



# *City of Mountain View Shuttle Study Service Alternatives*

February 2020



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### Introduction

The City of Mountain View has partnered with Google since 2015 to provide fare-free service to Mountain View residents, employees, and visitors on the Community Shuttle. Beginning in June 2020, Google will no longer operate the shuttle but has agreed to fund the service through 2024. Additionally, VTA recently implemented the *2019 New Transit Service Plan*, which affected some VTA routes serving Mountain View. The City is also working toward bold reduction targets for greenhouse gas emissions that will require a significant decrease in the mode share of single-occupancy vehicle (SOV) trips.

These changes provided the City with an opportunity to evaluate the Community Shuttle and plan for its future as a component of a multi-agency multi-modal transportation network. The City of Mountain View Shuttle Study is comprised of three phases. The first was a study of existing transit service and market conditions, as summarized in the *Existing Conditions Report*. The second phase developed strategies to improve intracity service and intercity connections to meet travel demand in the short and long terms. These service strategies were included at the end of the *Existing Conditions Report* and are integrated into this report as well. This third and final phase employs these strategies to develop service alternatives for the Mountain View City Council to consider for implementation. This report presents and summarizes those service alternatives.

### Summary of Existing Conditions

The analysis of existing transit conditions was designed to answer a few key questions:

- Where do people live? Where are they trying to go and when?
- Where are populations who are most likely to rely on transit living?
- How effective are existing transit options at serving these trips and populations?
- How well does the community perceive transit to be serving them and do they use it?

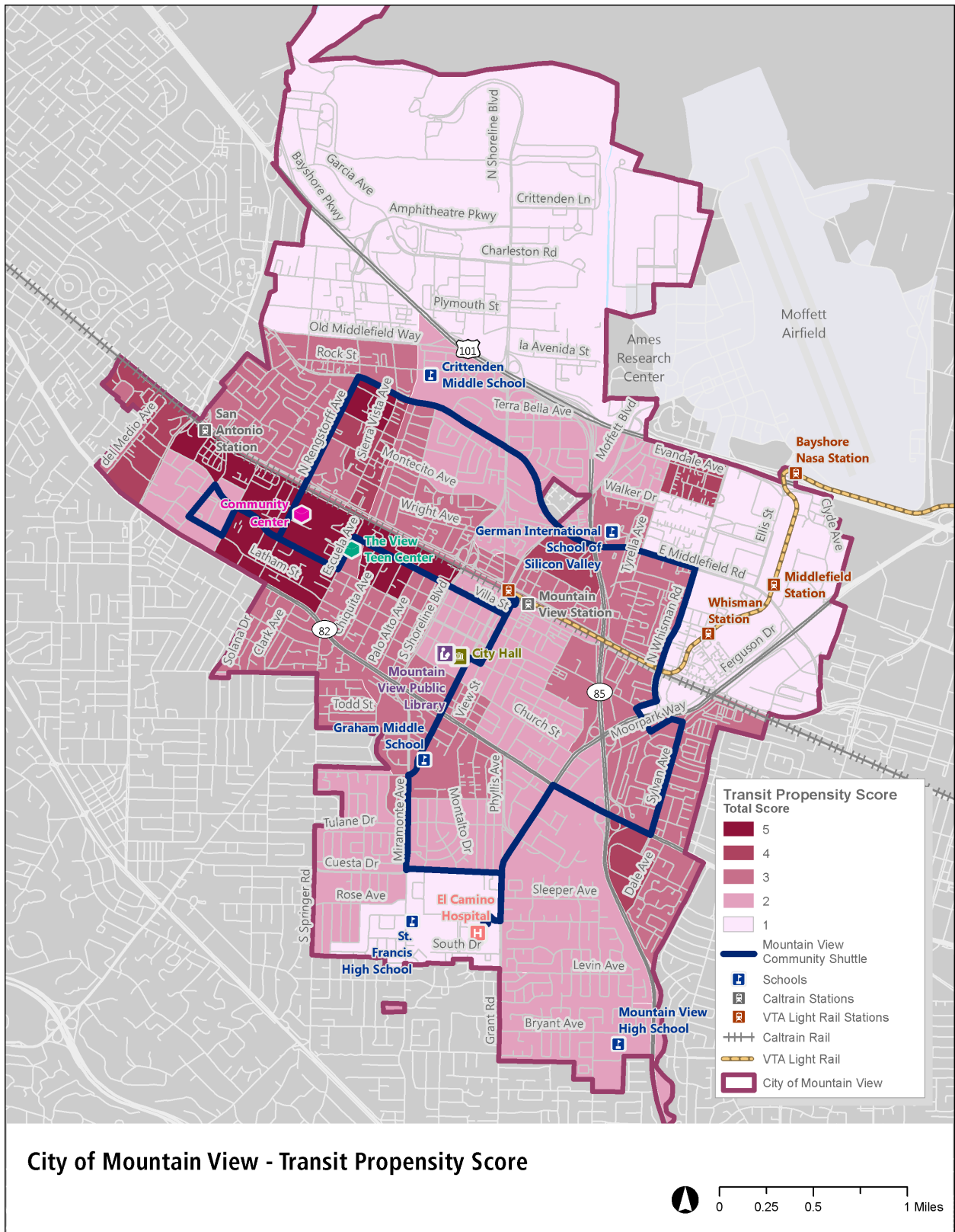
A key component of the existing conditions analysis was identifying the areas where transit is most likely to attract riders and serve the community. Market identification considers major employers, shopping centers, schools, and other trip generators. Another indicator of transit usage is population and demographic information. The following data (all measured in persons per acre) were aggregated to create a composite transit propensity map:

- Population Density
- Low-Income Household Density
- Zero-Vehicle Household Density
- Youth (Populations Age 18 and Under) Density
- Seniors (Populations Age 65 and Over) Density

The transit propensity index indicates that the greatest need for transit (as measured by these factors) is concentrated primarily on the western side of Mountain View, near the San Antonio Station and the Census block groups southeast of the Station (where the Community Center and Teen Center are located), along the Caltrain line. The current Mountain View Community Shuttle travels through and stops in these areas. (See *Figure 1*.)

# City of Mountain View Shuttle Study

Figure 1: Transit Propensity Map



## City of Mountain View Shuttle Study

The *Existing Conditions Report* also included an evaluation of current service performance. The Community Shuttle's alignment successfully links key trip generators throughout the community, and service productivity (passenger boardings per service hour) was stronger than any of the VTA routes that serve Mountain View (Routes 22, 32, 34, 35, 40, 81, and 522). Phase 1 of the Shuttle Study included a community survey to gauge community perceptions, demand, and usage of the Community Shuttle.

According to survey respondents, two of the greatest deterrents to using the Community Shuttle are the limited service span and a service frequency of 30 minutes. The survey indicated the Shuttle would need to operate at least every 15 minutes to be considered attractive to a plurality of respondents (47 percent). With a 10 AM – 6 PM service day, the Community Shuttle does not serve those traveling during traditional morning commute hours (6 AM – 9 AM) or commuters arriving in Mountain View after 5:30 PM. If a commuter cannot use the Community Shuttle for one end of their daily commute, they are unlikely to use it for the other end. Students are also unable to take the Community Shuttle to school in the mornings, and residents are unable to use the Shuttle for non-work trips in the evenings.

The service alternatives presented in this report were developed based on Phase 2 service strategies and goals identified in the existing conditions analysis. Alternatives are presented in the following sections with the related strategy or goal.

## Improve Community Shuttle through Service Changes

There are many approaches to improving Community Shuttle service, including changes to service design, operations, administration, and funding. This section addresses service and operational alternatives to provide better service to existing riders and attract more riders by better meeting community travel demands.

### Extend Hours of Service (Span)

Extending the hours of service on the Community Shuttle opens up transit as a potential alternative to more Mountain View trips (those occurring before 10 AM and after 6 PM). A longer span also helps the Community Shuttle operate more effectively as a first/last mile connection to other regional services (Caltrain, VTA), which have significantly longer service spans than the Community Shuttle.

The other key service provider for local trips in Mountain View is MVgo, operated by the Mountain View Transportation Management Association (MVTMA). Its current span is peak-only, from 6:45/7:15 AM to 10:15/10:45 AM in the morning peak and 3:00/3:45 PM to 7:45/8:30 PM in the evening peak. For these two services to function as complementary, the Community Shuttle should at least cover the same span as MVgo, if not more (keeping mid-day service). Service span alternatives are summarized in *Table 1*.

### *Expand Service Hours on Weekdays*

The current 10 AM – 6 PM all-week service span for the Community Shuttle does not address both ends of weekday work trips, with most traditional commuters needing to reach work before 9 AM. Most people will use the same mode for both their home-based-work trip and work-based-home trip. If the Community Shuttle cannot capture both ends of that trip, it will not be a feasible option for commuters. Earlier morning and later evening service would help accommodate not only traditional commute trips, but also school hours for student trips and more non-work trips. For example many activities at the Senior Center begin before 10 AM

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### Expand Service Hours on Weekends

The current service span also limits the utility of the Community Shuttle as a first/last mile connection for regional trips over the weekend. If a Mountain View resident makes a trip into San Francisco on a Saturday night, Caltrain span (operating Northbound until 10:50 PM and Southbound until 1:30 AM) covers that trip, but if the first/last mile connection on the Community Shuttle isn't available after 6 PM, that may be a deterrent to using transit. Even if there are not enough resources to match the Caltrain span, extending service by even a few hours will capture more trips.

Table 1: Summary of Service Span Alternatives

Service Span Alternatives	Current		Proposed		Additional Daily Revenue Hours	Additional Daily Vehicles Required	Additional Annual Operating Cost
	First Trip Start Time	Last Trip Start Time	First Trip Start Time	Last Trip Start Time			
Expand service hours on weekdays	10:00 AM	5:00 PM	7:00 AM	6:30 PM	18	0	\$624,240 <sup>1</sup>
Expand service hours on weekends	10:00 AM	5:00 PM	8:00 AM	7:00 PM	8	0	\$119,680

There are advantages and drawbacks to consider before implementing the service span alternatives, including:

**Pros:** Service becomes more useful for more trip purposes. People can use the Shuttle to travel to work and school earlier in the morning and for entertainment and journeys home from work in the evenings. Extending service span also does not require purchasing additional vehicles.

**Cons:** This expanded span may still not be early enough for commuters who spend over an hour on Caltrain, such as people working in the heart of San Francisco.

### Improve Frequency

Frequency is the number one factor that attracts new riders to use transit. With 30-minute service, riders must depend on the trip schedule and plan their travel around when the bus operates. As service frequency increases, average wait times decrease, and riders can more easily spontaneously show up at the bus stop and wait for the next trip. Since a larger percent of the population wants to just show up and ride rather than plan around a schedule, increasing frequency from every 30 minutes to every 20 or 15 minutes is expected to significantly grow ridership.

If there were no resource constraints, 15-minute frequency on both weekdays and weekends optimizes the Community Shuttle for customer convenience and ease of use. However, the Community Shuttle operator will most likely need to set priorities for service improvements by either limiting which days (weekday vs. weekend) and which routes (clockwise vs. counter-clockwise) or route segments receive additional frequency investment. The degree of frequency improvement (10 minutes better vs. 15 minutes better) must also be considered. Alternatives are outlined in Table 2.

<sup>1</sup> Costs are based on the current cost of operating the Community Shuttle. Based on comparative costs for other services in the region these appear to represent the high end of operating costs.

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*Table 2: Summary of Frequency Alternatives*

Frequency Increase Options	Current Frequency (minutes)	Proposed Frequency (minutes)	Additional Daily Revenue Hours	Additional Daily Vehicles Required	Additional Annual Operating Cost
Increase weekday service to <b>20</b> minutes	30	20	18	2	\$752,240
Increase weekday service to <b>15</b> minutes	30	15	34	4	\$1,435,120
Increase weekday service to <b>15</b> minutes between San Antonio Center and Mountain View Caltrain only	30	15 (partial route) 30 (full route)	8	1	\$341,440
Increase weekend service to <b>30</b> minutes	60	30	16	2	\$239,360

*Note: Additional annual operating cost is inclusive of the annual cost of leasing additional vehicles.*

There are advantages and drawbacks to consider before selecting an alternative service frequency, including:

**Pros:** Increasing frequency is proven to increase ridership. Reduced wait times increase transit's attractiveness, especially for shorter trips taken on community circulators.

**Cons:** The cost of increasing frequency is significantly higher than expanding span or changing the route alignment. Increasing frequency requires acquiring new vehicles, adding capital cost. Productivity may decrease if ridership does not increase with direct proportionality (1:1) to the amount of additional service provided.

### Extend Hours of Service and Improve Frequency

Arguably the service change with the greatest impact would be improving both service span and service frequency. This approach is, of course, costly but the most likely to grow ridership on the Community Shuttle. Estimated resources for joint improvements are summarized in *Table 3*.

## City of Mountain View Shuttle Study

Table 3: Summary of Combined Frequency-Span Improvement Resource Requirements

Combined Frequency-Span Alternative	Proposed		Additional Daily Revenue Hours	Additional Daily Vehicles Required	Additional Annual Operating Cost
	Frequency	Span*			
Weekday - Expand span and increase frequency to 20 minutes	20	7:00 AM – 6:40 PM	34	2	\$1,307,120
Weekday – Expand span and increase frequency to 15 minutes	15	7:00 AM – 6:45 PM	50	4	\$1,990,000
Weekday – Longer service span, add 15-minute service during peak commute times (6-9 AM, 2-6:45 PM)	15 (peak) 30 (off-peak)	6:00 AM – 6:45 PM	50	4	\$1,990,000
Weekday – Expand span and increase frequency to 15 minutes between San Antonio Center and Mountain View Caltrain only	15 (partial route) 30 (full route)	7:00 AM – 6:30 PM	30	1	\$303,360
Weekend – Expand span and increase frequency to 30 minutes	30	8:00 AM – 7:00 PM	32	2	\$606,720

\*Span represent the starting time of the first and last trip

### Adjust Route Alignments to Reduce Redundancies and Complement Other Services

Redesigning the Community Shuttle alignment is a cost-effective option to improve productivity, attract new riders, and/or reduce redundancies between the Community Shuttle and other transit operators in Mountain View. One such redundancy is the current Community Shuttle route deviation to serve El Camino Hospital via Cuesta Dr. and Miramonte Ave. This overlaps with two other services: VTA Route 51 and a free public shuttle operated by El Camino Hospital. This segment of the Community Shuttle route accounts for only 9 percent of total ridership while using 25 percent of the route’s resources (15 minutes of the 60-minute schedule). While multiple service options to critical services is ideal, these Community Shuttle resources could be reallocated to other areas without service or with higher demand while two service options maintain access to El Camino Hospital.

#### *Realignment Alternative 1*

One option for reallocating the resources from the El Camino Hospital deviation is adding a loop via North Whisman, Fairchild, and Ellis St. to add service to major employers, future residential projects and Middlefield Station. Service would continue along El Camino Real between Castro and Grant Rd. instead of deviating to serve El Camino Hospital. See *Figure 2*.

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Figure 2: Current Service Comparison to Realignment Alternative 1





## City of Mountain View Shuttle Study

Alternative 1 has advantages and drawbacks, including:

**Pros:** New segment provides additional connection point to VTA Orange Line light rail (Middlefield Station). Added service segment also serves several employers, including multiple Google campuses, and planned future residential development. There are also several electric vehicle charging points along the proposed loop that could potentially be used for Community Shuttle charging. Improves access to Caltrain, senior and teen centers from areas along El Camino Real south of Castro.

**Cons:** Alignment change would eliminate Community Shuttle service to El Camino Hospital, Cuesta Park, El Camino YMCA, direct stop to Graham Middle School, and a Cuesta Dr. stop proximate to St. Francis High School.

### *Realignment Alternative 2*

An alternative allocation of resources from discontinuing the El Camino Hospital deviation would alter the route to create two loops, connected by the Villa St. segment in Downtown Mountain View (between Moffett and Shoreline Blvds.). Service would still be bi-directional, but the Villa St. segment would be served twice on the Red Line (clockwise route) and twice on the Grey Line (counter-clockwise route), rather than only once on each line in the current alignment. Service would continue along El Camino Real between Castro and Grant Rd. instead of deviating to serve El Camino Hospital. The turn-by-turn alignment for Alternative 2 is shown in [Figure 3](#).

# City of Mountain View Shuttle Study

Figure 3: Current Service Comparison to Realignment Alternative 2



## City of Mountain View Shuttle Study

Alternative 2 has advantages and drawbacks, including:

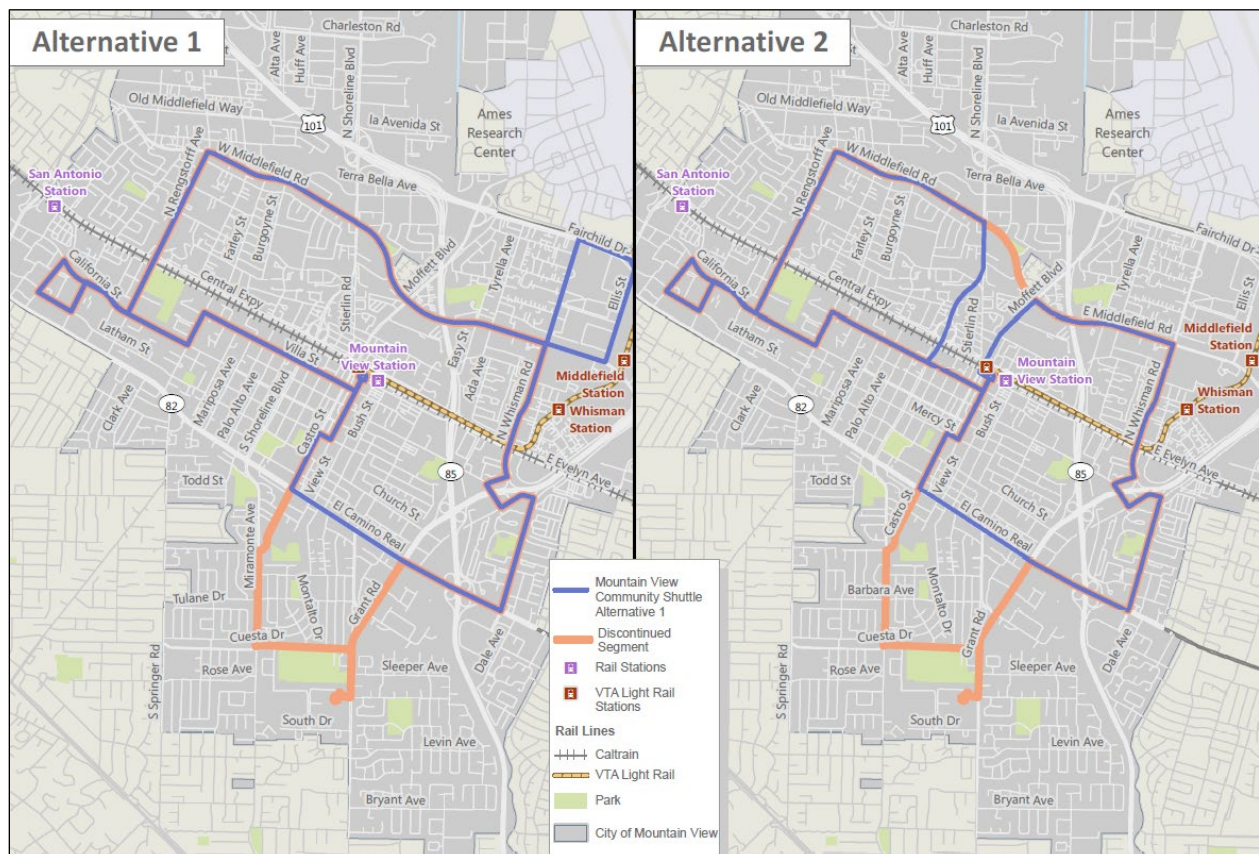
**Pros:** This alignment Improves access to Caltrain, VTA light rail and Downtown Mountain View from areas north of the Caltrain Line. It provides more miles of residential collection points as well as service to retail destinations on Moffett and the Social Security office and Safeway grocery off Shoreline. Improves access to Caltrain, senior and teen centers from areas along El Camino Real south of Castro.

**Cons:** Alignment change would eliminate Community Shuttle service to El Camino Hospital, Cuesta Park, El Camino YMCA, direct stop to Graham Middle School, and a Cuesta Dr. stop proximate to St. Francis High School. Creates deviation/longer ride for customers traveling from one end of Middlefield Rd. to the other.

### Comparing Alternative Alignments

Both realignment alternatives are cost neutral, not requiring any additional operating or capital costs since resources will be reallocated from the El Camino Hospital deviation. Alternative 1 provides more “last mile” connection points (employment destinations) and expands the overall geographic extent of the Community Shuttle service. Alternative 2 provides more “first mile” points (residential origins) and additional service to Downtown Mountain View, prioritizing connections to Mountain View Transit Center/Caltrain Station. Both introduce some overlap with existing VTA service while eliminating overlapping service to El Camino Hospital. See *Figure 4* for a side-by-side comparison of the two alternatives.

*Figure 4: Realignment Alternatives 1 and 2*



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### *Service to New Residential Development*

The North Bayshore and Whisman Specific Plans anticipate significant new housing in areas that are currently exclusively commercial. While Realignment Alternative 1 could serve potential development in the Whisman area, the Community Shuttle does not serve the North Bayshore area except for weekend service to the movie theaters. One option for serving new residential development in these areas would be expansion of MVgo service. Beginning in April 2020, MVgo will add a route serving residential developments on San Antonio Road and El Camino Real. Most MVgo service has been designed to serve employers who belong to the MVTMA. However, if the City of Mountain View continues to mandate that new multi-unit residential developments become members of the MVTMA, funding could be available to expand the service span to serve more residential areas.

## Ensure First/Last Mile Connections to Regional Service

In addition to internal Mountain View travel, an optimized Community Shuttle should provide first/last mile connections to regional transit services. Demand for those regional services is expected to grow in the coming years. As Caltrain moves toward complete electrification, service is anticipated to be more frequent and provide faster trips under the Caltrain Modernization Program (CalMod). These improvements will likely increase demand for service at the Mountain View Caltrain Station, where parking is already constrained. The San Antonio Caltrain Station only has limited parking shared with a housing development and thus faces a similar challenge.

Providing additional parking capacity is costly and continues facilitating personal vehicle trips (including SOV trips). Reduction of SOV trips is a key component to Mountain View's climate action planning efforts. An increased demand for Caltrain positions the City of Mountain View to demonstrate leadership in first/last mile connections to a robust regional transit network. As alternatives to the Community Shuttle or supplemental service, VTA trippers and On-Demand (OD) services are options for providing these first/last mile connections.

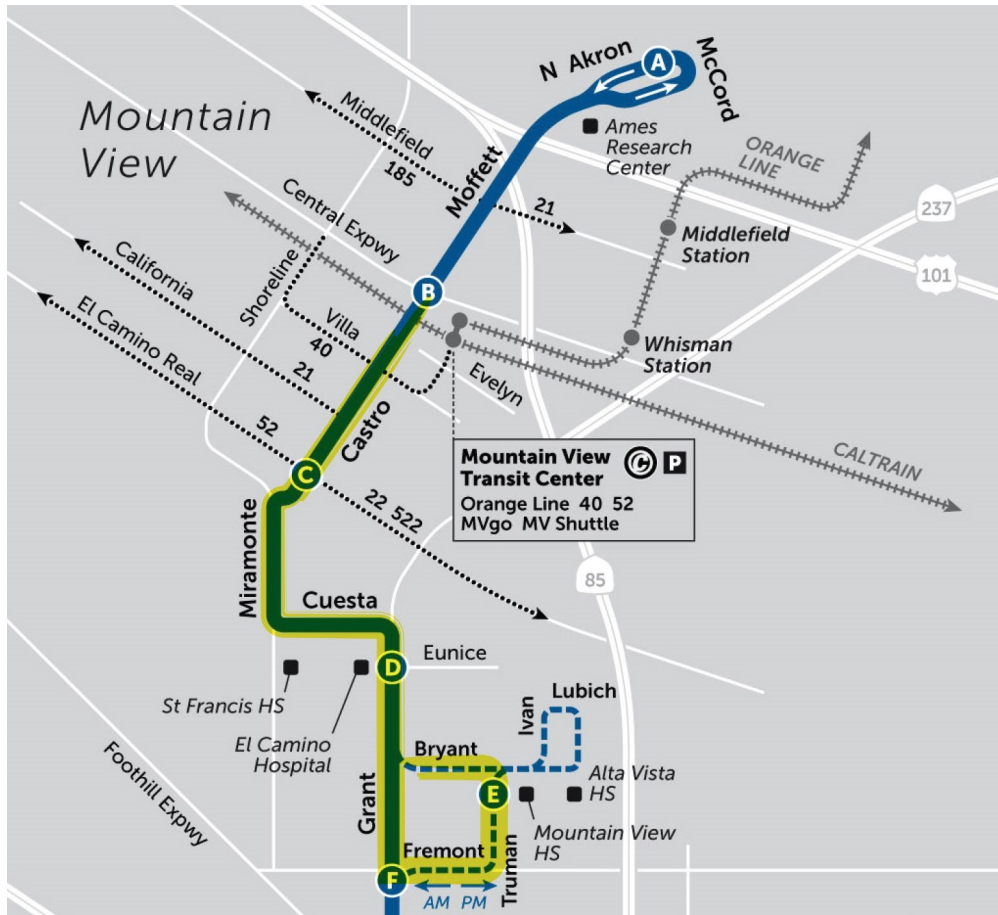
### VTA Peak Trippers

VTA routes serving the Mountain View Transit Center operate approximately every 30 minutes, or two trips per hour. By contrast, Caltrain provides four trains per hour during weekday peak hours (though arrival and departure times are not always evenly distributed within the hour). VTA Orange Line light rail provides service from the Mountain View Transit Center to employment destinations in Sunnyvale and San Jose every 15 minutes. By investing in additional trips on select VTA bus routes connecting to Caltrain and VTA light rail, Mountain View can offer an alternative to driving to rail stations. VTA Bus Routes 51 and 52 are contenders for peak trippers.

Route 51 operates between NASA Ames Research Center and West Valley College. The segment between Mountain View Transit Center and Grant and Fremont falls mostly within the Mountain View city limits and is within walking distance of most residential areas in the southwest quadrant of the city. (See area between Timepoints B and F in *Figure 5*.) The segment north of the Caltrain tracks (between Timepoints A and B in *Figure 5*) is also served by VTA Route 21, providing four trips per hour during peaks.

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Figure 5: Map of VTA Bus Route 51



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Route 52 operates between Mountain View Transit Center and Foothill College via El Monte. (See *Figure 6.*) As there are no feasible points for turning around the bus near the Mountain View – Los Altos boundary, the entire route would be considered for additional trips.

*Figure 6: Map of VTA Bus Route 52*



To operate approximately 15-minute peak-hour service on these two routes would require three buses providing 14 hours of additional service per day. Based on VTA 2020 marginal costs, if the City were to subsidize this extra service, it would cost approximately \$429,000 per year.

If the Community Shuttle span of service is increased to cover the peak hours and the existing route alignment is not modified, adding service to Route 51 could be duplicative, although the shuttle does not serve neighborhoods near Mountain View High School. Adding service to Route 52 only would require two additional buses or about nine additional hours at an annual cost of \$276,000 (based on the same VTA 2020 marginal costs).

## City of Mountain View Shuttle Study

### On-Demand (OD) Service

OD service as a first/last mile alternative is growing increasingly popular among transit agencies and communities. OD pilot projects typically use small vehicles and offer shared rides to customers who have requested service through an app/website/digital platform. Although services like this, traditionally called dial-a-ride, have been around for over 50 years, the use of mobile apps has significantly improved the customer experience by enabling riders to request a trip at the time they want to travel rather than having to make reservations up to 24 hours in advance.

OD service has multiple benefits from the customer perspective. Riders can request trips when they want to travel rather than working around the schedule of a fixed-route bus or calling a day in advance. Some OD services also offer curb-to-curb service, picking up customers at any point instead of an operator-designated bus stop or pickup location. Though more convenient for consumers, for service providers, OD models are generally less operationally efficient than fixed-route service. OD services still require paying a driver to sit in a vehicle all day, regardless of demand, and accrues more deadhead time and mileage between passenger trips. The vehicles are typically vans or very small buses, limiting the number of passengers per trip.

The Via-Cupertino Shuttle, an 18-month OD pilot program offers some insight into how OD could function in Mountain View. (Note: The Via-Cupertino pilot was designed to provide both internal circulation and first/last mile connections to the Sunnyvale Caltrain station.) The one-way fare is \$3.50, although an introductory fare of \$1 was in effect through January 31. Three months into the pilot, the Sunnyvale Caltrain Station is the top destination. Trips to the station account for 16 percent of all trips (more than double the share of the second-most popular destination). So far, the shuttle averages 1.57 riders per service hour and the average customer wait time is about 10 minutes between requesting a ride and being picked up. By comparison, the Mountain View Community Shuttle averaged 27 passengers per hour in the Second Quarter of Fiscal Year 2019.<sup>2</sup> OD service in Mountain View would most likely have a similar cost to operating a fixed-route bus and carry significantly fewer passengers, providing less overall community benefit.

### Transportation Network Company (TNC) Partnerships

Another popular option for first/last mile solutions is subsidizing trips on existing TNC services, like Uber Pool or Lyft Line. In most pilot projects, a transit agency partners with a TNC and agrees to subsidize qualified trips (for example, trips with an origin/destination within Mountain View City limits and a destination/origin at a transit center, rail station, or bus stop). Uber Pool and Lyft Line one-way fares from various points in Mountain View to the Mountain View Caltrain Station ranged from \$9 to \$11. The taxi fare for these same trips ranged from \$13 to \$14. Mountain View would either need to subsidize the whole amount, with a cap of maybe \$15 per trip, or subsidize a share of the trip, with the customer paying the remainder. By comparison, parking at the Mountain View Caltrain Station is \$5.50 per day.

Part of the goal of this study is to reduce single-occupancy vehicle trips within the City of Mountain View. Replacing SOV vehicle trips with Uber Pool or Lyft Line trips may keep a few cars off the road and decrease parking demand, but the deadhead travel for the Uber/Lyft driver between trips is still adding to the total Vehicle Miles Traveled (VMT) within Mountain View. Using regular Uber or Lyft service (rather than the shared-ride Pool and Line options) may curb parking demand but is a direct 1:1 tradeoff for SOV trips.

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<sup>2</sup> See page 18 of the City of Mountain View Shuttle Study *Existing Conditions Report* (October 2019).

## City of Mountain View Shuttle Study

A few other challenges noted by agencies and cities that have piloted TNC partnerships include guaranteeing service availability will meet customer demand, Americans with Disabilities Act (ADA) access compliance, and not being able to secure program utilization data from the TNC. Such data could indicate how well the program is working, who is using the service, and where they are using it.

Ensuring first/last mile connectivity is vital in a community like Mountain View, with multiple regional transit providers, and advances in technology have generated more service options. However, cost and efficiency should be considered in comparing these service alternatives.

## Grow Ridership through Customer Information and Coordination

A key finding from the community survey conducted as part of the *Existing Conditions Report* was that many residents felt they needed better public information regarding transit service. This was particularly common among younger residents who attended the stakeholder meeting or responded to the survey. In addition to changes to the service and operating model, better public awareness of the Community Shuttle and access to information will increase the community benefit.

The Community Shuttle service was designed to facilitate internal trip-making in the City of Mountain View as well as first/last mile connections to the regional transportation network. The Bay Area transit network is comprised of more than two dozen service operators. This segmented network requires many customers to make multi-operator trips for their daily commute and other travel needs. There is strong demand for a more integrated transit network to attract riders and improve the customer experience on multi-operator trips, from trip planning to fare payment to transfers between operators. Addressing this challenge is critical to increasing transit's regional mode share in the Bay Area and helping Mountain View achieve its GHG reduction targets.<sup>3</sup> For the Community Shuttle to effectively provide first/last mile service as part of a multi-operator trip, a coordinated marketing and customer experience strategy is an important step in making the transit network legible to residents.

### Marketing

Ensuring residents, commuters, and visitors are aware of the Mountain View Community Shuttle service is critical to growing ridership and providing an effective service to the community. With so many regional service providers, it is important for Community Shuttle to explain to customers how the service fits in with the rest of the regional network.

#### *Travel Training*

Particularly if the service span is extended to better serve school-age children, travel training in Mountain View schools and distribution of a "how to ride" brochure can be an effective tool to grow ridership by this population segment. Parents will likely be more comfortable allowing their kids to travel by public transit if they know their children have been trained and if they, as parents, are more aware of the service. This can be accomplished as a joint programming effort between the City of Mountain View and the Mountain View Whisman School District.

Travel training is also a proven strategy for improving the mobility of senior citizens. The Mountain View Senior Center already offers an abundance of programming and is a stop on the Community Shuttle

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<sup>3</sup> See: Final Report of the 2017-2018 Environmental Sustainability Task Force. City of Mountain View. June 18, 2018. <http://laserfiche.mountainview.gov/WebLink/0/edoc/219376/ESTF-2%20Sustainability%20Recommendations%20Report%20-%20June%202018%20-%20FINAL.pdf>



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route. A program designed to help seniors read the bus schedule, locate stops on the street, and use the real-time vehicle locator on their smart phones would improve the perception of the Community Shuttle as an accessible and convenient option. Earlier in this study, the City of Mountain View Senior Advisory Committee (SAC) identified a longer service span as their top priority. Coupling a longer span with some travel training support has the potential to grow senior utilization of the Community Shuttle.

### *“Getting Around Mountain View” Joint Marketing Effort*

Even for internal travel in the City of Mountain View, riders have VTA, MVgo, and the Community Shuttle as options. Creating a consolidated service map with all local service and “how to ride” information can minimize the clutter of other connecting regional services and focus on customers who just want to travel within Mountain View (the Community Shuttle as part of a broader regional network will be addressed in the following *Integrated Customer Information* section). The Transit and Shuttles page of the City of Mountain View website could also showcase sample transit trips to highlight both local trips that can be made on the Community Shuttle as well as the regional destinations that are accessible by transit (ex: Mountain View to SFO).

## Integrated Customer Information

A major barrier to more transit ridership in the Bay Area is the patchwork transit network with dozens of operators, each with their own service schedule, transfer policy, fare rate, fare media, and branding. Integrated service and fare media require coordinated efforts and agreements between agencies. The introduction of the Clipper card was an important step toward integration, but there is still room for improved coordination across agencies.

A key to effective transit planning is “thinking like a customer.” For a customer to choose transit, the first test it must pass is, “Can I get where I need to go on transit?” In some cities/regions there is only one transit operator, so a resident can just check that one website. This is not the case for Mountain View and its surrounding communities. Since memorizing the services of so many providers is not feasible, most transit customers utilize integrated trip planning tools, like Google Transit, to answer this question. Trip planning tools are most effective when they capture all mobility options, including personal vehicles and TNCs, bike routes, all modes of transit open to the public (bus, shuttle, rail, ferry) across all transit agencies, and any other mode of travel.

The second and third tests are, “Is transit cheaper than traveling by car?” and/or “Is transit faster than traveling by car?” Some trip planning apps provide estimated fare along with travel time. However, it is difficult to capture the nuances of every pass option offered by every agency, including zone-based fares, reduced fares, monthly or daily passes, etc. Increasingly, the transit industry is pursuing all-in-one digital platforms, sometimes called “Mobility as a Service” (MaaS). For transit to be truly convenient, trip planning, vehicle tracking/service updates, and fare payment should be centralized in one tool.

Mountain View need not start from scratch to develop an integrated app for residents. Several Bay Area operators provide their schedule information and connection to digital fare payment in the Transit app. VTA has a web page encouraging customers to download Transit, calling it “VTA’s officially endorsed trip planning app.”

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According to the Transit app's website (as of January 31, 2020), schedules have been provided by the following regional transit providers. Those in italics provide real-time information, while those in regular font provide static schedules.

- *AC Transit*
- ACE
- AirTrain SFO
- *BART*
- *Bear Transit*
- *Caltrain*
- *Capitol Corridor*
- Cloverdale Transit
- *County Connection*
- *Dumbarton Express*
- *Emery Go-Round*
- *Golden Gate Transit*
- Hyperloop
- Marguerite
- Marin Transit
- *Mission Bay TMA*
- *MVgo*
- *MUNI*
- *Petaluma Transit*
- *PresidiGo*
- SamTrans
- San Francisco Bay Ferry
- *Santa Rosa CityBus*
- SFO Shuttles
- SolTrans
- *SMART*
- *Sonoma County Transit*
- *Tri Delta Transit*
- Vacaville City Coach
- VTA
- *Wheels*

Caltrain, VTA, and MVgo are all included in the Transit app. By adding the Community Shuttle, the app will have more comprehensive information on all travel options available in Mountain View and the Community Shuttle will be more visible as a service option to potential riders.

### Maintain Bus Stops

Another important component of service visibility and ensuring a good rider experience is providing and maintaining the entry point to the service: the bus stop. An ideal bus stop reminds drivers, pedestrians, visitors, etc. that transit is an option (attracting more riders) and, more importantly, gives existing riders clear direction on where to wait for the bus. The ideal stop would also include posted information with the service schedule and, if there are multiple routes, indication on the sign of which route(s) serve that stop. Stops with high ridership, low frequency, or lots of transferring customers are typically the best candidates for bus stop amenities (shelters, benches, trash cans, etc.).

For the Mountain View Community Shuttle, the first step is ensuring bus stop posts and signs are maintained. Some stops on the Community Shuttle are also stops on VTA bus routes. In these instances, the Community Shuttle stop sign was added to the VTA post. Where VTA has discontinued service, the City of Mountain View and/or future Community Shuttle operator needs to ensure these posts and signs and any other amenities at these previously-shared stops are maintained. Ideally benches would be eventually added at all stop locations, however at minimum the heaviest used stops should have benches installed if they currently do not. When stops are added or relocated it is essential that they be ADA accessible which includes adequate clearance for wheelchair boarding and alighting buses and level concrete or asphalt surfaces at the curb.

## Pricing Strategies

### Community Shuttle Fare

In considering whether or not to collect a fare, every transit operator must consider: 1) How much revenue could be generated, 2) How much it would cost to collect the fare, 3) How much ridership might suffer by introducing a cost to riders. Even with many consumers favoring debit/credit cards or mobile payment (like Apple Pay), public services still need to consider unbanked populations who use cash only. For this reason, most transit agencies still offer an on-board cash payment option, even after introducing mobile ticketing or reloadable passes.

Currently the Community Shuttle is fare free. (The MVgo shuttles are also fare free.) For a community of Mountain View's size, the cost of installing and maintaining a fare collection system will outweigh the potential revenue. Furthermore, some riders will stop riding if a fare is introduced, either because they can no longer afford to ride or they no longer perceive the service to be the most convenient option, knowing they will need cash or some kind of pass to ride. Collecting a fare also has operations impacts, adding dwell time at each stop for customers to pay as they board.

### *Subsidize VTA Fares*

To provide consistency for internal travel within Mountain View the City may consider entering into an arrangement with VTA to allow boardings within Mountain View to be fare free. This could be applied to all service or limited to select routes. For example if the City decides to modify the Community Shuttle to eliminate duplication with Route 51 allowing free fares on this route in Mountain View would address the concern that Community Shuttle customers would be now forced to pay a fare. It can also encourage more use of VTA services to connect with Caltrain. One concern is if this approach were pursued is how to deal with trips between Mountain View and destinations outside of the city. To keep it simple customers using VTA for trips outside of the city limits would receive a free fare leaving the city but would have to pay when boarding outside of the city in the other direction. A mobility wallet (see below) or an opt-in option for Mountain View residents on Clipper Card may be another approach to provide free or discounted rides on VTA when boarding in Mountain View.

### *Mobility Wallet*

If the operator of the Mountain View Community Shuttle were to charge a fare, providing a digital fare payment option would lower the barrier to ridership for those who perceive a fare to be an inconvenience. Mobility wallets are growing in popularity in the transit industry. Often part of a multi-modal and multi-operator regional system, a mobility wallet provides a digital platform for fare payment to multiple agencies. It can be designed as an e-purse, where the user adds money to their account and the appropriate fare is deducted based on the service provider and mode. Alternatively, some mobility wallets are the smart phone equivalent of a "smart card," identifying the point at which a pass is the more economical option than continuing to pay single-ride fares (fare capping), saving the customer money.

Many trip planning apps, like the Transit app, are working toward building in fare collection capabilities so transit riders can use one app for all their mobility needs. In the meantime, the Clipper card is the most integrated fare payment option in the Bay Area. Metropolitan Transportation Commission (MTC) is in the process of designing the next generation of the Clipper card, called "Clipper 2.0." An app for mobile ticketing is expected in 2021, and a digital wallet function is under consideration. If Mountain View were to introduce a fare, joining the Clipper card would be the most customer-friendly strategy, especially as it already includes Caltrain and VTA fares.

## City of Mountain View Shuttle Study

### *Caltrain Monthly Parking Permit*

Caltrain offers customers parking in station lots for a fee. Anyone can purchase a daily parking permit for \$5.50 at a ticket vending machine. A monthly parking permit must be purchased in conjunction with a monthly train pass and costs \$82.50. Some employers offering commuter benefits pay for monthly Caltrain parking permits for employees. With demand for Caltrain service expected to increase with electrification and other improvements under CalMod, demand for parking will likely exceed the number of available spaces.

The Community Shuttle provides an alternative first/last mile connection to the Caltrain stations in Mountain View. If the Community Shuttle were to charge a fare, Caltrain parking permits could potentially be used in lieu of fare and that portion of Caltrain revenue allocated to the Community Shuttle. Alternatively, partnerships with commuter benefits providers could be developed to allocate funds to the Community Shuttle instead of a parking permit and encouraging employees to use the shuttle to access Caltrain, somewhat like a TMA structure.

## Carry Service into the Future through Financial Sustainability

The immediate issue facing the Community Shuttle is what entity will operate the service beginning in June 2020, when Google will cease operation of the Community Shuttle. However, the other key issue is preparing financially for 2024, when Google will discontinue funding the Shuttle, and beyond. If the City of Mountain View plans to keep the Community Shuttle a fare-free service, it must secure reliable funding sources or partnerships. Decisions about future funding of the Community Shuttle will likely be related to the how the transition of Shuttle operations from Google to another entity is resolved.

### MV Measure P (Per-Employee Business Tax)

In November 2018, Mountain View voters approved Measure P, a business license tax that charges businesses based on number of employees (sometimes called a “head tax”). The tax went into effect on January 1, 2020. The majority of the revenue from the business license tax is to be allocated to transportation projects. While there are a number of important and costly infrastructure projects that will utilize these funds, some of the dollars could also be allocated to Community Shuttle service for sustaining existing service and implementing improvements outlined in this report. .

### VTA Measure B Sales Tax Transit Operations Program

Two programs within the Measure B Transit Operations Program include:

- Expand mobility services and affordable fare programs for seniors, persons with disabilities, students and low-income riders.
- Support new/innovative transit service models to address first/last mile connections and provide transit services for the transit dependent, vulnerable populations and paratransit users that is safe and accountable.

Both enhancements to the Community Shuttle or new mobility options to provide access to Caltrain could be funded through this program, however the amount of funds are limited. Funds will be distributed through a highly competitive discretionary grant program and each grant will be for a limited time frame requiring resubmitting applications periodically to sustain successful services.

## City of Mountain View Shuttle Study

### Bay Area Air Quality Management district Vehicle Trip Reduction Grant Program

A competitive program within the region, grant funding under this program supports several community and rail feeder shuttles throughout the Bay Area. Enhancements to the Community Shuttle service or new mobility options to provide connections to Caltrain would both be eligible for these funds. As with Measure B, the amount of funds are limited, so funds will be distributed through a highly competitive discretionary grant program and each grant will be for a limited time frame requiring resubmitting applications periodically to sustain successful services.

### Next Steps

A number of options have been provided in this report to provide the City Council with information needed to make informed decisions regarding the provision and promotion of public transportation in the city. Because of ongoing discussion, the long-term governance of the Community Shuttle is not addressed in this report. Making that determination will set the foundation for the future of the Community Shuttle. Another issue that will need to be addressed if a new contractor provides service is identifying charging infrastructure and determining the type and ownership of vehicles used for shuttle service.