Seamless, Sustainable, Smart

Reimagining Novato's Public Transportation Network

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Seamless, Sustainable, Smart:

Reimagining Novato's Public Transportation Network

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Note: *all images depicted in this report are taken by the author, except where indicated.*

Front cover image: the first Sonoma-Marin Area Rail Transit (SMART) train in revenue service calling at Novato Downtown SMART station bound for Larkspur (also operating as the Holiday Express train) on 14 December 2019.

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This report is dedicated to my peers in the transportation planning world, Marin County residents, and most importantly, a concerned individual who envisions a cleaner and more sustainable planet through investing in public transportation.

In Loving Memory of Joseph Kott
Professor, Mentor, and Transportation Planner

From our first meeting to your sudden passing,
your kind words, continued guidance, and bold dreams live on.

Executive Summary

Background

Novato is Marin County's second largest city after San Rafael. With a population of approximately 55,500, it is among the fastest-growing communities in the county. While the community continues to attract big-box retailers, residential developers, and high-value tech investors, traffic congestion and increased carbon emissions from climate change are concerns city officials take very seriously. However, Novato can do much better to convince its residents and employers to combat driving alone to work, play, shop, and school.

Seamless, Sustainable, Smart is a Planning Report that examines the state of public transportation in Novato, from who rides the buses and trains, to what times those modes run, to highlighting concerns brought by operators, passengers, elected officials, and transportation staff. It also highlights the challenges of developing an effective transportation network in a suburban community, from segregated zoning which limits transit's opportunity to thrive, to just-in-time scheduling which can impact operator performance and ridership significantly. While the report is focused on addressing transportation connectivity in the community, it also touches on regional transportation concerns and connections to the rest of the North Bay and San Francisco. The intent of this report, therefore, is to inform decisionmakers, transportation professionals, and concerned citizens on the impacts of business-as-usual transportation policies and guide them to developing more sustainable solutions like increasing investments in public transportation and rationalizing zoning fears to reduce carbon emissions and roadway congestion.

Study Goals

Seamless, Sustainable, Smart was created to address mobility issues facing Novato, a suburban community anchored by two major highways, US-101 and CA Highway 37. With over 800 streets and approximately 160 miles of roadway and road shoulder (Novato, Streets), the city has a much higher proportion of workers driving to work, with a combined ratio of driving alone and carpool of 81.4% based on US Census figures from 2017 compared to Marin County's combined ratio of 73.4%. On the other hand, the city saw an increase in the number of commuters using alternative modes of transportation, with a combined figure between walking, biking, and public transit usage of 11.3% in 2017 compared to 7.2% in 2014. (US Census, 2017, "Commuting Characteristics by Sex") And with three transit agencies operating in the city, namely Golden Gate Transit, Marin Transit, and Sonoma-Marin Airport Rail Transit (SMART), the city should promote their services even more to its residents as it combats the effects of sea level rise and climate change.

The report also highlights the importance of developing a robust transit network through developing sensible policies aimed at curbing automobile and highway subsidies. Steven Higashide notes Kurt Luhrsen, vice president of service planning at Houston Metro, in his book, *Better Buses, Better Cities*: "You want lots of people to ride transit, you put lots of service where you have lots of people, lots of jobs, lots of demand, and you'll get ridership." And Higashide complements Luhrsen's thoughts: "A bus network of multiple connecting routes that run frequently for most of the day, seven days a week, is a network more people can build their lives around." (Higashide, 24) While it takes a considerable amount of time and political will to achieve Seattle's transit network where, "as of 2017, 64 percent of Seattle residents are within a 10-minute walk of transit that runs every ten minutes or better" (*ibid*, 54), American governments that *do* give the people a choice to invest in transit are more likely to see their transportation ballot measures pass. Speck writes, "Since 2000, over 70 percent of public transportation ballot measures have passed, creating more than $100 billion in transit funding", and voters understand instinctively that "the typical household savings accrued from good public transit service clearly outpaces the cost of that

service." (Speck, 143) This paper, therefore, highlights the importance of shifting transportation funding away from the status quo like widening freeways and instead utilize taxpayer dollars to develop more transit lines and hold decisionmakers accountable for their actions.

Research Methods

The report combines multiple observations, from conversations on board Golden Gate Transit and Marin Transit buses, to field notes gathered from the SMART bus bridge between Novato Hamilton and Petaluma Downtown stations on 9 and 10 November 2019. It also involves participating in multiple events, including forums and board meetings, and multiple in-person interviews were conducted throughout the paper's development. A selection of peer-reviewed journals and urban and transportation planning publications also provide guidance on what other communities have done to improve their mobility networks. The paper culminates with the author's impressions on the opening day of the new Novato Downtown SMART station on 14 December 2019, which coincides with the first-ever train service pulling into the new Larkspur SMART station that was inaugurated the previous day.

Major Findings

With the presence of three transit agencies in Novato, namely Golden Gate Transit, Marin Transit, and the SMART train, the community became more accessible to residents, employers, and visitors. However, the two SMART stations located in Novato, Hamilton and San Marin, are among the least-used in the system. Golden Gate Transit and Marin Transit, on the other hand, has been rationalizing and optimizing bus services to suit the community's needs for years. Such changes, however, come at the cost of the loss of one-seat rides, health issues among operators, inconsistent scheduling, and missed opportunities in service enhancements. Coupled with neutral budgeting goals, NIMBYism, a dwindling tax base, and funding uncertainty from the federal to the local levels, and it creates—and perpetuates—a vicious cycle of ridership loss, service cuts, and frustrated constituents. Such fractures in the public transportation network should be addressed if the community desires to shift workers away from driving alone to using alternative modes of mobility like biking, walking, or mass transit.

Seamless, Sustainable, Smart also finds that Novato's current zoning and parking policies still heavily favor the automobile, despite progress made in shifting to alternative modes of transportation, including walking, public transportation, and telecommuting. Andres Duany, author of *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream*, explains the environmental and societal consequences of American cities growing along the highway like Novato. Since "government subsidies for highways and parking alone amount to between 8 to 10 percent of [the United States'] gross national product", American drivers do not pay the full price of driving, especially when gasoline costs one quarter of what it did in 1929. (Duany, et al. 95) As highway congestion worsened, transportation engineers and government officials opted to add more highway lanes, which is still practiced today: "Trying to cure traffic congestion by adding more capacity is like trying to cure obesity by loosening (one's) belt." (Duany et al., 89) The results: "almost all of the billions of dollars spent on road building over the past decades… increase the amount of time (Americans) spend in [their] cars each day," and American cities continue to sprawl into the countryside, perpetuating the vicious cycle of suburban development. (*ibid,* 91; 95) On the other hand, Jeff Speck, author of *Walkable City*, describes the costs of parking, from four thousand dollars for a piece of asphalt on relatively worthless land, to forty thousand dollars or more for a parking space in an underground parking garage. Add the ongoing costs of taxes, management, maintenance, and more than a million Americans making their living in the "parking profession", and Donald Shoup estimates that "the cost of all parking spaces in the U.S. exceeds the value of all cars and may exceed the value of all roads," with estimated annual subsidies ranging from $127 billion to $374 billion. (Speck, 116-118) This report, therefore, provides valuable lessons on the effects of outdated

transportation- and zoning-related policies from an academic point-of-view, and what methods can be done to address them.

Recommendations

Seamless, Sustainable, Smart recommends decisionmakers to reconsider Novato's current transportation guidelines and adjust them to combat the insatiable addiction to the automobile. City leaders should revisit its current zoning, parking, and mobility policies, and revise them to match *Plan Bay Area 2040*'s goals of accommodating more people in the region by up-zoning areas next to transit stations and lowering transportation-based emissions by reducing parking and increasing its funding contribution to better bus and train services. It also recommends Marin Transit to strengthen its collaboration with city officials and SMART to develop more connecting bus services at all Novato SMART stations. The recent extension of Marin Transit Route 49 from Downtown Novato to Novato San Marin SMART is a step towards a more integrated transit network for the North Bay. It also suggests Marin Transit to implement service around Bolling Circle in Hamilton by adjusting either Routes 251 or 257 to efficiently serve the low-income housing precinct and connect it to Novato Hamilton SMART. It also calls for the installation of a new bus stop at the Novato Hamilton SMART station and consolidating the new stop and the existing stop at Hamilton Theatre Parking Lot to the SMART station to streamline operations. And it advocates for the expansion of the SMART network by developing and constructing an east-west rail line linking the city with Suisun City/Fairfield, with additional stops located in Sonoma, Napa, and Solano Counties.

The report also suggests SMART and the Transportation Authority of Marin (TAM) to vigorously continue their path of passing transportation measures aimed at shifting funds from highway expansion to improving mass transit options, including Measure Q that implemented SMART in November 2008 and Measure AA that funds roads and transportation countywide through a half-cent sales tax for thirty years in November 2018. (Ballotpedia) Marin Transit, on the other hand, should consider joining forces with TAM in asking Marin County residents to further expand its network and enhance transit connectivity, especially in Novato, through a sales tax measure.

Policy Implications

While the changes might be incremental, *Seamless, Sustainable, Smart* should provide inspiration and motivation to make difficult, yet necessary changes to make public transportation in Novato more accessible and sustainable. The report presents opportunities for decisionmakers, academics, and concerned residents in Novato and throughout Marin County to develop best practices for providing an integrated and reliable system of public transportation options. Thomas Beatley provides a few examples, including creating a traffic development plan modeled after Freiburg, Germany: prioritizing environmentally friendly traffic (e.g. bikes, public transport, and pedestrians), promoting traffic calming citywide, reducing motor car traffic in the town center, and restricting parking for cars. (Beatley, 120) He then exemplifies Freiburg, Stockholm, and Zurich as European models for American cities to rethink mobility away from fossil fuel transportation and expanding and improving transit options through "creative planning and regulatory incentives" and "financial underwriting by local authorities". Beatley then proposes coordinating land use and development decisions with transit investments, adopting corresponding controls on auto traffic to reclaim streets and pedestrian areas, encouraging employers to adopt incentive structures to encourage public transit usage, and moving away from free or low-cost parking to communities including Novato. (*ibid*, 130-132) Implementing such ideas in a suburban context can be onerous, yet shifting priorities away from the automobile can provide opportunities to creatively reuse available lands (e.g. from surface parking to additional park space) and encourage people to bike or walk to work, drastically reducing its carbon footprint and mitigating the effects of sea level rise.

1. Introduction

Figure 1: *Hamilton Theatre, a former entertainment venue in southern Novato, with a Marin Transit bus operating as Route 49*

Despite having the third worst rate of congestion and some of the priciest real estate values in the United States, the San Francisco Bay Area remains a lucrative region for people to live and work in. Workers pour in from far flung communities, from Santa Rosa to Sacramento to Stockton, for the high-paying jobs in San Francisco, San Jose, and San Mateo, among others. Consequentially, the region is deeply committed to improve mobility and housing options in the nine-county Bay Area with *Plan Bay Area* (and its multiple iterations, sponsored and ratified by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), with thousands of talented individuals from the public and private sectors contributing to this effort.

The North Bay has been tasked by MTC to develop transit-oriented developments in communities like San Rafael and address congestion along Highway 101, which links San Francisco with Marin and Sonoma Counties. It is also home to Sonoma Marin Area Rail Transit (SMART), which opened in August 2017 in an aim to curb congestion along the region's principal commute corridor. The seventy-mile (130km) service will eventually operate between Larkspur in central Marin County and Cloverdale in far northern Sonoma County. Currently, it operates between San Rafael and Sonoma County Airport (located northwest of Santa Rosa), serving some of the largest communities in the region, including San Rafael, Novato, Petaluma, and Santa Rosa. SMART currently provides seventeen round-trip services on weekdays and five round-trip services on weekends and holidays, most of which are timed to onward bus connections at San Rafael Transit Center and ferry connections at Larkspur for San Francisco. And in January 2020, SMART will increase its service further, with two new stations, nineteen round trips weekdays, improved frequencies, and timed connections to and from Golden Gate Ferry services for San Francisco.

Unfortunately, for Novato, Marin County's second largest city, it has not reaped the benefits of the SMART train. Two stations currently serve the city of over 55,000 people: Novato San Marin, which primarily serves the northern half of the city including downtown; and Novato Hamilton, which serves the southern neighborhoods of Hamilton and Ignacio. A third station, Novato Downtown, will commence operations in January 2020 and will primarily serve downtown and central neighborhoods. Neither of the current train stations provide adequate first- and last-mile connection options, either by transit or bike share. Instead, SMART and the Transportation Authority of Marin (TAM) subsidize Lyft shared rides to and from the train stations, which frustrates individuals who rely on public transportation to travel around and beyond Novato. The high fares and inconvenient stop locations also frustrate taxpayers who have yet to realize the benefits of having a train running through the community and instead continue to drive alone to work or school. Most worrying are the statistics that show the two SMART stations in Novato are among the least performing, despite city officials investing millions of dollars to build the three train stations.

Questions, therefore, include: what can be done to educate city officials, decision-makers, and ordinary citizens on the benefits of public transportation in Novato? What do all these matters have to do with educating people on the benefits of having public transportation, promoting it, and ensuring that policies that strengthen its role are implemented? For decision-makers, it means addressing existing zoning and

land use policies that are antiquated and archaic. For planners, it means cultivating fresh ideas that will enhance a town's quality of life. For residents, it means showing concrete examples that a growing town requires adjusting their mindsets and appreciating that more people will strengthen the community.

In suburban communities, providing excellent public transportation can be a chore. From disjointed road layouts to disconnected neighborhoods to demanding neighbors, suburbia can be as hostile as it is hospitable. Marin County, a bastion of progressive politics, has turned down many things to keep its communities safe and vibrant. Big box stores are mostly located in larger cities, including San Rafael and Novato. Billboard signs advertising goods are banned countywide, except for place identifiers, and are heavily regulated. Even Bay Area Rapid Transit (BART), which could have increased the population of Marin County and further enhanced its economic prospects, was prevented from extending to the county when San Mateo County backed out of the plan.

As a suburban community, Novato has struggled with attracting transit riders, even from the time SMART initially opened in August 2017. Although Golden Gate Transit found success in carrying thousands of passengers per year, multiple factors have led to ridership declines over the past fifteen years, including fewer workers commuting between San Francisco and Marin County, the prevalence of telecommuting, and a graying population. Marin Transit, on the other hand, has seen a modest increase in ridership over a similar period, although it has struggled to attract more riders because of the spread out and curvilinear road geography, dispersed attractions and civic structures, and "not-in-my-backyard" attitude of many residents. Transportation planning, therefore, in Novato can be a challenging affair.

Novato presents challenges in addressing congestion along its two primary corridors, US Highway 101 and CA Highway 37, linking the city with the rest of the Bay Area. At the same time, many residents remain hesitant to support developing medium- and high-density residential and commercial structures, fearing that such buildings might harm the city's otherwise charming character. While Golden Gate Transit and Marin Transit serve the community, their reach is limited, compensated by the latter operating Novato Dial-a-Ride, a demand responsive service covering the entire city and available to everyone. And when the Sonoma-Marin Area Rail Transit (SMART train) came to the city in August 2017, it gave the city an alternative mode to travel between Novato and the rest of the North Bay, albeit with limited impact. In this paper, the author would like to address the challenges and opportunities to improve public transportation in the community by providing examples from other communities, explaining alternative solutions to suburban growth, and encouraging decision-makers that they have a choice in reshaping how the city can grow and develop.

This Planning Report will focus on addressing the issues related to improving connectivity using public transportation in Novato, with the three SMART stations acting as transit hubs for the city. It will also highlight the challenges and opportunities of providing adequate transportation links to the three rail stations, including addressing accessibility to local and regional transit services, developing alternative first- and last-mile mobility options like bike share, and recognizing the need to adjust zoning policies, especially parking minimums. Most importantly, the aim of the report is to educate people, from academics to government officials to the curious neighbor, on the effects of suburban development in providing alternative modes of transportation other than driving.

Interviews, field observations, data analyses, and an extensive use of photography are the methods used to develop this Planning Report. Although it took time to tabulate the needed data, the author ~~took~~ gathered extensive data from two events: the SMART Bus Bridge between Novato Hamilton, Novato San Marin, and Petaluma Downtown stations on 9 and 10 November 2019, and the inaugural service of Marin Transit Route 49 to Novato San Marin SMART station on 8 December 2019. The former required the author to ride the shuttle service numerous times, conduct multiple passenger counts at the affected train stations, document conversations with staff and bus operators, and observe departure and arrival times of trains

and shuttles. The latter is a combination of attending Marin Transit board meetings, convincing the agency's planners to develop a solution to link both Hamilton and San Marin SMART stations, documenting operators' comments on the upcoming route extension, and performing a test run to and from the station on the first day of the route extension. For all events, the author took his own photographs to document transit observations and impressions.

The rest of the report is divided into multiple chapters.

- Chapter 2 explains what Novato is like, including its demographics, community profile, commuting statistics, and the city's current policies on transportation.
- Chapter 3 examines the evolution of public transportation in Novato, from the Northwestern Pacific Railroad to Golden Gate Transit and Marin Transit services. Additional topics include Golden Gate Transit's and Marin Transit's current fleet, historical ridership statistics by route and bus stop, and service changes over time.
- Chapter 4 provides an in-depth look at SMART, from why BART did not go to Marin County and the North Bay, to its initial impacts in Novato, to current schedules and station profiles.
- Chapter 5 describes the two field observations made in developing the report: the SMART bus bridge in early November 2019, and the extension of Marin Transit Route 49 to the Novato San Marin SMART station on one Sunday in December 2019. It also provides suggestions on improving bus services linking the three SMART stations in Novato, especially at San Marin station, and highlights the importance of better communication between SMART and local bus agencies.
- Chapter 6 dives into the challenges of providing an excellent transportation network in Novato, including poor land use and zoning policies, interagency problems in coordinating schedules, addressing ridership concerns, an overreliance on shuttle services to ferry people around, and the lack of overnight bus services to mirror SMART's daytime service. It also examines the multiple efforts made by Marin Transit, Golden Gate Transit, Marin County, and outside organizations to improve mobility in the community and their current statuses.
- Chapter 7 examines possible solutions in developing a robust transportation network for Novato's residents and workers, from expanding transit service to introducing additional first- and last-mile mobility options. It also highlights opportunities to address parking, zoning, and accessibility concerns, from regional solutions like FASTER Bay Area to making personal commitments to reduce automobile use, ultimately explaining the challenges and opportunities for improving mobility in Novato.
- Chapter 8 asks: "Where Can We Go From Here?"

2. Novato: A Primer

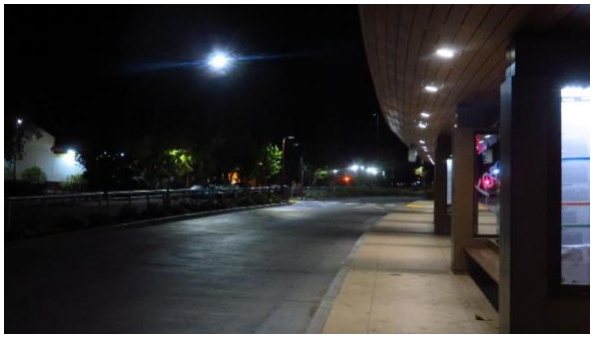

Figure 2: *Redwood & Grant Transit Center, Novato's principal transportation hub, at night*

The City of Novato is the second largest community in Marin County after San Rafael, with a population of over 55,000 people. Located in northern Marin County, it is approximately the midpoint between San Francisco and Santa Rosa, the largest city in Sonoma County, at 25 miles in either direction. It is primarily a bedroom community, spread out among neighborhoods including San Marin, Olive, Downtown, Central, Ignacio, Bel Marin Keys, and Hamilton, among others. It is also home to several, large-scale employers, most notably 2K Games, the North American headquarters of Birkenstock, Brayton Purcell, and the Buck Institute. It has one school district, the Novato Unified School District, comprised of seven elementary schools, one K-8 school, two middle schools, two comprehensive high schools, a continuation high school, an independent student program, and a community day school. (Novato Unified School District) And it is home to one of two campuses of the College of Marin – the Indian Valley Campus – located on the west end of Ignacio Boulevard and which hosts additional programs not offered at its flagship Kentfield campus, from automotive technology to court reporting. (College of Marin)

According to the Economic Profile for the City of Novato, the latest edition published in September 2016, the age demographics (2015 US Census figures) are highlighted in Table 2-1: (City of Novato; US Census, “Population”)

Table 2-1: *Demographics of Novato versus Marin County by Age*

Description	Marin County	Novato
Population (2015 estimates)	256,802	53,451
Under 5 years old	5.2%	6.7%
5 to 14 years old	12.1%	12.1%
15 to 24 years old	9.4%	8.8%
25 to 34 years old	9.5%	10.7%
35 to 44 years old	13.7%	13.5%
45 to 54 years old	16.2%	15.7%
55 years old and over	33.7%	32.5%
Median Age	45.1	43.6

While Marin County’s population is greying due to more residents turning 55 and older, as evidenced in Table 2-1, there is hope that the county will see more people moving in. Novato, however, will see a significant population increase of over 30 percent in the next 40 years, significantly outpacing Marin County’s growth of 9.4 percent. This may be attributed to improved transportation options, greater employment opportunities, and a diversifying population from outside the city (if not the country). With nearly one third of Novato’s residents being 55 years and older, fewer of them will be able to drive independently as their health conditions change over time. Giving each of these broad groups specialized education materials would be critical if we want to attract even more residents to use public transportation, from school-aged children to seniors and every group in between. The challenge with developing educational materials for all levels would be how much information is enough for them to appreciate what transportation options are on offer for them to travel around. The Internet can provide vital information for most individuals (e.g. Google Maps, transit websites, etc.), but tailoring them to varying audiences will be key to entice them to consider using public transportation (e.g. kid-friendly

schedules, seniors living on fixed budgets and times, etc.) For seniors and the handicapped, accessible formats, including large-print, schedules in Braille, and specialized mobile applications, have been developed to cater to their needs.

Meanwhile, data about population growth, unemployment rate, and median household income in Novato and Marin County are highlighted in Table 2-2: (*ibid*, 5; US Census, "Employment"; US Census, "Median Income")

Table 2-2: *Population Growth Rate, Unemployment, and Median Household Income Rates for Novato versus Marin County*

Description	Marin County	Novato
Projected Population Growth Between 2016 and 2060 (percentage)	9.4	32
Unemployment Rate (2016, percentage)	5.1	4.7
Median Household Income, All Groups (2014 dollars)	**91,529**	**76,609**
• White	99,798	80,928
• African American	51,638	74,246
• Asian	90,132	94,844
• Native Hawaiian or Pacific Islander	66,088	N/A
• American Indian or Alaska Native	46,458	77,594
• Some Other Race	42,422	40,893
• Two or More Races	69,868	79,318

While the median household income for Novato is significantly lower than Marin County, at $76,609 versus $91,529, certain groups earn more in household income than the rest of the county. The median household income of Asian Americans in Novato outpaced that of Marin County's, at $94,844 versus $90,132 among other Asian Americans and $91,529 for the entire population. A similar case can be had with including African Americans, American Indians or Alaska Natives, and Two or More Races. And with an unemployment rate lower than Marin County, Novato has a very healthy workforce that is poised to expand if more reliable mobility options are available to bring people around and beyond the city.

Another key component in educating people on public transportation usage would be languages spoken at home. Based on the 2017 American Community Survey's "Language Spoken at Home" subcategory, Novato has the following language composition in comparison with Marin County, highlight.

Table 2-3: *A Composition of Languages Spoken by Population between Novato and Marin County, 2017*

Description	Marin County		Novato	
	Population	**Percentage**	**Population**	**Percentage**
Population 5 years and over	248,260	100%	52,516	100%
Speaks only English	191,880	77.3%	38,655	73.6%
Speaks a language other than English	56,380	22.7%	13,861	26.4%
• Speaks English less than "very well"	22,123	39.2% of above	6,145	44.3% of above
Spanish	31,867	12.8%	9,158	17.4%
• Speaks English less than "very well"	15,133	47.5% of above	4,153	45.3% of above
Other Indo-European Languages	15,035	6.1%	2,198	4.2%
• Speaks English less than "very well"	3,266	21.7% of above	658	29.9% of above
Asian and Pacific Islander Languages	7,978	3.2%	2,182	4.2%
• Speaks English less than "very well"	3,318	41.6% of above	1,135	52.0% of above
Other Languages	1,500	0.6%	323	0.6%
• Speaks English less than "very well"	406	27.1% of above	199	61.6% of above

And the number of people who are in poverty based on languages spoken are highlighted in Table 2-4: (*ibid*)

Table 2-4: *Poverty Levels and Languages Spoken between Novato and Marin County*

Description	Marin County		Novato	
	Population	**Percentage**	**Population**	**Percentage**
Population 5 years and over	248,260	100%	52,516	100%
• Below poverty level	19,011	7.7%	4,114	7.8%
Speaks only English, below poverty level	10,327	54.3% of above	2,148	52.2% of above
Speaks a language other than English, below poverty level	8,684	45.7% of above	1,966	47.8% of above
• Spanish	6,903	36.3% of above	1,404	34.1% of above
• Other Languages	1,781	9.4% of above	562	13.7% of above

The above data highlight the need for targeted outreach to the Spanish and Asian communities in Novato to address any transportation gaps found in both groups. Marin Transit and the city government have already conducted several outreach programs to improve the city's transit network, including:

- A series of fixed-route, dial-a-ride, and community surveys, and public outreach for the Novato Transit Needs Assessment between October 2010 and May 2011 (Moore & Associates, "Novato Transit Needs", 7-14; Moore & Associates, "Novato Transit Needs – Appendix", 147-223)
- Surveys and focus groups in July 2014 for the Novato Community-Based Transportation Plan (Fehr & Peers, 57-59)

It also highlights the need to address residents who live below the poverty line, defined as individuals earning less than: (UC Davis)

- $12,486 for a single individual under 65 years old;
- $14,507 for a household of two people with a householder 65 years and older and with no children; or
- $24,339 for a household of four with two children under 18 years old.

With the poverty rate in Novato hovering at near 8% of the city population, providing adequate mobility options to such "communities of concern" is highly encouraged, especially when addressing issues on accessibility, job opportunities, and social equity and justice.

2.1. A Sprawling Community

Although the downtown area was built with a street grid, Novato's growth pattern is typical of American sprawl, vividly exposed in the book *Suburban Nation* by Andres Duany, et al. as a pattern of growth that "ignores historical precedent and human experience." They describe it as "an invention, conceived by architects, engineers, and planners, and promoted by developers in the great *sweeping aside of the old* that occurred after the Second World War." Duany calls sprawl "an idealized artificial system, (which is) rational, consistent, and comprehensive", and "its performance is largely predictable." (Duany et al., 4)

Figure 3: *Participants on horseback during the July 4th Parade along Grant Avenue in Downtown Novato, 2019*

Howard Chudacoff et al. describe the historical context of sprawl in American society in their book, *The Evolution of American Society*. Giving low-interest home loans and mortgage insurance from the Federal Housing Authority (FHA) to military veterans who served in World War II, coupled with developers like

Levitt and Sons erecting whole communities of nearly identical houses with efficient mass production techniques, helped subsidize and grow the suburban real estate development. “Fewer than one-third of Americans owned their homes in 1930, but nearly two-thirds would do so by 1960,” Chudacoff explained, in which “comparatively little single-family housing was built within cities where open land was scarce and FHA mortgages more difficult to obtain.” Furthermore, “housing development was shaped by discriminatory lending practices, encouraged by the federal government,” in which “maps… identified areas where real estate loans were most likely to be repaid”. Suburban areas were explicitly favored by the government for newly built single-family homes, while urban neighborhoods with mixed incomes or “undesirable” ethnic groups (e.g. Jews, Italians) were given lower ratings. Neighborhoods that housed African Americans were deemed to be the worst investments and were marked as red on such maps; such redlining criteria encouraged racial segregation through the 1940s, 1950s, and early 1960s. In the process, cities that had an intricate patchwork of black and white neighborhoods were divided into much larger racial sectors, with local zoning ordinances further encouraging the separation of low-rent districts from areas of large, single-family homes. (Chudacoff et al., 218-219)

All five components of sprawl, also described in *Suburban Nation*, are evident in Novato. Each of the components, with an example, include: (Duany et al., 5-7)

- Housing subdivisions (Hamilton Air Force Base redevelopment)
- Shopping centers (Vintage Oaks Shopping Center)
- Office parks (Fireman’s Fund)
- Large and infrequent civic institutions (Novato Recreation Center)
- Large roadways (Novato Boulevard)

Housing subdivisions were racially exclusive, as described by Chudacoff. The discriminatory practices led to African Americans being excluded from the new communities and denied tax benefits and equity that came with homeownership. And a sizeable portion of the White population wanted to keep that way. California passed a fair housing law in 1963 to ban racial discrimination, but conservatives saw it as “an infringement on the rights of property owners” and gathered signatures for a state initiative prohibiting all fair housing measures at the state and local levels. “Nevertheless,” he writes, “white Americans were not the only ones living in suburbia,” such that “many metropolitan areas featured one model ‘integrated’ suburb where Black and White middle-class families coexisted comfortably,” such as Shaker Heights in Cleveland. (Chudacoff et al., 219-220)

Such subdivisions can be found in land-use plans—Duany calls them bubble diagrams—which are “typical of those being produced for greenfield sites across the country”. Duany et al. describes that kind of development as such: “All the municipal government cares to know—and all the developer is held to—is that growth will take the form of single-use pods along a collector road”, resulting in sprawl wherein “a mix of uses is not allowed in any one zone”. They also explain that such plans: (Duany et al., 18-19)

- Manifest “the public sector’s abrogation of responsibility for community-making to the private sector”;
- Gives developers “the utmost flexibility to build whatever physical environment he wants, at the public’s expense”;
- Are more restrictive and utterly inflexible about land use;
- Are supplemented by “a pile of planning codes many inches thick”, which can be “burdensome to the point of farce” as described in Philip Howard’s *The Death of Common Sense*;
- Have no images, no diagrams, and no recommended models; just numbers and words;
- Have no clear picture of what they want their communities to be; and

- Contribute to a negative effect on the quality of the built environment, in which their size and result are "hollow to their core".

Sprawl, in a most charitable sense, does not imagine a place developers and city officials admire, or buildings they hope to emulate. Instead, they imagine what they *don't* want: no mixed uses, no slow-moving cars, no parking shortages, no overcrowding. "Such prohibitions do not a city make," they conclude. (*ibid*, 19)

2.2. When Parking Sacrifices Street Life and Transit

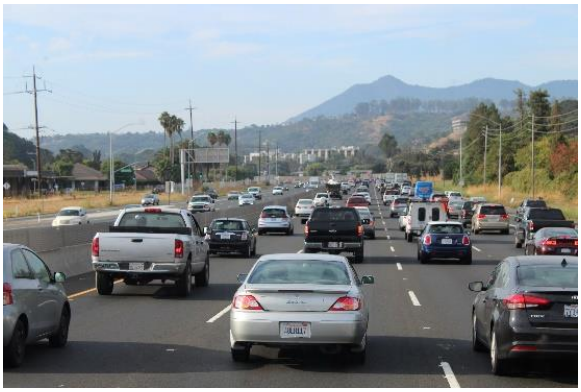

Figure 4: *Congestion along US-101 southbound near Lucas Valley Road in San Rafael, typical during morning rush hour*

"Automobiles—and their growth in their number and usage—are the single most important sustainability issue in European cities," declares Timothy Beatley in his book, *Green Urbanism: Learning from European Cities*. And the costs associated with such trends are rising, with a European Union-funded study calculating "amazing costs associated with the automobile—estimated at more than $300 billion yearly in social, environmental, and other costs, or about 4 percent of the EU's GDP." (Beatley, 137) Despite this, a call for "car-free cities" is increasingly being made by several European organizations, both public and private, with environmental activists at the grassroots level aiming their attention at cars. A radical, yet well-thought out experiment took place during a conference called *Towards Car-Free Cities* in Lyon, France in November 1996 wherein organizers conducted an automobile funeral through the city's streets. During the experiment, they: (*ibid*, 139)

- Walked atop cars parked on the sidewalk and placed signs indicating "I walked over your car because I didn't want to slide under it".
- Placed police ribbons around cars, with letters 'from the city' explaining rationally why society can no longer bear the costs of private car ownership and giving drivers a choice of either:
    - Pay the true costs of the automobile with a hefty fine of US$16,000; or
    - Have the car crushed in exchange for a free bike.
- Picked up and moved cars into the street to block traffic.

Such efforts might be viewed as radical in the United States, with government officials, businesses, and residents finding ways (and excuses) to defend automobile use. And it is especially true in suburban communities like Novato where highways and surface parking lots dominate. Novato's parking regulations contributes to a high number of drivers in the city, typical of many suburban communities. According to the city's code of ordinances, it states on Chapter XIX, Article 3, Division 19.30, Section 19.30.030: (Municode)

A. *Parking Requirements by Land Use.* Each land use shall be provided the number of parking spaces required by Table 3-7, except where a greater number of spaces is required through conditions of approval. Sites located within the D (Downtown Novato Specific Plan) overlay district shall provide the number of parking spaces required by Table 3-7 within the Downtown (D) overlay, where applicable.

B. *Basis for Calculations.* In any case where Table 3-7 establishes a parking requirement based on the floor area of a use in a specified number of square feet (for example: 1 space per 1,000 ft^2), the floor area shall be construed to mean gross floor area.

As for most suburban developments, parking takes great precedence over sidewalk activity, road diets, and providing adequate transit service. Appendix B, Parking Requirements by Land Use, breaks down how many spaces each zone must provide before any new project or rezoning can be issued a permit to build. A summary includes:

- Buildings zoned in areas with the Downtown Overlay are subject to more stringent requirements than elsewhere in the city. For example, for restaurants with table service (either with or without takeout):
    - The typical requirement is 1 space for each 50 ft^2 of indoor and outdoor seating area and waiting/lounge area.
    - Those subject to the Downtown Overlay requires restaurant owners to provide 1 space for each 250 ft^2 of indoor and outdoor seating area and waiting/lounge area.
- For residential areas, the rules are a bit more relaxed:
    - For single-family dwellings, 2 parking spaces, including 1 in a garage, are required. A maximum of 3 enclosed spaces allowed unless the Design Review Committee approves additional spaces.
    - For duplexes, 2 parking spaces are permitted for each unit, one in a garage and located within 100 ft of the unit it serves. If located within the Downtown Overlay, 1 space per unit in a garage located within 100 ft of the unit it serves is required.
    - For multi-family dwellings, the number of spaces required will depend on the number of beds per unit. The typical requirement ranges from 1.2 spaces for a studio unit to 2.2 spaces for a 3-bedroom unit, with 1 space for every 3 units permitted for additional guest parking. With the Downtown Overlay, the requirement goes down from 1 space for a studio unit, to 2 spaces for a 3-bedroom unit, with 1 space for every 4 units permitted for additional guest parking.
    - For mixed-use developments, the number of required parking spaces will be determined upon review by the Design Review Committee.

Novato's Municipal Code also highlight procedures on adjusting parking requirements, the most interesting being: (*ibid*)

- *Reduction of Parking.* The Review Authority for a land use or development permit application may reduce the number of parking spaces required by Section 19.30.040 (Number of Parking Spaces Required) based on quantitative information provided by the applicant that documents the need for fewer spaces (e.g., sales receipts, documentation of customer frequency, information on parking standards required for the proposed land use by other cities, etc.).
- *Public Parking Within the Downtown (D) Overlay*. Required parking may be reduced or waived by the Review Authority for projects located within a public parking district or where:
    - The property owner executes an agreement within the City to pay a parking in-lieu fee (The amount and applicability of an in-lieu fee(s) shall be as established by resolution of the City Council); and the property owner agrees to execute an agreement with the City to participate in a parking assessment district and waives the right to protest the formation of the district; or
    - The property owner provides some other fair share contribution/agreement towards the provisions of public parking facilities acceptable to the Review Authority. Any agreement shall be recorded prior to the issuance of a Building Permit for the project.

- *Parking Within the Downtown Core*. Notwithstanding any other provisions in Division 19.30, parking for nonresidential uses on parcels designated Downtown Core (CD) on the General Plan Land Use Map shall be provided consistent with the following provisions:
    - *New Construction, Expansion of Use, or Change of Use*. New construction, expansion of existing structures, or a change of use not subject to a use permit, involving up to a maximum total building FAR of 1.0, shall be exempt from providing parking in accordance with this Subsection.
    - *Nonresidential Development in Excess of 1.0 FAR*. Parking for floor area above a 1.0 FAR shall be provided consistent with the requirements of Table 3-7 of this Division, except where adjusted in compliance with the provisions of this Section.
    - *Change of Use subject to Use Permit*. For use changes that are subject to use permit approval, the Review Authority shall have the discretion to waive required parking as described in Subsection F1, subject to making findings required for use permits.
    - *Residential Uses*. Residential uses shall provide parking as required by this Division.
    - *Disabled Parking*. Notwithstanding any provision of section 19.30.050, disabled parking may be required on-site consistent with applicable state or local regulations.
    - *Removal of Existing Parking Stalls*. Existing on-site parking stalls may be removed as necessary to accommodate nonresidential expansions.
    - *Assessment District*. The property owner shall execute and record an agreement with the City to participate in a parking assessment district and waive the right to protest the formation of the district.
- *Access to Parking Areas and Parking Spaces*
    - The queuing area should have a minimum depth of 20 feet.
    - *Access to Adjacent Sites.* In non-residential developments, it is encouraged to provide shared vehicle and pedestrian access to adjacent nonresidential properties for convenience, safety and efficient circulation. A joint access agreement guaranteeing the continued availability of the shared access between the properties and running with the land should be recorded by the owners of the abutting properties, as approved by the Director.
    - *Parking Space and Lot Dimensions*.

Table 2-5: *A Summary of: Minimum Dimensions of Parking in Novato*

Type (zone if applicable)	Minimum Dimensions
Residential parking space with carports and garages	20ft length x 10ft width
Standard parking spaces	9ft x 19ft
Compact parking spaces within a nonresidential project*	8.5ft x 17ft
Parallel parking spaces	8ft x 24ft

Notes:

- *The maximum number of compact parking spaces at a parking space or lot is 20% of the total number of required parking spaces.*
- *The width of a parking space shall be increased by one foot if either side of the space is adjacent to a wall, fence, support column or other structure.*

- *Driveways and Aisles.*
    - Single-Family Uses. Each single-family dwelling shall provide a continuous paved driveway from the street to the required parking area. Driveways shall be kept free and clear of stored materials, including inoperable vehicles. Vehicle storage shall comply with 19.34.170 (Vehicle Parking in Residential Zones). The maximum pavement area shall comply with 19.20.100.E.4.B.

- Multi-Family and Nonresidential Uses. Drive aisles within multi-family residential and nonresidential parking areas shall be designed and constructed in compliance with standards, ranging from 12 feet for 45-degree angles or less, to 24 feet for parking stalls 81 degrees or greater. ***Note:*** *The Director may require greater widths where slopes or other obstructions are encountered.*

With the fine granularity found in Novato's parking regulations, it clearly provides incentives for many residents to drive around the city despite the presence of alternative mobility options like Golden Gate Transit, Marin Transit, and SMART: an abundance of parking spaces is a must, and new buildings should have carports and garages included in their building plans; Highway 101 is a fast, free-flowing highway that needs to be utilized more often; and the struggle to find funding sources to support local transit services hinders opportunities to provide excellent transit connections in Novato.

2.3. Employment and Mobility

The separation of civic facilities and segregation of land uses present multiple challenges for seniors, persons with disabilities, and transit-dependent commuters who need to get around Novato. Bentley explains a glaring problem with land use between the United States and Europe: "In contrast to attitudes (and resulting policies) about land use in the United States, which historically view farmland and undeveloped land as temporary use, rural and agricultural lands in Europe are seen as important priority societal uses, not as transient or residual activities," backed by subsidies from the EU. Europe, therefore, values such rural and undeveloped lands much more than its American counterparts that developing compact cities is a must. (Bentley, 58) In Novato, segregated land uses, with generous setbacks, plentiful parking spaces, and a laid-back atmosphere, makes the community ideal for businesses to set up shop and invest in the community. The top employers, based on Moore & Associates' "Novato Transit Needs Assessment" from 2011, are highlighted in Table 2-6: (Moore & Associates, "Appendix", 10)

Table 2-6: *A list of Novato's largest employers*

Company Name	Industry Type	Number of Workers (2010)	Address
Fireman's Fund Insurance Company	Insurance	953	777 San Marin Drive, #2150 Novato, CA 94945
Novato Unified School District	Education	841	1015 7th Street, Novato, CA 94945
BioMarin Pharmaceuticals	Pharmaceuticals	607	105 Digital Drive, Novato, CA 94949
Novato Community Hospital	Medical	335	180 Rowland Way, Novato, CA 94947
Target Stores, Inc.	Retail	284	200 Vintage Way, Novato, CA 94947
Safeway	Grocery	277*	900 Diablo Avenue, Novato, CA 94947
			5720 Nave Drive, Novato, CA 94949
Buck Institute	Biomedical Research	265	8001 Redwood Boulevard, Novato, CA 94945
Costco Wholesale	Retail	259	300 Vintage Way, Novato, CA 94947
Brayton Purcell	Legal	230	222 Rush Landing Road, Novato, CA 94945
Bank of Marin	Financial	222	504 Redwood Blvd., #100 Novato, CA 94947

Note: *Employment figure for Safeway included a store at 470 Ignacio Boulevard that eventually closed in 2014 and was subsequently replaced by Nugget Markets.*

Some of those employers require an automobile to get to their campuses, given their relative isolation from transit lines, including:

- Fireman's Fund
- BioMarin Pharmaceuticals
- Buck Institute
- Brayton Purcell
- Bank of Marin

While Novato is the second largest city in Marin County, it faces a critical issue shared with many suburban communities in the San Francisco Bay Area: long, tough commutes fueled by a regional jobs/housing imbalance? Many workers are employed by companies throughout the Bay Area, with San Francisco and Sonoma Counties being the most popular destinations outside Marin County. In addition, many workers bound for Novato originate from San Francisco, Sonoma, Contra Costa, and Alameda Counties, not just from within Marin. Due to rising housing costs in the San Francisco Bay Area, some workers endure "super commutes", living beyond the Bay Area and working in Novato. Moreover, some of the city's wealthier residents opt to scratch the commute altogether by telecommuting from home, allowing families to take care of their children when parents need them (more on this later). The data shows that while most workers tend to come from within the region, many more work outside the city than within Novato.

A profile of where Novato residents work and where Novato workers come from, based on 2014 figures, are highlighted in Table 2-7: (City of Novato, 32)

Table 2-7: *Origins and Destinations of Workers Commuting to and from Novato*

Outbound Commuters			**Inbound Commuters**		
Destination County	**Workers**	**Percent**	**Originating County**	**Workers**	**Percent**
Marin	10,548	42.3%	Marin	7,326	33.6%
San Francisco	4,482	18.0%	Sonoma	4,821	22.1%
Sonoma	2,017	8.1%	Contra Costa	1,515	6.9%
Alameda	1,654	6.6%	Solano	1,315	6.0%
Contra Costa	1,211	4.9%	Alameda	1,145	5.3%
San Mateo	987	4.0%	San Francisco	1,085	5.0%
Santa Clara	777	3.1%	Napa	697	3.2%
Solano	491	2.0%	San Mateo	565	2.6%
Sacramento	455	1.8%	Santa Clara	494	2.3%
Los Angeles	385	1.5%	Sacramento	484	2.2%
Other Locations	1,910	7.7%	Other Locations	2,354	10.8%
Total Outbound	**24,917**	**100%**	**Total Inbound**	**21,801**	**100%**

And the commute patterns for Novato workers are highlighted in Table 2-8: (*ibid*, 30-31)

Table 2-8: *Statistical Figures of Where Novato Commuters Work*

Worker Path	2005	2010	2014	Net Difference (2005-2014)
Within Novato	4,459	4,296	4,058	-374
From Novato	16,438	18,775	20,859	+4,421
To Novato	16,972	16,858	17,743	+771
Total	**37,869**	**39,929**	**42,660**	**+4,791**

Based on the data, the number of Novato residents working within the city limits has decreased by nearly 400 workers (8.45 percent), while the number of Novato residents working outside the city has increased significantly by over 4,400 workers (26.89 percent) between 2005 and 2014. In addition, 771 more workers chose to work in Novato from outside the city in the same period, a growth of slightly over 2%. The figures indicate that even more people choose to work outside Novato instead of seeking a job locally, with the difference between number of workers leaving Novato and those coming to Novato for work standing at over 3,100. While there was a slight decrease in the work-at-home population in Novato, Marin County remains a bastion for those working from home as its proximity to San Francisco permits workers to perform tasks virtually while staying close to their families.

The jobs/housing imbalance is evident, not just in Novato, but also throughout the Bay Area and California. Randy Shaw, author of *Generation Priced Out: Who Gets to Live in the New Urban America*, described the challenges found in San Francisco's worsening affordability that pushed middle- and low-income families out of the city. The city does its best to protect tenants and its rental house stock by, for example, passing an inclusionary housing law that requires developers make at least 20% of their housing units affordable (25% in certain neighborhoods like the Mission District). However, in March 2018, a vacant one-bedroom apartment in the city rented at $3,281 a month, down 2.5% from the previous year, while two-bedroom units were going for $4,431, down 2.3% from 2017. Students and other low-income families were paying $800 a month to *share* single-room occupancy (SROs) hotel rooms, with most rooms being smaller than 150 ft^2. Studio apartments in the Tenderloin, the city's lowest-priced neighborhood, began at $1,800 a month; citywide average started at $2,200. (Shaw, 35)

Shaw also wrote why San Francisco is struggling to grapple with its housing crisis from the late 1970s to at least 2014, including: (*ibid*, 127)

- The city failed to build more housing when then-Mayor (and now US Senator) Diane Feinstein was under no pressure to build homes for the young downtown workers, Central American and Southeast Asian immigrants, and gays and lesbians flocking San Francisco.
- Lenders were freely handing out money for speculators to purchase existing apartments but not for new construction.
- Activists focused on extracting fees from office developers to help cover their employees' transit and housing impacts, while battling rising rents, displacement, and gentrification at the same time.
- The need for building housing and expanding the supply never came up in meetings (other than supplying 100% affordable nonprofit housing).

"City policies, public opposition, procedural obstacles, and pure politics have long discouraged public housing," Shaw explained. "Mayor Feinstein's administration then responded to the housing crisis in the 1980s by making it harder to build. The number of allowable units in many neighborhoods was slashed in half, in a process known as downzoning." San Francisco has then steadily priced out its working and middle class to the point that employment in the city increased by 13 percent in 1980, yet its housing supply grew by just 2 percent. Politics also led to channeling development downtown instead of the Westside neighborhoods by assuring voters that "residents in residential neighborhoods opposed citywide

ballot measures restricting downtown development". Immigrant builders then found the cracks and built new housing in the 1980s, with their low-budget operations, willingness to work long hours, and acceptance of smaller profit margins. That came despite navigating the twisting, turning, and financially risky path to building middle class housing in the city. (*ibid*, 128-129)

Those reasons have made communities like Novato attractive to potential homebuyers and renters, despite the distance from San Francisco. However, with the worsening housing crisis that has now spread throughout the rest of the Bay Area, suburban communities like Novato must address this issue head-on and not be stubborn with developing sustainable housing policies that will attract more people to live and work in the community of their choosing. Duany et al. provide helpful hints on what suburban communities like Novato should do to alleviate the housing crisis, described later in Chapter 6.4.

2.4. Driving: The (Unfortunate) Suburban Reality

Novato's Streets Maintenance team, which is under the purview of the Public Works department, maintains over 800 streets or 144 miles of roadway, 18 miles of road shoulder, and a variety of related structures and facilities within the street right of way. Its crews routinely remove and place approximately 1,000 tons of asphalt, 6 tons of crack filler, and 50 tons of Class II base rock for various repairs to protect the traveling public, enhance ride quality, and maintain the city's increasing inventory of streets. It is also responsible for maintaining the city's sidewalks, curbs and gutters, barricades, benches, trash receptacles, guardrails, and fences. And it provides debris clearance, tree removal and pruning in the city's easements, creeks, and open spaces. (Novato, Streets)

Novato is primarily served by two highways: US Highway 101, linking the city north to Santa Rosa and the Redwood Empire, and south to San Francisco and Los Angeles; the other is CA Highway 37, running east-west to Napa, Vallejo, and Interstate 80 for points further east. The city's major arterials include Redwood Boulevard, which traverses through Downtown, and used to be the alignment of US-101 before the 1960s; South Novato Boulevard and Novato Boulevard, a northwest-southeast corridor traversing through mostly residential neighborhoods and commercial areas; and Atherton Avenue, San Marin Drive, and Sutro Avenue, collectively an east-west corridor linking Black Point to the east with the Sinaloa neighborhood to the west.

With over 800 streets configured in multiple patterns—many of which designed like "trees and branches"—Novato's primary mode of transportation is the automobile. Jeff Speck, author of *Walkable City* and coauthor of *Suburban Nation*, highlights the challenges of the automobile as the lifeblood of the American city. "Automobiles have been given free rein to distort our cities and our lives," he writes, and "banning them outright is very risky and has failed numerous times". The wandering nature of the American spirit contributes to the success of the automobile: "thanks to its ever-increasing demands for space, speed, and time, the car has shaped our landscape and lifestyles". Cars, therefore, have become an "instrument of freedom that has enslaved us." He further explained that the National Interstate and Defense Highways Act, signed in 1956 by President Dwight Eisenhower, further accelerated the growth of American cities to the suburbs. Highways constructed through urban neighborhoods saw their property values flattened or diminished due to new noise and pollution, exhibited by the swings in highway investment versus real estate value history found in Portland, OR between the 1960s and the 1990s. America's highway system, Speck writes, "seemed to work out well enough economically—at least until our domestic oil wells started to run dry." Those same highways have gutted minority neighborhoods, which was "clearly very bad for central cities and (became) worse when the big-city mayors, desperate for jobs, amended the act to include an additional six thousand miles of inner-city expressways." (Speck, 75-78)

In the book *Traffic: Why We Drive the Way We Do (and What It Says About Us)*, Tom Vanderbilt writes about the challenges facing ordinary drivers, traffic engineers, and transportation planners on the bane of urban and suburban life, traffic. "Traffic is a living laboratory of human interaction, a place thriving with subtle displays of implied power," he writes. (Vanderbilt, 34) Although he describes the environment of traffic as inhuman, "vehicles are moving at velocities for which we have no evolutionary training—for most of the life of the species, we did not try to make interpersonal decisions at speed. So, when we're driving and along comes a *person* on wheels, we cannot help but look at their face and, again, their eyes." (*ibid*, 37)

The mode split for the City of Novato in comparison with Marin County—obtained from the US Census Bureau American Community Surveys for 2014 and 2017—can be seen in Table 2-9: (*ibid*, 15; US Census, 2017, "Commuting Characteristics by Sex")

Table 2-9: *Commuting Mode Split Between Novato and Marin County, 2014 versus 2017*

Mode	2014		2017	
	Marin County	**Novato**	**Marin County**	**Novato**
Bicycle	1.9%	0.5%	1.7%	0.5%
Walk	2.9%	1.9%	3.7%	3.3%
Public Transit	8.9%	4.8%	9.8%	7.5%
Drive Alone	65.9%	73.2%	65.3%	71.4%
Carpool	8.9%	11.9%	8.1%	11.0%
Telecommute	9.6%	6.2%	10.7%	6.0%
Other	1.9%	1.5%	0.7%	0.3%

The higher proportion of commuters driving alone in Novato compared to the rest of Marin County is attributed to its street grid, primarily consisting of wide collector roads, lollipop cul-de-sacs, and incomplete street grids. Compared to Downtown San Rafael where Fourth Street provides a robust shopping and dining destination, or Mill Valley Depot in Downtown Mill Valley where people converge to play and relax, Grant Avenue in Novato is a more laid-back downtown destination, with free parking spaces for drivers to enjoy a daytime stroll or a night out. Redwood Boulevard through Downtown Novato, on the other hand, is a wide, auto-centric corridor with numerous active driveways and parking spaces. And Vintage Oaks Shopping Center is a classic case of a suburban shopping center, with an abundance of parking, wide roads (Vintage Way and Rowland Boulevard), and limited pedestrian access. As US-101 and CA-37 are the only highways that go beyond the city, those are gridlocked, especially during rush hours.

Duany, et al. have discussed the reasons why suburban communities like Novato, with their height limits and low density of population, are a traffic quagmire. "Everyone is forced to drive," Duany declares, in which "the average household currently generates an average of thirteen car trips a day" because "pedestrians, bicycles, and public transportation are rarely an option". He continues: "even if each trip is short—and few are—that's a lot of time spent on the road, contributing to congestion, especially when compared to life in traditional neighborhoods." Second, the suburban road system follows what engineers call a *sparse hierarchy*, with easily identifiable features such as a shopping mall in its sea of parking, fast-food joints, the apartment complex, and looping cul-de-sacs of the housing subdivision. "Buffered from the others," Duany writes, "each of these components has its own individual connection to a larger collector road. Every single trip from one component to another, no matter how short, must enter the collector." Furthermore, "the traffic of an entire community may rely on a single road, which, as a result, is generally congested during much of the day. If there is a major accident on the collector, the entire system is rendered useless until it is cleared." (Duany et al., 22-23) For an example of how Duany's description looks like in action, see Figure 4.

Figure 5: *A brand new housing subdivision in the works, located around a mile away from Downtown Petaluma SMART station.*

William Black, author of *Sustainable Transportation: Problems and Solutions,* describes carpools, vanpools, and flexible work schedules as "obvious methods of decreasing traffic congestion", with the former two resulting from voluntary efforts of commuters or organized efforts by employers. "Some municipalities have set up carpool systems… to meet air quality standards, but these… have not stemmed a more general decline (around 2010, when the book was published) in carpooling nationally." The decrease in carpooling, at the time, was unclear, although "it is discussed in tandem with decreases in transit ridership… being related to the increased personal use of [the] automobile." Most carpooling first started and was heavily advocated during the 1970s with the Organization of Petroleum Exporting Countries' oil embargoes, beginning in 1973. Later decades saw large numbers of workers retiring or moving on to other positions. Carpooling, therefore, "must be continually advocated and facilitated since the workforce is constantly changing positions, residences, vehicles, and so forth." (Black, 70)

Adjacency versus accessibility resulting from dispersed land uses and segregated zoning is another paradox found in suburban planning. "While many of the destinations of daily life are often next to each other," Duany writes, "only rarely are they easy to reach directly." Local ordinances force developers to build a wall between properties, discouraging even the most intrepid citizen from walking to the store. He provides an example of a resident living at a home just fifty yards away, in which, to access the store, she "must still get into the car, drive half a mile to exit the subdivision, drive another half a mile to the collector road back to the shopping center, and then walk from car to store." Duany then laments, "What could have been a pleasant two-minute walk down a residential street has become an expedition requiring the use of gasoline, roadway capacity, and space for parking." The separatist single-use zoning contrives adjacent uses to be distant, in which people do not have a choice whether they want to live near shopping or not. "In suburbia," he concludes, "there is only one available lifestyle: to own a car and to need it for everything." (Duany et al., 24-25)

Individuals below the poverty line are far more likely to use public transportation or alternative modes of transport to travel as they have very limited means to own an automobile. A recurring problem, according to Thomas Sanchez's piece, "Poverty, Policy, and Public Transportation", has been the amount of policy activity "associated with transportation mobility and poverty". (Sanchez, 1) He writes that policies have been published "during periods of social crisis," such that those "are only sufficiently elevated at the point of crisis or system failure." (*ibid*, 1) Furthermore, he notes, "low transportation mobility levels and unemployment (or underemployment) are connected" to each other because "traditional public transportation services have limited capacity to meet the travel needs of persons with little or no access to automobiles." (*ibid*, 2) For these reasons, we need to address any gaps in educating those in poverty to use public transportation and develop suitable methods to get them to jobs that are close to public transportation, pay decent wages, and provide shelter.

A most important factor in keeping many Novatans addicted to the automobile is the presence of two large highways, US-101 and CA-37. "The United States has the most luxurious road system in the world," Duany et al. declare, "happily [spending] twice as much per capita on transportation as do other developed nations," building "magnificent new highways at a cost of $30 million per mile, and every cloverleaf is more generous than the last." (Duany et al., 121) Unfortunately, "the new highways of the sixties and seventies, designed to provide suburbanites with better access to downtown, were located on

the cheapest land available, land usually confiscated from poor neighborhoods." Furthermore, "previously pedestrian- and business-friendly streets in almost every large city continue to expand at the expense of their host communities… so that suburban commuters can get through them more easily." And "while the era of the community-killing highway may be over, such roadway widenings remain unchecked." (*ibid,* 130-131)

Despite being a car-centric community, some Novato residents do not necessarily commute at all. Marin Commutes promotes teleworking or "telecommuting" as a work option that allows employees to use the internet, email, and conference calls to work from home on a full- or part-time basis. "Research has shown that teleworking not only benefits employees but employers as well. Often, supervisors can expect more productivity and higher quality work from remote staff because they are less stressed and distracted in their flexible work environment," the program describes. Further, "Marin County has the highest rate of telecommuting in the Bay Area", at 10.7 percent or 13,558 individuals based on the 2017 American Community Survey Five-Year Estimates, "and telework programs provide some of the best emission reduction outcomes of any commute program strategy." (Marin Commutes, "Work from Home"; US Census, "Selected Economic Characteristics, Novato city, California"; US Census, 2018, "Selected Economic Characteristics, Marin County, California"; US Census, 2018, "Selected Economic Characteristics, Novato city, California") Black also asserts that "advances in telecommunications have made [telecommuting or teleworking] a commonplace reality," in which "thousands of workers [have been] gainfully employed at remote locations from their employer," lessening the number of vehicles on the highway. However, he argues, "its other merits are questionable," noting that "telecommuting is not the simple all-purpose answer", in which questions in actual decreases in travel and social questions need to be addressed further. (Black, 73)

Delving deeper into how Novato residents get around, Novato's transit, walking, and biking populations are highlighted in Table 2-10, according to the City of Novato Bicycle/Pedestrian Plan, released in March 2015: (Alta Planning, 2015, 17-18)

Table 2-10: *Commuting Mode Split in Novato: Biking and Walking Populations*

Description	Number	Percentage
City Population	51,904	100%
• Estimated total number of bike commuters, walking commuters, and utilitarian riders	2,068	3.98%
Number of Commuters (divided by city population)	23,644	45.56%
• Bike-to-Work commuters	166	0.7%
• Walk-to-Work commuters	379	1.6%
• Average weekday Golden Gate Transit ridership	347	1.47%
Total Biking and Walking Trips	4,135	N/A
• Reduced vehicle trips per weekday	1,636	N/A
• Reduced vehicle hours per weekday	7,889	N/A

Comparing the data between 2014 and 2017, Novato has seen a spike in walking to work population from 1.9% to 3.3%, while the number for Marin County increased by 0.8 percent from 2.9 to 3.7 percent. The percentage of Novato workers using public transportation also jumped from 4.8 to 7.5 percent. That proportion, however, is still below Marin County's proportion of nearly 10 percent in 2017. It comes with overall decreases in driving and carpooling in the same period, with a 1.8 percent drop in driving alone and a 0.9 percent decrease in carpooling from Novato.

The comparative data correlates with an increased consciousness of using public transportation and alternative modes of transport to go to work and school, while continuing efforts are made to reduce the populations of driving alone. It might be attributed to more public transportation services provided by

Marin Transit and the start of SMART train service to the city, as evidenced by the former's service expansion and changes in Summer 2013 and Summer 2016 (Golden Gate Transit, 2013). Despite the welcoming figures, it highlights the city's (and county's) continuing need to reduce the driving alone population, suggesting that opportunities to boost the use of mass transit from the city can be had if best practices are implemented at the local and county levels.

Unfortunately, suburban transit is "essentially bus transit", writes Black. Transit ridership fell in American cities between 1995 and 2005, despite substantial transit investments in all levels of government. "Ridership then increased substantially from 2005 to 2008, during the period of rapid increases in [gasoline prices]." However, he speculates, "it remains to be seen whether the new transit riders—who were pushed out of their cars—will continue to favor that travel mode if fuel prices… remain reasonable," with some systems being able to maintain ridership levels, chiefly in the major metropolitan areas. He then writes, "Bus transit in areas of very light density in terms of potential riders—the elderly, the young, the handicapped, and the poor—are insufficient to support a viable transit service. Should the service be viable? Should it cover its costs? Or should suburban transit be provided as a social service for the aforementioned population groups?" He argues, "The latter should be the case, but it should not be viewed as a solution to urban traffic congestion." (Black, 69)

In addition, based on the United States Census' 2013 to 2017 American Community Survey 5-Year Estimates, percentage comparisons on the amount of time workers commute to work between Marin County residents and Novato residents are highlighted in Table 2-11: (US Census, "2013-2017 American Community Survey, B08303")

Table 2-11: *Average Commute Times for Workers in Novato versus Marin County, 2014 versus 2017*

Duration	2014		2017	
	Marin County	Novato	Marin County	Novato
Workers 16 and over who do not work at home	110,767	24,039	113,702	25,834
Less than 15 minutes	25.3%	28.3%	23.6%	25%
Between 15 and 29 minutes	28.9%	25.7%	27.7%	26.7%
Between 30 and 44 minutes	20.8%	22.5%	20.3%	19.7%
Between 45 and 59 minutes	12.4%	10.5%	13.0%	11.4%
60 minutes and over	12.6%	13.1%	15.9%	17.3%
Mean travel time to work (minutes)	29.4	29.2	31.7	32.6

While over 50 percent of commuters still travel 30 minutes or less to work, more workers travel longer. Between 2014 and 2017, the proportion of commuters traveling 60 minutes or more has increased by over 4 percent from Novato and 3 percent countywide. And increasing commute times is becoming the norm, as reflected from a report by Mark Prado from the Bay Area News Group in May 2018. The average commute time for the nine-county Bay Area stood at 31.6 minutes in 2018, with Marin County residents averaging 32.3 minutes, and San Rafael clocking at 28.4 minutes. Table 2-12 shows the average number of minutes a commuter travels to and from work: (Metropolitan Transportation Commission, "Vital Signs"; Prado)

Table 2-12: *Average Commute Times Between Various Modes, Bay Area versus Marin County versus San Rafael*

Mode	Bay Area (Prado)	Marin County (Prado)	San Rafael (MTC Vital Signs)
Solo Driver (minutes)	29	29.8	25.2
Carpool (minutes)	32.9	33.5	26.5
Transit (minutes)	50.8	58.1	51.5

Novato has an average commute time of 31.8 minutes, tied with Tiburon, and close to other communities like Ross (32.1), Fairfax (31.9), and Mill Valley (31.6). (Prado) That puts it slightly faster than the 2017 estimate by the US Census of 32.6 minutes. Based on MTC's Vital Signs website, however, it does not have data for average times from all three sources for Novato. In its place, data for the City of San Rafael, the next town south, presents a close approximation of the commute to and from San Francisco. The proportion of workers leaving at different times of day from Novato and throughout Marin County are highlighted in Table 2-13 (listed as percentages from above worker figures), per US Census figures from 2017: (*ibid*)

Table 2-13: *Percentage of Worker Departure Times, Marin County versus Novato*

Departure Time Range	2014		2017	
	Marin County	Novato	Marin County	Novato
Midnight to 4:59am	2.0%	3.4%	2,5%	4.5%
5:00am to 5:59am	5.0%	5.1%	5.2%	5.7%
6:00am to 6:59am	15.0%	17.7%	14.5%	20.8%
7:00am to 7:59am	27.0%	25.2%	27.5%	24.4%
8:00am to 8:59am	24.1%	22.8%	23.8%	18.8%
9:00am to 11:59pm	26.9%	25.9%	25.4%	25.7%

The trend of when workers leave home from work has become much earlier in the day in the past few years as more workers leave before 7am (numbering around 31 percent of the workforce in 2017), usually because of heavy congestion along southbound US-101 from Rowland Boulevard in Novato down to Lincoln Avenue in San Rafael, spanning 8.5 miles. Nevertheless, given that more than half of workers 16 and over travel less than 30 minutes from home to work, Novato should consider how to make alternative modes of transportation (e.g. train, bus, bike, walking) more attractive to lessen congestion on the city's highways while giving commuters greater flexibility in their commute options. It also highlights a greater need for transit services earlier in the day, such that while SMART provides service through Novato as early as 5:06am (from San Marin) or 5:14am (from Hamilton), Golden Gate Transit and Marin Transit should do their part to provide earlier commute options for Novato residents, possibly a 4am start for both commute and local routes.

The trend of commuting early and long distances from the North Bay are attributed to lower rates of worker satisfaction. Duany et al. mention in *Suburban Nation*, "Suburbia clearly is not an empowering environment for [a] third of the population that cannot drive. What of the two thirds that can, and the lucky minority that can afford multiple cars—has their lot improved? For people who do not particularly enjoy driving in traffic, the [probable answer] is no." They assert middle-class commuters, who might live an hour's drive from their job, could spend a minimum of 500 hour per year in their automobiles, "the equivalent of twelve work weeks". They also lament, "largely because of suburban land-use patterns, the eight-hour day has once again become the ten-hour day," with the extra two hours become "some of the most stressful and unpleasant" rather than "interesting, varied, and socially productive". And, "in a society that provides its citizens [up to] three weeks' annual vacation", such figures are dismaying. (Duany et al., 124-125)

Suzuki and Lee mirror Duany's thoughts, focusing on excessive commuting: "Many researchers have challenged the measurement of excess commuting, which is calculated as the difference between the actual and minimum average commuting distances (or times). The latter is obtained by solving the transportation problem using linear programming, with the distribution of homes and workplaces being fixed. Excess commuting may be interpreted as the commuting that can be eliminated by adjusting the locations of homes or workplaces. If the excess is large, the commuting distance (or time) can be drastically reduced by controlled matching of homes and workplaces." (Suzuki) Duany then concludes,

while “some people insist that they enjoy their three-hour long drive,” the tragedy is those hours “were time that parents used to spend productively with their children,” resulting in “children being warehoused in front of the television since [parents] don’t have independent access to much else.” (Duany et al., 125-126)

Such tragedies can be addressed—if not outright averted—if communities like Novato collaborate with the rest of Marin County and the San Francisco Bay Area in developing a seamless and reliable public transportation network. The challenge: what will it take for Americans to finally let go of their infatuation with the automobile? What can officials and citizens do to convince people to use public transportation in the city to reduce carbon emissions and congestion? SMART might provide a remedial solution as a heavy rail transit line, while Golden Gate Transit and Marin Transit sufficiently operate bus services in the community, yet I believe the city can do much better than just relying on buses, trains, carpools, and Lyft Line rides.

3. Current Public Transportation Services in Novato

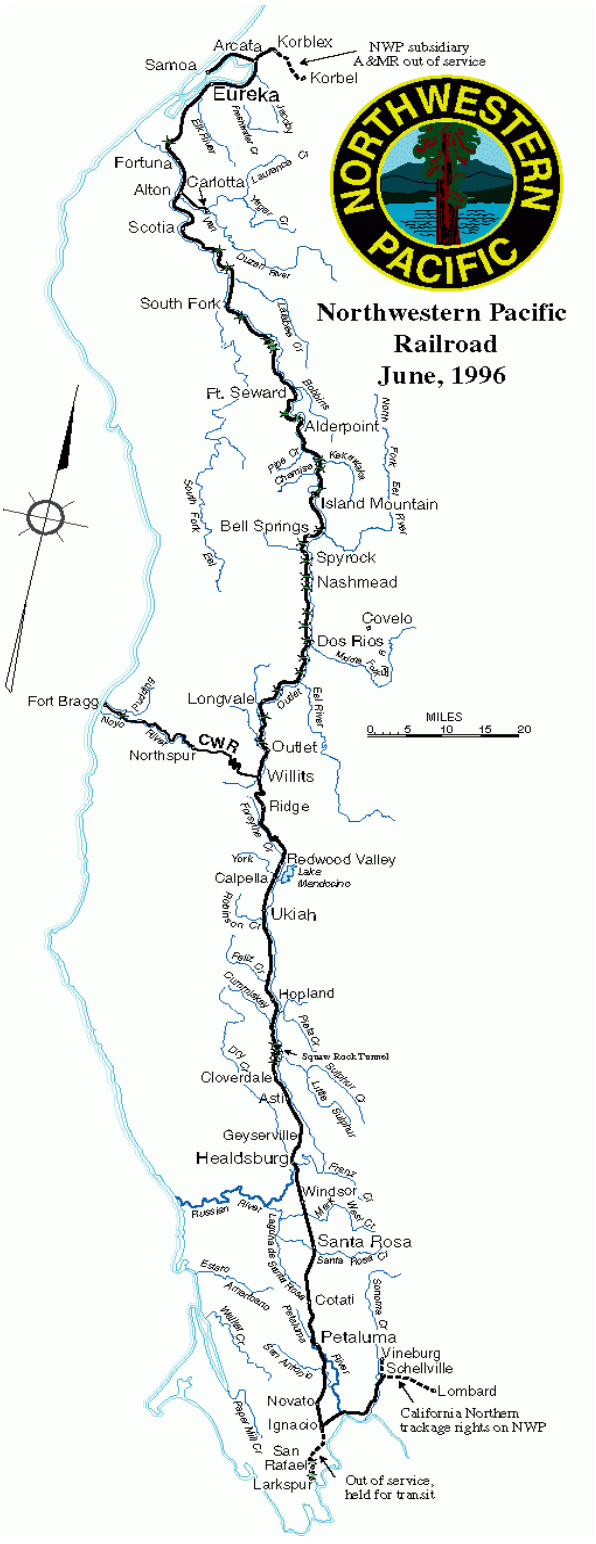

Figure 6: *Northwestern Pacific Railroad Alignment, June 1996 (NWPR Historical Society)*

As a bedroom community, Novato enjoys an adequate number of public transportation options. Once served by a long-distance railway line that operated as far north as Eureka, the suburban layout has hampered its opportunities to provide an excellent public transportation network. Despite the challenges of non-contiguous street networks, dispersed businesses, and an aversion to medium- to high-density structures, Novato, like many communities in the Bay Area, strives to evolve with modern mobility options, the latest of which being transportation network companies (TNCs) like Lyft and Uber.

The author, however, believes the community deserves more choices to travel around rather than relying mostly on the automobile or a sparse bus network that only covers the main corridors in town. From a historical point-of-view, Novato should have flourished much further if the Northwestern Pacific Railroad continued operated through the Redwood Empire, possibly competing with other communities like San Rafael, Petaluma, and Santa Rosa. However, a series of events led to its demise and near abandonment until a new company took over railway operations in Marin and Sonoma Counties, which then refurbished the line thanks to a ballot measure, and is now operational. Golden Gate Transit, on the other hand, divested some of the local bus operations in Marin County that Marin Transit (formally the Marin County Transit District) now manages bus routes countywide, including Novato. This chapter tells a story of how the community evolved, from a railroad stop to a suburban community that deserves better mobility options.

3.1. Northwestern Pacific Railroad

Novato's position in Marin County was strengthened by the presence of the Northwestern Pacific Railroad, which ran historically between Larkspur and Eureka, some 200 miles to the north. A memorial plaque commemorates the original Novato railroad station built in 1875, which consists of a wooden shed shaped like a narrow house. It was relocated to a plot of land along Reichert Avenue across from Millworks, a medium-density

mixed-use structure, after the modern (yet also disused) Southern Pacific station building was built adjacent to the Novato Downtown SMART station sometime in the early 20th century. According to the Northwestern Pacific Railroad Historical Society, the railroad in which SMART currently operates has been a crucial link in providing jobs and tourism revenues to the Redwood Empire. “Diversity was a key word in the history of Redwood Empire railroading. Gauges varied from the Sonoma Prismoidal, an early wooden monorail, to the odd-gauged logging lines, many built to accommodate their four-legged motive power. In between lay the two-foot Sonoma Magnesite Railroad (RR), the first-class narrow gauge North Pacific Coast and… the more common standard gauge lines. Power was supplied by horse, mules, oxen, steam, electricity, and internal combustion engines, both gas and diesel,” the historical society writes.

Figure 7: *The original Novato railroad station, preserved for posterity, located several hundred feet from the Novato Downtown SMART station*

“The NWP, with its affectionate 'Nowhere in Particular' nickname, operated standard gauge, narrow gauge, ferry steamboats and car floats, electric third rail and overhead trolley interurbans, a streamlined 'name' train along with unusual connectors such as funiculars and scenic tourist railways. This transportation network in the pre-World War II years many claimed was too far ahead of its time. Rarely is so much fascinating diversity found in the origins of one company. Since 1929, when Southern Pacific (SP) bought the Santa Fe's equal interest in the line, the NWP has been a wholly owned subsidiary of SP. In 1984, the trackage for Outlet, near Willits, north to Korblex was sold to a new company, the Eureka Southern Railroad, later named the North Coast RR. In 1996, the North Coast RR and the former "south end" of the Southern Pacific-owned NWP became the "new" Northwestern Pacific Railroad under public ownership. The new NWP's goals include handling more freight by rail along the Highway 101 corridor, establishing passenger excursion trains, and eventually providing regular passenger commute service.” (Northwestern Pacific Railroad Historical Society)

Unfortunately, the Christmas flood of 1964 changed the fortunes of the railway as 100 miles of the railroad was destroyed, including three bridges over the Eel River. It also changed the topography of the area permanently that, despite the line’s reopening in June 1965, the railroad became less reliable as landslides along the Eel River Canyon became more prevalent. Improvements along US-101 also made truck hauling times competitive with the freight trains. The Island Mountain tunnel fire of 6 September 1978 further reduced the usefulness of the railroad that Southern Pacific announced the closure of the line north of Willits in 1983. (Nervo) However, the track between Willits and Eureka was sold off to a private individual who ran it as the Eureka Southern Railroad. The southern portion between Willits and San Rafael was bought portion by portion by the Golden Gate Bridge, Highway, and Transportation District through the late 1980s, which was then handed over to North Coast Railroad on 30 April 1996. (Norberg)

The next stage of the North Coast Railroad will be covered in detail in Chapter 4.

3.2. Historical and Current Bus Services

Figure 8: *A Golden Gate Transit Route 70 bus heading to Redwood Blvd & Olive Avenue in Downtown Novato*

Prior to Sonoma-Marin Area Rail Transit (SMART) arriving in Marin County in August 2017, Golden Gate Transit (and later, Marin Transit) provided local bus services in San Rafael and Novato. While Marin Transit is responsible for bus services operating within Marin County, it does not hire its own operators or maintenance personnel. Instead, it contracts its operations to three different companies, each with their own assigned vehicles provided by the agency:

- Golden Gate Transit (Routes 17, 23, 23X, 29, 35, 36, and 71X)
- Marin Airporter (Routes 22, 49, 219, 228, 233, 245, 251, and 257)
- MV Transportation (Routes 61, 66, 66F, 68, 113, 115, 117, 119, 122, 125, 139, 145, 149, 151, and 154

Marin Transit does not supply its own set of operators, mechanics, or dispatchers; it only has administrative staff at its headquarters in central San Rafael. Each of the contractors, therefore, supply their own operators, radios, support staff, and storage yards located throughout Marin County. Marin Transit wants to change all that as it is planned to secure a 2.5-acre land plot in northern Novato, located at 600 Rush Landing, for $4.9 million to consolidate most—if not all—of its vehicle storage and maintenance facilities. MV Transportation and Enterprise Rental Car currently lease the land plot in question. The Novato Planning Commission determined that Marin Transit's proposed purchase of the land plot has been determined as consistent with the Novato General Plan. (Marin Transit, *Special Meeting Agenda*, 89-236)

Prior to a major route adjustment in November 2003, Novato was primarily served by three basic bus routes that operated daily: Routes 50, 70, and 80. It was also served by multiple commute-only bus routes, with some routes operating to destinations other than San Francisco. Examples included Route 51 to Larkspur Ferry, Route 75 to Santa Rosa and San Rafael, and Route 90 to Sonoma Valley (although it only served Novato once a day). Routes 54, 54C, 56X, and 58 operate today to San Francisco, with Route 54C operating to Civic Center and San Francisco City Hall via Van Ness Avenue, Route 56X operating as an express service to and from the Financial District via the Broadway Tunnel, and Routes 54 and 58 operating to the Financial District via Fisherman's Wharf. As for local bus services, it started with Route 1 before November 2003; between late 2003 and June 2006, four local bus routes operated through the city: Routes 53 (San Marin), 55 (Ignacio and Bel Marin Keys), 57 (Nave Drive and South Novato Boulevard), and 59 (Alameda del Prado and South Novato Boulevard). Nowadays, Routes 35, 49, 71X, 251, and 257 provide local transit services citywide.

Figure 9 (on page 24) highlights Marin Transit's operations as of November 2019, while Figure 10 (on page 25) provides a linear version of the previous image, with Golden Gate Transit, Marin Transit, and SMART operations integrated as of December 2019.

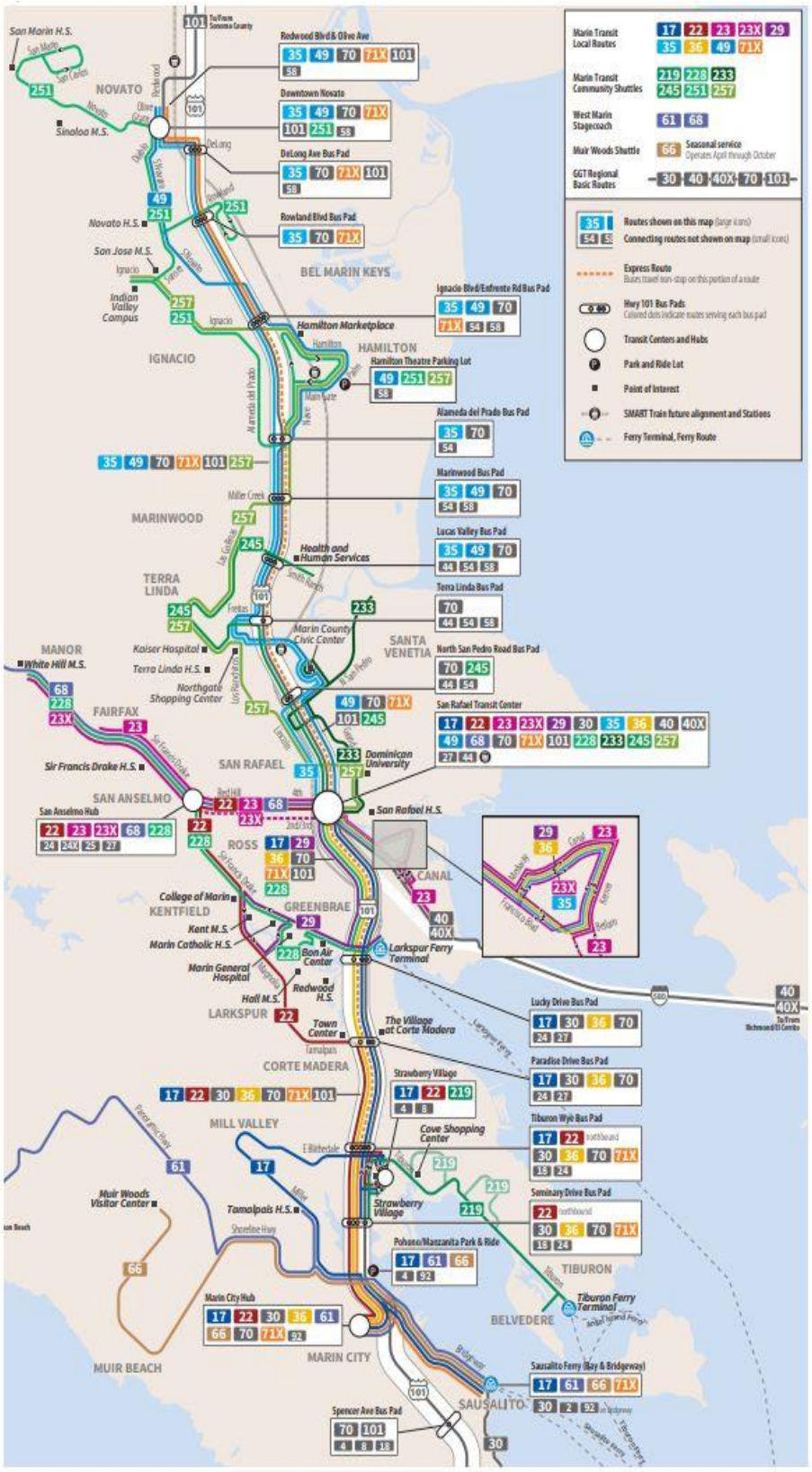

Figure 9: *Current Service Map of Marin Transit (Marin Transit, 2020-2029 Short Range Transit Plan, 1-28)*

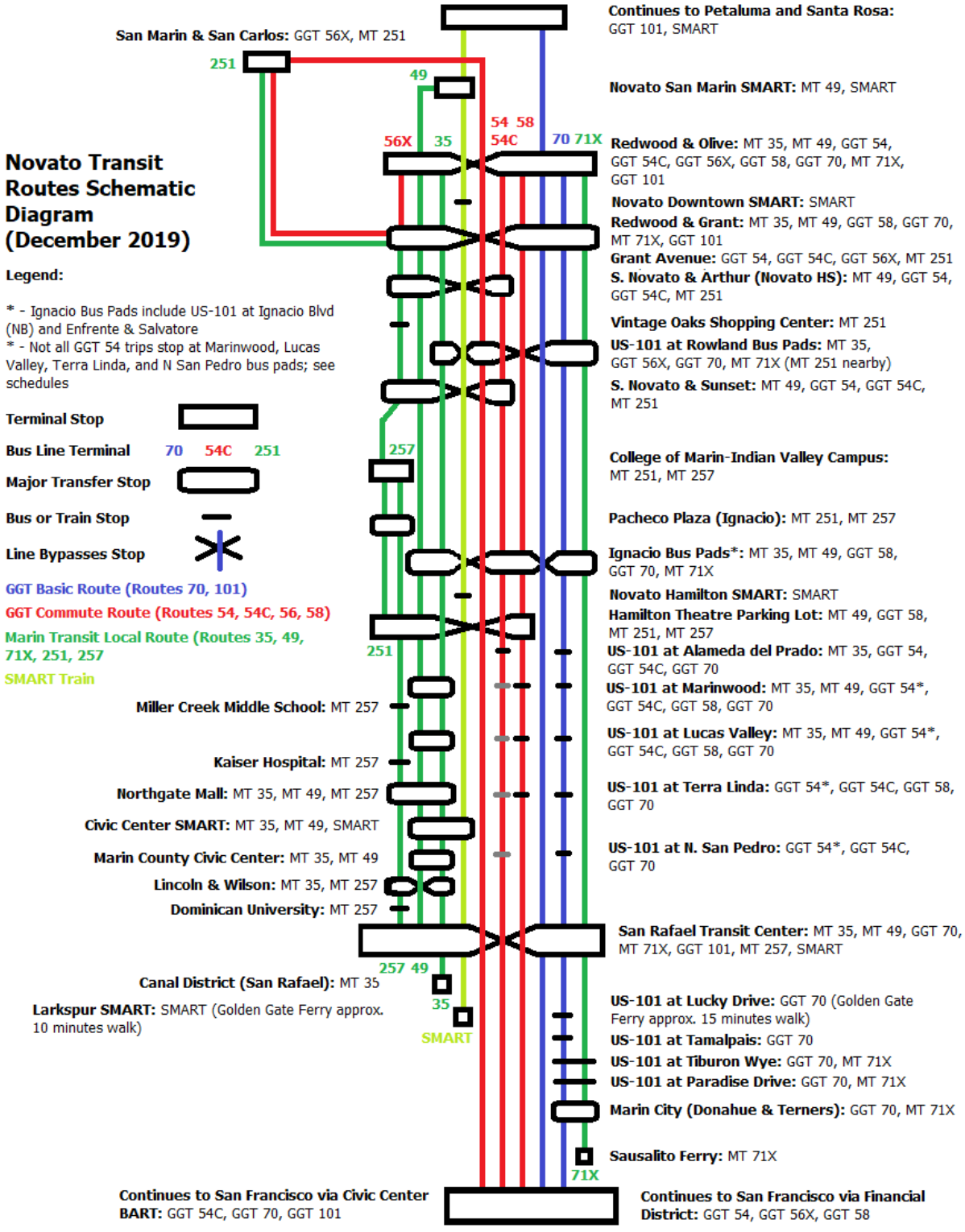

Figure 10: *Novato Transit Routes Schematic Diagram as of December 2019 (self-made)*

Table 3-1 lists bus routes that have historically served Novato but was discontinued. Table 3-2, on the other hand, lists the current bus routes serving the city and beyond.

Table 3-1: *A List of Discontinued Regional and Local Bus Services Provided by Golden Gate Transit and Marin Transit Through Novato*

Route	Route Description	Established	Status
1	College of Marin (Kentfield) – Downtown Novato via Marin General Hospital, Larkspur Ferry, San Rafael, Lincoln Avenue, Northgate Mall, Marinwood, Ignacio, Indian Valley College, South Novato Blvd.	1974	Eliminated November 2003
48	San Francisco – Novato via Financial District, US-101 bus pads, Ignacio	1979	Renamed Route 58 November 2003
49 (1st)	Indian Valley College – Fairfax Manor via San Rafael, Sleepy Hollow	March 2003	Eliminated 2004
49K	San Rafael – Novato via Marin Civic Center, Northgate Mall, Kaiser Hospital, Hamilton, South Novato Blvd.	March 2012	Eliminated August 2013; replaced by Routes 49, 245, 251, 259
50	San Francisco Civic Center – Novato GGT via Geary Blvd., Sausalito, US-101, San Rafael, Lincoln Avenue, Hamilton, South Novato Blvd., Downtown Novato, San Marin	1974	Eliminated November 2003
51 (1st)	Larkspur Ferry – Novato GGT via US-101 bus pads, South Novato Blvd., Downtown Novato, San Marin	1979	Eliminated November 2003
51 (2nd)	Ignacio – San Marin via Indian Valley College, Vintage Oaks, Downtown Novato, Novato Blvd.	September 2006	Eliminated August 2013; renamed Route 251
52 (1st)	Novato – San Francisco via South Novato Blvd.	1977	Extended to Olive Avenue and Bahia in the 1980s; Eliminated 1993
52 (2nd)	San Rafael – Novato via US-101 bus pads, Alameda del Prado, South Novato Blvd.	September 2006	Eliminated March 2012; existing parallel service available with Routes 35, 70; replaced by Routes 49, 251
53	Downtown Novato – San Marin via Novato Blvd.	November 2003	Eliminated September 2006; replaced by Routes 49, 251, 257
55 (1st)	Downtown Novato – Bahia via Olive Avenue, Atherton Blvd Bus Pad	1993	Provided connections to Route 56 at Atherton Ave. Bus Pad; Eliminated 1996
55 (2nd)	Downtown Novato – Bel Marin Keys via Vintage Oaks, Sunset Pkwy., Indian Valley College, Ignacio Blvd.	November 2003	Eliminated September 2006; partially replaced by Routes 49, 251
57	San Rafael – Novato via Marin Civic Center, Northgate Mall, Las Gallinas Ave., Nave Drive, South Novato Blvd.	November 2003	Eliminated September 2006; replaced by Routes 49, 49K, 245, 251
59	San Rafael – Novato via Los Ranchitos Ave., Northgate Mall, Las Pavadas Ave., Marinwood, Alameda del Prado, South Novato Blvd.	November 2003	Eliminated September 2006; replaced by Routes 49, 245, 251 257
71 (1st)	Santa Rosa – San Rafael GGT via Rohnert Park, Cotati, Petaluma, Fireman's Fund, Bel Marin Keys, Larkspur Ferry, San Quentin	1990	Eliminated 2003
71 (2nd)	Marin City – Novato via US-101 bus pads	September 2004	Restructured as Route 71X June 2016
75	Santa Rosa GGT – San Rafael GGT via Rohnert Park, Cotati, Petaluma Fairgrounds Park-and-Ride, Atherton Ave. Bus Pad, Ignacio, Northgate Industrial Park, Marin Civic Center, San Rafael Transit Center	1990	Eliminated September 2010
80	San Francisco – Santa Rosa via US-101 bus pads, Van Ness Avenue (late-night service via Sausalito, Lincoln Avenue)	1974	Eliminated June 2009; replaced by Routes 30 and 101; parallel service available on Routes 17, 30, 35, 36, 49, 70, 101

259	San Rafael – Novato via Marin Civic Center, Northgate Mall, Kaiser Hospital, Marinwood, Hamilton, South Novato Blvd.	September 2006; Expanded to Novato April 2013	Eliminated June 2016; mostly absorbed by Route 49; replaced by Routes 245, 257

Table 3-2: *Current Golden Gate Transit and Marin Transit Regional Bus Services Serving Novato*

Route	Route Description	Established	Status
35	Canal District (San Rafael) – Novato via Lincoln Avenue, Northgate Mall, US-101 bus pads	1991	Extended to Novato June 2016
49 (2nd)	San Rafael – Novato via Marin Civic Center, Northgate Mall, Hamilton, South Novato Blvd.	September 2006	Modified multiple times; Kaiser Hospital section eliminated August 2013; service handed over to MV Transportation in June 2016, then to Marin Airporter in 2018
54	Novato – San Francisco Financial District via San Marin, Novato Blvd., US-101 bus pads, Fisherman's Wharf	1974	Modified December 2019 by truncating service to Downtown Novato; San Marin service eliminated; bus pads in San Rafael served on select trips only
54C	Novato – San Francisco Civic Center via San Marin, Novato Blvd., US-101 bus pads, Van Ness Avenue, Civic Center BART	June 2017	Modified December 2019 by truncating service to Downtown Novato; San Marin service eliminated
56X	Novato – San Francisco Financial District via San Marin, Rowland Blvd. Park-and-Ride	1991	Originally Route 56; modified December 2019 by extending service to Downtown Novato via Seventh St., Grant Ave., and Redwood Blvd.
58	Novato – San Francisco Financial District via Ignacio, Hamilton, US-101 bus pads	November 2003	Modified Fall 2010 by removing service along Ignacio Blvd., Sunset Pkwy., and Redwood Blvd.
70	San Francisco – Novato via US-101 bus pads, Van Ness Avenue	1974	
71X	Sausalito – Novato via US-101 bus pads (limited stops)	June 2016	
101	San Francisco – Santa Rosa via San Rafael, Novato, Petaluma, Cotati, Rohnert Park (limited stops)	June 2009	
251	Hamilton – San Marin via Alameda del Prado, Ignacio, Indian Valley College, Vintage Oaks, Downtown Novato, Novato Blvd.	August 2013	
257	San Rafael – Indian Valley College (Ignacio) via Dominican University, Northgate Mall, Kaiser Hospital, Las Gallinas Ave., Marinwood, Hamilton, Ignacio Blvd.	March 2012	Modified August 2013 by serving San Rafael Transit Center, extending to Novato, and eliminating Marin Civic Center

Marin Transit also operates **Novato Dial-a-Ride**, an on-demand, curb-to-curb service for Novato residents who need access to areas of the city where transit service is either limited or unavailable. The dial-a-ride service is particularly useful for commuters who need access to SMART as there is presently no Marin Transit service operating directly to the city's train stations. It operates Mondays to Fridays from 7am to 11am, then from 3pm to 7pm (with additional times Tuesdays and Wednesdays to the Novato Human Needs Food Pantry and Margaret Todd Senior Center, respectively), and weekends from 8:30am to 5pm. Reservations for this service are required by phoning (415) 892-7899 and can be made up to seven days in advance, with same-day reservations accepted if space is available. Fares are identical to Marin Transit's bus services, although Clipper cards are not accepted as the vehicle used does not have a Clipper card reader installed. (Marin Transit)

A breakdown of routes operating in Novato based on which agency operates them is as follows:

- **Golden Gate Transit:** Routes 54, 54C, 56, 58, 70, 101
- **Marin Transit, operated by Golden Gate Transit:** Routes 35, 71X
- **Marin Transit, operated by Marin Airporter:** Routes 49, 251, 257
- **Marin Transit, operated by MV Transportation:** Routes 149, 151, 154

On 9 December 2019, three commuter lines, Routes 54, 54C, and 56, saw major service adjustments through San Marin and Novato. Routes 54 and 54C no longer serve San Marin; they still terminate at the Golden Gate Transit yard on Railroad Place, but have been rerouted via Seventh Avenue, Grant Avenue, and Redwood Boulevard. Route 56 is rebranded as Route 56X, and its terminal has been relocated to the Novato Golden Gate Transit yard, with new stops made along Seventh Avenue, Grant Avenue, and Redwood Boulevard. Route 56X also has more trips since the service change, from five trips to ten southbound morning peaks, and from six trips to ten northbound afternoon peaks.

Below is a detailed route-by-route analysis for routes serving Novato directly from Fiscal Year 2015-16, obtained from Golden Gate Transit and Marin Transit documents: (Golden Gate Transit, "FY 2016-17", 35; Marin Transit, "2018-2027 Short Range Transit Plan", 2-15)

Table 3-3: *Ridership Performance of Bus Services Through Novato from Fiscal Year 2015-16*

Route	Service Area	Ridership (FY 2015-16)	Passengers/ Revenue Hour
Local Services (minimum of 20 passengers/revenue hour)			
MT 49	Novato – San Rafael Transit Center via Hamilton	147,480	21.7
MT 71	Novato GGT – Marin City	259,678	33.7
Regional Services (minimum of 20 passengers/revenue hour peaks, 15 passengers/revenue hour off peaks)			
GGT 54	Novato GGT – San Francisco via S. Novato Blvd. (peak only)	200,512	18.2
GGT 56	San Marin – San Francisco via Rowland P&R (peak only)	65,545	14.7
GGT 58	Novato GGT – San Francisco via Hamilton (peak only)	42,527	14.4
GGT 70	Novato GGT – San Francisco via Van Ness	720,467	17.3
GGT 80*	Santa Rosa – San Francisco via Van Ness (local)	161,839	14.6
GGT 101	Santa Rosa – San Francisco via Van Ness (limited stops)	490,614	12.5
Community Shuttles (minimum of 8 passengers/revenue hour)			
MT 251	San Marin – Hamilton via Vintage Oaks	98,886	10.7
MT 257	Indian Valley Campus – San Rafael via Marinwood	71,429	11.1
MT 259*	Novato – San Rafael Transit Center via Marinwood	139,157	14.4

Notes: *GGT – Golden Gate Transit, MT – Marin Transit, * - Route has since been eliminated*

While standards of passengers per revenue hour vary based on the transit district and the route typology (e.g. commuter, regional, local, and community shuttle), all of Marin Transit's local routes and community shuttles serving Novato have exceeded the minimum thresholds for passengers per revenue hour in FY2015-16, prior to the arrival of the SMART train. Marin Transit Route 259 was very popular at the time, especially because the route operated long hours daily. It has been subsequently folded into an expanded Route 49 in June 2016, with service every 30 minutes during weekday peaks (6-10am, 1-6pm) and every hour all other times on weekdays (10am-1pm, after 6pm) and all-day on weekends (7am-11pm). (Marin Transit, 2018-2027 SRTP, 3-9)

Despite the "abundance" of bus services through Novato today, one-seat bus rides have been discontinued over time in favor of shorter routes that increased profitability and improved service reliability. That, however, came at the expense of riders who might want to board just one bus to travel everywhere, highlighting the need once more for a seamless public transportation network.

Golden Gate Transit used to operate local routes through Novato before Marin Transit handed them to other contractors. The most prominent changes include:

- **Route 49 (San Rafael Transit Center – Downtown Novato via Northgate and Hamilton)**, which was initially transferred to MV Transportation in June 2016 before being handed over to Marin Airporter in 2018.
- **Route 51 (Ignacio – San Marin via Indian Valley College, Vintage Oaks, and Downtown Novato)**, which was renumbered as Route 251 and handed over to Marin Airporter in August 2013.

3.3. Vehicular Fleet

Golden Gate Transit and Marin Transit operate a variety of vehicles to meet the evolving commuting patterns and ridership needs in the North Bay. While Marin Transit owns its own buses and cutaway vans, their operations are split into four contractors: Golden Gate Transit, Marin Airporter, MV Transportation, and Whistlestop Wheels. For a table of vehicles currently operated by both agencies, see Figures 18 and 19, plus Table 3-5.

Golden Gate Transit operates 147 buses, comprised of 80 Motor Coach Industries (MCI) D4500CT commuter buses that seat 57 passengers, and 67 Gillig BRT Hybrid 40’ low-floored buses that seat 39 passengers. The MCIs are typically used for high-ridership commuter trips (trips that get 35 or more passengers) to and from San Francisco, and it is also used on Route 101 on weekends and holidays. The Gillig buses, on the other hand, have become the new workhorse of the agency since June 2019, displacing the 80 Orion V buses that have been progressively retired and are now operating as regional and commuter services along the US-101 and Interstate 580 corridors.

Figure 11: *An out of service BYD K9S 35-footer all-electric bus at San Rafael Transit Center*

Both bus types sport similar features on board, including reclining seats, overhead reading lights, overhead luggage racks, electrical power ports, wheelchair access, and WiFi ~~on board~~. The MCI coaches offer all forward-facing seats, while the Gillig buses offer both forward- and side-facing seats. Select MCI coaches offer either traditional AC power plugs or USB power ports, while all Gillig buses offer both on most seats. In Novato, select trips on Routes 54, 56, and 58, as well as Route 101, get the MCI commuter coaches. All trips on Route 70, plus select trips on Routes 54, 56, 58, and 101, get the Gillig low-floor hybrid bus. Per Golden Gate Transit policy, no more than ten standees are permitted on Transbay trips across the Golden Gate Bridge for safety reasons, and this policy is enforced by all operators.

Figure 12: *A Golden Gate Transit Gillig BRT Hybrid 40' bus operating as a northbound Route 54 along South Novato Boulevard*

On the other hand, Marin Transit operates a more diverse fleet, ranging from 22’ shuttle vans to 60’ articulated buses, that suit various tasks around Marin County. Golden Gate Transit operates 43 vehicles, comprising of 29 buses for fixed-route operations and 14 cutaway vans for local and regional paratransit operations. Marin Airporter operates a fleet of 11 buses and 13 cutaway vans for the agency’s fixed-route operations. MV Transportation operates 15 buses and 6 cutaway vans for supplemental school routes, West Marin Stagecoach, and Muir Woods Shuttle. Whistlestop, Marin County’s paratransit operator, has 35 cutaway vans and 6 vehicles used for Marin Transit’s Novato Dial-a-Ride and Marin Connect demand response operations, the former operating within Novato and the latter operating within the Terra Linda, Lucas Valley, Santa Venetia, and Marinwood neighborhoods of northern San Rafael. Buses operated by Golden Gate Transit are the only Marin Transit-owned vehicles equipped with onboard WiFi, consisting of ten articulated buses, ten 40’ buses, and nine 35’ buses. All vehicles have onboard automatic vehicle locator (AVL) tracking devices that allow dispatchers and riders to know where their vehicles are on a line.

Marin Transit is also committed to upgrading its entire fleet to 100% all-electric buses to reduce its carbon emissions. While Golden Gate Transit operates and manages two all-electric buses (owned by Marin Transit), neither have operated in Novato; instead, the BYD K9 35’ All-Electric Buses operate during weekday peak periods only on Routes 17, 23X, and 29. This comes despite efforts made by Marin Transit to upgrade its buses to an all-electric fleet, in which Golden Gate Transit has constructed bus recharging facilities to make the transition possible. The agency described in its 2020-2029 Short Range Transit Plan its plans to gradually replace its current vehicle fleet to achieve a 97% all-electric fleet by 2040, including: (Marin Transit, *2020-2029 Short Range Transit Plan*, 4-10 and Appendix G)

Table 3-4: *Marin Transit's Future Fleet Replacement Plan from Fiscal Year 2020 to Fiscal Year 2040*

Fiscal Year	Zero Emission Fleet Percentage	Replacements	Vehicle Type	Seating Capacity	Service Type
FY2019-20	3%	11	40’ Hybrid	40	Big Bus
FY2020-21	3%	4	40’ Electric	40	Big Bus
FY2022-23	8%	7	35’ Hybrid	32	Big Bus
FY2025-26	8%	1	24’ Electric Cutaway	20	Community Shuttle
FY2026-27	9%	7	40’ Hybrid	40	Big Bus
		4	30’ Electric	30	Big Bus
FY2027-28	14%	2	24’ Electric	20	Community Shuttle
FY2028-29	17%	10	40’ Electric	40	Big Bus
FY2029-30	29%	1	24’ Electric Cutaway	20	Community Shuttle
FY2030-31	31%	1	24’ Electric Cutaway	20	Community Shuttle
FY2031-32	33%	2	35’ Electric	32	Big Bus
		2	35’ Electric Narrow Body	34	Stagecoach
FY2032-33	41%	2	35’ Electric Narrow Body	34	Stagecoach
		4	30’ Electric Narrow Body	29	Stagecoach
FY2033-34	56%	15	40’ Electric	40	Big Bus
		2	24’ Electric Cutaway	20	Community Shuttle
FY2034-35	68%	7	35’ Zero-Emission	32	Big Bus
		2	30’ Electric Narrow Body	29	Stagecoach
FY2035-36	77%	9	24’ Electric Cutaway	20	Community Shuttle
FY2037-38	87%	1	24’ Electric Cutaway	20	Community Shuttle
		8	35’ Electric Narrow Body	34	Stagecoach
FY2039-40	97%	7	40’ Electric	40	Big Bus
		4	30’ Electric	30	Big Bus
		1	35’ Electric Narrow Body	34	Stagecoach
FY2040-41	100%	2	24’ Electric Cutaway	20	Community Shuttle
		2	30’ Electric Narrow Body	29	Stagecoach

Note: *Not listed are near- and medium-term purchases for diesel vehicles, as those will not affect the zero-emission fleet percentage.*

The eleven 40' hybrid buses that are to be introduced in FY2019-20 will progressively replace the ten articulated buses, ending their operation in Marin County. Marin Transit by FY2021-22 will only operate buses up to 40 feet. From FY2026-27, Marin Transit will commit to purchase at least 25% of its new and replacement vehicles with zero-emissions. And from FY2029-30, Marin Transit will purchase zero-emission vehicles only, with the last gasoline-powered vehicle expected to be retired by FY2034-35, and the last diesel-fueled and diesel-electric hybrid vehicles to be retired by FY2040. (*ibid*, Appendix G) A major challenge with operating an all-electric fleet by 2040, according to Marin Transit, is the challenging topography those vehicles go through: narrow, high-floored buses, like the El Dorado National XHF30 and XHF35 buses, which run on diesel fuel, are needed for rural roads. It explained further, "a unique vehicle type (is) currently unavailable with alternative fuel." The challenge with replacing shuttle vans and Stagecoach cutaways, on the other hand, is "manufacturers have not identified a cost-effective means to build this vehicle due to low vehicle costs and short lifespan." (*ibid*, 4-6) A summary of vehicle types owned by Marin Transit—and operated by its contractors, can be seen on Figures 13 and 14, and Table 3-5.

Figure 14: *Summary of Vehicle Types Operated by the Four Marin Transit Contractors, by Length*

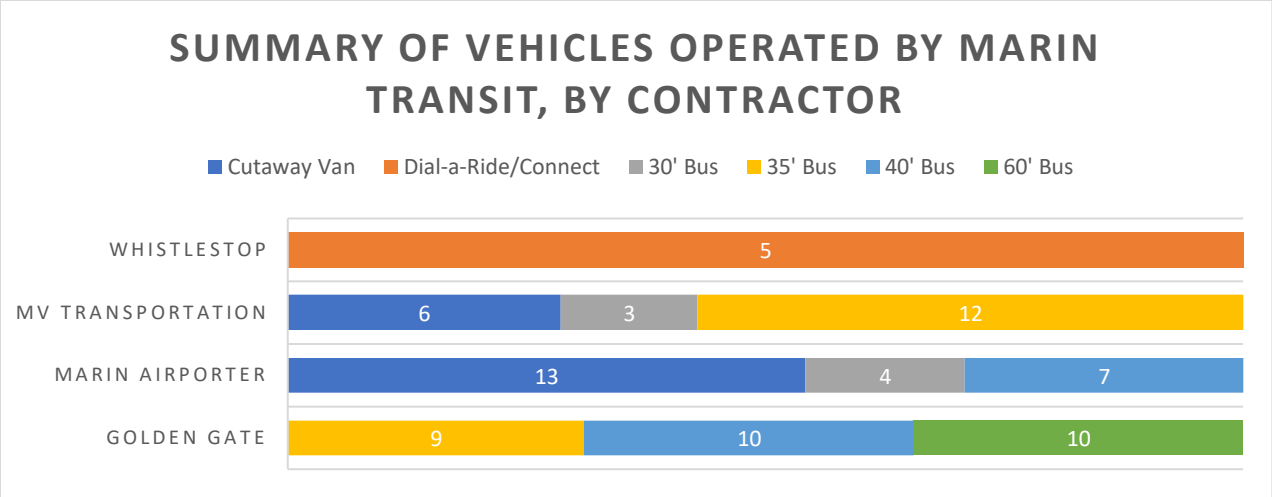

Figure 13: *Summary of Vehicle Types by Operator, Sorted by Vehicle Length*

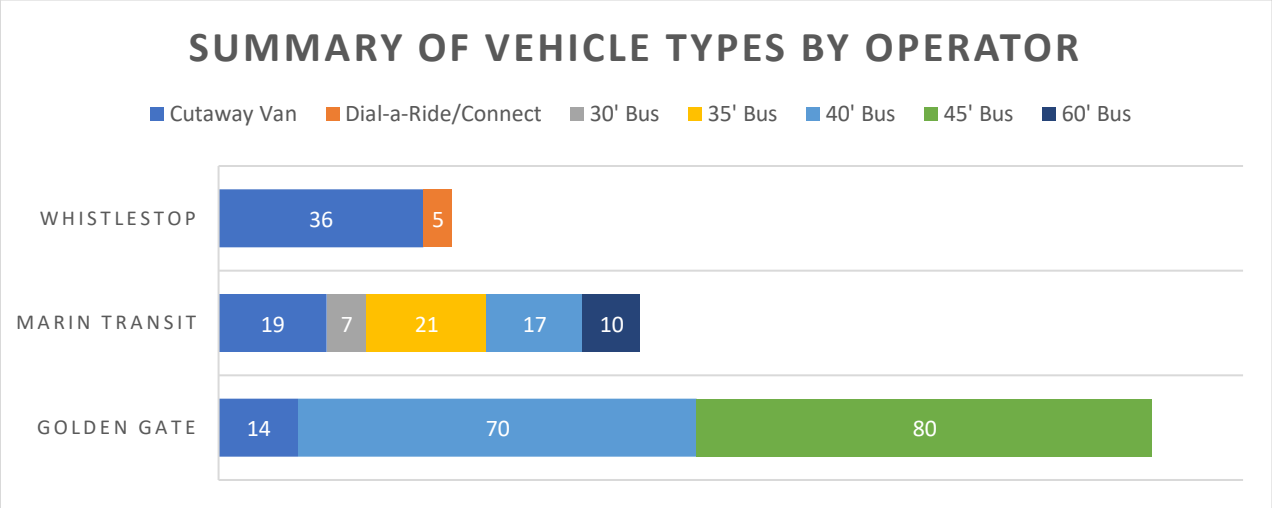

Table 3-5 lists vehicle types currently operating with Golden Gate Transit and Marin Transit as of December 2019, sorted by unit numbers.

Table 3-5: *List of Vehicle Types Currently Operating with Golden Gate Transit and Marin Transit*

Unit Numbers	Vehicle Type	Fuel Type	Seated Capacity	Seating Type	Number of Wheelchair Spaces	Number of Bike Spaces	Bike Rack Location	WiFi Available?	Power Ports Available?
Golden Gate Transit		Bus type has been withdrawn from service; see notes below.							
901-980	MCI D4500CT	Diesel	57	Upholstered, most seats recline	2	2	Side, under bus body	Yes	Yes, on select buses
1501-1580	Orion V 40’	Diesel	43	Upholstered, most seats recline	2	3	Front, mounted	Yes	No
1901-1967	Gillig LF40	Diesel-Electric Hybrid	39	Upholstered, most seats recline	2	3	Front, mounted	Yes	Yes
Marin Transit (Fixed Route)		Operated by Golden Gate			Operated by Marin Airporter		Operated by MV Transportation		
100, 105, 108-115, 1680, 1880, 1980	El Dorado Aerotech	Gasoline	20	Upholstered, standard seats	1	2	Front, mounted	No	No
301, 1760-1761	El Dorado National XHF30	Diesel	29	Upholstered, standard seats	2	2	Front, mounted	No	No
550-559	New Flyer D60LF Articulated	Diesel	63	Fabric, standard seats	2	3	Front, mounted	Yes	No
618-620, 1560-1561	El Dorado Aero Elite 270	Gasoline	22	Upholstered, standard seats	2	3	Front, mounted	No	No
1136	El Dorado Aero Elite 320	Gasoline	30	Upholstered, standard seats	2	3	Front, mounted	No	No
1501-1504	Gillig BRT 29’	Diesel-Electric Hybrid	26	Fabric, standard seats	2	3	Front, mounted	No	No
1505-1511	Gillig BRT 40’	Diesel-Electric Hybrid	38	Fabric, standard seats	2	3	Front, mounted	No	No
1701-1710	Gillig BRT 40’	Diesel-Electric Hybrid	34	Fabric, standard seats	2	3	Front, mounted	Yes	No
1801-1802	BYD K9S 35’	Electric	32	Fabric, standard seats	2	3	Front, mounted	Yes	No
1860-1861	El Dorado National XHF35	Diesel	41	Upholstered, standard seats	2	3	Front, mounted	No	No

Unit Numbers	Vehicle Type	Fuel Type	Seated Capacity	Seating Type	Number of Wheelchair Spaces	Number of Bike Spaces	Bike Rack Location	WiFi Available?	Power Ports Available?
2001-2011	Gillig BRT 40’	Diesel-Electric Hybrid	34	Fabric, standard seats	2	3	Front, mounted	Yes	No
3060-3069	El Dorado National XHF35	Diesel	37	Upholstered, standard seats	2	2-3	Front, mounted	No	No
3301-3307	New Flyer DE35LF	Diesel-Electric Hybrid	29	Fabric, standard seats	2	3	Front, mounted	Yes	No
Marin Transit (Demand Response)			Operated by Golden Gate		Operated by Whistlestop				
501-514	El Dorado Aerotech	Gasoline	8	Upholstered, standard seats	3	0	None	No	No
601-603	Starcraft Ford E350	Gasoline	8	Upholstered, standard seats	3	0	None	No	No
701-724	Starcraft Ford Class A	Gasoline	8	Upholstered, standard seats	3	0	None	No	No
801-810	Starcraft Ford Class B	Gasoline	12	Upholstered, standard seats	3	0	None	No	No
1830-1833	Ford Transit Van	Gasoline	6	Upholstered, standard seats	0	2	Front, mounted	No	No

Notes:

- Sources: Golden Gate Transit, “Fleet History”; Marin Transit, “2020-29 Short Range Transit Plan”, Appendix D
- Golden Gate Transit has ten Orion V buses on its reserve fleet from December 2019, marking the end of revenue operations of that bus type.
- Select Golden Gate Transit MCI buses have AC power ports (units 956 to 980) or USB power ports below most seats, but not both types on board.
- All Golden Gate Transit Gillig LF40 Hybrid buses have both AC and USB power ports on the sides next to most seats.
- Marin Transit retired the ten New Flyer D60LF articulated buses in early March 2020 as the eleven Gillig BRT 40’ Hybrid buses were introduced between January and March 2020. In addition, Marin Transit will acquire four BYD K9M or K9MC 40’ All-Electric buses to replace two articulated buses, due to be introduced in FY2021.
- Units 618 to 620, 1560 and 1561, and 1136 are owned by Caltrans.
- All El Dorado National XHF35 buses operate on supplemental school day services throughout the school year and on the Muir Woods Shuttle on weekends and during peak tourist seasons (summer, holiday breaks).
- All El Dorado National XHF30 buses operate on supplemental school day services throughout the school year. These are also used to supplement services on West Marin Stagecoach Routes 61 and 68.
- One Starcraft Ford Class A unit, number 724, is used for Novato Dial-a-Ride operations.
- Units 1830 to 1833 are used for Marin Connect, a demand-response service operating in northern San Rafael.

3.4. Ridership Trends: Golden Gate Transit

Figure 15: *A Golden Gate Transit bus operating as a northbound Route 101, leaving Salesforce Transit Center in San Francisco*

Golden Gate Transit and Marin Transit provide parallel bus services in tandem with SMART to provide connections beyond the train stations. Golden Gate Transit primarily operates regional services beyond Marin County, with routes operating as far north as Santa Rosa, far south as San Francisco, and far east as El Cerrito. Golden Gate Transit also operates seven bus routes on behalf of Marin Transit. In Novato, a total of eight routes operate through the city (routes depicted were valid until 8 December 2019):

- Routes 54 and 54C are two weekday commute-only services operating between San Francisco and Novato Golden Gate Transit yard via South Novato Boulevard, Novato Boulevard, San Marin Drive, and San Carlos Way. The former operates through Fisherman's Wharf and the Financial District, while the latter operates via Van Ness Avenue and Civic Center. It also operates through several bus pads along US-101, with some in San Rafael served on select trips only.
- Route 56 is another weekday commute-only service operating between San Francisco and Novato via Rowland Boulevard Park-and-Ride, San Marin Drive, San Carlos Way, and Novato Boulevard. It operates through the Financial District and uses the Broadway Tunnel in San Francisco, bypassing Fisherman's Wharf.
- Route 58 is another weekday commute-only service operating between San Francisco and Novato Golden Gate Transit yard via Hamilton and multiple bus pads along US-101. It also operates through Fisherman's Wharf and the Financial District, the same as Route 54.
- Route 70 operates as a stopping (local) service between Novato and San Francisco daily, serving 13 bus pads southbound and 14 pads northbound in Novato, San Rafael, Larkspur, Corte Madera, Mill Valley, and Sausalito, plus San Rafael Transit Center and Donahue & Terners in Marin City.
- Route 101 is a daily, limited-stop service between Santa Rosa and San Francisco, stopping at only six locations in Marin County, five of which are in Novato, and the other at San Rafael Transit Center.
- Route 35 is a daily local service managed by Marin Transit, operating between Downtown Novato (Redwood & Olive) and the Canal District in San Rafael via US-101 bus pads, Northgate Mall in Terra Linda, Marin Civic Center, Lincoln Avenue, and San Rafael Transit Center.
- Route 71X is a weekday-only express bus service also managed by Marin Transit, operating between Downtown Novato (Redwood & Olive) and Sausalito Ferry Terminal via select US-101 bus pads, San Rafael Transit Center, Donahue & Terners in Marin City, and Broadway.

In Fall 2019, the agency's Board of Directors and staff consulted with residents in northern San Rafael and Novato on redesigning four bus routes, which was ultimately approved and took effect 9 December 2019. The following significant changes have been made in Novato:

- Routes 54 and 54C to San Marin have been truncated to serve Downtown Novato and a more direct route to the Novato Golden Gate Transit yard terminal instead of competing with Route 56 through San Marin.
- Route 56 to San Marin will be upgraded to become Route 56X, with ten round trips per day instead of five southbound trips and six northbound trips in Fall 2019. It will also be extended to

serve Downtown Novato via Seventh Avenue, Grant Avenue, and Redwood Boulevard before terminating at the Novato Golden Gate Transit yard.

In Winter 2019-20, frequencies for Golden Gate Transit services through Novato are highlighted in Table 3-6:

Table 3-6: *Frequency Table of Golden Gate Transit Regional and Local Services to and from Novato*

Route	First Trip	Frequency (in minutes)					Last Trip
		Before 6am	6-9am	9am-3pm	3-7pm	After 7pm	
Weekdays, Southbound							
35	6:05am	-	25-30	30	30	-	7:10pm
54	4:48am	30	15-35	-	-	-	8:18am
54C	6:33am	-	One trip	-	-	-	6:33am
56X	4:34am	25-30	15-35	-	-	-	8:14am
58	6:05am	-	15-30	-	-	-	7:03am
70	4:59am	60	60	60	60	60	10:58pm
71X	6:10am	-	30-60	60	30-60	-	5:17pm
101	4:56am	60	30-60	60	60	60	10:55pm
Weekdays, Northbound							
35	7:00am	-	30	30	30	30-60	10:30pm
54	2:32pm	-	-	30	20-30	-	7:00pm
54C	5:00pm	-	-	-	One trip	-	5:00pm
56X	2:57pm	-	-	-	20-30	-	6:57pm
58	3:57pm	-	-	-	30	-	5:27pm
70	4:53am	55	60	60-65	60-65	60	11:49pm
71X	6:15am	-	60	60	30-60	-	6:04pm
101	5:20am	55	60	50-60	30	60	12:08am
Weekends and Holidays, Southbound							
35	6:49am	-	30	30	30	-	6:49pm
70	Sa: 5:01am Su: 5:00am	60	60	60	60	60	10:58pm
101	Sa: 4:58am Su: 4:55am	60	60	30-60	60	60	10:56pm
Weekends and Holidays, Northbound							
35	7:00am	-	30	30	30	30-60	10:30pm
70	Sa: 5:54am Su: 5:49am	60	60	60	60	60	Sa: 11:56pm Su: 11:53pm
101	Sa: 6:21am Su: 6:19am	60	60	30-60	30-70	60	Sa: 12:22am Su: 12:25am

Notes:

- *All times listed are from their respective terminals.*
- *For southbound Golden Gate 101, times listed are for Redwood & Grant stop.*
- *For northbound Golden Gate 101, times listed are for Salesforce Transit Center.*
- *For northbound Route 35, times listed are for trips that continue to Novato from San Rafael Transit Center.*

With collaboration from Golden Gate Transit planning staff, ridership by passenger trip category between two of Golden Gate Transit's basic routes that serve Novato are highlighted in Table 3-7 below: (figures are between 1 July 2018 and 30 June 2019)

Table 3-7: *Ridership Counts for Golden Gate Transit Basic Routes 70 and 101 for Fiscal Year 2018-19*

Route Description	Weekdays				Weekends			
	Southbound		Northbound		Southbound		Northbound	
	Route 70	Route 101	Route 70	Route 101	Route 70	Route 101	Route 70	Route 101
Within San Francisco	7,337	15,440	7,896	7,951	3,361	6,058	3,487	3,818
Within Marin County	78,992	20,302	74,153	18,877	29,556	7,574	29,612	5,404
Within Sonoma County	N/A	13,046	N/A	14,400	N/A	5,222	N/A	5,593
Between San Francisco and Marin County	51,678	70,916	60,325	70,152	21,177	22,901	21,122	21,762
Between San Francisco and Sonoma County	268	30,611	1,081	28,886	233	16,099	673	15,354
Between San Francisco and East Bay	515	2	1,566	2,982	354	10,519	381	11,741
Between Marin County and Sonoma County	1	26,606	746	28,450	0	0	956	1,946
Between Marin County and East Bay	611	308	707	617	197	99	308	314
Between Sonoma County and East Bay	N/A	943	6	214	N/A	259	2	121
Unknown	2	0	1	1	0	0	0	0

A summary of ridership trends, listed by stop and by historical ridership figures of Golden Gate Transit services that served Novato, can be found on Table 3-8 and Figures 22 through 25.

Table 3-8: *Golden Gate Transit Ridership Statistics (Best Estimates) by Bus Stops and Bus Pads, January to June 2019*

Stop	Served by Route/s	Weekdays			Weekends		
		Ons/Day	Offs/Day	Total	Ons/Day	Offs/Day	Total
Southbound to San Rafael and San Francisco							
Redwood Blvd & Escallonia Dr	101	12	4	**16**	10	3	**13**
Golden Gate Place & Railroad Ave	70	55	0	**55**	47	0	**47**
Redwood Blvd & Olive Ave	70, 101	66	16	**82**	57	13	**70**
Redwood Blvd & Grant Ave	70, 101	294	79	**373**	254	61	**315**
De Long Ave & Reichert Ave	70, 101	24	4	**28**	21	3	**24**
US-101 at De Long Ave Bus Pad	70, 101	0	0	**0**	0	0	**0**
US-101 at Rowland Blvd Bus Pad	70	55	8	**63**	47	7	**54**
Enfrente Rd & Salvatore Dr	70	133	27	**160**	115	24	**139**
US-101 at Alameda del Prado Bus Pad	70	63	12	**75**	54	10	**64**
Northbound to Petaluma and Santa Rosa							
US-101 at Alameda del Prado Bus Pad	70	16	53	**69**	14	45	**59**
US-101 at Ignacio Blvd Bus Pad	70	25	123	**148**	21	103	**124**
US-101 at Rowland Blvd Bus Pad	70	8	49	**57**	7	41	**48**
US-101 at De Long Ave Bus Pad	70, 101	0	4	**4**	0	3	**3**
De Long Ave & Reichert Ave	70, 101	4	23	**27**	3	20	**23**
Redwood Blvd & Grant Ave	70, 101	79	310	**389**	68	264	**332**
Redwood Blvd & Olive Ave	70, 101	15	48	**63**	13	40	**53**
Golden Gate Place & Railroad Ave	70	0	57	**57**	0	48	**48**
Redwood Blvd & Rush Creek Place	101	4	11	**15**	3	10	**13**

Based on the figures, Redwood & Grant and the Ignacio Bus Pads (Enfrente & Salvatore southbound, US-101 at Ignacio Blvd northbound) get the most riders, with the former located at the heart of Downtown Novato, the other being a major transfer point for Marin Transit Routes 35 and 49. On the next two pages, four charts represent ridership trends among Golden Gate Transit's multitude of services, including Basic (daily regional services), Commuter (weekday peak period-only regional services), and Local (daily circulators within Marin County) routes. All routes listed in these graphs historically (or currently) serve Novato, and observations will be discussed at the end of the charts.

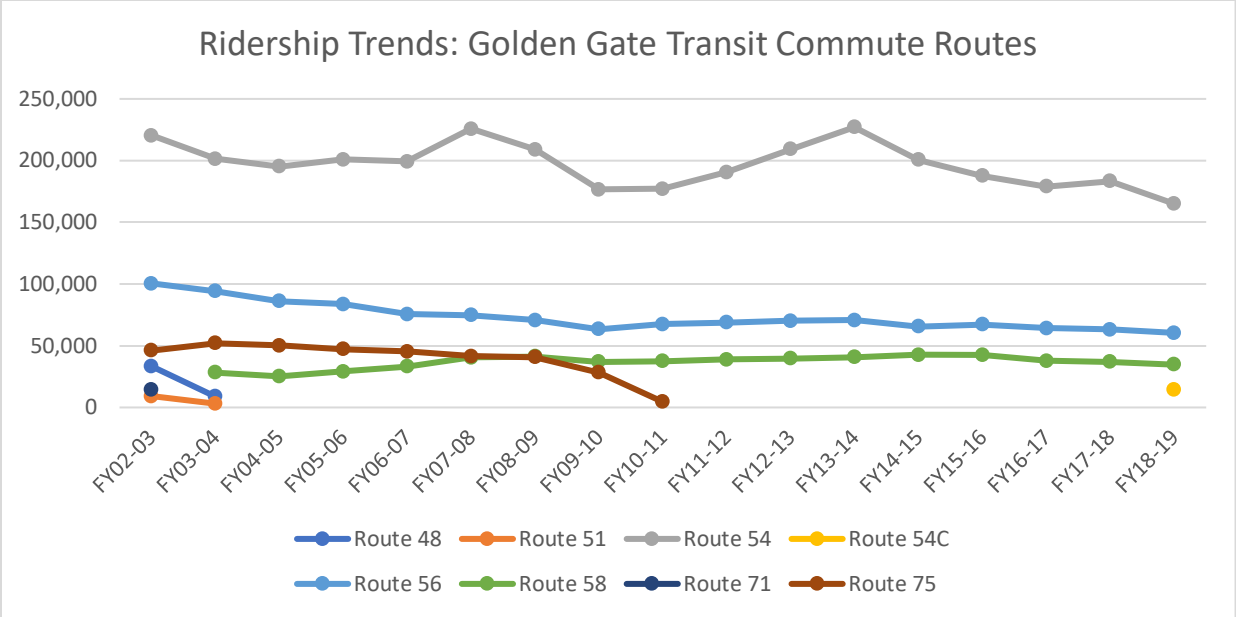

Figure 16: *Ridership Trends of Golden Gate Transit Commute Routes Between Fiscal Year 2002-03 to 2018-19*

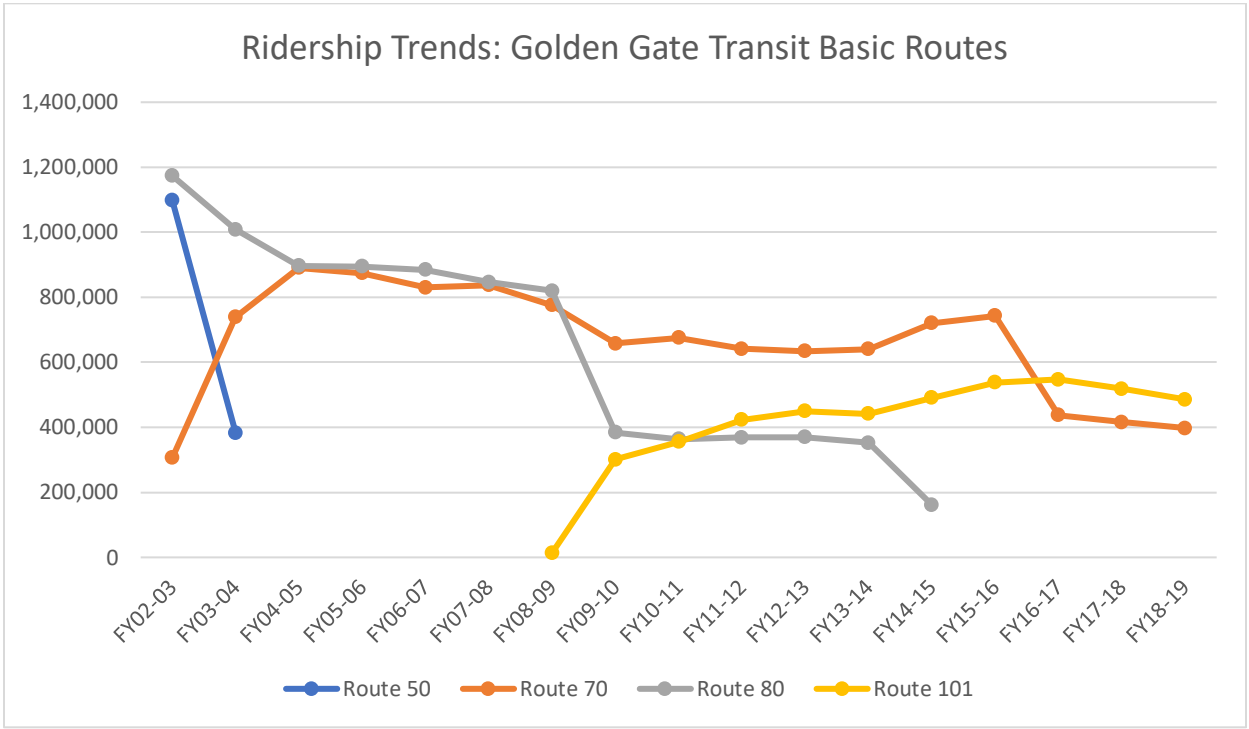

Figure 17: *Ridership Trends of Golden Gate Transit Basic Routes Between Fiscal Year 2002-03 to 2018-19*

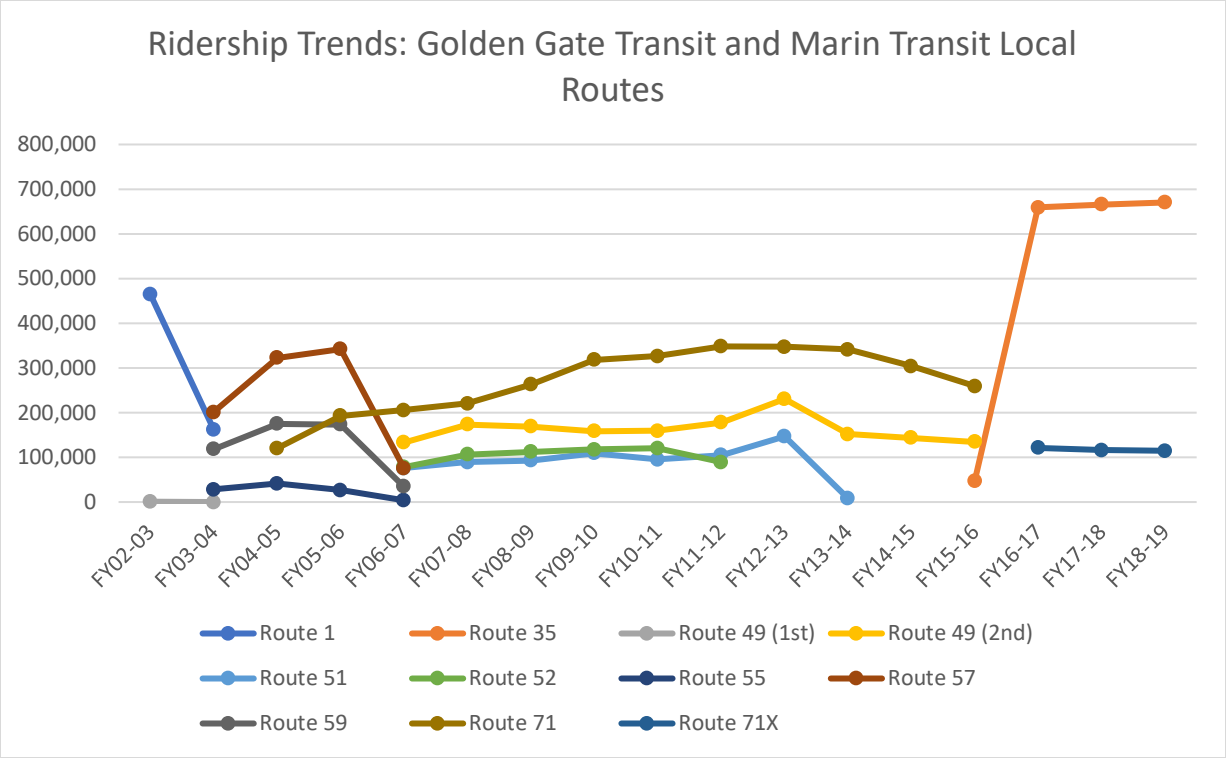

Figure 18: *Ridership Trends of Marin Transit Local Routes Operated by Golden Gate Transit from Fiscal Year 2002-03 to 2018-19*

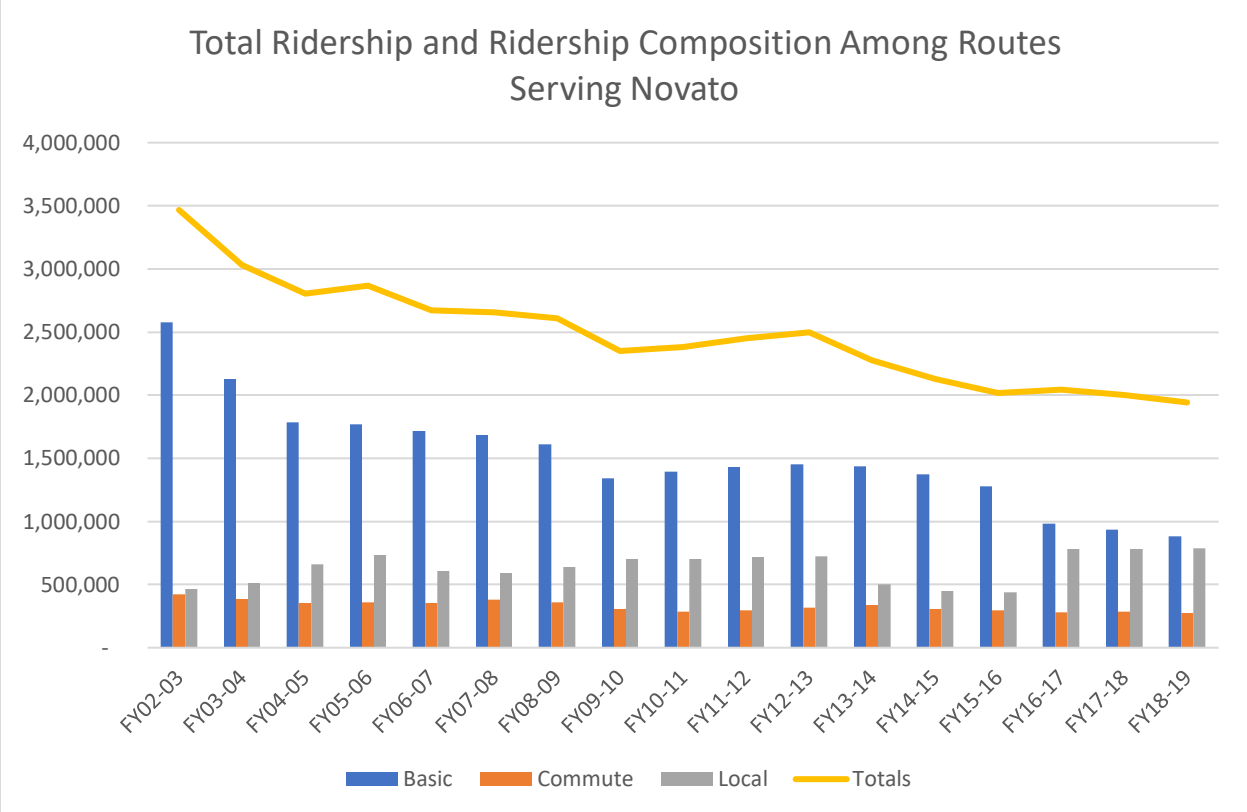

Figure 19: *Ridership Composition Statistics Among Golden Gate Transit Regional and Local Routes Serving Novato*

Observations made from those charts include:

Historically, Routes 1, 50, and 80 did the heavy lifting for Novato services. Prior to Fiscal Year 2003-04, Route 50 operated daily and ran late into the evening, making it a popular and reliable transit option for commuters between Novato and San Francisco. Similarly, Route 80, prior to its discontinuation in June 2009, provided a reliable transit option along US-101 between Santa Rosa and San Francisco, stopping at all bus pads in Marin County, plus Petaluma, Cotati, and Rohnert Park. And Route 1 did the milk run, meandering through neighborhoods in Novato and Kentfield, including South Novato Boulevard, Ignacio, Hamilton, Marinwood, Terra Linda, San Rafael Transit Center, Marin General Hospital, and College of Marin. With the introduction of Routes 22, 53, 57, and 59 and expansion of Route 70 in 2003, plus the introduction of Route 101 in June 2009, all those routes have become redundant and were eventually eliminated.

Routes 70 and 101 provide a backbone for reliable transit service along US Highway 101 within Marin County. Commuting between San Francisco and Marin County is especially robust, owing to the issue of no BART service provided between the two regions, with nearly 100,000 riders traveling on weekdays and around 35,000 on weekends. Of those, 30,000 riders travel between Marin and Sonoma Counties on weekdays, and around 11,000 riders on weekends. While the number of commuters traveling between San Francisco and Sonoma County is not as plentiful as travelers from Marin County, ridership potential is ripe for further growth if a faster transit service (e.g. SMART train) is available, especially during weekday peak periods where congestion can be severe between Novato and San Rafael.

The downfall of regional bus ridership has led to Golden Gate Transit rationalizing, revising, and eliminating some of its low-performing routes. Through the years, Golden Gate Transit has experimented revising services to meet ridership demands, with mixed results. Despite the success of Routes 50 and 80 prior to 2003, Marin County has become grayer, with more seniors living in the county, resulting in lower ridership figures through the years. And with telecommuting being a popular option, more residents have opted to stay at home, resulting in fewer passengers on board its buses. This significant service shift gave Marin Transit opportunities to develop local services using US-101 as its primary corridor, allowing Golden Gate Transit to focus on regional services. Marin County Transit District initially developed local services tailored to each community's needs. In Novato, it started with four local routes in September 2003: Routes 53, 55, 57, and 59. Today, Routes 35, 49, 71X, 251, and 257, along with three school day-only Routes 149, 151, and 154, and Novato Dial-a-Ride, provide bus and shuttle services around the city. This move has allowed Golden Gate Transit to focus on operating Routes 70 and 101, plus developing frequent services on commute-only Routes 54, 54C, 56, and 58.

Most importantly, opportunities are ripe to provide bus routes beyond the US-101 corridor. Despite the small number of commuters traveling between the North Bay and the East Bay, congestion along CA Highway 37 during weekday rush hour provides opportunities for Golden Gate Transit to reestablish services along that corridor, with potential destinations including Sonoma, Napa, and Vallejo. Currently, one round trip a day operates between San Rafael Transit Center and Kenwood in northern Sonoma Valley with Sonoma County Transit Route 38. (This used to be Golden Gate Transit Route 90 prior to its discontinuation in 2003.) Route 38 provides onward connections to Golden Gate Transit Routes 27 and 40 for onward connections to San Francisco and the East Bay, respectively. Napa Valley Transit Authority, on the other hand, operated Route 25 between Soscol Gateway Transit Center in Napa in the east and Sonoma Plaza in the west via CA Highway 121. Established on 9 July 2012 and canceled on 29 December 2017 due to low ridership, Route 25 provided timed connections to and from Sonoma County Transit Route 30 to Santa Rosa and Route 40 to Petaluma, which would have provided commuters an excellent alternative to driving Highway 37. Matt Wilcox, principal planner of NVTA, recently commented on the author's question regarding a possible revival of Route 25, writing, "In the event [the

SMART train] does provide service from Novato to Suisun [City], […] we will most likely (instead) advocate for a station in the airport area of Napa and run dedicated service to that station." In this case, no replacement bus service will be considered by the agency until SMART deepens its negotiations with the other counties involved in the east-west link. Nevertheless, by reestablishing such routes by Golden Gate Transit, along with developing a more consistent span of service and timing them to SMART trains at either Novato Hamilton or Novato San Marin SMART, ridership along CA-37 and CA-121 can be established prior to SMART launching its east-west corridor linking Novato with Suisun City/Fairfield.

3.5. Ridership Trends: Marin Transit

Marin Transit has been increasing its responsibilities of managing its routes countywide, it has shifted some of its local bus operations away from Golden Gate Transit and gave part of its operations to two private companies, Marin Airporter and MV Transportation. A primary goal of Marin Transit is to remain cost neutral, that is, the expenses of operating diversified services shall be covered by multiple means, from sales taxes to state grants.

Figure 20: *Two Marin Transit buses at Redwood & Grant in Downtown Novato: a New Flyer D60LF articulated bus operated by Golden Gate Transit on a southbound Route 35, and a Gillig BRT 40-footer Hybrid Bus operated by Marin Airporter on a southbound Route 49.*

Prior to its rebranding in 2010, Marin County Transit District (MCTD) was responsible for developing and managing bus services in the county, with all bus services contracted to Golden Gate Transit. It has since gone through service expansions, including: (Marin Transit, *2020-2029 Short Range Transit Plan*, 3-11)

- **North Marin County Restructuring** in March 2012, which restructured service in Novato and Northern Marin by eliminating duplication in regional and local services and reducing annual service levels by 2,150 hours.
- **August 2013 Service Changes**, wherein Marin Transit reallocated services between its contractors and expanded service by 11% on local routes in Novato and Tiburon as a result of the Tiburon and Novato Transit Needs Assessments and renegotiation of the interagency agreement with the Golden Gate Bridge, Highway, and Transportation District. Changes in Novato included expanding Route 257 to serve Indian Valley College, Ignacio Boulevard, and Hamilton from its original routing serving San Rafael only, and expanding evening services throughout the county, most especially on Route 251.
- **June 2016 Service Changes,** wherein Marin Transit expanded service by nearly 20% on local fixed route services resulting from the Countywide Transit Market Assessment, a previous Short-Range Transit Plan-funded service assessment, and new operations agreements in 2015. Changes in Novato include the introduction of Route 71X and an extension of Route 35 from Northgate Mall to Downtown Novato via US-101 bus pads. Those supplement services already provided along US-101 between Lucas Valley Bus Pad and Redwood & Olive in Novato, including Marin Transit Route 49, and Golden Gate Transit Routes 70 and 101.

In the upcoming Short Range Transit Plan from FY2020 to FY2029, however, the agency highlights the needs of funding certainty from future revenues (e.g. Measure AA) and controlling costs through competitive procurements by exploring new non-motorized program synergies, participating in the region's transportation expansion, and partnering with the private sector to increase and enhance mobility.

(Marin Transit, *2020-29 Short Range Transit Plan*, 3-4 to 3-7) Highlighted service changes for Novato include: (*ibid*, 3-15)

Extend Route 49 to operate directly to the Novato San Marin SMART station. Prior to its current form, Route 49 has seen numerous changes, from one bus line (with Golden Gate Transit Route 50 in 2003), to four (Golden Gate Transit Routes 53, 55, 57, and 59 in 2006; then Golden Gate Transit Routes 49, 49K, 51, and 52 in early 2012), to two today (Routes 49 and 251). Currently, it operates similarly to Route 35 between San Rafael Transit Center and Downtown Novato, with more emphasis on the Hamilton neighborhood and South Novato Boulevard corridor. Route 49's northern terminal prior to 9 December 2019 was at Redwood Boulevard & Olive Avenue, next to Trader Joe's; it has been extended to serve two more stops (Redwood & Rush Creek northbound; Redwood & Escallonia southbound) and terminate at the San Marin SMART Station. The goal, according to the draft plan, is to "improve connections to regional high-capacity transit networks", namely SMART and Golden Gate Ferry.

Reallocate hours from underperforming routes or route segments to increase frequencies on higher ridership routes or create potential new routes. Based on the plan, along with the author's conversation with Robert Betts, ideas include reducing frequency on Route 35 between Northgate Mall and Downtown Novato from every 30 minutes to every hour daily; Mr. Betts hinting at a frequency increase on Route 49 to operate every 30 minutes "daily" to augment the reduction in service with Route 35; and rerouting Route 257 to operate via Marin Community Clinic and potentially terminate in Downtown Novato, and increasing its service from weekdays only to daily (cf. below)

Explore opportunities to provide direct service to the Marin Community Clinic along Redwood Boulevard. As part of reallocating services through Novato, Route 257 is being explored to serve the community clinic as a solution to "support on-demand ridership markets (currently) served by the Novato Dial-a-Ride", especially it is a popular destination for residents seeking affordable medical treatments. This proposal will shift service away from its current alignment along Ignacio Boulevard to Indian Valley and operate instead via US-101 and the Marin Community Clinic before terminating in Downtown Novato. The idea also includes Route 257 serving Vintage Oaks and Novato Community Hospital, which will then allow Route 251 to operate solely along South Novato Boulevard and avoid a long deviation via Rowland Boulevard. The plan will also restore transit service previously served by Golden Gate Transit Route 58 by providing the medical facility, residents, and businesses along Redwood Boulevard south of Downtown Novato daily service to Hamilton, Northgate Mall, and San Rafael. Mr. Betts also hinted at introducing weekend service on Route 257 which will provide additional service through Hamilton, Northgate Mall, and Dominican University, currently served by half-hourly service on Route 35 and hourly services on Routes 49 and 233.

Evaluate potential modifications to Routes 251 and 257 to serve Hamilton Station and connect employment markets in Bel Marin Keys. This proposal is ripe for implementation, despite being planned numerous times in successive Short-Range Transit Plans. Routes 251 and 257 currently serve Hamilton Theatre Parking Lot, a 10-minute walk from the SMART station. Once this proposal is implemented, either route will bring back transit service to Bel Marin Keys, a residential community east of Ignacio Boulevard, previously served by Golden Gate Transit Route 55.

For more details on the historical changes, see the subsection "Transit Projects and Results" under "Further Boosting Transit Usage in Novato" in Chapter 5.

Of Marin Transit's routes currently serving Novato, their route classifications, ridership and subsidy targets, and their performance from FY2017-18, are highlighted in Table: (Marin Transit, *2020-29 Short Range Transit Plan*, 2-10, 2-11, 2-14, and 2-15)

Table 3-9: *Statistics of Marin Transit Routes Operating Through Novato from Fiscal Year 2017-18*

Route	Passenger Trips	Fare Revenue	Cost Per Revenue Hour	Subsidy Per Passenger	Met Maximum Subsidy Goal?	Farebox Recovery Ratio	Passengers/ Revenue Hour or Trip	Met Passengers/ Revenue Hour or Trip Goal?
Local Trunkline (minimum of 25 passengers/revenue hour and maximum subsidy of $4.50 per passenger)								
35	665,936	$697,189	$151.09	$4.17	Yes	20.1%	28.9	Yes
71X	115,745	$151,857	$156.45	$8.70	No	17.8%	16.5	No
Local Basic (minimum of 18 passengers/revenue hour and maximum subsidy of $6.50 per passenger)								
49	244,998	$259,446	$98.29	$4.90	Yes	17.8%	16.5	No
Local Connector (minimum of 8 passengers/revenue hour and maximum subsidy of $9.00 per passenger)								
251	98.028	$93,853	$102.44	$9.07	No	9.5%	10.2	Yes
257	65,515	$75,202	$100.92	$10.62	No	9.8%	8.6	Yes
Supplemental (minimum of 20 passengers/trip and maximum subsidy of $3.00 per passenger)								
151	44,574	$21,865	$137.73	$1.92	Yes	20.3%	34.7	Yes
154	12,168	$6,145	$130.85	$3.27	No	13.4%	33.0	Yes
Demand Response (minimum of 2 passengers/revenue hour and maximum subsidy of $35.00 per passenger)								
Novato Dial-a-Ride	4,428	$7,766	$89.85	$40.34	No	4.2%	2.1	Yes

A breakdown of how passengers paid for their trip by payment type are highlighted in Figure 21: (*ibid*, 1-56)

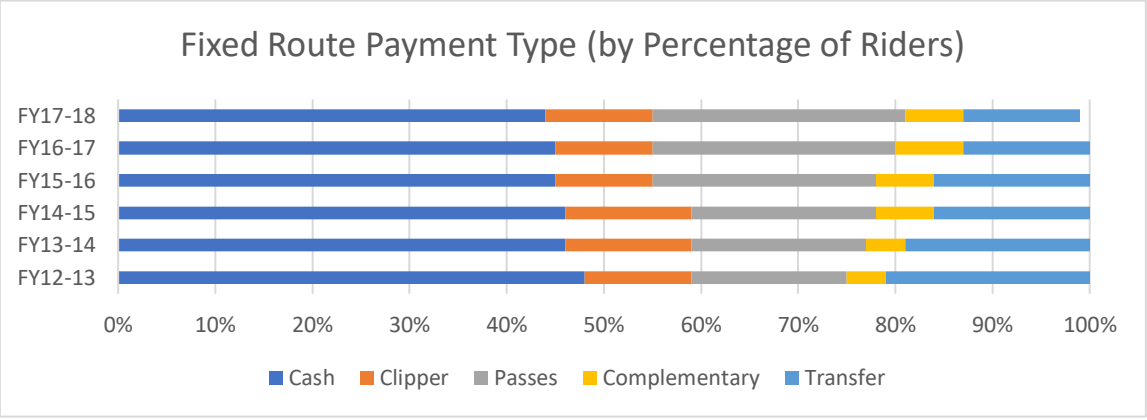

Figure 21: *A Chart Highlighting How Customers Pay for Marin Transit Fares from Fiscal Year 2012-13 to 2017-18*

Among services provided by Marin Transit, ridership for the most popular stops in Novato (with at least 50 passengers per day) are listed in Table 3-10: (also see Appendix A for a list of all bus stops in Novato)

Table 3-10: *List of Busiest Bus Stops (with at least 50 passengers) in Novato from Fiscal Year 2018-19*

Stop and Direction	Served by Route/s	Passengers			Wheelchairs	
		Ons/Day	Offs/Day	Total	Ons/Day	Offs/Day
Weekdays						
San Marin High School, SB	151, 251	198	11	**209**	0	0
Redwood Blvd & Grant Ave, SB	35, 49, 151, 154, 251	168	37	**205**	2	0
Redwood Blvd & Grant Ave, NB	35, 49, 151, 154, 251	41	144	**185**	1	3
Ignacio Blvd & Sunset Pkwy, NB and SB	151, 251	135	16	**151**	0	0
US-101 at Ignacio Blvd Bus Pad, NB	35, 49, 71X	30	120	**150**	0	0
Enfrente Rd & Salvatore Dr, SB	35, 49, 71X	110	28	**138**	0	0
Nave Dr & Bolling Dr, NB	49, 151, 251, 257	32	80	**112**	0	1
Hamilton Theatre Parking Lot, NB and SB	49, 151, 251, 257	28	72	**100**	0	0
Vineyard Rd & Wilson Ave, Terminal	154	73	9	**82**	0	0
Nave Dr & Bolling Dr, SB	49, 151, 251, 257	58	17	**75**	0	0
S Novato Blvd & Arthur St, SB	49, 151, 251	58	16	**74**	0	0
Sunset Pkwy & Merritt Dr, NB	151, 251	72	1	**73**	0	0
US-101 at Rowland Blvd Bus Pad, NB	35, 71X	7	58	**65**	2	2
US-101 at Rowland Blvd Bus Pad, SB	35, 71X	56	6	**62**	0	0
San Marin High School, NB	151, 154, 251	19	42	**61**	0	0
Nave Dr & Main Gate Rd, NB	49, 151, 257	7	49	**56**	0	0
Nave Dr & N Hamilton Pkwy, NB	49, 257	8	46	**54**	0	0
S Novato Blvd & Lauren Ave, NB	49, 151, 251	2	52	**54**	0	1
N Hamilton Pkwy at Marin Airporter, SB	49, 251, 257	39	14	**53**	0	0
Weekends and Holidays						
Redwood Blvd & Grant Ave, NB	35, 49, 251	43	155	**198**	0	2
Redwood Blvd & Grant Ave, SB	35, 49, 251	152	28	**180**	3	2
US-101 at Ignacio Blvd Bus Pad, NB	35, 49	39	85	**124**	0	0
Enfrente Rd & Salvatore Dr, SB	35, 49	89	27	**116**	0	0
Rowland Blvd at Vintage Oaks, NB and SB	251	33	69	**102**	0	0
US-101 at Rowland Blvd Bus Pad, NB	35	14	73	**87**	1	1
Hamilton Theatre Parking Lot, NB and SB	49, 251	30	35	**65**	0	1
US-101 at Rowland Blvd Bus Pad, SB	35	50	7	**57**	0	0
US-101 at Alameda del Prado Bus Pad, SB	35	51	5	**56**	0	0

On the opposing end, the number of stops that receive 5 or less passengers per day in Novato is striking (n=131 stops; also see Appendix A):

Table 3-11: Composition of Novato Bus Stops Receiving 5 or Less Passengers Per Day from Fiscal Year 2018-19

Day of Service	Number of stops receiving between 1 and 5 passengers per day	Number of stops with 0 passengers received per day*	Percentage of stops receiving 5 passengers or less per day
Weekdays	26	16	32.06%
Weekends	24	32	42.75%

***Note:** the figure for number of stops with 0 passengers served per day includes bus stops that do not see bus service on weekends.*

The overall ridership composition for the 131 stops through Novato, according to daily ridership numbers, are highlighted in Figure 22:

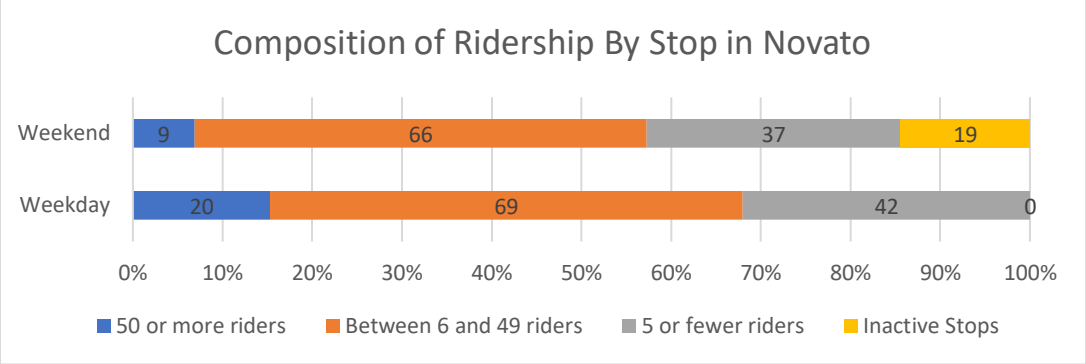

***Figure 22:** A Graphical Representation of Ridership at Novato's Bus Stops from Fiscal Year 2018-19*

And the ridership numbers for Marin Transit bus services through Novato from Fiscal Year 2017-18 are highlighted in Figure 23:

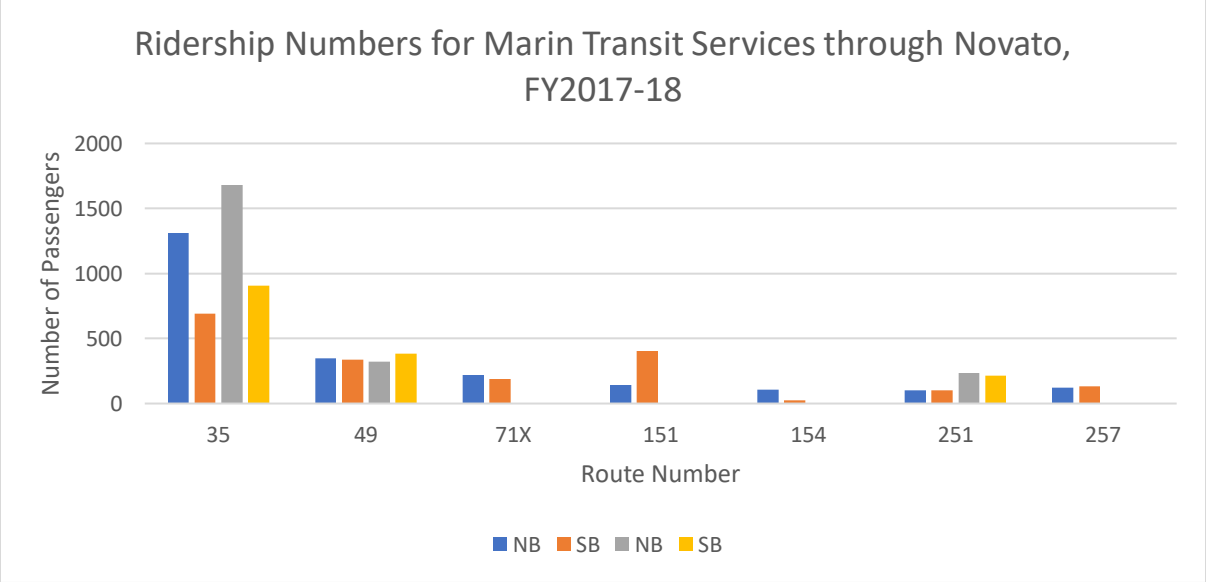

***Figure 23:** Ridership Statistics for Marin Transit Routes Serving Novato from Fiscal Year 2017-18*

Judging by the figures: (*ibid,* 3-14 and 3-15)

Route 35 lives to its reputation as the busiest bus route in Marin County, despite plans to reduce service to Novato are being discussed. As Marin Transit's busiest bus route, Route 35 carries thousands of riders per day through San Rafael and Novato, with a bulk of the ridership coming from the Canal neighborhood southeast of downtown San Rafael. When Marin Transit expanded its service to Novato in June 2016 to partly replace Route 71, it has created a one-seat service between the Canal District, Northgate Mall, and Downtown Novato, improving its efficiency as a local trunk route. Under the 2020-2029 Short Range Transit Plan, Marin Transit staff are evaluating the following options for this route:

- Reduce service on Route 35 between Northgate Mall and Novato.
- Develop a new route to serve the San Rafael-Northgate-Kaiser corridor.
- Increase service frequencies to every 8 to 10 minutes between Downtown San Rafael and Northgate/Marin Civic Center.

Marin Transit should be judicious in its next steps if it wants to scale back the expansion made in 2016 by truncating this line back to Las Gallinas Avenue & Nova Albion Parkway in Terra Linda, or at least reducing the number of trips to Novato to operate hourly instead of every 30 minutes currently.

Routes 49, 251, and 257 are ripe for future connectivity with the SMART train, especially with the opening of the new Downtown Novato station and the Larkspur extension. With SMART operating parallel to the current alignment of Route 49, opportunities are ripe for Marin Transit to bring the bus route to the two Novato stations, Hamilton and San Marin (it already provides direct service to both San Rafael and Civic Center SMART stations). And with Route 257 being explored to operate daily, it will significantly improve connectivity for residents in Novato, Marinwood, Terra Linda, and Dominican University. Despite those efforts, Marin Transit should strive to operate multiple routes to the Hamilton SMART station because, as described in Chapters 5 (The Bus Bridge Experiment) and 7 (Bringing More Riders to SMART), the train station is wide enough to have at least two shuttle vans at the bus bay, which can increase opportunities for the transit agency to lure more riders onto the community shuttles.

Novato Dial-a-Ride continues to provide quality service for riders that Marin Transit is exploring new shuttle services to support on-demand ridership markets. As described earlier, Marin Transit staff are considering modifying service within Novato on Route 257 by exploring a new service to the Marin Community Clinic along Redwood Boulevard. At the same time, during a brief exchange prior to the Marin Transit Board Meeting in October, Robert Betts, Director of Operations and Planning, explained to the author, "Route 257 might eventually serve Downtown Novato as a result of the line extension". Curiously, the author replied to Mr. Betts, "in this case, there might be service duplication along South Novato Boulevard that service differentiation might be needed to ensure Routes 49, 251, and 257 will provide adequate service levels to all riders."

Cash and paper passes are the most popular forms of payment for Marin Transit riders. This is in sharp contrast to how SMART enforces an all-Clipper policy for its passengers since its opening in August 2017, with an option of using a mobile app to pay for tickets online and show a barcode to a SMART conductor. This presents a challenge for Marin Transit to ensure that their fare boxes are regularly monitored and maintained, and that any issues governing them, from rejected bills and coins, to paper transfers and passes getting stuck in them, shall be addressed immediately. At the same time, it should also provide an opportunity for the agency to explore mobile ticketing, which has already been implemented by peer agencies like San Francisco Municipal Transportation Agency (Muni), Tri-Delta Transit, and Modesto Area Express. Such technology allows passengers to flash their phones and present their fare ticket or monthly pass to the operator, reducing dwell times and increasing operating speed.

The number of stops that receive less than 5 passengers daily must be assessed for either stop rationalization or elimination. While this is a controversial move, some of those stops do receive ridership from Golden Gate Transit's regional services, including Routes 54, 54C, and 56. The affected stops are located along San Marin Drive between San Andreas Way and Redwood Boulevard where there is no equivalent Marin Transit local service except for school day-only Route 154, operating around northern Novato and serving Sinaloa Middle School, San Marin High School, and Olive Elementary School. Marin Transit should consider adding service along San Marin Drive, especially it will expand Route 49 to Novato San Marin station from December 2019, by either expanding Route 257 further to serve San Marin directly or upgrading either Route 251 or 257 entirely to become a big bus route and complement Route 49.

In Chapter 4, we switch gears from buses to the SMART train. While Golden Gate Transit and Marin Transit provide excellent service for its riders, Sonoma-Marin Area Rail Transit provides a promising alternative to driving along US-101, with features similar to those provided on board Golden Gate Transit's commuter buses and boasts excellent views of the North Bay countryside. (And oh, it has a special feature that might make BART and Caltrain jealous: stay tuned.)

4. SMART Comes to Town

Figure 24: *A 3-car SMART train approaching Hamilton Station*

As the proportion of riders who use public transportation grew, so did the opportunity to build a passenger rail service: Sonoma-Marin Area Rail Transit (SMART). SMART is headquartered in east Petaluma near US-101, with its yard and maintenance facilities located just east of Sonoma County Airport between Santa Rosa and Windsor. It consists of a 70-mile railway corridor, spanning between Cloverdale in far northern Sonoma County and Larkspur in central San Rafael, mostly paralleling US-101. Future expansion will also mean SMART operating an east-west line, linking Novato with Suisun City/Fairfield in Solano County, paralleling CA Highways 37 and 121 between Marin, Sonoma, Napa, and Solano Counties. The east-west rail link will provide much-needed relief for one of the North Bay's most congested corridors and serve as a vital link to Amtrak's national rail network.

SMART, according to Dick Spotswood of the Marin Independent Journal, "was never designed to transport North Bay commuters to downtown San Francisco." Instead, "SMART's far more affordable green goal was to whisk North Bay commuters comfortably to and from Marin and Sonoma jobs and schools." He also mentioned in his editorial piece, "in the 1980s, the Marin-Sonoma 101 Corridor Committee rejected expanding BART to Marin. Sonoma-Marin Area Rail Transit was their alternative." Regional services between Marin County and San Francisco were delegated instead to Golden Gate Transit and Golden Gate Ferry, which continues to this day. (Spotswood, "Addressing the Myth that Marin Leaders Did Not Want BART Here")

Figure 25*: A SMART banner announcing the Larkspur Extension across from San Rafael Transit Center, taken 2 June 2018*

It currently has eighteen (18) train units, numbered 101 to 118, operating in 2- or 3-car sets. Each unit can carry up to 79 seated passengers, with room for up to 100 standees. Its top speed is 79mph (120kph), while its operational speed is 60mph (96kph). Odd numbered units (e.g. 101, 103, etc.) have ADA accessible unisex restrooms available to all passengers. Even numbered units (e.g. 102, 104, etc.), on the other hand, feature an on-board bar that sells snacks, refreshments, and alcoholic beverages. Proceeds earned from food and beverage sales benefit Becoming Independent, a Santa Rosa-based nonprofit aimed at helping "people with developmental disabilities live meaningful lives" through its three strategic initiatives: Innovative Education through day programs; Elevating Independence through independent and supported living service; and Employing Abilities through employment programs. (Becoming Independent) Most seats have a reclining feature that allows commuters to relax while traveling through Marin and Sonoma Counties, On-board WiFi keeps those on laptops and smartphones entertained. Bike storage is relatively easy, with bike hooks attached to the passenger grab poles and bike straps conveniently located along the flip-up seats (which double as wheelchair securement areas), allowing up to 20 bikers per train. Most seats also have access to electrical power ports, perfect for charging electronic devices while traveling. And the train operates a proof-of-

payment system where train staff remind passengers to tag their Clipper cards or show their electronic tickets to a train conductor upon request (usually upon boarding the train).

SMART was established after the passage of Measure Q in November 2008. At the time of its passage, Measure Q imposes a 1/4-cent sales tax for 20 years, ending in 2028. Funds raised from the tax are supposed to support the Sonoma-Marin Area Rail Transit District to: (Ballotpedia)

- "Relieve traffic, fight global warming and increase transportation options."
- Provide two-way passenger train service every 30 minutes during weekday rush hours.
- Provide weekend service.
- Provide a bicycle/pedestrian pathway linking the stations, and connections to ferry/bus service

A comparison of how both Measure Q (November 2008) and Measure R (November 2006) fared in both counties are described in Table 4-1. For either measure to pass, it needs at least 2/3rds supermajority vote. (*ibid*)

Table 4-1: *Election Results for Introducing SMART in the North Bay in 2006 versus 2008*

Measure	Marin County		Sonoma County		Total		Result
	Voted Yes	Pct. Yes	Voted Yes	Pct. Yes	Voted Yes	Pct. Yes	
R (2006)	59,774	57.51%	118,382	70.1%	**178,156**	**65.3%**	Failed
Q (2008)	83,805	62.79%	162,242	73.7%	**246,047**	**69.6%**	Passed

Prior to Measure Q's passage, Golden Gate Transit and Marin Transit provided complementary bus services through Novato. (cf. Chapter 2)

4.1. BART: A Missed Opportunity

Figure 26: *A Fleet of the Future BART train parked at Pittsburg Bay Point transfer station during the opening of eBART in May 2017*

The presence of SMART in the North Bay comes after decades of no passenger rail service. Government officials, urban planners, and concerned residents have discussed and debated for decades why Bay Area Rapid Transit (BART) has not been built in Marin County and what can be done to rectify the matter. Marin Independent Journal's (Marin IJ) Dick Spotswood pointed out the roles of SMART, Golden Gate Transit, and Golden Gate Ferry; he forgot to mention the presence of Marin Transit as the local circulator service. If BART was present in Marin County, Golden Gate Transit and Marin Transit's roles could have been significantly altered: the former might have developed similarly to AC Transit where it provides complementary regional and local feeder services in both Marin and Sonoma Counties. The latter, on the other hand, might have had a much more limited scope in providing feeder services in Marin County, or it might have been dissolved. Mark Prado, a transportation columnist for the Marin IJ, laments the absence of BART in Marin County: "BART backers still bemoan the loss of the rapid transit system in Marin, saying the county lost out on being a part of a vibrant regional transportation network." (Prado)

Spotswood then explained the fantasy many writers still grudge about: why has BART has never gone to Marin County? "A classic Marin tall tale is that the Bay Area Rapid Transit commuter rail never came to Marin because locals didn't want "those kinds of people" here. That's complemented by the allegation, 'BART to Marin' was rejected because of a NIMBY-like fear of unwanted growth. None of that is true."

(Spotswood, "Addressing the Myth that Marin Leaders Did Not Want BART Here") Prado then solicited comments from prominent individuals when he wrote his piece in 2010: "'Marin really missed out on something tremendous,' said San Francisco State University anthropology professor Niccolo Caldararo, a former Fairfax councilman who still would like to see BART in the county. 'Can you imagine how easy it would have been to get to San Francisco? The idea that it would have spurred growth is a red herring. It would have been controlled.' Not so, says Supervisor Steve Kinsey. He believes BART would have led to unprecedented growth that would have transformed Marin into an East Bay-like suburb. 'It would have been a bad thing because we did not have the land protections in place in the early 1960s when BART was being discussed,' said Kinsey, Marin's point person on key regional transportation issues. 'BART is a great system, but it is meant for high-density urban communities. We would have seen sprawl development.' Marin never got to find out." (Prado) Joe Mathews then wrote in an editorial piece, also at the Marin IJ, "Preservationists would say an iconic American landmark is being sullied. Marin's antigrowth zealots would argue that a train would encourage new development in their idylls. Pointy-headed accounting types would cite the cost and point out that most commuters in the North Bay are going to jobs in the North Bay, not in the city. Now, more than ever, Marin needs more public transportation via Bay Area Rapid Transit to allow residents to easily access the Bay Area." (Mathews)

Questions have been continuously asked on the absence of BART in Marin County:

- "How would (BART) cross the bay? How about a lower level deck on the Golden Gate Bridge?" (Bevk)
- "Growing up in Marin, the only way to get to San Francisco without a car was via the ferry, biking, the bus, or even just walking right across the bridge — the ferry was always best. Once in the City, everywhere else in the Bay Area was just a BART ride away. How can the entire Bay Area have access to this network except Marin?" (Mathews)
- "Why didn't BART build an SF-to-Marin County line, saving thousands from soul-crushing daily commutes?" (Moffitt)
- "If California is as serious about public transit as its leaders claim, why isn't there rail service across the Golden Gate Bridge?" (Young)

Alex Bevk, a contributor to Curbed San Francisco, wrote a piece imagining if BART indeed went to Marin County via the Golden Gate Bridge and Downtown Sausalito: "In 1951, a 26-member San Francisco Bay Area Rapid Transit Commission, with reps from each of the nine Bay Area counties, was created by the State Legislature. They released their findings in a 1957 report, recommending a three-phase plan to connect a five-county rapid transit district. This plan was massive, reaching all the way south to San Jose and Campbell, north to Santa Rosa, Sonoma, Napa, and Fairfield, and east to Brentwood." More fascinating was their vision for Marin County, which would have been impressive if built: "an unbuilt Marin County line… called for stations in Sausalito, Mill Valley, Larkspur, and San Rafael. It also would have called for an extension in San Francisco underground from downtown to California & Kearny, Green & Columbus, and Van Ness & Lombard, with an elevated line down Lombard and into the Presidio paralleling Doyle Drive." Their vision for BART was nothing short of impressive: "The Sausalito station was planned to be elevated near Nevada Street, to serve both Sausalito and Marin City. In Mill Valley, a surface level station at Camino Alto would cater to Mill Valley and Tiburon, while a Baltimore Park area station in Larkspur would be near Larkspur and Corte Madera commuters. The San Rafael portion would have followed the existing Northwestern Pacific Railroad line, ending at a station near Irwin Street. The last Marin station in the first phase would have ended at St. Vincent's in San Rafael." And their dreams went bigger: "Future phases would have extended the line up through Petaluma and Santa Rosa, eventually even connecting to Sonoma and Napa." (Bevk)

That fantasy never materialized. Spotswood spelled out the facts on the issue in a Marin Independent Journal opinion piece from early November 2019, titled *Addressing the Myth that Marin Leaders Didn't Want BART Here*. "What is historically accurate is in the late 1950s until the early 1960s visionaries pushed for a truly Bay Area-wide futuristic electric, computer-guided, grade-separated rail transit network. Their idea was that BART would circle most of San Francisco and San Pablo Bays including extensions to both San Mateo and Marin counties. In Marin the electric rapid transit line would stretch as far north as South Novato." At the time, he writes, "a rail line to then rural Sonoma seemed preposterous. Marin was still a semi-rural county." As a progressive county, "BART to Marin found wide favor particularly with the county's expansion-minded business community. Commuters regarded the train as far superior to the commuter buses. North Bay 'conservationists' saw electric public transit as beneficial." Planning BART, therefore, was for a five-county rail system: "In 1957, the California legislature formed the San Francisco Bay Area Rapid Transit District comprising five counties: Alameda, Contra Costa, Marin, San Francisco and San Mateo." However, "in December 1961, San Mateo County's Board of Supervisors decided to voluntary withdraw from the five-county compact. Their county supervisors turned a cold shoulder to the plan." The key reasons were the construction costs and competing rail service: "[San Mateo County] compared the high cost of BART; a grade-separated mostly elevated elected transit line to the existing popular private sector Southern Pacific Railroad diesel commuter trains from San Francisco to San Jose. That line eventually morphed into the publicly operated Caltrain which remains today highly regarded in [the county]." That led to "a diminished BART tax base that wasn't sufficient to absorb the cost of running BART underground through North Beach and the Marina to the Golden Gate Bridge, constructing a transit-only lower bridge deck and tunneling under Waldo Grade to Richardson Bay's shoreline in North Sausalito/Marin City. With the cost too high, BART directors asked Marin's Board of Supervisors to vote the county out of the system." The legendary Marin County Supervisor and pioneering environmentalist Peter Behr was not pleased when Marin withdrew in May 1962, commenting, "We are withdrawing involuntarily and upon request." (Spotswood)

Mike Moffitt then published an editorial piece on the San Francisco Chronicle from September 2019, entitled *Marin County Could Have Had BART, But Backroom Politics Got in the Way*. He writes, "In 1962, years before the first BART trains rolled, transit planners were already mapping five possible extensions beyond the core system. The first four have been realized, at least partially: an extension from Concord to Antioch, a line to Livermore, a line south from Fremont to San Jose and Santa Clara, and a Peninsula extension south of Daly City. The fifth extension was the most ambitious. It called for BART to cross San Francisco and then either tunnel under the bay — the most expensive proposition — or take the Golden Gate Bridge by way of adding a second level under the highway deck to accommodate the trains. The proposed route had stations in Sausalito, Mill Valley, Corte Madera, Santa Venetia, Ignacio and Novato." Moffitt even touted the new technology that would have whisked passengers between San Francisco and the North Bay: "A futuristic General Electric advertisement from 1961 depicted a Space Age-style BART train whisking passengers across the bridge above Fort Point as an aircraft carrier passes directly under the span. The public loved the idea. A 1956 poll found that 87.7 percent of Marin residents wanted a BART line. BART's trains could glide on a retrofitted Golden Gate Bridge to serve a transit-deprived community that overwhelmingly wanted BART. The cost would be millions of dollars cheaper than burrowing under the bay." Most important was the distance and estimated travel time residents today could have enjoyed: "That 18.4-mile trip would have taken 22 minutes on a sleek new Bay Area Rapid Transit light-rail train, a map of proposed BART routes predicted in 1961." Nowadays, however, it takes significantly longer than planned: "Anyone who makes the three-headed car-ferry-Muni commute to downtown San Francisco from San Rafael knows that it can easily take an hour to an hour and a half — or possibly longer". (Moffitt)

Mike Prado also wrote what went wrong with BART, the Golden Gate Bridge, Highway, and Transportation District (District), and Marin County officials in an opinion piece published in July 2010 titled, *Did Marin Lose Out on BART?* "Bay Area Rapid Transit trains zooming across a lower deck of the

Golden Gate Bridge delivering thousands of workers to and from San Francisco and points beyond almost was a reality, but it was undone by what some believe was last-minute politics almost 50 years ago," he explains. "A 1955 study by the San Francisco Bay Area Rapid Transit Commission found that the Golden Gate Bridge was capable of [handling] BART trains on a lower deck, and a second study in 1961 affirmed the conclusion. But behind the scenes, 'plans for BART over the Golden Gate Bridge didn't sit well with some,' said Louise Nelson Dyble, an assistant professor of history at Michigan Technological University and author of *Paying the Toll: Local Power, Regional Politics, and the Golden Gate Bridge*." Dyble then commented, "Bridge district officials didn't like the idea of having BART on its span, potentially cutting into its toll base." The Bridge district at the time was banking on auto tolls to keep it financially viable, especially it was innovative for them to collect them only in the southbound direction (to San Francisco), not in both directions. Dyble explained further, "It shopped around for an engineer who would say trains on the span would not work. Those who led the board were very much opposed to having BART cross the bridge. They hired Clifford Paine, one of bridge designer Joseph Strauss' engineers, to assess the feasibility of BART on the span. He concluded it would not work, saying the added weight would stress cables and cause the span to sag enough to be in violation of Navy clearance regulations. Later, an engineering board of review was commissioned to review all the studies and it also announced rail was not feasible, but the bridge district paid for the panel's expenses and fees." (Prado) While it was fair for the Bridge district to have a second opinion on the viability of BART through the famed span, officials have historically focused more on automobile traffic rather than be adaptable to technological advancements and potentially address the housing crisis the region faces today. An official who was reached out when he wrote the piece (and opposed on having BART to Marin County), Supervisor Kinsey, continues to represent the rural portion of western Marin County today, with vast open lands and small communities that would have been among the least impacted by BART had it been operational.

Figure 27: *A 2-car Stadler GW2-6 train arriving at Pittsburg Center station on eBART (Eastern Costa Costa BART)*

Over fifty years since San Mateo County withdrew from BART, transportation professionals, beat writers, and residents from Marin County and elsewhere have written on what "should have, could have, would have" happened to the North Bay if BART went via the Golden Gate Bridge, Waldo Tunnel, and Richardson Bay. Joe Mathews wrote an editorial piece at the Marin Independent Journal entitled *Bay Area Needs Transit Plan That Includes Marin*: "Marin opponents of BART cite issues with mass transportation ruining the county's small, idyllic communities. Marin's commitment to preserving nature — many of our towns are hidden among towering redwoods or tucked behind scenic hills — is a point of pride and contrasts Marin with neighboring counties. BART will not turn our small towns into urban strip malls. Downtown Lafayette, a longtime BART stop, looks indistinguishable from San Rafael or Novato." He comments, "(BART) officials [rescinded] their invitation to Marin citing two major concerns: structural stability of the Golden Gate bridge to support a rail system, and the economic utility since Marin was mostly rural and scarcely populated. Today, neither of those reasons apply. Marin is no longer the pastoral county it was decades ago – at least not along the southern peninsula." Furthermore, "The new SMART trains do not pollute our pristine landscape with a crisscrossing of rail lines or additional noise. The added accessibility is a benefit, not a nuisance." (Mathews)

Although he heralds the arrival of SMART in Marin County, Mathews believes, "the problem is it runs in the wrong direction. After decades of being one of the least accessible counties in the Bay Area, the new Sonoma-Marin Area Rail Transit service brings some benefits of public transportation to the North Bay, but still leaves us disconnected to the rest of the region by running north from San Rafael, rather than south." He cites BART's challenges as an opportunity for Marin to step up and make their case for more

trains to the North Bay: “A train link over the Golden Gate Bridge would still make sense today. Yes, such a plan would be attacked — this is the Bay Area and this is California, after all. And those who follow BART closely will argue that the system is at a difficult crossroads and needs to focus on maintenance and other pressing projects, like a second tube under the bay between Oakland and San Francisco.” He then argues, “it’s not as if each town will be a stop along a Marin BART line. Only having two or three stations in Marin: Novato, the San Rafael bus depot, and one more in the south like Larkspur Landing would be enough to allow for added accessibility to the region without infiltrating every corner of the county.” Finally, he poignantly links the presence of BART with potential economic and social benefits in the North Bay, writing, “[BART] will finally give Marin locals an accessible option to travel across the Bay Area just like every other resident of the region. [It] would also help diversify Marin, both racially and economically, by allowing residents to commute to jobs all over the Bay Area and ease the congestion by taking cars, and carbon, off our roads.” (*ibid*)

Scott Young also commented on what Marin County should do now to improve public transportation connectivity and reduce its carbon emissions further in his piece, *Dream Big and Consider Running BART Across the Golden Gate Bridge*. He writes, “There’s no good reason why our state’s iconic span must devote its six lanes to cars. For more than 50 years, engineering studies have shown that the bridge could accommodate trains. Today, there is no more glaring hole in California public transportation than the one across the Golden Gate Bridge.” Young then highlights the completed projects on either side of the Golden Gate: “North of the bridge, Sonoma and Marin counties are about to open the first phase, from Santa Rosa to San Rafael, of their SMART light-rail service. SMART, which includes a bicycle-pedestrian pathway, will eventually serve a 70-mile corridor from Cloverdale to Larkspur, just 10 miles up Highway 101 from the Golden Gate. South of the bridge, San Francisco is spending billions to construct the Transbay Transit Center, a Grand Central Station of the West. Eventually, it is supposed to be the northern terminus of high-speed rail. But there is no plan for a train to connect the new SMART train with the new giant transit station.” Young then expresses his frustration by writing, “That’s a shocking failure for Bay Area do-gooders, who love to lecture the rest of us on the need to go boldly into the future. What in the name of progressive enlightenment are you waiting for?” Furthermore, he writes, “In this history, there’s a lesson even more dramatic than the Golden Gate: There are huge costs when California skimps on infrastructure. A bridge train to the North Bay would have been easier and cheaper in the 1970s than now, and so for 40 years North Bay commuters have paid a rapidly rising price — in traffic, in tolls, time, and in the extortionate cost of parking in San Francisco.” He then attributes this simple, yet powerful message on building BART in Marin County from the agency’s founder, Bill Stokes: “Build it now. It will never be cheaper.” (Young)

Mathews builds on Young’s arguments by asking why the Bay Area struggles in developing a futuristic transportation plan compared to its peers in Los Angeles. He writes, “To all such objections there is one answer: Why is the Bay Area thinking so narrowly and with so little vision for the future? As an Angeleno, I can’t resist pointing out to Bay Area friends that in the realm of public transit, we in Southern California are surpassing you, having passed sales-tax increases to fund a transformational 50-year plan for a regional system that makes yours look like a disjointed joke. Are you really going to let yourself be embarrassed by L.A.?” He challenges transportation officials in the region to think beyond the confines of their cubicles and act accordingly: “Imagine how powerful a symbol of California’s connected future a Golden Gate Bridge-traversing train would be. It would draw commuters and tourists alike, making the planet’s greatest bridge even greater. Such a train could be the inspirational showpiece for what the Bay Area badly needs: a new regional plan for transit that connects all nine of its counties.” Mathews sums his thoughts: “You’ve come to this bridge, California. It’s time to cross it.” (Mathews)

The “could have, should have, would have” sentiment lingers nearly six decades later as North Bay commuters continue to struggle with congestion along US-101. The author then believes SMART is a band aid—a remedial solution—to Marin and Sonoma County’s transportation issues that interim

solutions will be discussed during the remainder of this report, including a potential for SMART to cross the Richmond-San Rafael Bridge (if it will be rebuilt).

4.2. Station Profiles

Currently, two SMART stations are operating in Novato: San Marin and Hamilton. A third station, located Downtown, will open in December 2019. All stations offer on-site parking, which requires either a daily payment or pre-purchasing a monthly permit to park at the station. All stations also offer electronic bike storage facilities, which can store up to six bicycles per station, for a nominal fee. One of the stations, San Marin, allows drivers to park their cars on the street for free.

The three stations are quite different from one another, as depicted by the maps in figures 36 through 38 and described below.

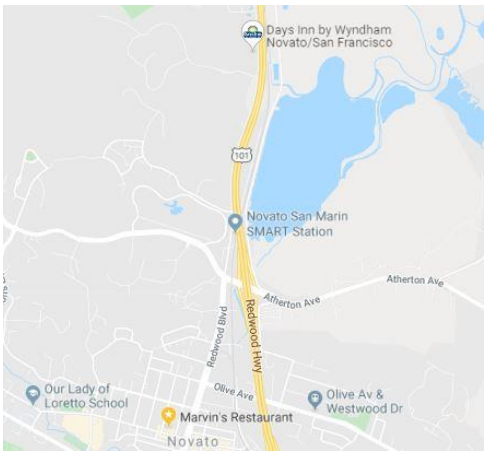

Figure 28: *A square mile map of Novato San Marin Station and Surroundings*

San Marin Station, located at 7700 Redwood Boulevard, is located close to the interchange of US Highway 101 at Atherton Avenue/San Marin Drive. It is a short drive from two major employers in the city, including Fireman's Fund and Brayton Purcell LLC. The rationale for opening San Marin Station first instead of redeveloping the old railroad station downtown (initially) were accessibility to Highway 101 and business interests. Its proximity to the Atherton Avenue interchange allows potential commuters wanting to drive further south to San Rafael to park their cars at the station and ride the train to their intended destination, saving them hassle from battling traffic along the stretch of 101 from Rowland Boulevard to Lincoln Avenue in San Rafael, which averages 30 minutes during the weekday morning commute.

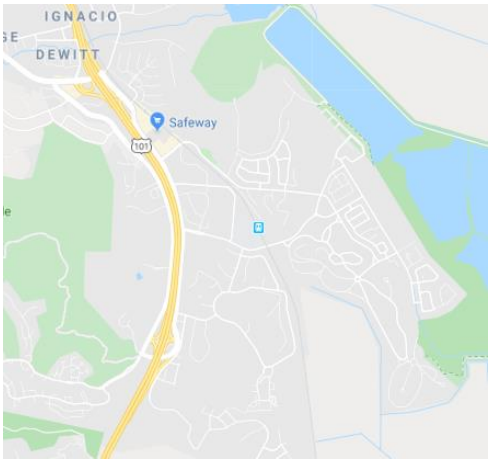

Figure 29: *A square mile map of Novato Hamilton Station and Surroundings*

Hamilton Station, located at 10 Main Gate Road, lies near the heart of the former Hamilton Air Force Base. The military facility operated during World War II and was subsequently decommissioned in the 1980s. The former military facility has evolved into multiple housing subdivisions, including Sunny Cove and Inspiration to the north, Bayside to the northeast, Traditions to the east, Meadow Park to the south, South Gate to the southeast, and Martin Drive to the west. Ten hangar buildings, which were used to maintain and repair aircraft, have been converted to offices, including the headquarters for 2K Games, a YMCA facility, and a branch of the Marin County Free Library. Novato has recently approved several housing projects to draw more people to the neighborhood, including Hamilton Cottages, Hamilton Square, and Novato Village.

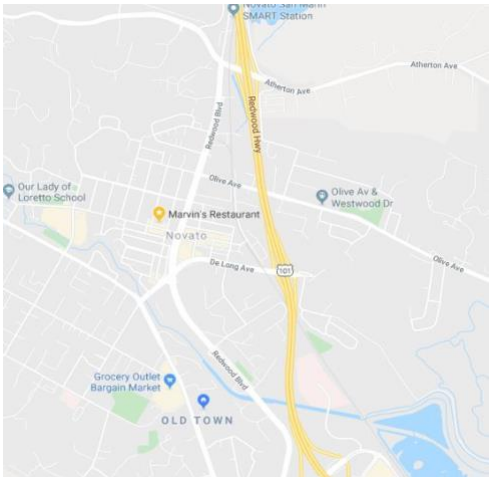

Figure 30: *A square mile map of Novato Downtown Station and Surroundings*

Downtown Novato Station, located at 695 Grant Avenue and opened one day after Larkspur station opened on 14 December 2019, is located nearly a mile south of the existing San Marin Station. It houses an old train station building from the Southern Pacific days when Marin County was served extensively by railroads. While it may be home to the smallest park-and-ride lot of the three stations, its prime location to Novato's Main Street has its sights to become the busiest train station of the "Novato trio". A short walk from the station is Millworks, a 420,882-square foot mixed-use project opened in July 2009, with a Whole Foods on the ground floor. It struggled to attract potential buyers at the time that "only two out of the 124 units were sold", forcing the owners to convert them to rental units. (Ainsworth)

Since mid-December 2019, Novato holds the distinction as the community with the most stations in the system, with three stations. San Rafael and Santa Rosa will continue to host two stations each. While Petaluma currently has one SMART station in operation (Downtown Petaluma), a second station, Corona Road in east Petaluma, is currently unbuilt.

SMART celebrated its first year of operations by transforming sleepy Hamilton station into an open-air marketplace on 18 August 2018. Free train rides for all passengers and a free shuttle between Hamilton Station and Hamilton Theatre Park and Ride allowed visitors to enjoy the event. Food trucks, activity tables, an exhibition by the Novato Fire District, play places, and live musical performances by local artists provided a sense of communal bonding and boosted the station's ridership numbers. Local and regional agencies were on hand to introduce visitors to alternative modes of transportation, including TAM, Marin Transit, Golden Gate Transit, and Sonoma County Transit.

Figure 31: *TAM table at SMART's First Year Celebration at Hamilton Station, 18 August 2018*

4.3. Service Characteristics and Statistics

Despite SMART's presence, significant service gaps remain. The original schedule, effective until 13 December 2019, listed 17 round trips on weekdays and five round trips weekends and holidays. Weekday services are mostly timed to connecting bus services at San Rafael Transit Center, with some trips continuing to Larkspur Ferry via Golden Gate Transit Route 31 (discontinued 14 December 2019). Weekend train services, on the other hand, are timed to most Golden Gate Ferry crossings between Larkspur and San Francisco. A timetable of schedules for Hamilton and San Marin Station is shown on Table 4-2, with the longest gaps on weekdays (with wait times of 90 minutes or more between trains) highlighted in red. (For the current schedule effective 1 January 2020, see Chapter 7.1.)

Table 4-2: *SMART Schedules through Novato Until 13 December 2019*

Weekdays				Weekends and Holidays			
Southbound		Northbound		Southbound		Northbound	
San Marin	Hamilton	Hamilton	San Marin	San Marin	Hamilton	Hamilton	San Marin
5:06a	5:14a	6:11a	6:19a	11:00a	11:08a	12:04p	12:12p
5:36a	5:44a	6:41a	6:49a	**1:00p**	**1:08p**	**2:04p**	**2:12p**
6:06a	6:14a	7:11a	7:19a	**2:00p**	**2:08p**	**3:07p**	**3:15p**
7:06a	7:14a	8:11a	8:19a	**4:03p**	**4:11p**	**5:07p**	**5:15p**
8:06a	8:14a	9:11a	9:19a	**8:10p**	**8:18p**	**9:02p**	**9:10p**
8:36a	8:44a	9:41a	9:49a				
9:06a	9:14a	10:11a	10:19a				
10:36a	10:44a	11:41a	11:49a				
1:36p	**1:44p**	**2:41p**	**2:49p**				
3:06p	**3:14p**	**4:11p**	**4:19p**				
3:36p	**3:44p**	**4:41p**	**4:49p**				
4:06p	**4:14p**	**5:11p**	**5:19p**				
4:36p	**4:44p**	**5:41p**	**5:49p**				
6:06p	**6:14p**	**7:11p**	**7:19p**				
6:36p	**6:44p**	**7:41p**	**7:49p**				
7:06p	**7:14p**	**8:11p**	**8:19p**				
7:36p	**7:44p**	**8:47p**	**8:55p**				

An explanation why large schedule gaps exist, especially during the midday—up to three hours—and the afternoon peak of up to 90 minutes, is attributed to the single-tracked nature of the railway. Kevin Fixler of The Press Democrat, a Sonoma County newspaper, explains the schedule gaps in his article, *SMART Looks at Schedule Changes*: "The gaps are partly due to the design of SMART, which operates four trains on a single-track system. For example, the first train to reach its terminus each day must then wait for the other three to arrive and exit in the reverse order before it may head back out the other direction. As a result, three 90-minute gaps between departing trains: the first, on southbound trains leaving (Sonoma County Airport) station between 8:19am and 9:49am, (which) is immediately followed by a 3-hour gap, with the next southbound departure at 12:49pm. Two more 90-minute gaps are built into the current schedule south, between 12:49pm and 2:19pm, as well as 3:49 and 5:19pm." A similar schedule exists heading north from San Rafael, Fixler added. On 1 January 2020, significant service changes were made, with 19 round trips weekdays and a weekday peak period frequency adjustment from every 30 to 90 minutes currently to every 32 minutes. (More on this in Chapters 6 and 7)

Figure 32: *Hamilton SMART station platform, facing south*

The current service gap made Jake Mackenzie, a longtime Rohnert Park councilman and a former SMART board member, very concerned. "At the time (when SMART first opened), not enough rolling stock was the answer we were given. We weren't particularly pleased, because everybody would ideally have a half-hour headway all the time." Further, Fixler wrote, "as the agency considers asking residents to renew the quarter-cent tax in March almost a decade early, rail officials think improving service through more frequent trains could increase ridership and help win votes." Schedule changes have been considered, but it is complicated by the need to coordinate departure and arrival times with five other regional transit agencies—including… Golden Gate Transit—to ensure riders can transfer smoothly between systems. "It is a very complicated process," Farhad Mansourian, SMART's general manager, told the 12-member board in late-August. "But this is what we do to make

sure that you don't arrive when the last train just left or vice versa. With us going to Larkspur, not only do we have to make sure that as many trips as possible work in the San Rafael Transit Center, but… we also have to see if we're meeting the ferry's arrival and departure." (Fixler)

Despite frequent weekday train service, neither Hamilton nor San Marin are the busiest stations in the system, partly because the stations do not have onward transit connections that could boost ridership figures. While San Marin station finally got an onward connection with Route 49 in December 2019, Hamilton remains an isolated station, requiring passengers to walk around 0.4 miles (approximately 10 minutes) to access the nearest bus stop, Hamilton Theatre Parking Lot. Table 4-3 shows that the boarding and disembarking figures for the two existing Novato stations, San Marin and Hamilton, are among the least used in the system as of August 2018: (Sonoma Marin Area Rail Transit, "First Year in Service", 13-14)

Table 4-3: *SMART Boardings and Alightings Statistics from its First Year of Service*

Origin (Boarding)			Destination (Alighting)		
Station	**Weekday**	**Weekend**	**Station**	**Weekday**	**Weekend**
San Rafael	29%	35%	San Rafael	26%	28%
Petaluma Downtown	15%	15%	Petaluma Downtown	15%	18%
Sonoma County Airport	11%	16%	Santa Rosa Downtown	13%	18%
Santa Rosa Downtown	11%	11%	Cotati	8%	6%
Cotati	8%	1%	Rohnert Park	8%	5%
Santa Rosa North	7%	7%	Santa Rosa North	6%	4%
Marin Civic Center	6%	4%	Marin Civic Center	6%	5%
Novato San Marin	**4%**	**3%**	**Novato Hamilton**	**3%**	
Novato Hamilton	**4%**	**6%**	**Novato San Marin**	**3%**	
Rohnert Park	3%	1%			

Table 4-4 then highlights average ridership boardings and alightings at major bus stops and SMART stations in Novato. Note: combined Golden Gate Transit and Marin Transit stop data are for FY2018-19, while the SMART data is from February 2018 to July 2019.

Table 4-4: *Comparative Statistics of Novato's Busiest Bus Stops versus SMART Stations*

Transit Stop	Weekday		Weekend	
	Ons/Day	**Offs/Day**	**Ons/Day**	**Offs/Day**
Redwood & Grant	582	570	517	508
San Marin SMART	773	92	614	57
Hamilton SMART	535	59	514	40
Ignacio Bus Pads*	298	298	391	157
Rowland Blvd Bus Pads	126	121	118	132
Hamilton Theatre Parking Lot	28	72	30	35

Note: *The Ignacio Bus Pads include the Enfrente Road & Salvatore Drive stop and US-101 at Bel Marin Keys Boulevard bus pad.*

Figure 33 illustrates the ridership figures described above in graphical form:

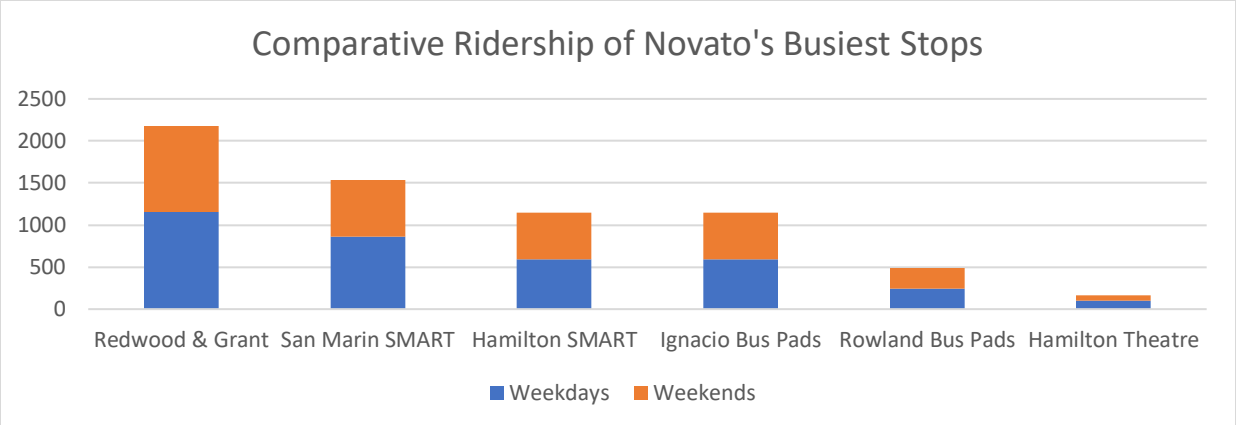

Figure 33: *Comparative Ridership of Novato's Principal Stops in Visual Form*

The graph highlights the continued importance of Redwood & Grant as the principal transit hub in Novato, with opportunities for San Marin, Downtown, and Hamilton stations to expand their ridership numbers significantly should the Novato City Council, SMART, Marin Transit, and Golden Gate Transit forge a partnership to improve connectivity at the three train stations. It also highlights a missed opportunity with relocating the Hamilton Theatre Parking Lot bus stop to the Hamilton SMART station, which can be resolved by moving either adding a stop at the train station alongside the Hamilton Theatre Parking lot stop, or moving all operations away from the parking lot to the train station. That comes potentially at the expense of connectivity loss for some residents who rely on the theater stop for buses to and from San Francisco. Most importantly, it shows hope that the addition of the Novato Downtown station will significantly improve Novato's connectivity using public transportation, with a potential of becoming the busiest train station of the trio. (More details on Chapter 7.2.)

The missed opportunity of providing connecting transit options at the Novato SMART stations—as well as a remedial solution done by Marin Transit to link a bus line to San Marin SMART—is explained in greater detail in Chapter 5. In Chapters 6 and 7, the paper will discuss potential solutions to address the ridership disparity of both Hamilton SMART and Hamilton Theatre Parking Lot which will involve relocating the latter stop and integrating it to the train station, and further improving Marin Transit services to serve the three SMART stations.

5. Opportunities for Improvement: The Bus Bridge Experiment and Route 49 Extension

On 9 and 10 November 2019, SMART temporarily closed part of its line between Downtown Petaluma and Novato Hamilton stations for systems testing prior to the opening of the Downtown Novato SMART station in December. That weekend closure prompted the agency to operate a bus bridge linking the three affected stations, Petaluma Downtown, Novato San Marin, and Novato Hamilton. This rare event also provided the opportunity to test the theory described by a Marin Transit operator that "buses cannot safely operate through the two Novato stations because the space allocated for transit vehicles is too narrow". That frustration led to the problem noted by this Planning Report in the first place: the Novato SMART stations are among the worst performing stops in the system because no connecting transit services are provided to either station since their opening in August 2017. Fortunately, Marin Transit decided in the November 2019 board meeting (after months of deliberation) that Route 49 will be extended further north to serve the San Marin SMART station, which will hopefully attract more riders to both the bus and train.

5.1. Rationale and Schedule

The Bus Bridge timing coincided with final preparation work prior to the opening of the Downtown Novato station and the Larkspur extension, as well as planned service increase along the corridor. While this was an inconvenience for some riders, it provided the author the opportunity to test whether full-sized, 40-foot buses can operate at the station safely. Most importantly, this was done as a proving exercise whether the Hamilton and San Marin SMART stations are capable of handling transit services provided by Golden Gate Transit and Marin Transit, with timed connections to and from their buses.

Details of the SMART bus bridge, per the author's observations, include: (also see the SMART bus bridge schedule on the next page)

- All buses will be held at the Downtown Petaluma and Novato Hamilton stations, with SMART staff and ambassadors directing affected passengers between the three stations (Petaluma, San Marin, and Hamilton) to the shuttle buses.
- Pure Luxury Transportation and Becoming Independent staff are tasked to help persons with disabilities and bicyclists in loading them onto their vehicles, ensuring that they are seated comfortably, and bikes have been secured properly, before leaving the station.
- Shuttle drivers are permitted to leave up to 5 minutes after a train's arrival, giving them and their passengers ample time to reach their destinations.
    - Between Downtown Petaluma and Novato San Marin: ~20 minutes
    - Between Downtown Petaluma and Novato Hamilton: ~25 minutes
    - Between Novato San Marin and Novato Hamilton: ~10 minutes
- Given that the arrival of the last northbound train from San Rafael at Novato Hamilton Station is at 9:07pm, and the departure of the last northbound train for Sonoma County Airport from Downtown Petaluma Station is at 9:21pm, SMART staff instruct both shuttle drivers and train conductors to hold the 9:21pm northbound departure until the shuttles from Novato Hamilton (and Novato San Marin, if needed) have arrived at the station, and passengers have been directed to the station platform.

For a full transcript of observations from the bus bridge, see Appendix F.

SONOMA-MARIN SMART AREA RAIL TRANSIT

Bus Bridge Scheduled for Saturday, November 9 & Sunday, November 10

To accomodate testing for the new Novato Downtown station, a portion of the railroad will be closed. A bus bridge will shuttle passengers between Petaluma Downtown, Novato San Marin, and Novato Hamilton. Trains will operate on the following modified schedule:

Service Between Sonoma County Airport and Petaluma Downtown

SOUTHBOUND - Sonoma County Airport to Petaluma Downtown											
Sonoma County Airport	10:13	11:37	12:13	1:13	1:46	2:45	3:17	4:20	5:23	6:47	8:12
Santa Rosa North	10:20	11:44	12:20	1:20	1:53	2:52	3:24	4:27	5:30	6:54	8:19
Santa Rosa Downtown	10:25	11:49	12:25	1:25	1:58	2:57	3:29	4:32	5:35	6:59	8:24
Rohnert Park	10:32	11:56	12:32	1:32	2:05	3:04	3:36	4:39	5:42	7:06	8:31
Cotati	10:36	12:00	12:36	1:36	2:09	3:08	3:40	4:43	5:46	7:10	8:35
Petaluma Downtown	10:49	12:13	12:49	1:49	2:22	3:21	3:53	4:56	5:59	7:23	8:48
NORTHBOUND - Petaluma Downtown to Sonoma County Airport											
Petaluma Downtown	10:55	12:23	12:55	1:56	2:28	3:27	4:30	5:33	6:05	7:30	9:21
Cotati	11:08	12:36	1:08	2:09	2:41	3:40	4:43	5:46	6:18	7:43	9:34
Rohnert Park	11:12	12:40	1:12	2:13	2:45	3:44	4:47	5:50	6:22	7:47	9:38
Santa Rosa Downtown	11:19	12:47	1:19	2:20	2:52	3:51	4:54	5:57	6:29	7:54	9:45
Santa Rosa North	11:24	12:52	1:24	2:25	2:57	3:56	4:59	6:02	6:34	7:59	9:50
Sonoma County Airport	11:31	12:59	1:31	2:32	3:04	4:03	5:06	6:09	6:41	8:06	9:57

Service Between Novato Hamilton and San Rafael

SOUTHBOUND - Novato Hamilton to San Rafael														
Novato Hamilton	11:08	11:52	12:37	1:22	2:07	2:52	3:22	4:07	4:52	5:37	6:22	7:07	7:52	8:37
Marin Civic Center	11:14	11:58	12:43	1:28	2:13	2:58	3:28	4:13	4:58	5:43	6:28	7:13	7:58	8:43
San Rafael	11:20	12:04	12:49	1:34	2:19	3:04	3:34	4:19	5:04	5:49	6:34	7:19	8:04	8:49
NORTHBOUND - San Rafael to Novato Hamilton														
San Rafael	11:30	12:15	1:00	1:45	2:30	3:00	3:45	4:30	5:15	6:00	6:45	7:30	8:15	8:55
Marin Civic Center	11:36	12:21	1:06	1:51	2:36	3:06	3:51	4:36	5:21	6:06	6:51	7:36	8:21	9:01
Novato Hamilton	11:42	12:27	1:12	1:57	2:42	3:12	3:57	4:42	5:27	6:12	6:57	7:42	8:27	9:07

☐ AM Times ☐ PM Times

Figure 34: *Modified SMART train schedules for 9 and 10 November 2019, in conjunction with the Novato-Petaluma bus bridge*

Prior to the bus bridge, the author conducted an interview with Matt Stevens, Community Outreach Specialist and Interim Communications Manager for SMART, and asked him what Marin Transit and Golden Gate Transit can do to bring in transit services to the two Novato SMART stations. He suggested utilizing 29-foot buses and cutaway vans to provide service to the train stations, vehicles Marin Transit already operates on local routes. The main challenge comes with Route 49 utilizing a combination of 29- and 40-foot buses.

The author then talked to a Marin Airporter operator who conducted his field trip to both Hamilton and San Marin SMART stations, utilizing a 40-foot Gillig BRT Hybrid bus supplied by Marin Transit. He noted that while he can maneuver around Hamilton Station with no problems, he cannot make the "tight squeeze" found at San Marin SMART station. With the bus stop located on the street, not directly next to the train platform, and without any u-turn space available (except "through a privately-owned parking lot", as he described), it can be challenging for operators like him to successfully turnaround at the San Marin SMART station.

Another Marin Airporter operator complained regarding the Route 49 extension to Novato San Marin station, explaining to the author, "once I get to the train station, I will not have enough relief time to turnaround. Marin Transit seems to operate with a 'Just in Time' scheduling wherein once you get to a terminal, you simply continue on your route without taking an adequate break." She continued, "for example, by this time [3:40pm], I should have been at the Redwood & Olive terminal, take a break, and then continue my trip later as I will have a relief driver coming in. By moving the terminal further north, not only will I lose the ten minutes I need to eat and use the restroom, I would not be able to catch up on time points because, as you know, kids get out of school when I leave San Rafael Transit Center at 2:45pm. By that time, traffic can be horrendous because you got cars flowing in and out of (elementary, middle, and high) schools, in which my schedule gets impacted significantly." She then informed the author, "instead of doing Route 49 from this December, I am transitioning to Route 22. It's a slower-paced route than the 49, and I get to meet passengers I haven't seen in a while."

The bus bridge, in the author's opinion, served as a dry run for an upcoming service expansion with Marin Transit wherein staff identified in its *2020-2029 Short Range Transit Plan* that Route 49, the local bus service between San Rafael Transit Center and Downtown Novato via Northgate Mall, Hamilton, and South Novato Boulevard, will be extended to serve the Novato San Marin SMART station from December 2019.

5.2. Riding the Bus Bridge Between Novato and Petaluma

SMART contracted out its bus bridge operations to two companies, Pure Luxury Transportation of Petaluma, and Becoming Independent of Santa Rosa. The former provides luxury shuttle services for its clients, with drivers and chauffeurs wearing suits and ties, while the latter operates senior shuttles in Sonoma County and is the contractor for the snack bars found on all SMART trains, for which it is the beneficiary of all snack and drink purchases by riders.

Figure 35: *Two Pure Luxury Transportation vehicles docked at Hamilton SMART station during the SMART Bus Bridge between Novato Hamilton and Downtown Petaluma Stations*

Eighteen observations were made from all three affected train stations, including:

- Downtown Petaluma (10)
- Novato Hamilton (7)
- Novato San Marin (1)

Conducting observations at the train stations involved:

- Checking whether the trains and shuttles provided coordinated arrivals and departures at both Downtown Petaluma and Novato Hamilton stations
- Counting the number of passengers and cyclists arriving and leaving the stations
- Noting any comments and discrepancies heard and seen from on the field observations

In addition, four vehicle types were used during the bus bridge, including:

- Pure Luxury Transportation
  - One Prevost H3-45 tour bus (56-seater)
  - Two Freightliner GM45 luxury tour vans (40-seater)
  - One Freightliner GM28 luxury tour van (21-seater)
- Becoming Independent
  - Two Ford E450 cutaway vans (10-seater)

All vehicles deployed are ADA compliant. Vehicles supplied by Pure Luxury Transportation can accommodate bicycles, with the GM28 luxury tour van having a front-mounted bike rack. None of the Becoming Independent vehicles can carry bikes, however.

Finally, the author completed seven trips on the bus bridge, including:

- Three from Downtown Petaluma to Novato Hamilton
- One from Downtown Petaluma to Novato San Marin
- Two from Novato Hamilton to Downtown Petaluma
- One from Novato San Marin to Downtown Petaluma

5.3. Conversations and Analyses

During the two-day bus bridge, SMART and the bus bridge have served hundreds of passengers, with cyclists traveling between Marin and Sonoma Counties for their weekend adventures. Throughout the bus bridge, however, no wheelchair-bound passengers have been counted per the author's observations at the train stations and on board the buses. Matt Stevens with SMART collaborated with Community Outreach Coordinators, Ambassadors, and other support staff to successfully ferry affected passengers through the bus bridge.

Figure 36: *A SMART train awaiting departure from Downtown Petaluma Station at dusk.*

On November 9th, Saturday, two observations and two ride tests were conducted. Both observations were made at Downtown Petaluma SMART station, and the author was able to ride a full round trip of the SMART bus bridge, first northbound from Hamilton to Downtown Petaluma, the other southbound. The first train from Santa Rosa, scheduled to arrive at 10:49am, arrived two minutes early and carried more than 55 passengers. While a handful of passengers tagged off at Downtown Petaluma, most of them continued to the shuttle vans parked on the southern side

of the station. Two vans were deployed, both serving Hamilton and San Marin Stations, with a larger GM45 van carrying 30 passengers, while a smaller GM28 van was fully occupied with 21 passengers and a bike mounted on its bike rack.

After the vans left the station at around 10:55am, the author had the opportunity to talk to Izzy, SMART's Community Outreach Coordinator. She described the reasons why SMART went for paying private contractors to operate the bus bridge instead of reaching out to transit agencies like Golden Gate, Marin, or Sonoma County Transit. "We wanted the flexibility needed to bring vehicles and operators to our stations on demand," she said, and the agency wanted "vans that can carry up to 40 passengers at a time." Izzy also explained driver shortages at Golden Gate Transit as a reason why SMART did not call them to bring in operators to perform the bus bridge for them, explaining, "we do not know how many relief drivers they have on hand to be able to perform the bus bridge. They are short-staffed already to do their own services". Around the same time, a conversation between a Pure Luxury operator and a Becoming Independent driver took place, in which the latter lamented, "I have four automobiles at home, with one motorcycle and one truck. I don't know why I have gotten that many vehicles when I should be able to choose how I want to commute." The author then reminded the former who asked why SMART was operating the bus bridge that weekend, "this is a remedial of not having BART in the North Bay," which reinforced many commentaries brought up by editors and writers from Marin Independent Journal and San Francisco Chronicle described earlier in Chapter 3.1, "BART: A Missed Opportunity".

After the conversation, the author left the study area and was away for a few hours due to a last-minute event in Mill Valley. By 3:30pm, the author was back in San Rafael, ready to perform actual ride tests. The first test involved riding a northbound train leaving San Rafael at 3:45pm, in which 2 other passengers boarded the train. All 3 passengers disembarked at Hamilton station at 3:57pm—with no one boarding or disembarking at Marin Civic Center station—and we transferred to an awaiting 40-seater Pure Luxury van. An additional passenger joined our contingent at the station for a ride on the bus bridge to Downtown Petaluma station. The van then left Hamilton station at 4:03pm, went by San Marin station at 4:12pm (again, no passengers picked up or dropped off), and finally arrived at Downtown Petaluma station at 4:33pm, 3 minutes after the 4:30pm northbound train left. Affected passengers had to wait at the station for a full hour since the next train will not leave until 5:33pm. Minutes before the next train arrival at 4:56pm, another shuttle van arrived, carrying zero passengers. The next train arrived at Downtown Petaluma soon after, with all three passengers disembarking at the station and none continuing further to Marin County. The subsequent 5:33pm departure then carried the 3 passengers who traveled from Marin County.

After 20 minutes, another train pulled into the station at 5:56pm, with five passengers continuing to the Novato Hamilton shuttle. The subsequent departure at 6:05pm then carried 9 passengers north to Cotati, Rohnert Park, Santa Rosa, and Sonoma County Airport. The author then joined the five passengers traveling to Novato, on board the Prevost H3-45 bus. The bus left Downtown Petaluma station at 6:01pm, bypassed San Marin station, and arrived at Hamilton station 6:32pm. Three passengers then transferred to the train, and the other three (including yours truly) got off at the station. A train waited for transfer passengers at the station, but its departure was not listed in the "official" schedule as the next departure would have been at 7:07pm after arriving at the station 6:57pm. The author then went home after arriving at Hamilton station and performed a final observation.

The following day, Sunday, provided a more comprehensive picture of the bus bridge wherein the author observed the train stations and the bus bridges for around 10.5 hours, from 10:45am to 9:10pm. A table summarizing all the observations that day can be seen on Table 5-1.

Table 5-1: *Summary of Field Notes from the SMART Bus Bridge, 10 November 2019*

Observation Location	Vehicle Arrival	Deboarding Count	Deboarded at Station	Transferred to/from Shuttle	Vehicle Departure	Boardings at Station	Notes
Downtown Petaluma	10:49am	70	16	50+ to shuttle, with 2 shuttles to Hamilton with 5 bikes, 1 shuttle to San Marin with 5 passengers	10:55am	0	Pure Luxury driver commented Downtown Petaluma station the worst to maneuver a big bus around
Downtown Petaluma	12:10pm	3	3	6 transferred from shuttle, 4 offs at Petaluma	12:23pm	28	Five passengers got to the station up to an hour early (11:18am) before train departure
Downtown Petaluma	12:48pm	27	12	15 to shuttles; 1 shuttle to Hamilton with 15 passengers with 1 bike, 1 shuttle to San Marin with 2 passengers	12:55pm	2	
Ride from Petaluma to San Marin				2 passengers, 1 transferred from train	12:52pm		Used a 40-seater Pure Luxury van
San Marin	1:12pm	2	2				Matt was manning train station while fellow staff was on break; test train stopped at station before going south; took pics of station area, including bus bays and parking lot
Ride from San Marin to Petaluma					1:24pm	1	Used a 21-seater Pure Luxury van with bike rack
Downtown Petaluma	1:47pm	30	5	20 to Hamilton shuttle with 1 cyclist; none for San Marin	1:55pm	2	Train arrived within 6 minutes of San Marin shuttle arrival

Observation Location	Vehicle Arrival	Deboarding Count	Deboarded at Station	Transferred to/from Shuttle	Vehicle Departure	Boardings at Station	Notes
Downtown Petaluma	2:22pm	0	0		2:28pm	0	Hamilton shuttle arrived the same time the northbound train left, stranding 11 passengers at station until 3:27pm departure
Downtown Petaluma	3:21pm	16	2	First 11 passengers waited for an hour to board this train; a second shuttle arrived from Hamilton with 6 passengers; 3 passengers for San Marin	3:27pm	27	
Ride from Petaluma to Hamilton				7 passengers for Hamilton from train (including 1 from station)	3:29pm	7	Used Pure Luxury Prevost bus; operator went through tight squeeze upon leaving Petaluma station
Hamilton	3:50pm	7	1		4:07pm	6	Boarding at Hamilton includes one cyclist
Hamilton	4:42pm	8	2	Two shuttles arrived within minutes of each other: one at 4:28pm with a bike, the other at 4:31pm with 20 passengers (2 offs at station, rest to the train)	4:52pm	12	Includes at least two passengers who ordered Lyft rides; extended interviews with Matt and Hutch (cf. below)
Ride from Hamilton to Petaluma					5:00pm	2	Used Becoming Independent van; interviewed elderly passenger on board shuttle (cf. below)

Observation Location	Vehicle Arrival	Deboarding Count	Deboarded at Station	Transferred to/from Shuttle	Vehicle Departure	Boardings at Station	Notes
Downtown Petaluma	5:23pm	2	1	1 transferred from Hamilton shuttle to train	5:33pm	27	Finally met Patty, the shuttle coordinator
Downtown Petaluma	5:59pm	7	6	1 transferred for San Marin; 1 cyclist boarded Hamilton shuttle; both shuttles left station 6:01pm	6:05pm	14	Overheard that final train leaving Petaluma at 9:21pm will be held until all shuttles from Hamilton and San Marin arrive at Petaluma station
Downtown Petaluma	7:23pm	6	1	5 transferred from Hamilton shuttle, arrived around 7:15pm	7:30pm	5	Conversed with three operators, two from Pure Luxury, one from Becoming Independent (cf. below)
Ride from Petaluma to Hamilton					7:25pm	5	Used Pure Luxury Prevost bus
Hamilton	7:48pm	5	3		7:52pm	2	Extended interview with Matt (cf. below)
Hamilton	8:27pm	3	2	1 transferred from Petaluma shuttle, arrived 8:23pm; 2 passengers continued to Petaluma via shuttle	8:37pm	1	
Hamilton	9:07pm	6	2	4 continued to Petaluma via shuttle			

The author then noticed at least two shuttle vans arriving in Downtown Petaluma at least one minute after a northbound SMART train left the station, one each on Saturday and Sunday. The missed connection observed on Sunday was worse than Saturday as 11 passengers were stranded at the station for 60 minutes. The reason: congestion or slowdowns coming from nowhere. Since shuttles go through US-101, traffic along that highway between Atherton Avenue in northern Novato and South Petaluma Boulevard in Petaluma might fluctuate depending on roadway conditions, including slow vehicles, accidents, or other untoward incidents. Those issues slow down a shuttle's journey between Hamilton, San Marin, and Downtown Petaluma stations, and congestion along city streets in Novato and Petaluma can make or break passenger journeys.

Multiple notes have been made during the author's observation sessions at the three affected stations. Around lunchtime at the Downtown Petaluma station, Izzy explained that SMART will have a new Communications Manager, Julia Gonzales. Ms. Gonzales will start working for the transit agency December 18th, succeeding Matt Stevens, who served as the interim manager. Prior to that, at least five passengers have showed up at the station up to an hour early, with one family telling Izzy, "our kids love the train so much, they don't want to switch to the bus!" At the empty San Marin station, on the other hand, a 2-car train, units 117 and 118, was used to test the new Downtown Novato station all day prior to its opening in a month's time. That comes despite a few parked cars have been observed within the station and on the street. During the author's brief stay, a 40-footer shuttle van with Pure Luxury managed to go through the station area with ease, which reminded the author of the opportunity Marin Transit will have once the agency extends Route 49 to the station from December 2019. However, it also provides a cautionary tale when the author talked to Matt Stevens and the two Marin Airporter drivers on the feasibility of big buses serving the station directly,

Returning to Downtown Petaluma station around an hour later, another conversation with Izzy took place about the placement of ticket vending machines at SMART stations, especially when a passenger asked where the ticket machine is located upon walking up to the platform. She helpfully explained that, "the number of ticket machines is determined by the number of platforms a station has." In the case of Downtown Petaluma, since there is only one platform, a single ticket machine was installed on the southeast end of the station. Stations like San Rafael and Cotati, on the other hand, have two side platforms, one in each direction, hence two ticket machines are available at both stations. This can be slightly confusing for occasional riders who do not ride SMART often as that would entail them heading from one end of the platform to the other to purchase or reload their Clipper card before boarding a train, especially at the busier stations like Downtown Petaluma and Downtown Santa Rosa (which employs an island platform). Izzy also noted that adding a second ticket vending machine at existing stations "might be difficult as it can involve retrofitting the platform", which would most likely include modifying and adding electrical wires, closing off platform space, and addressing accessibility concerns.

Upon arrival at Hamilton station later in the afternoon, Matt and Hutch discussed about SMART's role in the FASTER program, an effort consisting of some of the Bay Area's most influential companies, aimed at making public transportation in the region more seamless, affordable, and far-reaching. While Matt felt motivated to receive the $2 billion funding to further enhance SMART, he also told Hutch his weakness of speaking in front of the camera, despite him championing the Measure Q initiative in 2008 that made SMART a reality. Hutch then complained about induced demand: "transportation engineers seem to be always behind when a freeway is widened by one lane", reinforcing an earlier notion that drivers will continue to demand widening highways to a point that they want "traffic relief", only for congestion to worsen as more people are enticed to drive on the wider freeways. While waiting for the next train to arrive, Hutch described some of the cargo services that use the SMART line: a dairy and feed train from Petaluma operates through the SMART tracks at least once a week for farms around Sonoma County, while a truss train from Windsor operates once in a while to replace railway tracks and bridge parts.

As the afternoon progressed, an elderly passenger from Rohnert Park wanted to travel on SMART from Hamilton station after visiting her nephew in Novato. Initially, Matt instructed the lady to board the Pure Luxury Prevost bus, and the vehicle will eventually leave once the next train arrives at Hamilton station and receives any transfer passengers. Once the train from San Rafael arrived at 4:41pm, six passengers were directed to a smaller, 40-seater shuttle van that left for Petaluma a few minutes later, while two passengers got off the train and booked Lyft rides from the station. Matt then realized that sending a single passenger on a 56-seater bus would be a waste of fuel that he told Patty when he asked for dispatch instructions, "sending one passenger on a bus from Hamilton to Downtown Petaluma can be seen as either the ultimate luxury or the ultimate irony". He then told Patty that a ten-seater Becoming Independent shuttle van was on standby, and it can be deployed instead of the big bus, implying that he wants to save fuel costs. Hence, Matt instructed the elderly rider to switch to the smaller van, and the author joined her in the journey to Downtown Petaluma station. While on board, the author discovered the passenger hails from Antipolo City in the Philippines, and she spoke with a Filipino accent, hence he struck a conversation with her in Tagalog. The author then explained to the senior that a section of the track was closed between Hamilton in Novato and Downtown Petaluma due to testing at the new station in Downtown Novato. She then asked which train we were aiming for. The author replied 5:33pm. Sure enough, the shuttle van arrived at the station 23 minutes later, giving the passenger 10 minutes layover for the onward train.

After dusk, the conversations became more personal. Initially, Izzy returned to the station minutes after the author arrived from Novato. She was given an instruction by Matt to hold the 9:21pm train leaving Downtown Petaluma station until all shuttles from Hamilton and San Marin stations have arrived and passengers have been transferred safely onto the final train of the evening. After the 6:05pm train left the station, the surrounding area would remain quiet until the next train pulling in at 7:23pm. During the long interlude, the author made three new friends: two operators from Pure Luxury (including the operator of the company's Prevost bus) and another from Becoming Independent (the same driver who took yours truly and the senior passenger from Novato to Petaluma). The stories revolved about how two operators dealt with drug abuse, one of which sobered up after using multiple drugs for over 20 years and transformed his life by going through a severe withdrawal stage, while the other shared the story of his daughter currently abusing another drug, following one of her ex-work managers. The former cleaned his life completely that he has secured a job with Pure Luxury and has been working there for over seven years, while the other observed that her daughter's daughter has been introduced into the drug culture very early resulting from years of abuse. The former advised the fellow operator to follow what he did: a serious withdrawal at home for at least two months, using her daughter as a motivator, to kick the habit. The operator felt very dismayed of what her daughter has gone through, he has threatened to take away her daughter and give her to child support, in which the Pure Luxury operator disagreed and advised him to follow a strict withdrawal procedure for her daughter's sake.

The conversation then continued once the author joined five other passengers on the Prevost bus from Downtown Petaluma back to Hamilton station. Upon arrival, the author met up with Matt once again, in which he took the opportunity to conduct an extended interview weeks after an initial informational interview in Petaluma. Matt commented on his current job: "I can work from anywhere, even from the back of my car, for as long as I have my phone and laptop with me." The flexible work environment Matt enjoys is something the author aspires to have once he becomes a full-fledged transportation planner. The interview then continued with the author asking Matt questions about his future with SMART. He is considering four more years working with the agency until he semi-retires with it, owing to his spouse being far from retirement age. He is also considering returning to consulting, albeit part time, to which the author became curious joining him to work on a few projects. Matt then advised the author to consider working for companies like Nelson Nygaard, to which he commented, "do what's best for you and know people who went to immigrate legally." Over eleven hours later, the author went home, elated with the observations and outcomes.

5.4. First Impressions of Expanding Marin Transit Route 49

Figure 37: *A Marin Transit Route 49 bus and a SMART train meeting at Novato San Marin SMART station*

As Marin Transit extended Route 49 to Novato San Marin SMART station on Sunday, 8 December 2019, the author rode through the extension, not knowing what to expect during the experiment. On the trip to the SMART station, the author rode a bus from his home stop at 12pm, arriving at the station 12:09pm. A little after the Redwood Boulevard & Olive Avenue stop, a road supervisor boarded the bus and instructed the operator to go through the station by accessing the station ramp. The author even told the supervisor that he was going to the train station, and he was timing for a 12:12pm northbound train. When the bus came to the train station, it arrived seven minutes later than the published schedule, resulting in a shorter layover time of eight minutes at the terminal stop instead of 15 minutes. And just as the bus got into the train station, the northbound train was pulling in, allowing just 90 seconds to board the train for Downtown Petaluma. The train got to Petaluma on schedule at 12:23pm, giving him a hearty brunch and a leisurely stroll.

On the return trip, the train left Downtown Petaluma on time at 3:52pm and pulled into San Marin station at 4:03pm. By the time the train arrived, the Route 49 bus was not at the stop. Four other passengers got off at the stop, but they went to their cars parked on the street. The author then checked a bus tracking site around ten minutes later and noted the operator was laying over at the Redwood & Olive stop, the old terminal for the route. The bus then arrived at the stop 4:18pm, left on time, and got back to the home stop nine minutes later at 4:27pm. The operator of the southbound bus told the author a few challenges terminating at the SMART station, including how to go through the station ramp without hitting any cars or pedestrians, and the absence of toilets for operators to use. He also noted drivers simply pulling into the station, with little to no regard for anyone, and letting passengers on or off anywhere along the ramp rather than pulling onto the curb and pickup or drop people off. The operator also fears that more incidents might happen when bus operators take longer layovers, causing backups for pickups and drop offs during rush hours. The biggest concern, however, comes with timing between buses and trains: when the author realized that the bus he rode would get to the station seconds before the northbound train leaves, it motivated him to create a short note Marin Transit to adjust their schedules significantly and retime their arrival at, layover, and departure from San Marin SMART station.

By doing this experiment, the author realized it takes around 10 minutes—in ideal conditions—to get between home and San Marin SMART. That allows him to guesstimate how much rest time he will have at the train station before traveling further. Unfortunately, for Marin Transit's contractors Marin Airporter and MV Transportation, those have a policy of "just-in-time" scheduling that allows drivers to get at a terminal stop, sit there for up to 60 seconds, and start the next trip at the published departure time, giving them no time to stretch, eat snacks, or use the restroom. (This will be discussed in greater length in Chapter 7.2; tables 5-2 and 5-3 also illustrate this problem.) This can be especially problematic when unforeseen delays are found along Route 49, from congestion around San Rafael Transit Center, to dwelling at bus stops and time points longer than usual. Marin Transit can address those issues by either reevaluating its schedules after six months of the initial expansion and determine when to add more buses and boost its frequency to every 30 minutes all day every day, or creating a dynamic schedule which reflects actual traffic flow and ensure that buses get to the SMART station at least ten minutes prior to every train (up to a point that its departures from San Rafael Transit Center should be adjusted significantly).

5.5. Lessons Learned and Suggestions

The Bus Bridge provided valuable learning experiences on what SMART should do to improve transit connectivity at the two Novato SMART stations. While Marin Transit will extend Route 49 to serve the Novato San Marin SMART station from 8 December 2019, it should heed the complaints brought by the two Marin Airporter operators who have conducted their own tests at the station and verified that the extension will be useless unless a proper u-turn slot is introduced to improve operational safety, but also address operator fatigue with "just-in-time" scheduling. For the former, an illustration on the right from Google Maps (cf. Figure 16) demonstrates what the City of Santa Rosa and Coddingtown Mall have done: Santa Rosa City Bus and Sonoma County Transit operators that serve Coddingtown Mall from all directions other than south have to go south along Range Avenue (highlighted in blue), go through a parking lot by making three right turns (highlighted in blue and pink), and turn left to head north along Range Avenue and serve the Coddingtown Mall hub stop next to JC Penney.

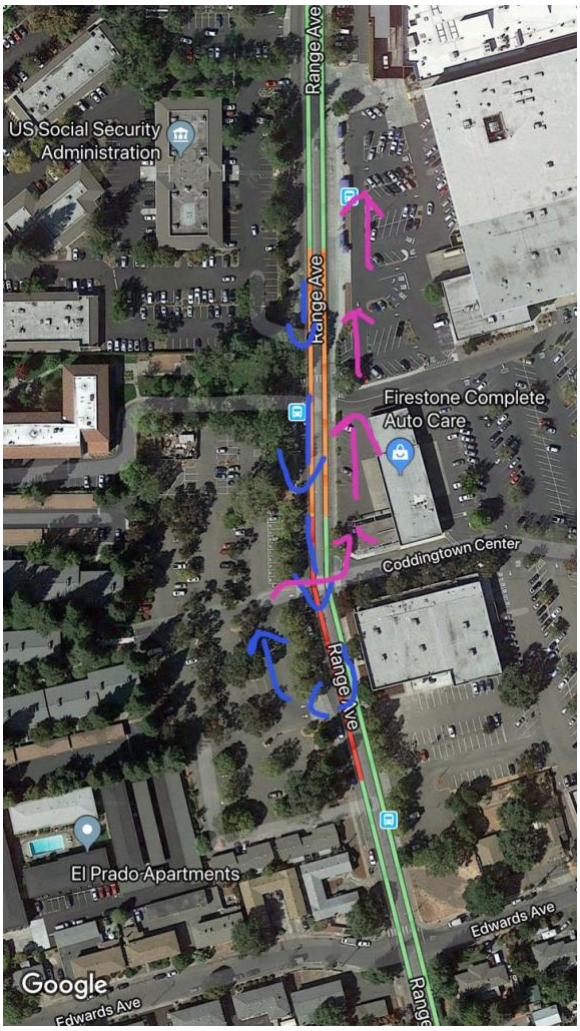

Figure 38: *A model for better bus circulation around the Novato San Marin SMART station, from Coddingtown Mall in Santa Rosa*

In the case of San Marin station, a very tight turnaround can be observed on the service road next to the platform, and there is no ample u-turn space available from the roadside bus stop (cf. Figure 17). During the Route 49 extension experiment, the author notes the tight turns operators need to go through to access the bus stop inside the station ramp. To alleviate the challenges made by the tight setup, two suggestions can be made:

- Create a new surface parking lot on the western flank of Redwood Boulevard (currently a greenfield) and allow extra space through the parking area to better serve large buses (40' and longer) through the station; or
- For a cheaper alternative, redesign the service road to allow a larger turnaround area for buses, shuttle vans, and transportation network companies (TNCs) like Lyft and Uber. While that might remove the dedicated roadway meant for shuttle vans and kiss-and-rides, it will provide even more space for larger buses to turnaround at the station more efficiently and quickly. An example can be seen at Mountain View Caltrain wherein the layout of the bus stop is semicircular in design, with spaces for up to 4 buses and shuttle vans.

Figure 39: *Current layout of Novato San Marin SMART station, facing north. Note the tight, 90-degree angle turns on the service road through the station area.*

Another important takeaway is fostering stronger communication between stakeholders. When SMART was initially built, considerable efforts have been made to coordinate schedules between the rail agency and connecting transit agencies in Larkspur (Golden Gate Ferry), San Rafael (Golden Gate Transit and Marin Transit), Petaluma (Petaluma Transit and Sonoma County Transit), and Santa Rosa (Santa Rosa City Bus and Sonoma County Transit). When it came to Novato, however, neither Golden Gate Transit nor Marin Transit have collaborated with SMART and the city government to reroute bus lines to serve the train stations directions. That led to no connecting transit services at either Hamilton or San Marin stations, despite SMART having built the bus stop infrastructure at both stations and have been sparingly used. Marin Transit has struggled for years to address connectivity at both Novato SMART stations, as evidenced by repeated efforts to reroute bus lines through them from previous short-range transit plans, perhaps because it did not see any demand initially to bring buses and shuttle vans to the train stations directly. As a remedial solution, one bus line will serve the Novato San Marin station from winter 2019, which demonstrates progress in further integrating Marin Transit's operations with SMART, yet more needs to be done.

Figure 40: *A Whistlestop shuttle van carrying passengers to and from SMART's First Year Celebration at Hamilton Station in August 2018*

The greatest lesson from the bus bridge experiment is the importance of balancing operator safety and maintaining on-time reliability, highlighting the "just-in-time" scheduling problem. (This issue will be discussed in depth in Chapter 6.3.) Issues noted by the author and the operators on Marin Transit Route 49 include:

- Some operators inadvertently run their trips late because their prior trips have made them arrive at their terminal late, resulting from either vehicular accidents, congestion, or other factors.
- Boarding and disembarking at stops take longer at some stops, especially during school days when students travel to and from school en masse, slowing the journey even further, and when cash paying riders deal with rejected coins, bills, or transfer cards at the fare box.
- Overcrowding on some trips, especially after school and during certain events.
- Increased congestion at and around San Rafael Transit Center, especially when southbound buses make the final turns from US-101, Hetherton Street, Third Street, and going inside the transit center. Poorly timed traffic lights at the railroad crossings at Fourth and Third Streets, and impatient drivers trying to cut off other drivers by jumping the queue from Hetherton to Third Streets are to be blamed.
- Marin Airporter has been struggling to look for new operators to fill in missing trips and provide a buffer in case another operator is away. Since September, it has been looking for 15 more operators to work in the transit division, while it is looking for 10 more to do the Airporter side. In an interview with two operators in late November, five operators each for both transit and

Airporter operations have been filled, resulting in a deficit of 10 more for the former and five for the latter.

Given that the headways on Route 49 are every 30 minutes during weekday peaks and every hour on all other times weekdays and all-day weekends and holidays, a comparison on the number of buses required to be deployed are highlighted in Table, based on published run times:

Table 5-2: *Average Run Times for Marin Transit Route 49, Fall 2019 schedule*

Operating Day	Northbound (minutes)	Relief Time (minutes)	Southbound (minutes)	Relief Time (minutes)	Number of Buses Needed
Weekday AM Peak	49	30	69	5	5
Weekday Midday	46	10	59	5	2
Weekday PM Peak	49	7	59	5	4
Weekday Night	46	10	59	5	2
Weekend and Holiday	45	20	50	5	2

Table 5-3: *Average Run Times for Marin Transit Route 49, from Winter 2019*

Operating Day	Northbound (minutes)	Relief Time (minutes)	Southbound (minutes)	Relief Time (minutes)	Number of Buses Needed
Weekday AM Peak	51	26	70	5	5
Weekday Midday	48	6	61	5	2
Weekday PM Peak	51	3	61	5	4
Weekday Night	48	6	61	5	2
Weekend and Holiday	47	15	52	5	2

A dangerous trend can be seen once Route 49 is extended to Novato San Marin SMART station from 8 December 2019, especially on weekday trips after 10am: operator relief time at the train station is dangerously low, with some trips having a turnaround time of just three minutes. If Marin Transit will continue to operate with very tight turnaround times at either San Rafael Transit Center or at San Marin SMART station, operators will be more vulnerable to health issues resulting from having no time to use the bathroom, taking a quick walk after a stressful drive, or eating a snack in between trips. To avoid this potential problem altogether, Marin Transit should emulate how it operates its weekday morning peak schedule and deploy more operators and buses as needed. (While this will require more operators from Marin Airporter, as described earlier, a longer relief time at San Marin SMART is highly recommended, as congestion and passenger load along the route can be unpredictable at any time of day.) This is where the recommendation of upgrading the route to operate every 30 minutes all day becomes crucial: not only it will permit longer relief times for operators at the SMART station, but it will also improve passenger reliability and maintain frequent service between Novato and San Rafael, albeit going through more areas like Hamilton and South Novato Boulevard.

The bus bridge experiment proved the viability of transit operations through both Novato San Marin and Novato Hamilton SMART stations. And while Marin Transit has extended Route 49 to the former, it has yet to decide how to serve the latter, especially with at least three local routes stopping close by at Hamilton Theatre Parking Lot. However, persistent problems remain: a combination of unpredictable traffic, varying passenger movements at bus stops, and unexpected route detours can reduce an operator's ability to relieve him or herself at a terminal stop, impacting the reliability of a bus route significantly for both operators and drivers. In Chapter 6, I highlight the issues of service gaps, tight schedules, operations and public health, and connectivity concerns between the three transit agencies, plus opportunities to improve transit patronage in the community.

6. Further Boosting Transit Usage in Novato

Figure 41: *A Golden Gate Transit Orion V bus doing a northbound Route 54 to San Marin in early 2019. In Winter 2019-20, not only was the route truncated to serve Downtown Novato only, but the bus type was also decommissioned and relegated to the agency's contingency fleet.*

Every transit agency evolves and suffers from flaws, no matter how many service plans or route adjustments are made on a quarterly or annual basis. Communities also evolve, sometimes benefiting transit agencies, others pushing them away. Both Golden Gate Transit and Marin Transit adjust their schedules quarterly, on the second Sunday of March, June, September, and December for their spring, summer, fall, and winter schedules, accordingly. Such changes might range from minor schedule adjustments (e.g. add or subtract a few minutes on one or multiple trips) to major service changes (e.g. addition of new route or elimination of a segment along existing route). While it makes quarterly adjustments, from time to time, either agency will release amended schedules based on major service adjustments or special events. For example, Golden Gate Transit indicated that it will discontinue Route 31, the SMART to ferry shuttle service between San Rafael Transit Center and Larkspur Ferry, on 13 December 2019 as SMART will formally open Larkspur station the same day (and its subsequent start of service the following day). Prior to the route elimination, Golden Gate Transit also removed service to and from Peacock Gap in eastern San Rafael from 9 December 2019 due to low ridership. (Golden Gate Transit, "Golden Gate Transit Regional Bus Schedule Changes on Dec. 8 & 9")

Both agencies made significant changes for routes that serve Novato for Winter 2019/20, including: (Golden Gate Transit, "Transit Guide, Winter 2019/20"; Marin Transit, "Route 49 Will Begin Service to the San Marin SMART Station in December")

Golden Gate Transit:

- Routes 54 and 54C have been truncated to operate via Seventh Street, Grant Avenue, and Redwood Boulevard, serving Downtown Novato directly. While it still terminates at the Golden Gate Transit Novato Yard, it does not serve Novato Boulevard and San Marin.
- Route 56 has been renamed Route 56X, with an expanded schedule and service span to mirror Route 54. It has also been extended to operate via Seventh Street, Grant Avenue, and Redwood Boulevard, through Downtown Novato and terminating at the Golden Gate Transit Novato Yard.
- Route 58 gets one additional trip during the afternoon peak, allowing commuters to leave San Francisco earlier than 4:30pm.

Marin Transit:

- Route 49 has been extended to Novato San Marin SMART station. (see previous chapter for more information)
- A morning trip on southbound Route 257 has been adjusted by up to 10 minutes from Indian Valley College to account for increased congestion along Ignacio Boulevard and Nave Drive.

Golden Gate Transit continues to provide bus services in Novato, linking the city with the rest of the North Bay and San Francisco since its inception in 1972. Marin Transit, on the other hand, continually monitors and evaluates local services throughout the county. Opportunities abound, however, to make transit more effective and efficient in one of Marin County's largest communities.

A total of five local lines, three school days-only lines, three commuter lines, and two regional (basic) lines currently serve Novato, including: (Golden Gate Transit, "Transit Guide Winter 2019/20"; Marin Transit, "Rider's Guide, Winter 2019/20)

Table 6-1: *Current Bus Services Operating in Novato, with Service Spans and Frequencies*

Route	Weekday Service Span	Weekday Frequency	Weekend Service Span	Weekend Frequency
35	6:05am-11:12pm	Every 30-60 minutes	6:49am-11:05pm	Every 30-60 minutes
49	6:11am-9:01pm	Every 30-60 minutes	7:15am-10:55pm	Every 60 minutes
54/54C	4:48am-10:02am 2:32pm-8:24pm	Every 15-35 minutes (One round trip daily on 54C)	No Service	
56X	4:34am-10:02am 2:57pm-8:28pm	Every 15-35 minutes	No Service	
58	6:05am-9:01am 3:57pm-6:56pm	Every 15-30 minutes	No Service	
70	4:59am-1:21am	Every 60 minutes	5:00am-1:22am	Every 60 minutes
71X	6:10am-7:08pm	Every 30-60 minutes	No Service	
101	3:59am-2:28am	Every 30-60 minutes	3:49am-2:30am	Every 30-60 minutes
149	M: 7:20am-8:39am, 2:23pm-3:45pm Tu: 7:20am-7:44am, 2:03pm-2:30pm W: 7:20am-7:44am, 2:03pm-2:30pm Th: 7:20am-8:39am, 2:23pm-3:45pm F: 7:20am-8:39am, 2:23pm-2:50pm	AM: 1 trip Tu, We; 2 trips Mo, Th, Fr PM: 1 trip Tu, We, Fr; 2 trips Mo, Th	No Service	
151	M: 6:59am-8:50am, 2:30pm-4:08pm Tu: 6:59am-9:35am, 1:40pm-4:03pm W: 6:59am-8:05am, 1:41pm-3:08pm Th: 6:59am-8:50am, 2:30pm-4:08pm F: 6:59am-8:50am, 2:30pm-4:08pm	M, Th: 3 AM NB trips, 2 PM NB trips, 2 PM SB trips Tu: 3 AM NB trips, 2 PM NB trips, 3 PM SB trips W: 2 AM NB trips, 2 PM NB trips, 3 PM SB trips F: 3 AM NB trips, 1 PM NB trip, 2 PM SB trips	No Service	
154	7:33am-8:25am M, Tu, Th, Fr: 2:20pm-3:22pm W: 1:20pm-2:22pm	AM: one trip PM: one trip	No Service	
251	6:35am-8:56pm	Every 60 minutes	8:01am-8:54pm	Every 60 minutes
257	6:01am-10:25pm	Every 60 minutes	No Service	

Notes:

- *Table above effective 8 December 2019*
- *Golden Gate Transit Routes 70 and 101 have different Saturday and Sunday/Holiday schedules. Times listed indicate the earliest possible departure and latest arrival times.*
- *Route 35 operates through the Canal District in San Rafael, with a longer service span from 5:08am to 2:25am, and operating every 30 minutes daily.*

And these are the bus lines serving Redwood Boulevard & Grant Avenue, the city's busiest bus stop, listed by direction, and first and last trips by day: (* - indicates school route)

Table 6-2: *A Summary of Departure Times from Redwood & Grant, Novato's Principal Bus Stop*

Route	Weekday		Saturday		Sunday	
	First Trip	**Last Trip**	**First Trip**	**Last Trip**	**First Trip**	**Last Trip**
Southbound						
35	6:07am	7:12pm	6:51am	6:51pm	6:51am	6:51pm
49	6:13am	7:13pm	8:22am	10:07pm	8:22am	10:07pm
58	6:09am	7:07am	No Service		No Service	
70	5:03am	11:01pm	5:05am	11:02pm	5:04am	11:02pm
71X	6:12am	5:19pm	No Service		No Service	
101	4:56am	10:55pm	4:58am	10:56pm	4:55am	10:54pm
149*	*Varies*	*Varies*	No Service		No Service	
151*	*Varies*	*Varies*	No Service		No Service	
154*	*Varies*	*Varies*	No Service		No Service	
251	7:10am	8:16pm	8:14am	8:14pm	8:14am	8:14pm
Northbound						
35	7:43am	11:10pm	8:03am	11:03pm	8:03am	11:03pm
49	6:59am	8:59pm	7:54am	9:39pm	7:54am	9:39pm
58	5:27pm	6:53pm	No Service		No Service	
70	6:27am	1:19am	7:27am	1:19am	7:24am	1:19am
71X	7:03am	7:06pm	No Service		No Service	
101	6:34am	1:30am	7:34am	1:31am	7:30am	1:30am
149*	*Varies*	*Varies*	No Service		No Service	
151*	*Varies*	*Varies*	No Service		No Service	
154*	*Varies*	*Varies*	No Service		No Service	
251	6:35am	7:44pm	8:40am	7:40pm	8:40am	7:40pm

In contrast, the SMART train operates with a significantly less consistent schedule, with 17 round trips weekdays and five round trips weekends and holidays. The erratic train schedules though are timed to and from the Golden Gate Ferry services at Larkspur, with Golden Gate Transit Route 31 operating as a bus bridge between San Rafael Transit Center and Larkspur Ferry Terminal. Other bus lines operating between San Rafael Transit Center and Larkspur Ferry Terminal include Marin Transit Route 29 (weekday peaks only) and Marin Transit Route 228 (daily service). Tables 6-3 and 6-4 summarize the departure times and frequencies for Hamilton and San Marin stations, valid until 13 December 2019.

Table 6-3: *SMART Frequencies (in minutes) and Departures for Novato Hamilton Station*

Day and Direction	First Trip	6-9am	9am-4pm	4pm-9pm	Last Trip
Weekday North	6:11am	30-60	30-180	30-90	8:47pm
Weekday South	5:14am	30-60	30-180	30-90	7:44pm
Weekend North	12:04pm	-	60-120	240	9:02pm
Weekend South	11:08am	-	60-120	240	8:18pm

Table 6-4: *SMART Frequencies (in minutes) and Departures for Novato San Marin Station*

Day and Direction	First Trip	6-9am	9am-4pm	4pm-9pm	Last Trip
Weekday North	6:19am	30-60	30-180	30-90	8:55pm
Weekday South	5:06am	30-60	30-180	30-90	7:36pm
Weekend North	12:12pm	-	60-120	240	9:10pm
Weekend South	11:00am	-	60-120	240	8:10pm

A temporary schedule, which will operate through all three stations on weekends, are described in Table 6-5. Note that the Downtown Novato stop will be bypassed on weekdays, and full service to this stop will commence 2 January 2020. (Sonoma-Marin Area Rail Transit)

Table 6-5: *Temporary Weekend SMART Schedule through Novato, from 14 to 31 December 2019*

Southbound			**Northbound**		
San Marin	**Downtown**	**Hamilton**	**Hamilton**	**Downtown**	**San Marin**
10:44a	10:47a	10:55a	11:43a	11:49a	11:52a
12:44p	**12:47p**	**12:55p**	**1:53p**	**1:59p**	**2:02p**
1:44p	**1:47p**	**1:55p**	**2:45p**	**2:51p**	**2:54p**
3:47p	**3:50p**	**3:58p**	**5:20p**	**5:26p**	**5:29p**
7:49p	**7:52p**	**8:00p**	**8:55p**	**9:01p**	**9:04p**

The most prominent reason why train services are erratic, especially on weekdays during the afternoon rush hours, are track and signaling limitations. Most of SMART's current alignment is single tracked, especially through all three stations in Novato, limiting the system's ability to increase throughput versus what a double-tracked railway systemwide would. As a compromise, pass-throughs and slip tracks are strategically located along the railroad between Larkspur and Cloverdale. Addressing the suburban nature of both counties, which currently hampers its potential to carry more passengers and further strengthen the economy of the region, should be prioritized by communities like Novato if it wants to see an increase in train ridership. And while a few stops have park-and-ride facilities (e.g. Alameda del Prado, Rowland Boulevard, and Hamilton Theatre Park-and-Ride), SMART operates its own park-and-ride lots, although those barely see any parked cars. (cf. SMART Ridership and Accessibility Challenges)

The most glaring gap that can be found with transit options through Novato (and Marin County, in general) is the lack of 24-hour transit service. Decades ago, Golden Gate Transit provided overnight bus service along US-101 with Route 80, which operated between San Francisco Civic Center and Santa Rosa. It also served Downtown Sausalito, Marin City, US-101 bus pads, San Rafael Transit Center, Downtown Novato, Petaluma, Cotati, and Rohnert Park. The final southbound bus from Santa Rosa would leave around 10:50pm, which would then leave Novato before midnight and arrive at San Francisco's Transbay Terminal at around 1:10am. The return trip would then leave San Francisco at 2am,

arriving in Novato at around 3:15am and ultimately return to Santa Rosa at around 4:10am. (Golden Gate Transit, "Route 80, Complete Schedule") Nowadays, the last bus from Novato to San Rafael (and by extension, San Francisco) leaves at around 11pm daily, while the first bus from San Francisco to Novato leaves before 5am weekdays and before 6am weekends. Correspondingly, the first bus from San Rafael to Novato leaves at 6am weekdays and 7am weekends and holidays. The gap in bus service, lasting between 6 and 7 hours (compared to between 3.5 and 5 hours in 2003), exhibits a major problem in providing seamless connectivity through the North Bay, especially for workers doing the late and early morning shifts who require public transportation to get around.

A comparison of when the last and first buses ran from their terminals (Route 1 times were from San Rafael Transit Center) can be seen on Tables 6-5 and 6-6.

Table 6-6: *Before November 2003 (Transit Info, "Golden Gate Transit Route 1"; Transit Info, "Golden Gate Transit Route 50"; Transit Info, "Golden Gate Transit Route 80")*

Route	Day	Direction	Last Trip	Gap	First Trip
1	Weekday	Southbound	4:22pm	13hr 36min	5:58am
1	Weekday	Northbound	5:22pm	12hr 30min	5:52am
1	Saturday	Southbound	4:52pm	16hr	8:52am
1	Saturday	Northbound	4:36pm	15hr 3min	7:39am
50	Weekday	Southbound	9:01pm	7hr	4:01am
50	Weekday	Northbound	11:10pm	6hr 28min	5:38am
50	Weekend/Holiday	Southbound	8:57pm	8hr 34min	5:31am
50	Weekend/Holiday	Northbound	11:06pm	8hr 25min	7:31am
80	Weekday	Southbound	10:49pm	5hr 8min	3:57am
80	Weekday	Northbound	2:00am	3hr 21min	5:21am
80	Weekend/Holiday	Southbound	10:50pm	5hr 9min	3:59am
80	Weekend/Holiday	Northbound	2:01am	2hr 56min	4:57am

Table 6-7: *December 2003 (Golden Gate Transit, "Route 57/59 weekday"; Golden Gate Transit, "Route 57 weekend"; Golden Gate Transit, "Route 80.fm")*

Route	Day	Direction	Last Trip	Gap	First Trip
57	Weekday	Southbound	8:43pm	8hr 58min	5:41am
57	Weekday	Northbound	12:25am	6hr 30min	6:55am
57	Weekend/Holiday	Southbound	8:37pm	9hr	5:37am
57	Weekend/Holiday	Northbound	12:25am	6hr 30min	6:55am
70	Weekday	Southbound	7:24pm	11hr 42min	7:06am
80	Weekday	Southbound	9:54pm	6hr 3min	3:57am
70	Weekday	Northbound	10:47pm	8hr 21min	6:08am
80	Weekday	Northbound	12:50am	4hr 53min	5:43am
70	Weekend/Holiday	Southbound	7:23pm	12hr 2min	7:25am
80	Weekend/Holiday	Southbound	9:53pm	6hr 6min	3:59am
70	Weekend/Holiday	Northbound	10:44pm	8hr 18min	6:12am
80	Weekend/Holiday	Northbound	12:48am	4hr 55min	5:43am

Judging from the schedules, Golden Gate Transit cut a significant number of trips to a point that the gaps between the last and first trips on routes serving San Francisco have lengthened. Although the last trip on Route 80 still ran later than midnight, it has not run later than 1am from San Francisco ever since service adjustments were implemented in November 2003. The discontinuation of Route 1 also led to an end of direct services between the two College of Marin campuses in Kentfield and Indian Valley Campus in Novato, as well as one-seat rides between Novato, Kaiser Hospital (San Rafael), Larkspur Ferry, and Marin General Hospital. Even though Route 57 operated a late-night trip daily at 12:25am to compensate for the loss of Route 50, it was eventually cut over a year later due to poor ridership numbers. Most importantly, the overall reduction in service led to an overall decline in ridership, as evidenced earlier in

Figures 22 to 25 from Chapter 3.4, suggesting that transit agencies have struggled to keep ridership numbers high while enduring budget cuts from federal taxes, state grants, and local property taxes among others, all the while the ridership profile evolved to a point that many workers have since retired or work remotely instead.

It is, therefore, understandable for Golden Gate Transit and Marin Transit to continually monitor their services, not just for ridership numbers, but also how much subsidies each route gets. While it is an excellent idea to develop as many one-seat routes as possible, the length of time riders had to endure to travel between destinations must have frustrated some that shorter, direct routes were instituted to allow passengers to get to where they needed to go as quickly and efficiently as possible. Route restructuring also saved transit agencies money from running empty buses for long stretches of the day, especially the shorter routes allowed operators to rest more consistently than a longer route would.

6.1. Transit Projects and Results

A report published by Alta Planning in September 2007, “City of Novato Bicycle/Pedestrian Plan”, provided helpful suggestions to boost transit ridership. “In 2006, two percent of Golden Gate Transit riders arrived at bus stops by bicycle. If bicycle connections to Golden Gate Transit and Marin Transit stops are improved, and especially if these connections are coupled with improved bicycle storage, it would be possible to shift some vehicle trips to the bus stops into bicycle trips. Improving connections to future SMART stations would also encourage those who are arriving in Novato by SMART to bicycle from the station.” (Alta Planning, 2015, 15-16) Furthermore, it explained, “almost two percent of all employed Novato residents commute to work by foot. This is a… high rate for a mid-sized, suburban city, though it is less than the averages for the county, state, and nation. There are many opportunities for increasing walking, the most important being increasing the mix of land uses, reducing pedestrian barriers and installing sidewalks in high priority areas.” (*ibid*, 16)

In response to the comments made by Alta Planning, several projects have been proposed to improve connectivity within Novato and to the city's SMART train stations, with mixed results:

Table 6-8: *A Summary of Public Transportation Projects Planned for Novato*

Project	Source and Page/s	Proposed Implementation	Status
Consolidate local services (Reroute Routes 51 and 52) and increase frequency on Route 51	Moore & Associates, 19-21	September 2011	Not implemented • Revised to downgrade big bus Route 51 and become community Route 251 using a shuttle van
Adjust Route 49 alignment to serve Hamilton SMART Station and Bolling Circle	Moore & Associates, 21-23	September 2011	Implemented, but with adjustments • Service does not operate via Hamilton SMART Station nor via Bolling Circle; instead serves Palm Drive and Nave Drive
Introduce weekend shuttle program (Routes 49 and 51)	Moore & Associates, 24	September 2011	Implemented, but with adjustments as of December 2018: • Route 49 operates with big buses • Route 251 operates with shuttle vans daily
Community Circulator Transit System (replaces Routes 49 and 51, links shuttle lines to SMART stations)	Moore & Associates, 29-33	Unknown (Presented as alternative)	Recommended by Moore & Associates, but not implemented by Marin Transit
Improved local service based on existing service delivery (Routes 49, 51, and 52 to San Rafael)	Moore & Associates, 34-36	Unknown (Presented as alternative)	Not implemented
North Marin County Restructuring	Marin Transit, 2018-2027 SRTP, 3-9	March 2012	Implemented • Eliminated duplicative services • Added 2,150 hours of new service
Service Changes	Marin Transit, 2018-2027 SRTP, 3-9	August 2013	Implemented • Expanded service by 11% in Novato and Tiburon
Service Changes	Marin Transit, 2018-2027 SRTP, 3-9	June 2016	Implemented • Expanded service by 20% on local routes based on Countywide Transit Needs Assessment
Expand Shuttle: Novato Evenings on Route 251	Marin Transit, 2018-2027 SRTP, 3-24	June 2016	Implemented, but on weekends • Expanded weeknight service remains unfunded
Expand Shuttle: Deviate Route 251 or 257 through Hamilton	Marin Transit, 2018-2027 SRTP, 3-24	Unknown	Remains unfunded

Hamilton – Downtown Novato Corridor: expand off-peak and weekend frequencies from every hour to every 30 minutes	Marin Transit, 2018-2027 SRTP, 3-24	Unknown	Remains unfunded
Reduce service on Route 35 between Northgate Mall and Novato	Marin Transit, 2020-2029 SRTP Plan, Item 7, 2	2020	Being studied alongside other plans listed under 2020-2029 SRTP Plan • Alternative service to US-101 bus pads include Routes 49, 70, and 71X (between Downtown Novato and Ignacio) • If Route 35 service to Novato is reduced, passengers might have to wait longer for either Routes 49 or 70 to and from freeway bus pads
Increase service on Route 257 by introducing weekend service	Marin Transit, 2020-2029 SRTP Plan, Item 7, 2	2020	Being studied alongside other plans listed under 2020-2029 SRTP Plan • Weekend service along Grand Avenue through Dominican University currently provided by Route 233 • Weekend service along Las Gallinas Avenue between Freitas Pkwy and Lucas Valley Road currently provided by Route 245 • Ignacio Blvd between Alameda del Prado and Indian Valley College currently served by Route 251 weekends • Introduction of weekend service on Route 257 will restore daily transit service along Los Ranchitos Road and Las Gallinas Avenue through Marinwood
Provide new service to the Marin Community Clinic along Redwood Blvd by either Route 251 or 257	Marin Transit, 2020-2029 SRTP Plan, Item 7, 2	2020	Being studied alongside other plans listed under 2020-2029 SRTP Plan • Staff considering Route 257 to be rerouted to serve Downtown Novato from current terminal at Indian Valley College as a result of the proposed new service to the Marin Community Clinic
Extend Route 49 to Novato San Marin SMART station	Marin Transit, 2020-2029 SRTP Plan, Item 7, 2	December 2019	Implemented • Bus stop located inside San Marin SMART station premises
Evaluate service to Novato Hamilton SMART station with Routes 251 and 257	Marin Transit, 2020-2029 SRTP Plan, Item 7, 2	2020	Being studied alongside other plans listed under 2020-2029 SRTP Plan • Includes evaluation of expanded service to nearby Bel Marin Keys, formerly served by Golden Gate Transit

While significant progress has been made to extend a major local bus line between Redwood Blvd & Olive Avenue in Downtown Novato and the Novato San Marin SMART station in winter 2019, a lack of coordination between the residents, transit staff, and local officials remains on how to effectively deliver transit services within the City of Novato. Even though extensive outreach has been made to develop suitable transit routes, funding limitations, issues with deliverables, and other commitments make such efforts to improve transit services challenging. Perhaps taking a different route, through surveying, interviewing, and eventually, bridging the gap between what transit riders truly want and what local officials can deliver through education, we can narrow the gap between local bus services and SMART. Hopefully, it will also attract even more riders to SMART by using existing bus lines that will serve SMART stations directly.

6.2. Ridership and Accessibility Challenges

After World War II, the United States built thousands of suburban communities, Novato included, that people have shifted from using interurban trains to owning private automobiles. Beirão and Cabral wrote, "Most people are now highly dependent on car travel (Anable, 2005)." However, they argued, "the car is far more than just a means of transport (Steg, 2005). Other motives than just its instrumental functions seem to play an important role, such as feelings of sensation, power, freedom, status and superiority (Steg, 2005). Moreover, the perceived benefits of cars depend on the lifestyle and social–special relations engaged by the user (Hiscock et al., 2002). Some evidence has suggested that some people may not always drive out of necessity, but also by choice (Handy et al., 2005)." It is, therefore, "necessary to promote policies that can reduce private transport dependence as well as the need for driving, by providing alternatives to driving. Such policies might involve an improvement in the public transport service and promoting a shift to slower modes such as cycling or walking. Furthermore, it is necessary to promote measures to reduce the attractiveness of car use (Ga¨rling and Schuitema, 2007)." (Beirão)

Beirão and Cabral then note, "It is important to identify (public transportation's) relative importance to users' satisfaction. For instance, research has shown that reliability (being on time) is a decisive factor (Bates et al., 2001; Edvardsson, 1998; Hensher et al., 2003; Ko¨nig, 2002). The problem is not so much having to wait, but the uncertainty of when the transport will arrive (Ko¨nig, 2002). Likewise, attributes like frequency (Hensher et al., 2003) and comfort (Friman and Ga¨rling, 2001; Hensher et al., 2003) are also highly valued by consumers, being key elements of consumer satisfaction. Other attributes found as having a major negative impact on consumer satisfaction are travel time and fare level (Hensher et al., 2003). Although those attributes are usually considered very important, others may also have a positive effect on satisfaction and can represent great potential for improvement. For instance, service providers should make available clear and simple information (Edvardsson, 1998; Friman and Ga¨rling, 2001). Likewise, the driver assumes an important role in consumer contact (Edvardsson, 1998; Friman and Ga¨rling, 2001). Aspects related to vehicle conditions (for instance, cleanliness) are also meaningful to users (Swanson et al., 1997). (*ibid*)

Pyrialakou et al., then said, "the U.S. has lagged behind in developing research to investigate the impacts of transport disadvantage, as well as in promoting transportation strategies and policies that can address related issues." A few studies on the subject exist (such as Pucher and Renne, 2005 and Rogalsky, 2010), but they do not comprehensively address the U.S. research needs. At the same time, the literature acknowledges that, even though transport-related disadvantage is a universal phenomenon, the typical representation and the experience of it significantly differs among nations, cultures, and social groups (Lucas, 2012; Percy-Smith, 2000). Thus, research in the U.S. context would be important in order to account for the unique settings of American communities. This can be backed by Carleton and Porter's observations, writing that equity requirements, such as Title VI of the Civil Rights Act and the Transportation Equity Act for the 21st Century, "have been carried over into recent legislation and

guidelines, including the Fixing America's Surface Transportation (FAST) Act of 2015 and additional Federal Transit Administration (FTA) regulations, which require all federal funding recipients to distribute services equitably, mitigate disparate impacts, and conduct equity analysis if they service areas whose populations are larger than 200,000 (FTA, 2012a; 2012b). Often, these requirements are viewed as 'too variable and vague' because of the many definitions of equity used, the various analysis methods available, and the many possible subjective decisions and interpretations contained in the analysis methods (Karner, 2018; Karner and Golub, 2015; Marcantonio et al., 2017)." They then implied, "a lack of clear and explicit definitions, un-acknowledged assumptions, biases, judgments, and aggregated measures of disadvantage group need, all combine to produce results which could be easily misinterpreted. These results could also obscure the unintentional (or intentional) judgements and values introduced by the methodological decisions (Brick, 2015; Walker, 2018)." (Pyrialakou)

When Sonoma-Marin Area Rail Transit (SMART train) started service in August 2017, it provided a complementary transit service between Sonoma County Airport and San Rafael, with future expansions to Cloverdale in the north and Larkspur in the south. In the preamble of SMART's report "First Year in Review", released in August 2018, it states, "It takes a lot of effort and people to make a rail transit agency successful." (Sonoma Marin Area Rail Transit, "First Year in Review", 3) The opening of the SMART train on 25 August 2017 marked the return of passenger rail service in Marin and Sonoma Counties in two decades with great fanfare. In the first ten days of service, it has served 24,271 riders, carried 913 bikes, and 78 wheelchaired passengers (Sonoma Marin Area Rail Transit, "Ridership and Revenue Mini Update", 2). Since the system debuted as the first Bay Area transit agency not to issue paper tickets or transfers, 65.8 percent of the riders used Clipper cards, while 34.2 percent used the SMART app during the initial 10 days of service, even though it was operated free of charge for everyone. (*ibid*, 3) On 5 September 2017, SMART started collecting fares from its riders, serving 1,853 riders, carrying 261 bikes, and 11 wheelchaired passengers. (*ibid*, 2) An important observation made when SMART first rolled out was, "on-board bicycle numbers are high on commute days and weekends". (*ibid*, 7) Complaints included bikes cannot be boarded onto trains sometimes due to high passenger volumes, and that periodic conflicts have been observed between passenger seating and bicycle storage. (*ibid*, 7) A year since the train line opened, SMART has carried 722,961 passengers, 65,468 bicycles, and 3,095 wheelchairs. (Sonoma Marin Area Rail Transit, "First Year in Review", 8).

Since its inception, SMART has conducted three surveys, two of which utilizing its on-board WiFi network to collect responses from train passengers and a third survey conducted in person by the MTC. (*ibid*, 9) The results of the three surveys made are highlighted in its Executive Summary, collected from a total of 5,048 WiFi and 410 in-person responses (*ibid*, 10):

Table 6-9: *Survey Results of SMART Ridership Profile*

Description	Value
Household size: (percentage)	
• Two people	38%
• Four people	28%
Ethnicity: (percentage)	
• White/Caucasian	77%
• Hispanic/Latino	15%
Languages Spoken: (percentage)	
• English	95%
• Spanish	4%
Average age of SMART rider (years)	46
Average income of SMART rider (per year)	$97,300
Average number of vehicles per household	2

It also highlights that SMART riders are "choice" riders, in which they have access to a vehicle but choose to ride the train instead. (*ibid*, 10) Most SMART riders also use transit and/or walk for at least a portion of their trip, such that: (*ibid*, 11-12)

- 83% of train riders walked to their first transit stop
- 76% of train riders walked to their destination from their last transit stop
- 40% of riders use two or more transit vehicles on their one-way trip (Golden Gate Transit, Golden Gate Ferry, Marin Transit, or BART)

In terms of rider patronage, 27% of respondents use the SMART train five or more days a week, while 57% ride it at least once a week. (*ibid*, 11) The most popular stations include: (*ibid*, 12)

Table 6-10: *Most Popular Stations with SMART by Ridership Percentage*

Origin (Boarding)	Percentage	Destination (Alighting)	Percentage
San Rafael	29%	San Rafael	26%
Petaluma Downtown	15%	Petaluma Downtown	15%
Sonoma County Airport	11%	Santa Rosa Downtown	13%

San Rafael, Downtown Petaluma, and Downtown Santa Rosa are among SMART's most popular train stations due to their proximity to downtown areas and excellent transit connections. Table 6-11 highlights onward transit connections from those stations: (City of Santa Rosa)

Table 6-11: *Onward Transit Connections from the Most Popular SMART Stops*

Station	Onward Connections
San Rafael	**Golden Gate Transit** Routes 27, 30, 40, 40X, 70, 101 **Greyhound** **Marin Transit** Routes 17, 22, 23, 23X, 29, 35, 36, 49, 68, 71X, 228, 233, 245, 257 **Sonoma County Airport Express** to Oakland International Airport **Sonoma County Transit** Route 38
Downtown Petaluma (Board at Copeland Street Transit Mall)	**Golden Gate Transit** Routes 74, 101, 101X **Petaluma Transit** Routes 10, 11, 24 **Sonoma County Transit** Routes 40, 44, 44X, 48, 48X, 53
Santa Rosa Downtown (Additional routes at Santa Rosa Transit Mall)	**Santa Rosa City Bus** Routes 2, 2B, 6, 9, 12

And in terms of zones traveled, the following commuting patterns are observed: (Sonoma Marin Area Rail Transit, "First Year in Review", 12)

Table 6-12: *Number of Zones Traveled According to SMART's Online Survey*

Number of Zones	Percentage
Three (e.g. Santa Rosa-Novato)	46%
Two (e.g. Novato-Petaluma)	25%
Four (e.g. Santa Rosa-San Rafael)	17%
Five (e.g. Sonoma County Airport-San Rafael)	6%

Compared to the three Novato SMART stations where neither Marin Transit nor Golden Gate Transit provide connecting bus services, and the missed opportunities for bringing more riders to the SMART train become more apparent. And, as described earlier in Chapter 3, the two Novato stations are among the lowest performing in the SMART station. It is, therefore, crucial to address public transportation gaps in Novato if SMART wants to attract more passengers from the community.

6.3. Challenges Using Public Transportation in Novato

With the two Novato stations receiving around four percent of the total ridership in FY2017-18, addressing the culprits that hinder SMART's potential as a viable transportation option starts from recognizing connectivity challenges between transit modes. The bus bridge provided valuable lessons to rectify the mistakes made during the initial construction of the two Novato SMART stations.

When SMART staff explained it hired two private contractors instead of bringing in drivers from Golden Gate Transit and Marin Transit, it highlights major communications gaps between the three agencies. Typically, when a transit agency has service issues, it will call for mutual aid from fellow transit operators to provide bus bridge between stations (e.g. SFMTA calling up Muni bus operators when Muni Metro breaks down), or when the entire system is down due to long-term repairs (e.g. BART Early Morning Bus Bridge, which requires coordination with eight transit agencies that touch the system directly). While it is good that SMART contracts with Becoming Independent and Pure Luxury to provide bus bridge services between SMART stations, it highlights a disconnect between the rail agency and the regional transit agencies that should bridge the gaps in case its trains break down. SMART also identified hiring challenges with Golden Gate and Marin Transit, in which more operators are needed, not just to maintain the levels of service both agencies provide, but also to develop more needed routes that will hopefully reduce the need to drive around Marin County. While SMART provides a faster option between Marin and Sonoma Counties, it is only one part of a much larger (and severely disjointed) transit network in the Bay Area. Having a stable number of operators working for both agencies will not only ensure their routes can be operated full-time, but it will also allow commuters to enjoy reliable transit service.

Figure 42: *Novato Dial-a-Ride is an on-demand transit service available within Novato and is operated by Marin Transit under contract to Whistlestop Wheels*

Golden Gate Transit and Marin Transit not providing enough connecting bus services to Novato's two SMART stations presents a failure in recognizing the need for a seamless transit network. It took Marin Transit at least three years to rectify the issue by extending Route 49 to Novato San Marin SMART, yet it fails to address transit connectivity at Novato Hamilton station where there is adequate space to allow large buses (e.g. Gillig BRT Hybrid 40-footer) to maneuver easily. With Marin Transit operating at least three routes through Hamilton Theatre Parking Lot (Routes 49, 251, and 257), the opportunity to relocate that stop to the SMART station is ripe. A major setback, however, is a loss of connectivity to the nearby apartments, housing subdivisions, and businesses: while it may be countered by the presence of Hamilton Shuttle, it only operates during weekday peaks, which will be insufficient to close the missing service gaps. Similarly, while Novato Dial-a-Ride does a good job in providing on-demand service citywide, operating just one vehicle for the job and a limited span of service still present challenges to close service gaps and provide quality transit connections for everyone. And with Golden Gate not providing any connections at all to either Hamilton or San Marin SMART—its model emphasizes on regional freeway service along US-101—it demonstrates its lack of commitment to improving transit connectivity in Novato compared to central and southern Marin County. (For solutions to these problems, see Chapter 7.5)

Another key reason for the low ridership is fare difference. SMART, identical to its peers with BART and Caltrain, charges higher fares per passenger, but its tradeoffs are faster travel times and passengers can eat and drink while on board. It can be described in a fare matrix, depicted in Tables 6-13, 6-14, and 6-15: (Golden Gate Transit; Marin Transit, "Fares"; Sonoma Marin Area Rail Transit, "Fares")

Table 6-13: *Adult Fares (19 to 64 years old)*

Origin Zone	Destination Zone	Adult Cash Fare (Bus)	Adult Clipper Fare (Bus)	Adult SMART Fare	Clipper Fare Difference
Within Novato (San Marin – Hamilton)		$2.00	$1.80	$3.50	$1.70
Zone 2 (Novato)	Zone 1 (San Rafael)	$2.00	$1.80	$5.50	$3.70
	Zone 3 (Petaluma)	$7.00	$5.60	$5.50	$0.10
	Zone 4 (Santa Rosa)	$7.00	$5.60	$7.50	$1.90

Table 6-14: *Youth (5 to 18 years old), Senior (65 years old and over), and Handicapped Fares*

Origin Zone	Destination Zone	Discount Fare (Bus)	Discount SMART Fare	Discount Fare Difference
Within Novato (San Marin – Hamilton)		$1.00	$1.75	$0.75
Zone 2 (Novato)	Zone 1 (San Rafael)	$1.00	$2.75	$1.75
	Zone 3 (Petaluma)	$3.50	$2.75	$0.75
	Zone 4 (Santa Rosa)	$3.50	$3.75	$0.25

Notes:

- *Golden Gate Transit's adult Clipper fare for trips outside Marin County is 20% off cash fares; within Marin County, the discount is 10% off cash fares.*
- *Discount fares for Golden Gate and Marin Transit are 50% off adult fares using either cash or Clipper card.*

Table 6-15: *Peer Transit Agency Comparisons, Adult Fares (valid until 31 December 2019)*

Route	Mode Comparison	Clipper Fare (Bus)	Clipper Fare (Train)	Clipper Fare Difference
Redwood City to San Francisco	SamTrans vs. Caltrain	$2.05	$5.45	$3.40
San Francisco to Redwood City	SamTrans vs. Caltrain	$3.60	$5.45	$1.85
Between Daly City BART and Millbrae	BART vs. Caltrain	$2.05	$4.05	$2.00
Between Millbrae and Redwood City	SamTrans vs. Caltrain	$2.05	$3.20	$1.15
Between Downtown Berkeley and San Francisco	AC Transit vs. BART	$5.50	$4.10	$1.30
Between Downtown Oakland and El Cerrito del Norte BART	AC Transit vs. BART	$2.25	$2.60	$0.35

While the comparisons in Table 6-15 show similar results, traveling between Downtown Berkeley and San Francisco on BART is cheaper than riding AC Transit, hence more passengers from Berkeley take advantage of the price and time differences BART has over the Transbay bus. In Novato's case, travelers are pushed away from an otherwise faster option and instead ride the buses which occasionally get stuck along US-101 and through Downtown San Rafael. Reasons include Marin Transit and Golden Gate Transit fares within Marin County are significantly cheaper than SMART; the buses operate more frequently and have competitive travel times over the train; and transit stops are closer to where many

riders live and work. This is especially true with Golden Gate Transit Route 101 which provides express service between San Rafael Transit Center and Downtown Novato.

Another issue is travel competitiveness between transit and driving. SMART offers a faster alternative along US-101 by running on dedicated tracks, allowing commuters to travel between San Marin and San Rafael in around 20 minutes, and further down to Larkspur in less than 30 minutes. On the other hand, Marin Transit asserts that it will maintain its current schedule of every 30 minutes weekday peaks and every hour all other times weekdays and all-day weekends for Route 49, especially when it plans to extend service to Novato San Marin SMART from 8 December 2019. (see Chapter 6.1) However, it is still far from its goal of providing service every 30 minutes on this route all-day every day as prescribed by the agency. (Marin Transit, *2020-2029 Short Range Service Plan*, 1-2) Despite its challenges, Marin Transit continually meets most of its targets of providing competitive travel times along its priority transit corridors, with South Novato Boulevard and the US-101 corridor listed among its local basic and local trunkline targets, respectively.

A description of how Marin Transit assesses corridor-level performance are highlighted below and on Table 6-16.

- **Local Trunkline Targets** provides service along a corridor…
    - every 15 minutes all day, every day
    - with a minimum span of service of 14 hours each day
    - with a travel time no more than 150% compared to driving
- **Local Basic Targets** provides service along a corridor…
    - every 30 minutes all day weekdays, with no necessary target weekends
    - with a minimum span of service of 12 hours weekdays and 8 hours weekends
    - with a travel time no more than 200% compared to driving

And here are how the two transit corridors in Novato performed in FY2018-19: (*ibid*, 2-9)

Table 6-16: *Transit Corridor Performance Among Two Novato Corridors, FY 2018-19*

Corridor	Served by Routes	Average Frequency (peak / off peak / weekend)	Span of Service (weekday / weekend)	Travel Time in Percent (transit/driving)
Novato – San Rafael – Marin City via US-101	MT: 35, 36, 71X GGT: 30, 70, 101	15 min / 15 min / 15 min	20 hours / 20 hours	170%
South Novato Boulevard	MT: 49	30 min / 60 min/ NA	15 hours / 14 hours	150%

Note: *Both Routes 49 and 251 serve stops along South Novato Boulevard from Diablo Avenue to Rowland Boulevard around the same time when the former operates every hour. The table also did not mention South Novato Boulevard receives bus service every hour from 8am to 10pm weekends, with a shift of 45 minutes at nighttime for the later, evening trips.*

South Novato Boulevard, therefore, exceeds its average frequency every day if combined with Route 251 between S Novato Boulevard & Sunset Parkway and Redwood Boulevard & Grant Avenue, with service of approximately every 30 minutes northbound and every hour southbound The figures for South Novato Boulevard are a far cry from bus service provided every 30 minutes with Golden Gate Transit Routes 1 and 50 before the November 2003 service cuts where both provided service every 30 minutes all day. A comparison of how often buses ran through South Novato Boulevard & Sunset Parkway can be seen in Table 6-16, with times highlighted in green being the first overall bus trip through the stop in the direction indicated, and times highlighted in red being the last overall bus trip through the stop in the same

direction. (Golden Gate Transit, “Transit Guide”; Marin Transit, “Rider’s Guide”; Transitinfo, “Route 1”; Transitinfo, “Route 50”, Transitinfo, “Route 80”)

Table 6-17: *Comparison of Bus Schedules Through South Novato Boulevard & Sunset Parkway, Before November 2003 and December 2019 (highlighting provided by author)*

Route	Direction	First Trip	6-9am	9am-3pm	3-7pm	After 7pm	Last Trip
Before November 2003, Weekdays (Service Span: 4:15am-12:40am)							
1	South	6:48am	30-60	30	30	-	6:19pm
50	South	4:15am	5-40	30	30	60	9:25pm
54	South	5:05am	5-12	-	-	-	7:52am
1	North	6:17am	30	30	30	-	4:43pm
50	North	7:17am	30	30	30-60	60-90	12:40am
54	North	3:35pm	-	-	7-35	20-50	8:11pm
Before November 2003, Saturdays (Service Span: 5:53am-12:43am)							
1	South	7:58am	60	60	60	-	4:58pm
50	South	5:53am	5-60	60	30-60	60	9:20pm
1	North	9:43am	-	60	60	-	5:43pm
50	North	9:15am	60	60	60	60-90	12:43am
Before November 2003, Sundays and Holidays (Service Span: 5:53am-12:43am)							
50	South	5:53am	60	60	30-60	60	9:20pm
50	North	9:15am	60	60	60	60-90	12:43am
Current Schedule, Weekdays (Service Span: 4:59am-8:53pm)							
49	South	6:19am	30	30-60	30-60	-	7:13pm
54/54C	South	4:59am	7-30	-	-	-	8:31am
251	South	7:27am	60-65	60	60	60	8:33pm
49	North	6:54am	30-60	30-60	30-60	60	8:53pm
54/54C	North	3:51pm	-	-	8-35	30	8:12pm
251	North	8:21am	60	60-65	60	60	7:26pm
Current Schedule, Weekends and Holidays (Service Span: 7:49am-10:12pm)							
49	South	8:27am	60	60	60	45-60	10:12pm
251	South	8:31am	60	60	60	60	8:31pm
49	North	7:49am	60	60	60	45-60	9:34pm
251	North	8:22am	60	60	60	60	7:22pm

Over the span of sixteen years, bus service through South Novato Boulevard & Sunset Parkway has reduced severely. Buses served the timepoint weekdays from 4:15am until 12:40am in both directions, and from 5:53am to 12:43am weekends and holidays prior to November 2003, thanks to the presence of Route 50. The first weekday bus going to Downtown Novato and San Marin arrived at the stop at 6:17am, nearly 40 minutes earlier than the first northbound trip through the stop on Route 49 at 6:54am. The schedule differences for the first bus to San Rafael are also strikingly different: when Route 50 operated, passengers can travel south to San Rafael and San Francisco as early as 4:15am weekdays and before 6am weekends, compared to today where the first Route 54 leaves the stop weekdays at around 5am, and the first direct bus to San Rafael with Route 49 leaves at 6:19am weekdays and 8:27am weekends, up to 2.5 hours’ difference in first trips between 2003 and today. The biggest difference can be found on the last northbound trips through the stop: prior to November 2003, the last Route 50 bus would get to the stop between 12:40 and 12:45am daily; today, Route 49 has its last trip through the stop at 8:53pm weekdays and 9:34pm weekends.

The comparison table highlights the real need to address connectivity issues throughout the city, especially when the last bus ends early. A prime example of this would be the last trip to San Marin in northern Novato wherein before November 2003, Route 50 operated bus service to that neighborhood as late as 12:45am daily; nowadays, the last Route 251 to San Marin goes by the same stop much earlier, at around 7:25pm. (Fortunately, the first trip to San Marin on weekends is much earlier than when Route 50 operated, leaving at 8:22am today compared to 9:15am weekends. That comes despite the first bus to San Marin left South Novato Blvd. & Sunset Pkwy left earlier on weekdays on Route 50 at 7:17am versus

8:21am today on Route 251.) This five-hour difference presents a significant challenge for commuters needing to travel late from work, school, or events: while transportation network companies like Lyft and Uber can provide first- and last-mile connections, having a bus that serves the community through the evening directly improves the quality of life for many, especially for service workers and low-income families. While shorter service spans and longer wait times can save transit agencies money for either developing new routes or paying contractors to operate their services, it unfortunately translates to poorer service for transit-dependent commuters who need buses and trains to get around, exacerbating the problem by relying on someone else to pick them up or walk long distances to get home, to work, or to an event.

Figure 43: *A SMART test train stopping at Novato San Marin station as it prepares to launch Novato Downtown station a mile south of this stop*

Most importantly, a near lack of alternative mobility choices from the two SMART stations forces commuters to rideshare or drive to the station. While SMART can offer faster travel times between Novato and San Rafael (up to 20 minutes from San Marin station), limited transit connectivity and alternative mobility options to the two stations mean residents who might otherwise take a bus or rent an electric scooter have to drive or ride Uber or Lyft to the nearest SMART station from far-flung neighborhoods, defeating the purpose of reducing carbon emissions. Although SMART has a shared bike and pedestrian pathway linking all its stations, Novato San Marin station forces some passengers to negotiate through an active freeway interchange to access the nearest bus stops. And the pathway between the train station and the nearest major bus stop at Redwood Boulevard & Olive Avenue is far from ideal for handicapped passengers as the path to and from the bus stop is not entirely flat nor fully accessible without the assistance of a caregiver or another passenger. And since transit riders rely on Golden Gate Transit and Marin Transit buses to travel around Novato and beyond, many commuters miss out on the opportunities SMART can bring to speed up their travels. Commuters who currently use Golden Gate Transit Route 101 in particular miss out on the time savings SMART can bring on their commute, especially for trips to San Rafael during the morning peak and to Santa Rosa during the afternoon peak because neither agency serve the SMART stations directly. Such missed opportunities should be tapped by Marin Transit, Golden Gate Transit, and private transportation firms to rectify the issues brought by choice commuters who want to reduce their driving and take public transportation instead.

The lack of alternative mobility options is compounded by Golden Gate Transit and Marin Transit not providing parallel overnight bus services when SMART closes overnight for maintenance. As described earlier, a 6- to 7-hour gap exists between the first and last buses with Golden Gate Transit Routes 70 and 101. Those would be ideal candidates for round-the-clock bus service along US-101 as those emulate SMART between Larkspur and Santa Rosa, with an opportunity for Route 70 to serve Downtown Sausalito while Route 30 is not in service. Route 70 can also act as a sweeper to Route 101, wherein the latter can emulate its daytime counterpart and provide limited-stop service through Marin County. For local service through Marin County, either Marin Transit Routes 35 or 49 would be viable candidates for 24-hour bus service to serve stops between Larkspur Ferry and Novato San Marin. The challenges for providing such overnight buses, however, are plenty, most importantly a lack of density to support such service, and the lack of funding to hire operators for the All Nighter service. Hope is not lost, however.

Golden Gate Transit and Marin Transit can emulate what other agencies are doing to provide overnight bus services when BART and Caltrain are closed. Both agencies must assure commuters that timed transfers are available at San Rafael Transit Center and Redwood & Grant in Novato if those want to make the All-Nighter bus service to work. Table 6-18 describes a selection of All-Nighter bus routes, as well as sample routes Golden Gate Transit and Marin Transit can develop alongside those provided by other agencies.

Table 6-18: *A Sample of Current All Nighter Bus Routes and Ideas for North Bay All-Nighter Services*

Agency	Route	Route Description	Service Span	Frequency
Current All-Nighter Bus Routes around the Bay Area (* - daytime terminal at 11th St. & Clay; overnight terminal at 20th St. & Broadway)				
AC Transit	1	Downtown Oakland – San Leandro BART via International Blvd. (Broadway served overnights)	24 hours	Weekdays: every 10 to 60 minutes Weekends: every 10 to 30 minutes
AC Transit	800	San Francisco – Richmond BART via Downtown Oakland, Berkeley, El Cerrito	Weekdays: 12:16am-6:24am Weekends: 11:42pm-8:12am	Weekdays: every 60 minutes Weekends: every 30 minutes
AC Transit	801	San Leandro BART – Fremont BART via E 14th Street, Mission Blvd., Fremont Blvd.	Weekdays: 11:35pm-6:33am Saturdays: 11:35pm-6:44am Sundays: 11:35pm-8:33am	Every 60 minutes
AC Transit	851	Berkeley BART – Fruitvale BART via College Ave., Downtown Oakland, Santa Clara Ave.	Weekdays: 12:12am-5:04am Weekends: 12:13am-5:01am	Every 60 minutes
Muni	L Owl	Fisherman's Wharf – San Francisco Zoo (46th & Ulloa) via Market St., West Portal, Taraval St.	Daily: 1:00am-6:28am	Every 30 minutes
Muni	N Owl	Caltrain Depot – Judah & La Playa via Market St., Haight St., Judah St.	Weekdays: 12:48am-5:54am Saturdays: 12:48am-6:11am Sundays: 12:48am-8:22am	Every 30 minutes
Muni	90	Van Ness & North Point – Bayshore & Sunnydale via Van Ness Ave., Potrero Ave., San Bruno Ave.	Daily: 12:40am-5:52am	Every 30 minutes
Muni	91	San Francisco State University – West Portal Station via 19th Ave., Marina District, Chinatown, Downtown SF, Third St., Geneva Ave., Ocean Ave.	Daily: 12:16am-6:34am	Every 30 minutes
SamTrans	397	San Francisco – Palo Alto Caltrain via Potrero Ave., Bayshore Blvd., SFO Airport, El Camino Real, Middlefield Ave.	Daily: 12:46am-6:32am	Every 60 minutes
VTA	22	Palo Alto Caltrain – Eastridge Transit Center via El Camino Real, Downtown San Jose, King Rd.	24 hours	Every 15 to 70 minutes
Suggested All-Nighter Bus Routes for the North Bay				
Golden Gate	70	San Francisco – Novato via Downtown Sausalito, Marin City, US-101 Bus Pads, San Rafael	Daily: 10:45pm to 5:15am	Every 60 to 90 minutes
Golden Gate	101	San Francisco – Santa Rosa via San Rafael, Novato, Petaluma, Cotati, Rohnert Park	24 hours	Every 60 minutes
Marin Transit	49	Canal District – San Marin SMART via San Rafael, Marin Civic Center, Northgate, Hamilton, Novato	Daily: 9:00pm to 5:00am	Every 60 to 75 minutes

Table 6-19 highlights some trip comparisons between SMART and existing bus services between Novato, San Rafael, and Petaluma:

Table 6-19: *Approximate travel times between select destinations in Novato, San Rafael, and Petaluma by public transportation*

Segment	Route	Origin (Stop or Station)	Destination (Stop or Station)	Minutes
Novato San Marin – Novato Hamilton	SMART	Novato San Marin	Novato Hamilton	11
	GGT 58	Redwood & Olive	Hamilton Theatre Parking Lot	15
	MT 49	Redwood & Olive	Hamilton Theatre Parking Lot	24
Novato Downtown – Novato Hamilton	SMART	Novato Downtown	Novato Hamilton	8
	MT 49	Redwood & Grant	Hamilton Theatre Parking Lot	22
	MT 251	Redwood & Grant	Hamilton Theatre Parking Lot	40
Novato San Marin – Marin Civic Center	SMART	Novato San Marin	Marin Civic Center	17
	MT 35	Redwood & Olive	Marin Civic Center	30
	MT 49	Redwood & Olive	Marin Civic Center	43
Novato Downtown – Marin Civic Center	SMART	Novato Downtown	Marin Civic Center	14
	MT 35	De Long & Reichert	Marin Civic Center	27
	MT 49	Redwood & Grant	Marin Civic Center	41
Novato Hamilton – Marin Civic Center	SMART	Novato Hamilton	Marin Civic Center	6
	MT 49	Hamilton Theatre Parking Lot	Marin Civic Center	19
Novato San Marin – San Rafael	SMART	Novato San Marin	San Rafael	23
	GGT 101	Redwood & Escallonia/Rush Creek	San Rafael Transit Center	25
	MT 71X	Redwood & Olive	San Rafael Transit Center	25
	GGT 70	Redwood & Olive	San Rafael Transit Center	27
	MT 35	Redwood & Olive	San Rafael Transit Center	45
	MT 49	Redwood & Olive	San Rafael Transit Center	60
Novato Downtown – San Rafael	SMART	Novato Downtown	San Rafael	20
	GGT 101	De Long & Reichert	San Rafael Transit Center	22
	MT 71X	De Long & Reichert	San Rafael Transit Center	22
	GGT 70	De Long & Reichert	San Rafael Transit Center	24
	MT 35	De Long & Reichert	San Rafael Transit Center	42
	MT 49	Redwood & Grant	San Rafael Transit Center	58
Novato Hamilton – San Rafael	SMART	Novato Hamilton	San Rafael	12
	MT 49	Hamilton Theatre Parking Lot	San Rafael Transit Center	35
	MT 257	Hamilton Theatre Parking Lot	San Rafael Transit Center	43
Novato Downtown – Petaluma Downtown	SMART	Novato Downtown	Petaluma Downtown	13
	GGT 101	Redwood & Grant	Copeland Street Transit Mall	27
Novato San Marin – Petaluma Downtown	SMART	Novato San Marin	Petaluma Downtown	11
	GGT 101	Redwood & Escallonia/Rush Creek	Copeland Street Transit Mall	25

At the same time, long walking distances between the train station and the nearest bus stops also hinders Novato residents from using SMART. Based on Google Maps, walking distances between Novato SMART stations and the nearest major bus stops (based on number of connecting bus services) are shown in Table 6-20.

Table 6-20: *Approximate distances and walking times for all SMART stations from their closest bus stops*

Novato SMART Station	Nearest Bus Stop	Connecting Bus Lines	Distance (Miles)	Walk Time (Minutes)
San Marin	Redwood & Olive	GGT 58, 70, 101 MT 35, 49, 71X	0.7	13
Downtown	De Long & Reichert	GGT 58, 70, 101 MT 35, 71X	0.2	4
Downtown	Redwood & Grant	GGT 58, 70, 101 MT 35, 49, 71X, 151, 154, 251	0.4	9
Hamilton	Hamilton Theatre Parking Lot	GGT 58 MT 49, 151, 251, 257	0.2	5

Notes:

- *GGT – Golden Gate Transit, MT – Marin Transit.*
- *Subtract or add all GGT and MT travel times by up to 3 minutes if boarding from Redwood & Grant.*
- *For access to Novato Downtown SMART, board or disembark at De Long and Reichert Avenues.*

Perhaps a most disturbing aspect of SMART's ridership at the two Novato stops is the very low parking occupancy rate for both San Marin and Hamilton stations. A SMART representative has shared the average parking figures for Novato since its opening, highlighted in Table 6-21.

Table 6-21: *Average parking statistics at the two Novato SMART stations since August 2017*

Station	Number of Spaces	Avg. Weekday Occupancy	Avg. Weekend Occupancy	Avg. Number of Monthly Users
San Marin	44	7%	2%	7
Hamilton	115	3%	2%	5

Those tables indicate that very few riders get to the two Novato SMART stations by automobile, which is counterintuitive since a great majority of its residents drive alone to work. It also highlights a major problem with station accessibility as both stations are isolated from work and residential centers. Although San Marin station is located not that far from a highway interchange at Atherton Avenue, Hamilton Station is located inside a residential subdivision, requiring an extra five-minute drive from the nearest freeway interchanges at Ignacio (from the north) and Alameda del Prado (from the south). Most importantly, the data presents opportunities for transit agencies, transportation network companies, and private startup firms to better link the three SMART stations using public transportation and alternative modes of transport.

In Chapter 7, I present multiple suggestions for transit agencies to boost bus and train ridership, as well as provide opportunities for micromobility companies to start testing their scooters in Novato, and options for decision-makers to address zoning, land use, and parking concerns, in an aim to enhance the city's overall character.

7. Bringing More Riders to SMART (and Public Transportation)

With very low parking utilization rates, which translate to low ridership figures, Novato officials should consider measures to boost SMART ridership and motivate more residents to use public transportation instead of driving. The report recommends the following ideas:

- Rationalize and revise the city's existing zoning and land use regulations.
- Convince transit agencies to invest more bus services linking the Novato train stations with attractions and employment centers citywide.
- Develop transit education programs that will tame NIMBYs' fears of dense zoning in their neighborhoods and unwanted noise brought by buses running through their streets.

7.1. SMART Woos Riders with More Frequent Service, Attractive Offers

At SMART's board meeting on 20 November 2019, General Manager Mansourian announced major schedule adjustments to its weekday peak service. Instead of every 30 to 90 minutes in the current schedule, trains will leave every 32 minutes between 5 and 9am, and between 3 and 8pm to meet not only Golden Gate Ferry schedules at Larkspur, but also better connections at San Rafael Transit Center. It has also indicated its desire to improve connections with Golden Gate Transit Route 40, the regional bus service between San Rafael and El Cerrito del Norte BART station. And it will increase the number of train sets in service during weekday peaks from four 2-car consists to six. A summary of when trains will operate at 32-minute intervals through the three Novato stations are described in Table 7-1.

Table 7-1: *Morning and Afternoon Peak Times for SMART from 2 January 2020*

Peak Time & Direction	**Southbound**			**Northbound**		
	San Marin	**Downtown**	**Hamilton**	**Hamilton**	**Downtown**	**San Marin**
Morning Peak	6:55am-9:03am	6:58am-9:06am	7:06am-9:14am	6:26am-10:10am	6:32am-10:16am	6:35am-10:19am
Afternoon and Evening Peak	3:13pm-7:29pm	3:16pm-7:32pm	3:24pm-7:40pm	3:45pm-8:01pm	3:51pm-8:07pm	3:54pm-8:10pm

Despite its promise of every 32 minutes during the weekday peak, there is a 64-minute schedule gap between 5:51am and 6:55am from San Marin Station to Larkspur, and from 7:07am to 8:11am from San Marin Station to Santa Rosa.

Weekend and holiday service also see major schedule adjustments, with the first train leaving the Novato stations much earlier (San Marin at 8:24am, Novato Downtown at 8:27am, Hamilton at 8:35am). The earlier departures are timed to Golden Gate Ferry's first crossing from Larkspur at 9:30am. However, the last train operates much earlier than the previous schedule as SMART wants to target an earlier ferry arriving Larkspur at 6:00pm. The train will subsequently leave Larkspur at 6:39pm, arriving at Hamilton at 6:59pm, Novato Downtown at 7:07pm, and San Marin at 7:10pm. This service adjustment weekend nights came as a result of SMART staff observation that the final train leaving Sonoma County Airport at 7:23pm and San Rafael at 8:50pm was the lowest performing of the five trips it operates. The new schedules, described on Tables 7-2 and 7-3 on the next page, has commenced 1 January 2020. A temporary schedule operated from 14 to 31 December 2019 as Larkspur and Novato Downtown Stations opened 13 December 2019, with the latter getting train service weekends and holidays only initially. In preparation for the service change, Marin Transit adjusted service on Route 49 from 8 December 2019. (For a description, see Chapter 2.4, "Ridership Trends: Marin Transit")

Table 7-2: *SMART Weekday Schedule from 2 January 2020*

Southbound						Northbound					
San Marin	Dwtn. Novato	Hamilton	San Rafael	Larkspur	Depart Ferry	Arrive Ferry	Larkspur	San Rafael	Hamilton	Dtwn. Novato	San Marin
5:19a	5:22a	5:30a	5:42a	5:49a	6:35a		6:06a	6:14a	6:26a	6:32a	6:35a
5:51a	5:54a	6:02a	6:14a	6:21a	7:00a		6:38a	6:46a	6:58a	7:04a	7:07a
6:55a	6:58a	7:06a	7:18a	7:25a	7:50a	6:50a	7:42a	7:50a	8:02a	8:08a	8:11a
7:27a	7:30a	7:38a	7:50a	7:57a	8:20a	7:40a	8:14a	8:22a	8:34a	8:40a	8:43a
7:59a	8:02a	8:10a	8:22a	8:29a	8:50a	8:05a	8:46a	8:54a	9:06a	9:12a	9:15a
8:31a	8:34a	8:42a	8:54a	9:01a	9:20a	9:05a	9:18a	9:26a	9:38a	9:44a	9:47a
9:03a	9:06a	9:14a	9:26a	9:33a	10:10a	9:05a	9:50a	9:58a	10:10a	10:16a	10:19a
10:07a	10:10a	10:18a	10:30a	10:37a	11:10a						
10:39a	10:42a	10:50a	11:02a	11:09a	**12:40p**	10:45a	11:41a	11:49a	**12:01p**	**12:07p**	**12:10p**
1:34p	**1:37p**	**1:45p**	**1:57p**	**2:04p**	**2:15p**	**2:00p**	**2:21p**	**2:29p**	**2:41p**	**2:47p**	**2:50p**
						2:00p	**3:25p**	**3:33p**	**3:45p**	**3:51p**	**3:54p**
3:10p	**3:13p**	**3:21p**	**3:33p**	**3:40p**	**4:10p**	**3:30p**	**3:57p**	**4:05p**	**4:17p**	**4:23p**	**4:26p**
3:42p	**3:45p**	**3:53p**	**4:05p**	**4:12p**	**5:10p**	**4:00p**	**4:29p**	**4:37p**	**4:49p**	**4:55p**	**4:58p**
4:14p	**4:17p**	**4:25p**	**4:37p**	**4:44p**	**5:10p**	**4:30p**	**5:01p**	**5:09p**	**5:21p**	**5:27p**	**5:30p**
4:46p	**4:49p**	**4:57p**	**5:09p**	**5:16p**	**5:40p**	**5:00p**	**5:33p**	**5:41p**	**5:53p**	**5:59p**	**6:02p**
5:18p	**5:21p**	**5:29p**	**5:41p**	**5:48p**	**6:40p**	**5:30p**	**6:05p**	**6:13p**	**6:25p**	**6:31p**	**6:34p**
5:50p	**5:53p**	**6:01p**	**6:13p**	**6:20p**	**6:40p**	**6:00p**	**6:37p**	**6:45p**	**6:57p**	**7:03p**	**7:06p**
6:22p	**6:25p**	**6:33p**	**6:45p**	**6:52p**	**7:25p**	**6:30p**	**7:09p**	**7:17p**	**7:29p**	**7:35p**	**7:38p**
6:54p	**6:57p**	**7:05p**	**7:17p**	**7:24p**	**8:50p**	**7:00p**	**7:41p**	**7:49p**	**8:01p**	**8:07p**	**8:10p**
7:26p	**7:29p**	**7:37p**	**7:49p**	**7:56p**	**8:50p**	**7:50p**	**8:29p**	**8:37p**	**8:49p**	**8:55p**	**8:58p**

Table 7-3: *SMART Weekend and Holiday Schedule from 1 January 2020*

Southbound						Northbound					
San Marin	Dwtn. Novato	Hamilton	San Rafael	Larkspur	Depart Ferry	Arrive Ferry	Larkspur	San Rafael	Hamilton	Dtwn. Novato	San Marin
8:24a	8:27a	8:35a	8:47a	8:54a	9:30a	9:10a	9:34a	9:42a	9:54a	10:00a	10:03a
10:24a	10:27a	10:35a	10:47a	10:54a	11:25a	10:55a	11:24a	11:32a	11:44a	11:50a	11:53a
12:14p	**12:17p**	**12:25p**	**12:37p**	**12:44p**	**1:15p**	**1:05p**	**1:34p**	**1:42p**	**1:54p**	**2:00p**	**2:03p**
2:24p	**2:27p**	**2:35p**	**2:47p**	**2:54p**	**3:25p**	**3:05p**	**3:34p**	**3:42p**	**3:54p**	**4:00p**	**4:03p**
5:59p	**6:02p**	**6:10p**	**6:22p**	**6:29p**		**6:00p**	**6:39p**	**6:47p**	**6:59p**	**7:05p**	**7:08p**

SMART emphasizing Golden Gate Ferry connections at Larkspur, as well as indicating how much time passengers will have to transfer between the two modes, highlights the importance of the train service in linking passengers between Sonoma County, Marin County, and San Francisco. According to Google Maps, the walk is around 0.4 miles and can take a minimum of 8 minutes, depending on the route. Walking via Marin Country Market en route to and from the ferry is highly desirable as it brings passengers to shops and eateries, giving them opportunities to relax before continuing with their journeys.

As Marin Transit Route 49 is extended to San Marin SMART, commuters should be aware that several schedules have very tight transfers between modes of less than five minutes. Such transfers might cause passengers to miss their bus or train if one of them is running behind schedule; these are highlighted in red. A full list of transit connections between Route 49 and SMART can be seen in Tables 7-4 and 7-5.

Table 7-4: *Scheduled Connections Between Marin Transit Route 49 and SMART at Novato San Marin Station (Highlighting added by author)*

Route 49 Arrives	SMART NB Leaves	SMART SB Leaves	SMART NB Arrives	SMART SB Arrives	Route 49 Leaves
Weekdays					
7:03	7:07	7:27		5:51	6:09
8:06	8:11	8:31	6:35	6:55	6:59
8:36	8:43	9:03	7:07	7:27	7:29
9:06	9:15			7:59	8:00
9:33	9:47	10:07	8:11	8:31	8:32
10:03	10:19	10:39	8:43	9:03	9:09
12:03	**12:10**		9:15	10:07	10:09
1:03		**1:34**	10:19	10:39	11:09
2:33	**2:50**			**1:34**	**2:09**
3:03		**3:10**	**2:50**		**3:09**
3:33	**3:54**	**3:42**		**3:10**	**3:39**
4:06	**4:26**	**4:14**	**3:54**	**3:42**	**4:09**
4:36	**4:58**	**4:46**	**4:26**	**4:14**	**4:39**
5:06	**5:30**	**5:18**	**4:58**	**4:46**	**5:09**
5:36	**6:02**	**5:50**	**5:30**	**5:18**	**5:39**
6:06	**6:34**	**6:22**	**6:02**	**5:50**	**6:09**
6:36	**7:06**	**6:54**	**7:06**	**6:54**	**7:09**
7:06	**7:06**	**7:26**			
8:03	**8:10**				
Weekends and Holidays					
7:58		8:24		8:24	9:18
9:58	10:03	10:24	10:03		10:18
11:02	11:53			10:24	11:18
12:02		**12:14**	11:53	**12:14**	**12:18**
2:02	**2:03**	**2:24**	**2:03**		**2:18**
4:02	**4:03**			**2:24**	**3:18**
5:58		**5:59**	**4:03**		**4:18**
6:58	**7:08**			**5:59**	**6:18**
			7:08		**7:18**

On weekdays, Route 49 meets 17 out of 19 northbound trains and 15 of 19 southbound trains upon arrival at the SMART station. Connections to Route 49, on the other hand, can be made from 16 out of 19 southbound trains and 13 of 19 northbound trains. The most worrying transfers include two pairs of northbound trips, with one pair scheduled to arrive and depart at the same time; on the southbound transfers, six pairs are worrying, with four during the AM peak having transfer times of two minutes or less. It also highlights the turnaround issue for Route 49 at the SMART station: if Marin Transit will continue to operate four buses on that line during the afternoon rush (especially on trips arriving and leaving between 4 and 7pm), it will be challenging for operators to take a proper break at San Marin station. The train station currently does not have an on-site toilet or porta-potty, compared to Redwood & Olive where toilets are available at a gas station and a cafe. (This issue will be highlighted in depth in Chapter 7.2.) Unfortunately, the last Route 49 trip northbound will not make it to the final northbound SMART train leaving San Marin station at 8:58pm (the bus is scheduled to arrive five minutes later, at 9:03pm), which should have provided commuters one last chance to get the train before it closes for the night. And with an early end for Route 49 southbound (last trip at 7:09pm), Marin Transit loses valuable opportunities to attract more passengers commuting later in the evening from Larkspur (three trains) and Santa Rosa (one train).

On weekends and holidays, all buses will meet the five round trips SMART operates. While there are no significant tight transfers between trains and southbound buses (the shortest is four minutes), three transfers from northbound buses to trains are worrying, all of which have transfer times of 60 seconds or less. If any of those buses miss their arrival by that single minute (typically due to a traffic signal taking longer than expected), transferring passengers would either have to wait for two hours for the next train (for the 2:03pm and 4:03pm northbound SMART departures), or miss the train altogether and ride the bus (for the 5:59pm southbound SMART departure). It also highlights a major schedule disparity, especially between three southbound trains and southbound Route 49 buses: with wait times of nearly an hour between some trips, not enough efforts are being made by Marin Transit to better coordinate with SMART and attract more passengers to its buses.

In January 2020, SMART launched two attractive offers for visitors traveling between San Francisco and the North Bay: a $12 Sail and Rail Combo Ticket, and the Weekender Pass. The *$12 Sail and Rail Combo Ticket* is a pilot program that allows visitors to travel between San Francisco and the North Bay using both Golden Gate Ferry and SMART, advertising it as costing “much less than the cost of gas, bridge tolls and parking fees.” SMART explains, “The new combo ticket is ideal for travel during non-commute hours and for leisure trips,” and passengers can avail of the combo ticket using the SMART e-Ticket app for $12 per direction. The combo ticket is not available on the Clipper card. The Sail and Rail Combo Ticket offer is available during non-commute hours on weekdays, valid for Golden Gate Ferry departures after 8:20am from Larkspur and for ferry crossings from San Francisco any time before 3:30pm. The offer is also valid all-day weekends and holidays. The *Weekender Pass* is another promotion available for travelers wanting to ride both Golden Gate Ferry and SMART on weekends and holidays for the months of January and February 2020 in celebration of the opening of the Larkspur SMART station. SMART describes the offer as, “With the purchase of a ferry ticket heading north into Larkspur, riders can get a Weekender Pass that is good for a free trip on the SMART train. Similarly, with purchase of a train fare heading south into Larkspur, riders can receive a Weekender Pass good for a free ferry trip into San Francisco.” (SMART, *Get Connected to San Francisco*) These offers can certainly boost ridership figures on a train line that continues to provide excellent service for commuters living in the North Bay and visitors traveling around the region.

While SMART does its best to coordinate with connecting transit agencies, including Marin Transit, connectivity issues remain, with very tight transfers between modes highlighted in Table 7-4. Potential solutions include:

- Retime its trips out of San Marin SMART to better connect Route 49 with SMART, especially with less than five minutes' turnaround during the afternoon peak and far from ideal transfer times between modes at select times. Also provide restrooms and more seating area for both passengers and relieving operators.
- Retime Route 49's arrival and departure times at San Rafael Transit Center to better connect with other local and regional routes, potentially arriving at :25 or :55 past, departing at :45 or :15 past respectively, giving drivers a 20-minute layover.
- Dynamic scheduling can be implemented, especially on a day-to-day basis, to allow operators more time to complete their routes and give passengers more breathing room to transfer between the bus and SMART.
- Adding an extra unit during the weekday afternoon rush on Route 49: instead of operating four buses, bring out a fifth bus, identical to the morning peak, to give operators ample recovery time at Novato San Marin station.
- Upgrade Route 49 to operate every 30 minutes daily, especially when Marin Transit hinted at reducing service on Route 35 north of Terra Linda. With more buses operating on the line, it will give passengers more opportunities to use public transportation within Novato and beyond, and it can further boost SMART ridership at the San Marin station.
- Adjusting run times for later trips on Route 49 to meet the final northbound SMART train leaving San Marin at 9:03pm by leaving San Rafael Transit Center at 8pm.
- Adding two southbound trips leaving Novato San Marin SMART station on Route 49, leaving at 8:15pm and 9:15pm on weekdays. To compensate for an earlier northbound departure at 8pm from San Rafael, add up to three northbound evening trips, leaving between 9 and 11pm.

7.2. Use SMART as a Leverage to Bring More Visitors to Novato

Figure 44: *Congressmember Jared Huffman speaking at the opening of the Novato Downtown SMART station on 14 December 2019*

Saturday, December 14th, 2019 was a momentous day for SMART and the City of Novato as the Novato Downtown SMART station finally opened to the public. The first train in revenue service pulled into the train station two minutes late, at 10:49am. The train was held for a few minutes to allow photo opportunities from city, state, and federal dignitaries who were at the event, as well as SMART staff and the general public. Prior to the arrival of the maiden train, city mayor Denise Athas took the opportunity to thank the efforts made by city officials and staff who worked tirelessly with SMART to construct, test, and ensure that the station is worthy to operate in time for the holiday rush. She remarked, "after 60 years of not having a train station in Downtown Novato… and with at least 1/3 of the population living within a mile of the station, the Downtown station has been finally reopened for you." Councilmember Eric Lucan then recounted the many struggles Novato city council went through prior to the train station's opening, indicating that in 2009, they discussed where the two stations shall be built. "While we did not choose Downtown as a suitable location for the second stop, we consulted with residents and businesses whether it would make sense to redevelop the old train station," Lucan explained. In 2015, the city council went ahead with the site review, paying consultants to determine whether the Downtown stop could be served with alternating trains alongside San Marin station. The studies then concluded that the new station is feasible for full-time operations as its distance between it and San Marin station is significant enough that it can accommodate an extra minute or two to operate. And Congressmember Jared Huffman exclaimed at the prospect of the new station as an

opportunity to bring more visitors to Downtown Novato, saying, "maybe on the next 4th of July parade, SMART can be integrated in visitor planning. And I believe the parade can become much bigger as more people from elsewhere can ride SMART, get off at Downtown Novato, and they will be steps away from the parade!"

The SMART train now calling at all three Novato stations, rather than trains alternating stops between Downtown and San Marin, is a major win in further enhancing transit connectivity in the community. "Turning Novato's downtown train platform into a regular stop for the Sonoma-Marin Area Rail Transit train makes a lot of sense," Dick Spotswood writes, in another Marin IJ editorial piece, *Novato SMART Stop Downtown Makes Sense*. "Originally, SMART officials said they could only promise the daily train would alternate with the San Marin stop as the northern Novato place where people could catch and disembark the coaches. The worry was that having another stop could slow down the train's trek up and down the tracks." However, things changed as Fireman's Fund was downsized prior to the train line's opening and moved its headquarters out of Novato: "Novato city officials [then] realized there would likely be more riders, both commuters and visitors, if downtown had a stop." He praised the city for spending its own dollars to make the new station a reality, in which its location "could pay dividends, both in providing access to many riders who could easily walk or ride a bike to the downtown stop, as well as bring visitors and commuters to downtown shops, restaurants and businesses." With approximately 30 percent of Novato's jobs — in nearly 500 businesses — are within a mile of the downtown stop, and quarter of the city's population is within a mile, the new Novato Downtown SMART station can "help bring more businesses oriented to a new role as a center for commuters and visitors." And the new station getting trains all-day, every day rather than skip-stopping between Downtown and San Marin stations "also removes possible confusion for riders, who otherwise would need to keep track of scheduled stops." (Spotswood, "Novato SMART Stop Downtown Makes Sense")

For all the efforts made at making Novato Downtown SMART possible, a few things remain missing: a transit stop that will allow shuttle vans and buses to operate to the station directly from nearby and far-flung neighborhoods, micromobility options including electric scooter sharing and bike sharing, and additional flourishes that will further enhance the station's reputation. With the Sail-and-Rail Combo Ticket and Weekender Pass promotions, those should help in boosting ridership, not just at the Novato stations, but also other stops along the line. The author then proposes several, additional next steps, including:

- A renovation of the old Southern Pacific depot building and either restore it as a waiting room, convert it into a museum (it is currently located not that far away at De Long Avenue & Reichert Avenue), or refurbish it and lease to either a retail store or restaurant which will grace visitors upon arrival in Novato.
- Since the parking area next to the station is currently a gravel lot, convert a small portion of the parking lot into open space, complete with a parking area for electric scooter share and bike share.
- Add wayfinding signs which will guide visitors to nearby transit stops, especially De Long Avenue & Reichert Avenue, and Redwood Boulevard & Grant Avenue. Include approximate walking and biking times on the signs to make the experience worthwhile.
- Convince the Novato Chamber of Commerce to hold more regular events in the city, with Golden Gate Transit, Marin Transit, and SMART being tapped as among their major sponsors.
- SMART can develop a program like BART-able, a program which promotes events around San Francisco and the East Bay throughout the year. Utilizing posters and online advertisements as marketing tools to promote concerts, sales, museum exhibitions, and other events, the program contributes immensely in boosting ridership figures throughout the BART system.

7.3. Recognize the Practicality of Buses by Resolving its Hidden Issues

Figure 45: *Copeland Street Transit Mall near Downtown Petaluma and Petaluma Downtown SMART station. It has a drinking fountain, an abundance of benches, and restroom access for operators.*

A little-known, yet crucial issue that planners at Golden Gate Transit and Marin Transit must address is "just-in-time" scheduling. While transit agencies note that "schedules are approximate due to varying traffic conditions", when an untoward incident arises (e.g. highway congestion, inclement weather, vehicular accident, etc.), operators will either sit out on the congested roadway, deliberately delay their trips and catch up to their schedules en route where feasible, or be instructed by dispatch staff to use alternative routes. Either way, drivers wound up with reduced to no breaks at the terminal of the routes they operate, hence struggling to keep up with their schedules. "Just-in-time" schedule exacerbates that problem further by allowing operators to leave just as they arrive at a terminal, leading to inadequate recovery times to perform bus routes as posted on websites and transit books, which further reduces their reliability and forces choice riders to drive to their destination instead.

Just-in-time scheduling affects not just the two transit agencies, but also others nationwide. While the most frequent transit lines (e.g. Muni Routes 30-Stockton, 38-Geary, and 38R-Geary Rapid) can "mask" the issue of having adequate recovery breaks effectively by simply allowing other operators to jump ahead of them, routes with less frequent headways like Marin Transit Routes 49, 251, and 257—where their headways are hourly most of the day—cannot afford to bring a relief operator to fill in for drivers running significantly behind schedule (e.g. greater than ten minutes late). TransitCenter wrote a compelling story on Denver Streetsblog in late November 2019 on the growing issue of operator shortages among transit agencies throughout the United States by linking it to a survey of bathroom access among Amalgamated Transit Union (ATU) members. Around 400 of its union members participated in the survey, and it produced scathing results: 79.32% of those surveyed indicated operators do not have enough time built into their route schedules to allow bathroom access, of which most operators try to either "hold it in" (82.7%) or avoid eating or drinking before doing their routes (67.94%). To relieve themselves when operators know they are short on time, they sometimes go to extreme measures, from using a tree or bush (31.14%) to using a cup or bottle (30.13%) to using an adult diaper (4.81%). Some operators (26.15%) even reported they soiled on themselves while on the job, which can pose significant health problems, not just for themselves, but for other operators who might use the same bus later in the day, and indirectly to other passengers who might smell the pee or poo they leave behind when they switch drivers en route. (Amalgamated Transit Union)

TransitCenter then wrote, "driving while you have to go to the bathroom is akin to driving under the influence." John Costa, ATU President, described the deplorable situation to them as, "we're in a different world today, where management is all about the money and the company's bottom line. But where's the dignity of a person?" He continued, "The managers making these decisions have private bathrooms 25 feet from their office, and we're out here dealing with a complete lack of access." They then explain OSHA Sanitation Standard (29 CFR 1910.141), which mandates employers to provide access to an "adequate number of sanitary and fully equipped toilet facilities at places of employment." But, "an operator can only make an OSHA complaint if they requested to use the bathroom and were denied." TransitCenter then realized, "it all comes down to time. Pulling over during a shift while you have passengers can quickly become a hostile situation. And bus schedules, most of which are now

created by a computer, don't leave time at the end of a run for a proper break. With traffic worsening in most major metro areas, operators are often *behind* schedule, leaving them with negative time for breaks between runs." (TransitCenter) Years prior to the introduction of scheduling software like Hastus and Remix, operators worked alongside schedulers and managers on building master schedules by hand, tweaking when their buses are expected to arrive at certain timepoints and terminals to account for multiple scenarios, from transfers between buses, to traffic congestion. Now, some transit agencies rely on estimated travel times using Google Maps, in which planners mirror driving times using an automobile and plug them into their schedules using Microsoft Excel, which is both impractical and unrealistic.

Jarrett Walker provides valuable clues on how to make buses, Marin County's primary public transportation mode, more reliable, more accessible, and more equitable. He highlights the problem with most public comments when a major service change is up for discussion: those tend to be "narrow and self-interested", in which "effective network planners (should) look beyond self-interested demands and think more broadly about what motivates people to use transit". He then explains what people demand in their transit needs, all of which provide a starting point for defining *useful* service: (Walker, 23-25)

- It takes me *where* I want to go.
- It takes me *when* I want to go.
- It is a good use of my *time*.
- It is a good use of my *money*.
- It *respects* me in the level of safety, comfort, and amenity it provides.
- I can *trust* it.
- It gives me *freedom* to change my plans.

Walker also highlights which factors will generally cost transit agencies more money and the one factor that will help planners and managers save money. Increasing route frequency, span of service, and line distance will all cost money, while increasing the speed on a line will save money. (Walker, 33) "Good network planning", therefore, "tries to create the simplest possible network. When complexity is unavoidable, legibility tools help customers to see through the complexity and to find patterns of useful service that may be hidden there." (*ibid*, 32)

He then highlights the directness problem, which is especially problematic for suburban cities where facilities are spread out, roads are wide enough to act like highways, and segregated, single-use zoning rule. Marin Transit and Golden Gate Transit have developed express services throughout Marin County: with faster speeds, commuters will not only save time bypassing unnecessary stops, but it also allows transit service to be more reliable as buses cruise up and down Highway 101. Express buses can give better service to frequent riders, but it does not address the issue of connecting suburban communities like Novato. A description of how direct bus routes operate through Novato are shown in Table 7-5.

Table 7-5: *Classification of Bus Routes Through Novato Based on Higashide and Walker*

Route	Direct	Circuitous	Deviating
Golden Gate Transit Route 70	X		
Golden Gate Transit Route 101	X		
Golden Gate Transit Route 54	X	X	
Golden Gate Transit Route 56	X	X	
Golden Gate Transit Route 58	X		X
Marin Transit Route 35	X	X	
Marin Transit Route 49		X	
Marin Transit Route 71X	X		
Marin Transit Route 251		X	X
Marin Transit Route 257		X	

While it is imperative that developing a simple network can save transit agencies thousands of dollars from operating routes that receive fewer than ten riders an hour (or day), transit planners opt to develop *multiple* lines, in which each of them can be direct between two or more points. (*ibid*, 50) This is exactly how Golden Gate Transit and Marin Transit operate along the busiest corridors in Marin County, with multiple lines between San Rafael and Novato, including Routes 35, 49, 70, 71X, and 101. To improve reliability and service quality, however, both agencies should introduce more dynamic scheduling based on historical congestion data and provide a more generous recovery time at all terminals, especially at San Rafael Transit Center where most drivers are only given five minutes' recovery time.

Steven Higashide, author of *Better Buses, Better Cities*, takes Jarrett Walker's ideas a few steps further. Walker notes, "U.S. clients always have the poorest transit budgets, requiring the most painful trade-offs." And "Most (American) cities have unmet demand for bus service, places where more service would be well-used." (Higashide, 35) Kurt Luhrsen, vice president of service panning at Houston METRO, explains a fundamental problem that resonates with many other planners throughout the country: "We don't have money for a new route, so you split an existing route. [The result is] worse service, but there is some more coverage there." (*ibid*, 36) Higashide then explains his ideas of how to build a better bus network: "A network that focuses on building ridership will concentrate frequent service along busy corridors, capturing many trips on [them]. One focused on coverage will provide infrequent service throughout the region, making sure everyone gets something. As one analysis of Houston bus network put it, 'high-ridership routes are primarily straight; low-ridership routes largely squiggle.'" Furthermore, "transit agencies can connect frequent routes into 'frequent grids' that ask riders to transfer. On a frequent grid, at least in theory, the connecting bus should always arrive soon. And a bus network of multiple connecting routes that run frequently for most of the day, 7 days a week, is a network more people can build their lives around." (*ibid*, 24)

However, Higashide cautions planners and decision-makers, "As long as transit agencies are asking for cost-neutral network redesigns, staying within the same budget, a bus redesign is… a win-lose." He further argues, "The Pareto improvement—a policy change that betters some people's welfare without making a single person worse off in any way—is elusive when it comes to service planning." In addition, "planners make tweak after tweak in response to new developments or customer complaints." The author then suggests, "A well-done redesign is more like a win-win-win-win-lose, offering better service for most current riders (including those who currently receive coverage service) and service that is more useful for most people and therefore benefits more people in the future, even as it inevitably inconveniences some riders in the hardest-to-serve places." (*ibid*, 34-36)

Lane Kendig and Bret Keast reinforce Walker's and Higashide's ideas from a land use perspective in their book, *A Guide for Planning for Community Character*. They write, "There are two important connections between character type and transportation: the relationship of character to the viability of transit, and the type of road pattern required." While they describe "only urban types have the density to sustain transit," with their "higher densities and concentration of nonresidential, shopping, jobs, and cultural activities", suburban communities like Novato "have densities that do not sustain transit." Further, "The early rail suburbs were bedroom communities, with jobs concentrated in the central city." Over time, however, communities have evolved into metropolitan regions, with a high percentage of trips leaving the neighborhood on a daily basis because "the range of choices in jobs and shopping in (a metropolitan area) makes it highly unlikely that people will work within the neighborhood." Kendig and Krest then argue, "No matter how walkable a neighborhood, people work where they can find a good job in the region, and shop at stores with a wide range of desired goods (or even travel to a specialty store)." And they attribute to scale having a direct relationship to transportation: "the larger the community, the more activities were available, [resulting in] traffic volumes [increasing] in scale, as trips from the larger region are concentrated in nodes. The advent of the automobile, which made lengthy trips feasible, only enhanced this congestion." (Kendig and Keast, 182-183)

Kendig and Keast's explanation on rail suburbs reinforces Novato's historical role as a community served by the Northwestern Pacific Railroad, described earlier in Chapter 3. Many towns in Marin County were also rail suburbs, including San Rafael, San Anselmo, and Mill Valley, with the North Pacific Coast Railroad (later Northwestern Pacific Railroad) terminating in Sausalito and steamboats ferried passengers between Marin and San Francisco. The Golden Gate Ferry Company, which allowed automobiles to be carried onto boats, was inaugurated in 1920 as a response of Northwestern Pacific Railroad's nonresponse to the demand for auto ferry passage. Ferry and rail service flourished prior to the opening of the Golden Gate Bridge in May 1937, and the auto ferry service ended in 28 February 1941 after a decline in patronage. The Golden Gate Bridge Authority did not resurrect the ferry service until 15 August 1970 when Golden Gate Ferry was inaugurated between Sausalito and San Francisco. Golden Gate Transit was then launched in stages, first by operating limited bus service to and from the Sausalito Ferry Terminal on 15 August 1970, followed by establishing basic bus services between San Francisco, Marin, and Sonoma Counties on 1 January 1972, and finally commute bus services on 3 January 1972. (Golden Gate Ferry)

While Golden Gate Transit and Marin Transit produce Short-Range Transit Plans (which typically span ten years from the publication year) every two years, recognizing how changing demographics, zoning policies, and eventually service plans will impact ridership is crucial. The multiple changes made along the South Novato Boulevard corridor provides an excellent example of what continuous tweaking has done to make transit service less consistent: prior to November 2003, Golden Gate Transit operated two direct bus routes to San Francisco, Routes 50 and 54, with the former operated all-day every day, the latter operated weekday peak periods only. Currently, *six* routes operate along the corridor, two of which operate weekday commutes only (Routes 54 and 54C), another two operating during school days (Routes 149 and 151), and yet another two operate daily, albeit locally (Routes 49 and 251).

To truly unleash the power of the bus in Novato would require increasing frequency on corridors that need transit the most, including South Novato Boulevard and the Hamilton neighborhood. While the US-101 corridor already has sufficient bus service (with Routes 35, 70, 71X, and 101 providing service up to every 15 minutes daily), adding more frequency to areas that will benefit greatly from better bus service will lead to an increase in ridership (as evidenced by providing half-hourly service on weekdays alternating between Routes 49 and 259 between April 2013 and June 2016) and improved service reliability. And with SMART now operational, Golden Gate Transit and Marin Transit should double their efforts to connect to the train by operating bus routes directly to both Hamilton and San Marin Stations. Doubling the current frequencies to operate every 30 minutes on Routes 49 and 251 all day, every day would attract even more riders to use the bus, especially if those have "guaranteed" transfers between modes at the two SMART stations. In the long run, a possible revival of overnight bus service to link Novato with the rest of the North Bay (to mirror SMART service) and San Francisco can be explored.

7.4. To Introduce or To Ignore: The Case for Bike and Scooter Share

While Novato does not have to aspire like San Francisco when the San Francisco Municipal Transportation Agency granted 10,000 electric scooter permits split among four companies (Rodriguez), multiple entities including SMART, TAM, Marin County Board of Supervisors, and the City of Novato should develop policies that will finally allow bike and electric scooter share, not just in the city, but also in other communities served by the SMART train.

Figure 46: *A variety of bicycle and scooter share options, including Ford Go Bike (now Lyft Bike), Lime scooter, and Bird scooter, near SAP Center in San Jose*

At the TechFire summit held at Salesforce Tower in San Francisco on 6 November 2019, Adam Kovacevich, Lime's Head of Government Relations in the Americas, shared his thoughts on the benefits of having Lime and other electric scooter sharing companies in communities large and small. He explains that electric scooter and bike sharing companies can serve multiple purposes, including reducing congestion, serving transit deserts, closes first- and last-mile mobility gaps, and combating climate change. While Novato is sufficiently served by Novato Dial-a-Ride, it is seen as a remedial solution to the fundamental issue of spread-out, exclusive zoning. And with it neither operating on demand nor available 24 hours a day, transit riders in transit deserts like Bahia, Bel Marin Keys, and Black Point neighborhoods still need Lyft and Uber to ferry them between home, work, and their transit stop, defeating the purpose of having a reliable transit network in the first place. Kovacevich wants to address that by describing the eight steps of convincing city and county officials to bring in electric scooter sharing firms, the first of which can prove very difficult (yet manageable) to attain in a suburban community like Novato: "ensure that there is one scooter available per 100 people, have a proper starting fleet, and develop 'dynamic' caps to ensure each company has a fair shot in succeeding in a community." In the case of Novato, with around 55,500 people, that would equate to around 555 electric scooters citywide, which might sound excessive to many residents, even though Marin has been a bike-loving county for decades.

During the same summit, Eric Wang, the founder of Wind electric scooter, also spoke on the challenges of developing a robust scooter rental market and expanding it in cities across the United States. He explained that in Europe, a combination of private cars being expensive, parking as a major hassle, taxis being convenient yet expensive, public transportation seldom operating door-to-door and not time efficient, and walking being slow and laborious are key reasons why the e-scooter fills the gap of a fast, affordable, and convenient point-to-point mobility. Wind initially found success in Western Europe, particularly in Germany. However, scooter stability issues, governmental regulations, and price wars between scooter share and other transportation agencies have forced Wind to develop its own identity and differentiate itself from other companies to become profitable. At the same time, Wind has invested in hiring its own mechanics, engineers, and computer technicians, using used shipping containers as their shared workspace (e.g. vehicle maintenance, trip analyses, etc.), all of which were done to foster workplace camaraderie and ensuring that their product is reliable, safe, and easy to use.

Plans for a bike sharing system for Marin County have been in the works as early as 2012, prior to SMART arriving in Novato. A writer from Smart Cities Dive called OctaviusIII explained at the time:

> Marin was pondering a bike share program of its own, whether as a branch of Bay Area Bike Share (BABS) or as its own independent system. Though the initial study (performed by Alta) had some problems with stop location, overall TAM was optimistic and continued to press forward.
>
> As it turns out, at least when it came to sponsorship, they weren't optimistic enough.
>
> The 2013 study predicted that the initial system, a pilot area between Larkspur Ferry Terminal and downtown San Rafael, would raise just $10,000 worth of private sponsorships, enough to express support but not enough to add serious funding to the system. As of June, the system – without a station in existence – has $247,000 worth of sponsorship pledges.
>
> The sponsors aren't just the typical bike shops or downtown businesses either. Bon Air Center, the huge Greenbrae strip mall, pledged $20,000, enough for a station of its own. Marin General Hospital pledged $40,000, enough for two stations. United Markets and Woodlands Markets both pledged another $20,000, and Emeryville's Clif Bar pledged $40,000. Others pledged, too, but this gives a picture of the kind of support received. (OctaviusIII)

Bay Area Bike Share, which evolved into Ford Go Bike and currently called Lyft Bay Wheels, has expanded its footprint significantly throughout the Bay Area that it now operates 2,600 bicycles and 262 stations from the original 700 bikes and 70 stations in August 2013 (Ford Go Bike), spreading its wings

from San Francisco to Oakland, Berkeley, and Emeryville in the East Bay, and San Jose in the South Bay. Despite numerous requests from Marin residents to establish bike share docks in Marin County, none was forthcoming. Lyft explains on its website that it is committed to place "at least 20% of [its] bikes… in MTC-designated 'communities of concern.'" It also highlights the importance of community outreach as part of its efforts to bring Lyft Bay Wheels to more communities in the region, writing. "We believe in the value of community outreach. Our planning process has been shaped by hundreds of public workshops and meetings with community groups, merchant organizations, elected officials, neighbors, and other stakeholders. We want bike share stations to provide the most benefit to local communities." (Lyft) And it actively seeks corporate sponsorships and partnerships, in which Lyft provides subsidized membership for its employees.

As early as March 2019, Matt Brown wrote an article on the Petaluma Argus that a bike share system might be coming to neighboring Sonoma County soon: "The (Sonoma County Transportation Agency (SCTA)) is accepting proposals through March and will evaluate them in the spring. The format of the program will depend on the winning bid, but models in other cities include dock-based bikes, which are rented and returned to a fixed dock, and others that can be locked to any location and found using GPS." He further explains, "In Petaluma, that would mean a passenger arriving at the downtown SMART station could pick up a public bike and ride it the last mile to a restaurant or concert in downtown. Other bikes could be stationed at the Petaluma Community Center for riders on the east side, according to the proposal, which calls for about 300 bikes overall." "If the pilot program is successful, it could be implemented permanently with government subsidies or via sponsorship," Dana Turrey, a planner with SCTA, said. "A bikeshare program in Healdsburg is sponsored by area hotels." (Brown)

Kevin Fixler of the Press Democrat then wrote in June 2019 that a bike sharing system could come to the North Bay by early 2020, which will primarily target SMART stations and environs. "The plan envisions at least 300 bicycles stationed near Sonoma-Marin Area Rail Transit stops from Santa Rosa to Larkspur, as well as a few key sites in the more populated cities in Sonoma and Marin counties. The focus of the one-year pilot is increasing ways for passengers to get to and from the train, and then judging the program's success for possible future expansion," he writes. Furthermore, "Eight potential suppliers have submitted proposals to the transportation authorities of Sonoma and Marin counties, which are partnering on the $800,000 grant-funded bike system. Transportation officials could pick the winner next week, setting themselves up this summer to fine-tune many of the details, including whether… the bikes will be docked at central kiosks. The bike-share program is slated to begin no later than next spring and could start as soon as this fall." (Fixler)

Companies like Lime, Jump, Lyft, and Spin are among the plethora of bike and electric scooter share firms providing first- and last-mile mobility options throughout the Bay Area. Marin County and SMART should take every opportunity to reign in those companies and develop a sustainable growth plan to make its bike and scooter share efforts worthwhile by giving incentives to operate bike share and scooter share in communities like Novato and grow their operations sustainably by using performance-based metrics.

7.5. Curbing Inefficient Land Uses

To increase transit ridership and bicycle patronage beyond recreational use, communities like Novato should retrofit its street network, develop greenways and extend cul-de-sac streets into adjoining roads to allow more walkers and cyclists, and rethink its zoning, parking, and land use policies. As shopping centers like Northgate Mall in San Rafael see its retailers close at an alarming rate over the past few years, most notably Sears, Gap, and Forever 21, city officials and retailers should think outside the box and develop building plans that are flexible and adaptable to a city's evolving commercial needs.

Jonathan Barrett describes in his book, *Redesigning Cities*, "the most important influences on regional development in the United States are transportation plans and… the provision of water supplies and sewage treatment." He then attributes the former to highway planners who design new roads "to meet existing demand and assiduously not considering the potential for new highways to induce traffic by changing the land uses around the highways," resulting in "unplanned development and unexpected highway congestion." (Barrett, 10-11) Furthermore, he explains the consequences of unchecked development: "much of the recipe for urban sprawl can be found in local zoning and subdivision regulations" wherein "while every new project must be approved under local law, these laws often produce results that neither the public nor the development industry really want." He then lamented the outcomes of unchecked development, especially in suburban communities, saying, "the endless ribbons of commercial development along highways all follow zoning, so do big tracts of suburban houses each the same size on the same sized lots." These wasteful uses of land, Barrett concludes, lead to "a drastic stripping and bulldozing of the suburban landscape". (*ibid*, 11)

Boyer provides a historical context of dispersed development: "as the commodity structure developed in the 1920s to include an expanded participation of workers in the holding of a single-family home and all the commodities needed to support this adventure, there occurred the consequent isolation and abstraction of the uses of land from the qualitative needs of the American city." Furthermore, "the categories and characteristics of urban land policies now became dominated by the economic need to create exchangeable parcels of land, marked and coordinated by the universal application of a zoning law." The results of the "cultural, economic, and racial equations of zoning", Boyer writes, include "uncontrolled urban growth and congestion, development of community services, unequal access to jobs and transportation, (and) homogenous yet fragmented residential districts." All of those led to the loss of "spatial quality and uses of land in the American city", in which each parcel was seen as "marketable" and can be circulated. (Boyer, 154)

Boyer's reflections of dispersed development can be clearly seen in Novato, with only one hospital serving over 55,000 people (if not more), a large regional shopping center, and housing subdivisions peppered around the city. Access to Novato Community Hospital, along with several other medical and city offices along Rowland Way, is severely limited by public transportation. Marin Transit Route 251, a community shuttle line, offers service to the hospital on an "on-demand basis" only: passengers heading to the hospital can inform the operator upon boarding that they want to be let off at the hospital. Passengers who need to board Route 251 from the hospital should call Marin Transit dispatch at (415) 256-8832, which will then alert an operator that someone needs to be picked up at the hospital stop.

Parks and other civic structures are also significantly dispersed. Attractions that are accessible within a 10-minute (1/2 mile) walk to a transit stop are described in Table 7-6.

Table 7-6: *List of Novato Attractions and Closest Transit Lines*

Attraction Name	Location	Closest Bus Routes
Arroyo Avichi Park	1430 Johnson Street	49, 251
City Hall	901 Sherman Avenue	35, 49, 70, 71X, 101, 251
Hamilton Amphitheatre	500 Hamilton Parkway	49, 251, 257
Hamilton Field History Museum	555 Hangar Avenue	49, 251, 257
Margaret Todd Senior Center	1560 Hill Road	49, 251
Marin Museum of Contemporary Art	500 Palm Drive	49, 251, 257
Marion Park	Along Grant Avenue	251
Miwok Park	2200 Novato Blvd.	251
Novato Library	1720 Novato Blvd.	251
Novato Skate Park	1200 Hamilton Parkway	49, 251, 257
Ohair Park (Dogbone Meadow)	3015 Novato Blvd.	251
Pioneer Park	1007 Simmons Lane	251

Scottsdale Pond	Redwood Blvd.	35, 70, 71X, 251
Stafford Grove Park	7th Street & Marion Avenue	251

Note: Golden Gate commuter routes and Marin Transit school routes are not included in the listings as those operate infrequently on weekdays.

Such dispersed civic structures have deep historical roots. Boyer provides a historical context on city planning before the suburban boom after World War II: "business interests and men who controlled city governments no longer supported city planning (in the 1920s)", in which "few were willing to listen to the nostalgic memories of… early planners, for it was believed that no one person, let alone a visionary city planner, could comprehensively foresee the constructive needs of the modern metropolis." She then explains, "it was the unguided and misguided private citizen who really molded the American urban form, and it was his activities that the practical planner must discipline toward an orderly growth." By the end of the 1920s, "the American architect and planner have failed. City streets were clogged with traffic, living and working conditions remain congested, city dwellers and workers existed without sunlight, and the tragedy of unemployment has scarcely been questioned." Worse, "massive architectural structures bore no relationship to the space that formed their immediate context, and fragmented suburban areas held no relationship to the metropolitan whole," resulting in American buildings "being doomed to be perpetually destroyed, and the urban fabric would constantly unravel." The skyscraper, therefore, "became the true icon of the prosperous American city of the 1920s; an inert juxtaposition of one person upon another with no relation to the earth, to space, or to true collectivity," with the order "only exacerbated by the formless suburban subdivisions on the edge of the metropolitan rim." (Boyer, 154-155)

Barrett then conveys Boyer's historical context by eloquently explaining Novato's challenges with dispersed development patterns: it leads to more traffic wherein "Americans have been estimated to lose more than 1.6 million hours a day stuck in traffic", and "the average length of an automobile trip went from 8.68 miles (in 1970) to 9.45 miles (in 1990)." Furthermore, "despite reductions in pollutants from individual automobile exhausts, nitrogen oxide emissions from vehicles are already higher than they were when pollution control devices were introduced," concluding that "technical fixes alone have not… solved vehicular pollution problems." Barrett then writes, "dispersed development [destroys] prime farmland… often located close to cities which began as centers of an agricultural region," which leads to "more runoff from lawns and parking lots, … more erosion, and (worsening) water pollution." He concludes, "it diverts resources and development away from existing cities and suburbs and makes it harder for people in such areas who need jobs to get to those jobs," and that "people in the older areas are paying part of their rates to subsidize the cost of extending these services outward." (Barrett, 78-79)

While Novato does not have to radically increase its density similar to Redmond Town Center in Redmond, WA, it can follow what the community has done: extend the street grid across a rail line and provide a new focal point for an existing town which is located in a much larger suburban region, including a lifestyle shopping center, an office campus, two hotels, a cinema, and multifamily housing. (Bohl, 102-103) Lifestyle centers, on the other hand, can be an appropriate solution for the First and Grant Avenue Mixed Use project and other similar projects like The Square Shopping Center. These centers emphasize open air shopping organized along main streets, in which these are generally characterized more by "their upscale retail, dining, and entertainment tenants, and less by the mix of uses and urban design." These centers typically "don't have anchor stores, provide less gross leasable area, and offer lower overhead than shopping malls", in which 'lifestyle retailers' like Corte Madera-based Restoration Hardware, Pottery Barn, Ann Taylor, and others carry merchandise targeting the affluent market. (*ibid*, 104)

Vanderbilt then explains how the psychology of commuting is not fully explored: "It does not seem unreasonable to wonder why, if traffic is so bad, more people keep choosing to drive more miles," puzzling economists, psychologists, and traffic engineers to name a few. "For many Americans," he writes, "(traffic) is not so bad. They still get to work and back in that same roughly one-hour time frame. In relative terms, American commute times… should be 'the envy of most places in the world', (unlike) Sao Paulo where the congestion is so bad, 'motorcycle medics' are needed to ferry patients between stalled queues of cars to the hospital, [with] average daily travel times of upwards of two hours." Further, "Driving to work alone, which is what nearly nine out of ten Americans do, is still, on average, about 90 seconds faster than the average time for all other methods." In comparison, "the average car journey takes up to one-third longer in Europe than it does in the United States (which is perhaps why Europeans make fewer car trips)." The author then noted a study that looked at the working poor: "those with a car were able to get around three times more quickly than those without one." Finally, he compared the competing commuter psyche: "on the one hand, people seem to hate commuting", in which a survey from Princeton University showed women's feelings about commuting came at the bottom of the list (while intimate relationship and relaxing with friends were near the top). "On the other hand, when people were asked to name an 'ideal' commute time, a survey conducted at the University of California, Davis found the mean response was 16 minutes rather than 'no commute'". (Vanderbilt, 139) This paradox among drivers shows most people are not willing to give up driving, especially when the comparison of an hour's commute to and from work is insignificant.

Peter Calthorpe, in his book *The New American Metropolis: Ecology, Community, and the American Dream,* then advocates for developing Transit-Oriented Development sites to retrofit communities like Novato in an aim to reduce driving. He explains, "TODs offer an alternative to traditional development patterns by providing housing, services, and employment opportunities for a diverse population in a configuration that facilitates pedestrian and transit access." The size of TODs, Calthorpe emphasizes, should be determined on a case-by-case basis, with him defining it as "a mixed-use community within an average 2,000-foot walking distance of a transit stop and core commercial area. TODs mix residential, retail, office, open space, and public uses in a walkable environment, making it convenient for residents to travel by transit, bicycle, foot, or car." (Calthorpe, 56) Furthermore, he writes, "the site must be located on an existing or planned trunk transit line or on a feeder line within 10 minutes transit travel time from a stop on the trunk line. Where transit may not occur for a… time, the land use and street patterns within a TOD must function effectively in the interim." (*ibid,* 62)

The Dutch take a different approach. In *Green Urbanism: Learning from European Cities,* Timothy Beatley discusses how a national locational policy led to greater public transit use and reduce automobile dependence. Since public transportation modes are integrated to an impressive degree, coordinated investments and routes lead to complementary transit modes, resulting in regional and national train systems being fully integrated with local transit routes. "Called the A-B-C policy, it seeks to steer large commercial and institutional activities to sites where public transit can be utilized." These national standards "also limit the number of parking spaces depending on the location type, again with the intent of promoting public transit." When it comes to location of businesses, implementation of the A-B-C policy lies with the local authorities, "although the national government can intervene to prevent a project in a particular site." While some private businesses are in more auto-oriented sites that allowed more parking spaces than necessary, the locational strategy seems to be working, especially in the Randstad (metropolitan Amsterdam). The distinctions include: (Beatley, 112-113)

- A-locations (e.g. hospitals, national government offices): public transit locations situated in city centers close to the main railway station that are not easy to reach by car and have limited parking facilities.

- B-locations: public transit locations that are easy to reach by both public transport and car and are often situated close to a suburban railway station or near other high-quality public transport modes.
- C-locations: locations situated on the outskirts of the city with a direct connection to the trunk road network and difficult to reach by public transport.

Figure 47: *A new rowhouse development, complete with dedicated alleyways for parking, garbage truck, and fire access, near Coddingtown Mall in Santa Rosa*

Is it possible, therefore, to retrofit suburbs like Novato and make them better? Duany et al. provide helpful ideas on "The Possibility of Good Suburbs", explaining that, "in the right form, suburban-scale growth is a healthy and natural way for cities to develop." They write, "since most American cities evolved from small towns, and since most American downtowns began as common main streets, the rules of neighborhood design are the most effective tool for bringing back life to… neighborhoods." Duany then argues, "the presence of suburbs within the city limits is perhaps the single most significant determinant of economic health in urban America," in which "cities that continued to annex their suburbs well into the 20th century, such as Minneapolis, Seattle, and Phoenix, are generally successful financially." However, they provide a cautionary tale with Phoenix wherein its failure to maintain a pedestrian-scale downtown that supports civic life stems directly from the fact that very few people can get there without their cars". They also mention, "between one-third and one-half of urban America's land is typically dedicated to the driving and parking of vehicles," making it "virtually impossible to generate urban density under the tyranny of today's excessive roadway and parking requirements." (Duany et al., 135-138)

SMART must do its part to partner with the City of Novato to develop lifestyle centers and a suburban infill town center downtown, which can strengthen the city's role as a commercial hub. Duany et al. write, "the only urban form that efficiently accommodates mass transit is the neighborhood, with its mixed-use center and its five-minute walking radius." Communities like Novato have opted instead for the park-and-ride instead of neighborhood-based transit wherein it brings suburbanites into the city by transit, "if it only worked." The park-and-ride model, Duany believes, is just another way of saying "intermodal shift", which is a "transit engineering bugaboo since commuters, once they've settled into the driver's seat, will… cruise all the way to their final destination." They conclude, "If driving and parking downtown are anything other than a nuisance, park-and-ride will never be a popular alternative." (*ibid*, 138-139) Novato can choose an alternative path of offering better mass transit for residents and businesses rather than more parking spaces. In the book Placemaking: Developing Town Centers, Main Streets, and Urban Villages by Charles Bohl of the Urban Land Institute, he describes opportunities to develop infill town centers in suburban communities like Novato wherein private developers can develop extensions of existing town centers and edge cities. He then lists a few key ideas that municipalities like Novato can adopt to support place making, with items believed to be what the author sees are most crucial, including: (Bohl, 153-154)

Thinking big by envisioning projects being built in the city into the larger picture—how projects fit together to form the city. Novato has a few, distinct neighborhoods, including Downtown, San Marin, Ignacio, Bel Marin Keys, and Hamilton. Each of them may have their own character and unique feel, but those neighborhoods seem to be not fully integrated into what Novato wants to be. This lack of identity (save for reclaiming Hamilton from a utilitarian air force base to a mission-style community) puts Novato at the crossroads. As a suburban city established in 1960, it does not have the historical vibe like Sonoma,

or a county center feel like San Rafael. Novato must find ways to differentiate itself from the rest of Marin County by developing projects that will enhance the community, not disjoin it into parts.

Emphasizing neighborhood scale and context: the allure of places and how they will look and feel to people can get lost in regulation. To create distinct neighborhoods and districts, regulators must understand the purpose of each neighborhood being created, how it will be connected to other districts other than just highways, and develop guidelines that satisfy, not just developers and planners, but also residents and businesses. Novato might already have this in place with the Design Review Board, but the author believes it is not doing enough to put developers on notice that the era of surface parking lots will transition to bike lanes, walkable streets, and public transportation very soon. The city should do more to bring more stakeholders to the table when new developments are being built, especially those who might be most impacted by such projects, rather than doing business as usual.

Using sound market analysis to inform planning, determine the desired product, and putting incentives in place that will support the desired outcome. While Plan Bay Area and its subsequent plans have policies that encourage communities to build transit-oriented developments near train stations and major bus stops, Novato has done little to act on the continuing housing crisis. When Millworks near Downtown Novato SMART was built, people protested its construction as it felt far too dense for the community. Yet, with the SMART system now in place, the medium-density development will see its popularity soar that its rental value might rise since it is within five minutes' walk of the train station, further boosting its attractiveness as a transit-oriented apartment complex. The city should then target developers who can build more structures like Millworks and develop such medium-density structures near SMART stations where possible to make them more attractive to prospective buyers.

Taking control of planning by breaking down municipalities into districts and connecting them with streets and sidewalks. While sections of the city are still unincorporated and managed by Marin County (e.g. Ignacio, Indian Valley, areas west of San Marin, Black Point, Green Point), Novato should actively engage residents on the importance of incorporating all neighborhoods and strengthening their connectivity by developing them into workable districts, complete with infrastructure that will better connect them with the rest of the city. Rather than relying on major arterials like Atherton Avenue, Novato Boulevard, Bel Marin Keys Boulevard, or the two major highways, opportunities can be made to strengthen such connections by completing the street grid, extending major corridors to link either another major corridor or a highway, creating parks and open spaces that attract developers and residents, and continually evaluating opportunities to sustainably develop neighborhoods without spending excessively on tearing down more greenfield.

Zoning for maximum flexibility by stopping micromanagement of land uses and instead allow people to invent something at a very small scale, which can then support more organic types of development. With Novato's segregated zoning, it is a challenge to develop a sense of identity at the street level. It then permits traffic engineers to create barriers that would have otherwise made the street more habitable by people who want to take pride in the corridor they live in. Rather than micromanaging land uses by creating textbook-like regulations, pare them down to the essentials. If the city council is motivated enough, rewrite the entire regulations manual, and pair them with extensive public consultation and site visits. That way, residents, planners, and officials will finally understand what opportunities neighborhoods have missed to make them more livable, which can translate to redressing development and zoning issues, and opening doors for residents to become more creative with how they want their streets (and neighborhoods) to be.

Rezoning at the worst point. In Novato's case, this can mean redoing some of its segregated residential zones around Hamilton Station to promote mixed-use development and build more affordable housing units without causing upset neighbors to disrupt city council meetings. Duany et al. explain that building

affordable housing will require reappraising the value of living above the store and outbuilding (e.g. garage apartment or granny flat). The former will not only promote mixed-use zoning and contribute to much-needed height to retail buildings, but can also provide customers for the shops, increasing street activity and improving nighttime surveillance for the neighborhood. "Building homes above shops also represent one of the most economical ways to provide housing as the land and infrastructure costs are covered by the shops; the housing can be supplied for the cost of construction alone," he writes. The only possible additional expense will come from local parking requirements: "wise municipalities will waive this rule," he continues, "since residents need parking primarily when stores and offices are closed, their lots empty." The latter, on the other hand, addresses the issue of renting out unused bedrooms, which "would (typically) violate the privacy of the homeowner." As an alternative, "the house and the outbuilding create a wonderful symbiotic system," including providing affordable housing in stable single-family neighborhoods, built-in policing mechanism, rental payments from the outbuilding help pay the mortgage on the main house, bringing homeownership within closer reach of the middle class, and the flexibility between community and privacy to a household structure. (Duany, 50-52)

Finally, **admit that growth will occur**. Duany et al. write, "Growth (moratoria) eventually create a scarcity of real estate that prices become severely inflated," while at the same time, "the potential profit to be made on new development grows so high that the building industry is motivated to mount a huge lobbying effort, which seems justified by the housing shortage." Such "no-growth movements… last for only one or two political generations, which often serves as an excuse to avoid planning entirely." Consequentially, "when those are eventually reversed, growth quickly resumes in the worst form," leading to "a further admission that growth is a problem that must be shared by multiple jurisdictions." Such "social inequity [resulting] from separating new developments from old deterioration ca be addressed only by governments working in concert." (*ibid*, 142)

In Novato, multiple developments are currently being eyed or constructed near the station premises in a bid to attract more riders to the SMART train. For a list of highlights, see Table 7-7. For a full listing of projects being developed or under construction near Novato's SMART stations, see:

- Appendix C for projects near Hamilton Station.
- Appendix D for projects near San Marin Station.
- Appendix E for projects near Novato Downtown Station.

Table 7-7: A Selection of Projects Currently in the Pipeline in Novato

Project Name	Project Type	Location	Description	Status
C Street Village	Neighborhood Commercial	970 C Street	A series of 32 two-story townhomes, ranging from studio units to four-bedroom flats	Design workshop conducted 6 March 2019; formal planning application submittal pending.
Hamilton Village	Community Facilities	802 State Access Road	Up to 80-unit residential townhomes on a 4.7-acre vacant parcel	Neighborhood meeting conducted 2 October 2019; environmental review being assessed.
Homeward Bound Workforce and Veteran Housing	Community Facilities	Vacant parcel south of 1385 N Hamilton Pkwy	Construction of three buildings, with two structures containing 26 single-bed affordable workplace units in one building, and 24 single-bed affordable units for homeless veterans on the other. Also includes construction of a new single-story kitchen and events building, with flex space for various events and a dining area for up to 200 people.	Submitted conceptual design as of 6 August 2019; being assessed for level of environmental review pursuant to CEQA guidelines.
Novato Village	High-Density Multifamily Residential	801 State Access Road	Development and construction of a 48-unit apartment building for senior residents 55 and over	Permit approved 30 July 2013, currently under construction.
7711 Redwood Residences	Business & Professional Office; Affordable Housing Overlay	7711 Redwood Blvd.	Up to 14 buildings, with 80 for-sale residential units, consisting of 70 three-bed and 10 two-bed units. Each of the buildings will have its own roof deck, with 177 parking stalls being installed, and 16 units will be allocated for low- and very low-income buyers (8 for each category).	Planning Commission meeting held 14 October 2019; environmental review, design review, tentative map pending; public hearing TBD.
Atherton Place	Mixed Use	7533/7537 Redwood Blvd	Development of 50 for-sale, market-rate townhomes and 1,360-square foot leasable commercial space on a vacant 3.6-acre site. 145 onsite parking spaces plus 19 on-street parking spaces are proposed. Building subject to state subdivision laws and prior version of city's Affordable Housing Ordinance that exempts it from constructing affordable units	Originally filed 28 March 2007; applicant proposed to pay a fee in lieu of providing affordable units; Design Review Commission hearing for final design details for 50 townhomes and 1,318- square foot leasable retail space held 20 February 2019.
Habitat Redwood Blvd	Light Industrial Office	8161 Redwood Blvd	Development and construction of 80 townhouse-style units for sale with an approx. 1,600-square foot commercial building and 126 parking stalls on a 13.5-acre site. Residences will be between 1 and 3 stories tall, with maximum height of 38 feet.	Planning Application submitted 18 September 2019; master plan, subdivision map, and environmental review pending.

Project Name	Project Type	Location	Description	Status
Landing Court Homes	General Commercial with an Affordable Housing Opportunity	NW side of Landing Ct across Public Storage	Redevelop approx. 2-acre property currently being used for RV, boat, and trailer storage on Landing Court with 32 townhomes, with an opportunity to develop up to 34 homes via an Affordable Housing overlay	Design Review Commission meeting held on 3 July 2019 for review of site design, landscape plan, and architecture; environmental review pending.
The Pavilions Eco-Village	Business and Professional Office; Planned District	200 Landing Ct	Develop 26 live/work units and a one-story business/community center on site. The live/work units will range in size from 973 to 2,000 square feet (includes garages), while the business/community center will be 1,800 square feet. Buildings will be up to 23 feet high from finished grade.	Design Review Workshop held 1 August 2018; still undergoing master plan amendment, precise development plan, land division, and design review.
Springbrook Green Homes	Medium Density Multifamily Residential	1602 Vallejo Avenue	Proposal for nine 3-story, attached residential homes in two building clusters, one building with four attached homes and the other with five. Eighteen off-street parking spaces are proposed, with one garage space and one uncovered space per home.	Conceptual Design Review Workshop with Design Review Committee held 18 September 2019; environmental review for CEQA pending.
First & Grant Mixed Use Development	Downtown Core Retail	1107 Grant Avenue	Location of former Pini Hardware Store, proposed building will be 3 stories tall, with approx. 13,300 square feet of ground floor retail space and two floors of residential space, totaling 32 units. Zoning allows maximum floor area ratio of 2.0 parking spaces per unit; proposal is 1.67. 46 parking spaces proposed for residential component, located in a 1st floor parking structure at rear of building with alley access. Applicants propose utilizing parking exemption allowed for downtown commercial uses up to 1.0 floor area ratio.	Received Planning Commission approval 5 November 2018; design review, use permit, and environmental review pending.

Looking at the various developments near the Novato SMART stations, all developments close to San Marin SMART are new developments. Only one of them, the 7711 Redwood Residences, will offer a token number of affordable housing units. Two new hotels north of the station will provide additional commercial traffic to the area, to which SMART will not be a beneficiary because such establishments are more car-centric than transit-oriented in nature. Developments near Hamilton SMART, on the other hand, are more varied and inclusive to moderate- and low-income families, seniors, and the homeless, given that the former air force base has been converted into a bedroom community. Downtown Novato, therefore, will provide the best opportunity to develop more mixed-use structures, especially along Grant Avenue where the new SMART station can draw more visitors to the city.

7.6. Fighting Congestion by Fixing Priorities

Despite the growth of new developments, first- and last-mile mobility problems between the train stations and the rest of the city still exist. With Marin Transit and Golden Gate Transit currently not providing bus services to Hamilton SMART station, there is little incentive for many commuters to potentially use SMART as a mode to travel between Novato and the rest of the North Bay. The presence of US Highway 101 and CA Highway 37 presents challenges in shifting an auto-centric suburban community like Novato to further embrace public transportation options like SMART and Marin Transit as an alternative to driving.

A major problem of shifting commuter behaviors from driving to using mass transit has been analyzed academically. Beirão and Cabral argued, “it is not expected that the public transport system would be able to provide a level of service with enough appeal to attract large numbers of car users to switch to public transport (Hensher, 1998). Policies which aim at increasing public transport usage should promote its image, but at the same time, public transport systems need to become more market-oriented and competitive. This requires an improvement in service quality, which can only be achieved by a clear understanding of travel behavior and consumer needs and expectations. Therefore, it becomes essential to measure the level of service in order to identify the potential strengths and weaknesses of public systems. This can provide clues to public transport management in the process of evaluating alternative service improvements aimed at enhancing user satisfaction and increasing market share.” (Beirão)

St-Louis et al. back Beirão’s claims. Studies by Turcotte (2005), Turcotte (2011) and Páez and Whalen (2010) in Canada, and Friman et al. (2013) in Sweden, found that active transportation commuters tend to be the most satisfied. Cyclists display the highest satisfaction scores, and pedestrians usually rank in second. This finding sparked an interest to understand why active transportation users experience higher levels of satisfaction compared to motorized commuters, which led to studies such as Willis et al. (2013) and Manaugh and El-Geneidy (2013) that focused respectively on cyclist and pedestrian satisfaction. They then conclude that “public transport users are generally the least satisfied compared to users of other modes” (Friman et al., 2013; Gatersleben & Uzzel, 2007; Páez & Whalen, 2010; Turcotte, 2005). Recent work has especially focused on differences between drivers and public transit users, as the uptake of public transit instead of the car is a mode switch that several governments seek to encourage. Eriksson, Friman, and Gärling (2013), Gatersleben and Uzzel (2007), and Turcotte (2005) found that automobile satisfaction was higher than that of public transit. Another study by Turcotte (2011) focused on the difference between drivers and transit users in terms of their satisfaction with commute travel time. (St-Louis) Public transit users were less satisfied than drivers for shorter commutes, but with longer commute times, a large portion of public transit users remained satisfied with their travel time. This indicates that transit users may have a higher tolerance for longer commutes than drivers.

Vanderbilt, who wrote the book *Traffic*, describes the challenges of being a pedestrian in car-centric cities like Los Angeles: “Traffic engineering, as a profession, has historically tended to treat pedestrians like

little bits of irritating sand gumming up the work of their smoothly humming traffic machines. With a touch of condescending pity, pedestrians are referred to as 'vulnerable road users'". He further writes, "engineers speak of things like 'pedestrian impedance' and 'pedestrian interference', which… just refers to the fact that people sometimes have the gall to cross the street on foot, thus doing things like disrupting the 'saturation flow rate' of cars turning at an intersection." Vanderbilt then questions the presence of green waves for automobiles, not pedestrians: "the relative rarity of pedestrians means the push buttons to cross the street do work. The walker humbly prays to the city's traffic gods for permission to cross the street, and after a time, their prayers are answered. If you do not press the button, you will stand there until you're eventually ticketed for vagrancy." He further writes, "when the Los Angeles Department of Transportation suggested installing 'smart' devices that would sense the presence of a pedestrian at a crosswalk and activate a flashing signal, it was gently rebuffed by the Rabbinical Council of California, which opined that activating the light via a signal, even if it was done passively, violated the Sabbath regulations." The council explained, "If pedestrians were *unaware* that their presence was triggering the device, the smart device would be acceptable. But, 'people would quickly realize its presence and avoid using the crosswalk on the Sabbath.'" (Vanderbilt, 112-113)

St-Louis et al. then wrote, "limited literature with contradictory results is available on the differences in satisfaction between various types of public transit. For example, some research has found that bus users were not more likely to be satisfied with their commute than metro and/or train riders (2005), while Ory and Mokhtarian (2005) found that train users were significantly more satisfied than bus users. Finally, Beirão and Sarsfield Cabral (2007) in a qualitative study, found that people perceived light rail more positively than buses. Indeed, there are some disagreements and agreements in the field when it comes to understanding the satisfaction of commute by different modes, which highlights the need for more studies in this area to help in understanding trip satisfaction among different modes. (St-Louis)

With St. Louis and Beirão in mind, opportunities are out there to motivate more commuters to ride SMART and the buses where appropriate. While train fares are slightly higher than bus fares, the time savings between the two modes are significant depending on distance covered, up to 83% faster between SMART and Marin Transit Route 251 between Downtown Novato and Hamilton. However, with no bus line providing service to a SMART station in Fall 2019, many commuters are missing out on the time savings on their commute that educating them on it is crucial to create more choice commuters from the city. Longer walk times between the train station and the nearest bus stops do not motivate riders to use public transportation to travel throughout and beyond Novato. And despite best efforts made by transit agencies to keep up with changing commuter demands, Golden Gate Transit and Marin Transit still suffer from service gaps. For example, some of the service areas covered by Golden Gate Transit Routes 38 and 38A do not have an equivalent local bus service provided by Marin Transit. Marin Transit, on the other hand, has written on multiple versions of its SRTP repeated calls for either Route 251 or 257 to be rerouted through the southern portion of the Hamilton neighborhood and serve Randolph Drive and Bolling Circle: those are yet to be incorporated.

Fortunately, help is on the way to alleviate accessibility concerns. In early October 2019, Marin Transit proposed in its Short-Range Transit Plan (SRTP) for 2020 to 2029 to extend Route 49, the local bus service linking Downtown Novato with San Rafael Transit Center via South Novato Boulevard, Hamilton, and Terra Linda, with the Novato San Marin SMART station from December 2019. (cf. Chapter 5.4) It has also called for linking two community shuttle routes, Route 251 (Novato circulator) and Route 257 (Ignacio-San Rafael Transit Center via Marinwood, Terra Linda, and Dominican University), with the Novato Hamilton SMART station. Finally, the SRTP calls to upgrade Route 257, currently a weekday-only operation, to daily service to provide better service for riders in areas of northern San Rafael that did not have weekend service for years since Golden Gate Transit eliminated weekend service through Marinwood and parts of southern Terra Linda in the early 2000s.

Another solution would be tackling Novato's parking minimums and providing corresponding dimensions for "acceptable" parking spaces. Bohl suggests eliminating or reducing parking requirements**.** (Bohl, 153-154) Black explains, "Parking is important in [an] urban area [because] parking—more specifically its price—will alter the cost of travel, and this will affect the transport modes chosen by urban residents. If parking costs are too great, commuters and others may select a different mode of travel, usually public transit in one of its various forms." Parking is also a revenue generator for the community, especially if the city has invested in building municipal parking garages to lessen on-street parking. Nowadays, private companies are usually contracted out to collect parking fees using mobile phones and credit cards, lessening the need for parking meters. And parking taxes can be charged to motorists, not only to increase the price of parking, but also to encourage individuals to use less expensive alternative transport modes. "If public transit is the preferred transit mode in diverting such additional traffic," Black writes, "then the area charging the fee or tax should have a reasonably good transit system to replace the automobile." However, this is not usually the case. (Black, 193-194) Beatley then provides lessons from European cities like Zurich wherein it has undertaken several traffic calming measures, including "managing and slowing automobile traffic as it moves through the city" using a centralized computer system and the control of traffic lights, "reduced speed limits", "significant restrictions to parking in the city" by mandating "new or renovated buildings to cut the number of mandatory spaces by half", "no new spaces are permitted in the older historic portion of the city", and "increasing parking fees". (Beatley, 117-118)

Figure 48: *A Gillig 29-footer All-Electric Transit Bus with County Connection on layover at Walnut Creek BART. Marin Transit can emulate what the East Bay transit agency is doing to combat traffic by purchasing all-electric buses and offering free rides through generous subsidies.*

A closely related solution to tackling parking minimums, changing "traffic versus pedestrian" mantras can be especially helpful in combating automobile use. Black explained a key reason why parking in downtown areas struggled when large shopping malls opened: The convenience of parking "influences the destinations selected for various trip types", with the classic example in Novato being the presence of Vintage Oaks Shopping Center offering thousands of free parking spaces, such that downtown has offered free parking (albeit with time limits) since communities have decided "free parking and consumers were more important than parking revenues." "Parking restraint", therefore, is usually undertaken in communities for several reasons. Some activity generates so much traffic, it spills over into an adjacent community, resulting in the creation of a parking restraint for urban residents in the spillover area. Another would be vehicles in a neighborhood generate or contribute to air quality problems, with a solution being to ban them under any circumstances. And another reason would be to keep vehicles out of certain areas for traffic safety reasons (e.g. large concentrations of pedestrians). (Black, 193-194) Novato should introduce parking maximums where permitted, starting in the Downtown Core. With an abundance of surface parking lots, especially in commercial and industrial areas where generous setbacks are in place, those are almost always underutilized outside office hours. Such changes do not come overnight, however: Zurich undertook a systematic program of improving its mobility over a twenty-year period, prioritizing roads and traffic to public transit. "The Zurich transport system and policy are a success" because "service has gradually expanded and improved", "getting around by tram, bus, or metro is easy and pleasant and is usually faster than by car", and residents are convinced that "there is no sense that riding the bus or a tram is a second-class form of transport". (Beatley, 118)

Black also writes about how other nations have addressed the "traffic versus pedestrian" mantra by examining their approaches to sustainable transport. Israel wants to provide accessibility to all, including

the carless, to promote mobility while reducing dependence on the automobile. And it also wants to maintain opportunities to be flexible in transport, hence preventing bottlenecks to growth. (*ibid*, 172) On the other hand, the Netherlands wants to restrain mobility and average length of trips with "a location policy for housing, work, and recreation," allowing new developments "only where it is accessible by public transport", increasing prices of *all* mobility, shifting goods traffic to the most efficient modes, and making work hours more flexible. The Dutch also call for improving alternatives to the single-occupant automobile by improving cycling facilities and public transport, persuading people to use cars less frequently even if it involves negative incentives. And they also call for improving roads selectively and only if alternative transport modes are inappropriate, favoring toll roads in congested areas. (*ibid*, 173) Beatley then provides a Swiss approach: "the Zurich transportation policy is an economic boon for the city and the region", in which numerous studies have shown "a high benefits-to-costs ratio for transit investments." Much of its success attributes to the heavy emphasis on referenda and direct voting of the public in many public decisions, especially on major infrastructure projects costing more than 10 million Swiss Francs (or the equivalent of $6.6 million). Ernest Joos, Zurich's transit authority deputy director at the time Beatley wrote the book, describes it as, "such approach breaks the vicious transport cycle of building roads, creating more traffic, and again building roads in response to this increase". The circle is then transformed into a rainbow, "merging environmental and economic development goals," resulting in "greater urbanity, better environmental conditions, increased economic strength, and stabilized private transport." (Beatley, 118-119)

While it indirectly affects Novato, the potential construction of a new span of the Richmond-San Rafael Bridge, which links east-west between San Rafael and Richmond in Contra Costa County, can unlock options for Golden Gate Transit, Marin Transit, and SMART to further enhance regional connectivity via transit. On 4 December 2019, Assemblyman Marc Levine of Marin County announced that he is seeking public input on what the new Richmond Bridge should have once it is built. "Nothing lasts forever, including workhorse bridges like the Richmond-San Rafael Bridge. Now is the time for our community about what type of bridge will meet our long-term needs." Ideas for the new bridge might include building bikeways, pedestrian pathways, and incorporating trains. The 63-year old bridge has been plagued with problems including at least two instances where concrete from expansion joints fell onto the lower deck of the bridge. And officials have struggled to keep up with growing demand: a flexible third lane on the lower deck, operating weekday afternoons from 2 to 7pm, was opened earlier this year for commuters traveling to Richmond to address congestion that spans from US-101 to the bridge via Sir Francis Drake Boulevard. A bikeway on the upper deck, with movable barriers, then opened in mid-November, permitting pedestrians and bicyclists to cross the bridge between Marin and Contra Costa Counties for the first time. While the bridge will get a $20 million makeover from 2020, thanks to state gas tax funds, it is unclear when a project to build a new bridge would begin. (KGO)

7.7. Transit Education Programs and Other Solutions

Current transit education programs are provided by Marin Transit, specifically to train seniors and the handicapped how to travel around Marin County. A dedicated phone number and email address are available for personalized travel assistance in Marin County, aside from calling 511 and visiting www.511.org.

One program, **Travel Navigators**, is available to answer questions about Marin Access and Marin Transit services, help riders begin the application process, and provide referrals to other services or resources. A Travel Navigator can also refer a rider to an appropriate private or non-profit transportation provider in the community if Marin Transit or Marin Access cannot provide a program that meets his or her needs. The Travel Navigator program provides "office hours" at four different locations where senior passengers and the disabled already frequent, with locations listed in Table 7-8. (Marin Transit, Travel Navigators)

Table 7-8: *Travel Navigator Locations in Marin County*

Location	Address	Office Hours
Downtown San Rafael	Whistlestop Active Aging Center 930 Tamalpais Avenue, San Rafael, CA 94901	Monday to Friday 8:00am to 5:00pm
Canal District (San Rafael)	Albert J. Boro Community Center 50 Canal Street, San Rafael, CA 94901	Second Wednesday of every month 11:00am to 1:00pm
West Marin	Dance Palace 503 B Street, Point Reyes, CA 94956	Third Thursday of every month 11:00am to 1:00pm
Novato	Margaret Todd Senior Center 1560 Hill Road, Novato, CA 94947	Last Thursday of January, March, May, July, September, and November 10:00am to 12:00pm

Another program provided by Marin Transit to educate seniors on travel options within Marin County is **Travel Training**. Options include group presentations, "a free one-hour presentation and discussion about alternatives to driving for older adults in Marin County" that provides "extensive information on riding local transit, including trip planning, tips for riding and fare options for older adults." The other option is individual travel training: these "transit tours", offered at no charge to participants, consist of a Marin Transit representative who provides a tour of the public bus by planning a trip for the group on an actual transit route. These trips usually take about three hours, specifically tailored to the area to which the group requesting a "tour" will be traveling. (Marin Transit, "Travel Training")

The City of Novato has "Green Your Commute" under its Sustainability program wherein it informs residents of the various mobility options available to them, including SMART, electric car sales, biking, taking the bus, ridesharing and carsharing, and Safe Routes to Schools for youths. (City of Novato) It does not compare, however, to what the City of San Rafael provides for its employees: "Our Commuter Program" highlights the many attractive incentives the city gives to its full-time and part-time workers, promoting the use of alternative modes of transportation instead of driving alone. Descriptions of programs are listed in Table 7-9. (City of San Rafael)

Table 7-9: *Commuter Rebate Programs in San Rafael*

Program Name	Value	Additional Perks
Discounted SMART Eco Pass	$155	
Carpool Cabana	$75 (annual gas card)	Eligible for quarterly raffles
Transit Bandit	$75 (annual Clipper card)	
Ain't No Party Like a Vanpool Party	$3,600 (vanpool subsidy)	Monetary and gas card incentives from 511.org
Charge It on Us Electric Vehicle Subsidy	$100 (purchase an electric vehicle)	

From an academic approach, Black provides useful ideas that span from personal actions to global solutions. One's personal decisions can make transport sustainable, from using the local transit facility or carpooling, to using bicycles and walking, to purchasing energy-efficient motor vehicles. He then writes, "There are also occasions where individual actions directly contribute toward some sustainability objective and be successful in attaining it in the short-term," with his example being President Jimmy Carter encouraging individuals to conserve petroleum and to not travel unless it was necessary during the OPEC oil embargoes in the 1970s. That effort led to a net reduction of about 10% in fuel use "that could not be attributed to anything except the 'national interest' response of the population"; rather, it was an example of a sustainability initiative at the national level that was implemented by individuals. Going up

a notch, "small units of government (e.g. town, city, or county) are not usually able to accomplish much in the transportation sustainability arena". Instead, Black suggests strong control over land use and the prevention of urban sprawl through zoning ordinances; the offering and subsidizing of public transit operations; the creation of car-free zones in certain areas of the community; and the provision of free parking in the central part of the locality. (Black, 150-151)

Beatley also presents opportunities to improve public transportation's perceptions among residents, including aggressive and creative public marketing by cosponsoring sporting and entertainment events, in which the cost of transit is included in the price of those event tickets. (Beatley, 118) It also calls for developing a streamlined policy on traffic development, with Freiburg, Germany acting as a model: (1) reduce motor car traffic in town; (2) prioritize environmentally-friendly traffic, including bikes, public transport, and pedestrians; (3) promote traffic calming everywhere, except for a few main roads; and (4) restricting parking for cars. The city has invested in building transit stops that most of the city's population is within 400 to 500 meters of a tram stop, developing bike and pedestrian paths along tram lines, planting grass in between tracks to reduce noise from moving trams, and traffic lights at intersections programmed to prioritize trams when they approach. Most importantly, the city was the first in Germany to create a single-fare system, which is easily understood by most commuters, and it utilizes one ticket to travel anywhere in the system. It was retired in 1991 and became the *regiokarte* ticket, which costs around $35 a month, and entitles passengers to access some 2,900 kilometers of mass transit across sixteen transit agencies in the region. This change increased ridership from 27 million per annum in 1984 to 65 million in 2000. (*ibid*, 120-121)

Closer to home, the San Francisco Bay Area has two major transportation education endeavors aimed at addressing congestion in the region. Seamless Bay Area is a nonprofit organization aimed at addressing public transportation reliability in the region: "Unreliable service, slow speeds, poor connections, run-down stations: Bay Area public transportation is often so miserable that many people avoid it completely. It's no wonder only 12% of people in our region take transit to work." Increasing congestion, rising greenhouse gas emissions, decreasing household affordability, and deepening inequality are the consequences of a fragmented public transit network, with 27 different agencies having little coordination and no regional vision. Such fragmentation leads to "an incoherent network that, for riders, is inconvenient to use and nearly impossible to understand; shortsighted planning, where piecemeal transportation projects are favored over larger systematic improvements that would serve more people; little public accountability for our lack of regional transit connectivity; high operating costs, paid for by riders, and duplication of many overhead functions that could be shared; and poorly managed transit expansion projects where severe delays and cost overruns are the norm." (Seamless Bay Area)

FASTER Bay Area, on the other hand, is a proposed November 2020 ballot measure led by SPUR, the Bay Area Council, the Silicon Valley Leadership Group and key equity, environmental and community allies, with the intention of raising up to $100 billion over 40 years for transportation projects in the San Francisco Bay Area. The measure will enable massive investments in regional rail and express bus, along with key policy changes to ensure that this transformed network connects seamlessly, is affordable to our most vulnerable riders, and can be delivered quickly and inexpensively. (SPUR) To implement the plan, a 1% sales tax increase is proposed to transform transit, in which based on 2,075 interviews conducted by the group, 67% of them support it. Its goals include: (FASTER Bay Area)

- **High quality service**, with transit serving the entire region, comes every 12 minutes in most places, and is out of traffic;
- **A $100 billion investment in a regional transit network**;
- **Upgrading existing transit lines** and **developing new transit lines**;
- **A nine-county Rapid Bus Network** running on the completed Express Lane Network;

- **Developing the most equitable revenue measure in the region** by exploring a mandate requiring the region's employers to invest in sustainable commute for millions of workers, shielding low-income families from the sales tax increase with a Sales Tax Fairness Credit, and provide massively discounted transit fares to students and low-income riders on a permanent basis; and
- **All communities will receive their share of FASTER's transformations** through billions of dollars in guaranteed investments to communities, transit operators, and organizations to support local transit service, connecting communities, safe walking, biking, and micromobility use.

The Novato city council, Marin Transit officials, and the Marin County Board of Supervisors should strongly consider approving micromobility vendors like Jump, Lime, and Spin in collaboration with SMART and the Sonoma County Transportation Authority to further reduce residents' dependence on the automobile and cut down carbon emissions from driving. Novato should also consider revising its parking and zoning guidelines to attract even more businesses and residents in the community, most especially accessory dwelling units, more affordable housing units at targeted locations, and integrating land use design with the small-town charm. With an abundance of options, decision-makers should consider what the rest of the region desires rather than micromanaging guidelines that benefit a select few.

8. Where Can We Go from Here?

Philip Sprincin recently wrote an encouraging article on City Journal: "The Bay Area housing crisis is ultimately a production crisis. For decades, supply has failed to keep up with demand. Oakland shows that it's possible for the private market to produce enough housing if laws allow it." (Sprincin) And the San Francisco Bay Area's transportation system "was ahead of its time when it was first built, but regional improvements have not kept pace with increased rider demand over the past 50 years. With 27 different operators across nine counties, our system has become fragmented and confusing, and leaves driving as the only option for many commuters - leading to congested roads and lives dominated by traffic. The need for a regional, seamless transit network is greater than ever." (SPUR)

Combating climate change by reducing carbon emissions, revising policies on urban development, and promoting denser and more complete neighborhoods can be a herculean task. Efforts, therefore, should be made at the personal, local, national, and global levels to address problems resulting from continued urbanization. Novato has thrived as a suburban community, especially as it approaches its 60th anniversary in 2020. However, opportunities abound to reduce its carbon emissions while enticing more people to live and work in the city. A suitable personal goal is to reduce driving for the shortest of errands: since many trips take less than five minutes by car, residents should be educated on the physical, mental, environmental, and societal impacts of driving, parking, and congestion. In the same token, residents should increase their education on how communities should be developed by appreciating what other cities have done to reduce their carbon footprint. As described earlier, "suburbia, in spite of all its regulatory controls, is not functional: it simply does not efficiently serve society or preserve the environment." (Duany et al., 14)

Decision-makers at the city and county levels, on the other hand, should promote better zoning, building, and transportation policies that will allow citizens to rewire their perspectives on those sensitive issues. The cultural paradox found between NIMBYism and overreliance on the private automobile has severe consequences in suburban communities like Novato, including lower height limits; micromanagement in planning, building, and code enforcement; unchecked development; failure to address local and regional congestion; poor ridership on transit; and disconnected neighborhoods. City and county officials should, therefore, address the issues of sprawl and congestion more seriously than doing business as usual: that is, "public funds that build and support sprawl's far-flung infrastructure, including pavements, pipes, patrols, and the other costs of unhealthy growth, should be remediated by focusing instead on developing more efficient environments such as neighborhoods." (*ibid*, 14-15) Rather than investing more money on surface parking and road widening projects, Novato should use the funds to "rethink its mobility options and fundamentally move it to more green-urban mobility strategies, less dependent on nonrenewable oil." (Beatley, 130) Black suggests that "intelligent transportation systems can facilitate the movement of traffic and reduce congestion… through better signalization, the transfer of real-time information to motorists, and detecting incidents more quickly." (Black, 74) Beatley then provides more rational—despite challenging—solutions to the urban development debacle. His suggestions include "a commitment to coordinating land use and development decisions with transit investments (in which the Europeans have been especially good at doing); new corresponding controls on auto traffic and programs to reclaim streets and pedestrian areas; restrictions on the amount of parking in urban areas (and a move away from free or low-cost parking); efforts to encourage employers to adopt incentives to encourage public transit usage, walking, and biking; and a host of other demand management strategies." Additionally, decision-makers should address the problems of existing low-density residential environments and the problems associated with suburb-to suburb or exurb-to-exurb commuting by "re-urbanizing and densifying currently low-density suburban environments," which is a necessary ingredient to strengthen transit in the United States. (Beatley, 131-132)

Transit agencies, including Golden Gate Transit, Marin Transit, and SMART, should particularly focus on how their operations impact, not just their riders and operators, but also to the communities they serve. "Nurturing and growing a *transit ethos*," Beatley writes, should address "the very real equity implications of relegating the poor, the young, and the old in our society to a second- or third-rung mobility class," especially those groups "hold the least political power". One of the clearest messages, therefore, is to expand and improve transit options, like the exemplary efforts made in Zurich, Stockholm, and Freiburg. He explains an American example in Washington, D.C. where Washington Metro's Orange Line runs through Virginia: "through a combination of creative planning and regulatory incentives (e.g. density bonuses given to developments that agree to include at least 50 percent housing), and financial underwriting by local authorities, a vibrant pedestrian- and transit-oriented community forms." And transit agencies should work hard to make smooth transitions and integrations between different transit modes possible, no matter where a rider's ultimate destination might be: in the Netherlands, for example, "if your destination is a rural locality where regular bus service is not available, a paratransit vehicle (either minibus or taxi) can be reserved in advance and will likely to be waiting upon your arrival." Such efforts, henceforth, "represent important steps in building (back) a transit society," in which the relative cost of building and operating such systems is modest compared to the vast subsidies given to the automobiles and the social and environmental costs associated with them. (*ibid*, 129-132) The three agencies in Marin County should, therefore, become more involved in developing a transit ethos focusing on addressing ridership and routing issues, creating regulatory policies that integrate land use and zoning with transit access, and reorganizing bus services that are easily understood by commuters, readily available any time of day, and provide quick transitions between routes and modes.

Yet another solution is organizing transit systems—usually rail—in ways that generally make it easier to reach major recreational solutions. "In Freiburg and many other German cities, the train systems take city dwellers to major destinations in the Black Forest and elsewhere", and in the Netherlands, "the NS (Dutch Railways) adds extra trains and more frequent service to high-demand coastal destinations such as Zandvoort during peak summer days and months." Agencies can then offer package arrangements with destination amenities (e.g. lodging) and/or additional transportation upon reaching their destinations. For example, the Belgian national train company offers a day ticket called the "B-dag-TRIP" that "allow the passenger… not just to the train to the destination city, but also passage on local buses, trains, or metro, and entrance to the particular destination (e.g. a museum or zoo)." It also offers a "trains and bikes" ticket that allows a ticketholder to reserve a bike at the end destination (the company has 35 bicycle sites), making it possible to "visit historic cities, bike through the countryside, or reach other destinations with ease for a relatively low cost, and most importantly, without the need for an automobile". (*ibid*, 135) Such a system currently exists with Marin Transit, collaborating with the National Park Service to provide bus service to Muir Woods from Manzanita Park-and-Ride on Route 66, and from Sausalito Ferry and Marin City on Route 66F. Golden Gate Transit, Marin Transit, and SMART should, therefore, develop creative solutions to attract more riders to use public transportation to major recreation areas, including Point Reyes National Seashore, Tomales Bay, Stinson Beach, and Marin Headlands.

Perhaps the greatest lesson from Europe's transit-oriented system lies with city, state, and federal agencies working together to find ways to level the playing field between auto use and transit. "Auto users should clearly be asked to pay more for the cost of building and maintaining roads and highways", in which, while politically unpopular, "gasoline prices should be raised to reflect the true environmental and social costs of our auto-dominated society." Beatley mentions, "road users in the United States pay only 60 percent of the cost of road construction, maintenance, administration, and law enforcement through taxes and user charges. The remaining 40 percent… is subsidized through government revenues. In contrast, road user taxes exceed government expenditures on roads in every European country," ranging from 5:1 in the Netherlands to 1:3 in Switzerland. "Thus, road users are heavily subsidized in the United States, whereas in Europe, they pay such high road use taxes that they contribute significantly to overall government finance." (*ibid*, 134) And agencies should also strive to coordinate fare structures,

timetables, routes, and different transit modes more effectively to "improve the competitive position of public transportation vis-à-vis the automobile." Prioritizing transit, having such a degree of (transit) planning integration (especially at the intercity level), and making transit rides faster and more enjoyable, therefore, play a part in what is necessary to get Americans out of their cars. (*ibid*, 129-132) The importance of sustaining transportation nonprofit groups like FASTER Bay Area, San Francisco Transit Riders, and Seamless Bay Area holds key in addressing the inequalities found in maintaining a robust transit network and the challenges in transportation leadership in the San Francisco Bay Area, such that greater participation from the public is needed to let their voices heard in the quest for a better public transportation network, not just for Novato, but also for the region.

Appendices

Appendix A: Novato Bus Stop Inventory and Performance (Lowe)

Stop ID	Stop Location	Weekdays (WC=Wheelchair)					Weekends (WC=Wheelchair)				
		On	Off	Total	WC On	WC Off	On	Off	Total	WC On	WC Off
40655	San Marin Dr @ Redwood Blvd WB	0	0	0	0	0	0	0	0	0	0
40656	San Marin Dr @ Redwood Blvd EB	0	0	0	0	0	0	0	0	0	0
40657	San Marin Dr @ Simmons Ln WB	0	0	0	0	0	0	0	0	0	0
40658	San Marin Dr @ Simmons Ln EB	0	5	5	0	0	0	0	0	0	0
40659	San Marin Dr @ Sereno Way WB	0	0	0	0	0	0	0	0	0	0
40660	San Marin Dr @ Sereno Way EB	0	2	2	0	0	0	0	0	0	0
40662	San Carlos Way @ San Marin Dr NB	8	5	13	0	0	4	6	10	0	0
40664	San Carlos Way @ San Luis Ct EB	1	5	6	0	0	1	0	1	0	0
40666	San Carlos Way @ Corona Ct EB	0	0	0	0	0	0	2	2	0	0
40668	San Carlos Way @ Clemente Ct EB	0	0	0	0	0	1	3	4	0	0
40669	San Marin Dr @ San Andreas Dr WB	2	0	2	0	0	5	0	5	0	0
40670	San Marin Dr @ San Andreas Dr EB	0	1	1	0	0	0	6	6	0	0
40671	San Marin Dr @ San Ramon Way WB	7	0	7	0	0	8	0	8	0	0
40672	San Marin Dr @ San Ramon Way EB	1	18	19	0	0	0	9	9	0	0
40673	San Marin High School SB	198	11	209	0	0	11	0	11	0	0
40674	San Marin High School NB	19	42	61	0	0	0	10	10	0	0
40675	Novato Blvd @ Eucalyptus Av SB	2	1	3	0	0	6	0	6	0	0
40676	Novato Blvd @ Eucalyptus Av NB	0	3	3	0	0	0	7	7	0	0
40677	Novato Blvd @ Oliva Dr EB	3	11	14	0	0	4	0	4	0	0
40678	Novato Blvd @ Oliva Dr WB	0	10	10	0	0	0	7	7	0	0
40679	Novato Blvd @ Wilson Ct EB	9	18	27	0	0	9	1	10	0	0
40680	Novato Blvd @ Wilson Ct WB	1	4	5	0	0	0	21	21	0	0
40681	Novato Blvd @ McClay Rd EB	5	8	13	0	0	7	0	7	0	0
40682	Novato Blvd @ McClay Rd WB	1	6	7	0	1	0	5	5	0	0

40683	Novato Blvd @ Grant Av EB	1	4	5	0	0	6	1	7	0	0
40684	Novato Blvd @ Grant Av WB	0	3	3	0	0	2	6	8	0	0
40685	Novato Blvd @ Tamalpais Av EB	0	0	0	0	0	0	0	0	0	0
40686	Seventh St @ Novato Blvd NB	0	18	18	0	0	11	4	15	0	0
40687	Novato Blvd @ Seventh St WB	1	4	5	0	0	2	8	10	0	0
40688	Seventh St @ Grant Av NB	6	18	24	0	0	7	3	10	0	0
40689	Seventh St @ Grant Av SB	10	5	15	0	0	4	12	16	0	0
40690	Grant Av @ Fifth St EB	5	18	23	0	0	10	2	12	0	0
40691	Grant Av @ Fifth St WB	1	2	3	0	0	1	1	2	0	0
40692	Grant Av @ Second St EB	2	23	25	0	0	3	1	4	0	0
40693	Grant Av @ Second St WB	7	4	11	0	0	10	5	15	0	0
40694	Redwood Blvd @ Olive Ave SB	29	14	43	1	0	38	0	38	0	0
40695	Redwood Blvd @ Olive Ave NB	4	40	44	0	0	0	20	20	0	1
40696	Redwood Blvd @ Grant Ave SB	168	37	205	2	0	152	28	180	3	2
40697	Redwood Blvd @ Grant Ave NB	41	144	185	1	3	43	155	198	0	2
40698	DeLong Ave @ Reichert Ave SB	9	2	11	0	0	9	0	9	1	0
40699	DeLong Ave @ Reichert Ave NB	0	36	36	0	1	2	21	23	0	0
40700	Diablo Av @ George St SB	2	23	25	0	0	5	2	7	0	0
40701	Diablo Av @ George St NB	4	14	18	0	0	3	11	14	0	0
40702	S Novato Blvd @ Diablo Av SB	15	17	32	0	0	31	1	32	0	0
40703	S Novato Blvd @ Diablo Av NB	2	26	28	0	0	3	20	23	0	0
40704	S Novato Blvd @ Joan Av SB	14	11	25	0	0	15	9	24	0	0
40705	S Novato Blvd @ Lauren Av NB	2	52	54	0	1	4	16	20	0	0
40706	S Novato Blvd @ Arthur St SB	58	16	74	0	0	13	4	17	0	0
40707	S Novato Blvd @ Arthur St NB	18	74	92	0	0	9	19	28	0	0
40708	S Novato Blvd @ Rowland Blvd SB	13	33	46	0	0	8	6	14	0	0
40709	S Novato Blvd @ Rowland Blvd NB	13	17	30	0	0	14	17	31	0	0
40710	S Novato Blvd @ Sunset Pkwy SB	6	21	27	0	0	12	4	16	0	0
40711	S Novato Blvd @ Sunset Pkwy NB	14	34	48	0	0	13	13	26	0	0
40712	S Novato Blvd @ Midway Blvd SB	4	9	13	0	0	1	3	4	0	0

40713	S Novato Blvd @ Midway Blvd NB	0	10	10	0	0	1	0	1	0	0
40714	S Novato Blvd @ Stone Dr SB	4	8	12	0	0	2	3	5	0	0
40715	S Novato Blvd @ Stone Dr NB	5	8	13	0	0	0	0	0	0	0
40716	S Novato Blvd @ Redwood Blvd SB	8	11	19	0	0	8	8	16	0	0
40717	S Novato Blvd @ Redwood Blvd NB	9	25	34	0	0	14	17	31	0	0
40718	Sunset Pkwy @ Cambridge St WB	0	1	1	0	0	0	1	1	0	0
40719	Sunset Pkwy @ Cambridge St EB	1	0	1	0	0	3	0	3	0	0
40720	Sunset Pkwy @ Denlyn St WB	0	2	2	0	0	0	2	2	0	0
40721	Sunset Pkwy @ Denlyn St EB	0	0	0	0	0	0	0	0	0	0
40722	Sunset Pkwy @ Midway Blvd WB	1	0	1	0	0	0	0	0	0	0
40723	Sunset Pkwy @ Midway Blvd EB	1	5	6	0	0	0	0	0	0	0
40724	Ignacio Blvd @ Ulloa Dr EB	12	9	21	0	0	0	0	0	0	0
40725	Sunset Pkwy @ Merritt Dr NB	72	1	73	0	0	2	0	2	0	0
40726	Ignacio Blvd @ Sunset Pkwy WB	135	16	151	0	0	2	2	4	0	0
40727	Ignacio Blvd @ Indian Hills Dr WB	0	2	2	0	0	0	0	0	0	0
40728	Indian Valley College	2	20	22	0	0	3	10	13	0	0
40729	Ignacio Blvd @ Turner Dr EB	9	2	11	0	0	3	0	3	0	0
40730	Ignacio Blvd @ Turner Dr WB	0	0	0	0	0	0	0	0	0	0
40731	Ignacio Blvd @ San Jose Blvd EB	0	2	2	0	0	0	0	0	0	0
40732	Ignacio Blvd @ San Jose Blvd WB	1	0	1	0	0	0	0	0	0	0
40733	Ignacio Blvd @ Country Club Dr EB	2	7	9	0	0	0	0	0	0	0
40734	Ignacio Blvd @ Country Club Dr WB	0	0	0	0	0	0	0	0	0	0
40735	Ignacio Blvd @ Fairway Dr EB	0	1	1	0	0	0	0	0	0	0
40736	Ignacio Blvd @ Fairway Dr WB	0	0	0	0	0	0	0	0	0	0
40737	Ignacio Blvd @ Palmer Dr EB	1	4	5	0	0	0	1	1	0	0
40738	Ignacio Blvd @ Palmer Dr WB	1	0	1	0	0	1	0	1	0	0
40739	Ignacio Blvd @ Entrada Dr EB	2	39	41	0	0	3	8	11	0	0
40740	Ignacio Blvd @ Entrada Dr WB	3	3	6	0	0	9	2	11	0	0
40741	Pacheco Plaza EB	1	1	2	0	0	3	7	10	0	0
40742	Ignacio Blvd @ Pacheco Plaza WB	15	4	19	0	0	5	4	9	0	0

40743	Ignacio Blvd @ Alameda Del Prado EB	5	21	26	0	0	1	10	11	0	0
40744	Ignacio Blvd @ Alameda Del Prado WB	8	7	15	0	0	2	1	3	0	0
40746	Hwy 101 @ Ignacio Blvd Bus Pad	30	120	150	0	0	39	85	124	0	0
40748	Alameda Del Prado @ Calle Arboleda SB	1	47	48	0	0	7	4	11	0	0
40749	Alameda Del Prado @ Calle Arboleda NB	0	0	0	0	0	1	0	1	0	0
40761	Alameda Del Prado @ Posada Del Sol SB	0	23	23	0	0	0	7	7	0	0
40762	Alameda Del Prado @ Posada Del Sol NB	2	0	2	0	0	7	0	7	0	0
40763	Alameda Del Prado @ Los Robles Rd SB	5	37	42	1	0	4	8	12	0	0
40764	Alameda Del Prado @ Los Robles Rd NB	14	3	17	0	0	12	1	13	0	0
40765	Alameda del Prado @ Hwy 101 SB	0	13	13	0	0	2	13	15	0	0
40766	Alameda Del Prado @ Nave Dr WB	2	6	8	0	0	1	1	2	0	0
40767	Nave Dr @ Roblar Dr SB	3	9	12	0	0	6	3	9	0	0
40768	Nave Dr @ Roblar Dr NB	4	18	22	0	0	0	3	3	0	0
40770	Hamilton Main Gate Nave Dr @ Hamilton Main Gate NB	7	49	56	0	0	3	15	18	0	0
40771	Nave Dr @ Bolling Dr SB	58	17	75	0	0	20	16	36	0	0
40772	Nave Dr @ Bolling Dr NB	32	80	112	0	1	10	35	45	0	0
40773	Hwy 101@ Alameda Del Prado Bus Pad	24	5	29	0	0	51	5	56	0	0
40774	Nave Dr @ Hamilton Pkwy NB	8	46	54	0	0	17	26	43	0	0
40777	Rowland Blvd @ Redwood Blvd WB	1	4	5	0	0	3	3	6	0	0
40778	Rowland Blvd @ S Novato Blvd EB	5	1	6	0	0	11	9	20	0	0
40779	Hwy 101 @ Rowland Blvd Bus Pad SB	56	6	62	0	0	50	7	57	0	0
40780	Hwy 101 @ Rowland Blvd Bus Pad NB	7	58	65	2	2	14	73	87	1	1
41026	Olive Av @ Kenwood Ct WB	5	13	18	0	0	0	0	0	0	0
41028	Olive Av @ Westwood Dr WB	1	5	6	0	0	0	0	0	0	0
41032	Olive Av @ Lea Dr Terminal	6	17	23	0	0	0	0	0	0	0
41043	Rowland Blvd @ Redwood Blvd EB	0	0	0	0	0	0	0	0	0	0
41047	Redwood Blvd @ Rush Creek Place NB	4	0	4	0	0	0	0	0	0	0
41048	San Marin Dr @ East Campus Dr	0	0	0	0	0	0	0	0	0	0
41049	San Marin Dr @ Santolina Dr	0	25	25	0	0	0	0	0	0	0
41074	San Marin Dr @ West Campus Dr	0	0	0	0	0	0	0	0	0	0

41075	San Marin Dr @ Somerset Dr	0	0	0	0	0	0	0	0	0	0
41098	Hwy 101 @ DeLong Ave Bus Pad NB	0	8	8	0	0	0	0	0	0	0
41099	Hwy 101 @ DeLong Ave Bus Pad SB	4	0	4	0	0	0	0	0	0	0
41306	Rowland Blvd @ Vintage Oaks Entrance	23	24	47	0	0	33	69	102	0	0
41307	Vintage Way @ Sleep Train	13	5	18	0	0	6	12	18	0	0
41308	Vintage Way @ Fresh Choice	14	9	23	0	0	27	3	30	0	0
41310	Rowland Blvd @ Rowland Way WB	11	0	11	0	0	14	4	18	0	0
41311	Rowland Blvd @ Rowland Way EB	2	6	8	0	0	2	11	13	0	0
41314	Hamilton Pkwy @ Marin Airporter EB	39	14	53	0	0	38	7	45	0	0
41315	Hamilton Pkwy @ Chapel Hill Rd EB	9	11	20	0	0	8	3	11	0	0
41316	Hamilton Pkwy @ Sunny Cove Dr WB	3	27	30	0	0	3	1	4	0	0
41317	Hamilton Theatre Parking Lot	28	72	100	0	0	30	35	65	0	1
41318	Hamilton Main Gate Rd @ Martin Dr WB	10	16	26	0	0	19	1	20	0	0
41335	Vineyard Rd @ Wilson Av Terminal	73	9	82	0	0	0	0	0	0	0
42011	Hwy 101 @ Alameda Del Prado Bus Pad	7	32	39	0	0	12	26	38	0	0
42012	Alameda Del Prado @ Alameda De La Loma NB	15	0	15	0	0	4	3	7	0	0
42114	Enfrente Rd @ Salvatore Dr SB	110	28	138	0	0	89	27	116	0	0
	Totals	1,640	1,941	3,581	7	9	1,092	1,061	2,153	5	7

Appendix B: Novato's Parking Requirements by Land Use (Municode)

Land Use Type	Number of Required Spaces	Downtown Overlay (if applicable)
Manufacturing, Processing, and Warehousing		
General manufacturing, industrial, and processing	1 space per 1,000 ft^2, which may include incidental office space comprising less than 5% of the total gross floor area.	
Research and development laboratories	1 space per 300 ft^2, plus 1 space for each company vehicle.	
Warehouses, distribution centers, and storage facilities (not including mini storage for personal use; see below)	1 space per 1,000 ft^2, which may include incidental office space comprising less than 5% of the total gross floor area.	
Recreation, Education, and Public Assembly		
Child daycare centers	1 space per employee, plus 1 space per 5 children.	1 space per employee, plus 1 space per 10 children.
Large family daycare homes	1 space per employee in addition to required residential spaces (below).	
Golf courses	Up to 5 spaces per hole, depending on type (miniature – 3, pitch and putt – 4, regulation – 5)	
Tennis, racquetball, and other courts	3 spaces for each court, plus 1 space for each 300 ft^2 of ancillary uses	
Arcades; Health and Fitness Clubs	1 space for every 250 ft^2	1 space for every 500 ft^2
Libraries, museums, and art galleries	1 space for every 300 ft^2, plus 1 space for each official vehicle	1 space for every 300 ft^2, plus 1 space for each official vehicle
Public assembly uses (e.g. churches and other places of worship, cinemas, performance theaters, and meeting halls)	1 space for every 4 fixed seats or 1 space for every 50 ft^2 of assembly area, meeting rooms, classrooms, etc.	
Residential ***Note: Guest parking in residential zones shall be clearly marked for guests only and shall be evenly dispersed throughout the site. Appropriate signs shall be provided to direct visitors to the parking.***		
Accessory dwelling units	1 (as required by Section 19.34.030)	
Duplexes	2 for each unit, one in a garage and located within 100 ft of the unit it serves.	1 space per unit in a garage located within 100 ft of the unit it serves.
Group quarters (e.g. boarding houses, dormitories)	1 space for each bed, plus 1 space for each 8 beds for guest parking, 1 space for each employee on largest shift.	1 space for each bed, plus 1 space for each employee on largest shift.
Mixed-use developments	Determined by type of use.	
Multi-family dwellings, condominiums, and attached dwellings	Studio unit: 1.2 spaces per unit 1 bedroom: 1.5 spaces per unit 2 bedrooms: 2 spaces per unit 3 bedrooms: 2.2 spaces per unit	Studio unit: 1 space per unit 1 bedroom: 1 space per unit 2 bedrooms: 1.5 spaces per unit 3 bedrooms: 2 spaces per unit

	Additional guest parking: 1 space for every 3 units	Additional guest parking: 1 space for every 4 units
Senior housing projects	1 space for each unit with half the spaces covered, plus 1 guest parking space for each 10 units.	
Single family dwellings	2 spaces, 1 in a garage. 3 enclosed spaces maximum unless approved through Design Review.	
Retail Trade		
Appliances, building materials, and furniture stores (large item retail)	1 space for each 600 ft^2 of gross floor area, plus 1 space for each 1,000 ft^2 of outdoor display area	1 space for each 1,000 ft^2 of floor area
Convenience stores	1 space for every 200 ft^2	1 space for every 250 ft^2
General retail	1 space for each 200 ft^2, plus 1 space for each company vehicle, plus 1 space for each 1,000 ft^2 of outdoor display area.	1 space for each 300 ft^2, plus 1 space for each company vehicle, plus 1 space for each 1,000 ft^2 of outdoor display area.
Hardware stores	1 space for each 300 ft^2, plus 1 space for each company vehicle, plus 1 space for each 1,000 ft^2 of outdoor display area.	
Restaurants, table service with or without takeout	1 space for each 50 ft^2 of indoor and outdoor seating area, and waiting/lounge area	1 space for each 250 ft^2 of indoor and outdoor seating area, and waiting/lounge area
Note: for restaurants located within the Downtown overlay, outdoor seating approved within the public right-of-way shall not be counted as floor area in parking calculations.		
Restaurants, takeout only (e.g. delicatessens)	1 space for each 200 ft^2	
Shopping centers (shall use unsegregated parking area)	1 space for each 250 ft^2 for centers of less than 30,000 ft^2, and 1 space for each 300 sf for centers of 30,000 ft^2 or more, plus 1 space for each 1,000 ft^2 of outdoor display area;	1 space for each 300 ft^2 for centers of less than 30,000 ft^2, plus 1 space for each 1,000 ft^2 of outdoor display area.
Services		
Banks and financial services	1 space for every 250 ft^2	1 space for every 500 ft^2
Copy and reproduction centers	1 space for every 400 ft^2	
Consumer products – repair and maintenance	1 space for every 250 ft^2	1 space for every 300 ft^2
Gas stations (including multiuse stations)	1 space for each 400 ft^2, plus 3 spaces for each service bay. 50% of pump island parking may be credited toward ancillary use parking requirements (convenience store, take-out restaurant, car wash).	
Hotels and motels	1 space per guest room, plus required spaces for accessory units	
Medical services, clinics, medical or dental offices; Medical services, medical or dental laboratories	1 space for every 250 ft^2	1 space for each 250 ft^2 for ground floor uses; 1 space for every 300 ft^2 for uses on upper floors
Medical services, convalescent hospitals	1 space for each 3 patient beds per facility license.	

Medical services, hospitals	1 space for each patient bed per facility license, plus 1 space for each 400 ft^2 of office area, plus required spaces for ancillary uses as determined by the Review Authority.	
Offices, administrative, corporate	1 space for every 275 ft^2	1 space for each 250 ft^2 for ground floor uses; 1 space for every 300 ft^2 for uses on upper floors
Personal services (e.g. barbershops, massage parlors)	1 space for every 250 ft^2	1 space for every 300 ft^2
Residential care facility for the elderly	1 space for each 3 beds	
Storage, personal storage facilities; Tattoo studios	1 space for each 1,500 ft^2, plus 2 spaces for manager office/residence.	
Veterinary clinics and hospitals	1 space for each 350 ft^2, plus 1 space for each 1,000 ft^2 of boarding area.	

Appendix C: A listing of projects under development or construction near Hamilton SMART Station (City of Novato Planning)

Project Name	Project Type	Location	Description	Status
C Street Village	Neighborhood Commercial	970 C Street	A series of 32 two-story townhomes, ranging from studio units to four-bedroom flats	Design workshop conducted 6 March 2019; formal planning application submittal pending.
Hamilton Hospital Assisted Living and Memory Care Facility	Mixed Use	516 Hospital Drive	Rehabilitation and expansion of former Hamilton Hospital, with 48 assisted care and 32 memory care rooms on a 3.41-acre site. An additional 56,533 square feet of new space and installation of 27 new parking stalls will increase its total size to 71,702 square feet, with buildings ranging from 2 to 4 floors.	Final Design Review Commission approval; conducted informational meeting on HazMat Survey and Abatement Plan 21 February 2019; awaiting construction.
Hamilton Square	Neighborhood Commercial	970 C Street	Remediation of contaminated soil and subsequent construction of 31 for-sale townhomes on a 2.7-acre site. Original plan was for construction of eight 3-story buildings and one 2-story building. Six of 31 townhomes would have been reserved for moderate- and low-income categories.	Project withdrawn; rights sold to NBcH1 LLC; now home to C Street Village (above) currently being developed.
Hamilton Village	Community Facilities	802 State Access Road	Up to 80-unit residential townhomes on a 4.7-acre vacant parcel	Neighborhood meeting conducted 2 October 2019; environmental review being assessed.
Hangar 8 at Hamilton Landing	Light Industrial Office	8 Hamilton Landing	Two-story, 56,188 square foot office building, with 30 additional parking spaces currently being shared by other buildings in the Hamilton Landing development	Design Review Commission hearing conducted 21 February 2018; status unknown.
Homeward Bound Workforce and Veteran Housing	Community Facilities	Vacant parcel south of 1385 N Hamilton Pkwy	Construction of three buildings, with two structures containing 26 single-bed affordable workplace units in one building, and 24 single-bed affordable units for homeless veterans on the other. Also includes construction of a new single-story kitchen and events building, with flex space for various events and a dining area for up to 200 people.	Submitted conceptual design as of 6 August 2019; being assessed for level of environmental review pursuant to CEQA guidelines.
Novato Village	High-Density Multifamily Residential	801 State Access Road	A 48-unit apartment building for senior residents 55 and over	Permit approved 30 July 2013, currently under construction.

Appendix D: A listing of projects under development or construction near San Marin SMART Station (*ibid*)

Project Name	Project Type	Location	Description	Status
7711 Redwood Residences	Business & Professional Office; Affordable Housing Overlay	7711 Redwood Blvd.	Up to 14 buildings, with 80 for-sale residential units, consisting of 70 three-bed and 10 two-bed units. Each of the buildings will have its own roof deck, with 177 parking stalls being installed, and 16 units will be allocated for low- and very low-income buyers (8 for each category).	Planning Commission meeting held 14 October 2019; environmental review, design review, tentative map pending; public hearing TBD.
Atherton Place	Mixed Use	7533/7537 Redwood Blvd	Development of 50 for-sale, market-rate townhomes and 1,360-square foot leasable commercial space on a vacant 3.6-acre site. 145 onsite parking spaces plus 19 on-street parking spaces are proposed. Building subject to state subdivision laws and prior version of city's Affordable Housing Ordinance that exempts it from constructing affordable units	Originally filed 28 March 2007; applicant proposed to pay a fee in lieu of providing affordable units; Design Review Commission hearing for final design details for 50 townhomes and 1,318- square foot leasable retail space held 20 February 2019.
Habitat Redwood Blvd	Light Industrial Office	8161 Redwood Blvd	80 townhouse-style units for sale with an approx. 1,600-square foot commercial building and 126 parking stalls on a 13.5-acre site. Residences will be between 1 and 3 stories tall, with maximum height of 38 feet.	Planning Application submitted 18 September 2019; master plan, subdivision map, and environmental review pending.
Residence Inn Novato	Commercial/ Industrial	7546 Redwood Blvd	A 77,532-square foot hotel development with 103 rooms and an 8,000-square foot commercial building/ Hotel will be 3 stories next to Redwood Blvd, and up to 4 stories tall on the east side of lot with a maximum height of 53 feet. 119 on-site parking spaces and 41 on-street spaces will be provided on the property. Alternative plan shifts property up north, with a smaller 6,500-square foot commercial building, less parking spaces (146), and a reduction in number of trees.	City Council adopted the ordinances of the project 13 November 2018; start of construction date TBD.
Wood Hollow Hotel	Business & Professional Office	7701 Redwood Blvd	Development of a vacant 4.49-acre hillside lot into a 46,845 square foot, three-story hotel, with 87 rooms and 87 offsite parking stalls, and a maximum height of 35 feet	Design Review Commission hearing on final design details held 15 May 2019; preliminary review for CEQA underway; construction start date TBD

Appendix E: A listing of projects under development or construction near Novato Downtown SMART station (*ibid*)

Project Name	Project Type	Location	Description	Status
First & Grant Mixed Use Development	Downtown Core Retail	1107 Grant Avenue	Location of former Pini Hardware Store, proposed building will be 3 stories tall, with approx. 13,300 square feet of ground floor retail space and two floors of residential space, totaling 32 units. Zoning allows maximum floor area ratio of 2.0 parking spaces per unit; proposal is 1.67. 46 parking spaces proposed for residential component, located in a 1st floor parking structure at rear of building with alley access. Applicants propose utilizing parking exemption allowed for downtown commercial uses up to 1.0 floor area ratio.	Received Planning Commission approval 5 November 2018; design review, use permit, and environmental review pending.
Landing Court Homes	General Commercial with an Affordable Housing Opportunity	NW side of Landing Ct across Public Storage	Redevelop approx. 2-acre property currently being used for RV, boat, and trailer storage on Landing Court with 32 townhomes, with an opportunity to develop up to 34 homes via an Affordable Housing overlay	Design Review Commission meeting held on 3 July 2019 for review of site design, landscape plan, and architecture; environmental review pending.
The Pavilions Eco-Village	Business and Professional Office; Planned District	200 Landing Ct	Develop 26 live/work units and a one-story business/community center on site. The live/work units will range in size from 973 to 2,000 square feet (includes garages), while the business/community center will be 1,800 square feet. Buildings will be up to 23 feet high from finished grade.	Design Review Workshop held 1 August 2018; still undergoing master plan amendment, precise development plan, land division, and design review.
Springbrook Green Homes	Medium Density Multifamily Residential	1602 Vallejo Avenue	Proposal for nine 3-story, attached residential homes in two building clusters, one building with four attached homes and the other with five. Eighteen off-street parking spaces are proposed, with one garage space and one uncovered space per home.	Conceptual Design Review Workshop with Design Review Committee held 18 September 2019; environmental review for CEQA pending.

Appendix F: SMART Bus Bridge Observations

Note: *minimal edits made from original file. Any redundancies have been edited for brevity.*

SMART Bus Bridge:

- Riders consisted mostly of families with kids, with cyclists galore
    - No wheelchair bound passengers observed during the entirety of the bus bridge observations and ride tests
- Eight shuttle vehicles used, contracted out to Pure Luxury Transportation (6 vehicles) and Becoming Independent (2 vehicles)
    - All vehicles are ADA compliant and can carry several bikes
    - Pure Luxury a Petaluma-based company
    - Becoming Independent a Santa Rosa-based company (on board concessionaire, keeps proceeds) – SMART needs accessible buses
    - Flexibility needed to bring vehicles, operators to stops on demand
    - Vans can carry up between 21 and 40 passengers
        - The two vans by Becoming Independent can carry up to 10 seated passengers and a wheelchair
        - At least three Freightliner GM45 vans have been deployed by Pure Luxury, each seating up to 40 passengers and can store up to 6 bikes on the rear
        - Two Freightliner GM28 vans have also been deployed by Pure Luxury, each seating up to 21 passengers. One of them has a front mounted bike rack which can carry up to 2 bikes
    - Pure Luxury Prevost H3-45 bus can carry up to 56 passengers
- Izzy and Matt (interim manager; Community Outreach Specialist) were at all three stations, Izzy as Community Outreach Coordinator

Saturday:

- Observation 1: 10:49am arrival at Downtown Petaluma station (actual: 10:47am)
    - Two vans deployed, with around 55 passengers from train (2 cyclists); 1 got off at Petaluma
        - First van had 30 passengers
        - Second van was full, with 1 bicycle
    - While waiting for next train, author reminded Pure Luxury driver "(SMART) is a remedial of not having BART in the North Bay", reinforcing Spotswood's editorial
    - One driver with Becoming Independent lamented he has four automobiles, with 1 motorcycle and 1 truck
- Ride test 1: 3:45p departure from San Rafael, 3:57pm arrival at Hamilton
    - Train units 115 and 116 (115 with restroom, 116 with (closed) bar)
    - 2 offs from previous trip, 3 ons
    - Civic Center: 0 ons, 0 offs
    - At Hamilton Station, 3 offs and transferred to shuttle van, with 1 additional NB passenger on for shuttle van, totaling 4 ons
        - Left Hamilton 4:03p
        - Used 40-seater luxury shuttle van
        - Arrived San Marin 4:12p, with no boardings or disembarkings
    - Arrived Downtown Petaluma 4:33pm, 4 offs from van, continue to train — missed 4:30pm NB train (next train: 5:33p)
        - Next bus arrives Petaluma Downtown 4:53pm
    - Driver hard time entering the station as the clearance was tight from making a left turn to access station

    - No wheelchairs, no cyclists observed during this test
- Observation 2: 4:56pm arrival at Downtown Petaluma
    - 3 offs from train, all dropped off at Petaluma station
    - No one took the shuttle as a result
    - Had dinner before doing second ride test
- Ride test 2: 5:56pm arrival and 6:05pm departure at Downtown Petaluma, then shuttle from Petaluma to Hamilton SMART station
    - Train units 101 and 102
    - 9 passengers board the train for 6:05pm departure
    - 5 offs from train — transfer to shuttle, 1 on to shuttle from station
    - Used 56-seat Prevost bus
    - Left Downtown Petaluma station 6:01pm
        - San Marin – bypassed
    - Arrived Hamilton 6:32pm, with 3 offs and transferred to train, plus 3 offs at station
        - Train at Hamilton waited for bus arrival
    - Went home afterwards, riding the 7:05pm Route 251 from Hamilton Theatre Parking Lot

Sunday:

- Observation 3: 10:49am arrival and 10:55am departure at Downtown Petaluma
    - Train units 107 and 110
    - Of 60+ arriving passengers:
        - 16 disembarked in Petaluma
        - 50+ continued to shuttle vans, with 3 bikes; 2 shuttles went to Hamilton with over 50 passengers and 5 bikes, and 1 shuttle went to San Marin with 5 passengers
    - No passengers boarded the return trip leaving at 10:55am
    - MCI driver explained Petaluma the worst station to drive in and out of the station due to space constraints
        - Heading into the station requires maneuvering through very tight parking lanes
        - Heading out of the station requires a maneuver that avoids a nearby telephone pole
- Observation 4: 12:13pm arrival and 12:23pm departure at Downtown Petaluma
    - 11:18am: family of 3 tagged on but were advised by an ambassador no trains are available until 12:23pm
        - The girls love the train that they won't switch to a bus
    - Overheard from Izzy two passengers at San Marin wanting to go to Hamilton
        - Patty, the person responsible for deploying buses, advised there was a bus waiting at the station for them
    - Two more passengers, one arriving at 11:36am, and another at 11:48am, waited for the next NB train
    - Train's actual arrival was 12:10pm
    - 10 from shuttle to train, 4 got off at Petaluma from shuttle
    - 28 ons, 3 offs in Petaluma for 12:23pm
    - Martha as ambassador, working with Izzy
        - Izzy told the author SMART has hired Julia Gonzales as new Communications Manager, to start work December 18th
- Ride test 3: 12:49pm arrival (12:48 actual), 12:55pm departure (Unit 104-111)
    - 12 offs, 15 transferred to shuttles, 2 ons to train
    - 2 went to San Marin, 15 to Hamilton (1 cyclist)
    - Left Petaluma for San Marin 12:52pm (same for Hamilton bus)
- Observation 5 at San Marin Station
    - Arrived San Marin 1:12pm

    - Matt was manning San Marin SMART after Bart is given an hour break
    - Test train units 117 and 118
    - Demo train stopped at station before moving on south
- Actual test 4: timing to 1:55pm departure from Petaluma
    - Left San Marin for Petaluma 1:24pm after taking pics of station area (van carries 21 passengers)
    - Was the sole passenger on the 21-seater van
    - Arrived Petaluma 1:41pm
- Observation 6 at Downtown Petaluma Station (1:49pm arrival, 1:55pm departure)
    - Train's actual arrival: 1:47pm, with 30+ passengers
        - 5 offs, 2 ons at Petaluma Station
        - 20 passengers transferred to shuttle van for Hamilton station, including 1 cyclist
        - No passengers went to San Marin station
        - Shuttle van departed 1:52pm
        - No passengers went from the Hamilton Shuttle to the train
- Observation 7 at Petaluma Station (2:22pm arrival, 2:28pm departure)
    - Izzy suggests having ticket vending machines for every shelter (one per platform nowadays) - might be difficult to retrofit?
    - Train arrived at station on time with no passengers
    - Train left station on time with 14 passengers boarding
    - Novato shuttle arrived Downtown Petaluma Station at 2:28pm, with 11 passengers on board
        - No time for proper transfer, passengers had to wait for next departure at 3:27pm
    - Lunch afterwards
- Observation 8 at Petaluma Station (3:21pm arrival, 3:27pm departure)
    - A second shuttle arrived from Novato, with 6 passengers on board
    - Total of 27 ons (with 1 cyclist) and 16 offs (2 passengers tagged off in Downtown Petaluma)
    - Seven passengers transferred from train to shuttle for Hamilton station, with 1 on from Downtown Petaluma station
    - Three passengers transferred to shuttle for San Marin station (arrived 3:41pm)
    - Both shuttles left at the same time
- Ride test 5: Hamilton Shuttle (3:23pm departure from Petaluma)
    - Used Prevost H3-45 bus
    - Went through tight squeeze upon exiting Petaluma station
    - Arrived 3:50pm, with 6 transfers from bus to train (including 1 cyclist)
    - A second shuttle van arrived minutes later at Hamilton station with no passengers
- Observation 9: Hamilton Station (3:57pm arrival, 4:07pm departure)
    - Train units 115 and 116
    - 1 off from Hamilton, 1 on from Hamilton to Petaluma via shuttle
    - 6 ons to San Rafael train (1 boarded from station)
    - Train left a minute early, at 4:06pm
    - Got to talk to Matt and Hutch, another SMART ambassador on many things
        - Working with a regional sales tax measure (FASTER), with SMART train potentially getting $2 billion
        - Still gets credit for 2008 Measure Q
        - Confesses speaking in front of camera a weakness
        - Hutch describes $65 fine for improper parking in San Rafael
        - Freeway widening by 1 lane: always behind
        - "You're way ahead of my pay scale!" – Hutch's comment on me knowing a lot on SMART's (and public transportation) operations

        - Discussion on SMART trackage: dairy and feed train from Petaluma at least twice weekly, truss train from Windsor
    - Pure Luxury driver advised author on photography: "To capture the best picture, look for the old tree with a stump near the (Novato) dumps. The branches look like arms raised up to the heavens."
        - Driver also noted that tree might be fell to give way for a potential highway expansion in a few more years
    - Two more shuttles arrived within minutes of each other:
        - First shuttle arrived 4:28pm, with 1 cyclist (went to Lyft)
        - Second shuttle arrived at 4:31pm, with 20 offs (2 offs at Hamilton, rest transferred to train)
- Observation 10: 4:41pm at Hamilton (4:47pm departure)
    - 8 offs from Hamilton, 6 transferred to bus (most would continue to train in Petaluma), 2 rode Lyft
    - 18 ons to train (originally counted 12)
    - 1 passenger boarded at Hamilton station for Petaluma
        - Overheard Matt telling Patty on phone call, "Ultimate in Luxury or Ultimate Irony" wherein it would not make sense to send just one passenger on board a 56-seater bus to Petaluma
        - Solo passenger had to transfer from the Prevost bus (by Pure Luxury) to a 10-seater shuttle van (by Becoming Independent)
- Ride test 6: shuttle from Hamilton to Petaluma
    - Used 10-seater Becoming Independent van
    - 2 ons, both from station, with author boarding alongside a Filipino grandma
    - Left Hamilton 5pm
    - Filipino grandma, originally from Antipolo, currently lives in Rohnert Park
        - She visited nephew in Novato
        - She thought there was a fire, that's why the trains weren't running; author then described Novato Downtown testing
    - Arrive Petaluma 5:23pm (timed to 5:33pm train)
- Observation 11: 5:33pm departure from Downtown Petaluma
    - Grandma transferred from shuttle to train
    - Total of 27 ons
    - Finally met Patty, person responsible for deploying shuttle vehicles since 10am
- Observation 12: Downtown Petaluma Station (5:59pm arrival and 6:05pm departure)
    - Train units 108 and 103
    - Izzy returned 5:40pm; Matt advised to "hold the 9:21pm train until all onward passengers have been received"
    - A cyclist for Civic Center who arrived at station at 5:47pm advised by Izzy to board Hamilton shuttle leaving after 5:59pm train arrival
    - 14 ons (1 cyclist) for 6:05p train, 7 offs (6 offs at Petaluma)
        - 1 transfer passenger to San Marin
        - 1 passenger boarded at station to Hamilton
        - Both shuttles left 6:01pm
- Observation 13: Downtown Petaluma Station (7:23pm arrival and 7:30pm departure)
    - Made three friends in the progress, 2 from Pure Luxury (Frank and Fred), 1 from Becoming Independent (Matt Zimmerman)
    - 6 offs (1 cyclist to Hamilton; 1 off at Petaluma)
    - 5 ons (transferred from Novato shuttle to train)
- Ride test 7: shuttle from Downtown Petaluma to Hamilton

    - Shuttle to Hamilton station left 7:25pm, timed for Hamilton train leaving at 7:52pm
    - Arrived Novato Hamilton station 7:48pm
    - Test train went by Downtown Petaluma 7:28pm
- Observation 14: Hamilton Station (7:42pm arrival and 7:52pm departure)
    - 3 offs at Hamilton, 2 ons to San Rafael
    - Hamilton station can be eerily quiet at night
    - Met up with Hutch again at the station
    - Expanded interview with Matt as he went through his day monitoring the bus bridge
        - Matt can work from anywhere, even from the back of his car, with his laptop and phone on hand (flexible work environment)
        - 4 more years before semi-retirement and return to consulting part time
        - Referred to Nelson Nygaard
        - Do what's best for you and knows people who went to immigrate legally
    - 1 passenger from Petaluma to Hamilton on Becoming Independent shuttle van arrived 8:23pm, timed for 8:37pm departure
- Observation 15: Hamilton Station (8:27pm arrival and 8:37pm departure)
    - 3 passengers, 2 cyclists off; 1 on
    - 1 cyclist off, 2 continue to Petaluma
- Observation 16: Hamilton Station (9:07pm arrival)
    - 6 passengers off (with 1 cyclist), with 2 offs and 4 transfers to Petaluma
    - Went home afterwards, riding the 9:22pm Route 49 from Hamilton Theatre Parking Lot

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