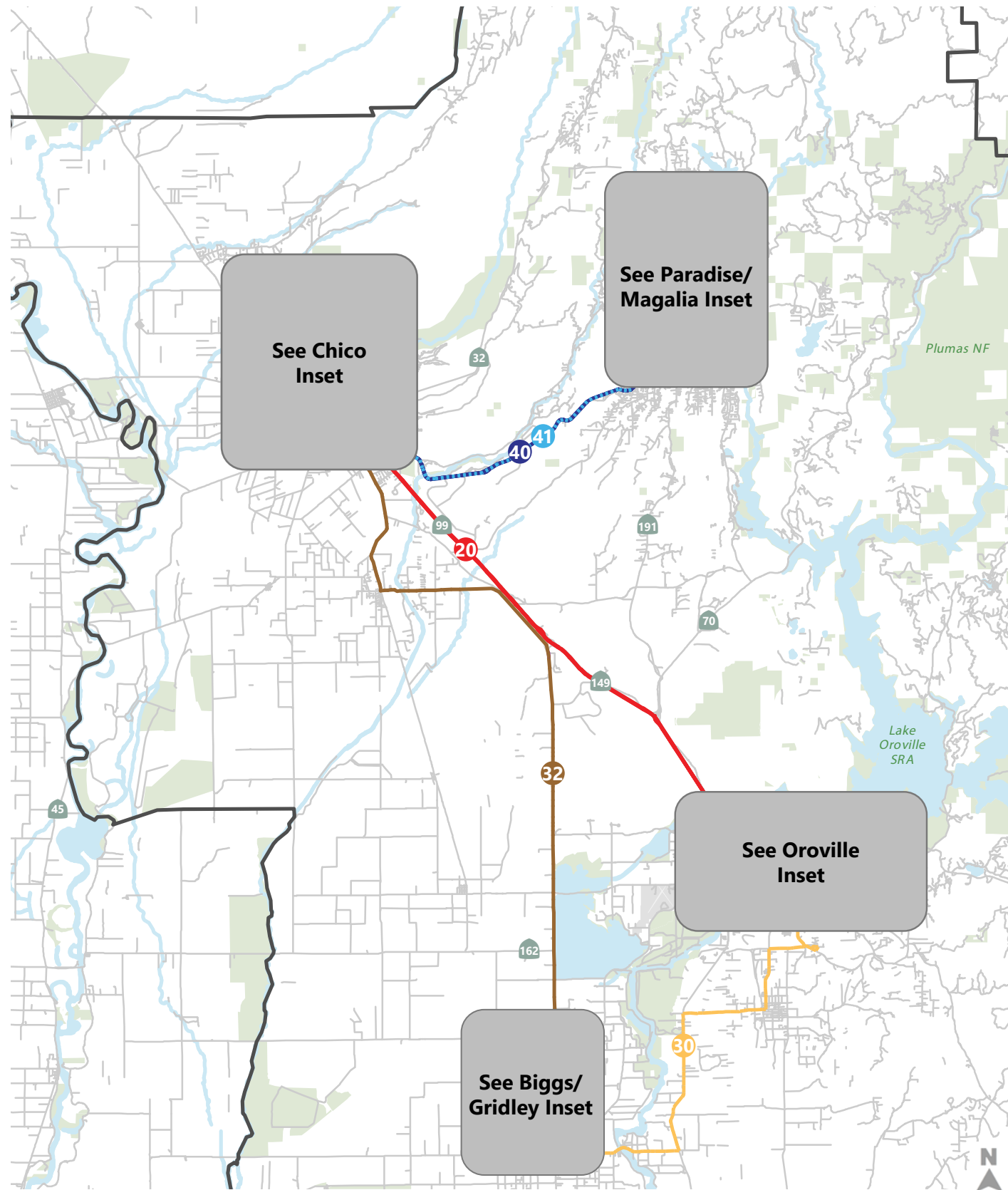


Figure 23
Long-Term Transit Service Plan

Oroville

Transit market characteristics in Oroville are not expected to substantially change between the 2021 and 2045 planning horizons. Thus, the near-term service plan for Oroville applies to the long-term service plan as well. One potential change could be an expansion of the citywide on-demand rideshare service into new development areas in Oroville (and/or increased service levels), if it is implemented during the near-term planning horizon and found to meet the mobility needs of local residents, employees, and visitors.

Regional Routes

The long-term service plan for regional routes is identical to the near-term plan. Other potential service improvements for consideration include an expanded employer vanpool program, expanded/enhanced park and rides, and a Chico-to-Sacramento commuter bus service (which BCAG is in the process of studying in greater detail).

Additional Recommendations

- **Transit Priority Measures** – The 2015 *Transit & Non-Motorized Plan* recommended the implementation of “transit-emphasis corridors” or “transit-priority corridors” to implement infrastructure improvements to support fast, frequent, and identifiable transit service(s). These corridors include Esplanade, Park Avenue, East 20th Street, Forest Avenue, East Avenue, and Warner Street. Potential improvements include transit signal priority, wider/targeted stop spacing, off-board fare payment, “BRT Lite” branding, and other strategies to increase average operating speeds, improve service reliability, and market B-Line services as an attractive transportation mode for daily travel needs. Such improvements not only improve service reliability and quality for B-Line passengers, but also provide benefits to the overall B-Line operating plan by reducing operating resources (revenue hours, peak buses, etc.) that would reduce overall operating costs and/or allow for operating resources to be reinvested elsewhere in the system.

Moreover, such improvements will likely be necessary if B-Line desires to maintain or improve upon existing service levels without incurring substantial additional operating costs. Continued growth throughout Butte County, particularly within urban areas, as well as the implementation of transportation system modifications that reduce overall roadway capacity, will increase travel times and delays in the future. The effects on B-Line operations will be longer route running times, increased operating costs, and increased peak vehicle requirements. Therefore, what may be perceived as costly infrastructure improvements can in fact provide substantial operating cost savings in the long run. B-Line should continue to coordinate with transportation system owner/operators to identify joint opportunities to retrofit aging transportation infrastructure while introducing transit priority measures.

- **Weekend Service Expansion** – During the public outreach process, numerous requests were made to expand weekend service to enable Butte County residents to utilize transit for work, shopping, and recreational travel more readily on Saturdays and Sundays. The long-term service plan includes the addition of weekend service on the following routes:
 - Routes 1 and 2 – 60-minute all-day service on Saturdays and Sundays
 - Routes 3 and 4 – 60-minute all-day service on Sundays
 - Route 20 – 60-minute all-day service on Saturdays and Sundays
- **Expanded Park and 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 and 20 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 to streamline the stops to allow for easy entry from the inner lanes of SR 32 and to permit the following:

- Allowing Routes 40/41 to serve the Park & Ride at all times
- 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 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 Street and Forest Avenue or Bruce Street along the north side of SR 32.

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 the new planned transit center in Paradise, which will help simplify transit routing in the area, in addition to attracting potential new riders. BCAG is currently finalizing the design for the Paradise Transit Center at Birch Street and Black Olive Drive.
- **Gridley.** Route 32 will remain in service 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. 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** – The 2015 *Transit & Non-Motorized Plan* recommended that B-Line work with the City of Chico to establish a new transfer location in downtown designed to expedite transit services (by virtue of reducing the number of turning movements required to reach the transfer location) and to make connections between routes more intuitive. The plan identifies the following objectives for the new transfer center:
 - Elevate the visibility of transit in Chico
 - Improve the experience of being a transit user in Chico
 - Create better-timed connections among routes
 - Create a comfortable passenger waiting environment
 - Allow B-Line service to be streamlined
 - Promote development and activity in Downtown Chico
 - 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 restrooms and a break room).
 - Improve safety for all modes by reducing bus turning movements.
 - 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.

West 4th Street between Main and Broadway Streets (next to City Plaza) is a potential location for a new transit center. 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.

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 percent 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-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.
- **Implement 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) as service is restored to the Ridge. In the long-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 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.

- **Zero Emission Vehicle Transition** – B-Line is in the process of converting its fleet to zero-emission vehicles by 2040. The California Air Resources Board (CARB) Innovative Clean Transit Regulation requires each public transit agency in the State to transition to zero-emission vehicle purchases by 2040 and, for small transit agencies like B-Line, prepare a Zero-Emission Bus Rollout Plan. BCAG is in the beginning phases of developing the Rollout Plan to show how it will achieve its transition to a zero-emission fleet. Potential elements of the Rollout Plan include the following:
 - Assessment of potential zero-emission vehicle options, including battery-electric buses and hydrogen fuel cell buses. Consideration should be given to bus charging/fueling and maintenance facility requirements, capital and operating costs, and vehicle life-cycle costs.
 - Assessment of existing and planned B-Line routes to determine charging/fueling needs, including potential for on-route charging/fueling.
 - Assessment of the Butte Regional Transit Operations Center and major transit centers/transfer points to determine charging/fueling equipment and power supply capacity needs. Assessment of power supply needs should include coordination with utility companies and feasibility assessment of on-site power generation options (e.g., rooftop solar).
 - Development of an operator training program.

Additionally, BCAG is preparing the B-Line Routing Optimization Study to improve ridership, identify alternative routing options, and develop innovative solutions that utilize B-Line's existing resources. Both the Rollout Plan and the Routing Optimization Study will provide the framework to transition to a zero-emission fleet.

Resource Allocation

Table 6 summarizes the resources required for the near- and long-term service plans. Under the near-term plan, annual revenue hours would be reduced by approximately 1,600 hours relative to 2019 conditions, which represents a two percent decrease. Under the long-term plan, annual revenue hours would be increased by approximately 10,000 hours relative to 2019 conditions, which represents a 15 percent increase.

Using the FY 2019/2020 B-Line cost per revenue hour for fixed-route services of \$106.89, the near-term service plan would require approximately \$7.0 million in operating costs and the long-term service plan would require approximately \$8.3 million in operating costs (nominal dollars). FY 2019/2020 operating costs for B-Line fixed-route services were approximately \$7.2 million. Note that these operating cost estimates represent costs for B-Line fixed-route services only.

Table 6. B-Line Fixed-Route Resource Allocation – Annual Revenue Hours

Route	2019 (Scheduled)	2025 (Proposed)	Difference 2019 to 2025	2045 (Proposed)	Difference 2019 to 2045
1 – Esplanade/Park/Forest/MLK	0	0	0	11,364	+11,364
2 – Mangrove	4,354	4,354	0	0	-4,354
2 – Mangrove/Park/Forest/MLK	0	0	0	11,220	+11,220
3 – Nord/East	4,441	4,441	0	4,974	+533
4 – First/East	5,099	5,099	0	5,699	+600
5 – E. 8 th Street	5,239	3,519	-1,720	4,070	-1,720
7 – Bruce/Manzanita	2,047	2,047	0	6,159	+4,112
8 – Nord	1,601	1,997	+396	1,997	+396
9 – Oak/Warner/Cedar	1,818	2,264	+446	2,264	+446
9c – Cedar Loop	240	240	0	240	0
14 – Park/Forest/MLK	5,281	5,281	0	0	-5,281
15 – Esplanade/Lassen	7,484	7,484	0	0	-7,484
16 – Esplanade/SR99	4,323	4,765	+442	4,765	+442
17 – Park/MLK/Forest	2,550	2,996	+446	0	-2,550
20 – Chico/Oroville	7,288	7,288	0	8,242	+954
24 – Thermalito	1,930	2,112	+182	2,112	+182
25 – Oro Dam	1,176	1,349	+173	1,349	+173
26 – Olive Highway	1,694	807	-887	807	-887
27 – South Oroville	1,029	1,291	+262	1,291	+262
30 – Oroville/Gridley/Biggs	1,671	1,671	0	1,671	0
31 – Paradise/Oroville	0	Varies	Varies	Varies	Varies
32 – Gridley/Chico	510	510	0	510	0
40 – Paradise/Chico ¹	2,151	2,760	+609	4,630	+2,479
41 – Paradise Pines/Chico	3,180	3,180	0	4,277	+1,097
52 – Chico Airport Express	1,951	0	-1,951	0	-1,951
Total	67,057	65,455	-1,602 (-2%)	77,224	+10,167 (+15%)

Source: Fehr & Peers, 2021.

Note: ¹ Assumes restoration of pre-Camp Fire weekend service levels during near-term timeframe and restoration of pre-Camp Fire weekday and weekend service levels during long-term timeframe.

8. Non-Motorized Transportation Improvements

This chapter presents a summary of pedestrian and bicycle (non-motorized) transportation facility improvements identified as part of the *Transit & Non-Motorized Plan*. This chapter is organized in the following sections:

- Bicycle parking
- Bicycle access to transit
- Wayfinding signage
- High priority and major bicycle and pedestrian projects
 - Improved bicycle facilities on Esplanade
 - Safe Routes to Transit Plan (SR2T)
 - Sidewalks and crossings near B-Line stops
 - Fir Street and SR-32 park & ride access
 - Regional bikeways
 - Enhanced crossing facilities

Bicycle Parking

The *2010 California Green Building Standards Code* (Title 24 or CALGreen) provides best practices related to bicycle parking. CALGreen was recently updated in 2019, including updates to non-residential mandatory measures related to bicycle parking. These measures include the following:

- **Short-term bicycle parking.** If the project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for five percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-way capacity rack.
- **Long-term bicycle parking.** For new buildings with tenant spaces that have 10 or more tenant-occupants or additions or alterations that add 10 or more tenant-occupant vehicular parking spaces, provide secure bicycle parking for five percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. For new shell buildings in phased projects provide secure bicycle parking for five percent of the anticipated tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.
- **Acceptable bicycle parking facilities** shall be convenient from the street and shall meet one of the following:
 - Covered, lockable enclosures with permanently anchored racks for bicycles;
 - Lockable bicycle rooms with permanently anchored racks; or

- Lockable, permanently anchored bicycle lockers.
- **Public schools and community colleges.** For students, provide permanently anchored bicycle racks conveniently accessed with a minimum of four two-bike capacity racks per new building. For staff, provide permanent, secure bicycle parking conveniently accessed with a minimum of two staff bicycle parking spaces per new building. Acceptable bicycle parking facilities shall be convenient from the street or staff parking area and shall meet one of the following:
 - Covered, lockable enclosures with permanently for bicycles;
 - Lockable bicycle rooms with permanently anchored racks; or
 - 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.

Note that improved bicycle storage facilities at transit stops and stations was a key piece of input received during public outreach conducted for the *Transit & Non-Motorized Plan*. The probable locations for bicycle storage facilities are largely owned by local jurisdictions and/or private entities, not BCAG; therefore, partnerships should be explored to identify candidate locations and install equipment.

This plan includes the following recommendations related to bicycle access to transit:

- 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, Fir Street and State Route 32 Park and Ride, Paradise Transit Center, Oroville Transit Center, Gridley (SR 99 and Ford Avenue), and Biggs (6th and B Street).

Wayfinding Signage

Page 8-3 of the 2015 Plan recommends policies related to wayfinding signage for non-motorized transportation modes, acknowledging that most Butte County jurisdictions do not have wayfinding signage policies at the local level. The recommended policies pertain to guidance for siting wayfinding signage and compliance with relevant standards documents when designing/installing wayfinding signage (e.g., the California Manual of Uniform Traffic Control Devices).

High Priority Projects

To identify high-priority pedestrian areas, as shown in Figure 24, the 2015 *Transit & Non-Motorized Plan* utilized the regional suitability score (see Chapter 4) to calculate 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 2015 *Transit & Non-Motorized Plan* also utilized the regional transit access score (see Chapter 4) to calculate 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 Figure 25, 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:** The City of Chico offers an extensive network of Class I bike paths, Class II bike lanes, and Class III bicycle routes. The 2015 Plan proposed to implement substantial portions of the planned citywide bicycle network in Chico. This included the completion of the Class I bike path along State Route 99 between Eaton Road and Vallombrosa Avenue. The State Route 99 path should be extended south to Skyway to provide bicycle connections along the SR 99 corridor to the Chico Mall area. Portions of this path are complete as of February 2021, including segments between Cimarron Drive and Panama Avenue, across Big Chico Creek, between Humboldt Road and the Chico Mall, and behind the Chico Walmart south of Business Lane.

Additional priority projects in Chico include the installation of Class II bike lanes on numerous key roadways including Mangrove Avenue between Vallombrosa Avenue and Cohasset Road and on 5th Street between Miller Avenue and Woodland Avenue and the installation of new Class IV cycle track facilities that are identified in the 2019 City of Chico Bicycle Plan, including on Esplanade/Park Avenue between Eaton Road and East 20th Street and on Cohasset Road between Eaton Road and Vallombrosa Avenue. The proposed facilities would provide safer connections for bicyclists and pedestrians to B-Line stops along busy corridors.

- **Oroville:** 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. This plan recommends the installation of a bike path along the Feather River and the railroad tracks (complete between Washington Avenue and Oroville Dam Boulevard), and bike lanes on Oroville Dam Boulevard, Montgomery Street, Mitchell Avenue, and Feather River Boulevard.
- **Paradise:** Due to the Camp Fire, it should be noted the Town's immediate priority is to address the safety and operational concerns on their local roadway system. However, the Town is committed to completing the ATP projects funded through the California Transportation Commission. This plan recommends the extension of the Skyway bike path to the Town limits (complete to Neal Road, but portions damaged in the Camp Fire), the extension of the bike lane on Pearson Road (complete between Black Olive Drive and Clark Road), and the addition of bike lanes on Bille Road, Sawmill Road, and Wagstaff Road.
- **Gridley:** The City of Gridley does not currently have any bike paths or designated streets as bike routes. However, the City has proposed to add bike lanes to several north-south and east-west streets within its roadway grid. This Plan also proposes to add bike paths along the railroad tracks and bike lanes on Sycamore Street, State Route 99, and on either side of Sycamore Middle School.
- **Biggs:** The City of Biggs has a number of bike paths and bike lane connections. The Plan proposes to add a bike path along the railroad tracks and a bike lane on B Street.
- **Unincorporated Butte County:** Bicycle facility improvements in unincorporated Butte County identified in the 2015 Plan are primarily focused in South Oroville. These include a new bike path extending north-south behind Martin Luther King Park between Wyandotte Avenue and Oro Bangor Highway, as well as new Class II bike lanes on Lincoln Boulevard between Wyandotte Avenue and Ithaca Street and on Spencer Avenue between Wyandotte Avenue and Oro Bangor Highway.

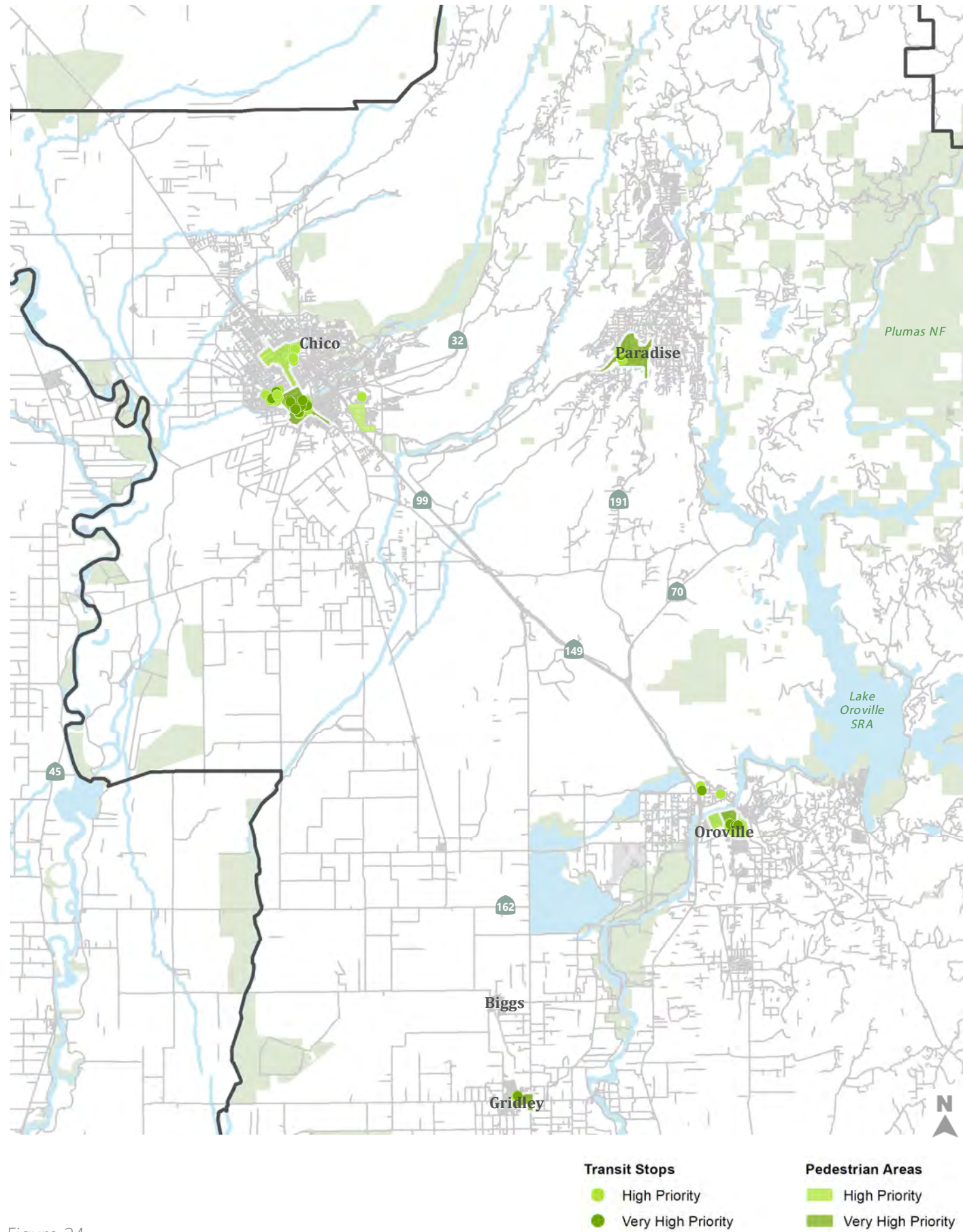
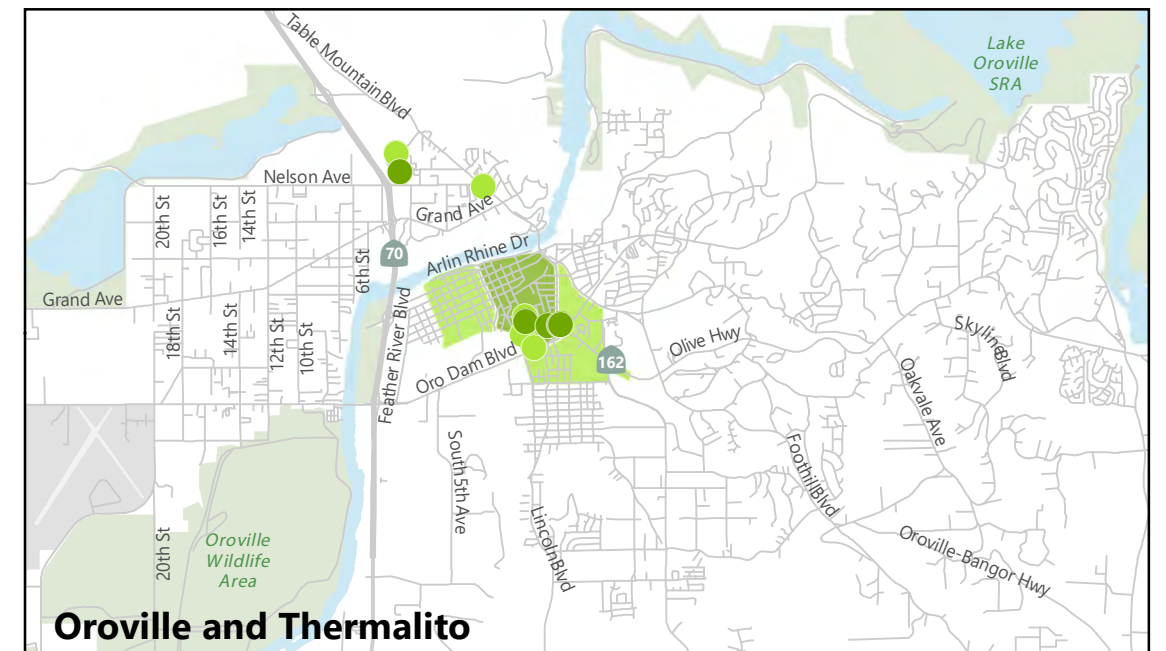
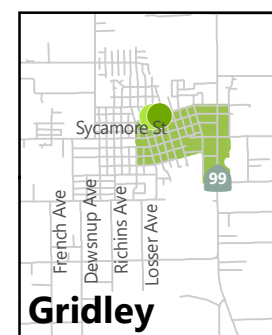
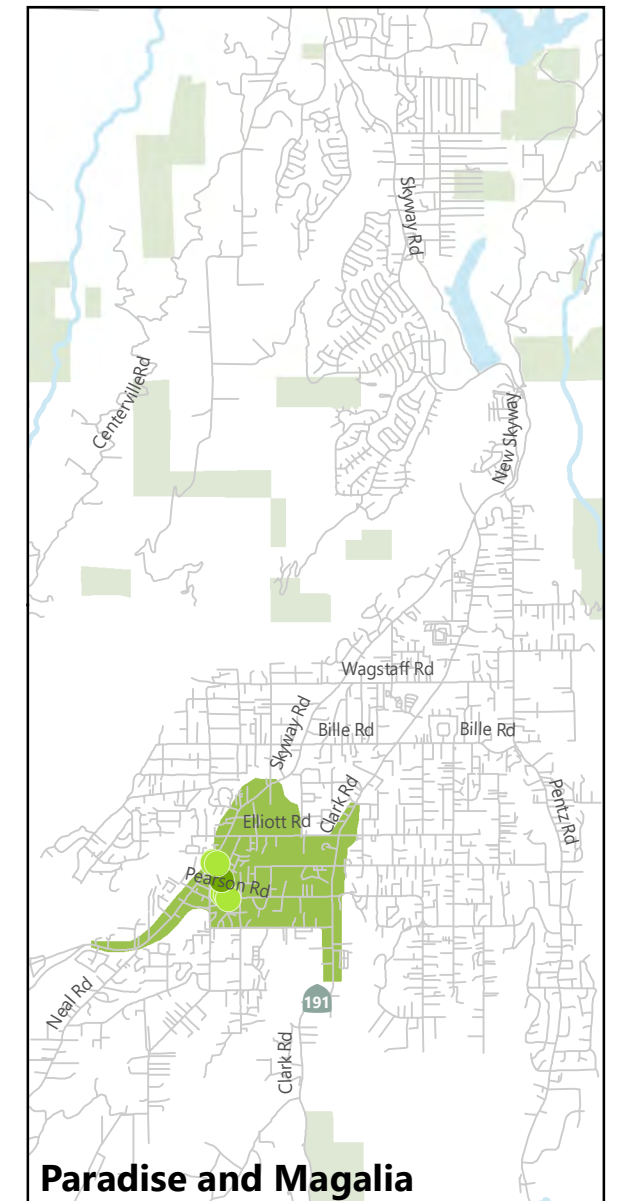


Figure 24
High Priority Pedestrian Areas and Transit Stops



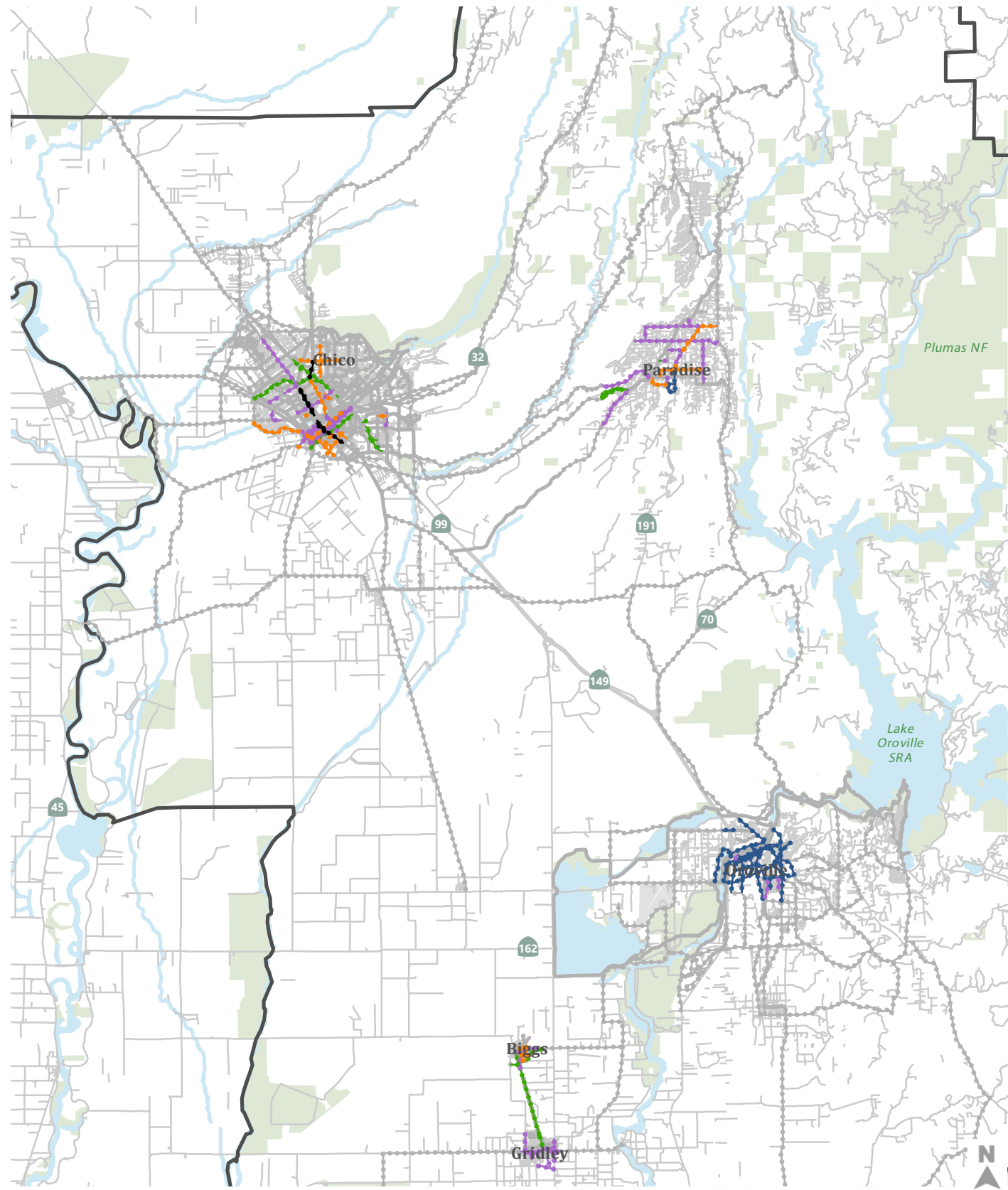
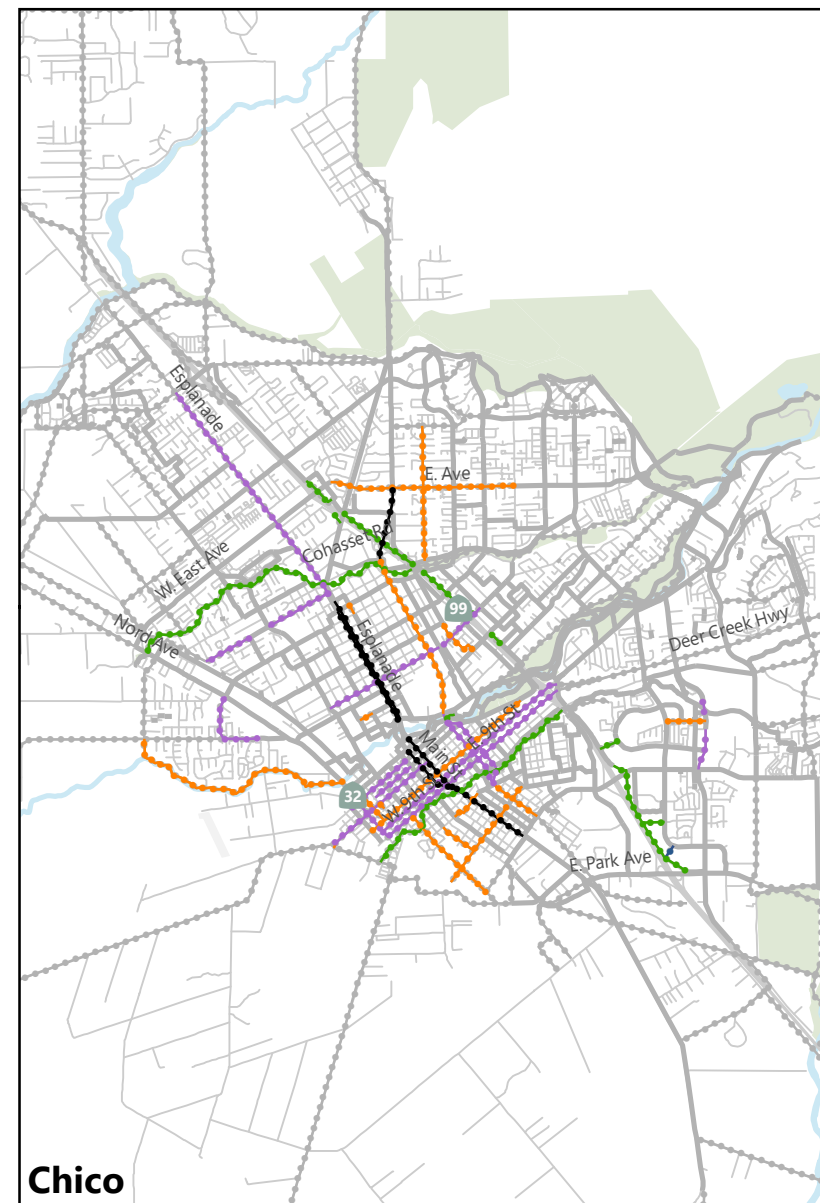
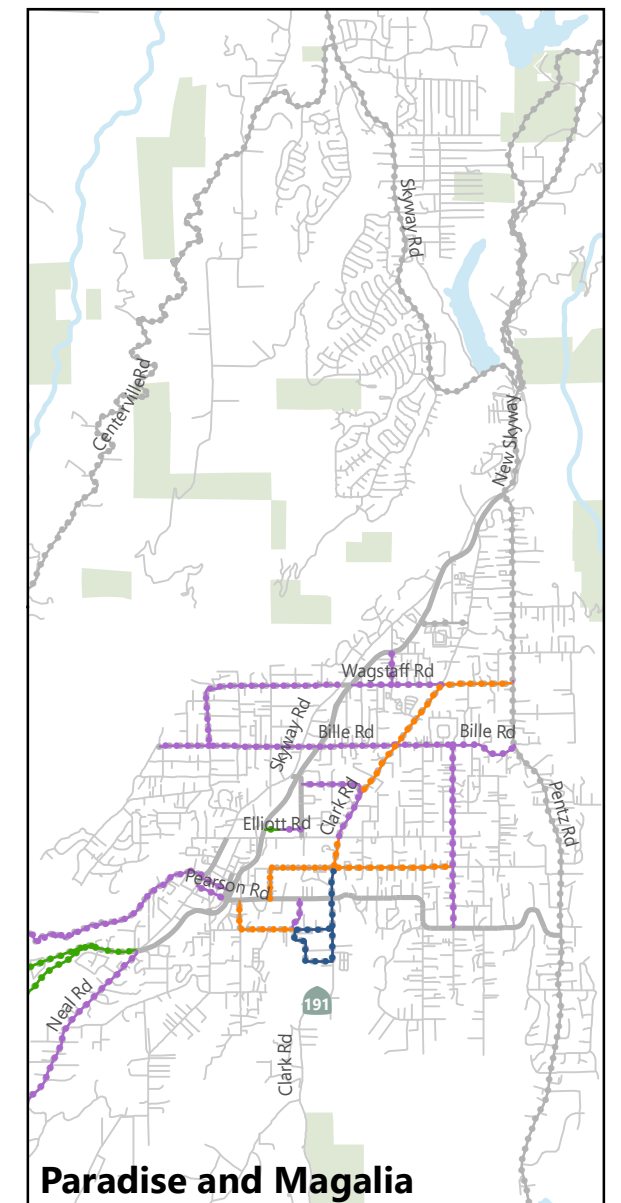


Figure 25
High Priority Proposed Bikeways

- Proposed Bicycle Facilities
- Class I - Bike Path/Multi-Use Trail
 - Class II - Bike Lane
 - Class I - Bike Path/Multi-Use Trail or Class II - Bike Lane
 - Class III - Bike Route
 - Class IV - Cycle Track



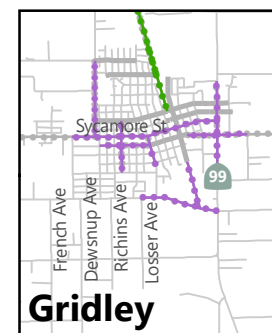
Chico



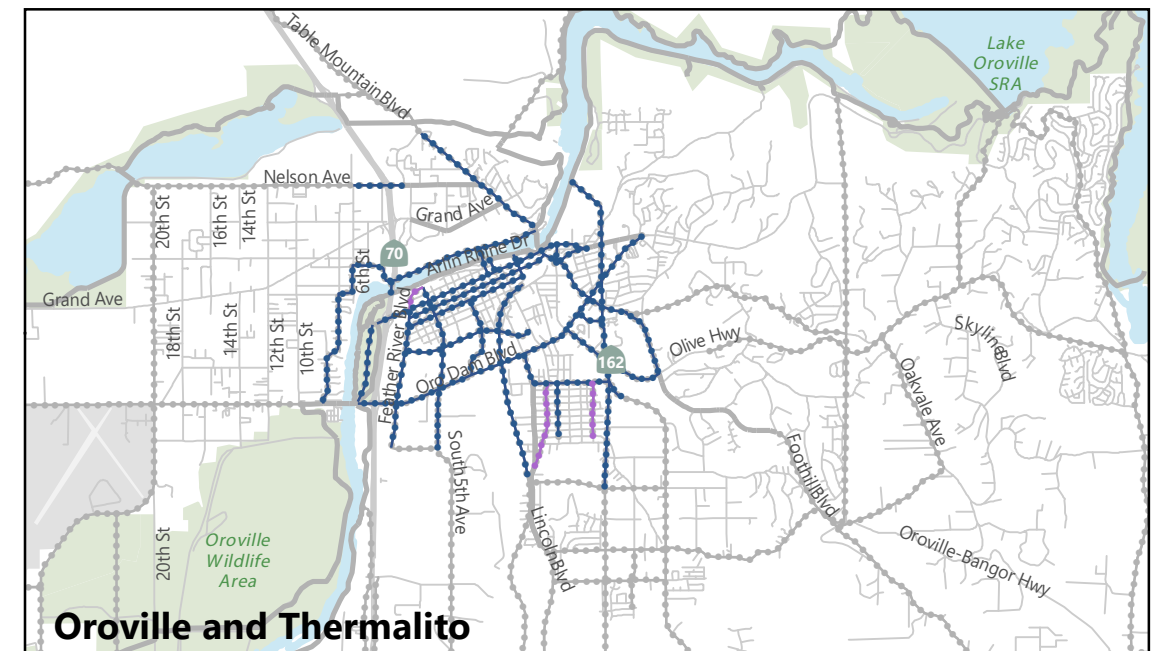
Paradise and Magalia



Biggs



Gridley



Oroville and Thermalito

Safe Routes to Transit Plan (SR2T)

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. This plan should be completed in coordination with Butte County Public Health.

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
 - Sidewalk gaps should be completed in the ½-mile buffer surrounding the new Transit Center.
 - 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.

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. 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.

This plan proposes the following regional bikeways:

- Chico-Paradise Bike Path: Along Skyway and Honey Run Road between easterly Chico City limits and westerly Paradise Town limits
- Biggs-Gridley Bike Path: Along SPRR tracks from Gridley City limits (Orange Avenue) to Biggs City limits (8th Street)

- 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 a 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.

This plan additionally recommends the consideration of the extension of the Paradise Memorial Trailway from its current terminus at Pentz Road into Magalia.

Enhanced Crossing Facilities

This plan recommends that as planned bicycle facilities are constructed, enhanced bicycle crossing amenities (e.g., high visibility conflict markings, marked bicycle crossings, etc.) be considered at locations where bicyclists traveling to access transit must mix with high volumes and speeds of vehicle traffic. These include major arterial-to-arterial intersections as well as freeway interchange areas where on- and off-street bicycle facilities are planned, or where existing bicycle facilities lack such crossing amenities.

Additional Considerations

Beyond the non-motorized improvements described above, the 2021 Plan recommends that BCAG and local jurisdictions consider future infrastructure needs related to emerging electric personal mobility devices such as eBikes and eScooters. These devices provide pedal/propulsion assist capabilities and are likely to change the mix of user speeds and volumes on existing and planned facilities throughout the County. As such, considering these factors now will ensure that future pedestrian and bicycle investments plan for future mobility devices that could become increasingly prevalent on roadways throughout the County within the planning horizon. For instance, increased ownership of eBikes could increase the speed differential of users within conventional Class II bike lanes, potentially requiring additional capacity within on-street bicycle facilities (where warranted by demand) to accommodate passing maneuvers between faster eBikes and slower conventional bicycles.

9. Implementation

This chapter provides an overview of implementation considerations for the *Transit & Non-Motorized Plan*, including the following elements:

- Operating resource requirements, including revenue hours, operating cost, and peak fleet requirements
- Operating revenues
- Capital requirements

Operating Requirements

Table 7 summarizes the fixed-route and paratransit operating resource requirements for the near- and long-term B-Line service plans presented in Chapter 7. The data presented in Table 7 represents the 2025 and 2045 horizon years for the near- and long-term transit service plans, respectively.

The near-term service plan is focused on B-Line service adjustments to simplify routes, improve circulation, improve service reliability, and increase service levels where warranted by transit passenger demand potential. The long-term service plan builds on the near-term plan and includes more substantial reconfiguration of the B-Line system in Chico, including the establishment of a high capacity transit corridor along the Esplanade/Park Avenue/E 20th Street corridor and the expansion of new fixed-route service into emerging development areas in the Doe Mill/Honey Run Special Planning Area.

Table 7. B-Line Near- and Long-Term Operating Requirements

Measure		Near-Term FY 2025/2026	Long-Term FY 2045/2046
Annual Revenue Hours	Fixed-Route	65,455	77,224
	Paratransit	32,387	48,580
	B-Line Total	97,842	125,804
Annual Operating Cost	Fixed-Route	\$8,354,169	\$17,801,525
	Paratransit	\$3,354,776	\$9,088,648
	B-Line Total	\$11,708,945	\$26,890,174
Peak Fleet Requirement		29 vehicles	29 vehicles

Annual Revenue Hours and Operating Costs

Under the near-term plan, fixed-route service annual revenue hours would decrease from 67,057 hours in FY 2019/20 to 65,455 hours in FY 2025/26, a two percent reduction in annual revenue hours. Under the long-term plan, fixed-route service annual revenue hours would increase from 65,455 hours in FY 2025/26 to 77,224 hours in FY 2045/46, an 18 percent increase in annual revenue hours.

Paratransit revenue hours would remain largely unchanged from FY 2019/20 levels of 32,387 annual revenue hours by the near-term plan horizon year of FY 2025/26. Due to the expansion of the footprint of the B-Line system proposed in the long-term service plan and the continued rebuilding of communities on the Ridge affected by recent wildfires, paratransit revenue hours would increase an estimated fifty percent to 48,580 annual revenue hours by FY 2045/46 (for comparison, prior to the Camp Fire and the COVID-19 pandemic, B-Line paratransit service required approximately 50,000 annual revenue hours).

Fixed-route annual operating costs are estimated at \$8.4 million and \$17.8 million during the near- and long-term planning horizons, respectively. Paratransit annual operating costs are estimated at \$3.3 million and \$9.1 million during the near- and long-term planning horizons, respectively. Operating cost estimates assume a three percent annual inflation rate.

Total system operating costs inclusive of fixed-route and paratransit services are estimated at \$11.7 million in FY 2025/26 and \$26.9 million in FY 2045/46, the final year of the long-term planning horizon.

Peak Fleet Requirements

The peak fleet requirement for B-Line fixed-route service would be 29 vehicles during both the near- and long-term service plans. As such, this plan would not require substantial expansion of the B-Line fleet, only the replacement of vehicles as they near the end of their useful lifecycle.

Operating Revenues

The projected operating costs through the near-term FY 2025/26 planning horizon can be implemented and sustained with existing financial resources. Discretionary federal and state grant funds will be needed for vehicle replacements and other capital improvements as discussed later in this chapter.

Since it is difficult to predict federal and state funding levels in 2045, no specific funding plan is identified for the long-term plan. 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.

Existing Funding Sources

B-Line services are currently funded through the following sources:

- **Farebox revenue** – funds approximately 20 percent of rural and urban fixed-route operating revenue and 10 percent of paratransit operating revenue (as of FY 2019/2020).
- **Federal Transit Administration (FTA) Section 5307 (Urbanized Area Formula Grants)** – funds approximately 50 percent of operating revenue for fixed-route and paratransit services operating in the Chico urbanized area.
- **FTA Section 5311 and 5311(f) (Rural Transit & Intercity Bus)** – funds less than 50 percent of rural fixed-route operating revenue.
- **State of California Transportation Development Act (Local Transportation Fund and State Transit Assistance)** – funds the remaining 51 percent of all operating revenue

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 near- and long-term timeframes.

Federal Funds

B-Line will continue to utilize the following federal funding programs:

- **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 approximately \$2.4 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 and 5311(f), Rural Transit & Intercity Bus 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 and 5311(f) 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 in FTA Section 5311 and 5311(f) funds 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). TDA funds are generally the largest funding contributors for transit agencies in the State of California:

- **State Transit Assistance (STA)** – STA funds are generated by sales tax on diesel fuel and distributed to regions based on their share of the State population. STA funds can be used for a variety of transportation projects, including:
 - Transit operations
 - Bus and rail projects
 - Special transit services for disabled riders
 - Pedestrian and bicycle facilities
 - Transportation planningSTA revenues may be used only for public transit or transportation services.
- **Local Transportation Fund (LTF)** – LTF funds are derived from a ¼ cent general sales tax collected State-wide by the Board of Equalization, and administered locally through BCAG which returns it to local jurisdictions. The State distributes the tax revenue to each County based on the amount of tax revenue they generated. Counties then pass on the LTF funds to local jurisdictions based on population. 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 \$5.3 million in LTF and STA funds to help fund the B-Line, representing over 50 percent of operating revenues.

Because TDA funding is formula-based and associated with population levels, it is possible that with anticipated population growth in Butte County, TDA funding for B-Line services could increase in the future. For example, Butte County population forecasts indicated that the Butte County population will increase from approximately 210,000 residents in 2020 to 273,000 residents by 2045. This represents an increase of 30 percent over a 25-year timeframe. Assuming a proportional increase in TDA funds for Butte County over that same time period, annual operating revenue from TDA fund sources could increase by over \$1.5 million (nominal dollars)

between 2020 and 2045. Note that forecasting TDA revenue this far into the future can be a speculative endeavor, as general sales tax, gas tax revenues, and population ratios will fluctuate over the years.

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 percent urban and 10 percent rural for fixed routes) and 10 percent 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 2022/23. Proposed fare increases for the near-term planning horizon are presented in Table 8.

Table 8. B-Line Projected Near-Term Fare Increases

Fare Type		Current Fare	FY 2022/23	FY 2025/26
Fixed-Route Cash	Regular (Local)	\$1.75	\$1.85	\$2.00
	Discount (Local)	\$0.85	\$0.90	\$1.00
	Regular (Regional)	\$2.40	\$2.55	\$2.75
	Discount (Regional)	\$1.20	\$1.30	\$1.40
Paratransit Cash	ADA Eligible	\$3.50	\$3.80	\$4.15
	Same Day Request	\$5.25	\$5.70	\$6.20
	Zone 1	\$8.75	\$9.55	\$10.40
	Zone 2	\$10.75	\$11.70	\$12.75
	Zone 3	\$12.75	\$13.90	\$15.15

Potential New Funding Sources

The primary existing funding sources are FTA Sections 5307 and 5311 and TDA Article 3. Federal formula funds are projected to remain constant or increase only one percent in the near-term timeframe. Discretionary federal funds are competitive and are not guaranteed and tend to be used for capital improvement projects. As such, 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 Table 9.

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Table 9. Potential New Funding Sources

Fund Source	Funding Purpose	Allowable Use of Funds	Applicability to B-Line
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
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
FTA Section 5337 State of Good Repair Initiative	To improve and maintain buses and bus facilities in good physical condition; as part of the FTA 5337 discretionary program, approximately \$650 million is available	Transit capital projects	Potential for funding replacement vehicles and rehabilitation of intermodal facilities
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
FTA Section 5310 (Enhanced Mobility of Seniors and Individuals with Disabilities)	Formula funding to states for the purpose of assisting private nonprofit groups in meeting the transportation needs of older adults and people with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs	Transit capital projects and acquisition of transportation services	Potential for funding replacement vehicles or contract services geared towards seniors and individuals with disabilities
FTA Section 5312 (Mobility on Demand Sandbox Demonstration program)	Funds projects that promote innovative business models to deliver high quality, seamless and equitable mobility options for all travelers.	Planning and developing business models, obtaining equipment and service, acquiring/developing software and hardware interfaces to implement the project, and operating the demonstration.	Potential for funding replacement vehicles or on-demand rideshare vehicles and related technology
FTA Section 5339(a) (Grants for Buses and Bus Facilities Program)	Makes federal resources available to states and direct recipients to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities including technological changes or innovations to modify low or no emission vehicles or facilities.	Transit capital projects	Potential for funding replacement vehicles, new maintenance facilities, transit centers and other capital projects

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FTA Section 5339(c) (Low or No Emission Vehicle Program)	Provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities.	Transit capital projects	Potential for funding replacement vehicles, new maintenance facilities, transit centers and other capital projects
FTA Accelerating Innovative Mobility Program	Help transit agencies explore new service models that provide more efficient and frequent service, which will help retain riders.	Transit capital projects	Potential for funding replacement vehicles or on-demand rideshare vehicles and related technology
FTA Access and Mobility Partnership Grants	Improve access to public transportation by building partnerships among health, transportation and other service providers.	Transit capital projects	Potential for funding replacement vehicles or on-demand rideshare vehicles and related technology
FTA Integrated Mobility Innovation (IMI) Program	Funds projects that demonstrate innovative and effective practices, partnerships and technologies to enhance public transportation effectiveness, increase efficiency, expand quality, promote safety and improve the traveler experience.	Transit capital projects	Potential for funding replacement vehicles or on-demand rideshare vehicles and related technology
FTA Mobility for All Pilot Program Grants	Improve mobility options through employing innovative coordination of transportation strategies and building partnerships to enhance mobility and access to vital community services for older adults, individuals with disabilities, and people of low income.	Transit capital projects	Potential for funding replacement vehicles or on-demand rideshare vehicles and related technology
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 bicycle and pedestrian infrastructure improvements
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

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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
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
Transportation Impact Fee	This is a one-time fee on new residential and non-residential development to mitigate impacts from increased congestion. Could also include local or regional VMT mitigation banks or exchanges.	Primarily capital projects; also operations in some situations Like all developer fees, transportation fees must show a nexus between the development and specified improvement or service provided.	
California Low Carbon Transit Operations Program (LCTOP)	Provide operating and capital assistance for transit agencies to reduce greenhouse gas emission and improve mobility, with a priority on serving disadvantaged communities.	Transit capital projects and operating expenses	Potential for funding replacement vehicles, new maintenance facilities, transit centers, and other capital projects, as well as transit operations
Private Sector Sources			
Public/Private Partnerships	Direct or in-kind contributions can provide important marginal support for transit services. Public/private partnerships can increase overall funding by leveraging "outside" dollars	Flexible	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. Public/partnerships can be effective to fund shelter installation and maintenance.

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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 Walmart.
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
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
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
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
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 no 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.