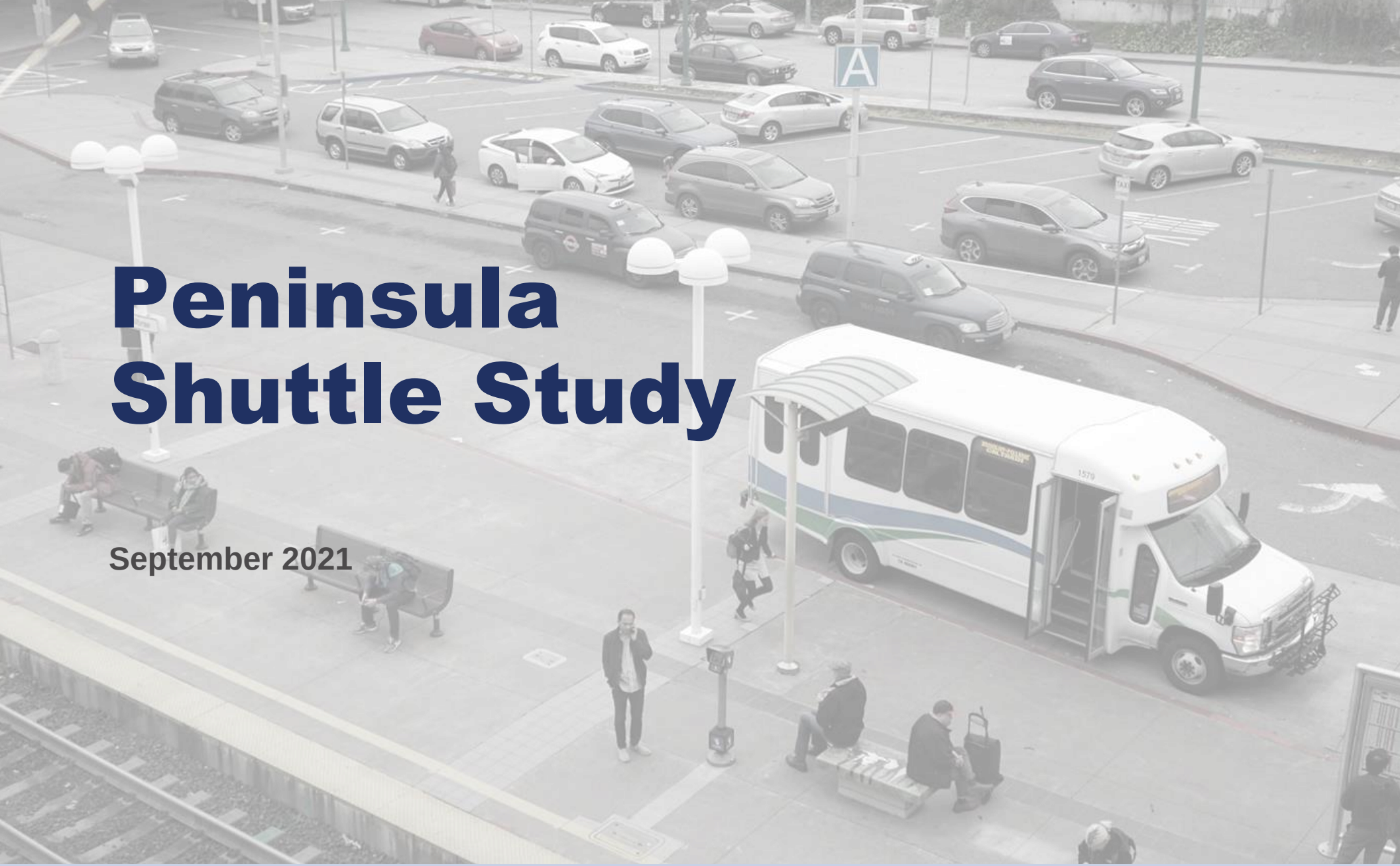

Peninsula Shuttle Study

September 2021

Prepared For

samTrans Caltrain

In Partnership With

C/CAG City/County Association of Governments of San Mateo County

TA San Mateo County Transportation Authority

Commute.org

Prepared By

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Executive Summary

The Peninsula Shuttle Study considers the past, present, and future of the Peninsula Shuttle Program, a multi-agency public-private partnership of first/last mile and community transit operations in San Mateo and Santa Clara Counties. The study was jointly funded by SamTrans and Caltrain in coordination with the San Mateo County Transportation Authority (SMCTA), City/County Association of Governments of San Mateo County (C/CAG), and Commute.org.

The study documents challenges and opportunities facing the shuttle program from the perspectives of riders, agency staff, and public and private sector stakeholders. In total, this study involved over 50 agencies and private entities affiliated with the program and built upon rider feedback from nearly 1,000 surveys. While there is widespread interest in expanding first/last mile connections, questions have emerged around the program's future due to its administrative complexity and inconsistent performance as well as potential lasting effects of the COVID-19 pandemic on travel behavior.

The study identifies several service and management recommendations to strengthen the shuttle program's responsiveness to changing conditions as well as support ridership recovery and growth. These include updating the evaluation and funding process, modernizing data management and rider communication tools, and simplifying management roles and responsibilities.

Key Program Challenges

Inconsistent Performance: Prior to the pandemic, shuttle ridership was decreasing overall even as Caltrain ridership was increasing. Some routes were doing very well, while others saw a significant drop in ridership due to reliability and competition from other services.

Shifting Demand: There remains uncertainty around post-pandemic travel behavior and ridership recovery. At the same time, substantial development activity could necessitate a significant expansion of shuttle service in some cities.

Difficulty Finding Shuttles: Lack of shuttle information and infrastructure creates barriers to ridership growth. Shuttles are not included in most SamTrans materials, and some cannot be found in trip planners like Google Maps. Not all shuttle stops have signage and sidewalk access.

Organizational Complexity: Many agencies are involved in often overlapping roles. However, no single agency has the full breadth of staff resources needed to cover the range of shuttle management responsibilities.

Service & Management Recommendations

Refresh Shuttle Evaluation Process: Shuttle Call for Projects grants should be awarded based on a more data-driven evaluation approach that prioritizes maximizing ridership and improving equitable access to regional transit.

Modernize Data Management: Shuttle data practices should be updated to reduce administrative time and improve the program's responsiveness to changing needs. All shuttles should be equipped with automated vehicle location and passenger counter systems to improve monitoring.

Enhance Rider Communication: Shuttles should be presented alongside buses as a coordinated network. Routes should be published in SamTrans' bus network map and website along with third-party trip-planning and real-time tracking apps.

Simplify Core Management Roles: Shuttle management roles should be simplified to enable a renewed focus on riders and partnerships. Commute.org and cities should lead the planning and coordination of all shuttles, while SamTrans should operate most shuttles via a consolidated vendor contract.

Introduction

1 Study Overview

Study Background & Outcomes

This study considers the past, present, and future of the Peninsula Shuttle Program, a multi-agency public-private partnership of first/last mile and community transit operations spanning San Mateo and Santa Clara Counties. The shuttle program, which totaled 45 routes serving approximately 5,200 daily riders in 2019, includes services that are mostly funded by San Mateo County Transportation Authority (SMCTA), with additional funds from the City/County Association of Governments of San Mateo County (C/CAG), SamTrans, and/or Caltrain. This study was undertaken in partnership among these agencies, along with Commute.org, San Mateo County's transportation demand management agency and the largest shuttle sponsor in the program. In total, this study involved over 50 agencies and private entities affiliated with the program.

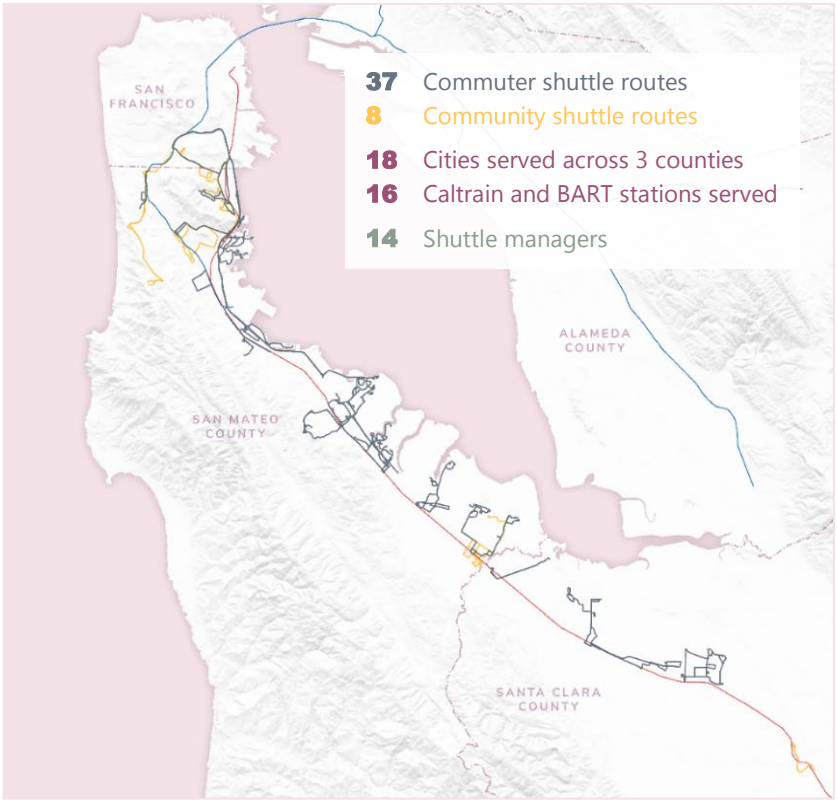
The 2018 *SamTrans Business Plan* identified the need for a comprehensive evaluation of the Peninsula shuttle program in support of promoting programs that relieve traffic congestion (Principle 3). The Business Plan identifies a series of strategic work plans and programs for Measure W tax revenue support that will help SamTrans adapt to a changing mobility landscape and promote financial stability.

The Peninsula Shuttle Study informs several near and long-term changes to the shuttle program and related services:

- Simplify the program's organization, management, and funding structures
- Clarify how shuttles fit in the Peninsula's transit network
- Prepare the shuttle program for ridership recovery and growth

These outcomes are discussed in the context of a shuttle service vision and a shuttle management vision, described in Sections 7 and 8.

Figure 1. Peninsula Shuttle Program Routes (2019)



The Peninsula Shuttle Program includes all routes affiliated with the SMCTA-C/CAG Shuttle Call for Projects in San Mateo County or Caltrain in Santa Clara County.

What is a Shuttle?

In the Peninsula context, a shuttle is a short transit service oriented toward first/last mile or an individual community's needs. While "shuttle" implies a small vehicle, a range of vehicle types are in operation, including some full-size 45-foot buses. Shuttles can serve commute or non-commute trips, and may be operated by cities, transit agencies, or the private sector, either directly or via a contractor.

Shuttles are funded directly by local jurisdictions or the private sector, often with support from grants by SMCTA, C/CAG, MTC, and the Bay Area Air Quality Management District.

Shuttle Program Origins

The shuttle program emerged over the past several decades in response to gaps in the Peninsula's transit network, such as the following:

- A lack of coordinated transfers for first/last mile connections between regional transit providers (such as Caltrain and BART) and bus providers (such as SamTrans and VTA)
- Gaps in bus service for employers in lower density office parks and light industrial areas
- A need for short-distance, coverage-oriented service for communities underserved by local bus

By using a contracted shuttle operator, leveraging funding partnerships with communities and the private sector, and providing service for specific time periods only (like peak commuting periods), the shuttle program has historically been able to provide service across a larger area at a lower cost than bus service.

Service Types & Areas

The shuttle program serves most cities in San Mateo County as well as some in Santa Clara County (**Figure 1**). Of 45 routes in 2019, 37 operated in San Mateo County and eight routes operated in Santa Clara County (affiliated with the program through funding or grant sponsorship via Caltrain). In total, the program served 18 cities and 17 regional transit stations in 2019, involving 14 managers in the public and private sector.

Shuttles have traditionally been grouped into two categories: commuter shuttles and community shuttles. Commuter shuttles provide first/last mile connections to/from regional transit primarily to access employment centers during peak periods. Community shuttles provide all-day, midday, or weekend service generally within a single community for basic needs like shopping, dining, and medical appointments, often serving transit-reliant populations. However, the distinctions between commuter and community shuttles have been increasingly blurred as more shuttles serve both markets.

Many shuttles operate on the Peninsula beyond this shuttle program. Other shuttles include those operated by large employers or transportation management associations (TMAs) free to the public, private shuttles operated by specific employers, city-run shuttles not funded by the program, and even some shuttle-like fixed-route and on-demand bus services provided by SamTrans and VTA.

How the Shuttle Program is Evolving

In recent years, the shuttle program has encountered a range of performance and operational challenges, including but not limited to the following:

- Stagnant shuttle ridership and inconsistent productivity, even as regional transit ridership has increased
- Market demand for shuttles exceeding service provided
- Limited public access to shuttle information and wayfinding
- Inconsistent reliability due to driver shortages
- Complex management and administration

The recent performance and outlook of the shuttle program is summarized in the **Existing Conditions & Outlook** section.

The COVID-19 pandemic has resulted in significant changes to the shuttle program. Due to the loss of grant and matching funds, Caltrain elected to discontinue its involvement in shuttles in Santa Clara County. Of the eight routes in Santa Clara County, five no longer operate while three continue to operate independent of the shuttle program. More broadly, the pandemic's near- and long-term effects on travel behavior remain unclear.

In the next decade, the shuttle program will face a confluence of factors that will change how the program functions, such as:

- Potential lasting effects of the COVID-19 pandemic on travel behavior
- Changes to transit services associated with the Caltrain Business Plan and Reimagine SamTrans
- Substantial development activity, particularly major technology and life science campuses
- Procurement of a new shuttle operations contract
- Eventual fleet electrification requirements from the Innovative Clean Transit regulation

Together, the shuttle program faces significant uncertainty, especially amid changing travel behavior and increasing labor costs. Consequently, the service and management recommendations in this study seek to enhance the shuttle program's resiliency and responsiveness to changing needs.

2 Shuttle Program Goals

Agencies involved in the shuttle program in San Mateo and Santa Clara Counties have identified several goals for shuttle service, described in this section.

Program Goals in San Mateo County

In San Mateo County, the shuttle program builds upon policy goals adopted by five agencies primarily responsible for funding and administering the program: SMCTA, C/CAG, SamTrans, Commute.org, and Caltrain. While each agency has its own unique priorities, three goals related to transportation services are shared across agencies:

- **Connectivity**: Provide first/last mile connections with regional transit
- **Ridership**: Maximize ridership to help reduce corridor congestion
- **Equity**: Sustain and enhance local mobility for transit-reliant populations

As depicted in **Figure 2**, the focus of the shuttle program lies at the intersection of these goals. At a minimum, shuttles exist to provide first/last mile connections and either to maximize ridership (typically a focus of commuter shuttles) or serve transit-reliant populations (typically a focus of community shuttles).

Ideally, shuttles fulfill all three goals by helping grow ridership and improve mobility for disadvantaged populations.

Relevant goals from San Mateo County agencies are shown in **Table 1**.

Program Goals in Santa Clara County

In Santa Clara County, Caltrain is solely responsible for the funding, administration, and management of shuttles serving its stations. Policies included in Caltrain's Equity, Connectivity, Recovery, and Growth Policy summarized in **Table 1** also apply to shuttles in Santa Clara County. Caltrain has not adopted other policies specific to the shuttle program.

Figure 2. Program Goals in San Mateo County

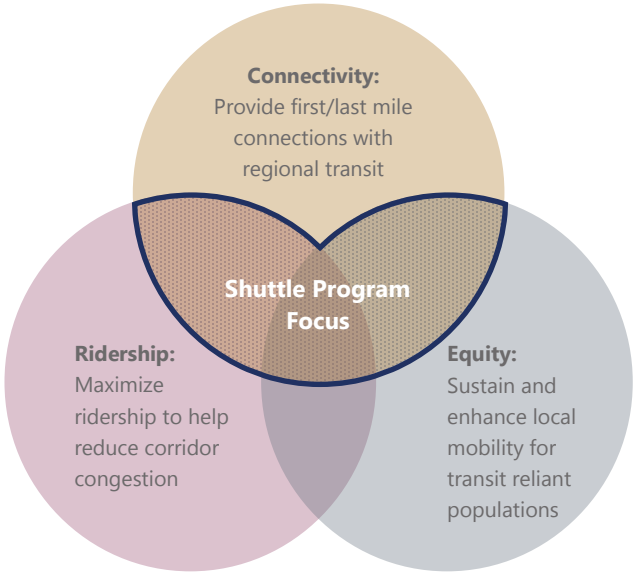
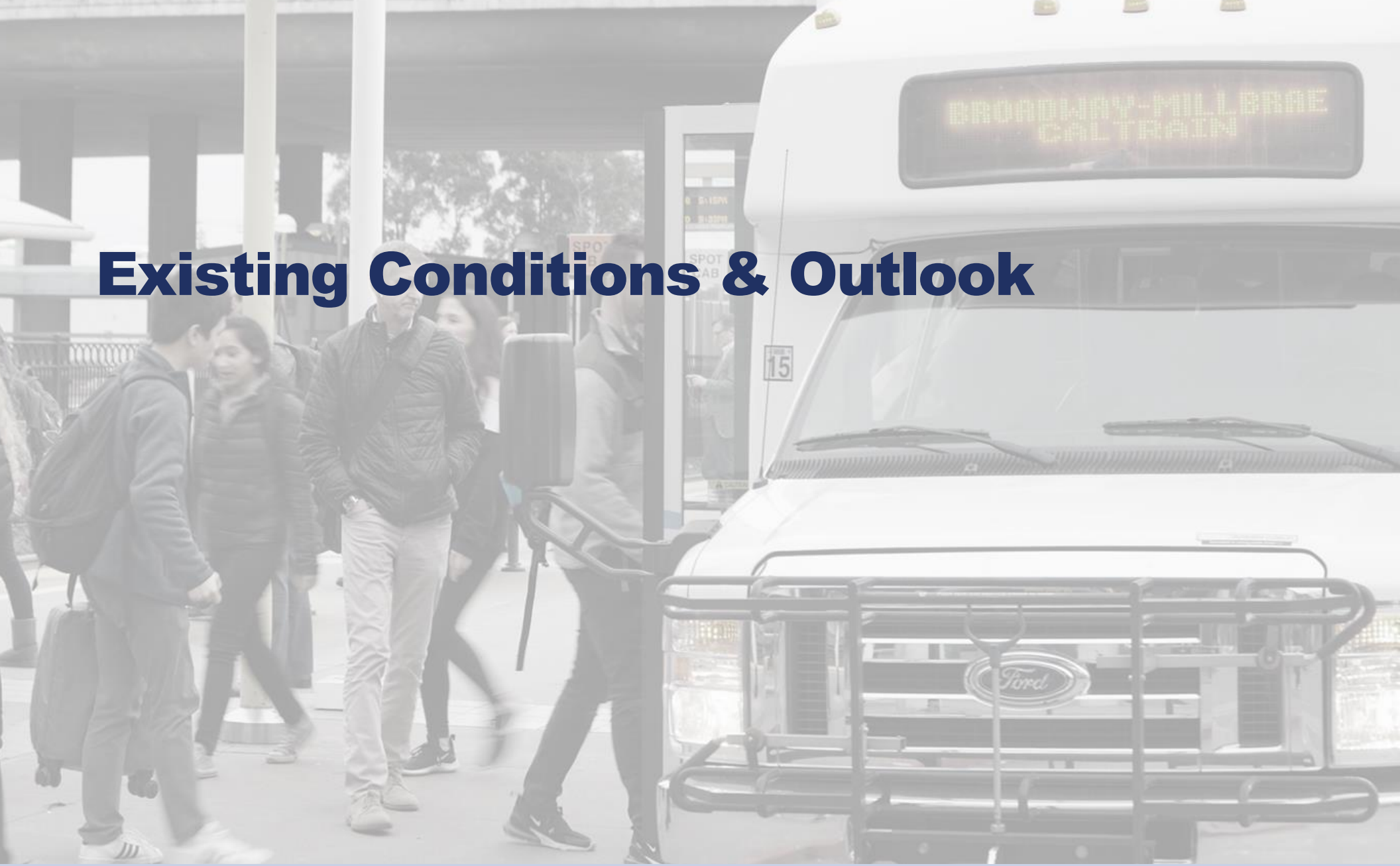


Table 1: San Mateo County Agency Goals

Topic	Plan/Policy	Section	Goal
Connectivity	SMCTA Measure A Expenditure Plan	Section III, A2	Provide local shuttle services to meet local mobility needs and access to regional transit services. Priority will be given to shuttle services which include a portion of the funding from businesses, employers, and other private sector sources. Priority shall also be given to local services which connect with Caltrain, BART and future Ferry Terminals.
	C/CAG Transportation Plan	Modal Connectivity Objectives 4	Enhance shuttle bus services connecting work sites and public transit stations and stops.
	Commute.org Strategic Plan	Program Area 1, Section 2	Provide safe and reliable employer-based shuttle services between employment sites and Caltrain and BART stations
	Caltrain Equity, Connectivity, Recovery, and Growth Policy*	Guiding Principle 3	Maximize connectivity to other transit providers as part of an integrated regional rail and transit system
Ridership	Commute.org Strategic Plan	Goal 1	Reduce commute corridor congestion
	SMCTA Measure A Expenditure Plan	Goal 1A	Improve mass transit serving the County through investments in Caltrain, BART, ferries, and local shuttle services.
	SamTrans Business Plan	Principle 3	Promote programs that relieve traffic congestion.
	Caltrain Equity, Connectivity, Recovery, and Growth Policy*	Program Area 1, Section 2	Work with existing and potential new employer consortiums to attract and retain additional ridership on Caltrain, SamTrans and BART services.
Equity	SMCTA Measure A Expenditure Plan	Goal 4-B	Improve local shuttle services to provide a viable option to the private automobile for local trips, and to meet the needs of transit dependents.
	SamTrans Business Plan	Principle 1	Sustain and enhance services for transit dependent
	Caltrain Equity, Connectivity, Recovery, and Growth Policy*	Guiding Principle 1A	Caltrain shall make a priority of addressing the specific needs of riders and communities who depend on transit for essential travel. In particular, the railroad will work to enhance equity in its system, making its services more accessible and relevant to lower income people and members of racial groups and communities who have historically been marginalized and overlooked in planning and government processes.

*Caltrain's Equity, Connectivity, Recovery, and Growth Policy also applies to shuttles operated or funded by Caltrain in Santa Clara County

Existing Conditions & Outlook



3 System Performance

Key Findings

The shuttle program has experienced **mixed performance despite growth** in regional transit ridership.

Shuttle **performance varies** widely depending on a route's service characteristics, management structure, land use and TDM context, reliability, and level of competition from other services.

While the shuttle program is very **cost-effective**, it has been subject to **driver shortages** for routes operated by the joint vendor contract under SamTrans, Caltrain, and Commute.org.

Shuttle Program Trends (2014 to 2019)

Ridership	↓
Reliability	↓
Caltrain & BART Ridership	↑
Regional Funding	↓

Shuttle Performance Prior to COVID-19

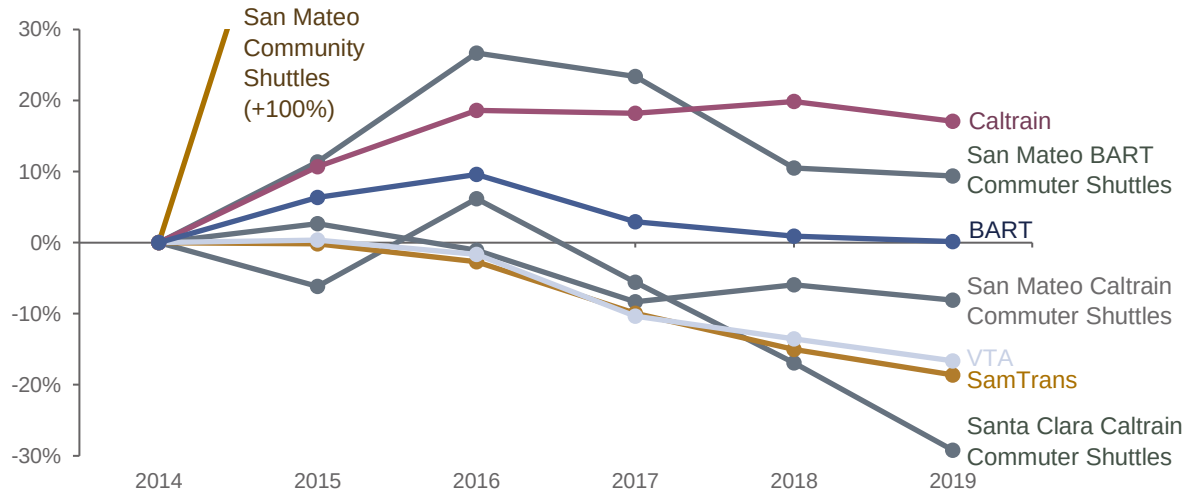
In 2019, shuttle performance varied widely across the program's 45 routes. The following sections describe ridership, productivity, financial effectiveness, and reliability at a program level prior to the COVID-19 pandemic. Additional route-specific information is provided in **Appendix B** and **Appendix C**. System level reference tables are provided in **Appendix D**.

Ridership Trends

While total shuttle ridership has been relatively stagnant in recent years, trends differed by service type and location. Annual trends from 2014 to 2019 are depicted in **Figure 3** and summarized below:

- Community shuttle ridership more than doubled, largely due to a significant expansion in shuttle routes emerging from SamTrans' 2014 service changes (such as the South City shuttle, Skyline College shuttle, and Daly City Bayshore shuttle)

Figure 3. Percent Change in Annual Ridership



- Commuter shuttle ridership on routes serving Caltrain decreased by 8 percent in San Mateo County and 42 percent in Santa Clara County.

In the aggregate, commuter shuttle ridership declined by nine percent overall, mirroring declines in SamTrans and VTA ridership during this time period (17 percent and 19 percent, respectively).

The decline in commuter shuttle ridership is notable because Caltrain ridership increased by 17 percent over the same period. Shuttles accounted for about six percent of all trips to and from Caltrain in 2019, a decrease from nine percent in 2010 (roughly two-thirds of which are affiliated with the shuttle program and one-third are independent private shuttles).

On a route level, performance has been similarly mixed. Since 2014, 13 routes saw ridership gains greater than 20 percent, six routes maintained steady ridership, and 19 routes experienced ridership losses greater than 20 percent. Shuttle ridership tends to be strongest when routes directly connect dense employment centers to BART and Caltrain stations, serve a range of travel markets, are supported by transportation demand management (TDM) programs, and operate at higher frequencies. Trends by route are displayed in **Appendix B**.

Why Are Some Commuter Shuttles Losing Riders?

In recent years, some commuter shuttles have faced stagnant or declining ridership due to a combination of factors, including:

- Inconsistent reliability due to driver shortages
- Competition from private first/last mile shuttles, long-haul buses, and Uber/Lyft
- Higher-wage technology and life science employers replacing traditional office and light industrial tenants
- Limited TDM requirements and varying financial commitments from private sector
- Available staff resources to take corrective actions across a wide range of management structures and operating contexts

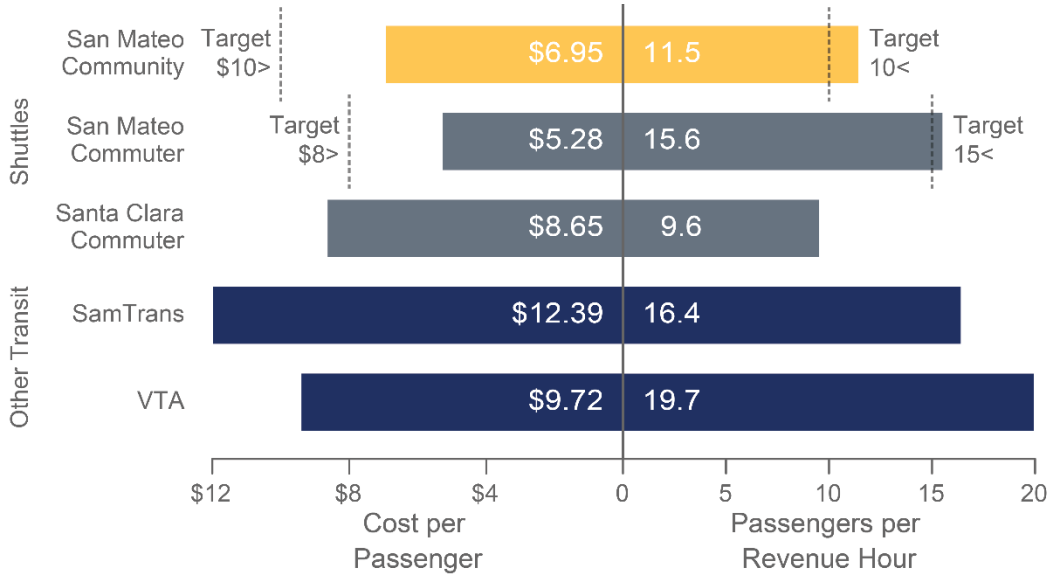
Figure 4. Stanford Marguerite Shuttle at Palo Alto Caltrain Station

Stanford University's Marguerite shuttles have maintained strong ridership and productivity by operating a robust high frequency network coupled with participation in Caltrain's GoPass program. The service has generally avoided driver shortages and associated reliability issues in recent years.

The combination of these factors contributes to an overall lack of responsiveness to changing market conditions by the shuttle program. However, some service providers have been more successful than others when adapting their services to a changing travel market. Since 2014, routes sponsored by Commute.org experienced a 47 percent increase in ridership by collaborating with the private sector on communications, marketing, and TDM programs.

Service planning plays a major factor in ridership outcomes. Although maximizing ridership is a core

Figure 5. Program Performance Metrics



Source: SamTrans and National Transit Database, 2019

goal of the shuttle program's partnerships with the private sector, most community shuttles as well as some commuter shuttles are instead designed to maximize access and coverage. Half of all shuttle ridership occurs at 15 percent of stops, while 47 percent of shuttle stops serve fewer than 10 daily boardings and alightings. Since shuttle routes often make loops and diversions in order to serve extra stops, these low ridership stops can add complexity to routes and delays to most shuttle riders. Although such coverage-focused shuttle routes are often the product of addressing a range of service requests from private sector funding partners, they tend to result in services that are less appealing to riders and less time-competitive when compared to other modes of travel.

Productivity

Productivity measures how many passengers a shuttle carries in relation to the amount of service provided. In San Mateo County, the SMCTA has set a productivity target of 15 passengers per revenue hour for commuter routes, which is consistent with bus route targets set by SamTrans and VTA. For community routes, the SMCTA sets a lower target of serving at least 10 passengers per revenue hour. Caltrain measures the productivity of shuttles operating in Santa Clara County but has not set targets for them.

Commuter shuttles in San Mateo County serve an average of 15.6 passengers per revenue hour, while Santa Clara commuter shuttles serve an average of 9.6 passengers per revenue hour. Community shuttles in San Mateo County serve an average of 11.5 passengers per revenue hour. Shuttle performance is comparable to SamTrans and VTA buses, which serve 14.1 and 19.5 passengers per revenue hour, respectively. These metrics are displayed in **Figure 5**.

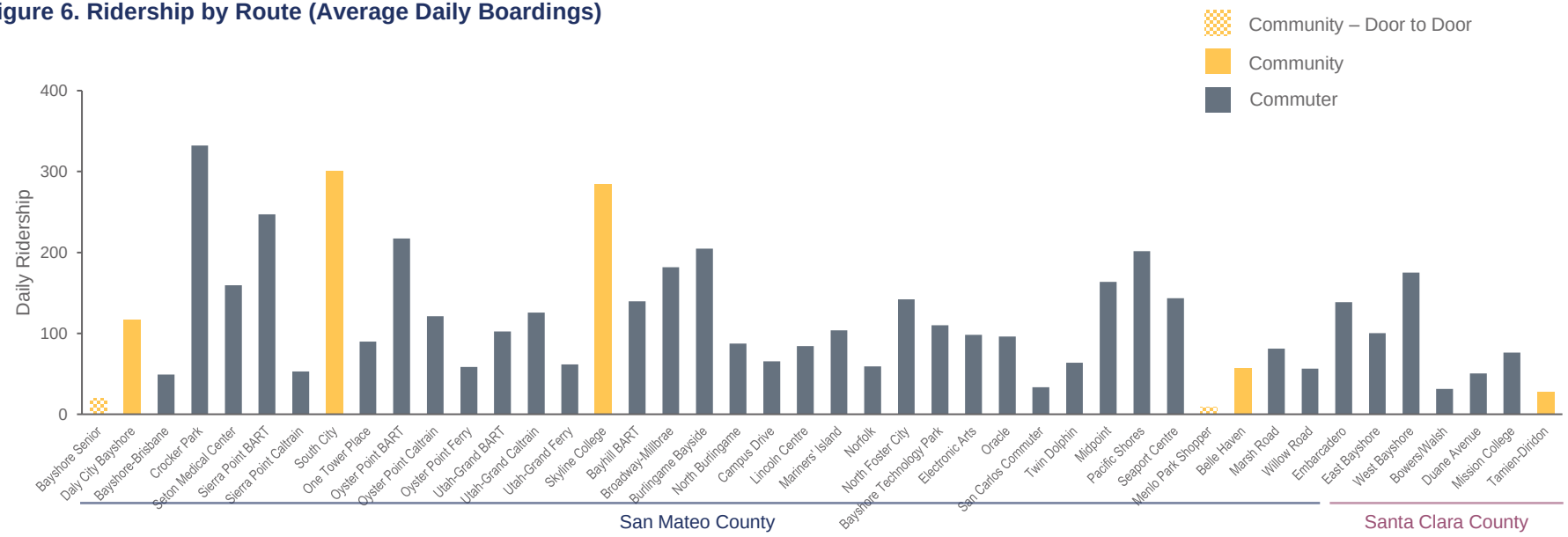
Individually, only 16 of 37 shuttles in San Mateo County met their productivity target in 2019. Most shuttles served between 10 and 20 passengers per revenue hour; nine shuttles were highly productive, serving over 20 passengers per revenue hour, while eight were less productive, serving fewer than 10 passengers per revenue hour. Productivity was considerably lower among shuttles in Santa Clara County: except the Stanford Marguerite, no shuttle served more than 13 passengers per revenue hour. These metrics are displayed in **Figure 7**.

Financial Effectiveness

Financial effectiveness measures the cost to operate service per passenger served. In San Mateo County, the SMCTA set an effectiveness target of costing less than $8 per passenger for commuter routes and less than $10 per passenger for community routes. Caltrain measures financial effectiveness for shuttles in Santa Clara County but has not set targets.

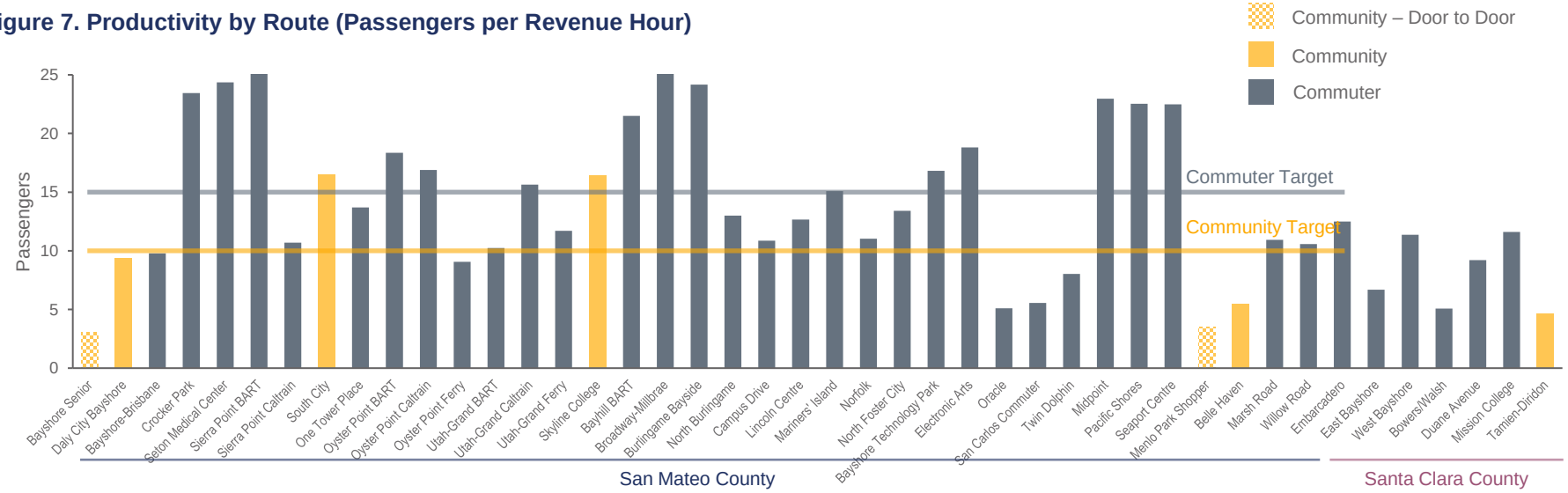
Operating cost per passenger is considerably lower for shuttles compared to local bus service. On average, shuttle routes cost less than $10 per passenger to operate, compared to about $12 and $11 for SamTrans and VTA, respectively. These metrics are displayed in **Figure 5.** On a route level, the majority of commuter and community routes in San Mateo County met their performance standard for financial effectiveness. Route metrics are displayed in **Figure 8**.

Figure 6. Ridership by Route (Average Daily Boardings)



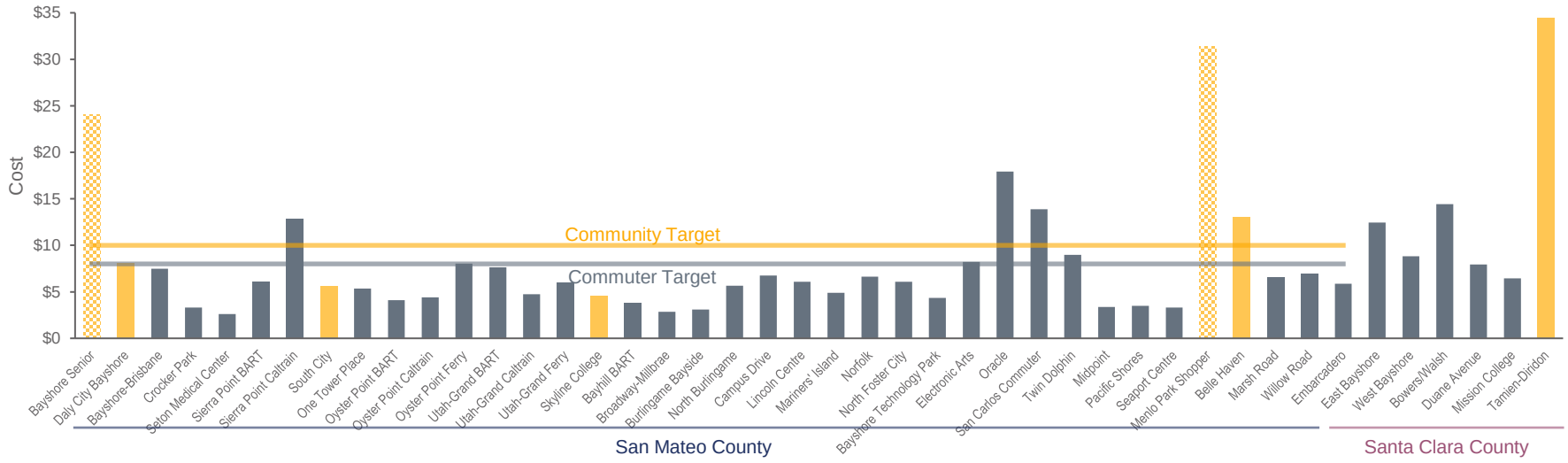
Source: SamTrans, 2019

Figure 7. Productivity by Route (Passengers per Revenue Hour)



Source: SamTrans, 2019. Note: The productivity target for the Brisbane Senior Shuttle was 2 passenger per revenue hour as a door-to-door service. There is no productivity target for services in Santa Clara County.

Figure 8. Financial Effectiveness by Route (Cost per Passenger)



Note: The financial effectiveness target for the Brisbane Senior Shuttle was $20 per passenger as a door-to-door service. There is no financial effectiveness target for services in Santa Clara County.

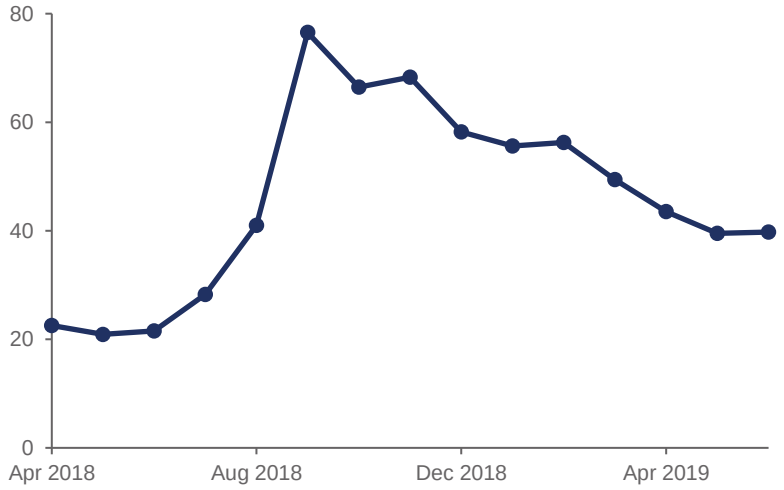
Value, Reliability & Driver Shortages

The program's notable financial effectiveness can be attributed to the hourly cost of contracted service. While this approach has resulted in a financial savings when compared to fixed-route bus and private sector shuttles, it has also caused challenges in recruiting and retaining drivers for the shuttle vendor, leading to service cuts, reliability issues, and ridership decline.

In 2018 and 2019, driver shortages affected reliability for about three quarters of the 35 routes operated through the joint vendor contracts by SamTrans, Caltrain, and Commute.org. Driver shortages have caused service reductions and last-minute cancellations, representing a source of frustration for riders and private sector funding partners.

Many transit agencies in the Bay Area have faced driver shortages in recent years, but the shuttle program's driver shortages were exacerbated by strong wage competition and limited driver supply on the Peninsula. Driver wages for shuttle routes contracted under SamTrans, Caltrain, and Commute.org tend to be lower than comparable services by private sector operators. In contrast, most shuttles operated independently have been able to keep up with market wages and largely avoid driver shortages. The COVID-19 pandemic has alleviated driver shortages due to reduced shuttle service levels and decreased regional demand for drivers. Driver shortages may return if demand for drivers and wage competition returns.

Figure 9. Average Daily Canceled Runs (Joint Shuttle Contract)



Source: SamTrans, 2019. Note: Data for jointly administered SamTrans - Caltrain - Commute.org contract only. Cancellations were low enough not to warrant tracking prior to April 2018. Independent operators do not keep cancellation data.

4 Market Analysis

Key Findings

Commuter shuttles tend to **serve regional travel by moderate- to higher-income riders** at technology and life science employers, while **community** shuttles tend to **serve lower income** riders.

Inconsistent information and signage can pose a barrier to shuttle use; many riders still learn about shuttles through word-of-mouth.

Employment and housing growth coupled with regional **transit improvements** are likely to **increase demand** for first/last mile connections in the coming years.

Shuttle Program Outlook (2020s)

Office & Residential Development	↗
Caltrain & BART Service Levels	↗
Operating Costs	↗
Community Interest	↗
Post-Pandemic Travel Demand	TBD

Who Shuttles Serve

Rider survey data illuminates who is using the shuttle program. SamTrans and Caltrain distribute annual rider surveys for shuttle routes they sponsor or operate (totaling 33 of the 45 routes in the program in 2019). While other shuttles administer their own rider surveys, a comparable dataset for socioeconomic characteristics on the remaining 12 routes was not available. Due to the COVID-19 pandemic, additional surveys were not conducted except for a supplemental rider survey for the South City Shuttle. This section therefore represents a partial assessment of shuttle program riders. Additional route-specific information is provided in **Appendix B**.

Income

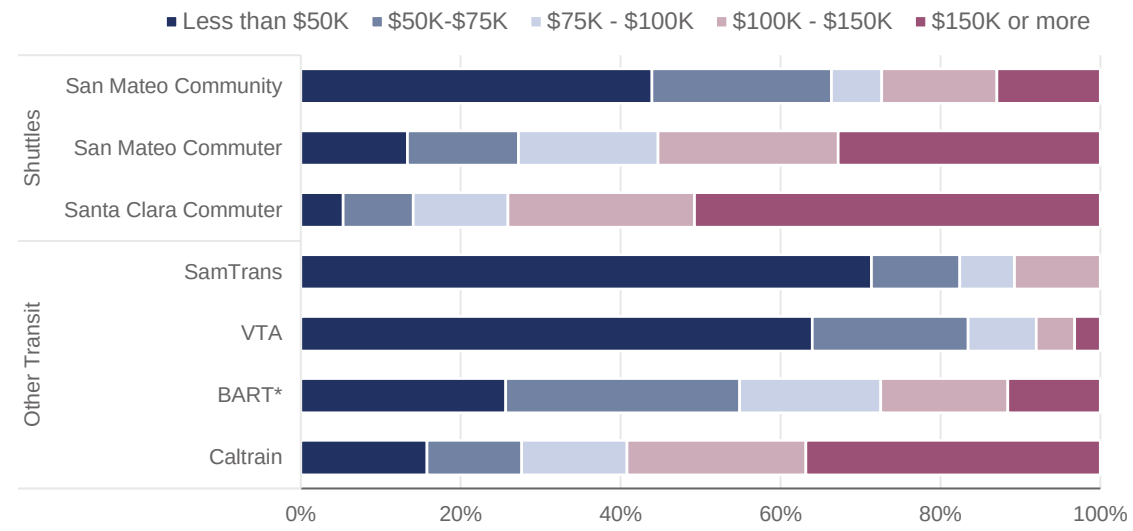
Commuter shuttles tend to serve riders in moderate to high-income households. In both San Mateo and Santa Clara Counties, most commuter shuttle riders live in households earning more than $100,000 per year (in Santa Clara County, a majority of rider households actually earn more than $150,000 per year). Rider incomes tend to reflect higher paying technology and life science employees often served by these routes. Shuttle rider incomes tend to mirror Caltrain, but are substantially higher than SamTrans, VTA, or BART. The distribution of annual household income is displayed in **Figure 10.**

Community shuttles tend to serve lower income riders, similar to local bus services. Almost 70 percent of San Mateo community shuttle riders live in households earning less than $50,000 per year. Many community shuttles are oriented toward transit-reliant populations as an essential service.

Race & Ethnicity

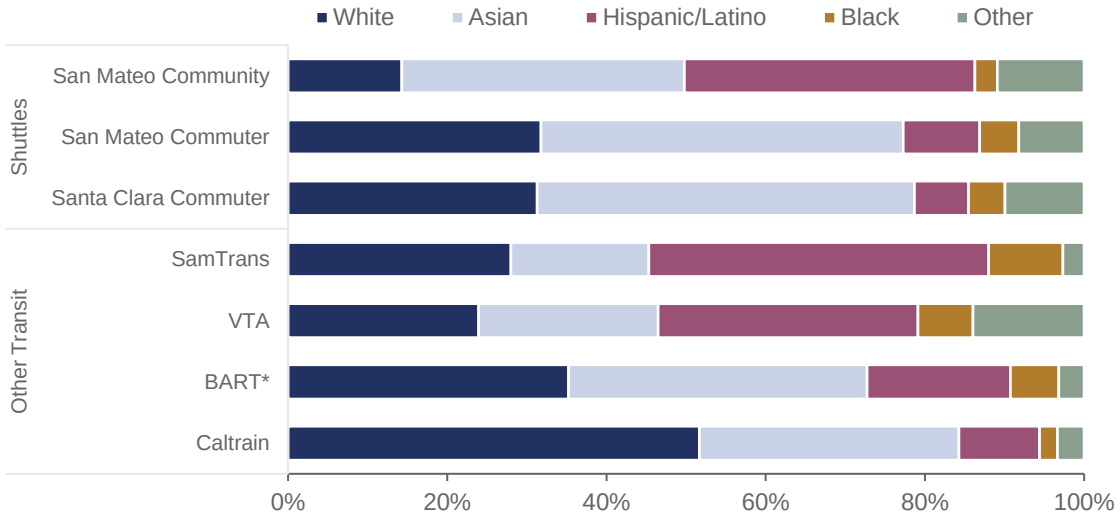
Commuter shuttles serve fewer Latino riders compared to local bus service. About 10 percent of San Mateo County commuter shuttle riders, and five percent of Santa Clara commuter shuttle riders, identified as Latino. This more closely matches the ridership demographics of BART and Caltrain but is proportionally about half that of SamTrans and VTA. Service areas, route design, workplace diversity, and marketing could influence the demographic composition of commuter shuttle riders. In contrast, riders of community shuttles in San Mateo County more closely match the demographics of SamTrans. The race and ethnicity of shuttle riders is displayed in **Figure 11.**

Figure 10. Annual Household Distribution



Note: *Only includes BART stations connecting to shuttle routes

Figure 11. Race & Ethnicity



Source: SamTrans Shuttle Rider Survey, 2019

County of Residence

Commuter shuttles serve a wide range of regional trips, mirroring ridership patterns for Caltrain and BART. Over 80 percent of commuter shuttle riders are "last mile" trips from transit to employers during the AM peak period and "first mile" trips from employers to transit during the PM peak period; only a few commuter shuttles also serve riders in residential areas. Less than 30 percent of San Mateo commuter shuttle riders also live in San Mateo County; some riders travel from as far as Alameda or Contra Costa counties. Santa Clara County commuter shuttles also serve a range of regional trips but nearly half of riders also live in Santa Clara County.

San Mateo County community shuttles primarily serve riders who live within county limits (about 80 percent overall). About 15 percent of community shuttle riders live in San Francisco (riders on the Daly City Bayshore shuttle, which also provides service in San Francisco).

Employers Served

While commuter shuttles serve a wide range of employees, most shuttle riders are employed by large technology and life science companies. Approximately 70 percent of riders work in the technology and life science fields, and 35 percent of riders work for companies listed in the S&P 500 Index (i.e., the largest, most highly capitalized companies in the United States). Other riders work in industries such as healthcare, logistics, manufacturing, and government.

The largest employers by ridership served by the shuttle program include Intuit, Google, Oracle, Gilead, Walmart, Seton Medical Center, Electronic Arts, and Intel. Some employers have multiple campuses served by different shuttle routes. In addition to participating in the shuttle program, some of these employers also provide commuter bus services for their employees.

Mode Shift

Although reducing the rate of solo driving is a core objective of the shuttle program, surveys suggest the program has a moderate effect on mode choice. Mode shift factors into grant awards for the Bay Area Air Quality Management District's Transportation for Clean Air grant program. Without the shuttle program, nearly half of riders reported they would stop using regional transit to commute in favor of another form of transportation altogether. The remainder would continue to use regional transit but shift to accessing regional transit by another mode such as driving, walking, biking, or local bus service. Notably, most community shuttle riders and half of commuter shuttle riders would continue to ride transit, suggesting shuttles are not the singular determinant of mode choice. These findings are depicted in **Table 2**.

Table 2: Shuttle Program Mode Shift

Q: If a shuttle were not available, would you stop riding regional transit for your trip?		
Shuttle Type	*Yes*	*No*
San Mateo Community	21%	79%
San Mateo Commuter	49%	51%
Santa Clara Commuter	44%	56%

Source: SamTrans Shuttle Rider Survey, 2019

Shuttle Communications & Wayfinding

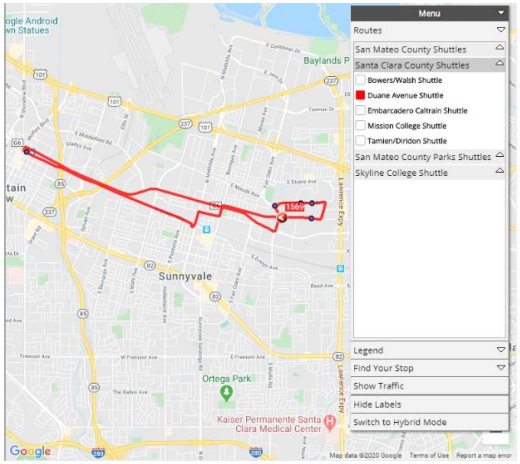
Shuttle ridership is influenced by the availability of route, schedule, and stop information. Without a consistent approach to marketing, communications, and wayfinding, the program relies more heavily on word-of-mouth and direct marketing to potential riders, which limits its overall market penetration on the Peninsula.

Shuttle Maps, Schedules & Tracking

No single source provides maps, schedules, and real-time tracking for all routes in the shuttle program:

- SamTrans does not depict any shuttles on its network map or website. VTA includes routes in Santa Clara County on its network map, but does not provide shuttle schedules on its website.
- Caltrain, Commute.org, and SMCTD each have websites that include individual maps and schedules for all or a subset of routes; however, none include a network map of all routes together.
- The SMCTD shuttle tracker (**Figure 12**) provides real-time arrival information for 33 of 45 of shuttle routes, while comparable information is not available for the remaining routes. Mobile interface on the shuttle tracker is difficult. Commute.org provides a shuttle tracker for its routes with a more seamless mobile web interface.
- Third-party apps like Google Maps, Apple Maps, and Transit App cover 33 of 45 routes in San Mateo and Santa Clara Counties, while comparable information is not available on the remaining routes. No third-party apps include real-time vehicle tracking and apps sometimes lag in updating their information.

Figure 12. SMCTD Shuttle Tracker



The SMCTD shuttle tracker displayed 33 of 45 shuttles in 2020.

As a result of the fragmented and variable communication of shuttle information, the shuttle system can be challenging to understand for the general public. Compared to riding a bus route, prospective shuttle riders are more likely to encounter barriers to riding shuttles such as confusion planning trips, uncertainty tracking arrivals, and difficulty finding route information altogether.

Shuttle Stops

Shuttle stop conditions (**Figure 13**) further shape usage of the shuttle program. As of January 2020, shuttle stops reflected a range of conditions:

- Approximately 55 percent of shuttle stops had signage, while 45 percent were unmarked.
- Approximately 70 percent of shuttle stops were located on-street, while 30 percent were located off-street on private property.
- Approximately 85 percent of stops had sidewalk access, while 15 percent had no sidewalks.
- Less than 10 percent of stops had shelters, seating, maps, and/or wayfinding signage.

Since many shuttle stops are unsigned, located on private property, and/or lack sidewalk access, it is not uncommon for prospective riders to encounter difficulties finding stops. These stop conditions, coupled with the decentralized website and map interface, can reinforce barriers to riding shuttles.

Demand for Shuttle Service

Demand for shuttle services is driven by two key factors:

1. Demand for first/last mile connections to regional transit
2. Gaps in bus network coverage, especially for transit-reliant populations

Demand for first/last mile connections is a function of the amount and density of land use beyond walking distance of regional transit stations as well as market factors that motivate more people to use public transit (such as difficulty driving and parking, quality of regional transit service, and/or TDM incentives).

Shuttles have historically been the primary tool to address first/last mile needs.

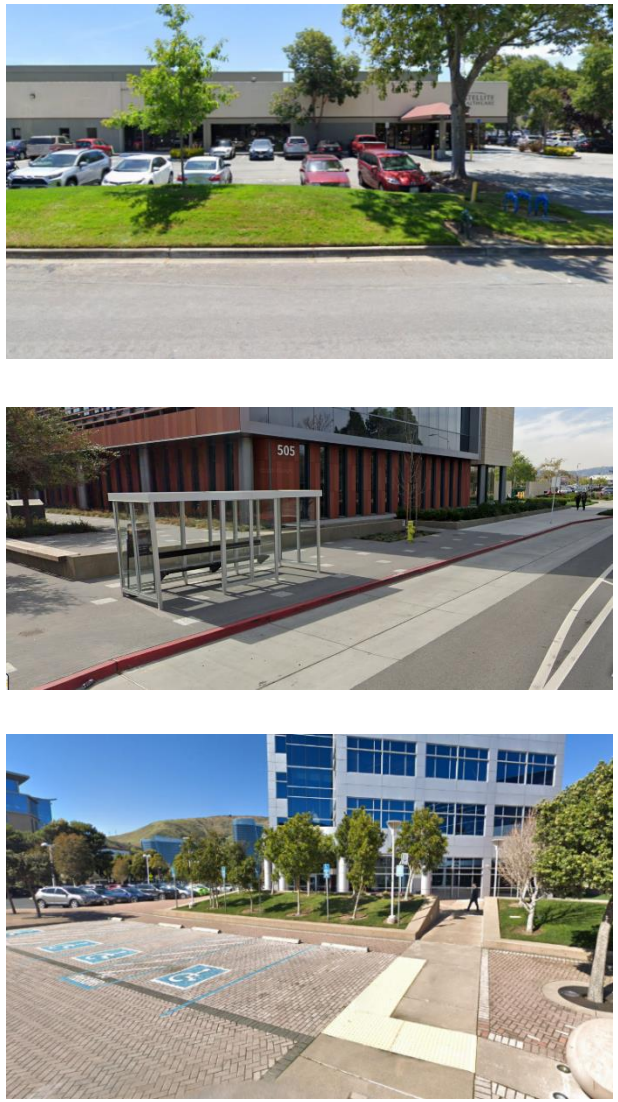
Shuttles fill gaps in bus service, particularly for communities with higher concentrations of people that rely on transit for their everyday mobility needs (such as people without access to a car, youth, or elderly). Demand for shuttles to fill these gaps may evolve over time as bus networks and socioeconomic patterns change on the Peninsula.

The COVID-19 pandemic dealt a considerable blow to local and regional transit ridership in 2020 and 2021. However, prior to the pandemic, some Peninsula cities saw demand for shuttles exceeding available service. The following analysis of the Peninsula's development pipeline and planned increases to Caltrain service levels suggests the need for first/last mile services could be even greater in the near future.

Development Pipeline

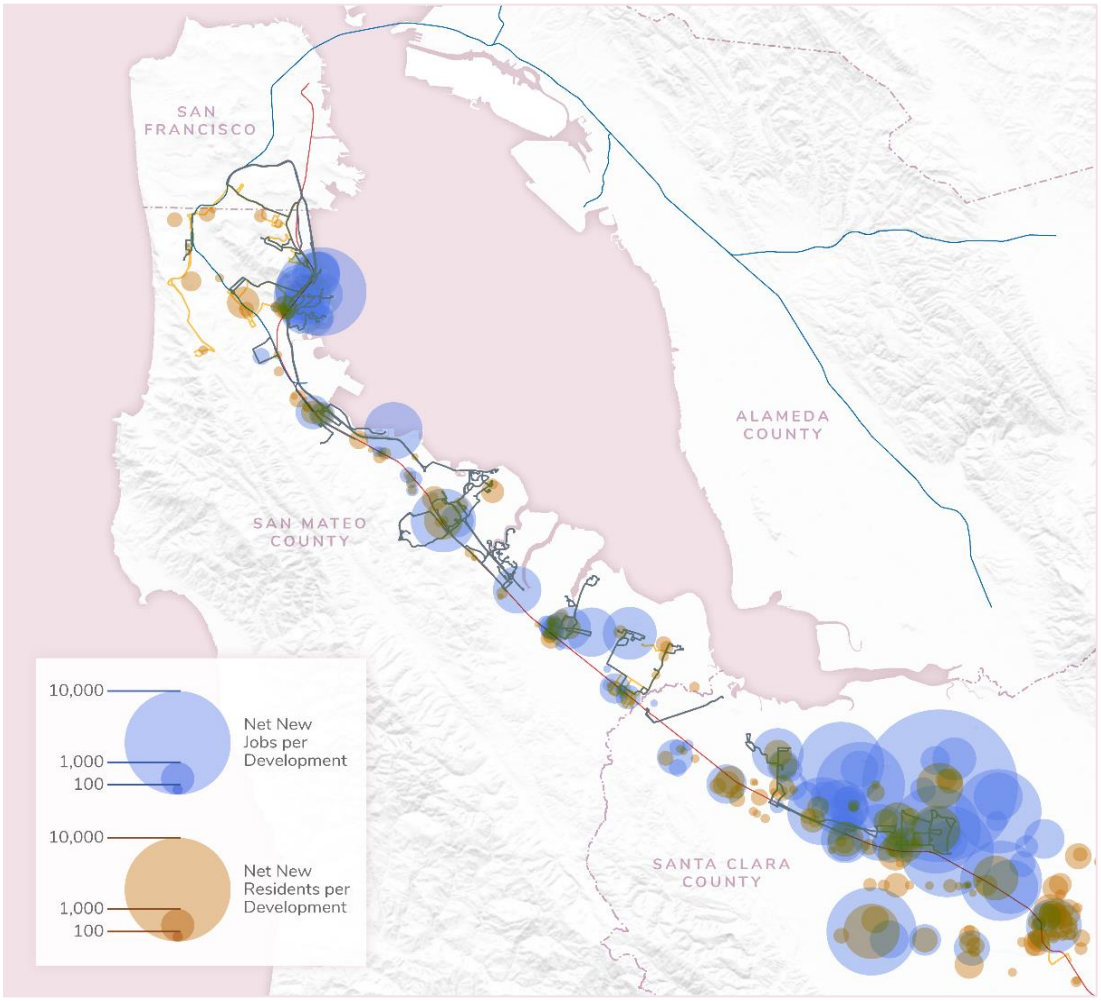
The Peninsula's robust development pipeline is expected to substantially increase demand for first/last mile connections over the next decade. As of January 2020, Peninsula cities have approved approximately 47 million square feet of office/R&D space and 52,000 housing units, which translates to about 181,000 new jobs and 104,000 new residents.

Figure 13. Shuttle stops in Menlo Park, Redwood City, and South San Francisco



Source: Google Street View, 2020

Figure 14. Developments Approved or Under Construction as of January 2020



Source: Fehr & Peers, 2020

about 181,000 new jobs and 104,000 new residents.[1] Many of these developments are already under construction. **Figure 14** illustrates this development pipeline. Additionally, millions of square feet of office/R&D space and thousands of housing units are in the planning stages but not yet approved.

Much of the Peninsula's growth is occurring outside of typical walking distance from regional transit stations as shown in **Table 3**. In San Mateo County, 69 percent of job growth and 39 percent of population growth has been approved greater than one-half mile away from a Caltrain or BART station, while in Santa Clara County, 85 percent of job growth and 78 percent of population growth has been approved greater than one-half mile away from a Caltrain or BART station. Job growth farther from

Table 3: Job and Population Growth

County	Category	San Mateo County	Santa Clara County
Job Growth	Total Growth	54,000	127,000
	Percent ½ miles or more from Caltrain or BART stations	69%	85%
Population Growth	Total Growth	22,000	82,000
	Percent ½ miles or more from Caltrain or BART stations	39%	78%

Source: Fehr & Peers, 2021

[1] Estimates assumed one employee per 250 square feet of office space, one employee per 400 square feet of life sciences space, and two residents per housing unit.

transit stations is particularly concentrated in cities such as South San Francisco, Redwood City, Mountain View, Sunnyvale, and Santa Clara.

Most developments are required to implement TDM programs to encourage regional transit use and facilitate first/last mile connections. Consequently, the effects on demand for first/last mile services like shuttles could increase substantially, especially in cities requiring participation in shuttle programs.

Regional Transit Changes

Over the next decade, Caltrain plans to substantially increase service frequency at its stations beginning with the electrification of its trains. Initial service concepts for the mid-2020s consider a 40 percent increase in peak period stops while maintaining comparable travel times, which could result in double the stations served by at least four trains per hour, per direction. Caltrain's Equity, Connectivity, Recovery, and Growth policy aims to prioritize further service expansion that could more than double peak period stops by approximately 2030. About half of stations could receive eight trains per hour per direction and nearly all stations could receive at least four trains per hour per direction.

Expanding Caltrain service would increase demand for shuttle service. In order to maintain a similar level of coordinated transfers, the shuttle program would need to roughly double in size to match the growth in Caltrain frequency.

Other changes to regional transit may increase demand for first/last mile services. Limited parking availability at BART and Caltrain stations and continued development on parking lots may shift station-access trips from driving to buses and shuttles, growing the market of people using shuttles to reach their homes (as opposed to places of work). The expansion of ferry service in South San Francisco, potential introduction of ferry service in Redwood City, and possible addition of rail service across the Dumbarton corridor also present additional needs for first/last mile connections in the next decade.

Figure 15. The Midpoint Shuttle in Redwood City

Underserved Populations

Shuttles fill gaps in local bus service to address unmet community mobility needs—especially for underserved populations who may be lower income, people of color, seniors, or are otherwise transit-reliant and lack access to a car. **Figure 16** depicts "equity planning zones" in San Mateo County which were identified via the Reimagine SamTrans project for planning purposes. These areas are defined as areas with a high proportion of people of color, low-income households, and/or zero vehicle households. Residents in these communities tend to be disproportionately burdened by the Peninsula's high cost of living and a general lack of transportation services and who would stand to benefit the greatest from access to rail, bus, and shuttle services.

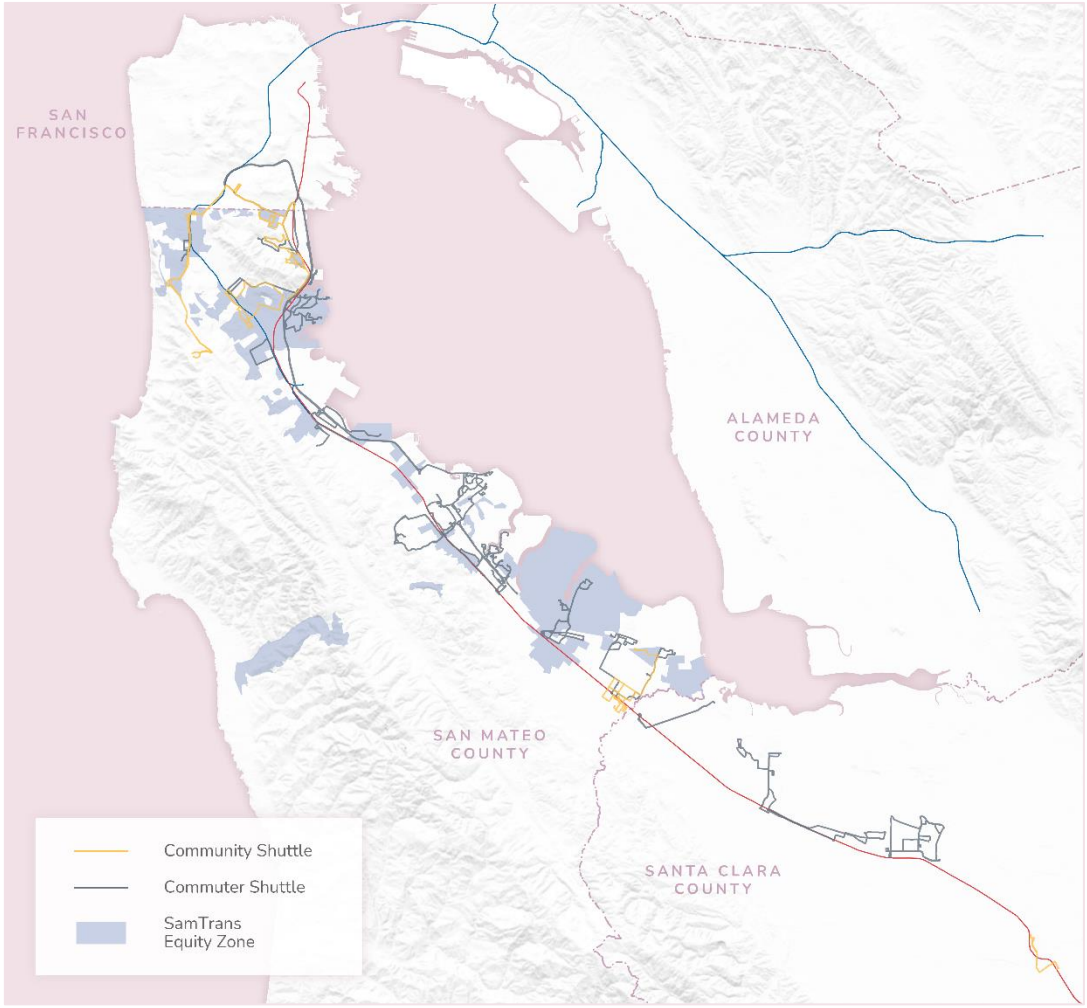
The expansion of community shuttles over the past decade has targeted transit-reliant populations in areas without bus service. Commuter shuttles may also present an opportunity to fill similar gaps: commuter shuttles often pass through transit deserts with empty shuttles deadheading in the reverse-commute direction without stopping. The shuttle program may increase ridership and support more equitable outcomes by addressing such gaps and proactively serving bidirectional travel patterns in underserved communities.

How Might COVID-19 Affect Transit & First/Last Mile Demand?

The COVID-19 pandemic has resulted in dramatic ridership losses for regional transit services. For much of 2020, ridership losses ranged from a 60 percent decline for SamTrans to a 95 percent decline for Caltrain as shelter-in-place orders and remote working have reduced travel. The shuttle program has mirrored these trends, with roughly half of shuttle routes suspended or operating significantly reduced service, and the remainder seeing a fraction of regular ridership.

It may take several years for transit ridership to fully rebound to pre-pandemic conditions depending on lasting effects to the economy and travel behavior. Nonetheless, the amount of development activity and major transit projects under construction on the corridor suggest that demand for regional transit services and first/last mile connections will eventually grow to levels greater than pre-COVID conditions.

Figure 16. SamTrans Equity Zones



Source: SamTrans, 2021

5 Shuttle Management & Funding

Key Findings

The shuttle program has a complex management structure with **overlapping roles** among agencies. This structure has developed incrementally over several decades yet **lacks a clear policy framework**.

San Mateo County has a dedicated funding source for shuttles distributed through the SMCTA-C/CAG Call for Projects, whereas **Santa Clara County does not have a dedicated funding source** and is fully **reliant on Caltrain and the private sector** to help fund shuttles

Context

A key characteristic of the shuttle program is partnerships among public agencies and the private sector. As the program developed over time, the decentralized nature of these partnerships has resulted in a complex and overlapping web of roles and responsibilities. This section documents management and funding structures, focusing on FY20 and FY21 conditions.

Shuttle Program Functions

The shuttle program's organizational structure includes a range of roles and responsibilities found at a typical transit agency, such as policy development, service planning, distribution and oversight of funds, vendor management, marketing, and customer service. However, unlike a typical transit agency, these roles are spread among multiple agencies as well as the private sector.

Roles and responsibilities in the shuttle program are primarily shaped by the level of involvement in funding and operating shuttle services. Shuttle program participation levels can be grouped into five functions as defined below and in **Table 4**.

Grant Funders are government agencies charged with allocating competitive funding to shuttles. In this role, agencies are responsible for developing policies and practices to distribute the funding that aligns with the intent of the funding source. Historically, grant funders have provided most of the funding for individual shuttle routes.

Funding distribution practices differ by county. In San Mateo County, the San Mateo County Transportation Authority (SMCTA) and City/County Association of Governments of San Mateo County (C/CAG), jointly fulfill the grant funder role. These agencies oversee a biannual competitive Call for Projects process which distributes shuttle funding to program sponsors. In Santa Clara County, there is no comparable county-specific grant funder role, so Caltrain directly funds these routes.

The Bay Area Air Quality Management District (BAAQMD) and Metropolitan Transportation Commission (MTC) also fulfil the role of grant funder for some shuttles, providing regional grants – Transportation for Clean Air (TFCA) and Lifeline Transportation Program grants, respectively. In particular, Santa Clara County shuttles have more heavily relied on TFCA grants in the past due to a lack of dedicated county funding for shuttles to Caltrain. Lifeline Transportation Program grants have mostly focused on community shuttles in San Mateo County and represent a relatively small funding source.

Grant Sponsors & Route Managers are public agencies responsible for grant applications, budgets, and day to day management of shuttle routes (including service planning, marketing, and customer service). In San Mateo County, grant sponsors and route managers include Caltrain, SamTrans, Commute.org, cities, and other public agencies applying for Call for Projects and sometimes Lifeline grants. In Santa Clara County, Caltrain has served as the grant sponsor for TFCA applications to BAAQMD. The roles of grant sponsor and shuttle manager is almost always integrated into a single role, with the exception of six routes in San Mateo County in which Commute.org manages routes on behalf of Caltrain.

Figure 17. Skyline College Shuttle

Grant sponsors are responsible for balancing shuttle budgets. In many cases, sponsors structure shuttle budgets as a pass-through arrangement by combining grant funds and matching partner contributions. Sometimes, sponsors may fund shuttles with their own general funds or a fee program – especially community shuttles without private sector partners and commuter shuttles in Santa Clara County without dedicated county funds.

Operators are government agencies and private sector entities responsible for contracting operations of shuttle services. Operators handle procurement, contracting, and oversight of service delivery by a transportation vendor. The program includes a total of 14 shuttle operators: SamTrans, Caltrain, and Commute.org each have a contract with the same vendor to operate shuttles, while some cities and the private sector choose to procure and contract with their own vendors.

Funding Partners are government agencies and private sector entities that may contribute matching funds toward the operation of shuttle services. Several cities and dozens of employers, property owners, and property managers are shuttle funding partners, along with Caltrain and SamTrans for some routes.

Stakeholders are all other government agencies, organizations, and constituencies served by the shuttle program, and sometimes responsible for stop facilities, but are otherwise not directly involved in funding and operations. This includes most cities, many private sector entities, transit agencies (e.g., BART, WETA, Muni, and VTA) and the general public.

Table 4: Defining Shuttle Program Roles

Shuttle Program Participant Roles	Definition	San Mateo County Examples	Santa Clara County Examples
Grant Funder	Government agencies that develop funding criteria and award grants for shuttle operations.	Primarily SMCTA and C/CAG; also MTC and BAAQMD*	BAAQMD*
Grant Sponsor & Route Manager	Government agencies leading grant applications, budgets, and day to day management of shuttle routes. Responsible for service planning, marketing, customer service, and collecting (and sometimes contributing) matching funds.	Caltrain, SamTrans, Commute.org, cities/agencies	Caltrain
Operator	Government agencies or private sector entities responsible for procurement, contracting, and oversight of shuttle operations by vendor. Occasionally also involved in service planning, marketing, and customer service.	Caltrain, SamTrans, Commute.org, cities/agencies, private sector	Caltrain, private sector
Funding Partner	Government agencies and organizations that contribute matching funds	Caltrain, SamTrans, Commute.org, cities/agencies, private sector	Caltrain, cities/agencies, private sector
Stakeholder	Government agencies and organizations that are served by shuttle services but are not directly involved in funding or operations.	Cities/agencies, private sector, general public, BART, WETA, Muni	Cities/agencies, private sector, VTA, general public

*Changes to the TFCA program associated with the COVID-19 pandemic has resulted in the discontinuation of TFCA grants for most shuttles.

Table 5: Defining Shuttle Program Functions

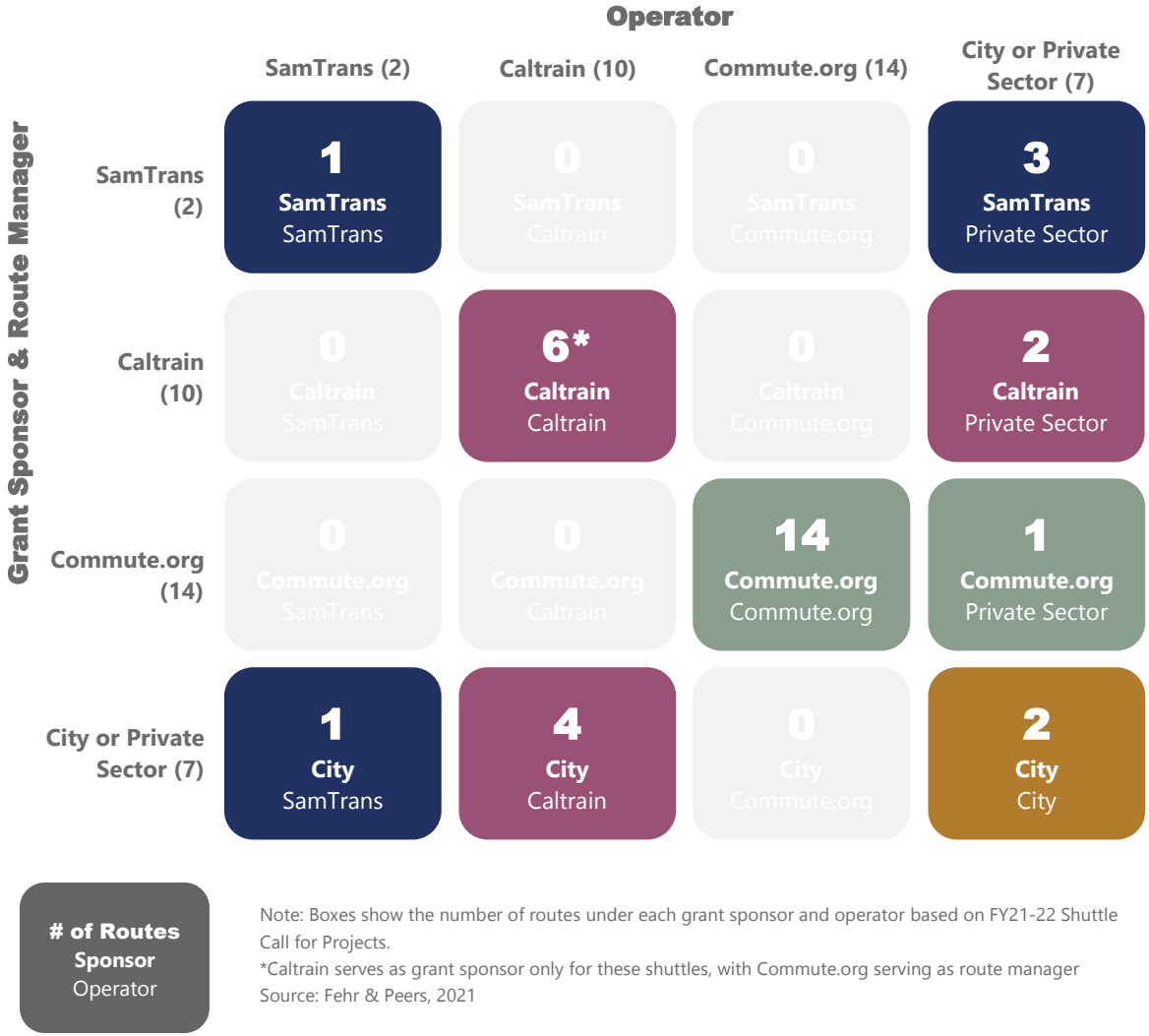
	Policy		Planning		Management			Funding			
Shuttle Program Participant Roles	**Program Goals**	**Performance Metrics**	**Grant Application & Reporting**	**Service Planning**	**Vendor Contract**	**Marketing/ Customer Service**	**Data Management**	**Grant Funding**	**Collects Matching Funds**	**Contributes Matching Funds**	**Beneficiaries of Public Subsidies**
Grant Funder	•	•						•			
Grant Sponsor & Route Manger			•	•		•	•		•	*	•
Operator				*	•	*				*	•
Funding Partner										•	•
Stakeholder											•

* Indicates roles sometimes fulfilled by grant sponsors or operators.

Existing Management Structure

The shuttle program derives complexity from both the number of parties involved as well as the overlapping roles and responsibilities among these parties. This structure emerged out of several decades of incremental changes. In San Mateo County, agencies exercised the following roles in the FY21-22 Shuttle Call for Projects, as shown in **Figure 18**:

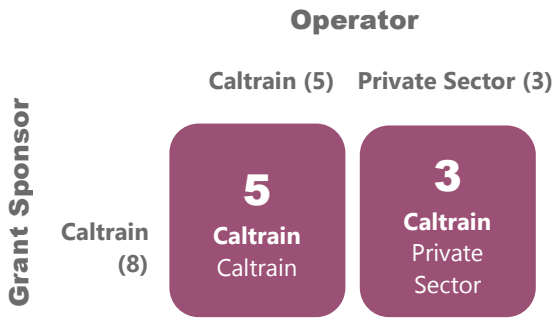
Figure 18. FY21 Grant Sponsors & Operators in San Mateo County



Note: Boxes show the number of routes under each grant sponsor and operator based on FY21-22 Shuttle Call for Projects.
*Caltrain serves as grant sponsor only for these shuttles, with Commute.org serving as route manager
Source: Fehr & Peers, 2021

- SamTrans sponsored grants for four shuttles and contracted operations for one of those shuttles. SamTrans also contracted operations on behalf of a shuttle sponsored by Daly City (Daly City Bayshore) and contributed funding toward one shuttle (Brisbane Senior).
- Caltrain sponsored grants for eight shuttles and contracted operations for six of those shuttles (sharing route management responsibilities with Commute.org). Caltrain also managed operations on behalf of four shuttles sponsored by the City of Menlo Park and contributed funding toward eight shuttles.
- Commute.org sponsored grants, managed, and contracted operations for 14 shuttles. It also served as grant sponsor and route manager on behalf of Facebook (Burlingame Point) and assumed route manager responsibilities for six shuttles on behalf of Caltrain.
- Daly City and Menlo Park sponsored grants for four routes operated through SamTrans and Caltrain. Menlo Park also directly funded one shuttle operated through Caltrain. South San Francisco and Skyline College each sponsored grants and contracted operations for their own services.
- Six shuttles were operated directly through the private sector utilizing grants sponsored by SamTrans, Caltrain, or Commute.org. The private sector also provided matching funds for 19 shuttles.

Figure 19. Grant Sponsors & Operators in Santa Clara County

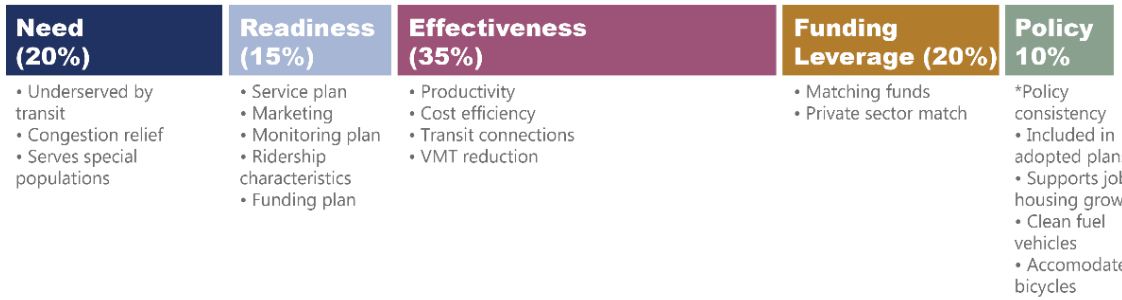


In Santa Clara County, Caltrain sponsored grants and/or managed and contracted operations for five shuttles in 2019. It also sponsored grants for three shuttles operated by the private sector in which it otherwise had limited involvement. Due to the loss of grant and matching funds during the COVID-19 pandemic, Caltrain had to discontinue its involvement in Santa Clara County shuttles. The five routes operated by Caltrain have been eliminated while three routes operated by the private sector continue to be in service.

Management Structure & Shuttle Performance

There is some correlation between a shuttle's management structure and its performance. Commute.org's focus on commuter shuttles has helped it outperform others in the shuttle program with respect to productivity, cost effectiveness, and ridership growth. Unlike other agencies, it dedicates multiple staff toward management, service planning, private sector coordination, marketing, and customer service (including running its own website, social media, and text alerts focused on shuttles).

Figure 20. San Mateo County Funding Criteria



Funding Process

The process for funding shuttles varies significantly between San Mateo and Santa Clara Counties. In San Mateo County, shuttles are funded primarily by a competitive Call for Projects process administered by SMCTA and C/CAG, with matching funds provided by shuttle sponsors. In Santa Clara County, shuttles are funded by Caltrain and private sector partners. Caltrain does not have a formal process or criteria for funding shuttles.

San Mateo County Funding Process

The SMCTA-C/CAG Shuttle Call for Projects process provides grants to fund commuter and community shuttles in San Mateo County. The Call for Projects is funded by Measure A, San Mateo County's half-cent transportation sales tax administered by SMCTA, and Local Congestion Relief Plan funds administered by C/CAG. Both sources provide dedicated funding for shuttles to address local mobility needs and access to regional transit. The Call for Projects process awards approximately $5 million annually, though typically not all funds are expended.

Call for Projects applications are developed by shuttle grant sponsors. Under Measure A, SamTrans is ultimately responsible for allowing applications to move forward to evaluation via a letter of concurrence for each application confirming the proposed route does not materially overlap with a bus route. Applications are then evaluated by a committee of staff from multiple agencies on five criteria: need, readiness, effectiveness, funding leverage, and policy consistency and sustainability (see **Appendix A** for a full description of evaluation criteria). In FY21-22, 33 of the 37 shuttle applications were funded, usually for the full amount requested.

Santa Clara County Funding Process

Santa Clara County does not have a dedicated funding source for shuttles to Caltrain. Shuttles are instead funded through Caltrain via a combination of Caltrain general funds, TFCA grants from BAAQMD, and matching contributions from individual cities and the private sector. Caltrain does not have a formal funding process or performance metrics for shuttles in Santa Clara County.

Matching Funds

Shuttle sponsors applying to Measure A grants in San Mateo County or seeking funding from Caltrain in

Santa Clara County leverage various public and private funding sources as matching funds.

- Cities contribute matching funds through general funds, developer fees, and local returns from transportation sales tax measures.
- The private sector (employers, property managers, owners' associations, and transportation management associations) make matching contributions to Commute.org, Caltrain, or SamTrans.
- SamTrans and Caltrain sometimes provide additional matching funds for shuttles from their general funds on an ad hoc basis.

Regional Grants

Regional grants are used to offset contributions by the SMCTA, SamTrans, Caltrain, cities, and the private sector:

- BAAQMD administers a competitive TFCA grant program. TFCA grants are funded by vehicle registration fees and intended to reduce vehicle emissions and improve air quality. Grants are awarded annually on a competitive basis and typically focus on commuter shuttles.
- MTC (via C/CAG) administers the Lifeline Transportation Program to fund shuttles that address mobility and accessibility needs in low-income communities. Grants are awarded biannually on a competitive basis and typically focus on community shuttles.

While TFCA grants once constituted a substantial amount of shuttle funding, the awards have declined in value and become increasingly unpredictable in recent years due to changes in the program's funding criteria. Since TFCA grants occur on a calendar year cycle instead of a fiscal year, grant sponsors (primarily Caltrain) must estimate an expected reimbursement award and are often left covering an unfunded balance with general funds (adding administrative complexity and uncertainty). Recent changes to the TFCA program associated with the COVID-19 pandemic have resulted in most shuttles no longer receiving grant funding.

Independently Funded Shuttles

Not all shuttles on the Peninsula participate in the funding processes described above. A few cities (such as Menlo Park, Palo Alto, and Mountain View) have funded additional shuttle service outside of the shuttle program entirely from city funds. Numerous services are provided by the private sector for employees only, but a few such services by major employers are open to the public, such as Genentech in South San Francisco and Stanford in Redwood City.

Funding Breakdown

The shuttle program covered approximately $7.8 million expenditures for FY 2018. As illustrated in Table 6 and Figure 21, funding sources vary by county and by shuttle type.

In San Mateo County, the SMCTA-C/CAG Shuttle Call for Projects accounts for a majority of funding for commuter and community shuttles; community shuttle grants are primarily matched with city funds and grants from MTC, while commuter shuttle grants are primarily matched by private sector funds as well as funds from Caltrain and cities. TFCA grants were used to offset Call for Projects contributions. San Mateo County accounted for $6.2 million in total shuttle expenditures in FY 2018.

In Santa Clara County, commuter shuttles are more heavily dependent on the private sector and Caltrain. TFCA grants were used to reimburse Caltrain and private sector funds. Santa Clara County accounted for $1.5 million in total shuttle expenditures in FY 2018, excluding Stanford Marguerite service.

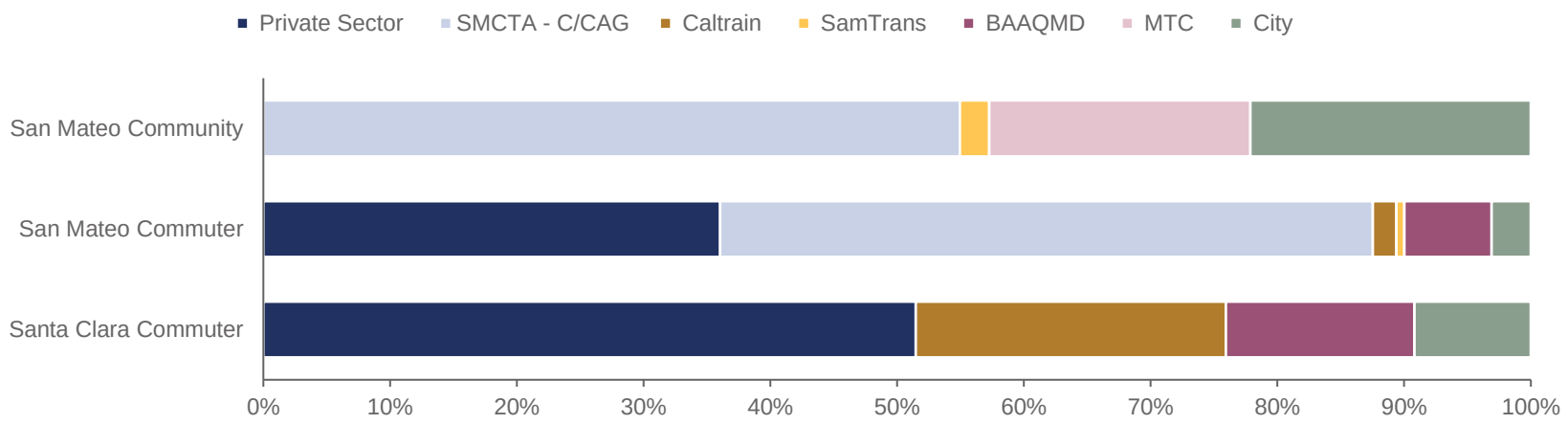
Table 6: Shuttle Program Funding Sources – FY 2018

Agency/Entity	Source	Shuttle Type/Location				Total
		San Mateo County Community	San Mateo County Commuter	Santa Clara County Commuter	Santa Clara County Other*	
SMCTA - C/CAG	Shuttle Call for Projects	$703,000 (55%)	$2,555,000 (52%)	-	-	**$3,258,000 (42%)**
Private Sector	Matching Funds	-	$1,788,000 (36%)	$641,000 (51%)	-	**$2,429,000 (31%)**
Caltrain	Discretionary Funds	-	$91,000 (2%)	$305,000 (24%)	$106,000 (35%)	**$502,000 (6%)**
SamTrans	Discretionary Funds	$29,000 (2%)	$32,000 (1%)	-	-	**$61,000 (1%)**
BAAQMD	Transportation for Clean Air (TFCA) Grants	-	$341,000 (7%)	$185,000 (15%)	$195,000 (65%)	**$721,000 (9%)**
MTC	Lifeline Grants	$264,000 (21%)	-	-	-	**$264,000 (3%)**
City	Various Sources	$283,000 (22%)	$154,000 (3%)	$114,000 (9%)	-	**$551,000 (7%)**
Total		**$1,279,000 (100%)**	**$4,961,000 (100%)**	**$1,245,000 (100%)**	**$301,000 (100%)**	**$7,786,000 (100%)**

Based on FY 2018 expenditures.

*Santa Clara County Others include the Tamien Weekend Shuttle, a fully funded shuttle by Caltrain, and the Stanford Marguerite, a fully pass-through TFCA grant sponsored by Caltrain.

Figure 21. Funding Sources by Shuttle Type – FY 2018



6 Shuttle Program Feedback

Engagement Approach

Due to the COVID-19 pandemic, this study mostly relied on recently completed surveys and stakeholder interviews in lieu of new public outreach specific to this study. Sources of feedback for this study include the following:

- Review of responses to three separate rider survey efforts that were completed in 2019 and 2020: an onboard survey jointly administered by SamTrans and Caltrain, an online survey administered for the South City Shuttle, and an online survey for Commute.org routes. Combined, approximately 870 survey responses were analyzed, covering 42 of the 45 shuttle routes.
- Interviews with approximately 50 public agency and private sector stakeholders, including cities, transit agencies, employers, and property managers.

As illustrated in previous sections, the shuttle program includes a range of services; consequently, feedback varies widely by route, operator, agency sponsor, commuter vs. community routes, and other characteristics. A summary of key themes across multiple routes are summarized as follows; these themes capture the range of rider feedback received, although specific quotes may only reflect the particular experience of that individual.

Rider Feedback

What Riders Like About Shuttles

Shuttle riders were generally content with the services provided, yet most offered limited feedback articulating what they like beyond "great service!" or "convenient." Nonetheless, riders focused on two aspects of shuttle service that are especially advantageous.

Shuttles Enable Commuting via Regional Transit

Shuttle service enables commuters that otherwise would drive to ride Caltrain, BART, and ferry service:

"I would not be able to take the train to work without the shuttle."

"The shuttle is excellent and keeps me from driving."

Shuttles Provide Mobility to Car-Free and Car-Light Households

Shuttles help provide essential mobility to households without cars, while also enabling families to own fewer vehicles:

"I can't find the words explain how necessary, what the shuttle means to me and so many other people. It is the only way for us to get to the banks, the grocery store, hospitals, and pharmacies."

"As a one-car family I depend on the shuttle. It is a great service!"

What Riders Dislike About Shuttles

While riders generally expressed appreciation for shuttles, survey responses provided more specific feedback on areas for improvement, especially related to frequency, service hours, reliability, travel time, and communication.

Limited Frequency & Service Hours

Both community and commuter shuttle riders expressed a preference for more frequent service. For many commuter shuttles, riders noted that infrequent service reduces flexibility (especially when shuttles do not meet every train) and exacerbates anxiety about missed connections. Community shuttle riders had similar feedback, recounting experiences about long wait times resulting in missed appointments and difficulty accessing services.

Similarly, limited service hours can pose challenges to shuttle riders. Commuter shuttle riders noted that service hours tend to focus on traditional office schedules and provide less flexibility for workers with different hours (such as labs, manufacturing, logistics, services, and other industries). Conversely, some community shuttle riders commented on difficulty using those services for traveling to work given their typical focus on midday service.

"I wish the shuttle would run more frequently because there is a 30 minute wait if you miss it."

"Run shuttles later in the evening and meet all trains."

Uncertain Reliability & Shuttle Tracking

Riders often mentioned the reliability challenges associated with recent driver shortages as well as traffic congestion and timing of transfers. In particular, commuter shuttle riders cited reliability as a key issue affecting their experience with the shuttle program.

Riders also noted that trip planning on shuttles can be difficult without an app-based real-time tracking and trip planning platform. Since some shuttles are not available in Transit App or Google Maps, riders cannot easily keep track of shuttle delays.

"More people would use the shuttles if they weren't so unreliable. I've lost count of the times my shuttle was late so I missed my train. It really ruins my day."

"Nine of out ten times, my shuttle arrives just in time to see the train doors close and leave the station. Then I have to wait 30+ minutes for another train."

"Improve real-time tracking of shuttles instead of using an outdated web-only system."

Long Travel Times

Long travel times on some shuttle routes creates a disincentive for riding shuttles. Riders noted that the circuitous loops and diversions into office driveways creates delays such that their first/last mile connections can take almost as long as their regional transit trips.

"Reduce number of stops so I can get into the office sooner. Sometimes walking 15-20 minutes is faster than the shuttle."

"My office is a five minute drive from the station, but the shuttle ride is 20 minutes because of all the looping around. This adds 40 minutes to my daily commute."

Partner & Stakeholder Feedback

Interviews were completed with a range of program partners and stakeholders, including cities and the private sector. The following themes emerged from these interviews related to first/last mile need, service planning, and program complexity

Need for Maximizing Ridership & Mode Shift

Stakeholders emphasized the growing reliance on first/last mile connections to regional transit as a critical TDM strategy to enable housing and employment growth on the Peninsula. Given this development pipeline and the anticipated improvements to Caltrain service with electrification, stakeholders felt that the shuttle and bus service would need to be expanded to address growing demand. Furthermore, recent updates to CEQA place a greater emphasis on mitigations like shuttle service to reduce vehicle miles traveled.

Given the critical need for expanded first/last mile service, some stakeholders pointed out that maximizing ridership did not always seem to be a core goal of commuter shuttles since many are more coverage-oriented. Some acknowledged a lack of integration with site planning, TDM programs, and parking policies as a barrier to maximizing ridership—shuttles are sometimes seen as an amenity rather than a core TDM strategy.

Program Complexity & Responsiveness

Stakeholders noted the complexity of the shuttle program, especially a lack of clarity around the Call for Projects evaluation process in relation to program goals as well as the different roles of Caltrain, SamTrans, Commute.org, and cities in San Mateo County. Some stakeholders questioned whether the program could be administered more effectively given the overlapping responsibilities among these agencies.

Stakeholders provided mixed feedback around the responsiveness of the shuttle program to city and private sector needs. The program's focus on day-to-day operations typically enables quick changes to schedules and minor route modifications. However, varying levels of collaboration among shuttle sponsors, cities, and the private sector sometimes can make the shuttle program slow to adapt to changing development patterns and employment growth. As a result, some stakeholders felt the Peninsula was outgrowing the shuttle program in its current form, and a substantial expansion of first/last mile services would be needed to serve demand.

Bus-Shuttle Coordination

Stakeholders discussed the advantages and disadvantages of the shuttle program's relationship to bus services. On the one hand, the program helps fill gaps in bus service by enabling cities and the private sector to run services timed with regional transit. On the other hand, the decentralized nature of the program can result in duplication between shuttle and bus services as well as competing interests. Stakeholders raised questions around fares (why shuttles are free while buses charge fares), service areas (what differentiates a "shuttle market" versus a "bus market"), and transfers (why local buses are not coordinated with regional transit). Most stakeholders agreed that improved coordination between shuttles and buses is optimal.

Shuttle Program Vision

7 Service Vision

Service Vision

The shuttle program service vision seeks to clarify the role of shuttles in relation to the Peninsula's transit network. The following mission statement and service principles encompass a vision for all services involved in the program, based on the adopted goals and policies of partner agencies described in **Section 1**.

Program Mission

The shuttle program increases transit ridership by addressing first/last mile and local mobility needs for commuters and underserved populations.

Service Principles

Maximize Public Benefits: Shuttles should seek opportunities to serve a wider range of users and trip purposes in addition to serving core commuter and/or community markets.

Prioritize Ridership and Equitable Access to Regional Transit: Shuttle routes and stops should prioritize areas with high concentrations of riders and/or underserved populations (such as low-income communities, communities of color, and seniors). Coverage to areas without high ridership or underserved populations should be deprioritized.

Coordinate Shuttles and Buses as a Unified Mobility Service: Shuttles and buses should be planned and presented as a unified transit service with limited duplication, standardized data sharing, real-time tracking, signage, wayfinding, and conveniently located stops. Shuttles should be easy to find while walking down a street, via in-trip planning and real-time tracking apps (e.g., Google Maps and Transit App), and in-bus network maps by SamTrans and other agencies.

What Distinguishes Shuttles from Buses

Even after implementation of the service principles described above, shuttles remain distinguished from buses in three ways:

Shuttles typically focus on a specific ridership market or a single city, whereas buses tend to focus on serving multiple markets and cities. Commuter shuttles primarily serve employment centers while community shuttles primarily serve local mobility needs within a single city.

Shuttles are funded by local contributions and grants, whereas buses are funded by SamTrans. Local contributions include funding from cities and the private sector, while grants include the SMCTA-C/CAG Shuttle Call for Projects and MTC Lifeline Transportation Program.

Fares are typically free on shuttles, whereas buses usually charge fares.

Although timed transfers have historically distinguished shuttles from bus services, this feature may be less of a differentiator in the near future. As Caltrain moves toward a more standardized schedule, SamTrans and other bus operators may gain greater flexibility to coordinate transfers.

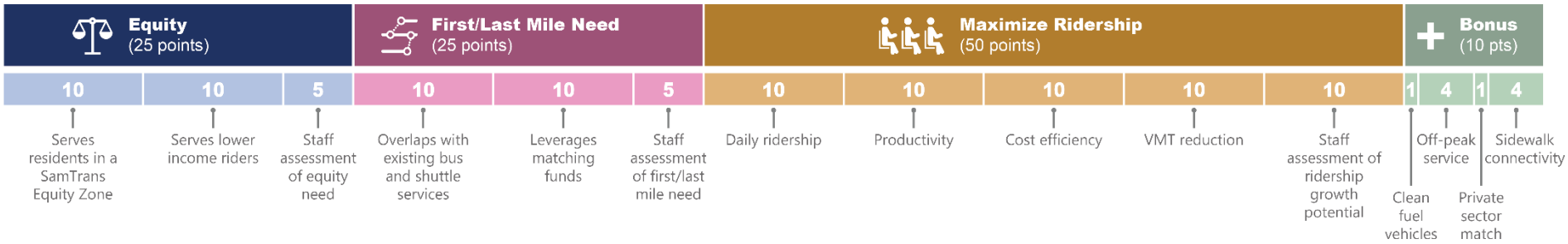
Implementation

Implementation of the shuttle service vision represents a shared effort by everyone involved in the shuttle program—grant funders, grant sponsors, operators, funding partners, and stakeholders. This section summarizes how planning, funding, and infrastructure approaches would help support implementation of the service vision.

Bus & Shuttle Planning Coordination

The need for shuttle service is identified by grant sponsors—cities and the private sector—in response to gaps in bus service. Since land use patterns, bus networks, and travel behavior changes over time, this study does not prescribe where shuttles should or should not operate. Rather, it updates funding criteria (described in the following section) in alignment with the mission statement and service principles.

Figure 22. Revised Shuttle Call for Projects Evaluation Criteria



SamTrans and VTA are likely to consider bus service changes that affect the need for shuttles. Historically, there have been numerous instances in which shuttle needs have grown in response to bus network changes, as new shuttle routes have been added to fill gaps in the bus network. Buses may also replace shuttles in some circumstances when ridership demand and service needs have outgrown a shuttle's ability to provide service. SamTrans (or VTA) may consider replacing a shuttle route with a bus route if the proposed service aligns with agency goals and could maintain a comparable or better quality of service for shuttle riders as summarized below.

Checklist for Potentially Combining Shuttles with Buses

- ✓ *Provide coordinated transfers with regional transit schedules*
- ✓ *Offer comparable or more frequent service*
- ✓ *Maintain access to most riders*
- ✓ *Develop a fare transition plan to ensure riders maintain access to free or discounted trips*
- ✓ *Conduct robust outreach and ongoing coordination with private sector and city stakeholders to ensure a smooth transition*

If these criteria cannot be met, interlining shuttle and bus service may be considered instead.

As shuttle operating costs and ridership demand for first/last mile connections continue to rise, the shuttle program may reach a point where it can no longer support service to all routes. Absent new shuttle funding sources to keep up with rising costs and service needs, the long-term financial sustainability of the shuttle program will necessitate increasing the role of buses to provide first/last mile connections for suitable markets.

Funding Process Update

Revamp Call for Projects Process

The Call for Projects process represents the primary funding mechanism to implement the shuttle service vision. However, feedback from program participants suggests the Call for Projects process has historically been overly reliant on subjective evaluations of qualitative metrics and could have a stronger nexus to agency and program goals.

An updated Call for Projects process seeks to better align evaluations and outcomes with the program's mission statement and service principles. To accomplish this, routes would be evaluated based on a more quantitative data-driven methodology in addition to maintaining an evaluation committee of agency staff. The new application process would focus on maximizing ridership (50 points), equity (25 points), and first/last mile need (25 points), along with up to 10 bonus points, as illustrated in **Figure 22**. It is expected that different shuttles may excel in different metrics, but all shuttles would be evaluated with the same criteria.

New requirements would be added for shuttles to help advance the program's service principles. In order to improve transparency and access, shuttle sponsors would agree to collecting and sharing stop-level ridership and vehicle location data, providing signage, and participating in annual surveys. While many shuttles already provide some of these features, there are presently no common standards across all shuttles. Roles and responsibilities associated with these requirements are described in the following section.

The role of SamTrans and Caltrain in the Call for Projects process would also change. Presently, SamTrans provides a cursory review of each shuttle route to issue a letter of concurrence in support of

individual applications, then participates in the evaluation committee. Under the revised Call for Projects process, the review of shuttle routes would be expanded to better assist project sponsors in providing the most efficient and equitable services.

As the first step in initiating a Call for Projects, SamTrans and Caltrain staff would be available for an optional consultation to support service planning for existing shuttle routes; this consultation would be required for any new proposed shuttle routes. After applications have been submitted, SamTrans and Caltrain staff would review proposed routes as a complete shuttle network and provide comments to applicants aimed at enhancing coordination between shuttles, buses, and rail services as well as improving ridership, equity, and first/last mile access. Upon finalizing proposed routes and SamTrans would issue a single letter of concurrence covering all Call for Projects applications. SamTrans staff would provide recommended route duplication scores to assist SMCTA with consistently evaluating shuttles. Both SamTrans and Caltrain staff may also participate in the evaluation committee to assist with the scoring. Once routes are selected for implementation, SamTrans and Caltrain would continue to coordinate with shuttle services around topics such as schedule changes, construction activities, and customer service requests.

In order to standardize roles and responsibilities, all Call for Projects applications would be sponsored by Commute.org or cities. SamTrans and Caltrain would no longer sponsor Call for Projects applications or contribute matching funds.

The next Call for Projects cycle would be extended by one year to commence in FY24 in order to better align with the implementation of Reimagine SamTrans and Caltrain Electrification as well as adjust for the changes in travel behavior associated with the COVID-19 pandemic. Current funding agreements would be extended, with adjustments to the management structure described in **Section 8.**

Discontinue Use of TFCA Grants

Due to funding uncertainty, administrative challenges, and declining efficacy of grant applications, it is recommended that Caltrain and SamTrans no longer pursue TFCA grants to fund shuttles. After years of declining grant awards, recent changes to the TFCA program has resulted in most shuttles no longer receiving any funds at all.. Discontinuing the shuttle program's use of TFCA grants helps reduce financial risk and administrative burdens to shuttle grant sponsors by avoiding uncertainty in reimbursements across multiple fiscal years. This change would primarily affect shuttle funding opportunities for three routes in Santa Clara County; all other shuttles would remain fully funded by the Call for Projects without TFCA grants.

Diverisfy Local Funding Matches

As service needs and shuttle operations costs rise over time, grant sponsors and funding partners may need to increase and standardize their matching contributions. The shuttle program has historically relied on voluntary agreements among private sector partners for matching funds, but these agreements can be unpredictable and attract uneven participation among private sector partners. Increasingly, cities are shifting toward required participation in shuttle programs along with more formalized self-generated funding mechanisms. Such funding mechanisms help ensure the sustainability and scalability of the shuttle program, such as the following:

- Transportation management agencies or assessment districts (e.g., Mountain View)
- Development agreements and trip caps related to CEQA mitigations, TDM requirements, or conditions of approval (e.g., South San Francisco, Foster City, Redwood City, and others)
- Development fees for shuttles (e.g., Menlo Park)
- Employee headcount taxes (e.g., Mountain View)

Another benefit of establishing a dedicated local funding stream is the elimination of shuttle fares that remain on some commuter shuttles. While most shuttle routes provide fare-free service, a few continue to require riders to pay fares if they are not employed by a participating private sector partner. These fare requirements have been used as a means of maintaining private sector funding; otherwise, funding partners are not incentivized to participate. However, fare requirements create a barrier to shuttle ridership, especially since shuttles do not accept Clipper cards and fares are not integrated with other transit passes. Over time, replacing shuttle fares with other funding mechanisms is highly encouraged to promote more equitable access to shuttles.

In San Mateo County, Measure A and Measure W include funding for Alternative Congestion Relief and TDM programs and projects that can identify how to create dedicated area-wide funding sources for shuttles and other improvements. This funding can be used by cities to identify transportation management agency feasibility and support the first year of operations.

Shuttle-Oriented Infrastructure

Enhance Shuttle Stops

Convenient and easily accessible shuttle stops are a key component of the shuttle service vision. Under the updated Call for Projects process, shuttle sponsors would be responsible for providing signage at all shuttle stops, and applicants would be awarded bonus points for stops that are located on-street and connected to sidewalks. Shuttle stops would ultimately be subject to approvals by cities and/or property owners. The following guidance applies when siting new shuttle stops:

- Stops should be located "on the way" to enable more linear routes with minimal route diversions
- On-street stop locations are preferred over off-street to ensure convenient public access and efficient operations with less circuitous routing.
- In-lane stops are preferred over pull-out stops to reduce shuttle dwell times unless located on a high-speed arterial (35 mph or greater) or stop serving very high ridership (greater than 10 boardings per trip).
- Far-side stops are preferred over near-side stops to reduce conflicts with right-turning vehicles and pedestrian crossings.
- Stops should be sized to accommodate up to a standard 45-foot bus to provide flexibility in future vehicle operations.
- Stops should be spaced at least 800 feet apart, and fewer stops consolidated around major ridership generators are generally preferable to ensure efficient operations.
- Stops should connect to sidewalks and crosswalks with convenient paths of travel to nearby land uses.
- Stops should include signage, accessible landing pads, and shelters (where possible, prioritized at stops with high boarding activity).

Figure 23. On-Street Shuttle Stop on the Genentech Campus

Consider Shuttle Prioritization Measures

Cities may also consider shuttle prioritization measures such as transit lanes, queue jumps, and signal priority to provide fast and reliable shuttle service. These measures are most suitable for locations with high frequency service carrying a substantial volume of passengers. In particular, such improvements should be included with major development projects that may otherwise exacerbate traffic congestion and shuttle delay.

Improve Shuttle Facilities at Regional Transit Stations

While regional transit stations typically serve the highest volumes of shuttle riders, many stations lack conveniently-located shuttle stops with clear signage, wayfinding, shelters, and layover locations. In particular, several Caltrain stations exhibit room for improvement: shuttle loading activity sometimes occurs in parking lots, auto pick-up/drop-off areas, or at unsigned curb locations. A programmatic investment in shuttle facilities by Caltrain in coordination with SamTrans, Commute.org, and cities would help address unmet access and circulation needs.

8 Management Vision

Management Vision

The shuttle management vision seeks to clarify the roles and responsibilities of agencies involved in the shuttle program to ensure optimal performance, administrative simplicity, and a high-quality rider experience. This management vision represents the consensus of a series of workshops involving staff representing SamTrans, Caltrain, SMCTA, C/CAG, and Commute.org as well as input from cities and the private sector.

Key Roles in San Mateo County

The shuttle program in San Mateo County involves two core roles with which most management responsibilities are derived: the roles of grant sponsor/route manager and shuttle operator. As described in Section 5, grant sponsors and route managers are responsible for planning routes, preparing grant applications, budgeting, reporting, marketing, customer service, and collecting (occasionally contributing) matching funds, while shuttle operators are responsible for contracting operations as well as vendor procurement and oversight.

Presently, agencies involved in the shuttle program often fulfill both the role of grant sponsor/route manager and shuttle operator (**Figure 24**). These dual roles can create administrative complexity since agency staff are responsible for all aspects of shuttle management. In reviewing the current management structure and agency resources, staff noted that Commute.org and cities tend to excel at responsibilities primarily associated with the grant sponsor/route manager role, whereas SamTrans and Caltrain tend to excel at responsibilities related to the operator role. Moreover, Caltrain's regional focus limits its overall ability to dedicate staff resources toward shuttles. Consequently, agencies have already started to specialize in these roles: Commute.org has assumed some route management responsibilities on behalf of Caltrain, including planning, customer service, and marketing, while SamTrans and Caltrain have assumed the operator role on behalf of shuttles sponsored by Daly City and Menlo Park.

The shuttle management vision would build upon and formalize these agency specializations (**Figure 6**). Grant sponsorship and route management would be consolidated under Commute.org (primarily for commuter shuttles) and cities (primarily for community shuttles); SamTrans would no longer sponsor shuttles or manage routes. Conversely, SamTrans would assume oversight over a master shuttle operations contract on behalf of Commute.org and any cities who opt in; cities and the private sector would retain the ability to operate shuttles directly, but Commute.org would no longer administer its own shuttle operations contract. Caltrain would shift to an advisory role as a program stakeholder, with its grant sponsorship roles transferred to Commute.org and its operations roles transferred to SamTrans.

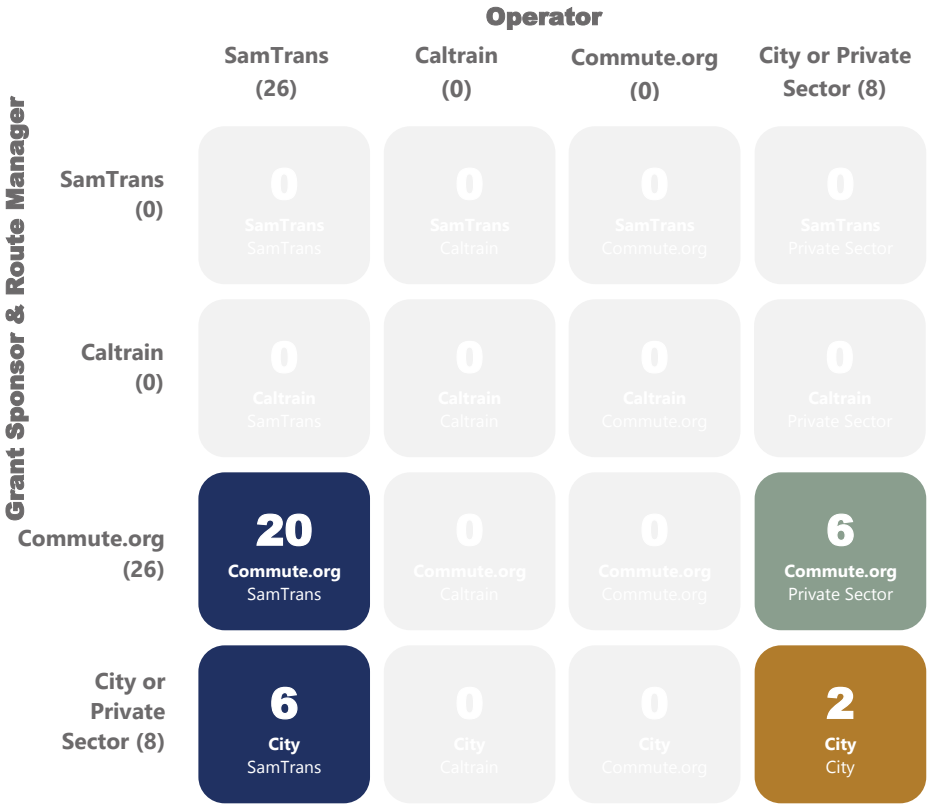
As a result of these changes, SamTrans and Caltrain would no longer contribute discretionary funds to match grants (with the exception of shuttle routes which fulfill a core railroad operational function, such as the existing Broadway-Millbrae shuttle). However, either agency could choose to provide supplemental funding to the Call for Projects if increased first/last mile service is desired.

The roles of SMCTA, C/CAG, MTC, cities, and the private sector would otherwise not change in San Mateo County. SMCTA and C/CAG would continue to administer a biannual Call for Projects grant process, and MTC's Lifeline Transportation Program grants would continue to be available via C/CAG as well. Cities and the private sector would retain the ability to seek shuttle grants, with cities and Commute.org as eligible grant sponsors.

Figure 24. Existing Management Roles

Note: Boxes show the number of routes, the sponsor/manager, and the operator based on FY21-22 Shuttle Call for Projects.
Source: Fehr & Peers, 2021

Figure 25. Revised Management Roles



Note: Boxes show the number of routes, the sponsor/manager, and the operator.
Number of routes is illustrative based on FY21-22 Call for Projects.
While Caltrain would no longer sponsor grants or operate shuttles, it would remain involved in coordinating with routes that serve its stations.
Source: Fehr & Peers, 2021

Key Roles in Santa Clara County

Since Santa Clara County lacks a dedicated funding source for shuttles to Caltrain, shuttle funding has been more heavily dependent on Caltrain's discretionary funds, TFCA grants, and matching funds from cities and the private sector. After several years of declining ridership, the COVID-19 pandemic led to the loss of matching funds for three of the four Caltrain-operated commuter shuttles in Santa Clara County, causing these routes to be discontinued (Bowers-Walsh, Duane Avenue, and Embarcadero). Moreover, the pandemic resulted in the disqualification of most shuttles from TFCA grants, eliminating roughly one quarter of funding in Santa Clara County.

In its FY22 budget, the Caltrain board elected not to fund the remaining shuttles with its own general funds, as this would have required backfilling lost funding from TFCA grants and matching funds during historically low ridership demand. Consequently, the last Caltrain-operated commuter shuttle (Mission College, primarily serving Intel) was discontinued, while the three remaining independently-operated shuttles (East Bayshore, West Bayshore, and Stanford Marguerite) remain in operation as fully privately-funded services.

The shuttle management vision would continue Caltrain's more limited involvement in Santa Clara County shuttles. Consistent with the revised management approach in San Mateo County, Caltrain would coordinate with shuttle services, but would no longer operate, fund, or sponsor grants for shuttles. Shuttles serving Caltrain stations would rely entirely by city or private sector funds.

Caltrain may reassess its role in first/last mile services in coordination with VTA as ridership increases with the implementation of its Business Plan over the next decade. To some extent, first/last mile gaps may also be addressed via the implementation of the railroad's Service Vision, as a more standardized clockface schedule with regular headways would enable better transfers with VTA bus and light rail services.

Table 7: Redefining Shuttle Program Roles

Shuttle Program Participant Roles	Definition	San Mateo County Proposal	Santa Clara County Proposal
Grant Funder	Develops policy and practices to allocate program funding.	Primarily SMCTA and C/CAG; also MTC[1] *No change to core roles; TFCA grants from BAAQMD would no longer be pursued.*	All shuttles would be directly operated and funded by cities and the private sector. *Caltrain would no longer manage, operate, fund, or sponsor grants for shuttles.*[1]
Grant Sponsor & Route Manager	Government agencies leading grant applications, budgets, and day to day management of shuttle routes. Responsible for service planning, marketing, customer service, and collecting (and sometimes contributing) matching funds.	Commute.org and cities/agencies *Caltrain and SamTrans would no longer fund or sponsor grants for shuttles.*	
Operator	Government agencies or private sector entities responsible for day-to-day operations of shuttle services as well as procurement and oversight of vendors. Sometimes leads marketing and customer service.	SamTrans, cities, and private sector *Caltrain and Commute.org would no longer operate shuttles.*	
Funding Partner	Government agencies and organizations that contribute matching funds.	Cities/agencies and private sector[2]	
Stakeholder	Government agencies and organizations that are served by shuttle services but are not directly involved in funding or operations.	Cities/agencies, private sector, general public, BART, WETA, MUNI, *Caltrain*	

Notes:

Changes to program roles noted in *italics*.

[1]Caltrain and/or SamTrans may consider contributing funds toward the Call for Projects grant program in the future if supplemental funding is warranted. VTA and Caltrain may consider developing a similar process in Santa Clara County.

[2]Caltrain may continue funding select shuttles that serve a core railroad operational function, such as the existing Broadway-Millbrae shuttle.

Agency Responsibilities & Staffing

The reshuffling of program roles would be accompanied by adjustments in day-to-day agency responsibilities. In general, the revised agency responsibilities are intended to fit within the existing departments and functions in each agency. Some modifications to existing roles may occur. Revised agency responsibilities are summarized below and detailed in **Table 8**:

- Operations - SamTrans would lead shuttle operations via a master operations contract, while the private sector would retain the ability to independently operate shuttles.
- Grants & Reporting - Commute.org and cities would sponsor grant applications and lead reporting for the TA-C/CAG Call for Projects as well as MTC's Lifeline Transportation Program.
- Finance - Commute.org and cities would be primarily responsible for shuttle budgeting and collecting matching funds, while SamTrans would invoice partners using the master operations contract as a pass-through.
- Data Management - SamTrans would administer rider surveys and coordinate ridership, schedules, and real-time tracking data with Commute.org, cities, and the private sector.
- Service Planning - Commute.org and cities would lead service planning in coordination with SamTrans and Caltrain via the Shuttle Call for Projects service planning review and concurrence process.
- Customer Trip Planning - Commute.org and cities would prepare maps and schedules for individual routes, as well as publish GTFS data. SamTrans would aggregate this data for use in trip planners and would include shuttles on its system maps and website.
- Marketing & Customer Support - Commute.org and cities would lead marketing and customer support for shuttles. SamTrans would provide additional support and coordinate branding of shuttles.
- Stop Signage/Facilities & Development Review - Commute.org and cities would be responsible for shuttle stop facilities and development review processes in coordination with SamTrans and the private sector.

Table 8: Shuttle Program Management Responsibilities

Role	SamTrans	Commute.org	Cities	Private Sector
Operations	Administers master contract with vendor, including procurement and oversight	Does not directly operate shuttles May partner with SamTrans or private sector	May directly operate shuttles or partner with SamTrans	May operate independently or partner with SamTrans via Commute.org
Grants & Reporting	Does not apply for grants	Sponsors grant applications for commuter shuttles in Call for Projects Prepares grant reporting	Sponsors grants applications for community shuttles in Call for Projects and MTC Lifeline program	Coordinates with shuttle sponsor/route manager (primarily Commute.org)
Finance	Invoices partners using master operations contract (Commute.org and cities) as pass-through payment to vendor	Prepares budgets Receives grant funds Invoices private sector partners Submits payment to SamTrans and private sector operators	Prepares budgets Receives grant funds Contributes matching funds and develops supplemental funding programs Submits payment to SamTrans and/or independent vendor Prepares grant reporting	Contributes matching funds via partnerships (primarily Commute.org)

Role	SamTrans	Commute.org	Cities	Private Sector
Data Management	Administers rider surveys Coordinates GTFS/GTFS-R and APC data	Publishes GTFS/GTFS-R data for its routes and coordinates data management with SamTrans	Coordinates data management with SamTrans	Coordinates with shuttle sponsor/route manager (primarily Commute.org)
Service Planning	Reviews and coordinates service planning via Call for Projects concurrence process Supports cities and Commute.org as needed	Leads service planning for commuter shuttles in coordination with SamTrans	Leads service planning for community shuttles in coordination with SamTrans	Coordinates with shuttle sponsor/route manager (primarily Commtue.org)
Customer Trip Planning	Coordinates GTFS-R data for use in trip planners and real-time tracking apps Includes shuttles on SamTrans website and system map	Prepares maps and schedules for commuter shuttles and maintains its own website Publishes route data in GTFS/GTFS-R format for use in third-party trip planning and real-time tracking apps	Prepares maps and schedules for community shuttles, cross-lists on city websites GTFS/GTFS-R development and maintenance for community shuttles	Coordinates with shuttle sponsor/route manager (primarily Commtue.org)
Marketing	Supports marketing for commuter and community shuttles Coordinates branding	Leads marketing for commuter shuttles	Leads marketing for community shuttles	Supports marketing for commuter shuttles
Customer Support	Responds to rider inquiries made to SamTrans	Responds to rider inquires for commuter shuttles Primary interface with private sector	Responds to rider inquiries for community shuttles	Responds to rider inquires unless customer support has been contracted to Commute.org or other entity
Shuttle Infrastructure	Coordinates shuttle access to bus stops as needed	Coordinates with cities to provide signage and facilities at on-street commuter shuttle stops Coordinates with private sector for signage and facilities at off-street commuter shuttle stops	Responsible for signage and facilities for on-street stops serving commuter and community shuttles Leads implementation of transit signal priority for shuttles	Responsible for signage and facilities at off-street stops
Development Review	Coordinates with Commute.org and cities to determine service options for major developments	Primary contact for development review related to commuter shuttles	Primary contact for development review related to community shuttles Requires developers to implement TDM programs to address first/last mile connections Connects developers with Commute.org to coordinate service and stop changes	Prepares site plans and TDM plans

Notes:
Highlighting indicates significant change in responsibilities.
GTFS and GTFS-R data refers to feed specifications that allow for publishing route schedules and real-time arrival information for application developers. APC refers to automated passenger counters to track ridership.
Caltrain would transfer its shuttle operations and grant administration responsibilities to SamTrans and Commute.org, respectively, but would retain a role in coordinating with grant sponsors and operators on roles such as scheduling, construction effects at stations, access and circulation at stations, marketing, customer support, and overall program strategy. Caltrain's role may be periodically reassessed as it implements its Business Plan.
The roles of SMCTA, C/CAG, and MTC as grant funders would not change.

Implementation

Implementation of the shuttle management vision would be shared across the various agencies and departments involved within the shuttle program. This section highlights key actions needed to advance core elements of the management vision.

Call for Projects

The next SMCTA-C/CAG Shuttle Call for Projects would be extended by one year to better align with the implementation of Reimagine SamTrans and more effectively evaluate shuttle services in a post-pandemic landscape. Current funding agreements under the FY 21-22 Call for Projects would be extended through FY 23 with modifications to reflect cost escalation and new grant sponsorships under Commute.org and cities. The FY 24-25 Call for Projects would implement the revised evaluation process described in Section 7.

Shuttle Operations & Vendor Procurement

SamTrans will need to procure a new shuttle operations contract in the near future; however, the specific timing of this procurement has not yet been determined. Based on the latest available information at the time this report was prepared, the following actions are recommended:

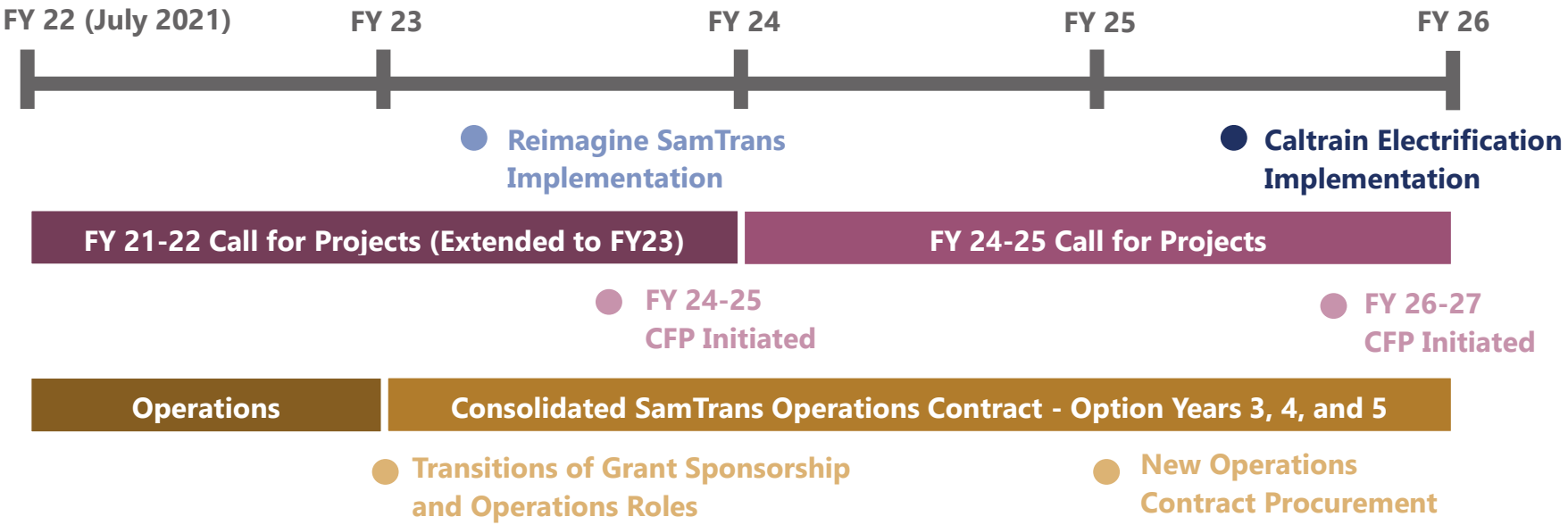
1. *Exercise three remaining option years on the current vendor contract (FY23-25), with all operations consolidated under a single SamTrans contract*

   SamTrans would exercise three remaining option years on the current vendor contract to cover the extended FY21/22/23 Call for Projects and the FY24/25 Call for Projects cycle. These option years would consolidate operations under a single SamTrans contract as described in the prior section. Caltrain and Commute.org would no longer administer their own shuttle operations contracts.

2. *Procure a new shuttle operations contract for service operating in FY26*

   SamTrans would procure a new multi-year shuttle operations contract for FY26. Key points of emphasis for this procurement will include maintaining wage-competitiveness to improve driver retention, incentivizing ridership growth, providing flexibility for vehicle types to handle changing shuttle demand, and potentially the

Figure 26. Implementation Timeline



ability for vendors to shift to zero emissions vehicles. The procurement would also present an opportunity for SamTrans to consider refreshing the shuttle brand in coordination with its partners.

3. *Develop a transition plan for shuttles to shift to zero emissions vehicles by the early 2030s to achieve shuttle compliance with the Innovative Clean Transit regulation.*

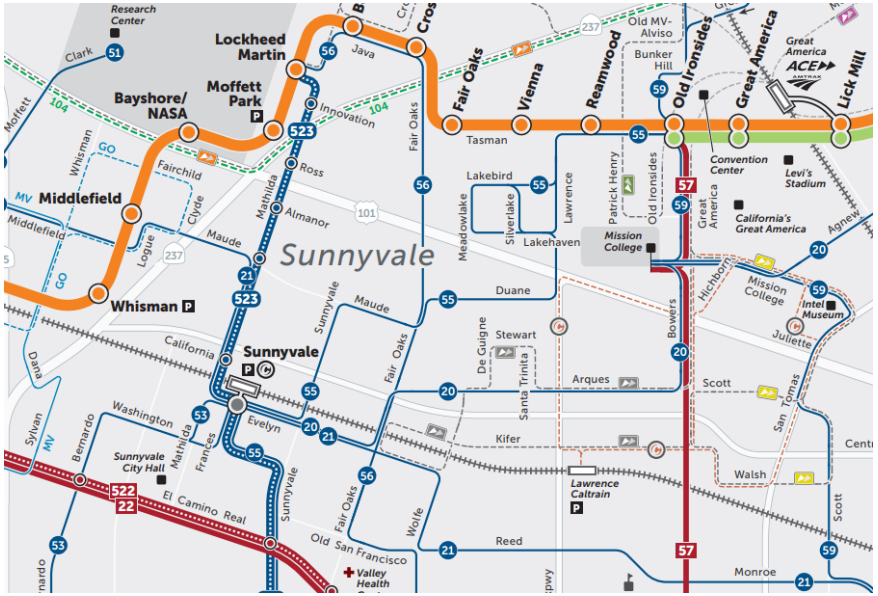
   The California Air Resources Board's Innovative Clean Transit regulation requires that 100 percent of new bus purchases by agencies that own, operate, lease, or contract with another entity to operate buses must be zero emission by 2029. All shuttles directly operated under the auspices of SamTrans, Commute.org, and cities would be subject to this regulation. Consequently, SamTrans would need to develop a transition plan in the mid-2020s that would assess the state of the shuttle program, the availability of compliant shuttle vehicles, the ability of vendors to achieve compliance as well as the potential for SamTrans to develop its own zero emissions shuttle fleet and associated maintenance facility. The implementation of a zero emissions shuttle fleet would occur in the early 2030s under a subsequent vendor operations contract.

Shuttle CAD/AVL & APC Systems

The Shuttle Call for Projects would require that all shuttle operators provide computer-aided dispatch / automatic vehicle location (CAD/AVL) and automated passenger counter (APC) equipment to enable collection of real-time vehicle location and stop-level ridership for all shuttles. As noted in **Section 4**, most shuttles operated under Commute.org, SamTrans, and Caltrain already have CAD-AVL systems, about one-quarter of shuttles do not, which prevents accurate tracking of arrivals and delays. Current ridership data collection practices mostly consist of notes by drivers that are manually entered into monitoring spreadsheets, resulting in a cumbersome administrative process that varies widely across routes.

Expanding use of CAD-AVL equipment and adding APC equipment would enable a streamlined administration and monitoring of shuttles as well as a more seamless communication with riders. Shuttle operators (via their vendors) would be responsible for providing CAD-AVL and APC equipment, with equipment costs incorporated into overall operating costs. Grant sponsors/shuttle managers would be responsible for collecting and sharing ridership data with SamTrans along with publishing real-time tracking data to data aggregators via General Transit Specification Feed Realtime (GTFS-R).

Figure 27. VTA's Bus Network Map Includes First/Last Mile Shuttles to Caltrain and ACE



information is not available for all shuttles. Moreover, no shuttles currently publish GTFS-R for real-time vehicle tracking in these apps. While Commute.org and the San Mateo County Transit District's shuttle tracker websites provide real-time tracking for a subset of shuttles, the lack integration between shuttle, bus, and rail information can represent an inconvenience for existing riders and a barrier for new and novice riders.

Trip Planning, Real-Time Tracking & SamTrans Website

The Shuttle Call for Projects would require that all shuttles publish GTFS and GTFS-R data for use by third-party apps. As described in **Section 4**, Commute.org and some other shuttles currently publish GTFS for use third-party apps like Google Maps, Apple Maps, and Transit App, but this

Incorporating third-party apps as another means of planning and tracking shuttle trips would help create a more seamless user experience in which riders could plan and track their shuttle trips alongside rail or bus trips in a single mobile app of their choice. Shuttle managers such as Commute.org may also maintain their own tracking websites, although it is recommended that the District's shuttle tracker be

Implementation Priorities

- [x] Update Call for Projects
- [x] Exercise three remaining option years on vendor contract then procure a new vendor
- [x] Implement a CAD-AVL system on all shuttles
- [x] Incorporate shuttles into trip planners, real-time trackers, and the SamTrans website
- [x] Administer annual surveys on all shuttles
- [x] Install signage on all shuttle stops
- [x] Coordinate development review with the shuttle program
- [x] Coordinate with Caltrain

discontinued consistent with SamTrans' emphasis on using third-party apps. GTFS and GTFS-R data would be prepared and published by shuttle managers, with SamTrans able to support cities that may lack the relevant technical expertise.

SamTrans would be responsible for incorporating shuttle maps and schedules into its website to further reduce barriers to shuttle use. Shuttle managers would provide maps and schedules to SamTrans, and SamTrans would incorporate shuttles into its network map consistent with VTA's approach (**Figure 27**). Adding shuttle information on the SamTrans website and map would help improve awareness of services.

Annual Surveys

SamTrans would administer an updated annual on-board survey to collect data on rider characteristics and travel behavior. Survey questions would inform Call for Projects metrics such as serving lower income riders and VMT reduction. Surveys would be developed in collaboration with Commute.org, cities, and the private sector to also collect relevant shuttle-specific data. A comparable number of routes and surveys would be administered relative to recent practices, although all surveys would be administered under SamTrans rather than split between SamTrans and Caltrain routes.

Shuttle Infrastructure Implementation

Shuttle sponsors would be responsible for the installation of signage at all stops in coordination with cities and funding partners. Sponsors are encouraged to work with cities and the private sector to develop improvement programs for stops as well as other infrastructure improvements like transit signal priority consistent with guidance provided in **Section 7**.

Caltrain Coordination

As Caltrain transitions into a new role in the shuttle program, coordination should be emphasized between shuttle grant sponsors, shuttle operators, and agency staff. Caltrain is planning to significantly expand its service over the next decade, but is still in the process of building out its shuttle facilities (as described in **Section 7**). Consequently, given the limited capacity for shuttles at some stations and importance of shuttles to Caltrain for first/last mile access and ridership development, Caltrain would remain involved in coordinating access and circulation at stations, schedule changes, construction activities, and customer support.

Development Review

The rapid pace of employment growth on the Peninsula necessitates enhanced coordination among cities, Commute.org, and SamTrans to address first/last mile needs. Cities reviewing proposed developments are encouraged to coordinate with Commute.org for commuter shuttle planning and consider best practices in siting shuttle stops as described in **Section 7**. Cities should emphasize measures to reduce travel time and delay for shuttles, which will continue to be a growing challenge as growth occurs.

Given the increasing need and rising costs of shuttle services, cities should require participation and funding of first/last mile shuttles as a part of TDM plans and/or CEQA mitigations, as identified in C/CAG's TDM Policy Update. These funds could be used toward matching contributions for shuttles or augmenting SamTrans services in lieu of new shuttle routes (via purchasing Way2Go Passes or other cost-sharing approaches). Cities are also encouraged to fully subsidize transit use for new employment projects to help support use of regional transit and shuttles, either through participation in Caltrain's GoPass program or direct payments to commuters.

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