Midpeninsula Regional
Open Space District

PLANNING AND NATURAL RESOURCES COMMITTEE

R-23-86
July 11 and 18, 2023

AGENDA ITEM 2

AGENDA ITEM

Background Information, Proposed Performance Measures and Service Design Concepts, and First Go-No Go Consideration for a Potential Shuttle Program and/or Ride Hail Program at Rancho San Antonio Open Space Preserve

GENERAL MANAGER'S RECOMMENDATIONS

1. Receive an overview of the data collection, background analyses, and public and stakeholder engagement that has been informing the development of a potential Shuttle Program and Ride Hail Program for Rancho San Antonio Open Space Preserve.

2. Review and confirm the proposed shuttle and ride hail program design parameters, which align with the Board-approved prioritization criteria for the Transportation Demand Management Strategies, as well as other Board Policies.

3. Review and provide feedback on the following draft elements:
    a. Service Design Concepts
    b. Performance Measures
    c. Companion Measures

4. Based on information received and Committee discussion, select one of the following recommendations to forward on to the full Board of Directors for consideration:

    a. Discontinue further development of the shuttle and/or ride hail programs.

    Or

    b. Direct the General Manager to continue expending funds from the contract and allocating staff resources to pursue next steps, including:
        i. Further developing the shuttle and ride hail programs options, focusing on opportunities that best leverage similar existing programs;
        ii. Exploring the availability of grant programs to cover upfront program implementation costs and, if possible, on-going operating expenses; and
        iii. Refining and selecting the recommended companion measure(s) that will be necessary to reach successful program outcomes.

If Option 4b is selected, staff would return to the Committee and Board at a later date with more information and with another opportunity to confirm a Go-No Go decision.

SUMMARY

The Midpeninsula Regional Open Space District (District) is exploring the potential for a Shuttle Program and/or Ride Hail Program for Rancho San Antonio Open Space Preserve & County Park (Rancho San Antonio, Preserve) as two multimodal strategies for its most popular preserve. If supported by the Board of Directors, a Shuttle Program and/or Ride Hail Program would be implemented through a future solicitation process to contract directly with a program operator(s). The proposed Shuttle and Ride Hail Programs support the goals of the Rancho San Antonio Multimodal Access Study, which was completed in 2021 to identify green modes of transportation for addressing congestion and parking issues and improve the visitor experience.

Through two requests for proposals (RFP) processes, Mead & Hunt and Arcadis-IBI Group were selected for the Shuttle Program and Ride Hail Program, respectively. Since being awarded the contract, the Mead & Hunt team has documented roadway, pedestrian, parking area and topographic conditions at Preserve entrances and identified potential satellite parking areas. Mead & Hunt and Arcadis-IBI have conducted background analyses of existing visitation data and trends; developed, administered, and analyzed the results of a joint user survey; conducted stakeholder engagement; and developed draft service design concepts and performance measures/key performance indicators.

District staff seeks Planning and Natural Resources Committee (PNR) input on numerous draft program elements, and feedback on whether, based on all of the information presented, the District should continue pursuing the program(s) at this time (as one of numerous Go-No Go decision points). A considerable amount of funding has been devoted to developing these draft program elements and additional funds will be needed to complete the next steps. To date, 84% (~$15k remaining) of the $76,730 shuttle contract and 50% (~$15k remaining) of the $33,800 ride hail contract have been expended. Approximately 0.5 Full-time Equivalent (FTE) staff time has been devoted to managing the project and the same level of staff resource is expected to complete the next steps. Based on the information collected to date and as presented in this report, there are numerous major implications for the District that are being discovered related to one-time implementation costs, ongoing operational costs, additional operational staffing needs, change management and public sentiment/receptiveness, and likelihood of success in achieving the desired outcomes. It is therefore prudent at this time to consider the first Go-No Go decision for these programs. PNR feedback and recommendations would be forwarded next to the full Board of Directors for their review and consideration.

BACKGROUND

The 2021 Rancho San Antonio Multimodal Access Study (Study) explores and evaluates non-motorized mobility, transit options, and parking alternatives for the Preserve. The Study identifies strategies for encouraging visitors to use greener modes of transportation and reduce parking demand and traffic, while maintaining equitable access for both local and regional visitors. The Study prioritizes 15 transportation management strategies and organizes them into three sets of recommendations. The Board of Directors (Board), at its April 28, 2021 meeting, approved moving forward with the first set of recommendations, including the following six strategies (italics added to highlight the two strategies that are the subject of this report):

- Bike facilities
- New and improved bike access

- *Subsidized ride hail*
- *Free or low-cost shuttle service*
- Carpool restricted lot
- Dynamic or variable signage

The District has been actively implementing priority one strategies since Board authorization in April 2021. To date, new bike facilities and a dynamic sign have been installed, a carpool restricted pilot program is ongoing, and a funding agreement with the City of Cupertino to improve bike access along Cristo Rey Drive is being developed. The Shuttle Program and Ride Hail Program are being pursued as part of this overall implementation effort. At the July 13, 2022 Board meeting, the District awarded a contract to Mead & Hunt to develop the Shuttle Program. On September 6, 2022, the District executed a contract with Arcadis-IBI to develop the Ride Hail Program. Both firms were selected through a request for proposals process.

DISCUSSION

Shuttle & Ride Hail Design Parameters

Consistent with the Board-adopted prioritization criteria developed for the Transportation Demand Management Strategies, as well as other Board Policies (e.g., Climate Change Policy – found on page 86 of the Resource Management Policies and the Good Neighbor Policy), District staff developed the following proposed design parameters to guide the exploration and development of the shuttle and ride hail programs:

- The programs are attractive, easy to use, and people will realistically use them, providing the opportunity to reduce parking demand and congestion at the Preserve.
- The programs accommodate a diverse audience and are accessible for all visitors of the Preserve.
- The programs support the District's Climate Action Plan by encouraging the reduction of single occupancy vehicle trips, vehicle miles traveled and greenhouse gas emissions.
- The programs are designed to allow the District to continue to be a good neighbor as well as minimize interference with existing modes of accessing the Preserve.
- Each program supports the ridership of the other program (assuming both programs are implemented).

Based on the proposed design parameters described above, Mead & Hunt developed a proposed set of shuttle program goals (Attachment 1, Page 2) and Arcadis-IBI produced ride hail program objectives (Attachment 2, Pages 2 & 3) to further define the desired outcomes of the Project. These proposed goals and objectives were reviewed and refined based on input by District and Santa Clara County Parks staff. As a reminder, the District operates the Rancho San Antonio County Park under an operation and maintenance agreement with Santa County Parks, which includes all the main parking areas and main trailhead entrances located off Cristo Rey Drive.

Consultant Scope of Work to Develop the Shuttle Program and Ride Hail Program

Developing a shuttle program and a ride hail program involves similar key processes, creating touch points between Mead & Hunt's and Arcadis-IBI's work, which has required frequent coordination on both project deliverables.

Mead & Hunt's scope of work for the ***Shuttle Program*** includes:

1. Developing goals;
2. Evaluating the Preserve's existing conditions through field observations;
3. Conducting a background analysis of open space shuttle programs;
4. Developing, administering, and analyzing results of a user survey;
5. Participating in stakeholder engagement;
6. Developing performance measures, shuttle service design concepts, and ridership estimates; and
7. Developing final shuttle service and operation plans.

To date, Mead & Hunt has completed tasks 1 through 6.

Arcadis-IBI's scope of work for the ***Ride Hail Program*** includes:

1. Developing goals;
2. Conducting a background analysis of agency partnerships with ride hail services;
3. Developing and analyzing results of a user survey;
4. Participating in stakeholder engagement;
5. Developing ride hail service design concepts and performance measures; and
6. Developing a ride hail implementation plan.

To date, Arcadis-IBI has completed Tasks 1 through 5.

Pending PNR and Board review, and if the upcoming Board decision is to continue pursuing the development of each program, the service design concept for the Shuttle Program and Ride Hail Program will each be further developed and included in a Draft Implementation Plan.

Field Observations and Background Analyses

Shuttle Program
Mead & Hunt conducted field observations on a weekday and weekend day in August 2022 to assess potential shuttle stops and shuttle routes and develop a greater understanding of current Preserve access issues. District staff attended the first day of field observations and coordinated with Visitor Services staff to provide further Preserve context. Mead & Hunt evaluated multiple Preserve entrances, internal Preserve sites, and potential off-site satellite shuttle parking locations and routes.

Additionally, Mead & Hunt conducted a state of practice review by interviewing other park/preserve entities that have launched shuttle services similar to what is envisioned for Rancho San Antonio. This effort was supplemented by similar conversations that District staff had while participating in the Santa Cruz Mountain Stewardship Network (SCMSN) Shuttle Exploration Team between 2021 and 2022. Key themes that emerged include:

- Shuttles work well when on-site parking is not available.
- Shuttles work well when programs are designed to intentionally solve parking and congestion issues, and not just rely on shifting visitor travel behaviors.
- Shuttle programs work well when simultaneous parking demand strategies/policies such as permits and metered parking, parking reservations, carpool parking, and other parking restrictions are implemented at the same time.

- Marketing and outreach efforts are critical to drive shuttle ridership and encourage growth.

Additional information related to Mead and Hunt's state of practice review is included in Attachment 1, *Shuttle Program Existing Conditions and Concept Development Memorandum*.

Ride Hail Program
Arcadis-IBI conducted a state of the industry case study to evaluate agency partnerships with transportation network companies (TNCs) to close mobility gaps by providing on-demand service at a subsidized cost. Details of the case study are included in Attachment 2, *Ride Hail Service Design & Performance Measurement Memorandum*. Key themes that emerged include:

- Ride hail companies are leveraging partnerships with municipalities and transit agencies to remain viable over the long term.
- Agencies can explore flexible pricing structures based on peak times or number of occupants in a vehicle.
- Some ride hail companies offer additional services, including Microtransit Software as a Service (SaaS) and Mobility as a Service (MaaS).

Visitor Survey

Building off the survey work completed during the 2021 Multimodal Study, Mead & Hunt and Arcadis-IBI developed a joint survey to gauge visitor interest in each of these transportation programs and understand the circumstances that would motivate visitors to use these proposed programs. The surveys were offered in English, Spanish and Chinese. The District promoted the survey through different methods, including the District's interested parties email lists, electronic newsletters, and social media posts; on the District's homepage banner; and on the preserve and project webpages. Additionally, District staff engaged agency stakeholders to promote the survey through a combination of partner social media posts and electronic newsletters.

During the one-month survey, a total of 626 responses were received between October 16, 2022 and November 15, 2022. In addition to the online survey, in-person intercept surveys were also conducted on two weekday and two weekend days. Below is a list of topics included in the survey:

- General Topics
    - Preferred Preserve entrance point
    - Transportation mode used and distance traveled to get to the Preserve
    - Time spent at the Preserve
    - Typical size of group when visiting
    - Activities performed while visiting the Preserve
    - Parts of the Preserve visited
- Shuttle Topics
    - Interest in a shuttle, frequency of usage, circumstances that influence/prevent use of service
    - Willingness to wait for a shuttle, length of shuttle ride willing to take
- Ride Hail Topics
    - Ride hail characteristics that encourage service use
    - Travel distance of visitor origin to the Preserve

The survey provided some new insights, while also reinforcing some findings from the 2021 Multimodal Study, including the following:

- Turnover at the Preserve continues to be high.
- Most visitors are interested in accessing the main entrance.
- Motivation to use a shuttle to access the Preserve is largely influenced by whether the parking area a visitor intends to use is or might be full. Other motivating factors include the ease of shuttle use, frequency, and access from a convenient location with on-site amenities or a transit hub.
- A significant majority of respondents felt that being bound to a shuttle schedule and missing the shuttle would be a reason to prevent them from using the shuttle program.
- Generally, respondents indicated they were not willing to wait longer than 10 minutes for a shuttle or ride on a shuttle longer than 10 minutes.
- 43% of respondents indicated they would only be willing to use a free shuttle with the same percentage indicating they would be willing to pay $1 (18%) or $2 (26%).
- Nearly 80% of respondents indicated they have used ride hail as a service.
- Motivation to use ride hail is influenced by convenience, namely that visitors can book via a mobile app, get picked up directly from their origin, and wait less than 20 minutes.
- 44% of respondents indicated they would not use ride hail to access the Preserve.
- If a ride hail service were offered, nearly two thirds of respondents indicated they would be traveling up to five miles to access one of the Preserve's entrances, potentially informing the design of a distance-based subsidy.

Stakeholder Engagement

In addition to the visitor survey, staff reach out to relevant public agencies and other organizations to discuss the project and request initial feedback related to potential shuttle and ride hail partnership opportunities and outcomes. The table lists the stakeholder meetings held to date, although engagement with some of these organizations is ongoing.

Date	Meeting/Stakeholders
11/9/22	Foothill College
1/12/23	Joint Stakeholder Workshop (*Santa Clara County Parks, Town of Los Altos Hills, City of Los Altos, City of Cupertino, Cupertino Union School District, City of Sunnyvale, City of Mountain View*)
1/30/23	City of Cupertino

The focus of the January 12, 2023 joint stakeholder workshop was to identify community willingness to use the shuttle and ride hail programs, thoughts on how each program would meet project goals, immediate concerns about the programs, and whether agencies would be open to partner on the potential implementation of these programs. Attachment 3 provides a detailed summary that includes feedback received during the workshop. Some key takeaways include:

- Design these programs to overcome the convenience of car trips to the Preserve.
- Consider pairing these programs with other strategies to manage the parking supply.
- Design simple programs to make services easy to use to encourage ridership.
- Stakeholder agencies are open to partnerships.

District staff also initiated conversations with multiple organizations regarding the potential use of their parking areas for shuttle satellite parking lots and/or areas for shuttle drop off/pick up locations. These conversations also explored lessons learned from other agencies that have implemented transportation demand management strategies to address parking and high visitation. The following organizations were contacted by District staff and coordination with some is ongoing:

Organization/Program	**Area of Interest**
MVgo	Use of transit bay at Mountain View Transit Center (Castro Street and Evelyn Avenue)
Lucky Supermarket (Los Altos)	Lucky parking area (Los Altos)
Valley Transportation Authority (VTA)	Shared use of existing VTA bus stop locations for the shuttle program
Fremont Union High School District	Monta Vista High School parking area
Foothill Christian Center	Parking area
Rancho Shopping Center	Parking area
Trailhead Direct – King County Metro and King County Parks	Partnership model and developing a transit to trails program beyond a pilot.
Foothills Nature Preserve – City of Palo Alto	Operational impacts of managing visitation through visitation limits and vehicle entrance fee
Muir Woods Parking & Shuttle Reservation System – National Parks Service	Operational impacts of managing visitation through parking and shuttle reservations, managing public sentiment

Shuttle Program - Service Design Concepts

The 2021 Multimodal Study included a list of potential shuttle satellite parking areas for consideration. These parking areas would serve as a location for visitors to park their car or arrive via transit and then take a shuttle to the main Rancho San Antonio entrance. A total of nine concepts were initially evaluated as potential satellite parking lots to access Rancho San Antonio via shuttle. Based on survey feedback, stakeholder engagement, input from field staff, and conversations with the owners/operators of the parking lot locations, the following five options were eliminated:

- Foothill Christian Center
- Rancho Shopping Center,
- Monta Vista High School,
- Stevens Creek Elementary, and
- Sunnyvale Station

The following sites remained for further evaluation as point-to-point journeys:

- Foothill College
- Mountain View Transit Center via Lucky Supermarket
- De Anza College
- Lucky Supermarket

Operation Hours
The proposed days and hours of operation would be weekends and holidays from 6:30 a.m. to 12:30 p.m., corresponding to the Preserve's peak parking demand. Shuttle service would cease for the day after 12:30 p.m. when parking demand begins to taper off.

The shuttle service and ride hail service can complement each other, whereby visitors who take the free or low-cost shuttle to the Preserve can then take subsidized ride hail back to their starting location for return travels that occur after 12:30 p.m. Mead & Hunt estimate that approximately 80% of inbound shuttle users would also be outbound shuttle users, with the remaining ~20% needing to use ride hail for their return trip to their car/transit stop. This is further discussed in the Ride Hail Service Design Concepts section. Refer to Attachment 1 (Pages 10-18) for details on the initial route concepts and the reasoning to support the proposed refined shuttle concepts. Refer also to Attachment 4 for maps of the proposed shuttle route concepts.

Estimated Shuttle Ridership Potential
Public transit ridership is typically estimated by relying on the demographic profile of the unique geographic area. Unlike typical transit ridership, the proposed shuttle service targets a specific population (Preserve visitors) and cannot rely on the traditional methods for estimating general transit ridership. Therefore, the ridership potential for the proposed shuttle program was estimated based on survey responses, factoring in average weekend Preserve visitation, percentage of morning visitation via the main entrance, and whether visitors are driving or taking transit to the preserve. The number is discounted to assume fewer outbound shuttle rides as some visitors may use the ride hail service for their return trip.

Roughly 21% of survey respondents indicated that they would use a shuttle service either every time or most times that they visited. It is assumed, however, that survey responses do not translate 100% to actual shuttle use. Therefore, the ridership estimation is conservatively reduced to reflect 2/3 (66%) of those indicating a willingness to use a shuttle service, which equates to 14% of respondents. A simple calculation to arrive at 14% of all visitors who currently drive or take transit to the Preserve is used to set the estimated ridership range of 100 to 150 inbound shuttle riders each weekend day (or up to 200 to 300 round-trip riders). A shuttle program and other TDM strategies underway may encourage shuttle program use, as such, the upper range of ridership estimate is adjusted to 200 to reflect the possibility of additional riders when parking is at capacity. Refer to Attachment 1 page 13 for more details on ridership estimation.

Program Capital and Operating Costs
The proposed shuttle service calculations shown in Attachment 5 estimate the initial capital costs and ongoing operating costs to support a shuttle program. If a shuttle program is implemented, the District may choose to purchase or lease shuttle vehicles, or contract with an operator who is already equipped with shuttle vehicles. Mead & Hunt estimates the cost associated with purchasing a 10-15 seat capacity cutaway van to be $100,000 each. Shuttle stop infrastructure, which includes a bus shelter and bench, is estimated to cost $10,000 per shuttle stop. Most transit operators use a generalized per hour operating cost to estimate the cost of service. The Mountain View Community Shuttle, operated by the Mountain View Transportation Management Association (TMA), reports an hourly operating rate of $143, which is estimated to cover the cost of a driver, maintenance costs and fuel for a purchased (owned) vehicle. For the proposed shuttle service concept costs (see table below), operating costs are based off the $143 hourly rate that has been obtained for leased/owned vehicles (covers driver, maintenance, and fuel); these costs are presumed to only capture a portion of the true costs. Not included in the $143 per hour

operating costs are the cost of the vehicle itself (leased or owned), nor administrative overhead, such as procurement, contract management, program management and overall risk management/liability. If the Board decides to continue exploring a shuttle program option, cost numbers will be further developed to identify the full range of costs for fully outsourcing the program (if viable) versus operating vehicles that are owned by the District.

The following table reflects key attributes of the proposed shuttle route concepts, including the origin of shuttle routes, city or town in which the shuttle origin is located, round-trip distance and duration, the amount of time between two vehicles serving the same stop (headways), the number of vehicles required to accommodate a specified headway, the range of potential daily ridership that could be accommodated, the range of annual operating costs, and the operating cost range per rider based on 113 service days, consisting of 52 Saturdays and 52 Sundays, and nine holidays.

Mead & Hunt's memo (Attachment 1, pages 14-19) and calculations (Attachment 5) break down the attributes of the proposed shuttle route concepts, including ridership potential and costs. Shuttle fare options and the exercise of balancing fares against operating costs would be conducted by Mead & Hunt as part of the next phase of work. Compensation for use of shuttle satellite parking areas is an additional cost that would be determined further in the next phase.

Shuttle Service Design Concepts[1,2]

Route Concept & Origin		City / Town	Round-trip Distance / Duration	Headway	Shuttle Vehicles Needed[3]	Daily Ridership Potential[4]	Annual Operating Cost[5]	Operating Cost per Rider[6]
B	Foothill College	Los Altos Hills	12.76 mi.	15 min	3	180-325	~$280k	$7.59-$13.70
			28-37 min.	20 min	2-3	150-270	$190k - $275k	$6.18-$16.21
				30 min	2	50-90	~$185k	$18.27-$32.89
C	Mountain View Transit Center via Lucky Supermarket	Mountain View & Los Altos	15.21 mi.	15 min	3-4	270-360	$280k - $365k	$6.85-$11.92
			33-44 min.	20 min	2-3	240-360	$190k - $275k	$4.63-$10.13
				30 min	2	130-220	~$185k	$7.48-$12.65
E	De Anza College	Cupertino	9.06 mi.	15 min	2-3	200-360	$190k - $280k	$4.67-$12.33
			24-33 min.	20 min	2	180-320	~$190k	$5.21-$9.27
				30 min	1-2	70-125	$95k - $185k	$6.86-$23.49
I	Lucky Supermarket	Los Altos	4.68 mi.	15 min	2	200-360	~$190k	$4.67-$8.40
			13-17 min.	20 min	2	180-320	$95k - $190k	$2.68-$9.27
				30 min	1	100-180	~$95k	$4.77-$8.58

[1]Preserve Drop-off location: Main parking lots 5 & 6 (parking areas nearest the picnic area, refer to Attachment 6) at existing drop-off curb.

[2]Service Hours: Saturdays/Sundays/Holidays from 6:30am to 12:30pm

[3]Does not include spare shuttle vehicles that may be needed.

[4]Daily ridership is the sum of inbound and outbound trips

[5]Based on $143 hourly operating cost; does not include costs for using/ leasing satellite shuttle parking areas. Annual operating costs are rounded to the nearest $5,000.

[6]Assumes 52 Saturdays and 52 Sundays, includes nine holidays, for a total of 113 service days

The below table provides an overview of key differences (pros and cons) between the proposed shuttle route concepts.

Route Concept & Origin		Pros	Cons
B	Foothill College	• Large parking area • Off I-280 • Transit connection • Existing VTA stop with bus shelter and bench	• Requires more shuttle vehicles given distance • Fee to park on campus (through temporarily suspended) • Headways require highest average operating cost per rider
C	Mountain View Transit Hub Center via Lucky Supermarket	• Best transit connections • Option to use surface streets and highway • Existing bus bays with multiple bus shelters and benches • Concept is scalable and provides flexibility • Lucky parking area stop is in closest proximity to the Preserve	• Transit Center stop is located furthest from the Preserve • Distance requires more vehicles to maintain headways • Fee to park at the Transit Center • Potential conflicts at Transit Center with Sunday farmer's market and with weekend/holiday Caltrain/Light Rail/bus use
E	De Anza College	• Ample parking area • Close proximity to the Preserve • Option to use surface streets and highway • Existing VTA stop with bus shelter and seating	• Fee to park on campus (though temporarily suspended) • Potential conflicts with existing events: flea market, farmer's market.
I	Lucky Supermarket	• Closest proximity to the Preserve • Headways with lowest average operating cost per rider • Least number of shuttle vehicles • Proximity to goods and services	• Existing VTA bus stop lacks sufficient amenities

Aside from the main Cristo Rey Drive entrance to the Preserve, interior locations were considered as shuttle stops in the initial route concepts as one through route, and one through-loop route. Stops were located near the junction of the service road and Hill Trail, and another stop at the junction of Lower Meadow Trail and Mora Trail to provide service near Deer Hollow Farm. These routes would have required access through the service road entrance gate near Lot 5 and the exterior preserve gate at the Mora Drive trailhead, and also access through Mora Drive trailhead and out the service road entrance gate at Lot 5. These options were removed from further evaluation given the lack of sufficient space and/or environmental impacts to establish a safe interior stop, turnaround, or multi-point turn to complete the route.

Shuttle Program – Draft Performance Measures

Mead & Hunt have developed the following proposed performance measures for tracking the success of a potential shuttle program. These are presented here for early review. If the Board directs the General Manager to proceed with further developing a shuttle program, these performance measures would be refined and presented again to PNR for feedback and then to the Board of review and approval.

Target	Target Timeframe (after introducing shuttle service)	Measurement	Alternate
Achieve 50% or more of the specific concept's daily ridership potential	6 months	Automated Passenger Counter (APC) or operator counts	> 50 shuttle boardings occur on at least five service days each
Improved count of empty parking spaces at main Preserve parking lots	3-6 months	Comparing counts of empty parking spaces during shuttle operating hours with pre-shuttle counts	
90% on-time arrivals to the Preserve	1 month	On-time performance monitoring and trip schedules	Travel time < 15 minutes for most riders
Ridership from 10 or more zip codes	3-6 months	Rider survey	Number of survey responses

Ride Hail Program - Service Design Concepts

Arcadis-IBI developed the following three ride hail service design concepts for consideration:

Concept A. An independent ride hail program in which the District brings on an existing ride hail vendor to provide ride hail services for Preserve visitors.

Concept B. A collaboration with *Silicon Valley Hopper* (formerly *Via Cupertino*), an existing on-demand service provider that already stops at the Preserve; and

Concept C. An integrated system that integrates a shuttle program and ride hail program for the Preserve.

An existing ride hail drop-off is located at Lot 5 (refer to Attachment 6). Ride hail is already used by some visitors to access the main Preserve entrance. If a formal Ride Hail Program is pursued, staff would further evaluate the adequacy of cell phone coverage and coordinate with Transportation Network Companies (TNCs) to ensure that their platforms accurately locate the Preserve's main entrance and the designated pick-up/drop-off location.

Service Design Concept A

Concept A involves the District entering into a contract with an existing TNC. Lyft, Uber, Via, and Alto are a few examples of companies that provide ride hail/ride share services locally. Stakeholder outreach efforts noted a dissatisfaction with larger TNCs as it relates to their level of data sharing. Identifying other TNCs can be done in a later phase of the project.

Service Design Concept B

During stakeholder outreach efforts, the City of Cupertino expressed interest in a partnership opportunity with the District that utilizes their existing on-demand ride hail service, *Silicon Valley Hopper*. The existing service area includes Cupertino's city limits and satellite destinations outside the city. Currently, service is limited on Saturdays, with no operation on Sundays. *Silicon Valley Hopper* is phasing an expansion of their service area to include transit hub islands consisting of Sunnyvale Caltrain, Lawrence Caltrain, Santa Clara Caltrain, and Mountain Caltrain stations, and eventually the entire City of Santa Clara. A ride hail design concept that collaborates with this existing service would likely require the District to enter into

a contract with the service provider that expands the service area and the days of operation. The fleet appears to be underutilized, therefore, building onto this existing system may reduce total costs to the District.

Service Design Concept C

An integrated system, Concept C involves weekend and holiday use of a shuttle program between the hours of 6:30 a.m. and 12:30 p.m. that is replaced with a ride hail program for the later afternoon hours to assist visitors in returning to their place of origin if exiting after 12:30 p.m.

Ride Hail Service Design Concepts

Service Design Concept		Preserve Drop-off	Service Hours Mon - Fri	Service Hours Weekends & Holidays	Vehicles Required (Weekday)	Vehicles Required (Weekend/ Holidays)	Ridership Potential	Net Cost[2] ($1.50/ride)	Net Cost[3] ($2.50/ride)	Net Cost[4] ($3.50/ride)
A	Independent	Main parking area - existing curb drop-off (Lot 5/6)[1]	6:30am - 7:00pm	6:30am - 7:00pm	4	4	16,137-24,450	$290,466 - $440,100	$274,329 - $416,640	$258,192 - $391,200
B	Silicon Valley Hopper Collaboration		6:30am - 7:00pm	6:30am - 7:00pm	1	1	6,844 - 9,171	$123,188 - $165,071	$116,344 - $155,901	$109,500 - $146,730
C	Integrated (Ride Hail/Shuttle)		6:30am - 7:00pm	12:30pm - 7:00pm	1	3	4,610 - 6,985	$82,979 - $125,726	$78,369 - $118,741	$73,759 - $111,756

[1] Other Preserve entrances may be feasible subject to phone coverage availability.
[2] Annual net cost based on low and high demand for an approx. 7-mile trip at $1.50 fare per ride (amount paid by passenger).
[3] Annual net cost based on low and high demand for an approx. 7-mile trip at $2.50 fare per ride (amount paid by passenger).
[4] Annual net cost based on low and high demand for an approx. 7-mile trip at $3.50 fare per ride (amount paid by passenger).

While the shuttle program is proposed to end service at 12:30 p.m. on weekends and holidays, depending on the ride hail service design concept, subsidized ride hail service could be made available at the same time as a shuttle and/or all other times that a shuttle is not in service. During the public survey effort, the primary reason visitors are unlikely to use the shuttle service is a concern about being bound to a set schedule and the risk of missing a return trip back to the place or origin. Providing a ride hail service coupled with a shuttle program could make both programs more attractive and overcome these concerns. Another consideration is the suitable pricing of ride hail fares to encourage ride hail ridership without discouraging shuttle ridership. The below table provides an overview of the pros and cons for each service design concept.

Service Design Concept		Pros	Cons
A	Independent	• Limited financial risk as District only subsidizes for trips consumed • Ability to deploy a Preserve-specific branded service	• Highest net cost obligation[1] • Potential to increase congestion during peak times if use is high • Least likely of the alternatives to reduce vehicles miles traveled (VMTs) and green-house gas emissions. • May compete with ('cannibalize') shuttle ridership potential.

B	Silicon Valley Hopper (SVH) - Collaboration	• Existing service does not cover weekends, providing opportunity to leverage underutilized vehicles.
		• Greatest potential for ride sharing on weekends given existing service model
		• May result in reduced costs to expand an existing program
		• Leverage program's existing familiarity with the local community to establish initial ridership
		• Least administrative burden (of the three alternatives)
		  o Capitalize on SVH brand recognition
		  o Leverage existing SVH technology platform
		  o Collaborate on marketing and communication efforts
		• Greatest opportunity for connectivity to multiple regional destinations and higher-order regional transit
			• Potential to increase congestion during peak times if use is high (SVH currently operates 11-16 vehicles)

C	Integrated	• Lowest net cost obligation	• Using two different modes of transport on same day or different days may confuse visitors • Consideration of suitable fare rates to avoid discouraging shuttle use • Challenge in developing technology platform to seamlessly incorporate both shuttle and ride hail services (i.e., trip booking, real-time customer information, mobile payment, etc.).
[1]All three alternatives have similar costs per hour and ridership performance (i.e., trips per hour).			

Ride Hail Program – Draft Performance Measures

Arcadis-IBI has provided an overview of the process to measure performance and outlined key performance indicators (KPIs) that are typical for ride hail services (Attachment 2, Page 12). Ride hail or ride share vendors often have KPIs specific to their organization, and there may be additional metrics that the District can consider that are specific to the program goals. Performance measure categories identified by Arcadis-IBI include mobility/service operations, equity, customer satisfaction, finance, and environmental. Potential KPIs include:

- Wait time: 85% of rides with a wait time of less than 15 minutes
  - Target: Within 3-6 months of launching program
- No Shows & cancellations: less than 10% of scheduled trips
- Complaints: No more than 10 per 100 completed trips
- Shared Trips (trips with more than one passenger): 10% of completed passenger trips

If the Board directs the General Manager to continue developing the Ride Hail program, performance would be measured using selected metrics and indicators and compared against baseline conditions. The refined performance measures and indicators would be presented to the PNR at a later date and then reviewed and considered by the Board for approval.

Potential Contingent Measures to Support Shuttle and Ride Hail Programs

District participation in the SCMSN Shuttle Exploration Team and Mead & Hunt's case study confirm that shuttle programs are most successful when parking is not readily available at the destination site. The 2021 Multimodal Study concluded that TDM strategies should be implemented in unison or concurrently, if possible, to have the greatest impact in reducing parking demand, promoting modal shift, and enhancing visitor experience at the Preserve. This finding was reinforced by the recently completed Purisima Multimodal Access Study Project. During the outreach efforts for the Purisima Multimodal Access Study Project, partners confirmed that efforts to change travel behavior and encourage mode shift are unsuccessful if incentives (or requirements) are not included.

Shuttle programs are expensive to operate, and outreach to partners confirmed that if a program is not carefully developed to succeed the first time, agencies are unable to justify additional funding to modify and continue the program. The Purisima Multimodal Access Study Project engagement efforts also confirmed that support of a shuttle program does not necessarily translate to the ridership numbers needed to support the program.

The public survey effort confirmed that motivation to use alternative modes for accessing the Preserve is largely influenced by parking availability. To overcome the convenience of private vehicle trips to the Preserve, the District will need to implement companion parking demand specific TDM strategies and/or policy changes in tandem with a new shuttle and/or ride hail program to incentivize and direct a modal shift for a sustainable ridership. Incorporating a strong education campaign in conjunction with a phased implementation approach can help to build awareness and community support for these programs, however, education and outreach alone is insufficient.

The District launched a year-long carpool pilot program at the main entrance in September 2022. Parking in the lower equestrian lot (Lot 1) is currently reserved for carpools of three or more occupants during weekends and holidays only. Additional seasonal Visitor Services staff have been hired to manage the carpool program. Staff are staged at the entrance to manage carpool lot entry, count the number of vehicles, and observe vehicles leaving Lots 2-6.

Based on observations from Visitor Services staff and data collected from the dynamic sign system, the carpool lot usually reaches capacity after the rest of the parking lots are full, meeting the program objective to incentivize visitors to carpool. However, field staff indicates that when vehicles with three or more occupants come to the main entrance, many decline the offer to park in the carpool lot if parking spaces closer to the main preserve entrance are still available. As a reminder, the availability of spaces is shown at the entrance via the dynamic parking space sign. Lots 5-6 continue to be the most popular parking lots at the main entrance because of their proximity to preferred areas and amenities. This observation reinforces that visitor travel behavior will not change unless visitors have no other choices or are presented with an enticing incentive to do so. The shuttle and ride hail programs should be carefully designed to understand the unique circumstances of the Preserve and incorporate lessons learned from the carpool pilot

to ensure that visitors are sufficiently incentivized and compelled to use these programs to sustain ridership.

The carpool program pilot also provides insights on staffing required to manage a TDM program. Existing District staffing levels are unable to support a shuttle and/or ride hail program(s). Managing additional TDM programs requires more staffing. The numbers of new staffing depend on whether the programs are fully operated internally (high numbers) or whether they are contracted out to an operator(s) (lower numbers). If the shuttle and ride hail programs continue to move forward, the Draft Implementation Plan(s) would identify in detail the required staffing numbers and ongoing operational staffing costs to maintain these programs.

The table below details the measures that will likely be needed to achieve the desired goals of a shuttle and/or ride hail program. Note that aside from the operational challenges and costs, the biggest challenge will be managing public sentiment and resistance to changes at the Preserve. A strong public outreach and education campaign may help address some of the concerns, however, changing individual behaviors to achieve broader goals (greener modes of transit, equitable access, reduced onsite parking conflicts) is often a difficult endeavor that requires a committed resolution and a strong sense of purpose for the agency. One of more of the following TDMs or Policies would be needed to establish an effective shuttle and/or ride hail program.

TDM or Policy	Benefits	Challenges	Costs
Designate more parking lots as carpool (3+ passengers) only during peak times (weekends/holidays)	• Incentivizes carpool use and shifts more visitors to use shuttle and ride hail • Reduces visitor-generated greenhouse gas emissions	• Increased enforcement • Public sentiment	• Operational costs to monitor and enforce usage each weekend and holiday • External contractor recommended to manage program[2]
Require parking reservations for all parking lots	• Shifts non-reservations to access Preserve by shuttle and ride hail • Guarantees parking space for people with reservations • May reduce demand at peak times	• Administrative burden • Technology/software acquisition Increased enforcement • Public sentiment • Inconvenient for drop-in visitors • Equity concerns if system is not fully accessible	• Capital costs for new system • Operational costs to manage system, track reservations, problem-solve issues, monitor usage, and enforce compliance • External contractor recommended to manage program[2]
Implement priority parking zones (combination of carpool (3+) & reservations in certain parking lots)	• Shifts more visitors to use shuttle and ride hail • Guarantees parking space for people with reservations	• Administrative burden • Increased enforcement • Public sentiment	• Capital costs for new system • Operational costs to manage system, track, problem-solve issues, monitor usage, and enforce compliance • External contractor recommended to manage program[2]

Close parking lots once parking reaches capacity and remain closed while shuttle is in operation[1]	• Shifts visitors to shuttle and ride hail use when parking lots are closed	• Reduced visitor experience • Public sentiment • Management of vehicles wanting to enter the Preserve or certain parking lots.	• Operational costs to monitor and enforce compliance
Time limits for parking	• Promotes parking turnover • Incentivize shuttle/ride hail program use for visitors that desire a longer stay	• Administrative burden • Increased enforcement • Public sentiment	• Capital costs for a tracking system • Operational costs to manage system, problem-solve issues, track usage, and enforce compliance

[1]Strategy recommended for Purisima Creek Redwoods Multimodal Access Study.

[2] Need to explore viability of contracting out; otherwise, additional staffing would be needed to fully manage and operate internally.

Instituting a parking fee at the Preserve was also briefly evaluated and quickly eliminated because it contradicts District policy and is counter to the rationale for the District managing the County Parks area.

FISCAL IMPACT

The Rancho San Antonio (RSA) Multimodal Access – Implementation project falls under two projects: MAA11-003 (Measure AA (MAA) funded) and VP11-001 (non-MAA Funded). MAA11-003 supports capital expenditures and improvements, while VP11-001 supports operating activities and expenditures. This Project is under VP11-001 as the concepts for a Shuttle and/or Ride Hail Program remain at a feasibility/exploration phase. At this meeting, preliminary costs are provided to indicate rough estimated costs for implementing a Shuttle and/or Ride Hail Program at the Preserve. Following the PNR meeting, if the Board of Directors directs the General Manager to proceed with further development of the Shuttle and Ride Hail Programs at Rancho San Antonio Open Space Preserve, costs would be refined and presented at a future date for Board consideration.

PRIOR BOARD AND COMMITTEE REVIEW

- **April 28, 2021**: The Board reviewed and approved the Rancho San Antonio Multimodal Access Strategies Report and directed the General Manager to begin implementing the first set of prioritized transportation demand management strategies and recommendations, including the exploration of a free or low-cost shuttle program and subsidized ride hail.
    - Board report
    - Minutes

- **February 23, 2022:** The Board received a memo for the Rancho San Antonio Multimodal Access Implementation Update
    - Memo

This item is being reviewed by PNR for the first time.

PUBLIC NOTICE

Public notice was provided as required by the Brown Act. Additional notice was provided to County Parks, the Cities of Cupertino, Mountain View, Los Altos and Los Altos Hills, Santa Clara Valley Water District, Santa Clara Valley Transportation Authority, and Rancho San Antonio Open Space Preserve interested parties.

CEQA COMPLIANCE

The exploration of a Shuttle and Ride Hail Program for the Preserve is equivalent to a feasibility or planning study to inform possible future actions, which the Board has not yet approved, within the meaning of California Environmental Quality Act Section 15262. Feedback received from PNR at this meeting and direction received from the Board at a future Board meeting will inform future actions that may be subject to CEQA, and subsequent environmental review would be conducted at that time.

NEXT STEPS

Feedback from PNR will be presented to the full Board for their review and consideration on the next steps of this project. Ultimately, if the Board directs the General Manager to continue pursuing the Shuttle Program and/or Ride Hail Program, the Board will have another opportunity at a later date to again consider a Go-No Go decision for each program, based on more information and a refined set of costs.

Attachments

1. Shuttle Existing Conditions & Concepts Memo
2. Ride Hail Concepts Memo
3. Stakeholder Workshop Feedback
4. Shuttle Route Concept Maps
5. Shuttle Service Calculations
6. Rancho San Antonio Parking Areas

Responsible Department Heads:
Susanna Chan, Assistant General Manager, General Manager's Office
Jane Mark, AICP, Planning Manager, Planning Department

Prepared by:
Tyler Smith, Planner II, Planning Department
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Contact person:
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Tyler Smith, Planner II, Planning Department

Mead & Hunt

Memo

To: Tyler Smith; Midpeninsula Regional Open Space District

From: Brian Laverty, Mead & Hunt

Date: May 5, 2023

Subject: Rancho San Antonio Implementation – Shuttle Program; Existing Conditions and Concept Development Memo

CONTENTS

PROJECT BACKGROUND & GOALS

Rancho San Antonio County Park and Open Space Preserve is the most frequently visited preserve managed by Midpen, and visitation continues to increase. The parking demand regularly exceeds parking capacity available at the parking lots located at the main Cristo Rey Drive entrance. Visitors often park along neighboring roads or have to idle/circle around while seeking a parking space. The recently completed Ranch San Antonio Multimodal Access study recommended several Transportation Demand Management (TDM) strategies, including a fixed-

route, fixed-schedule free, or reduced cost shuttle for peak season and first/last mile connections to be further evaluated as part of a formal transit service planning effort.

The goals for the Rancho San Antonio Shuttle Program are as follows:

1. Provide optimal access for a wide range of visitors.
    a. Provide opportunity to reduce parking demand and congestion at parking lots in the preserve during peak hours.
    b. Address preferences expressed by the public through prior and current surveys.
    c. Explore alternatives in terms of pick-up/drop-off locations to distribute visitor access across a variety of trailhead entrances when feasible.
    d. Consider the constraints of preserve entrances and trailheads that provide parking.
    e. Identify alternate offsite parking to utilize as shuttle stops.
    f. Provide reliable service with reasonable pick-ups and drop-offs timeframes.
2. Equity is woven into the program with a goal to offer a free or low-cost service.
3. Utilize low-friction concept
    a. Provide a simple, easy to understand and descriptive schedule.
    b. Ability for riders to use the service without checking a schedule.
4. Design shuttle program to align with other TDM strategies and current/future Preserve operations.
5. Define clear implementation path
    a. Establish clear shuttle governance and management
    b. Lay out detailed implementation steps and timeline
    c. Develop firm cost estimate
    d. Identify multiple funding options
6. Develop ridership estimates, performance measures, utilizations rates, and other metrics to monitor program success. Establish baseline data to allow for comparison of program performance.
7. Build awareness for the shuttle program through engagement efforts and branding.
    a. Branding is clear and the shuttle program is not at risk of confusion with other services.
    b. Actively engage and encourage strong participation via public survey with largely constructive, anticipatory feedback from public.
8. Shuttle program aims to reduce visitor transportation emissions in support of Midpen's Climate Action Plan by decreasing single occupancy vehicle (SOV) trips and vehicle miles traveled (VMT). Further gains may be possible by requiring shuttle provider to use newer or electric vehicles to further reduce greenhouse gas emissions.

STUDY PROCESS

This technical memo details the existing conditions and concept development phases of the shuttle study. The existing conditions section focuses on defining the access needs to be met by the shuttle, identifying feasible locations for stops both within and beyond the Preserve, and setting a number of guiding principles to be used in outlining the set of shuttle service concepts to be reviewed. The steps involved in the existing conditions phase include:

- A **state of practice review**, consisting of interviews with other park/preserve facilities that have launched shuttle services similar to what is envisioned for Rancho San Antonio.

- **Field observations** to assess potential stops and shuttle routes and develop a greater understanding of current Preserve access issues.
- A series of **interviews with stakeholders**, including local jurisdictions, existing local mobility providers, and the regional community college district.
- A **public survey** aimed at further defining the demand for shuttle service.

The concept development section details a number of initial service design concepts based on the cumulative context developed through the existing conditions phase and outlines the process of narrowing those concepts to a set of four that are seen as the most feasible concepts.

EXISTING CONDITIONS

STATE OF PRACTICE REVIEW

As part of the market analysis task, Mead & Hunt interviewed representatives from similar park or preserve areas that already operate a shuttle system to provide access to users. This effort was supplemented by similar conversations Midpen staff had with other agencies. Those locations included:

- Yosemite National Park (CA)
- San Mateo County Access to Parks shuttles (CA)
- Muir Woods National Monument (CA)
- Belle Isle Park (MI)
- Acadia National Park (ME)
- Zion National Park (UT)
- Bryce Canyon National Park (UT)
- Rocky Mountain National Park (CO)
- Presidio of San Francisco (CA)

Several common themes emerged from the case study process, including:

- Almost all services that were reviewed operate under a service contract model, with about half operating vehicles owned by the park entity, and the other half operating vehicles owned by the contractor.
- A key factor in shuttle success is offering access on roads that are restricted to general vehicle traffic.
- Managing agencies generally consider a fixed shuttle successful if it serves 20-25 passengers per hour per vehicle.
- Other simultaneous programs, such as permit parking or metered access, parking reservations, and other parking restrictions are key to shuttle program success.
- Highly visible signage is important.
- Shuttle systems attract the most riders when parking is full.
- "Getting the word out" to potential users is critical.

Full details on the state of practice review can be found in Appendix A.

FIELD OBSERVATIONS

To provide context for the development of feasible shuttle route concepts, the study team conducted field observations in August 2022. Field observations focused on documenting potential locations for passenger boardings outside of the Preserve, several of which were identified by the 2021 Multimodal Access Study, as well as potential locations for passenger boardings/alightings within or at the edge of the Preserve. The study team examined these locations with an eye towards safe boarding/alighting locations and potential vehicle routing. The team also reviewed locations within the Preserve to understand the inherent challenges of operating on internal roadways and to understand the existing patterns of use and the primary destinations sought out by visitors. In addition, the study team interviewed Midpen's ranger staff regarding enforcement and safety concerns and observed the overcrowding of parking locations on weekend mornings, overflow parking on neighborhood streets, and walk-in access patterns. See Appendix B for full details on the field observations.

Figure 1: Overflow Parking on Cristo Rey Drive

The following locations were examined as part of the field review:

<u>Preserve Entrances</u>

- Main Entrance (Lots 1-6)
- St. Joseph Avenue trailhead
- Mora Drive trailhead
- Ravensbury Avenue trailhead
- Hidden Villa (external, NW of Preserve)

- Laura Court neighborhood access
- Rhus Ridge trailhead

Internal Destinations

- Deer Hollow Farm
- Permit Lot

Off-site Satellite Parking Locations

- Foothill College
- Foothill Crossing Shopping Center
- Lucky Supermarket
- Foothill Christian Center
- Montclaire Elementary School
- Mountain View Transit Center
- Rancho Shopping Center
- St. Nicholas Elementary School

Figure 2: Hikers walking in the Rancho San Antonio Service Road

The following key takeaways came as a result of the team's field observations:

- Service to the internal locations on the Rancho San Antonio service road, primarily Deer Hollow Farm, will be challenging due to the narrowness of the roadway. As the service road is designated an easy-access trail, many Preserve visitors walk on the service road instead of using the parallel path. If service were provided on this corridor, signage and enforcement to ensure that hikers use the trail would be critical.

- Most of the trailheads outside of the main entrance must be reached after traversing narrow, winding neighborhood streets. Such locations could be challenging to serve with transit vehicles and could engender significant neighborhood resistance. Overflow parking on neighborhood streets is prevalent near the main entrances and major trailheads. Some visitors park as much as a mile from the entrance.

- Foothill Crossing Shopping Center was eliminated as a potential satellite parking location due to the lack of available curb space for a stop and the overall busy condition of the parking lot, bringing safe boardings/alightings and efficient access into question.

- Montclaire Elementary was eliminated as a potential satellite parking location due to the relatively small number of off-street parking spaces available. Riders parking in this location would likely park on St. Joseph Avenue, probably incurring resistance from the neighborhood.

- St, Nicholas School was eliminated as a potential satellite parking location due to the close proximity of a seemingly much better facility at Foothill College, as well as the

complex intersection of El Monte Road and Voorhees Drive, which would likely be confusing to Preserve visitors looking for the shuttle pickup.

STAKEHOLDER INTERVIEWS

During the existing conditions phase of the project, significant stakeholders were identified and an outreach plan was developed. From November 2022 through January 2023, three separate virtual meetings with neighboring municipalities and Foothill College were held. The communication with the stakeholders included describing Midpen's objectives with the shuttle program project, sharing the results of the public survey and discussion regarding existing factors that are of importance when developing the shuttle program. In general, the neighboring municipalities and Foothill College expressed general support for the shuttle program. Another significant discussion topic was how a shuttle program would complement the existing City of Cupertino on-demand ride share program, Silicon Valley Hopper (formerly Via Cupertino), which the City is expanding.

Additional stakeholder meetings are planned during the upcoming phases of the shuttle program. The list of stakeholders may change as the shuttle program is further defined and route/stop alternatives are identified.

Table 1: Stakeholder Outreach Summary

Stakeholder	Date	Primary Topics of Outreach
Santa Clara County Parks	1/12/2023 Joint Stakeholder Workshop	Existing factors likely to influence shuttle program
Town of Los Altos Hills		
City of Los Altos		
City of Cupertino		
Cupertino Union School District (Montclaire Elementary)		
City of Sunnyvale		
City of Mountain View		
City of Cupertino	1/30/2023	Experiences from Via Cupertino and Via Expansion
Foothill College	11/9/22	Use of college parking to support shuttle program.

PUBLIC SURVEY

An online survey was promoted through Midpen's and its partner agencies' email notifications, social media outreach channels and in-person at the preserve. A total of 626 responses were received between October 16, 2022 and November 15, 2022. Respondents were largely located in the South Bay Area between Redwood City and San Jose, which means they would have roughly a 30-minute drive to get to the preserve. The survey expanded upon a prior survey performed as part of the 2019-2021 Multimodal Access study.

Questions relating to the potential shuttle program were aimed at creating an understanding of the current visitation patterns and visitors' attitudes toward a shuttle option for accessing the preserve. The primary takeaways from the survey results are as follows:

1. Most visitors access the preserve from the main entrance at Cristo Rey Drive and they do so by driving their own vehicle. The main entrance is also the *preferred* access point for the majority of visitors.

2. Mornings are the most popular time of day to visit the preserve on both weekdays and weekends. This result is supported by the observation that the parking lots at the main entrance often fill up early on weekend mornings, which are generally the heaviest visitation periods.

3. A common sentiment among respondents is that the preserve itself is crowded during peak visitation times and therefore they decide to either visit other preserves or to not visit at all during those times.

4. About 2/3 of the survey respondents are open to potentially using a shuttle to access the preserve.

5. The lack of parking is the reason most respondents would consider using a shuttle.

6. The ease of use and frequency of the shuttle service are also important considerations for potential shuttle users.

7. The most significant concern regarding a shuttle service is being able to rely on a return trip from the preserve.

8. Survey respondents want a shuttle program which has wait times and trip times no longer than 10 minutes each.

9. Half of survey respondents do not want to pay for a shuttle ride and only about 10% would consider paying more than $2.

KEY FINDINGS

The following list summarizes the key takeaways from all activities of the existing conditions study phase:

1. Prior experience of other shuttle providers indicates that shuttles are most successful when they provide access to areas where private vehicle access and/or parking is restricted, either by regulation or due to parking demand exceeding supply.

2. The experience of the San Mateo County shuttle highlights the need for service to be simple, direct, and as short (in terms of route length and running time) as possible.

3. Routes serving locations in the central portion of the Preserve, such as Deer Hollow Farm and the mid-level hiking loops, may be considered due to the interest for that area and

the fact that restricted private vehicle access creates an unmet demand among visitors, although serving locations internal to the Preserve will be challenging.

4. There is a need for routes to serve potential satellite parking locations nearby the main entrance, as the most concentrated need for additional access stems from demand exceeding parking supply in the first 2-3 hours of weekend mornings after the Preserve opens. Shuttle service should be focused on this timeframe, with a 3-4 hour buffer to allow for the majority of those users return trip to be accommodated.

5. Preserve visitors would be most likely to support a shuttle service that is simple to use and requires minimal trip planning. Service trip times should be kept short, as well as wait times. Routes should be direct, with few stops other that terminal points. Concern over missing their return trip is notable among survey respondents, underscoring the necessity to integrate shuttle service with other access efforts such as a ride hail program. Half of survey respondents do not want to pay for a shuttle ride and only about 10% would consider paying more than $2.

6. Of the alternative Preserve entrances, Mora Drive and Rhus Ridge Road will be considered due to their relatively straightforward access routes and the fact that they provide the best access to desired areas in the middle and west end of the Preserve.

7. There is sufficient interest in a shuttle that connects to existing public transit services.

8. Clear communication with potential users, including highly visible signage, broad outreach campaigns, and clear instructions on shuttle program details and integration with other programs, will be critical to program success.

PERFORMANCE MEASURES

The recommended performance measures for the Rancho San Antonio shuttle pilot focus on establishing a steady rider base, providing service that is well-integrated with other access means and efforts, and establishing a simple, positive rider experience.

Data collection to assess the effectiveness of the shuttle would require that certain steps be included in the scope of the eventual operating contractor, or taken on by Midpen. Passenger counts and on-time performance are standard measures recorded by all transit operators as part of standard service. Follow-on rider surveys and parking counts conducted at defined intervals would be additional required steps to track the effectiveness of the service.

Error! Reference source not found. summarizes the recommended performance measures.

Table 2: Recommended Performance Measures

Target	Target Date	Measurement	Alternate
Achieve 50% or more of the specific concept's ridership range median	6 months from shuttle service introduction	Automated Passenger Counter (APC) or operator counts from average service period	Over 50 shuttle reservations occurring on at least five service days
Improved count of empty parking spaces at Rancho San Antonio Main Entrance Parking Lots and/or reduced overflow parking in neighborhoods	3-6 months from shuttle service introduction, compare with pre-shuttle counts	Counts of empty parking spaces during the shuttle's operating hours on selected random dates and counts of reduced parking in neighborhoods	
90% on-time arrivals at main lot by schedule	1 month after shuttle service introduction	On-time performance monitoring and trip schedules	Travel time shorter than 15 minutes for a majority of riders
Public engagement with shuttle from 10 or more zip codes	3-6 months from shuttle service introduction	Home zip code of those who fill out rider survey	Number of survey responses

CONCEPT DEVELOPMENT

PREFERRED CONCEPT ATTRIBUTES

Based on the results of the existing conditions phase of the study, the initial set of shuttle concepts was developed to address the following preferences:

- There is a need for service design concepts to serve potential satellite parking locations near the main entrance, as the most concentrated need for additional access stems from demand exceeding parking supply in the first 2-3 hours of weekend mornings after the Preserve opens.
- Service trip times should be kept short, as well as wait times.
- Of the alternative entrances, Mora Drive and Rhus Ridge Road provide relatively straightforward access routes and the best access to desired areas in the middle and west ends of the Preserve.
- There is sufficient interest in a shuttle stop location that riders can access from existing public transit services.
- There may be a demand for service design concepts serving Deer Hollow Farm, although serving locations internal to the Preserve is challenging.

A Note on Terminology

The following terms common in transit planning practice are used in the sections below. For the sake of clarity, they are defined here.

Boarding – The act of a passenger getting *onto* a transit vehicle.

Alighting – The act of a passenger getting off of a transit vehicle.

Wait Time – The length of time a passenger waits at a stop for a transit vehicle to arrive.

Trip Time – The length of time a passenger spends on the shuttle between boarding and alighting.

Headway – The time between consecutive transit vehicles serving the same stop.

Running Time – The time it takes a transit vehicle to traverse its route, (expressed as either *one-way* or *round-trip*).

Span of Service – The number of hours a transit route operates in a day (may vary by day of week or season).

Terminal – Stops at either end of a transit route. Time is often built into transit schedules for vehicles to wait at these stops for several minutes.

Revenue Service – When a transit vehicle is in service and able to pick up passengers.

Revenue Miles – The number of miles that a transit vehicle is in revenue service.

Ridership - The number of passengers who ride a transit route.

Vehicle Requirement – The number of transit vehicles needed to operate a specific route.

INITIAL CONCEPTS

Based on the key attributes listed above, the following initial set of alternatives was selected for review:

Table 3: Initial Set of Concepts Reviewed

	Concept	Rationale	Pros	Cons
A	Foothill Christian Center/ Stevens Creek Elementary School) to Rancho San Antonio main lot	Usage patterns and survey results indicate that a large majority of users want to use the main entrance, and that service from a park & ride location very close to the main entrance was desirable for those users who come to the Preserve and find the parking lot full.	▪Shortest trip length	• Parking at Foothill Christian Center may be unavailable on weekends due to multiple churches and a school operating at this site. • Limited parking availability at Stevens Creek Elementary School
B	Foothill College to Rancho San Antonio main lot (with on-demand to Rhus Ridge)	Foothill College has been responsive to serving as a park & ride location, and the supply of parking there is large. Weekend events do not seem to be an issue, and Foothill College has an existing transit stop with shelters.	▪Large # of available free parking spaces on weekends ▪On demand trips to Rhus Ridge Rd trailhead may be possible ▪Connection to regional transit network	• Fee to park (once fee program reinstated). • Neighborhood dynamics • On-demand to Rhus Ridge requires added coordination w/ Town of Los Altos Hills and adjacent property owners of the private Rhus Ridge Road. • Would need to eliminate parking at Rhus Ridge unless dropped at Moody and Rhus Ridge.
C	Mountain View Station to Rancho San Antonio main lot via Foothill Christian Center	Survey results indicate a strong interest in access to a transit hub.	▪Large # of available parking spaces on weekends ▪Strongest connection to regional transit network ▪Mountain View downtown features amenities attractive to riders.	• Fee to park • Distance/time to Rancho
D	Sunnyvale Station to Rancho San Antonio main lot via Foothill Christian Center	Survey results indicate a strong interest in access to a transit hub.	▪Large # of available parking spaces on weekends ▪Strong connection to regional transit network ▪Sunnyvale downtown features amenities attractive to riders.	• Fee to park • Distance/time to Rancho

	Concept	Rationale	Pros	Cons
E	DeAnza College via Foothill Christian Center to Rancho San Antonio main lot	DeAnza College is close to the main entrance and has both large parking lots and a transit center.	▪Short trip length ▪Large # of available free parking spaces on weekends ▪Strong connection to regional transit network	• Farmer's Market, Flea Market on weekends
F	Rancho Shopping Center through – Mora Entrance w/ two internal stops and Rancho San Antonio main lot	Mora Drive provides access to the middle section of the Preserve, which is the most desired access among surveyed users.	▪This service design concept would allow for a stop within 1/4 mile of Deer Hollow Farm. ▪This route would keep the shuttle on hard-surface roads inside the Preserve. ▪This route would provide direct access to the middle portion of the Preserve indicated as the most visited/preferred. ▪Rancho Shopping Center features amenities attractive to riders. ▪Connection to regional transit network	• Concerns about adding vehicle traffic within Preserve • Proposed route through Preserve is a heavily trafficked trail and serves as an easy access route. • Neighborhood dynamics • Would require adding stop along a service road
G	Monta Vista High School via Foothill Christian Center to Rancho San Antonio main lot	Monte Vista High School is close to the main entrance and has large parking lots.	▪Short trip length ▪Large # of available free parking spaces on weekends	• School District unable to commit to renting space for consecutive use.
H	Through - Loop (in via the Rancho San Antonio main lot, out via Mora Drive entrance)	Mora Drive provides access to the middle section of the Preserve, which is the most desired access among surveyed users.	▪As a drop off point, would bring visitors within 0.7 miles of Deer Hollow Farm; interior route would allow for a stop within 1/4 mile of Deer Hollow Farm. ▪This route would keep the shuttle on hard-surface roads inside the Preserve. ▪This route would provide direct access to the middle portion of the Preserve indicated as the most visited/preferred. ▪Connection to regional transit network	• Concerns about adding vehicle traffic within Preserve • Proposed route through Preserve is a heavily trafficked trail and serves as an easy access route. • Neighborhood dynamics • Would require adding stop along service road.
I	Lucky Supermarket to Rancho San Antonio main lot	Usage patterns and survey results indicate that a large majority of users want to use the main entrance, and that service from a park & ride location very close to the main entrance was desirable for those users who come to the Preserve and find the parking full.	▪Short trip length ▪Potential amenities for visitors (food, drink etc)	• Permission and agreements likely required

RIDERSHIP ESTIMATION

From May 2021 to June 2022, average daily weekend visitation at Rancho San Antonio ranged from 1,800 (December) to 2,800 (January). The survey conducted for this study in the fall of 2022 indicates that roughly 60 percent of weekend visitors arrive before noon, and of those, 81.5 percent prefer the main entrance. Approximately 79 percent of survey respondents said they arrive via automobile or transit, and therefore are traveling a distance that a shuttle ride makes sense. Roughly 21 percent of survey respondents indicated that they would use a shuttle service either every time (6.5 percent) or most times (15.1percent) that they visited, although it would be wise to assume that the percentage of visitors who *actually will* utilize the shuttle is not as high as those who indicate willingness on a survey, at least in the early months of service. Therefore, we conservatively estimate that roughly 2/3 of those who indicated their willingness, or 14% of respondents, would actually use the shuttle service. A simple calculation based on these figures provides a range of 100 to 150 *inbound* shuttle riders each weekend day (See **Error! Reference source not found.**).

Table 4: Overall Ridership Estimation

	Weekend day visitorship	Weekend AM	Prefer Main entrance	Drive or transit	Likely users	
					inbound	outbound
High (Jan 2022)	2800	1680	1370	1080	200	160
Low (Dec 2021)	1800	1080	880	700	100	80

A further 21.9 percent of survey respondents indicated that they would use the shuttle only if they could not find parking, but that potential ridership is difficult to estimate, as the existing number of visitors who turn away due to lack of parking or park in nearby neighborhoods is not known. Additionally, the advent of a shuttle, as well as other TDM measures underway on the part of Midpen, may reduce the instance of parking lots overfilling. For the sake of estimation, we have adjusted the upper range of the ridership estimate to 200 to reflect the possibility of additional riders when parking is at capacity.

The above figures reflect only inbound riders, however. Approximately 60% of survey respondents stated that their typical visit to the Preserve is two hours or less, while another 38 percent indicated visits of 2-4 hours. Given the planned six-hour span of service for the shuttle, the team is estimating that approximately 80 percent of inbound riders will take an outbound shuttle trip, with the remaining 20 percent returning via the planned ride hail service.

This estimation is not specific to one or another of the service design concepts detailed above, but the visitor survey does indicate that over 90 percent of potential users would not wait more than 20 minutes for a shuttle, and would only be willing to take a shuttle ride of up to 20 minutes. Therefore, expected ridership for the longer routes or longer headways should be discounted.

Individual ridership estimates by service design concept in the tables above are based on these preferences and the individual length/headway of each concept.

REFINED CONCEPTS

Through conversations w/ Midpen staff and agency partners, including a review of the potential shuttle satellite (pick-up/drop-off & parking) locations, the study team narrowed the options to the following four alternatives, with each providing access to the main parking lot (Lot 5) These four concepts are being proposed to the Planning & Natural Resources Committee.

- B – Foothill College
- C – Mountain View Station via Lucky Supermarket
- E – DeAnza College
- I – Lucky Supermarket

The options carried forward were selected based on the following considerations:

- The Foothill Christian Center service design concept was eliminated due to the fact that the school's parking lot is heavily used on weekends, including Sunday religious services.
- The Foothill College service design concept was simplified by removing the on-demand extension to the Rhus Ridge Road trailhead. While the survey results indicate some interest for that location, vehicle routing at that trailhead will be problematic. Service to the Rhus Ridge Road trailhead may be considered as a future extension if the Foothill College service design concept is selected for implementation and there is both significant interest from the public and support from the Town and local residents. If that service design concept is successfully established, the extension service could be added on.
- The through service design concepts were eliminated due to the difficulties of operating on the Rancho San Antonio service road which also functions as an easy-access trail at peak visitation times.
- Fremont Union High School District, which includes Monta Vista High School operates a facilities rental program, and the high school's parking lot is available for rental. In discussing the shuttle program needs, school district staff indicated they would not be able to commit to renting their facilities consecutively if there were conflicts with school events. The Monte Vista High School was identified as not a feasible location for a dedicated park & ride as the lot may be unavailable on some weekends.
- Rancho Shopping Center was eliminated as a satellite location due to the existing parking demand related to available on-site parking.

- The proposed span of service for all concepts is a six-hour window beginning 15 minutes before the Preserve opens, with the first vehicle entering revenue service at the terminal point furthest away from the Preserve. Additional vehicles, if called for, will also enter service at the far terminal at intervals based on the headway. All vehicles would end service when they make their last stop at the far terminal within the six-hour window. The actual hours of service would shift throughout the year as the Preserve opening time shifts.

Concept B – Foothill College

The Foothill College service design concept was advanced because Foothill College has been responsive to serving as a park & ride location, and the supply of parking there is large, with roughly 150 spaces in the lot closest to the anticipated stop location and several other lots nearby. Though there are some college events, generally weekend events do not seem to be an issue, and Foothill College has an existing VTA transit stop with shelters. Given the location of the Foothill College campus directly adjacent to I-280, this service design concept was expected to appeal to those weekend users coming from further away, particularly those coming from locations further north along the peninsula. This service design concept was also considered a possibility for a spur to serve the Rhus Ridge Road trailhead, but that option was eliminated due to the difficulty of turning vehicles around at the trailhead when the lot is full, as it typically is on weekends.

Table 5: Concept B Details

Route Length:	12.76 miles round-trip		
Stops:	2 (one existing VTA stop at Foothill College, one new)		
Running Time:	17-23 minutes one way; 34-46 minutes round-trip		
Headways	15	20	30
Vehicle Requirements (not including spares):	3	2-3	2
Annual Revenue Miles:	~32,500	~25,000	~15,900
Annual Operating Cost:	~$280K	$190K - $275K	~$185K
Daily Ridership Range (inbound + outbound):	180-325	150-270	50-90

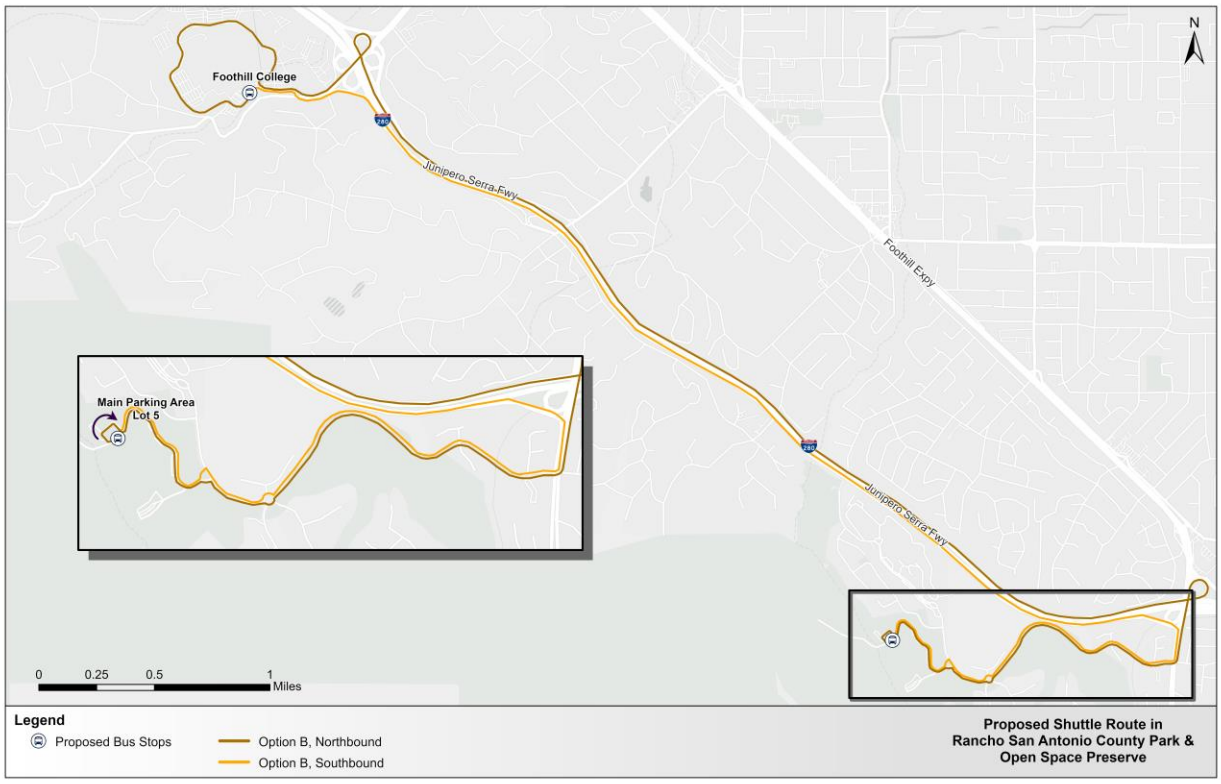


Figure 3: Concept B

Concept C – Mountain View Station

The Mountain View Station service design concept is proposed to address strong interest in accessing a transit hub as indicated in the user survey. The Mountain View Transit Center is served by CalTrain and the VTA Orange light rail line, as well as four VTA bus lines and MVgo shuttle service, and the Mountain View Community Shuttle. While there are a few minor transit hubs closer to Rancho San Antonio, the Mountain View Station provides a much broader set of transit connections. A stop at the Lucky grocery store is included in this service design concept in order to serve the overflow parking need that is so prevalent for the Preserve.

Table 6: Concept C Details

Route Length:	15.21 miles round-trip		
Stops:	3 (one existing VTA stop at Mountain View Transit Center, two new)		
Running Time:	17-22 minutes one way; 33-44 minutes round-trip		
Headways	15	20	30
Vehicle Requirements (not including spares):	3-4	2-3	2
Annual Revenue Miles:	~39,000	~30,000	~19,200
Annual Operating Cost:	$280K - $365K	$190K - $275K	~$185K
Daily Ridership Range (inbound + outbound)::	270-360	240-360	130-220

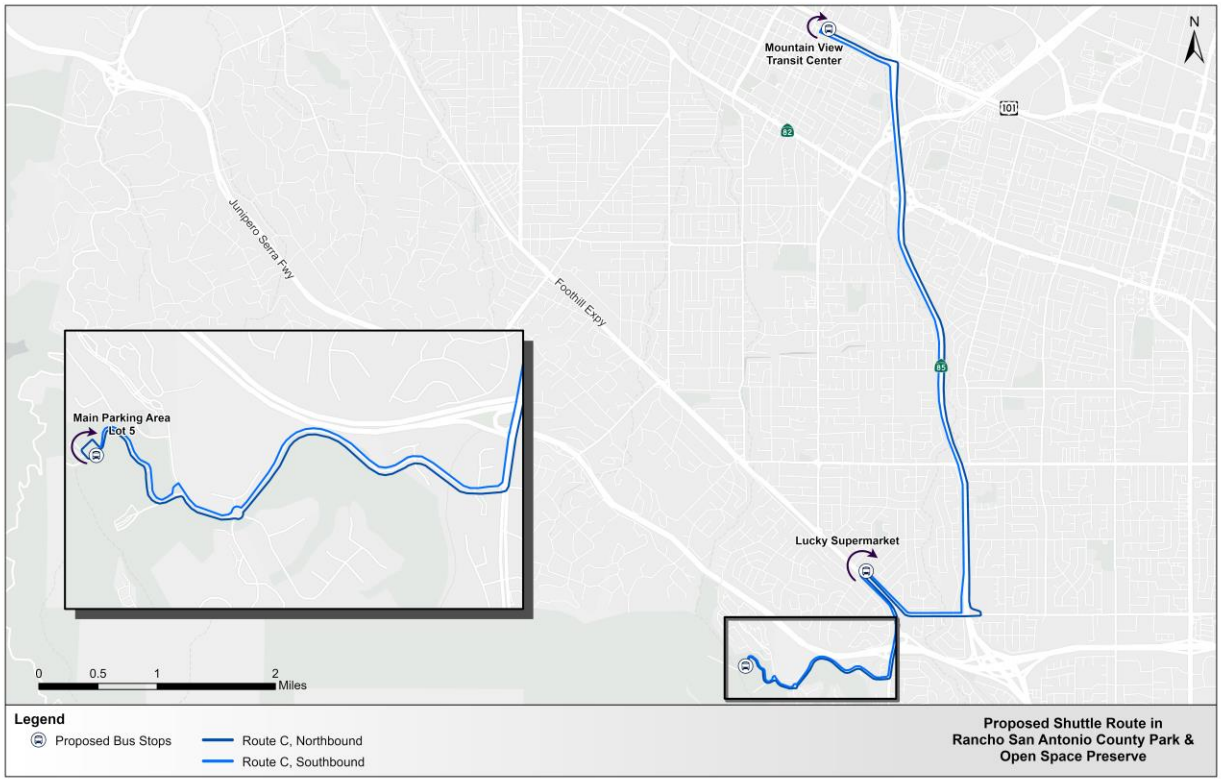


Figure 4: Concept C

Concept E – De Anza College

The De Anza College service design concept is based on balancing the need to provide service from an ample parking area as near as possible to the Preserve entrance and the desire to provide service from a transit hub. De Anza College is close (4.5 miles) to the Rancho San Antonio main entrance and has both large parking lots and a transit center.

Table 7: Concept E Details

Route Length:	9.06 miles round-trip		
Stops:	2 (one existing VTA stop at DeAnza College, one new)		
Running Time:	12-17 minutes one way; 24-33 minutes round-trip		
Headways	15	20	30
Vehicle Requirements (not including spares):	2-3	2	1-2
Annual Revenue Miles:	~24,000	~17,700	~12,300
Annual Operating Cost:	$190K - $280K	~$190K	$95K - $185K
Daily Ridership Range (inbound + outbound)::	200-360	180-320	70-125

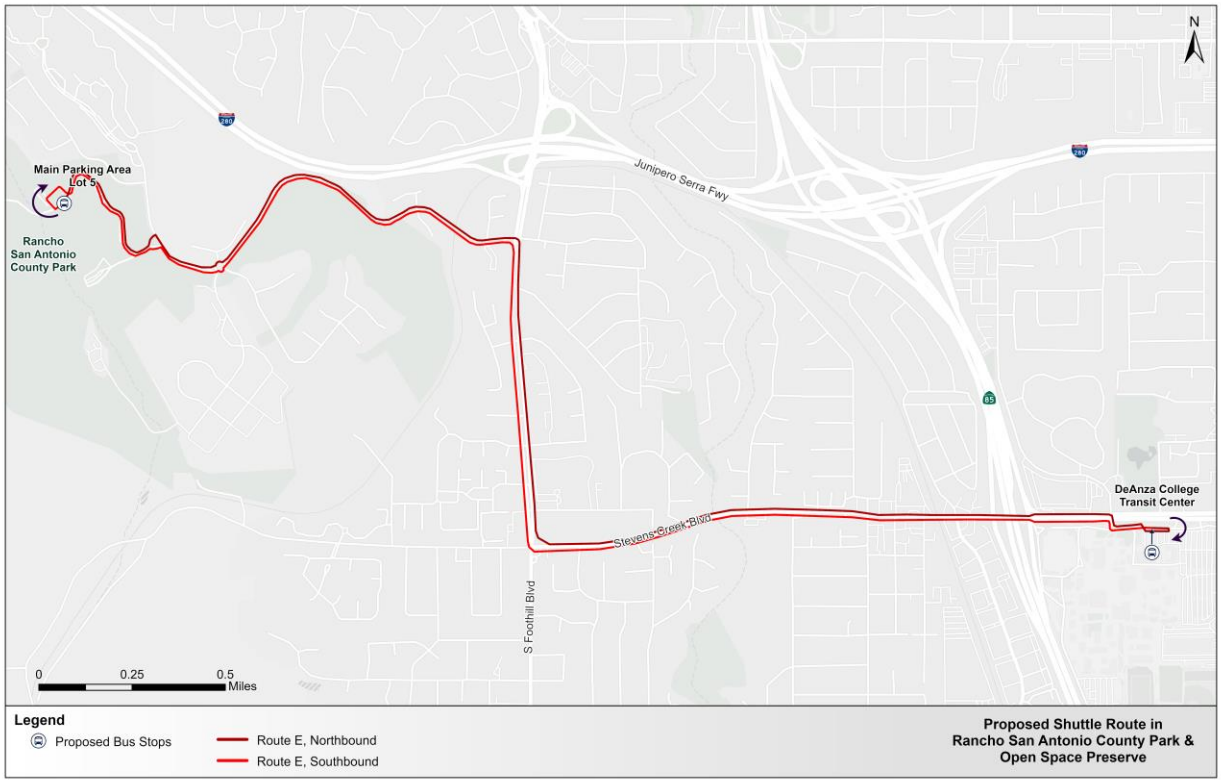


Figure 5: Concept E

Concept I - Lucky Supermarket

Usage patterns and survey results indicate that a large majority of users want to use the main entrance, and that service from a park & ride location very close to the main entrance was desirable for those users who come to the Preserve and find the parking full. The closest potential park & ride locations to the main entrance, Foothill Christian Center and Foothill Plaza, have

been determined to not be feasible, and Lucky is the closest location beyond those. The parking lot of the store is ample, and access is relatively easy off Foothill Expressway.

Table 8: Concept I Details

Route Length:	4.68 miles round-trip		
Stops:	2 new stops		
Travel Time:	7-9 minutes one way; 13-17 minutes round-trip		
Headways	15	20	30
Vehicle Requirements (not including spares):	2	1-2	1
Annual Revenue Miles:	~12,100	~9,500	~6,300
Annual Operating Cost:	~$190K	$95K - $190K	~$95K
Daily Ridership Range (inbound + outbound)::	200-360	180-320	100-180

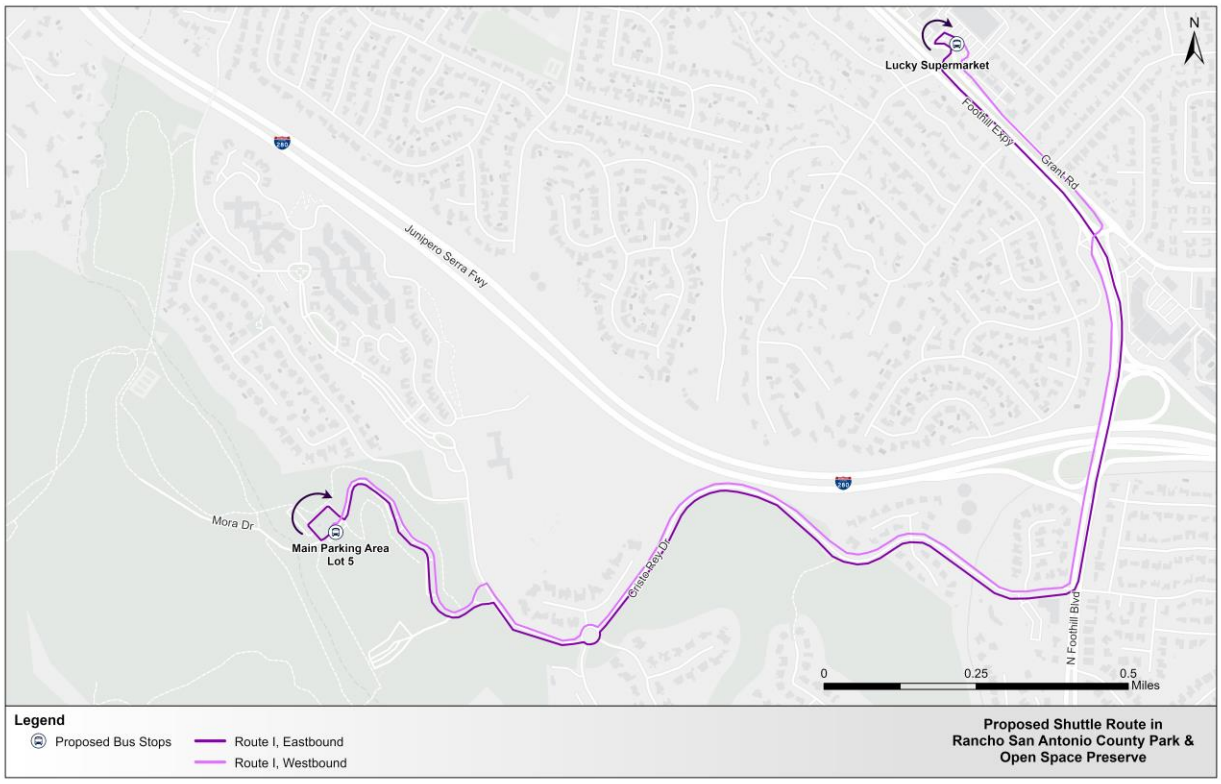


Figure 6: Concept I

APPENDICES

APPENDIX A: CASE STUDIES

As part of the market analysis task, Mead & Hunt interviewed representatives from similar park or preserve areas which already operate a shuttle system to provide access to users. Those locations included:

- Yosemite National Park (CA)
- San Mateo County Access to Parks shuttles (CA)
- Muir Woods National Monument (CA)
- Belle Isle Park (MI)
- Acadia National Park (ME)
- Zion National Park (UT)
- Bryce Canyon National Park (UT)
- Rocky Mountain National Park (CO)
- Presidio of San Francisco (CA)

Several common themes emerged from the case study process, including:

- Almost all services operate under a service contract model, with about half operating vehicles owned by the park entity, and the other half operating vehicles owned by the contractor.
- A key factor in shuttle success is offering access on roads that are restricted to general vehicle traffic or implementing parking restrictions such as permit parking, metered parking, carpool parking, and parking reservations
- Success for a fixed shuttle is generally seen as 20-25 passengers per hour per vehicle.
- Other simultaneous programs, such as permit parking or metered access, are key to shuttle program success.
- Highly visible signage is important.
- Shuttle systems work well when parking is full.
- "Getting the word out" to potential users is critical.

CASE STUDIES

Case Study: Yosemite

Brief Takeaway: Covers large area through several buses to provide day trips and longer trips

Yosemite Area Regional Transit System (YARTS) focuses on commuting at the beginning and end of the day. It is operated through concession contracts like the majority of NPS transit systems under which a private concessioner pays the NPS a franchise fee to operate inside a unit.

YARTS provides transit service to Yosemite from surrounding communities: from railway stations, airports, hotels, and other stops in Fresno, Mariposa, Merced, Mono, and Tuolumne Counties. YARTS offers connecting or "thruway" service on behalf of Amtrak and Greyhound, and sells

tickets to national and international travelers through an online reservation and ticket service. YARTS also provides a convenient means of travel for local residents and park employees. One year-round route and three summertime routes connect local communities and the park. YARTS service continues to grow year by year, but currently serves only two percent of the park's annual visitation. Whether one is booked on the shortest one-way trip, or the longest roundtrip, taking YARTS into the Park means visitors do not need to pay the park entrance fee. A round trip can be booked through a single transaction.

YARTS has stops at Merced Regional Airport and Fresno Yosemite International Airport and connects with passengers traveling by Amtrak and Greyhound in both Merced and Fresno. Along the way to the park, YARTS stops at designated park and ride lots, campgrounds, and RV parks (an interactive map on the YARTS web site shows icons for all the RV parks).

Case Study: Muir Woods

Brief Takeaway: Ridership stays high through reservations that manage both parking and shuttle use from two major transit hubs. Limiting the practice of roadside parking encouraged shuttle ridership.

Muir Woods shuttles provide service from two major transit hubs, Larkspur Ferry and Sausalito stop Bay St & Bridgeway, on a 12-mile winding route. Service is also provided to the Sausalito stop on weekdays in the summer. The Sausalito stop offers connections within Marin County while Larkspur Ferry offers connections within Marin County and the rest of the Bay Area. The shuttle runs with departures from Larkspur occurring from 9am to 4pm, every 30 minutes, and return trips until the park closes at dusk.

Reservations for $3.50 per roundtrip ticket are a key part of the service though comp ticket options are available. There are 300-400 parking spaces at Muir Woods that are also operated through a parking reservation system following difficulty managing visitation at peak times before 2012. Ace Parking manages the shuttle and parking reservation through a concession contract. Three changeable message signs on Highway 101 help manage traffic. NPS (National Parks Service) funds operational costs and Marin Transit operates and manages the fleet in a cooperative fashion. The reservations help assure parking is be available when properly reserved. Larkspur Ferry also offers over 200 free parking spots but the Sausalito stop does not offer parking.

Service began in 2005 as a demonstration project to provide a transit alternative after congestion and safety issues seemed persistent through a partnership with NPS, Marin County, and Golden Gate Transit. Responsibility shifted to Marin Transit in 2009. Service was initially funded through a FHWA grant and then continued as an NPS and Marin Transit-funded endeavor once the project proved successful. Service initially began with its focus on weekend and holidays in the summer with ridership steadily growing from 10,219 in 2005 to 29,938 in 2008. Service expanded slowly from weekends May to September until 2011 to May to October in 2012 to April to December in 2014 to additional weekday service to 2015 to year-round service in 2018. As annual service hours tripled from 2011 to 2018, annual ridership grew from 47,572 to a peak of 177,412 in 2018. Ridership has consistently been at 15 passengers or above per service hour with a ridership of over 20 passengers per service hour throughout the 2010s. Shuttle service was suspended due to the pandemic from March 2020 to June 2021. Reduced service hours

back to 2011 levels for 2021 and other factors led to only 36,082 riders for the 6+ months of service in 2021. Ridership for the first nine months of 2022 has held steady at about 70,000 riders.

Pre-COVID, the shuttle cost about $1.1-$1.2 million to operate annually. Diesel buses are used currently but hybrid and electric buses are being considered. Bikes are not allowed on the shuttle.

Nature studies and surveys were conducted to determine peak capacity of the park. A half-time position manages the concession contract and Marin Transit manages buses to make sure everyone can leave the park at the end of the day.

Case Study: San Mateo County

Brief Takeaway: Lack of direct service and long trips hinder interest in shuttle service

San Mateo had three shuttles, County Park Explorer, Coastside Beach Shuttle, and the Pacifica Shuttle operating in the 2010s that ended due to low ridership. The Coastside Beach Shuttle was funded by an 18-month pilot from a matching grant from the county and San Mateo Transportation Authority (SamTrans). Coastside had about 60 daily riders at its peak but usually less. It operated using one, 24-seat bus for around $100,000 annually on weekends from downtown Half Moon Bay to Princeton Harbor while traveling through state and city parks in the county. The shuttle tried to reduce busy coastline traffic on sunny days. The shuttle was restricted in movement due to space constraints with only southbound access to beaches and state parks and no access to Half Moon Bay or Marotta Road. Despite massive buzz, outreach to senior centers, media coverage, advertisements and even free dinner offers, ridership was too low to continue on the Coastside after the pilot ended. People indicated they wanted a beach shuttle and were supportive of it, but when it came down to using the shuttle, the ridership numbers were unable to sustain the program. San Mateo County believes a reservation shuttle may be more successful in the future and that the community may have been too small for successful service.

The County Park Explorer, funded by SamTrans, was also unsuccessful after a two-year program. Service was free with limited frequency on weekends in spite of having two buses. The shuttle costs around $300,000 annually to operate. The County Park Explorer was geared towards focusing on non-traditional transit users to go to and from Redwood City and surrounding parks. A pre-market study was conducted with many saying they would use the shuttle if it was quicker than driving. Unfortunately, the bus was often stuck in the same traffic as the cars. The shuttle served two locations along current SamTrans routes and new destinations in Redwood City: two parks and downtown for a one-hour round trip, longer than most buses. Real-time bus information was available on the SamTrans website for the shuttle. Various outreach and incentivizing efforts were pursued to encourage ridership. San Mateo County found that for the route to be more successful, it needed to provide more direct service for customers such as on-demand service. The county also found connecting with people at events and utilizing focus groups to be helpful as a way to better learn customer needs which can in turn help address the County's transportation needs

The Pacifica Shuttle, funded by the City of Pacifica through two grant cycles, connected Skyline Connector to Devil's Slide on the pacific coast for four years on weekends, two of which SamTrans operated. During this time, Devil's Slide's park was not open and even after it opened, demand was low despite a full parking lot when the park opened. Six months after Devil's Slide

opened, turnover in the parking lot was enough to serve visitors. High traffic remained on the road to Devil's Slide. Small successes were engaging riders at libraries and events.

The County acknowledged that success stories from other locations such as Muir Woods are due to the added value that a shuttle provides when parking and/or road restrictions are implemented for vehicles at high-demand locations.

Case Study: Sequoia and Kings Canyon

Brief Takeaway: Staffing is helpful towards tracking customers and providing them with direct service from a larger city located over 30 miles away.

The Sequoia shuttle was first proposed in 1974 to reduce traffic congestion and maintain environmental conditions after a study found a lack of parking and everyone wanting to go to a single destination: the General Sherman Tree. A shuttle was launched in 1991 by a local hotel from money from overnight stays that ended in 2000.

The new in-park shuttle system began in 2007 after over six years of studies and coordination with agencies as a cooperative agreement between NPS and the City of Visalia. The in-park shuttles run from 8:00 a.m. – 6:30 p.m. about every 15 minutes during the summer with select winter holiday times and are completely ticketless with four routes having a combined ten stops. Three parking lots are available at the Giant Forest Museum 2200-car lot, which is often full by mid-morning. Portions of the in-park shuttle travels on roads that are for shuttles on weekends and holidays while traffic remains high there on weekdays.

First Transit operates a shuttle via contract with Visalia where the Sequoia routes are about 12% of the $4.5 million annual contract. NPS funds the shuttle with a total annual cost of $1.7 million through park entrance fees. The Shuttle connects between the transportation hub at Giant Forest Museum and locations within the park. Ridership grew from 130,000 in 2007 to 940,000 in 2019 while visitation to the park has doubled in those years. Ridership totals were collected through hand clickers. NPS is looking into placing Automatic Passenger Counters and Vehicle Locators on vehicles.

Signage, advertising, and staffing helped make the shuttle more permanent and staff provides guidance and assistance. Staff went from zero to 16 today with shuttle operation funding. The first few years of operation had difficulty with shuttle wait times due to low staffing.

The Gateway Shuttle serving between Visalia and the Giant Forest Museum brings about three percent of the total visitors during a summer season to the park for $20, which offers an option for carless travelers. Reservations are required and vans fitting 16 passengers are used for the Gateway Shuttle with an average of 48 riders per day. Most users of Gateway Shuttle do not have a car or are international travelers. Visalia is a city of over 100,000, 36 miles from Sequoia National Park.

Community engagement was limited initially but there was no opposition to launching the shuttles but there was some internal opposition to using fee money for shuttles.

Case Study: Tahoe

Brief Takeaway: Changing travel behavior of already existing users is difficult. Recruiting new recreation users may be a good option for attracting riders and public-private partnerships can help secure funding.

TART Connect is a free microtransit shuttle that started in 2021 and relies on eight vans to provide curb-to-curb service through North Lake Tahoe. Passengers can request the service by phone or a mobile app. About 350 trips can be provided per day. Service is contracted through Squaw Downtowner, LLC, which provides the vehicles, drivers, and software to operate the service. Bikes are permitted on TART Connect in the summer,

TART overall serves the North and West sides of Lake Tahoe. Placer County works with the Truckee North Tahoe Transportation Management Association (TMA) to do public-private partnerships and marketing for TART that Placer County is not able to do.

TART Connect was targeted for 15 years to keep new renters in the area from relying on cars and instead use shuttles, but cost barriers were challenging. Survey results showed that locals were unwilling to change travel behavior, but newcomers could adopt a transit alternative. Word-of mouth has been successful while social media and Google and Pandora ads were also used. Tourism Business Improvement District is funding the shuttle for a two-year pilot, which has had successful ridership levels but not enough car reduction. Hiring a turnkey-operator like Squaw Downtowner resulted in higher costs than having TART operate service.

TART Connect provides connection to main arterials where TART service runs with most people living 3-4 miles from the main arterials. Transit ridership increases in winter and summer peak seasons.

Due to various jurisdictions between California and Nevada, transit service around Tahoe has gaps with almost no connections between North Shore and South Shore. TART serves the North Shore while Tahoe Transportation District runs less frequent service on the South Shore. TMA is assisting with identifying solutions. Resorts also run some individual shuttles to cover gaps.

The Tahoe Transportation District also operates a park shuttle, the Emerald Bay Shuttle connecting the North and South shores of Lake Tahoe where limited (75-100 spaces) parking is available. Service is successful by tailoring to the area with the option of ordering a sack lunch and providing one roundtrip per day that leaves early in the morning, Visitation still needs to be managed at parking areas. TMA is assisting in finding more park and ride satellite lots to rent.

Overall, Placer County found partnerships with the airport, school districts, and private resorts to secure additional parking near park areas with only major issues for the 4th of July fireworks show. Surveys and studies helped identify what needed to be managed and that pilot programs were a start to seeing what worked and what did not.

Case Study: Belle Isle, MI

Brief Takeaway: Pilot shuttle adjacent to a major city to reduce parking demand

Belle Isle is a 1000-acre island right off the coast of Detroit. The Michigan Department of Natural Resources started a free shuttle service this summer via biodiesel-powered buses provided and operated by the Detroit Bus Company, a small, local business. This shuttle pilot program runs

noon to 8 p.m., Thursday through Sunday. Riders can hop on one of two shuttle buses that will make a continuous loop between the parking area, designated swim beach, Anna Scripps Whitcomb Conservatory, Belle Isle Aquarium and Kids Row. These shuttles are meant to reduce vehicle traffic and parking needs at the beach by directing parking to a lot near Belle Isle's entry point. Transit service to the island is provided by DDOT, the City of Detroit's transit system.

Due to the park's single access point – MacArthur Bridge – park staff and law enforcement must monitor and manage park closures when the park reaches capacity. In addition, the Detroit Police Department helps manage traffic backups on East Jefferson as visitors wait to cross the bridge to Belle Isle.

To help ease traffic congestion and increase public safety, the Michigan Department of Natural Resources, in partnership with the Michigan Department of Transportation and the Belle Isle Conservancy, launched a comprehensive multimodal transportation and traffic study, expected to be completed at the end of 2023. Wade Trim, a metro Detroit-based engineering consultant firm, will complete the study.

Case Study: Zion National Park

Brief Takeaway: Signage and frequent buses manage parking demand while custom-built or designed vehicles are challenging to maintain. Important to plan for the possibility that improved access could create new access challenges.

A shuttle to Zion Canyon has operated since 2000. It is the third-most used NPS transit system as of 2017 with over 6 million boardings. The free shuttle is operated through a contracted service that is renewed every five years with reservations helpful to planning but not required. The park is surrounded by a rural area and adjacent to the town of Springdale, UT. The shuttle is the only access point to the canyon during its operating season, which was determined after including both car and shuttle traffic in a trial was found to be unsafe. It runs during the Daylight Savings Time months (March to November) generally from 7am to 7:15pm in spring and fall and 6am to 8:15pm in summer. The Zion Canyon Shuttle serves nine stops with one at the Visitor Center in Springdale that features a 400-car parking garage.

The fleet includes custom-built propane vehicles, but it is aging at over 20 years old and there is no NPS funding available to replace the fleet and replacement parts are not available in the US. For the future, Zion Park is testing battery-electric buses and will pursue that option for vehicle replacement after receiving a grant to fund electric infrastructure.

To manage visitors, Springdale has signs when parking is full in the park and the garage, requiring visitors need to find other parking in town. The Town of Springdale also has its own shuttle that transfers to the Zion Canyon Shuttle and serves 9 stops where hotels and parking is located. Transient lodging growth in Springdale has surged, therefore, planning for more parking management is likely in the future.

Case Study: Bryce Canyon, UT

Brief Takeaway: Shuttle connects visitors where cars would congest the roadway.

Bryce Canyon Shuttle had over 700,000 riders in 2019, which made it the 9th most-used NPS transit system. Service runs every 15 minutes from April to October beginning at 8am to close at sunset.

The free shuttle travels between the National Park and town of Bryce Canyon City, UT with parking at the shuttle station across 12 stops. A private company, Red Canyon Transit, operates the company and maintains the eight-car fleet. Cars are allowed on the scenic drive that is the route taken by the shuttle. The town, located directly outside the park, has few full-time residents as most of the inhabitants are park employees and visitors. The shuttle is free with park admission and the shuttle's location can be tracked online.

Case Study: Rocky Mountain National Park

Brief Takeaway: Shuttle service success is helped by having more than one route and coordination between park, town, and business community

Rocky Mountain National Park's three shuttle lines combined for over 700,000 riders in 2019, which made it the 10th most-used NPS transit system. These three routes operate from Memorial Day Weekend to mid-October daily with service about every 45 minutes on the Hiker shuttle, 10-15 minutes on Bear Lake shuttle, and every 30 minutes on the Moraine Park shuttle. The Bear Lake and Moraine Park shuttle travel within the park while the Hiker shuttle travels between the park and the adjacent town of Estes Park. Bear Lake and Moraine Park are free while Hiker requires reservations for $2.

Limited parking at many trailheads and traffic congestion on the park roadways resulted in the consideration of transit connecting the Park and Estes Park in the mid-1990s. A shuttle bus, providing limited service, had been in operation since 1978. Expanding the shuttle service was considered in the park master planning process and in the park transportation planning process. The Bear Lake shuttle bus route was implemented in 2001, with two more routes added in subsequent years. The Town of Estes Park also initiated six free shuttle routes within the town. The planning activities involving representatives from the park, town, and business community helped develop a common understanding of the issues and opportunities associated with operating the park and the town shuttles.

Case Study: San Francisco Presidio (Presidio Go)

Brief Takeaway: Urban park shuttle service boosted and partially funded by local real estate through public-private partnership

Presidio Go, which is operated by the Presidio Trust, has two routes: one around the park and one into downtown San Francisco that operate year-round with service every 30 minutes or hour. The Presidio Trust is a federal agency that oversees The Presidio of San Francisco and is partly funded by leases with residential and commercial tenants. The service is free and a live map shows the vehicle's current location. The Presidio Go Downtown Shuttle is pass-restricted weekdays during the morning commute (7:30 am-9 am) and on every other shuttle trip during the evening commute (4:30 pm, 5 pm, 5:30pm, 6 pm). There are no pass restrictions on weekends or on the Around the Park Shuttle routes. Presidio Go passes are distributed to those who live or work in the Presidio through the Presidio Residences Leasing Office or an employer. Presidio Go passes cannot be purchased. The Presidio Go is funded by the Presidio Trust, the Bay Area Air Quality Management District, and Presidio tenant organizations. Presidio parking fees help fund the Presidio Go as well as other sustainable transportation projects.

Table 9: Currently Running Park Shuttles - Key Details

Location	Number of Stops	Span	Frequency	Ridership	Cost	Service Operations
Yosemite	35	Around AM and PM peak travel hours, daily with one year-round route and three seasonal routes from May to September	Several trips during peak travel hours	2% of park's visitors	up to $30 one-way, depending on distance	Concessionaire contract
Muir Woods	3 (2 on weekdays)	9am-dusk, weekends, holidays, and summer weekdays	30 minutes	177,000 in 2018	$3.50	Operated with Marin Transit with NPS, Ace Parking handles reservations
Belle Isle, MI	5	12-8pm, Thursday-Sunday	20-30 minutes	-	Free	Operated by local business, funded by Michigan Department of Natural Resources as a pilot
Zion	17	7am-7:15pm spring and fall, 6am-8:15pm summer, daily, March to November	5 minutes	6 Million in 2017	Free	Service contracted out every 5 years
Sequoia	10	8am-6:30pm, daily, summer and select winter holiday dates	30 minutes	940,000 in 2019	Free with park admission but Gateway Shuttle to/from Visalia is $20	Operated by First Transit on contract service
Tahoe	-	Microtransit service, 8am-10pm daily,	-	About 350 daily	Free	Private LLC provides turnkey service

Location	Number of Stops	Span	Frequency	Ridership	Cost	Service Operations
Bryce Canyon, UT	12	8am to dusk, daily, April to October	15 minutes	700,000+ in 2019	Free with park admission	Private company operates service
Rocky Mountain National Park	13	Memorial Day to mid-October	15-45 minutes	700,000+ in 2019	Free but Hiker Shuttle route $2	Concessionaire contract
San Francisco Presidio	10	Daily, 6am to 6:30pm	30 minutes to hour		Free but pass restricted during peak times	Operated by Presidio Trust

APPENDIX B: FIELD OBSERVATION NOTES

General Observations:

- Supervising Ranger feels that all entrances other than main are unlikely options for shuttle stops.
- Hidden Villa, Duveneck Ranch could be an option for getting visitors to the West part of the preserve. However, this area requires strenuous hiking. Currently, Hidden Villa is not operating any programs, and its expected re-opening is unknown.
- Rancho had 1.2M visitors last year.

Notes by Entrance (E to W):

Main entrance (Lots 1-6)

- Gate opens 1/2 hour before sunrise or at 6:30 AM at the latest.
- Parking lots are full soon after opening on weekend mornings.
- Parking counters were recently installed and being tested. Parking counters showed 20+ available spaces at 07:45 when none were available.
- When we returned at 2:20 PM the counters were turned off and all parking lots had significant availability (below 50% occupancy).
- Lots 5/6:
    - The best stop location may be the existing ride hail area, adjacent to the public restroom on the SE side (1, below). There is 60 feet of accessible curb at this location.
    - Other possible locations: to the right of lot entrance (2), on the opposite side of the restroom building by the water fountain (3), or directly adjacent to the trailhead bridge.

Figure 7: Potential Boarding/Alighting Locations in Lots 5/6

St Joseph Avenue Trailhead (RS01)

- Ample space for a turnaround inside the RSA gate (75-foot wide cul-de-sac)
- Second gate north of the I-280 underpass presumably erected by the neighborhood.
- Mora, St Joseph and main entrance are the most popular entrances.
- Road width between gates = 27 feet.
- 430 feet from gate to gate.

Mora Drive trailhead (Gate RS10)

- The cul-de-sac at the end of Mora Drive is a good spot for a shuttle turnaround (roughly 90 feet long by 42 feet wide).

Laura Court neighborhood access (Gate RS08)

- Previously mistakenly referred to this as Stonebrook Drive.
- Stonebrook Drive is a private road, blocked from the Laura Court cul-de-sac by bollards and a chain barrier.
- The actual boundary of the Preserve is ~700 feet away from Laura Court, and Midpen does not have an easement across this portion of the trail
- The hike from Laura Court to the Chamise Trail is steep & difficult.

Rhus Ridge trailhead (Gate WP01)

- Rhus ridge trail is very strenuous. The hikers who use it tend to be repeat visitors who know the Preserve well.
- This Trail provides the shortest access to Black Mountain Trail.
- Turnaround here would be difficult for a shuttle vehicle. A 3-pt turn would be required.
    - Free space between vehicles parked on either side ranges from 20 feet to 35 feet
- The parallel parking area on the left side of the lot is 65 feet long.
- 80-foot long driveway leading into the lot is only 12 feet wide. Vehicles would not be able to pass.
- There is a house a few hundred feet inside the gate here. The resident acts as an unofficial caretaker, informing rangers of observations.
- A private residence has access to their property through the Rhus Ridge parking lot.

Internal Destinations:

Deer Hollow Farm:

- Farm operated by City of Mountain View under a permit.
- The farm requires a parking permit.
- The farm operates week-long camps for kids.

Permit Lot

- Roughly half-way between Lots 5/6 and Deer Hollow Farm
- The permit lot is County-controlled, and likely cannot be used for shuttle stop.

Satellite Locations (parking/pickup locations outside of the Preserve):

Foothill College:

- Some Preserve visitors apparently already park at Foothill College and walk into Rhus Ridge. We noticed some vehicles parked in student lot 8 (https://foothill.edu/map/images/FC-Map-2022.svg) that could have been visitors to Rancho.

- Permits are not required to park on campus for Fall 2022 quarter (https://foothill.edu/parking/). Unknown how long this rule will continue – could be COVID-related.
- Existing bus stop adjacent to Student Lot 8 would be a logical shuttle stop.

Foothill Crossing Shopping Center:

- No good curb space for a shuttle stop. The best potential location is likely in the middle of the parking lot.
- Lot was very busy on Saturday morning, especially near the Trader Joe's store. The lot was at least 75% occupied

Lucky grocery store:

- Possible locations for shuttle stop:
  - VTA bus stop 60555 (1, below) – served by VTA 51, 51H routes
  - VTA bus stop 60672 (2) – served by VTA 51, 51H routes
  - Right-hand edge of the lot (3) – already used as a Goodwill donation site
- Lot was around 20% full on Saturday morning

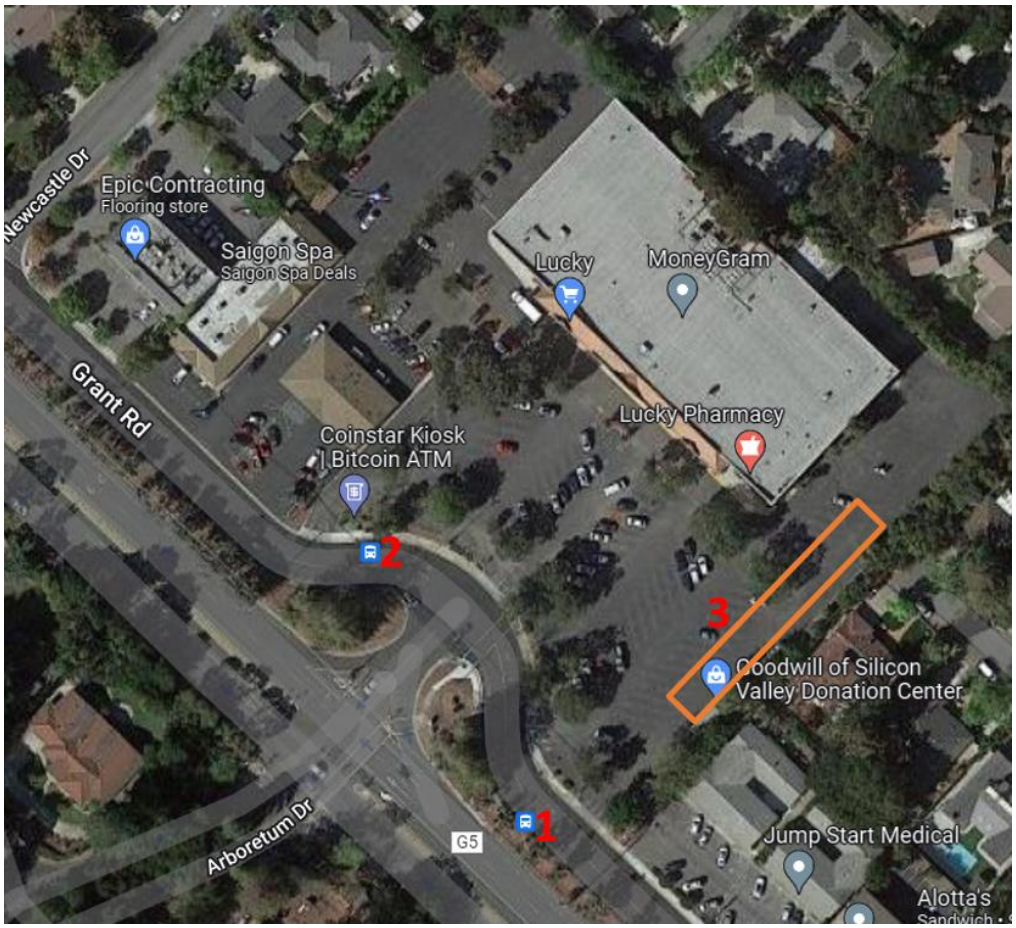


Figure 8: Potential Boarding/Alighting Locations at Lucky Grocery Store

Foothill Christian Center:

- The school is actually an off-shoot of the Korean church located here – would the location be available on Sundays?
- Pickup location could be anywhere in the lot.
- The lot is large with ample spaces for park & ride
- Would be a logical "overflow" parking locale for the main entrance parking lots

Montclaire Elementary School:

- The most likely stop location, the school bus drop off loop in front of the school, has only 11 spaces + 2 ADA-accessible spaces.
- Other parking areas to the side & rear of school do not seem feasible for use as a shuttle stop.
- Street parking is available on both sides of St. Joseph's Ave. on weekends.

Mountain View Transit Center

- There is a loop for shuttles adjacent to the bus loop – room for likely 5 shuttles at once. Already served by MVgo. Mountain View Community Shuttle shares use of the bus loop.

Rancho Shopping Center:

1) Busy shopping center with a lot of amenities Preserve users may find convenient (grocery store, coffee shops, restaurants, etc.)
2) Over 75% utilization of parking spaces on Saturday AM
3) Possible locations for shuttle stop:
    a. SE corner of lot (1, below) – visible from Foothill Expy, less full (~10%)
    b. Rear parking area (2) – May be harder to find

Figure 9: Potential Boarding/Alighting Locations at Rancho Shopping Center

St. Nicholas Elementary School:

- Lot was empty on Saturday
- Pickup location could be anywhere in the lot.
- The lot is large with ample spaces for park & ride
- Would be a logical "overflow" parking locale for the Rhus Ridge trailhead
- Somewhat confusing intersection at school entrance from El Monte Rd.

APPENDIX C: SUMMARY OF PUBLIC SURVEY RESPONSES

An online survey was promoted through Midpen's and its partner agencies' email notifications, social media outreach channels and in-person at the preserve. It received a total of 626 responses between October 16, 2022 and November 15, 2022. Respondents were largely located in the South Bay Area between Redwood City and San Jose, which means they would have roughly a 30-minute drive to get to the preserve. The survey expanded upon a survey performed as part of the previous Multimodal Access study performed in 2019-2020.

Questions relating to the potential shuttle program were aimed at creating an understanding of the current visitation patterns and visitor attitudes toward a shuttle option for accessing the preserve. Below is a summary and analysis of the most significant responses.

Figure 10 shows that about 80% of visitors access the preserve from the main entrance at Cristo Rey Drive. Approximately 10% of visitors would prefer to use another entrance if parking at those entrances were not an issue. It was expected, and results show that the vast majority of visitors use the Cristo Rey Drive entrance. While that is not likely to change significantly, there are some visitors who would divert to other entrances if transportation/parking options were available. Distributing the visitors more evenly among the various entrances could be a strategy to reduce the congestion at the Cristo Rey Drive entrance.

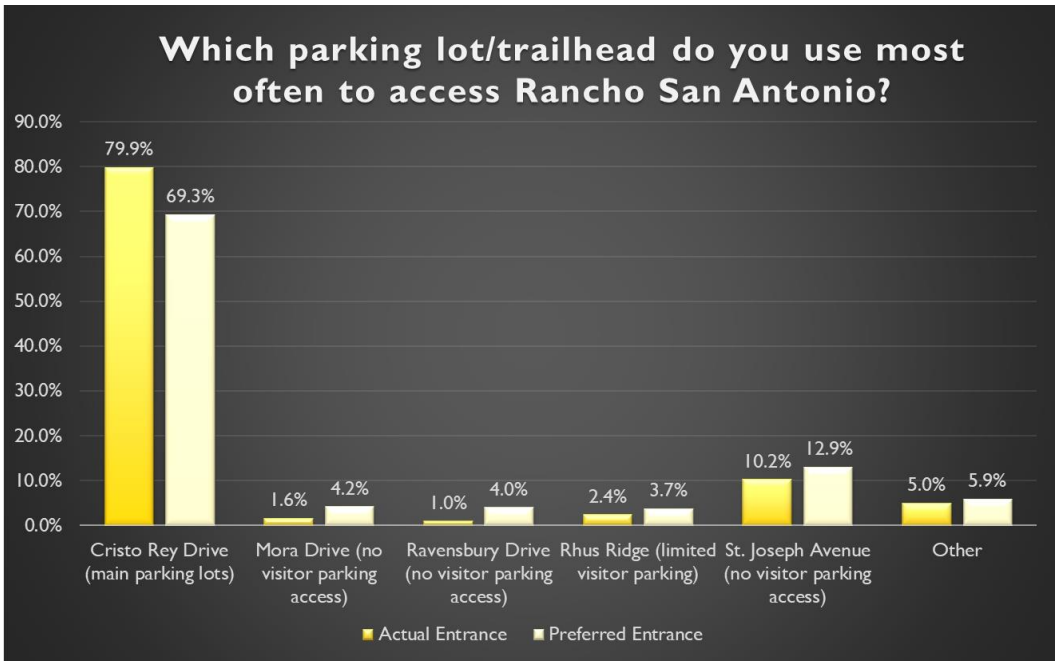


Figure 10: Preserve Entrances

As shown in Figure 11, most survey respondents drive to the preserve. Transit and ride-hail options are currently not utilized to any significant degree. This was expected as the closest transit stops are located 1 mile or further away from any preserve entrance. Furthermore, transit service is not

provided during the popular visitation time of weekend mornings. Connecting a shuttle service with a transit stop, which does provide service during weekend mornings, such as a Caltrain station, would allow individuals who do not have access to a car to still visit the preserve.

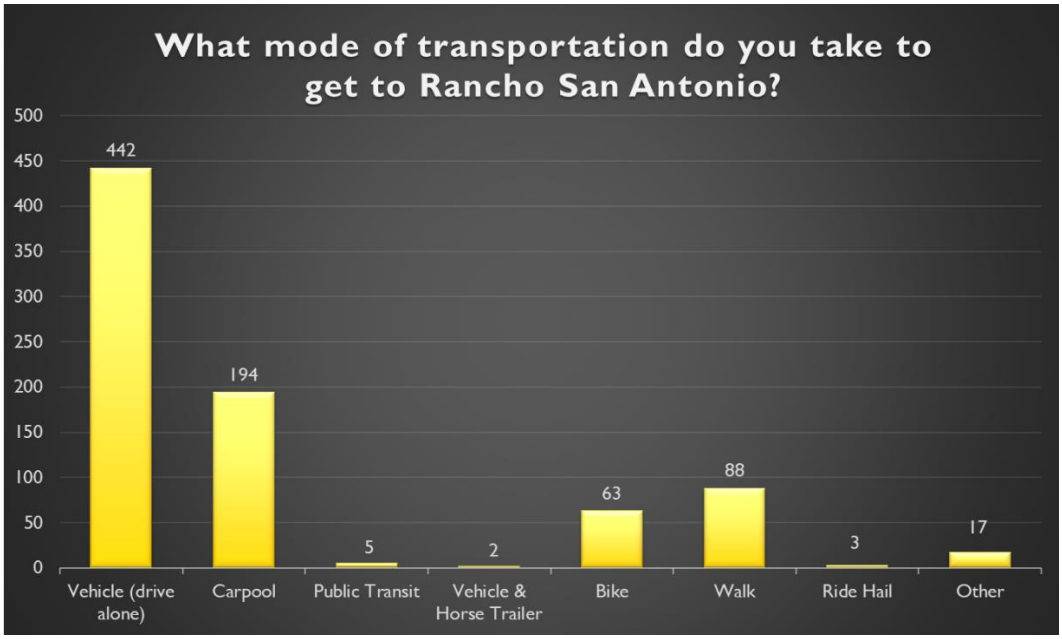


Figure 11: Transportation Mode

Figure 12 shows that mornings are the most popular time of day to visit the preserve. This result is supported by the observation that the parking lots at the main entrance often fill up early on weekend mornings. Although weekday mornings attract the most visits from survey respondents, they are likely distributed throughout the week, meaning that the resulting saturation of the main parking lots observed during the weekends are not observed during weekdays. Reducing the number of visitors who drive alone during these peak times of visitation would be the primary focus of a shuttle program.

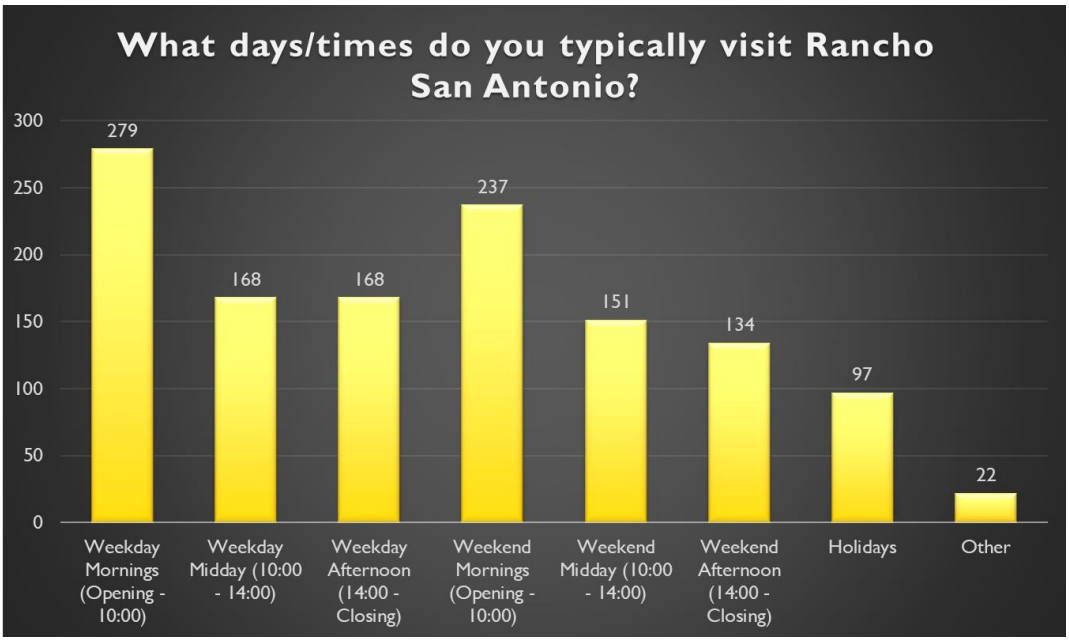


Figure 12: Visitation Times

Figure 13 shows that most survey respondents stay at the preserve less than 4 hours and over half of them between 1 and 2 hours. This result combined with the popularity of visits in the morning leads to the conclusion that there will be little demand for shuttle service during afternoons.

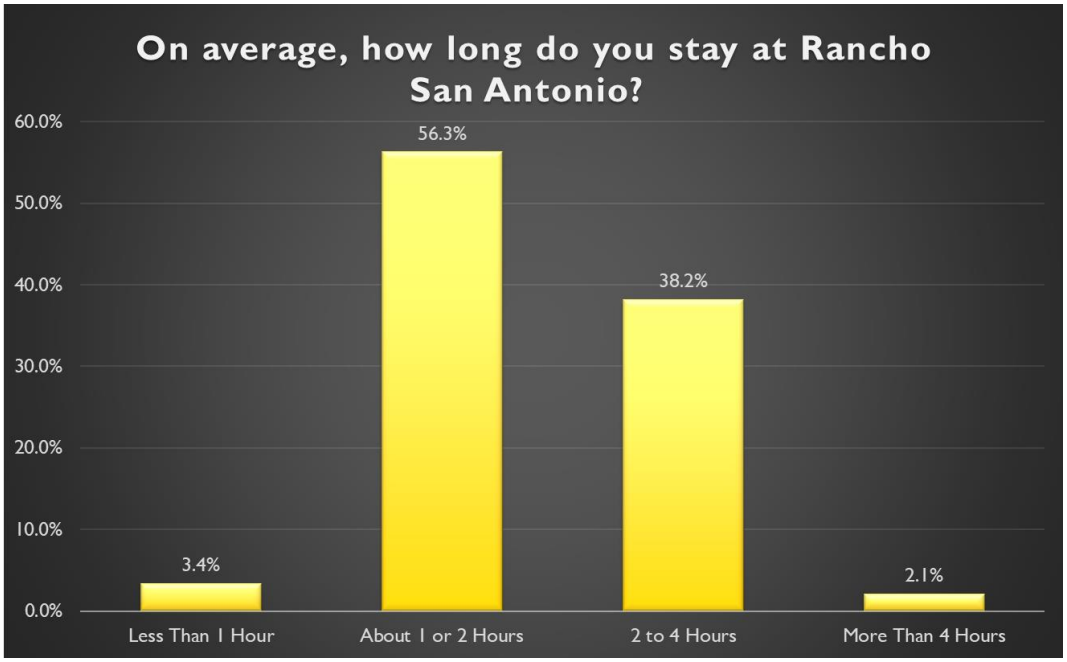


Figure 13: Duration of Visits

It is anticipated that frequent visitors familiar with the preserve are more likely to utilize a shuttle. Figure 14 shows that frequent visitors favor the main entrance at Cristo Rey Drive whereas the smaller entrances at Rhus Ridge, Ravensbury Drive and Mora Drive are disproportionally used by

infrequent visitors. Providing a shuttle stop at Cristo Rey Drive would serve the largest population of existing visitors. Providing stops at some of the smaller entrances would allow the shuttle to not compete with the convenience of a visitor driving their own car to the preserve.

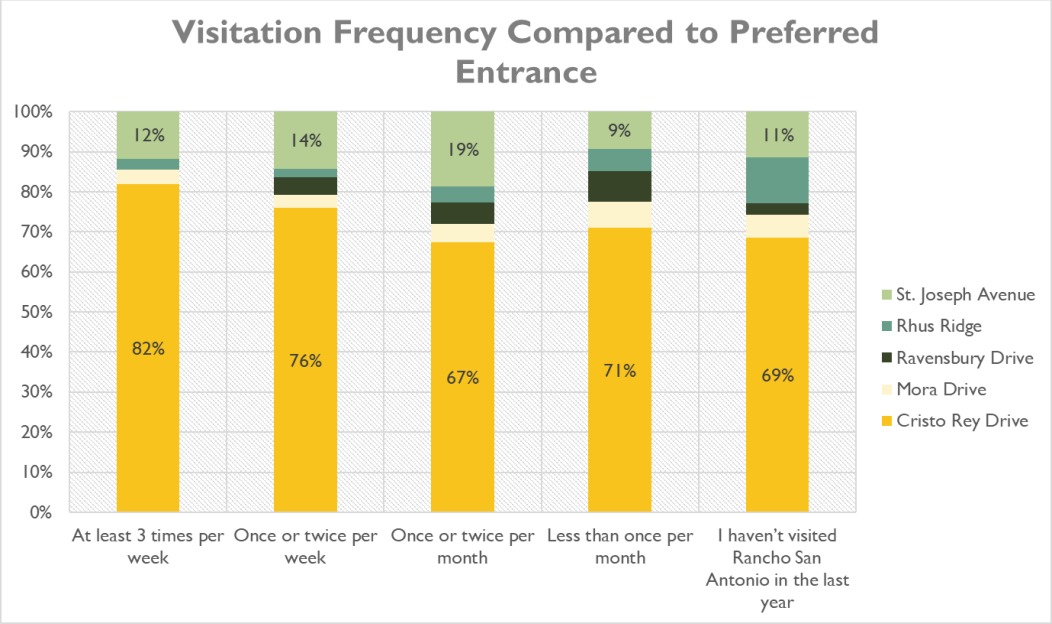


Figure 14: Visitation Frequency by Entrance

Rancho San Antonio is a large, outstretched preserve in the East-West direction, and it contains distinctly different characteristics. The eastern portions of the preserve are flatter and more easily accessible. The western portion of the preserve includes much steeper terrain and trails and attracts a different type of visitor. Figure 15 shows that a large portion of survey respondents typically have the middle section of the preserve as their main destination. Some of the smaller entrances (such as Mora Drive and Ravensbury Drive) provide a much more direct access to this middle portion of the preserve.

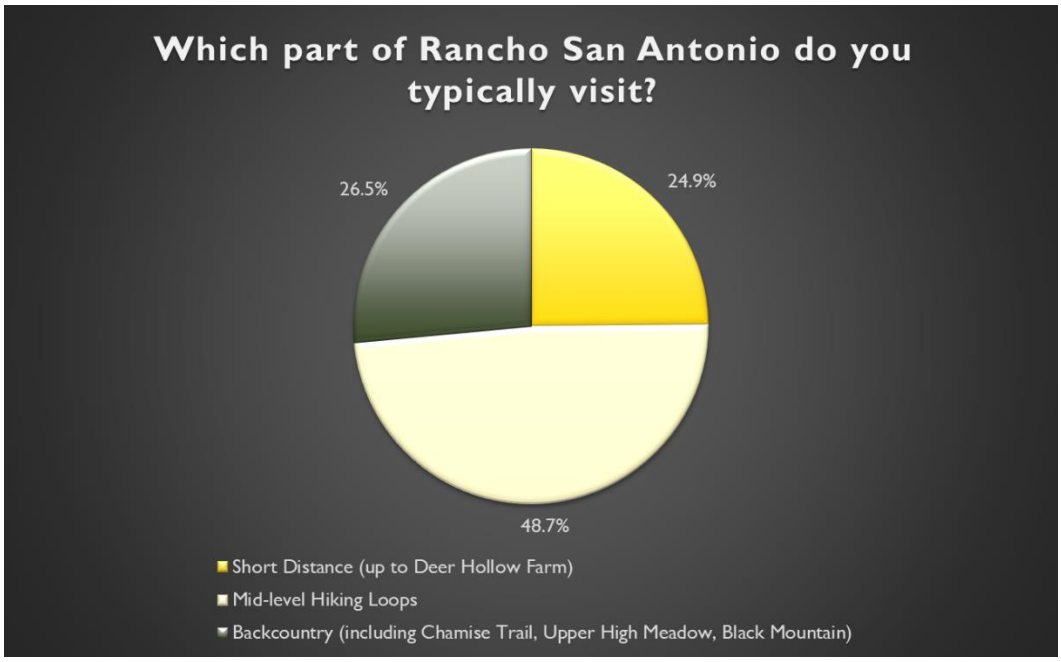


Figure 15: Geographic Usage of Preserve

As shown in Figure 16, about 2/3 of the survey respondents are open to potentially using a shuttle to access the preserve. Even if only a portion of those respondents actually end up using the shuttle, that could end up making a significant impact on the overcrowding at the Cristo Rey Drive entrance during weekend mornings.

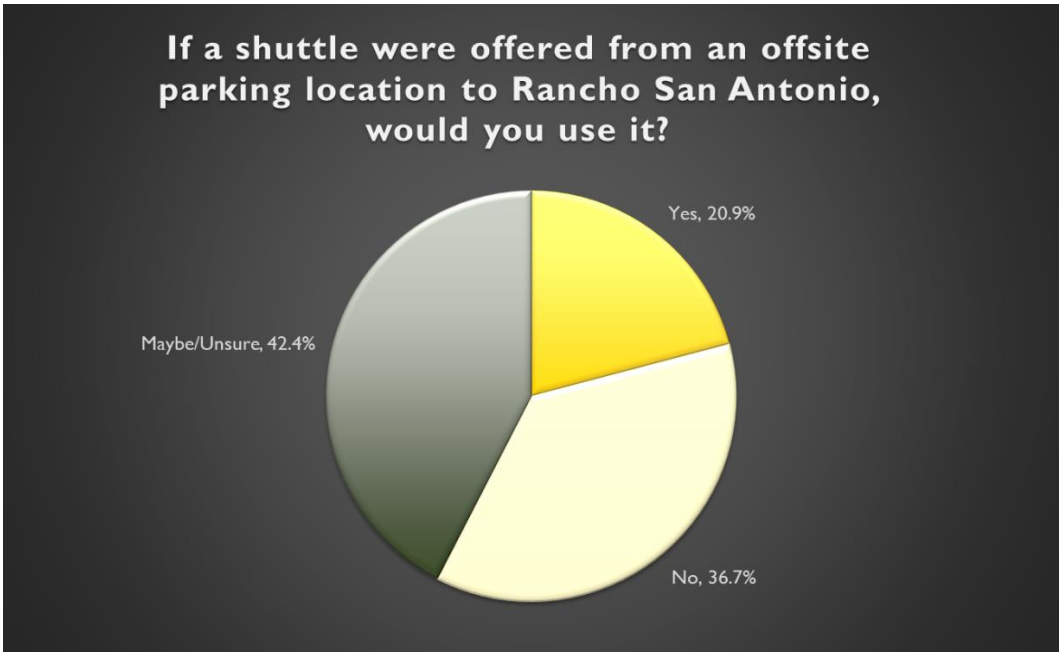


Figure 16: Potential Shuttle Users

Figure 17 shows that the expected frequency of shuttle usage correlates closely with the general sentiment towards the shuttle. The amount of respondents who state that they would use a shuttle are mainly the same respondents who anticipate using the shuttle during most or all of their visits. Likewise, the respondents who are unsure if they will use the shuttle state that they may use it occasionally or only if they cannot find parking.

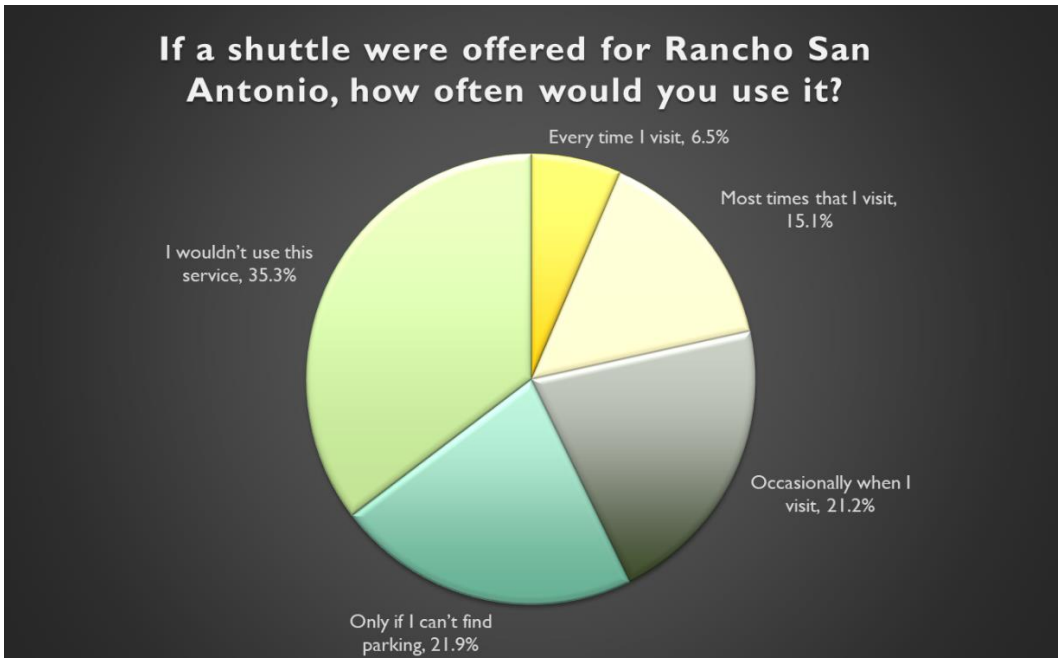


Figure 17: Frequency of Potential Shuttle Usage

Figure 18 shows that the lack of parking is by far the most determining factor when respondents are considering if they will use a shuttle. About half the respondents listed it as their most important consideration. Because of this, it is expected that shuttle service will be most successful during those times when parking at the Cristo Rey Drive entrance is at capacity or if it provides access to an entrance that does not offer parking facilities.

Beyond the availability of parking, the ease of use and frequency of the shuttle service are also important considerations for potential shuttle users. Those aspects of a shuttle program should therefore be prioritized.

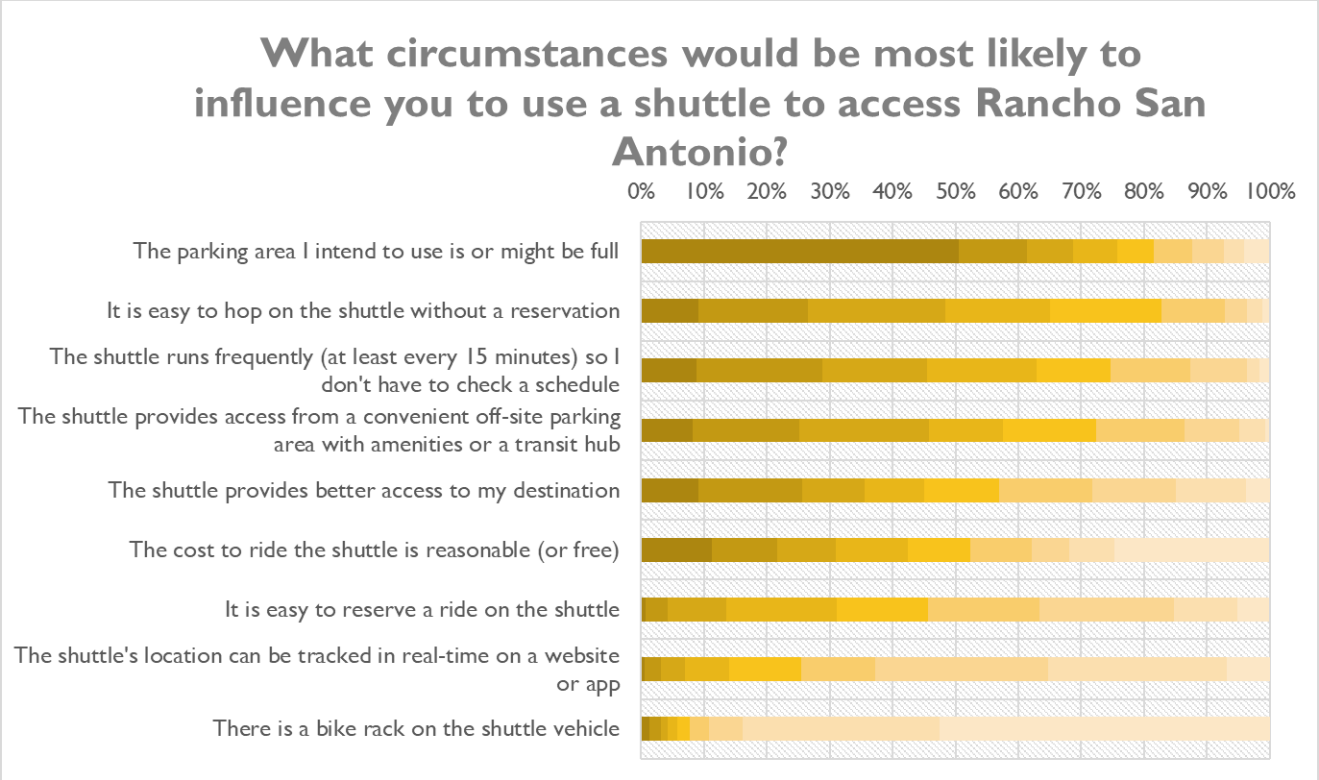


Figure 18: Factors Influencing Shuttle Usage

As shown in Figure 19, when respondents were asked about the obstacles that would keep them from using a shuttle service, they overwhelmingly listed concerns about the reliability of a return trip from the preserve. That means that a successful shuttle program should have a robust and reliable schedule and cooperation with a ride-hail service can be an important option for those shuttle users who might stay longer at the preserve and may want a return trip after the peak visitation period. The somewhat large number of responses labeled "Other" included mostly respondents who either did not want a shuttle program or who lived too close to the preserve to use a shuttle. It is expected that the concern over COVID or other infectious diseases will diminish as we are further removed from the COVID pandemic.

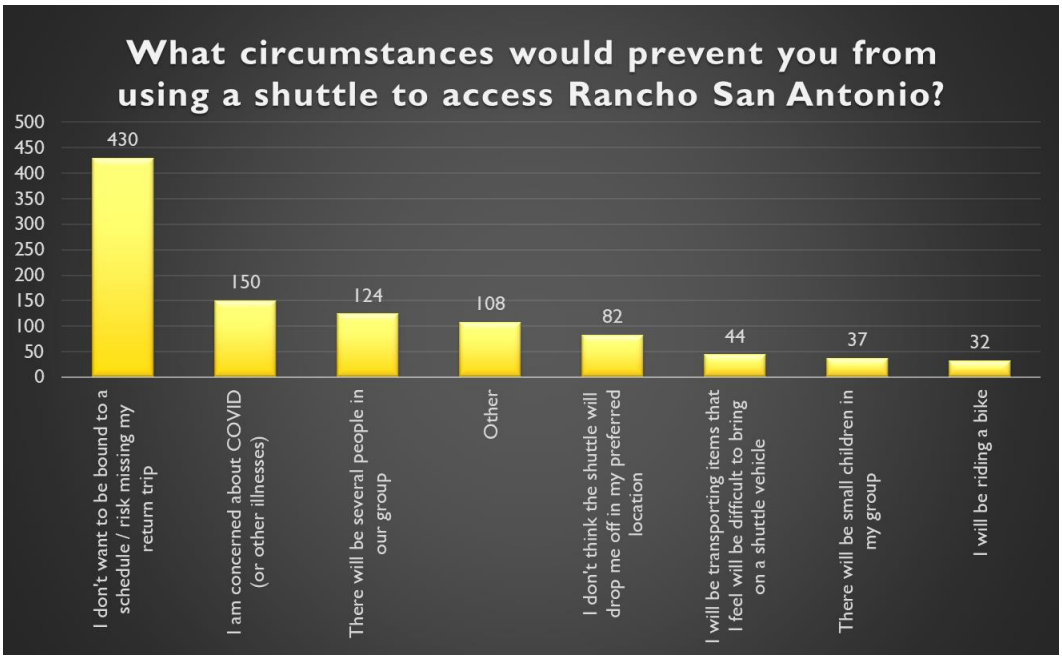


Figure 19: Obstacles to Shuttle Usage

Figure 20 shows that respondents are not willing to wait for or ride the shuttle for a long period of time. Only about ¼ of respondents would consider anything longer than 10 minutes for each activity. These responses further highlight the importance of the shuttle schedule and supports shuttle options with nearby satellite parking locations with direct and frequent service. This information will also help inform estimates of number of shuttles needed for any suggested route.

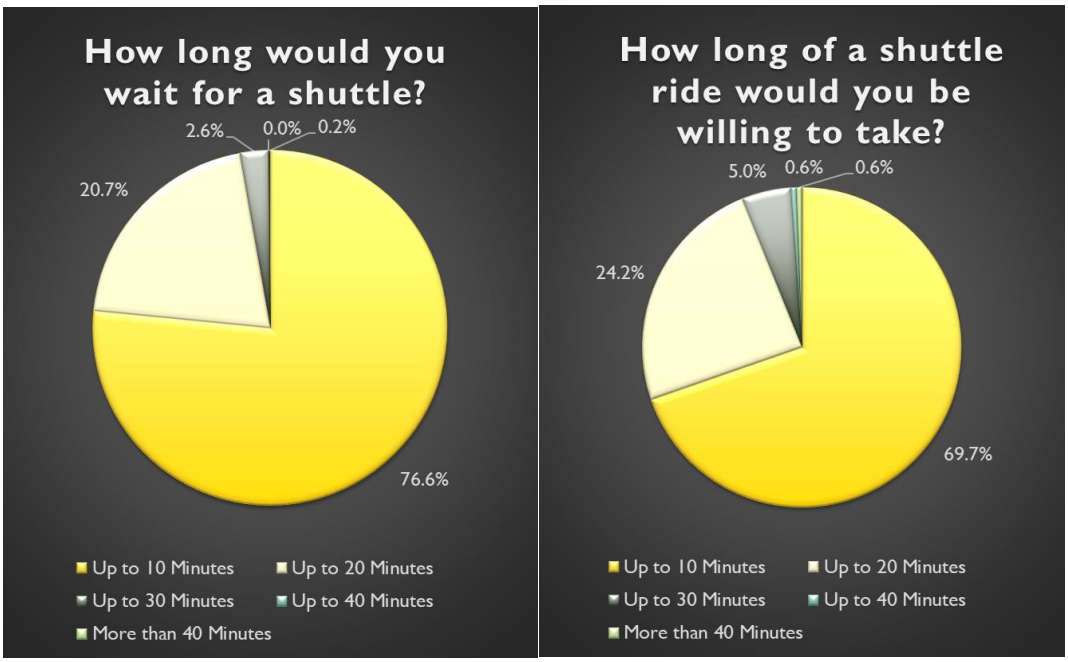


Figure 20: Shuttle Schedule

Figure 21 shows that about half of survey respondents do not want to pay for a shuttle ride and only about 10% would consider paying more than $2. This information will be used when developing the economic models for any proposed shuttle service. If the willingness to pay for a service is very low an owner will have to weigh the costs associated with collecting the fee against the anticipated revenue. Other considerations will be how the fee is collected and if passes (weekly, monthly etc.) are offered.

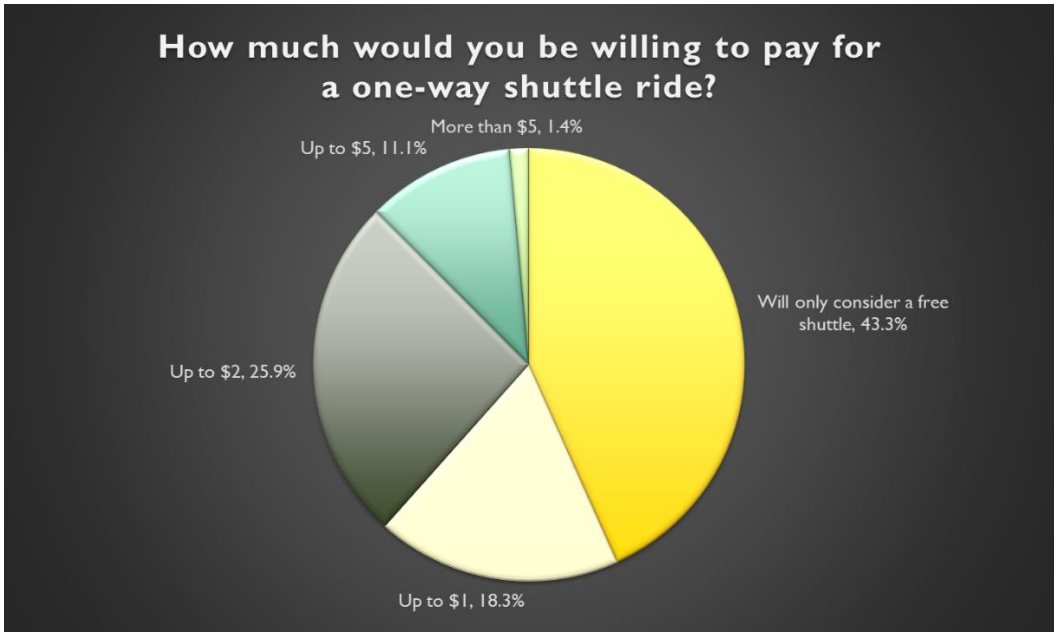


Figure 21: Shuttle Fare Cost

The survey also included an open-ended question where respondents were able to provide their own custom responses. The intent for this inclusion was to capture any potentially significant opinions regarding either a potential shuttle program or access to the preserve in general. Some of the most common themes among these responses were:

- The preserve is crowded, and this causes some potential visitors to either visit other preserves or to not visit at all during peak times. This suggests that overall visitation demand could still go up if access to the preserve was improved.
- Bringing more visitors to the park than can be accommodated by existing parking lots is seen as further crowding the preserve itself.
- Connections to or partnering with other local transit is desired.
- Some support for shuttle drop-off locations other than Cristo Rey Drive. However, there was also a general theme of respondents opposing drop-off locations in their own neighborhood if they lived close to the preserve.

TECHNICAL MEMORANDUM

Ride Hail - Service Design & Performance Measurement

Ride Hail Programming Assistance

Prepared for Midpeninsula Regional Open Space District
By Arcadis IBI Group

May 11, 2023

Table of Contents

1 Introduction

1.1 Background & Contextual Overview

Rancho San Antonio (Figure 1.1) is located west of the City of Cupertino and south of I-280, off Cristo Rey Drive. Rancho San Antonio consists of Rancho San Antonio Open Space Preserve, owned and managed by Midpeninsula Regional Open Space District (Midpen) and Rancho San Antonio County Park, owned by the County of Santa Clara (County) and managed by Midpen through an operation and management agreement. The agreement sets out each agency's rights and responsibilities and provides for the implementation of Midpen's management policies and regulations. Alterations to Park facilities and changes to the operations and maintenance of the Park requires discussion, coordination, and agreement between the two agencies.

Rancho San Antonio is the most visited preserve among the 26 preserves managed and operated by Midpen. The Preserve has an estimated 700,000 plus visitors per year because of its popularity and proximity to Cupertino, Los Altos, Los Altos Hills, and the greater San Jose metro area. The high visitation rates continually cause the parking supply at the Preserve to reach capacity during peak visitation times, especially on weekends, holidays and summer weekdays.

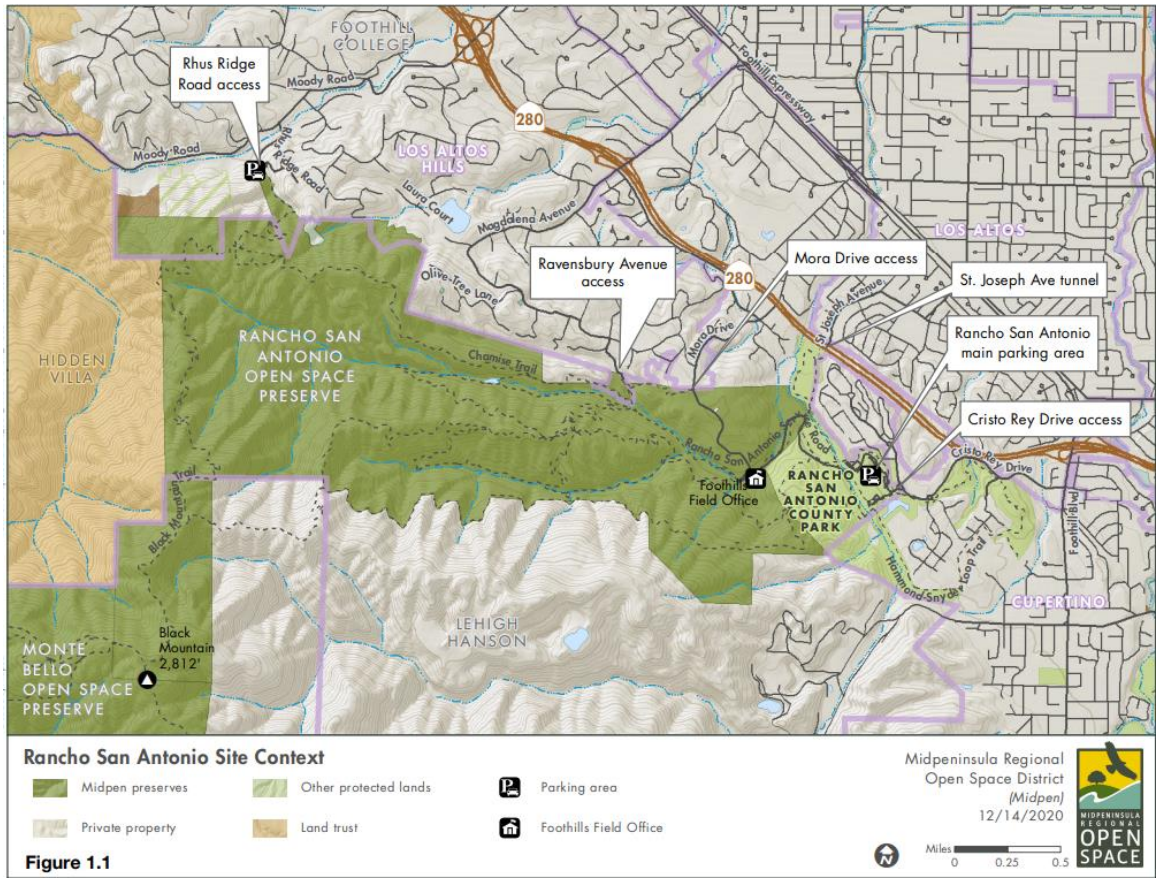


Figure 1.1

The Rancho San Antonio Multimodal Access Study project (completed in 2021) explored and evaluated non-motorized mobility, transit options, and parking alternatives for the Preserve to encourage visitors to use greener modes of transportation and reduce parking demand and traffic, while maintaining equitable access for both local and regional visitors.

Outcomes from the study included the identification of strategies to improve visitor accessibility and expand transportation choices that align with Midpen's mission. On April 28, 2021, the Board of Directors accepted the report findings and recommendations. As part of the study, a proposed implementation plan was developed to assist Midpen in initiating recommended multimodal access strategies best suited to reduce on-site parking and promote modal shift at the Preserve. There were 15 strategies recommended in total, which were sorted by priority on when they should be implemented. Among first priority strategies recommended for implementation are the consideration of a **free or low-cost shuttle program** and a **subsidized ride hail program**.

Project Objective: Midpen subsequently retained assistance to develop two transportation programs with enough specificity to issue a Request for Proposals or Request for Bids for shuttle operator services, and ride hail services.

1.2 Ride Hail - State of the Industry

Ride-hailing has been part of the urban mobility scene for over a decade. With ambitions to expand business in a way that is sustainable for cities and the environment, ride-hail operators are now turning to work with local authorities and public transit.

Both parties see how they can ultimately complement one another's services around a common mission — to reduce or avoid the reliance on the use of private cars.

Dozens of cities and transit agencies across the United States partner with Lyft, Uber, Via and other smaller transportation network companies (TNCs) on programs to alleviate mobility problems.[1] Most involve the provision of on-demand services that complement public transit, fill mobility gaps, or replace bus routes that had been poorly performing. On-demand service, unlike fixed-route service, involves schedules and routes that dynamically change to meet customer demand.

The literature is replete with examples and case studies of transit partnerships with TNCs in order to make their services more available to a wider audience, to leverage new technology, and to improve mobility choices for their customers. Several are profiled in research conducted by the American Public Transportation Association (APTA), as found on the following link:

Transit and TNC Partnerships - American Public Transportation Association (apta.com)

We see that inter-modality with public transit is the next big thing as ride-hail operators seek to extend their services, in a sustainable way.

[1] In addition to TNCs and other providers of transportation, it is important to acknowledge the many complementary technology platforms such as those provided by RideCo, the Routing Company, etc.

Uber: As the preeminent player in the ride hailing space, Uber continues to expand their services to stay relevant and remain one of the most popular ride-share apps. Today, in terms of public transport collaborations, they support a range of services through their arm 'Uber Transit' such as TNC (transportation network companies) for transit, Microtransit SaaS, and Mobility as a Service (MaaS).

Uber Transit has been expanding, working with over 500 public transportation agencies to help extend one another's service. Some examples of their partnerships include:

- Porterville, Oregon; York, Ontario: provide on-demand transport technology solutions to support their public transportation services
- Massachusetts Bay Transportation Authority: subsidized Uber rides that cost $3.00 for passengers as part of their paratransit service
- Dallas, Texas: Residents can have up to two free UberPool rides per day in defined, high traffic, and easier to service areas

Lyft: As the second-largest ride-hail app in the US, Lyft is also open to the opportunity to forge government and transit partnerships. While their list of local authority partnerships is not as extensive as Uber yet, they have been building traction for a few years. The following are some examples of Lyft's partnerships:

- Monrovia, California; Denton County, Texas; and Massachusetts Bay Transportation Authorities: offer subsidized Lyft rides
- Bannockburn, Illinois: free rides between Glenstar office complexes (who pays for 75% of the operational bill) and public transport stations during rush hour time
- Columbia, South Carolina: subsidized rides during public transport off-peak hours

1.3 Document Overview

This Technical Memorandum focuses on: (a) the service design element for ride hail services; and (b) performance measures for evaluating the effectiveness and efficiencies of a ride hail service(s).

Section 2 presents a Concept of Operations (ConOps) for ride hail services. Included is a discussion of:

- What We Heard? (survey research and stakeholder engagement)
- Alternate delivery schemes
- Service design elements
- Operating parameters
- Potential ride hail partners
- Operator roles and responsibilities
- Ridership and cost estimates – Cost/Ridership Model

Section 3 presents a matrix of sample key performance indicators (KPIs) for core business functions. The latter includes:

- Mobility/Service Operations
- Equity
- Customer satisfaction
- Finance
- Environmental

2 *Ride Hail* – Concept of Operations

Ride-hailing refers to an act when a customer orders a customized ride online usually via a smartphone application. In essence, it is similar to a taxi service. The customer orders the ride from a ride-hailing platform – a third party (typically a transportation network company or TNC) that mediates the service between the driver and the passenger. The best-known mediators are Uber and Lyft. Ride-hail service may be in an exclusive ride or shared ride mode.

With an eye on designing a ride hail program that may initially operate for an 18-month period, a concept of operations (ConOps) as presented in Figure 2.1, provides for a high-level description of the actions to be taken in the pursuit of issuing a Request for Proposals or Request for Bids for ride hail services and in so doing, describes the characteristics of the proposed service.

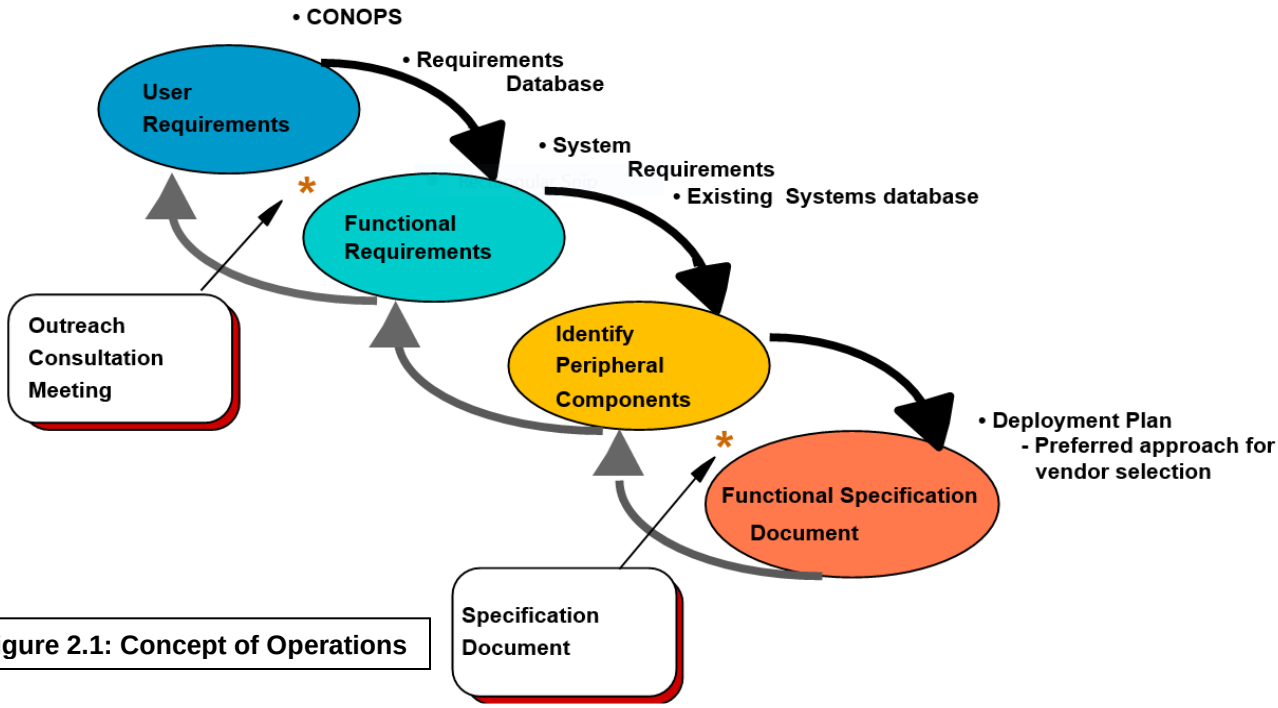
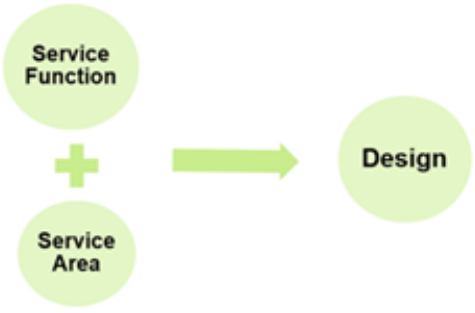


Figure 2.1: Concept of Operations

2.1 Service Design Element



Service Design presents a description of how the ride hail service would operate – how it would work and the functional requirements of a ride hail technology platform.

The service design element is informed by:

- Program objectives:
  - Provide for additional mobility options
  - Reduce use of single occupancy vehicles/reduction in vehicle miles travels (VMTs)
  - Reduction in greenhouse gas (GHG) emissions
  - Address congestion and parking challenges

- Support/leverage future grant funding opportunities

- 'What We Heard' (survey research)
- The existing mobility landscape (i.e., SV Hopper shuttle services)
- The shuttle program service design

2.1.1 What We Heard

The Community Survey coupled with stakeholder engagement are integral to advancing the service design element.

Stakeholder Engagement: Two key stakeholder meetings informed the development of the ride hail ConOps/service design:

1. Joint Stakeholder Workshop (January 12, 2023):

   Attendees included:

   - Midpen staff
   - Consulting team
   - City of Cupertino
   - Cupertino Unified School District
   - City of Los Altos
   - Santa Clara County Parks
   - City of Mountain View
   - City of Sunnyvale
   - Town of Los Altos Hills

   Meeting attendees expressed general support for advancing both the shuttle and ride hail programs, as well as exploring potential partnerships; detailed meeting minutes[2] are presented in Appendix A.

2. Midpen-Cupertino Meeting (January 30, 2023):

   A meeting was held with City of Cupertino's Senior Transportation Planner to discuss the City's SV Hopper service. This service is discussed further in Section 2.1.2.

   Detailed meeting minutes are presented in Appendix A.

Community Survey: Complementing the general and shuttle program specific questions were a few questions specific to a Ride Hail program.

- Wanting to get an idea of the respondent's familiarity with Ride Hail services, (Figure 2.2) close to four of five respondents (79%) indicated 'Yes' – that they have used a Ride Hail service in the past.
  - Suggests a population familiar with service mode & pertinent technology platforms
  - Familiar with service characteristics (i.e., e-hailing, mobile payment, real-time customer information, etc.)
- In order to inform the design element of a Ride Hail service, respondents were asked about service

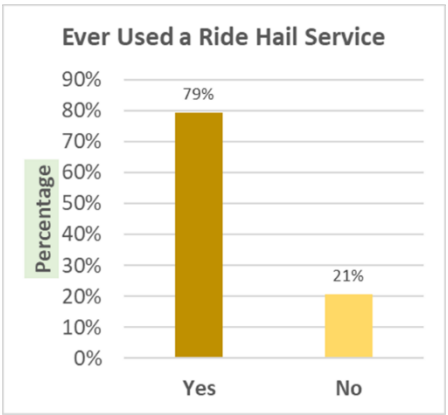


Figure 2.2: Ever Used a Ride Hail

[2] Meeting minutes were prepared by Midpen staff.

characteristics that would encourage their use of a Ride Hail service (Figure 2.3).

The top three characteristics were:

- Able to book a ride through a mobile app
- Pick up directly from home
- Wait time of less than 20 minutes

Of note, forty-four percent of respondents indicated they are "not interested in using a Ride Hail service under any circumstance". This perception of ride hail services may be mitigated though a marketing and communications strategy as well as consideration of travel demand management strategies. The latter may include incentives for the use of alternate travel/mobility modes.

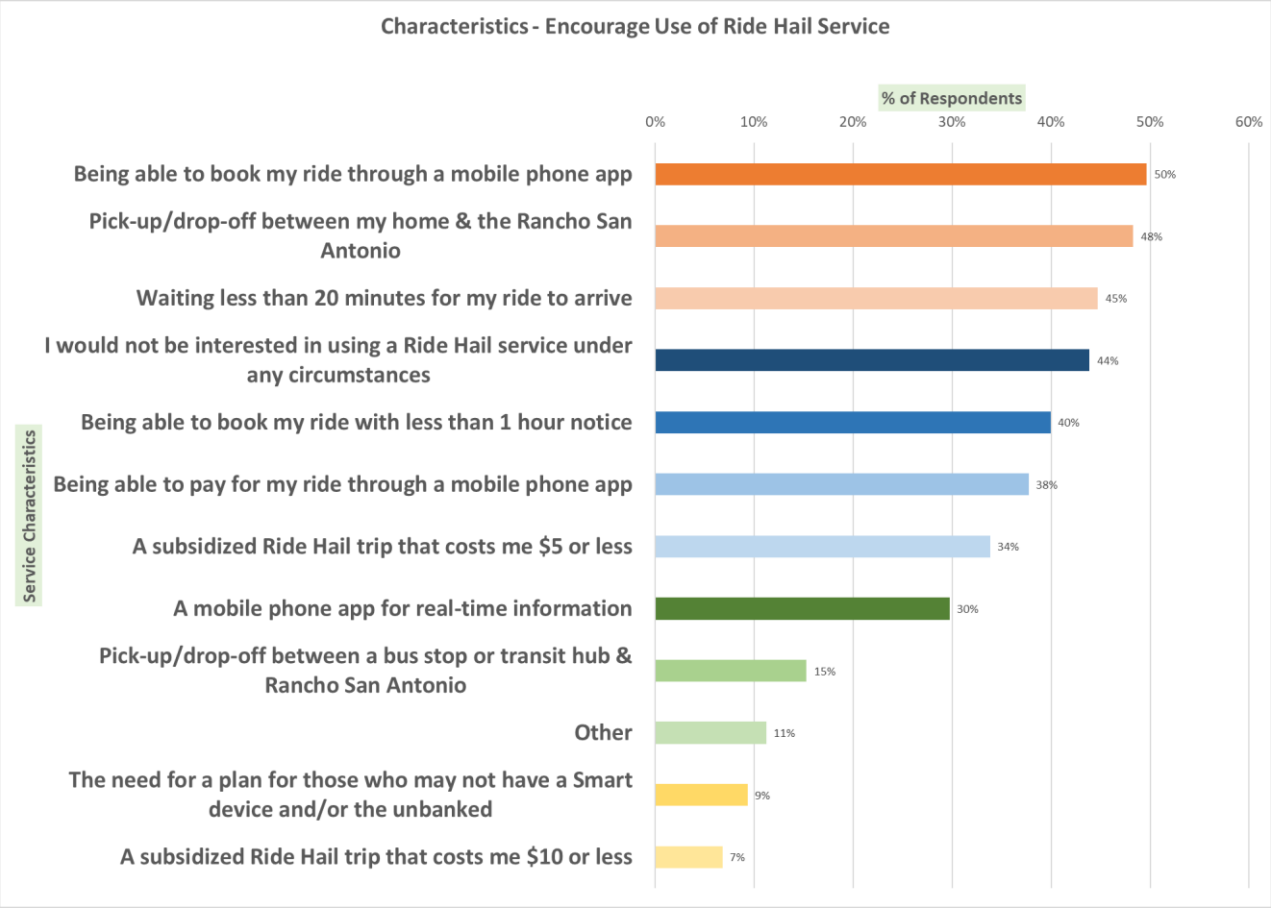


Figure 2.3: Characteristics – Encourage Use of Ride Hail Service

- Wanting to best understand how far respondents might be willing to travel via a Ride Hail service, (Figure 2.4) close to two-thirds (63%) indicated a willingness to travel less than 5-miles via a Ride Hail Service.

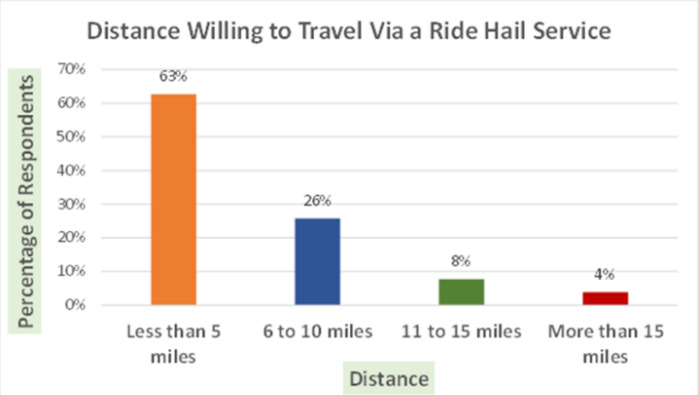


Figure 2.4: Distance Willing to Travel Via a Ride Hail Service

2.1.2 Silicon Valley Hopper (SV Hopper)

The following provides for a cursory profile of the Silicon Valley Hopper (recently rebranded and was formerly known as the Via-Cupertino Shuttle service) - https://www.cupertino.org/our-city/departments/public-works/transportation-mobility/community-shuttle).

The City of Cupertino subsidizes the Silicon Valley Hopper, a community ride-share program that provides transportation anywhere in Cupertino and to select destinations outside of the City. This popular program already services Rancho San Antonio.

An understanding of the City's shuttle operation informs an opportunity (for consideration) to collaborate with the City to expand their operation to include Rancho San Antonio as a specific service stop on select days of the week and select hours of the day. Of note, the SV Hopper currently operates in the service area being considered in the service design of a Midpen ride hail service, potentially facilitating economies of scale in the provision of complementary schedules. Through conversations, the City has expressed an interest in exploring a collaborative arrangement with the potential for simplified messaging to riders. This option is further addressed in the service design description and cost/ridership model sections presented in Section 2.2.

SV Hopper shuttle is an app-based ride-share program that provides transportation anywhere in Cupertino and to select destinations outside of the City.

The service operates Monday-Friday from 7AM to 7PM and on Saturday's 9AM to 5PM. The standard one-way fare is $3.50, with a discounted fare of $1.75 available to seniors, students and low income residents. Reduced weekly passes are also available.

City officials report that approximately 407 one-way trips were provided to Rancho San Antonio since October 2021 (approx. 15 months). By order of magnitude, this translates to approximately 27 trips per month. Additional data suggests most trips to/from Rancho San

Antonio occur in the 1PM to 4PM period, with Tuesday and Wednesday being the busiest days of the week.

The current SV Hopper service zone map is presented below (Figure 2.5), with popular destinations noted, including Rancho San Antonio.

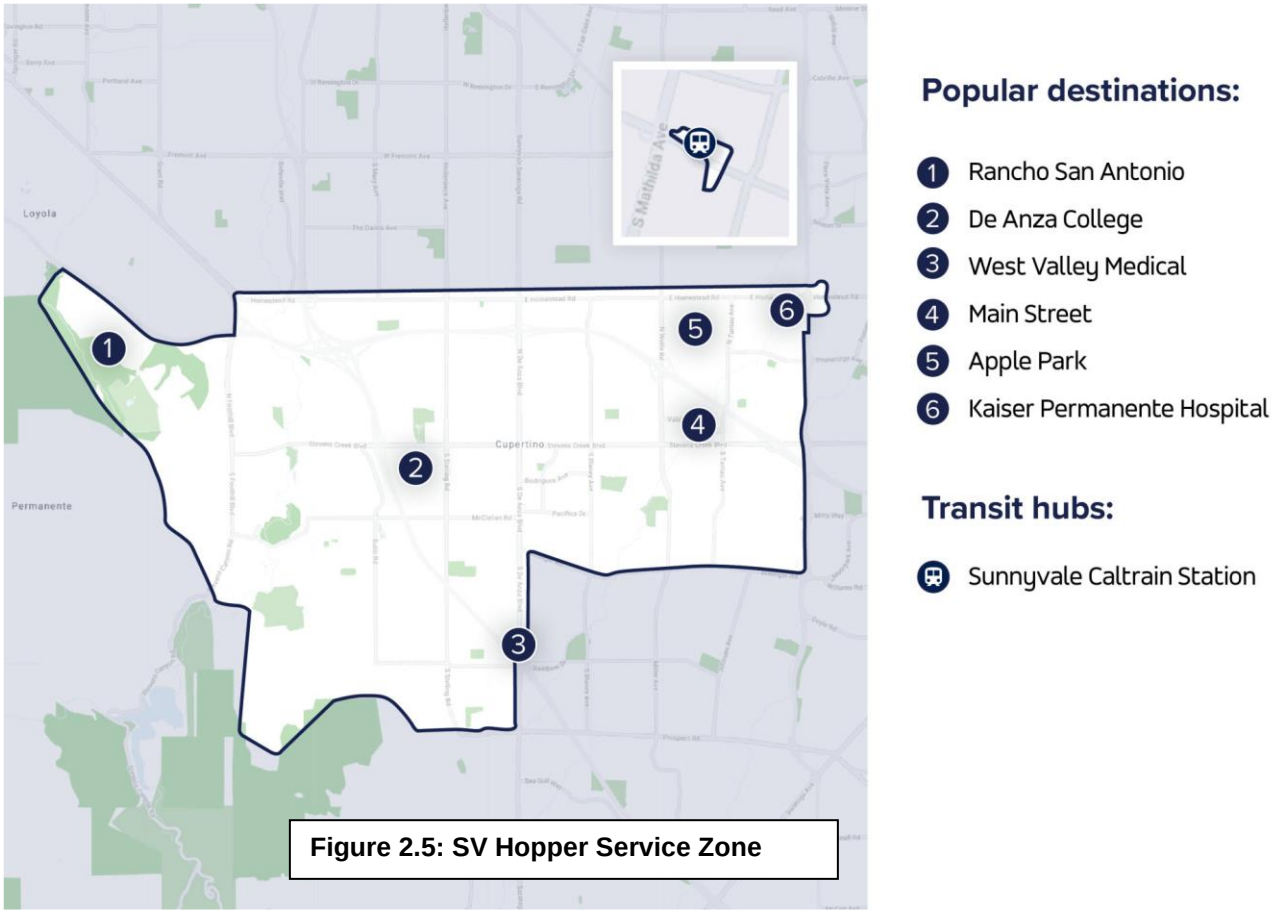


Figure 2.5: SV Hopper Service Zone

2.2 Service Design

Service design *options*[3] for the Ride Hail Program include:

1. Independent Ride Hail program
2. SV Hopper: Collaborate with the City of Cupertino to expand their operation to include Rancho San Antonio as a specific service stop
3. Ride Hail services integrated with the shuttle program deployment

Operating parameters for each of these options is presented below (Section 2.2.1 - Cost/Ridership).

[3] Presented for discussion with the Midpen project management team.

As previously discussed, ride-hailing refers to an act when a customer orders a customized ride online usually via a smartphone application. In essence, it is similar to a taxi service. The customer orders the ride from a ride-hailing platform – a third party (typically a transportation network company or TNC) that mediates the service between the driver and the passenger. The best-known mediators are Uber and Lyft. The process is illustrated below (Figure 2.6). This process is similar to the current booking/ride experience of the SV Hopper shuttle.

Of note, advancing a ride hail program (and as presented in the ConOps schematic – Figure 2.1) requires the development of a specification document for the procurement of a ride hail service (& technology platform) provider. Midpen's primary responsibility would be that of contract procurement and administration. There would not be the requirement for the purchase or lease of vehicles. Contracted services would be subsidized on a 'service consumed' bases (i.e., only subsidizing trips as they are used with no commitment for other types of payment).

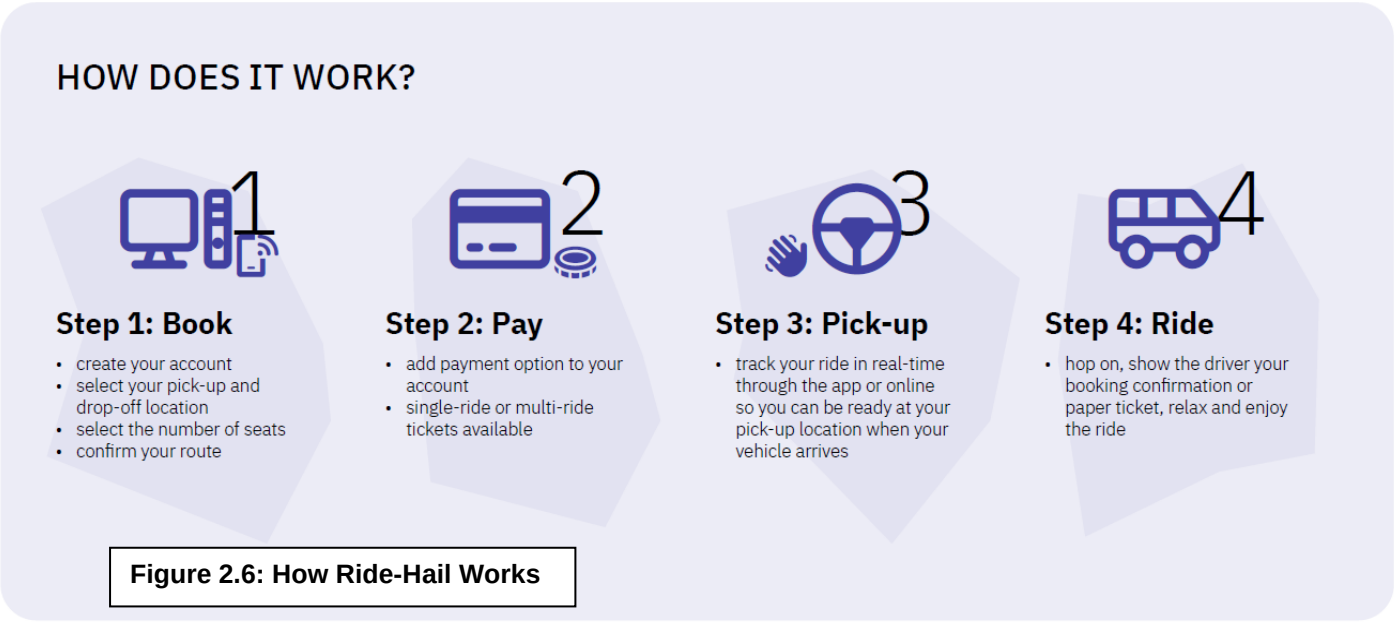


Figure 2.6: How Ride-Hail Works

The process can be described in four steps:

1. The customer chooses their pick-up/drop-off locations and specifies when the service is needed, they are then offered ride options that may include pick-up and/or drop off times/windows.
2. In some cases, payment options are provided to the rider through the application, which can be in the form of credit card, pass, transfers or the purchase of a stored value card.
3. The transit vehicles are then routed and deployed based on the optimized route selected by the routing software, considering several inputs (i.e., traffic, availability, vehicle accessories, etc.) as well as the locations and number of customers in need of a ride.
4. Riders can then optionally track their ride in real-time through a mobile application if it is accessible to them.

Important considerations include:

- Options for those who may not have a smart device for trip booking. This is typically accommodated through a call-center. SV Hopper, as well as most transportation network companies offer this option.
- Option for those who may be unbanked (do not have access to a credit card). This may be addressed through the sale of stored value cards.
- The need to provide accessible service options for those who use a mobility device.
- The need to incorporate a geofence[4] capability in the ride hail platform to reflect trip constraints specific to and/or /from Rancho San Antonio. The defining of a specific ride hail service area may be used in determining a (distance based) subsidy level.
- Customer-centric considerations, including (a) amenities such as bike racks; (b) understanding potential customer resistance (e.g., concerns around reliability, trust in drivers or other passengers, safety concerns, overcoming resistance to change, adaptability to the use of technology, providing different options to trip booking); and (c) protecting customer privacy - ensuring the privacy of individual customer data in terms of collection and management.
- Data monitoring and performance evaluation (addressed in Section 3.0).

2.2.1 Service Design Options – Cost/Ridership Model

The following tables, offered for discussion:

- Table 2.1: Service Parameters, including level and span of service. Of note, while the use of TNCs provides for a flexible number of vehicles (typically commensurate with demand), a 'place holder' number of TNC vehicles is included to present order of magnitude and for calculations of estimated demand and cost.
- Table 2.2: Estimates (high and low) of potential ridership/demand, providing for a range (and order of magnitude) based on the anticipated level of service.
- Tables 2.3, (a), (b), and (c): Revenue and net cost estimates for each of the service design options. Tables 2.3(a), 2.3(b), and 2.3(c) reflect alternate fares of $1.50, $2.50, and $3.50 respectively and hence the financial impact on the cost of service for the low and high demand scenarios.

[4] Geofence is a virtual geographic boundary, defined by GPS or radio frequency identification (RFID), that enables software to trigger a response when a mobile device enters or leaves a particular area.

ATTACHMENT 2

Table 2.1: Service Parameters (Level & Span of Service)

	Service Model	Level of Service - Mon. - Fri. *	Level of Service - Sat., Sun. & holidays *	Operating Span Weekday (hours)	Operating Span Saturday (hours)	Operating Span Sun/Hol (hours)	Weekday Vehicles in Service	Saturday Vehicles in Service	Sun/Hol Vehicles in Service
1	Independent Ride-Hail Program	6:30AM - 7:00PM	6:30AM - 7:00PM	12.5	12.5	12.5	4	4	4
2	SV Hopper - Collaboration	6:30AM - 7:00PM	6:30AM - 7:00PM	12.5	12.5	12.5	1	1	1
3	Integrated Ride-Hail & Shuttle Program	6:30AM - 7:00PM	12:30PM - 7:00PM	12.5	6.5	6.5	1	3	3

* Park Hours: 1/2 hour before sunrise to 1/2 hour after sunset

Table 2.2: Ridership/Demand Estimates (High & Low)

	Service Model	Annual Coverage Hours	Capacity per Coverage Hour	Maximum Annual Service Capacity (hours)	Low Demand	High Demand	Low Annual Ridership Estimate	High Annual Ridership Estimate
1	Independent Ride-Hail Program	16,300	3	48,900	0.33	0.50	16,137	24,450
2	SV Hopper - Collaboration	4,563	3	13,688	0.50	0.67	6,844	9,171
3	Integrated Ride-Hail & Shuttle Program	4,657	3	13,970	0.33	0.50	4,610	6,985

Table 2.3(a) : Revenue and Net Cost Estimates (High & Low) - $1.50 Fare

	Service Model	Gross Cost of Service - Low Demand	Gross Cost of Service - HighDemand	Fare Revenue (@ $1.50) Low Demand	Fare Revenue (@ $1.50) High Demand	Net Cost of Service - Low Demand	Net Cost of Service - High Demand	Max. Subsidy per Trip Low Demand *	Max. Subsidy per Trip High Demand
1	Independent Ride-Hail Program	$314,671.50	$476,775.00	$24,206	$36,675	$290,466	$440,100	$18.00	$18.00
2	SV Hopper - Collaboration	$133,453.13	$178,827.19	$10,266	$13,756	$123,188	$165,071	$18.00	$18.00
3	Integrated Ride-Hail & Shuttle Program	$89,893.73	$136,202.63	$6,915	$10,477	$82,979	$125,726	$18.00	$18.00

* Reflects (based on TNC rate calculator) cost of approx. 7 mile trip.

Table 2.3(b) : Revenue and Net Cost Estimates (High & Low) - $2.50 Fare

	Service Model	Gross Cost of Service - Low Demand	Gross Cost of Service - HighDemand	Fare Revenue (@ $2.50) Low Demand	Fare Revenue (@ $2.50) High Demand	Net Cost of Service - Low Demand	Net Cost of Service - High Demand	Max. Subsidy per Trip Low Demand *	Max. Subsidy per Trip High Demand
1	Independent Ride-Hail Program	$314,671.50	$476,775.00	$40,343	$61,125	$274,329	$415,650	$18.00	$18.00
2	SV Hopper - Collaboration	$133,453.13	$178,827.19	$17,109	$22,927	$116,344	$155,901	$18.00	$18.00
3	Integrated Ride-Hail & Shuttle Program	$89,893.73	$136,202.63	$11,525	$17,462	$78,369	$118,741	$18.00	$18.00

* Reflects (based on TNC rate calculator) cost of approx. 7 mile trip.

Table 2.3(c) : Revenue and Net Cost Estimates (High & Low) - $3.50 Fare

	Service Model	Gross Cost of Service - Low Demand	Gross Cost of Service - HighDemand	Fare Revenue (@ $3.50) Low Demand	Fare Revenue (@ $3.50) High Demand	Net Cost of Service - Low Demand	Net Cost of Service - High Demand	Max. Subsidy per Trip Low Demand *	Max. Subsidy per Trip High Demand
1	Independent Ride-Hail Program	$314,671.50	$476,775.00	$56,480	$85,575	$258,192	$391,200	$18.00	$18.00
2	SV Hopper - Collaboration	$133,453.13	$178,827.19	$23,953	$32,097	$109,500	$146,730	$18.00	$18.00
3	Integrated Ride-Hail & Shuttle Program	$89,893.73	$136,202.63	$16,135	$24,447	$73,759	$111,756	$18.00	$18.00

* Reflects (based on TNC rate calculator) cost of approx. 7 mile trip.

2.2.2 Next Steps - Service Design

Important next steps in finalizing the ride hail service design include:

- Discussion with the project management team - solicit initial input on the three options presented;
- Review the service design of the shuttle program deployment with an eye on opportunities for an integrated/hybrid approach (Option 3); and
- Discuss if there is interest to collaborate with the City of Cupertino to expand their operation to include Rancho San Antonio specific service.

3 Performance Measurement

As the provision of ride hail services through modern technological applications is relatively new, it is important to monitor performance through key metrics to determine whether the service is meeting Midpen's desired goals and objectives. The service's success or failure should be determined based on performance metrics that look at not just ridership (and subsidy levels) but also at customer experience, including improved mobility/access, equity and visitor experience/customer satisfaction.

Similarly, customers who may have been first attracted to the convenience of a ride hail service can become alienated if wait times and travel times grow as ridership increases.

3.1 Key Performance Indicators

Data is key to assessing the effectiveness of a ride hail service once it is deployed. The table below (Table 3.1) outlines data metrics that can be used to assess different key performance indicators (KPIs) of the service.

The sample KPIs presented in Table 3.1 will be further refined in consultation with the Midpen project management team and the need to coordinate KPIs with the shuttle program. Further, the refinement will include collaboratively developing specific measures and timeframe. For example (provided for illustrative purposes):

- Wait time: 85% of rides with a wait time less than 15 minutes. Target: within 3-6 months of launching program.
- No shows and cancellations: less than 10% of scheduled trips.
- Complaints: No more than 10 per 100 completed trips
- Shared trips: 10% of completed passenger trips

Once service objectives and goals have been determined, Midpen should measure the performance through selected metrics or indicators and establish a baseline. This allows for measurement through data collection and tabulation, and the ability to assess the resulting measures. Depending on the assessment, actions can be developed to improve performance and address deficiencies. It is also important to revisit service goals and objectives periodically to ensure the goals and objectives are still relevant and applicable.

A typical process for performance measurement (as illustrated in Figure 3.1) includes:

- Establishing service goals and objectives
- Identify performance metrics
- Collect data and calculate metrics
- Assess results and performance
- Consider improvement actions and strategies
- Monitor continuous performance
- Review goals and objectives periodically

Figure 3.1: Example Process for Performance Measurement

Table 3.1: Key Performance Indicators – Ride Hail

BUSINESS FUNCTION	SAMPLE KPIS	REQUIRED DATA
Mobility/ Service Operations	• Riders per hour • Ridership by service area/zones • On-time performance • Service reliability • Number of booked and completed trips • Number of no-shows and cancellations • Vehicle revenue hours and miles • Number of trips originating /terminating within a zone or predefined location • Number of passenger trips that are shared.	• Trip details, Origin-Destination • Ridership • Payments and Payment Methods • Vehicle travel time and schedule adherence data
Equity	• Trips delivered to variety of community segments • Increased access to destinations in communities • Trips delivered to unbanked/ underbanked communities • Trip requests by mobile app vs. telephone requests through call-center	• Trip details
Customer Satisfaction	• Number of customer complaints • Passenger wait time • Average on-board time • Average trip length • Number of service denials • Reduced number of personal vehicle miles traveled • Number of parking spaces relieved by ride hail use	• Trip details; Origin-Destination • Ridership • Payments • Vehicle travel time and schedule adherence data • Missed connections
Finance	• Revenue trend • Trends in cash and non-cash payments • Cost/trip • Subsidy/trip • Cost/revenue hour • Cost/revenue mile	• Cost and revenue data
Environmental	• GHG reduction • Increased Mode share of electric vehicles (as appropriate)	• Vehicle Miles Travelled (VMT) by modes delivering service

Appendix A: Stakeholder Meeting Minutes

i. Joint Stakeholder Workshop
ii. Midpen – Cupertino Meeting

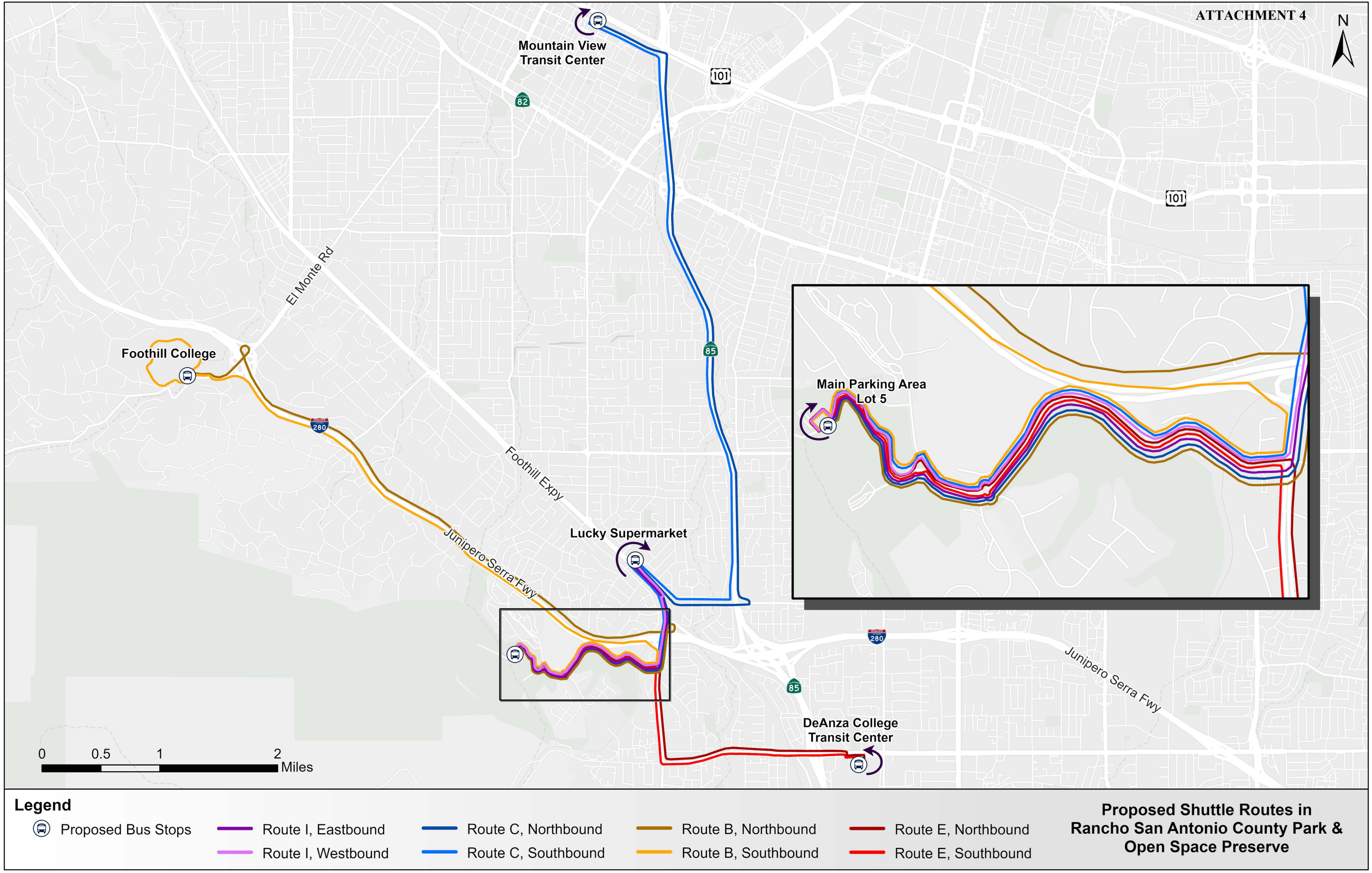
Attachment 3 – Stakeholder Workshop Feedback

Topic	General Feedback
Community interest/reception	• Anticipate general interest in these programs from the community (depending on operations) • Neighborhoods adjacent to the preserve could be most impacted by the proposed programs and less likely to utilize the programs • Public education on technology options may be needed for certain user groups • Length of the shuttle ride would be a significant factor in determining user interest • For ride hail, consider lack of cell phone coverage at entrances and overall ability to order a ride
Ability of the programs to meet project goals	• Consider how to overcome convenience of a car (a successful shuttle program would need sufficient seating capacity, frequent and reliable service, and nearby satellite lots) • Both programs would need to be easily accessible and timely • Consider free shuttle service and charging for parking during peak times. • Silicon Valley Hopper (formerly Via Cupertino) is currently not seeing a lot of existing usage to access Rancho San Antonio* • Consider other strategies to manage parking supply to ensure program success: time limits; reservations; charge for parking (there may be lack of political will for these strategies) • A shuttle has potential to alleviate congestion and should consider how to manage congestion that could be created from ride hail • Interest in a hybrid shuttle-ride hail solution (shuttle can operate on weekends/holidays mornings, where ride hail would service visitors at all other times) • Fixed-route shuttle service could serve those closer to the preserve via an satellite lot • Visitors travelling only 3-5 miles away may prefer something like ride hail
Immediate concerns about a shuttle or ride-hail program	• Via or RideCo are recommended for ride hail as opposed to Lyft or Uber (there may be issues with their level of data sharing) • Concern over duplicative service which could confuse program users (may pose an opportunity to build off existing mobility services) • Concern with using certain neighborhood entrances (such as St Joseph) for access • Larger vehicles coming through neighborhoods could be an issue (could be mitigated with electric vehicles or other non-polluting shuttle) • Keep a consistent schedule for promoting shuttle and ensuring rides
General thoughts on partnership opportunities	• Potential opportunities to pay into and build off existing mobility services (more cost-effective and less confusing for users)

Attachment 3 – Stakeholder Workshop Feedback

	• Potential opportunity to use a Cupertino Union School District lot (e.g. Montclair, Stevens Creek, Lincoln schools) during off-school hours as a shuttle satellite lot • Potential financial commitment, subject to agency council approval to support programs • Potential promotion of programs through leverage certain user groups and organizations to help promote the service

ATTACHMENT 4



Legend

- Proposed Bus Stops
- Route I, Eastbound
- Route I, Westbound
- Route C, Northbound
- Route C, Southbound
- Route B, Northbound
- Route B, Southbound
- Route E, Northbound
- Route E, Southbound

Proposed Shuttle Routes in Rancho San Antonio County Park & Open Space Preserve

ATTACHMENT 4

N

Foothill College

Junipero Serra Fwy

Foothill Expy

Main Parking Area
Lot 5

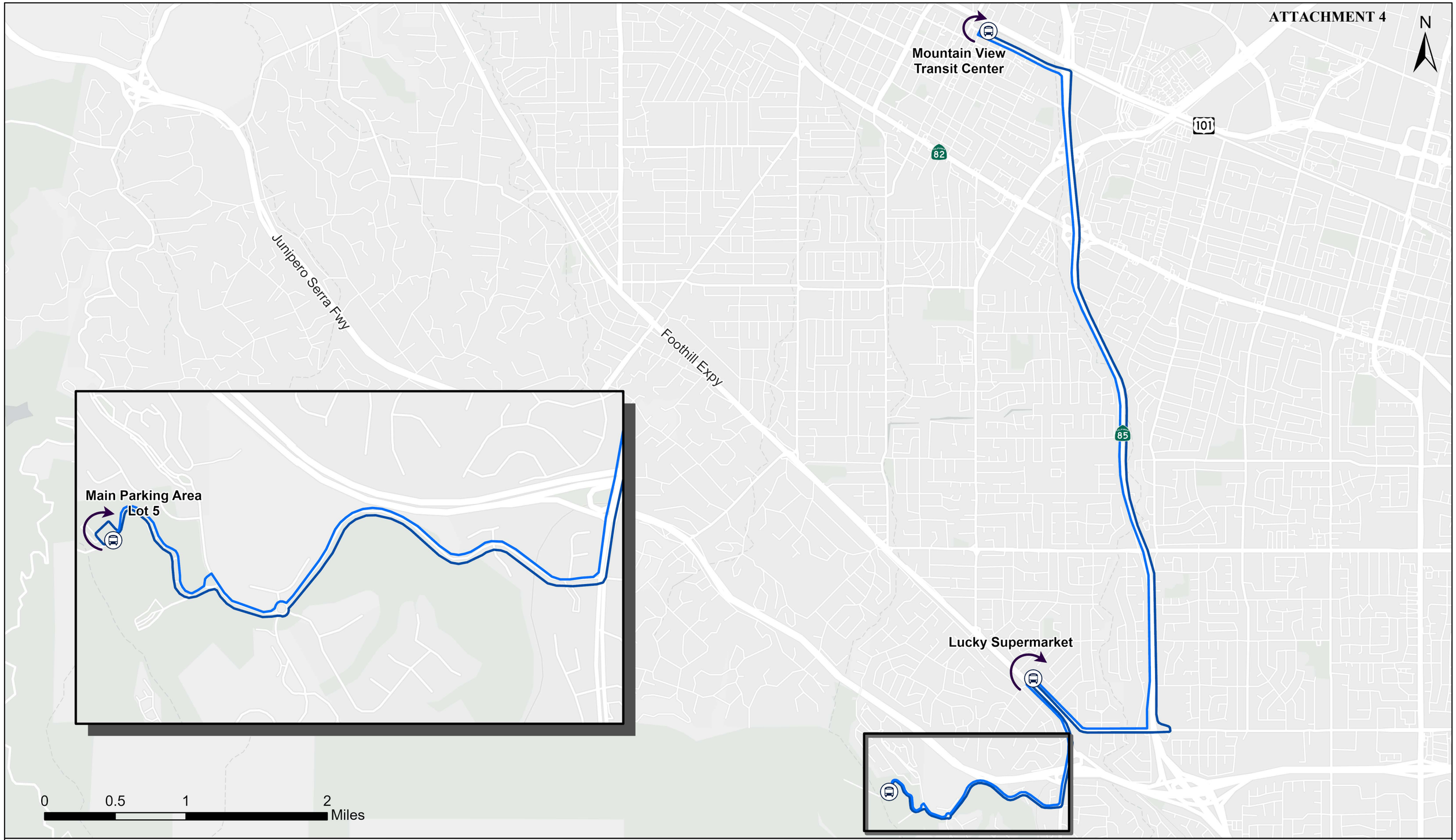
0 0.25 0.5 1 Miles

Legend

- Proposed Bus Stops
- Option B, Northbound
- Option B, Southbound

Proposed Shuttle Route in Rancho San Antonio County Park & Open Space Preserve

ATTACHMENT 4

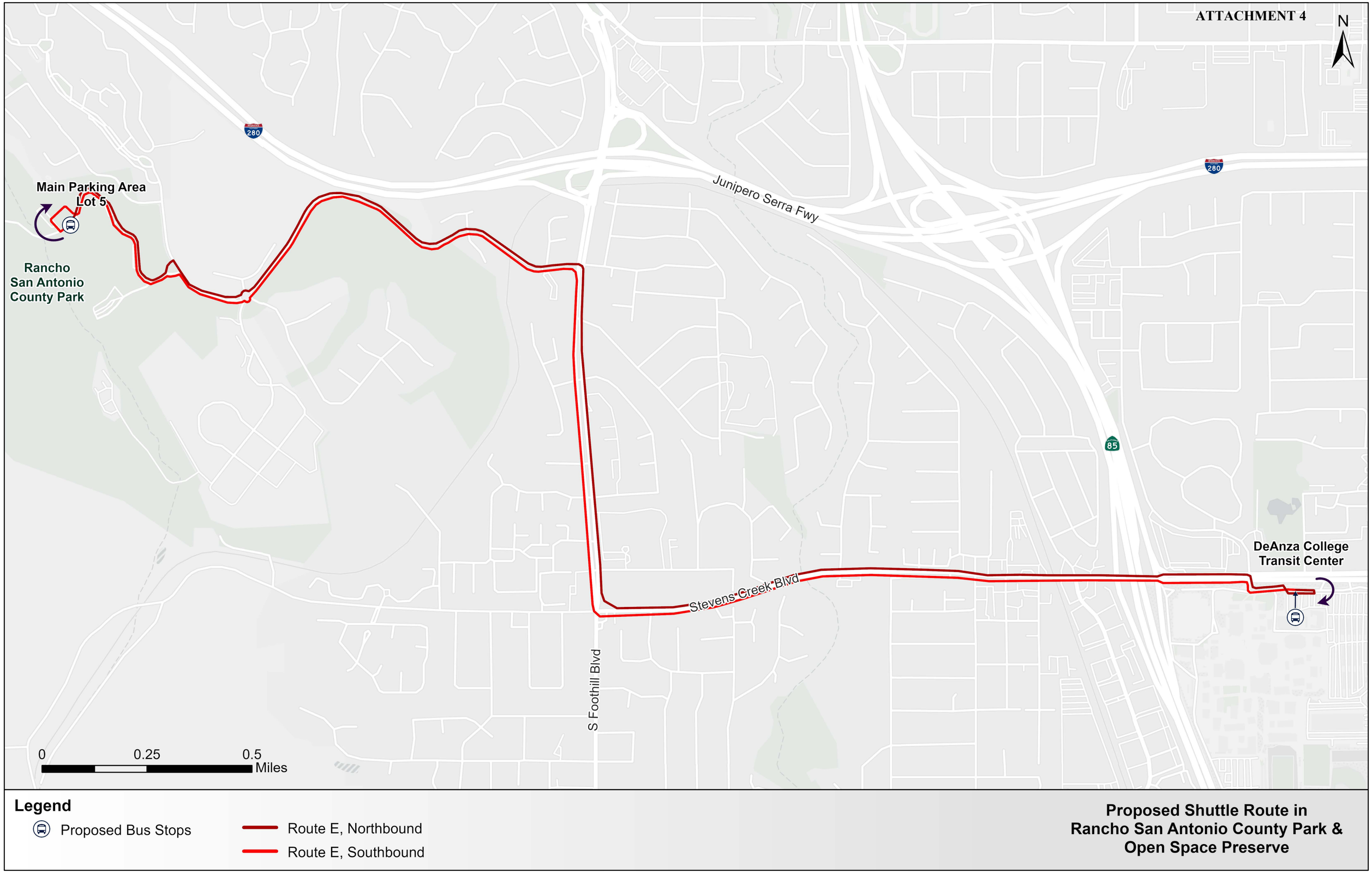


Legend

- Proposed Bus Stops
- Route C, Northbound
- Route C, Southbound

Proposed Shuttle Route in Rancho San Antonio County Park & Open Space Preserve

ATTACHMENT 4

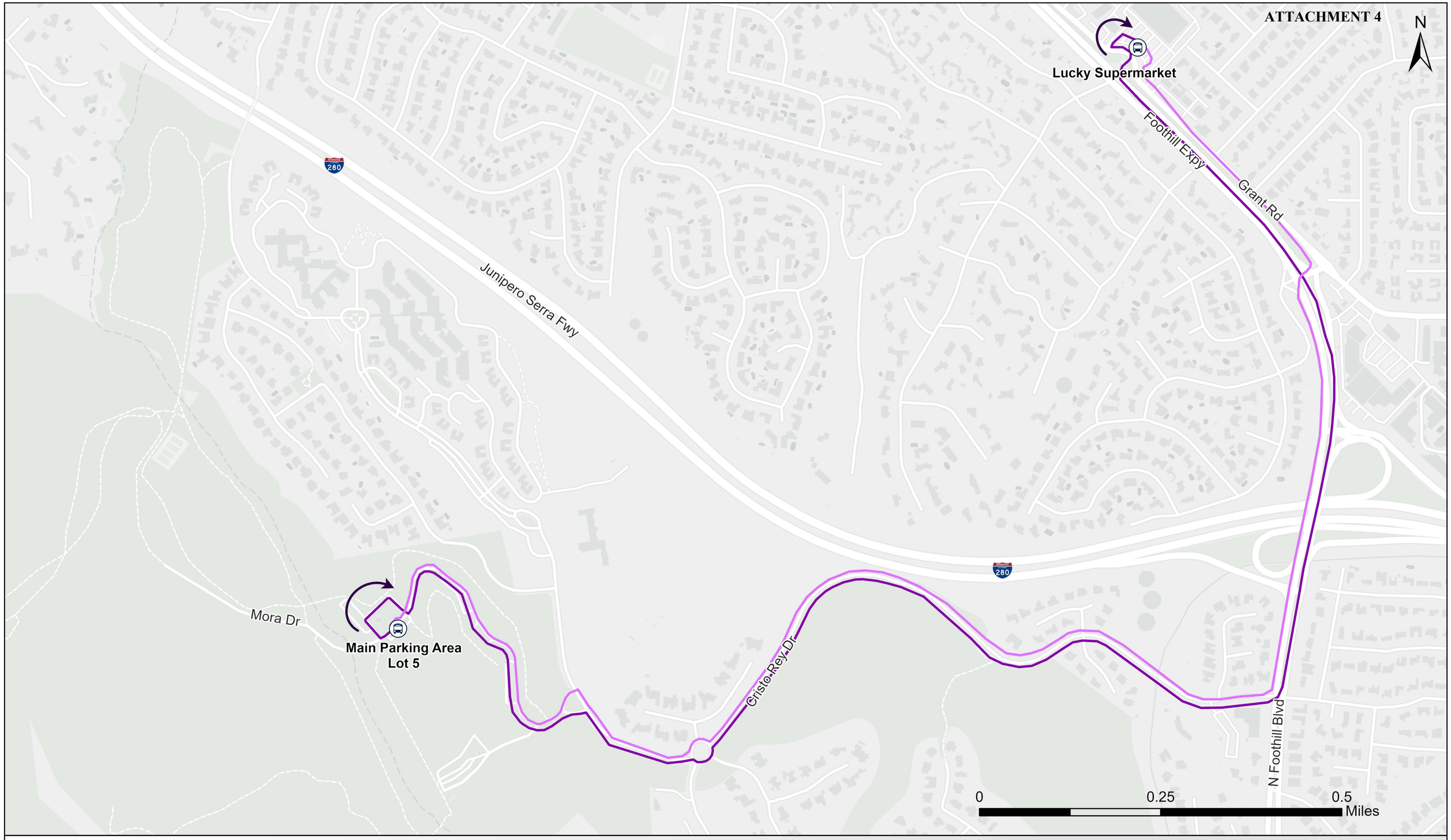


Legend

- Proposed Bus Stops
- Route E, Northbound
- Route E, Southbound

Proposed Shuttle Route in Rancho San Antonio County Park & Open Space Preserve

ATTACHMENT 4



Legend

- Proposed Bus Stops
- Route I, Eastbound
- Route I, Westbound

Proposed Shuttle Route in Rancho San Antonio County Park & Open Space Preserve

Route Metrics

This section lays out the general measurables of each route concept, specifically the running length in miles and the number of stops that will be needed for each concept, broken down by existing (VTA) and new stops. This information forms much of the backbone of the calculations in subsequent sections.

Concept	Round-trip route distance (miles)	EB/SB (miles)	WB/NB (miles)	Stops		
				Existing VTA	New	Total
B - Foothill College	12.76	5.62	7.14	1	1	2
C - Mtn View Station	15.21	7.58	7.63	1	2	3
E - DeAnza College	9.06	4.48	4.58	1	1	2
I - Lucky	4.68	2.44	2.24	0	2	2

Daily Service Calculations

This section calculates, on a daily basis, the quantities that are critical to cost estimation:

▪The expected travel time is based on the lenth of each route concept and the anticipated average speed of each route concept, including stops. For this estimate, 20 mph was used for off-peak periods (including weekends), with a slightly higher 25 mph for the Mtn View Station route in light of the fact that it will largely run on highways. High, middle, and low scenarios are presented based on the recognition that real-world conditions may result in vehicle running times differeing from these assumptions.

▪Deadhead time and miles represent the trip from the vehicle garage to the point where the vehicle goes into service and begins boarding passengers.

▪Layover/recovery time is time that the shuttle will spend sitting at one end of the route returning to schedule (if it is ahead).

▪Revenue time/hours represent the time that the vehicle is in service and boarding passengers.

▪Platform hours/miles are revenue and deadhead time combined.

▪Headways are the amount of time between two vehicles serving the same stop (i.e. service every 15 minutes, every 30 minutes, etc.)

Vehicle requirements are a function of the running time of the route (including layover) and the assumed headways. Revenue hours are based on the number of vehicles running and the amount of time they run.

General Route Parameters

	Round-Trip Travel Time Estimates in minutes (Peak)			Round-Trip Travel Time Estimates in minutes (Off-Peak)			Assumed Deadhead Time (min)	Assumed Deadhead Distance (Miles)	Layover/Recovery Time (Peak)			Layover/Recovery Time (Off-Peak)			Route distance (miles)	Number of stops
	Low	Mid	High	Low	Mid	High			Low	Mid	High	Low	Mid	High		
B - Foothill College	38	43	51	28	31	37	15	10	5	5	7	5	5	5	12.76	2
C - Mtn View Station	46	51	61	33	37	44	15	10	7	7	10	5	5	5	15.21	3
E - DeAnza College	27	30	36	24	27	33	15	10	5	5	5	5	5	5	9.06	2
I - Lucky	14	16	19	13	14	17	15	10	5	5	5	5	5	5	4.68	2

Saturday Service

	Assumed Start Time	Assumed End Time	Span of Service	Assumed Headway	Vehicles needed (add 20% for spares)			Daily Revenue Hours (Saturday)			Daily Platform Hours (Saturday)			Daily Trips	Daily Revenue Miles	Daily Platform Miles		
					Low	Mid	High	Low	Mid	High	Low	Mid	High			Low	Mid	High
B - Foothill College	6:30	12:30	6.0	15	3	3	3	17.25	17.25	17.25	18.75	18.75	18.75	22.5	287	317	332	347
C - Mtn View Station	6:30	12:30	6.0	15	3	3	4	17.25	17.25	22.50	18.75	18.75	24.00	22.8	346	376	391	411
E - DeAnza College	6:30	12:30	6.0	15	2	3	3	11.75	17.25	17.25	13.25	18.75	18.75	23.4	212	232	247	262
I - Lucky	6:30	12:30	6.0	15	2	2	2	11.75	11.75	11.75	13.25	13.25	13.25	22.9	107	127	137	147

Sunday Service

	Assumed Start Time	Assumed End Time	Span of Service	Assumed Headway	Vehicles needed (add 20% for spares)			Daily Revenue Hours (Sunday)			Daily Platform Hours (Sunday)			Daily Trips	Daily Revenue Miles	Daily Platform Miles		
					Low	Mid	High	Low	Mid	High	Low	Mid	High			Low	Mid	High
B - Foothill College	6:30	12:30	6.0	15	3	3	3	17.25	17.25	17.25	18.75	18.75	18.75	22.5	287	317	332	347
C - Mtn View Station	6:30	12:30	6.0	15	3	3	4	17.25	17.25	22.50	18.75	18.75	24.00	22.8	346	376	391	411
E - DeAnza College	6:30	12:30	6.0	15	2	3	3	11.75	17.25	17.25	13.25	18.75	18.75	23.4	212	232	247	262
I - Lucky	6:30	12:30	6.0	15	2	2	2	11.75	11.75	11.75	13.25	13.25	13.25	22.9	107	127	137	147

Annual Service

This section annualizes the daily calculations of the previous section, based on 52 Saturdays & 52 Sundays each year, plus nine weekday holidays that will have the same service as a weekend day.

	Annual Revenue Hours			Annual Platform Hours			Annual Trips	Annual Revenue Miles	Annual Platform Miles		
B - Foothill College	1,949	1,949	1,949	2,119	2,119	2,119	2,546	32,486	35,876	37,571	39,266
C - Mtn View Station	1,949	1,949	2,543	2,119	2,119	2,712	2,573	39,131	42,521	44,216	46,476
E - DeAnza College	1,328	1,949	1,949	1,497	2,119	2,119	2,650	24,006	26,266	27,961	29,656
I - Lucky	1,328	1,328	1,328	1,497	1,497	1,497	2,591	12,127	14,387	15,517	16,647

Cost Figures

This section presents the cost figure assumptions used to translate platform hours into costs. Most transit providers use a generalized per hour cost to estimate the cost of new or midified service. The figure shown here is an estimate based on known operating costs for similar services. The per-stop cost assumes the installation of a standard bus shelter and bench.

Medium Cutaway Van (10-15 seats)

Per Revenue Hour Costs	$ 143.00
Per-Stop Infrastructure Cost	$ 10,000.00

Cost Figures

This section applies the cost figures to the calculated annual platform hours to arrive at annual operating costs.

Medium Cutaway Van (10-15 seats)

Anticipated Annual Service Days: 113

Annual Operating Costs

	Annuals Costs			Annual ridership		Cost per rider	
	Low	Mid	High	Low	High	Low	High
B - Foothill College	$ 278,743	$ 278,743	$ 278,743	20,340	36,725	$7.59	$13.70
C - Mtn View Station	$ 278,743	$ 278,743	$ 363,578	30,510	40,680	$6.85	$11.92
E - DeAnza College	$ 189,868	$ 278,743	$ 278,743	22,600	40,680	$4.67	$12.33
I - Lucky	$ 189,868	$ 189,868	$ 189,868	22,600	40,680	$4.67	$8.40

Route Metrics

This section lays out the general measurables of each route concept, specifically the running length in miles and the number of stops that will be needed for each concept, broken down by existing (VTA) and new stops. This information forms much of the backbone of the calculations in subsequent sections.

Concept	Round-trip route distance (miles)	EB/SB (miles)	WB/NB (miles)	Stops		
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Daily Service Calculations

This section calculates, on a daily basis, the quantities that are critical to cost estimation:

▪The expected travel time is based on the lenth of each route concept and the anticipated average speed of each route concept, including stops. For this estimate, 20 mph was used for off-peak periods (including weekends), with a slightly higher 25 mph for the Mtn View Station route in light of the fact that it will largely run on highways. High, middle, and low scenarios are presented based on the recognition that real-world conditions may result in vehicle running times differeing from these assumptions.

▪Deadhead time and miles represent the trip from the vehicle garage to the point where the vehicle goes into service and begins boarding passengers.

▪Layover/recovery time is time that the shuttle will spend sitting at one end of the route returning to schedule (if it is ahead).

▪Revenue time/hours represent the time that the vehicle is in service and boarding passengers.

▪Platform hours/miles are revenue and deadhead time combined.

▪Headways are the amount of time between two vehicles serving the same stop (i.e. service every 15 minutes, every 30 minutes, etc.)

Vehicle requirements are a function of the running time of the route (including layover) and the assumed headways. Revenue hours are based on the number of vehicles running and the amount of time they run.

General Route Parameters

	Round-Trip Travel Time Estimates in minutes (Peak)			Round-Trip Travel Time Estimates in minutes (Off-Peak)			Assumed Deadhead Time (min)	Assumed Deadhead Distance (Miles)	Layover/Recovery Time (Peak)			Layover/Recovery Time (Off-Peak)			Route distance (miles)	Number of stops
	Low	Mid	High	Low	Mid	High			Low	Mid	High	Low	Mid	High		
B - Foothill College	38	43	51	28	31	37	15	10	5	5	7	5	5	5	12.76	4
C - Mtn View Station	46	51	61	33	37	44	15	10	7	7	10	5	5	5	15.21	5
E - DeAnza College	27	30	36	24	27	33	15	10	5	5	5	5	5	5	9.06	4
I - Lucky	14	16	19	13	14	17	15	10	5	5	5	5	5	5	4.68	4

Saturday Service

	Assumed Start Time	Assumed End Time	Span of Service	Assumed Headway	Vehicles needed (add 20% for spares)			Daily Revenue Hours (Saturday)			Daily Platform Hours (Saturday)			Daily Trips	Daily Revenue Miles	Daily Platform Miles		
					Low	Mid	High	Low	Mid	High	Low	Mid	High			Low	Mid	High
B - Foothill College	6:30	12:30	6.0	20	2	2	3	11.67	11.67	17.00	12.67	12.67	18.50	17.3	221	241	251	266
C - Mtn View Station	6:30	12:30	6.0	20	2	3	3	11.67	17.00	17.00	12.67	18.00	18.50	17.5	265	285	300	315
E - DeAnza College	6:30	12:30	6.0	20	2	2	2	11.67	11.67	11.67	12.67	12.67	13.17	17.3	156	176	186	196
I - Lucky	6:30	12:30	6.0	20	1	1	2	6.00	6.00	11.67	7.00	7.00	13.17	18.0	84	94	99	109

Sunday Service

	Assumed Start Time	Assumed End Time	Span of Service	Assumed Headway	Vehicles needed (add 20% for spares)			Daily Revenue Hours (Sunday)			Daily Platform Hours (Sunday)			Daily Trips	Daily Revenue Miles	Daily Platform Miles		
					Low	Mid	High	Low	Mid	High	Low	Mid	High			Low	Mid	High
B - Foothill College	6:30	12:30	6.0	20	2	2	3	11.67	11.67	17.00	12.67	12.67	18.50	17.3	221	241	251	266
C - Mtn View Station	6:30	12:30	6.0	20	2	3	3	11.67	17.00	17.00	12.67	18.00	18.50	17.5	265	285	300	315
E - DeAnza College	6:30	12:30	6.0	20	2	2	2	11.67	11.67	11.67	12.67	12.67	13.17	17.3	156	176	186	196
I - Lucky	6:30	12:30	6.0	20	1	1	2	6.00	6.00	11.67	7.00	7.00	13.17	18.0	84	94	99	109

Annual Service

This section annualizes the daily calculations of the previous section, based on 52 Saturdays & 52 Sundays each year, plus nine weekday holidays that will have the same service as a weekend day.

	Annual Revenue Hours			Annual Platform Hours			Annual Trips	Annual Revenue Miles	Annual Platform Miles		
B - Foothill College	1,318	1,318	1,921	1,431	1,431	2,091	1,960	25,012	27,272	28,402	30,097
C - Mtn View Station	1,318	1,921	1,921	1,431	2,034	2,091	1,972	29,995	32,255	33,950	35,645
E - DeAnza College	1,318	1,318	1,318	1,431	1,431	1,488	1,951	17,675	19,935	21,065	22,195
I - Lucky	678	678	1,318	791	791	1,488	2,034	9,519	10,649	11,214	12,344

Cost Figures

This section presents the cost figure assumptions used to translate platform hours into costs. Most transit providers use a generalized per hour cost to estimate the cost of new or midified service. The figure shown here is an estimate based on known operating costs for similar services. The per-stop cost assumes the installation of a standard bus shelter and bench.

Medium Cutaway Van (10-15 seats)

Per Revenue Hour Costs	$ 143.00
Per-Stop Infrastructure Cost	$ 10,000.00

Cost Figures

This section applies the cost figures to the calculated annual platform hours to arrive at annual operating costs.

Medium Cutaway Van (10-15 seats)

Anticipated Annual Service Days: 113

Annual Operating Costs

	Annual Costs			Annual ridership		Cost per rider	
	Low	Mid	High	Low	High	Low	High
B - Foothill College	$ 188,522	$ 188,522	$ 274,703	16,950	30,510	$6.18	$16.21
C - Mtn View Station	$ 188,522	$ 274,703	$ 274,703	27,120	40,680	$4.63	$10.13
E - DeAnza College	$ 188,522	$ 188,522	$ 188,522	20,340	36,160	$5.21	$9.27
I - Lucky	$ 96,954	$ 96,954	$ 188,522	20,340	36,160	$2.68	$9.27

Route Metrics

This section lays out the general measurables of each route concept, specifically the running length in miles and the number of stops that will be needed for each concept, broken down by existing (VTA) and new stops. This information forms much of the backbone of the calculations in subsequent sections.

Concept	Round-trip route distance (miles)	EB/SB (miles)	WB/NB (miles)	Stops		
				Existing VTA	New	Total
B - Foothill College	12.76	5.62	7.14	1	3	4
C - Mtn View Station	15.21	7.58	7.63	1	4	5
E - DeAnza College	9.06	4.48	4.58	1	3	4
I - Lucky	4.68	2.44	2.24	0	4	4

Daily Service Calculations

This section calculates, on a daily basis, the quantities that are critical to cost estimation:

▪The expected travel time is based on the lenth of each route concept and the anticipated average speed of each route concept, including stops. For this estimate, 20 mph was used for off-peak periods (including weekends), with a slightly higher 25 mph for the Mtn View Station route in light of the fact that it will largely run on highways. High, middle, and low scenarios are presented based on the recognition that real-world conditions may result in vehicle running times differeing from these assumptions.

▪Deadhead time and miles represent the trip from the vehicle garage to the point where the vehicle goes into service and begins boarding passengers.

▪Layover/recovery time is time that the shuttle will spend sitting at one end of the route returning to schedule (if it is ahead).

▪Revenue time/hours represent the time that the vehicle is in service and boarding passengers.

▪Platform hours/miles are revenue and deadhead time combined.

▪Headways are the amount of time between two vehicles serving the same stop (i.e. service every 15 minutes, every 30 minutes, etc.)

Vehicle requirements are a function of the running time of the route (including layover) and the assumed headways. Revenue hours are based on the number of vehicles running and the amount of time they run.

General Route Parameters

	Round-Trip Travel Time Estimates in minutes (Peak)			Round-Trip Travel Time Estimates in minutes (Off-Peak)			Assumed Deadhead Time (min)	Assumed Deadhead Distance (Miles)	Layover/Recovery Time (Peak)			Layover/Recovery Time (Off-Peak)			Route distance (miles)	Number of stops
	Low	Mid	High	Low	Mid	High			Low	Mid	High	Low	Mid	High		
B - Foothill College	38	43	51	28	31	37	15	10	5	5	7	5	5	5	12.76	4
C - Mtn View Station	46	51	61	33	37	44	15	10	7	7	10	5	5	5	15.21	5
E - DeAnza College	27	30	36	24	27	33	15	10	5	5	5	5	5	5	9.06	4
I - Lucky	14	16	19	13	14	17	15	10	5	5	5	5	5	5	4.68	4

Saturday Service

	Assumed Start Time	Assumed End Time	Span of Service	Assumed Headway	Vehicles needed (add 20% for spares)			Daily Revenue Hours (Saturday)			Daily Platform Hours (Saturday)			Daily Trips	Daily Revenue Miles	Daily Platform Miles		
					Low	Mid	High	Low	Mid	High	Low	Mid	High			Low	Mid	High
B - Foothill College	6:30	12:30	6.0	30	2	2	2	11.50	11.50	11.50	12.50	12.50	12.50	11.0	141	161	171	181
C - Mtn View Station	6:30	12:30	6.0	30	2	2	2	11.50	11.50	11.50	12.50	12.50	12.50	11.2	170	190	200	210
E - DeAnza College	6:30	12:30	6.0	30	1	2	2	6.00	11.50	11.50	7.00	12.50	12.50	12.0	109	119	129	139
I - Lucky	6:30	12:30	6.0	30	1	1	1	6.00	6.00	6.00	7.00	7.00	7.00	12.0	56	66	71	76

Sunday Service

	Assumed Start Time	Assumed End Time	Span of Service	Assumed Headway	Vehicles needed (add 20% for spares)			Daily Revenue Hours (Sunday)			Daily Platform Hours (Sunday)			Daily Trips	Daily Revenue Miles	Daily Platform Miles		
					Low	Mid	High	Low	Mid	High	Low	Mid	High			Low	Mid	High
B - Foothill College	6:30	12:30	6.0	30	2	2	2	11.50	11.50	11.50	12.50	12.50	12.50	11.0	141	161	171	181
C - Mtn View Station	6:30	12:30	6.0	30	2	2	2	11.50	11.50	11.50	12.50	12.50	12.50	11.2	170	190	200	210
E - DeAnza College	6:30	12:30	6.0	30	1	2	2	6.00	11.50	11.50	7.00	12.50	12.50	12.0	109	119	129	139
I - Lucky	6:30	12:30	6.0	30	1	1	1	6.00	6.00	6.00	7.00	7.00	7.00	12.0	56	66	71	76

Annual Service

This section annualizes the daily calculations of the previous section, based on 52 Saturdays & 52 Sundays each year, plus nine weekday holidays that will have the same service as a weekend day.

	Annual Revenue Hours			Annual Platform Hours			Annual Trips	Annual Revenue Miles	Annual Platform Miles		
B - Foothill College	1,300	1,300	1,300	1,413	1,413	1,413	1,245	15,890	18,150	19,280	20,410
C - Mtn View Station	1,300	1,300	1,300	1,413	1,413	1,413	1,263	19,212	21,472	22,602	23,732
E - DeAnza College	678	1,300	1,300	791	1,413	1,413	1,356	12,285	13,415	14,545	15,675
I - Lucky	678	678	678	791	791	791	1,356	6,346	7,476	8,041	8,606

Cost Figures

This section presents the cost figure assumptions used to translate platform hours into costs. Most transit providers use a generalized per hour cost to estimate the cost of new or midified service. The figure shown here is an estimate based on known operating costs for similar services. The per-stop cost assumes the installation of a standard bus shelter and bench.

Medium Cutaway Van (10-15 seats)

Per Revenue Hour Costs	$ 143.00
Per-Stop Infrastructure Cost	$ 10,000.00

Cost Figures

This section applies the cost figures to the calculated annual platform hours to arrive at annual operating costs.

Medium Cutaway Van (10-15 seats)

Anticipated Annual Service Days: 113

Annual Operating Costs

	Annual Costs			Annual ridership		Cost per rider	
	Low	Mid	High	Low	High	Low	High
B - Foothill College	$ 185,829	$ 185,829	$ 185,829	5,650	10,170	$18.27	$32.89
C - Mtn View Station	$ 185,829	$ 185,829	$ 185,829	14,690	24,860	$7.48	$12.65
E - DeAnza College	$ 96,954	$ 185,829	$ 185,829	7,910	14,125	$6.86	$23.49
I - Lucky	$ 96,954	$ 96,954	$ 96,954	11,300	20,340	$4.77	$8.58

Attachment 6:
Rancho San Antonio Parking Areas

1. Equestrian Lot/ Hammond Snyder Trailhead, reserved for carpools on weekends & holidays
2. North overflow/ remote-controlled airfield lot
3. Central overflow/ remote-controlled airfield lot
4. South overflow/ remote-controlled airfield lot
5. Main Lot overflow
6. Main Lot