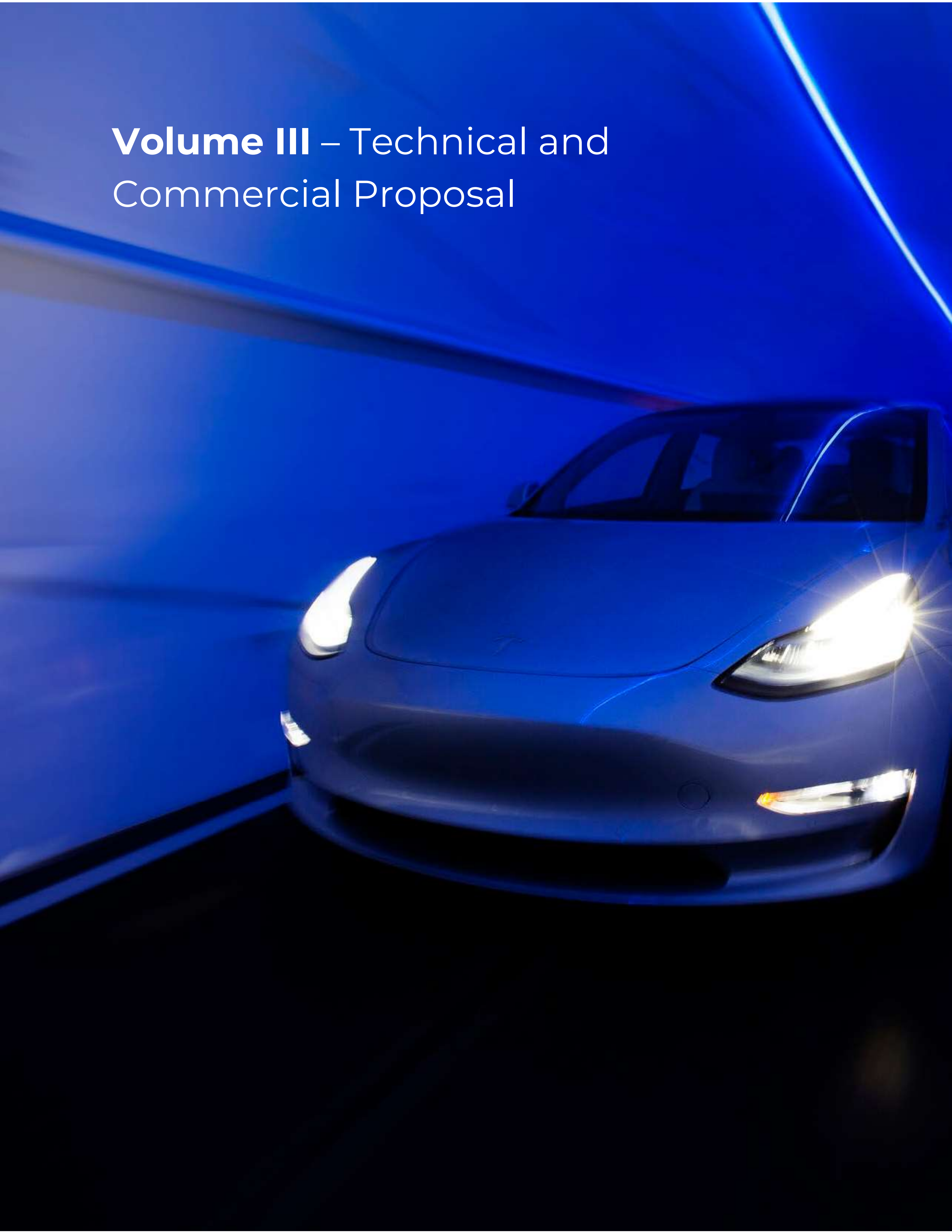
Volume III – Technical and Commercial Proposal



TS Form A: Summary of Proposed Transit Solution

Attach to this form a narrative, no longer than 20 pages including diagrams, graphics, and/or images, describing the type of Transit Solution proposed for the Project organized to address the following:

1. *A concise statement whether the proposed type of Transit Solution is based on a Transit Technology that is either:*
    a. *Proprietary to the Proposer's Development Team and meets the criteria for a minimum TRL of 6, or*
    b. *Based on a generic non-proprietary technical specification that can be shown to be met by two or more suppliers active in the transit industry and meets the criteria for a minimum TRL of 8*
2. *A description of the proposed Transit Solution's key technical characteristics, as follows:*
    a. *Type of Transit Technology including system operational architecture, vehicles, and components, including the key technical specifications as they relate to the Technical Requirements*
    b. *How the proposed Transit Solution is responsive to the challenges, opportunities, and risks of this Project*
    c. *How the proposed Transit Solution is responsive to the Project Objectives and Procurement Objectives*
    d. *How the proposed Transit Solution is responsive to the Technical Requirements and is capable of delivering improved operational performance relative to the following performance thresholds defined in Appendix C7.5 (TS Form E: Compliance with System Performance Thresholds)*
        i. *Threshold 2: Total travel time (minutes) from ride request at origin station to arrival at destination station: Diridon station to Airport Terminal B stations*
        ii. *Threshold 3: Total travel time (minutes) from ride request at origin station to arrival at destination station: Airport Terminal B stations to Terminal A stations*
        iii. *Threshold 5: Headways (minutes), throughout the span of service on weekdays and weekends/holidays*
        iv. *Threshold 6: Passenger wait time (minutes)*
    e. *If Proposer's approach is per item 1.a above, then provide the above content in terms of the technical specifications of the proprietary Transit Technology that the proposed Transit Solution is based on.*
    f. *If Proposer's approach is per item 1.b above, then provide the above content in terms of a set of generalized and appropriate technical specifications of the service-proven transit operating systems that the proposed Transit Technology is based on.*
3. *A description of the proposed concept of operations addressing the following:*
    a. *User experience*
    b. *Operations model*
    c. *Safety and reliability*

What is Loop?

Loop is a high-capacity, underground, public transportation system in which passengers are transported in Tesla vehicles through TBC-constructed tunnels. Loop is a proprietary technology to TBC and exceeds the criteria for a minimum TRL of 6 in accordance with the proposal requirements.

Loop is an express public transportation system and resembles an underground highway more than a subway system. Passengers arrive directly at their final destination without stopping, by traveling through a Main Artery Tunnel and using side tunnels for Loop vehicle entry and exit. For example, if a train line had 100 stops, the train would typically stop at each station, so the trip between Stop 1 and Stop 100 would be lengthy. In contrast, Loop passengers travel directly to their destination, anywhere between Stop 1 to Stop 100, without stopping at the intermediate stations, drastically reducing overall transit times compared to traditional mass transit systems.

Figure 9 – Inside the LVCC Loop Tunnel

Loop capacity can be increased or decreased in real-time in response to demand by adjusting the number of vehicles in circulation. Unlike traditional transit systems where passengers queue at station platforms during off-peak hours due to extended headways, passengers arriving at Loop stations during off-peak periods can immediately board a vehicle without having to wait for one to arrive.

Vehicles

Loop vehicles carry passengers in the tunnels between stations. Current Loop vehicles are existing production Tesla Model X and Y vehicles. In the future, as new Tesla vehicles become available, such as a highly configurable Robovan for people and cargo, they can be added to the system.

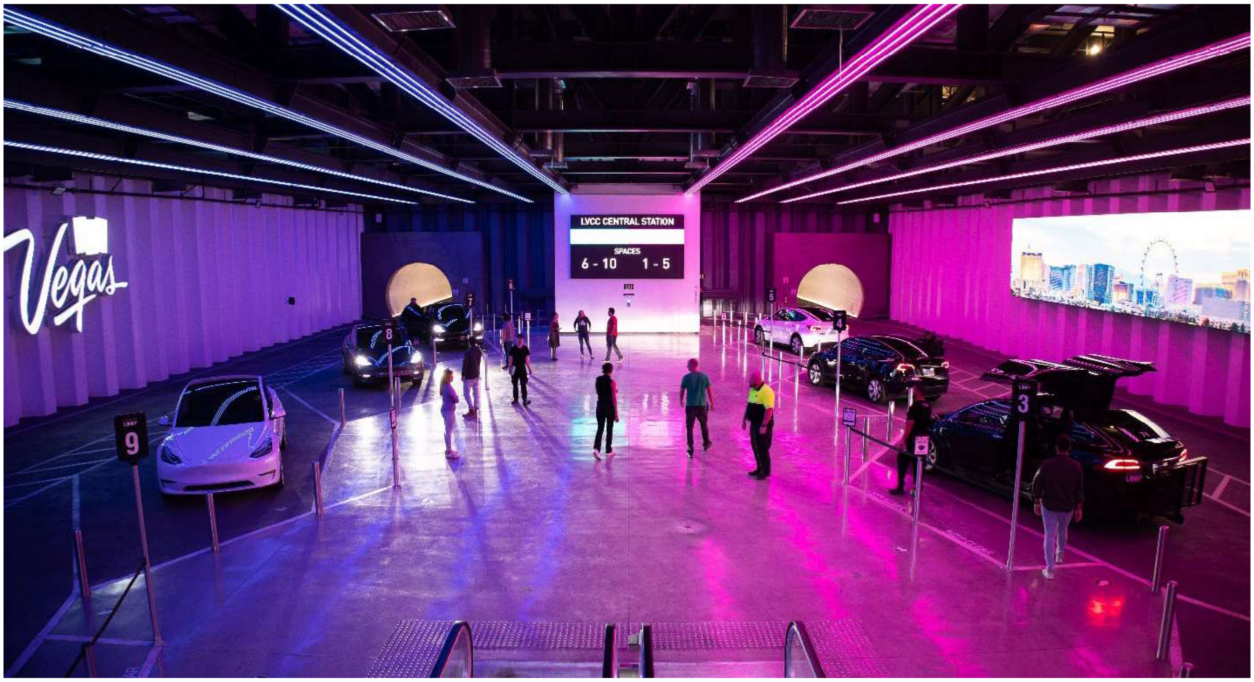
Stations

Stations are where passenger boarding and deboarding occur. Three types of stations are available: subsurface stations, open-air stations, and surface stations. Passengers board below-grade in subsurface stations and open-air stations, and at-grade in surface stations.

Subsurface Stations

Passengers enter subsurface stations through surface access points similar to typical subway entrances. Each entrance provides station access via a combination of elevators, escalators, and stairs directly to platforms where passengers board vehicles. The final design of subsurface stations complies with applicable building and fire and life safety codes, such as the installation of automatic sprinkler systems and the number of egress points required. The applicable building and fire and life safety codes are determined as part of the station design process. Figure 10 provides an image of a subsurface station.

Figure 10 – Interior View of Central Station (Subsurface Station) at LVCC Loop



Surface Stations

Surface stations allow for passenger loading and unloading at designated passenger pick-up and drop-off areas at the surface. Each tunnel connects to the surface through a set of ramps, one designated for inbound vehicles and one for outbound vehicles. Inbound vehicles emerge from tunnels onto the surface and complete their trips to the designated surface station area. Likewise, a vehicle departing a station enters the main tunnel through the outbound ramp. Figure 11 provides an image of a potential surface station configuration.

Figure 11 – View of South Station (Surface Station) at LVCC Loop

Surface stations can be constructed with cut-and-cover ramps to allow high-speed through traffic in the main tunnel. Cut-and-cover ramps are constructed to allow exiting tunnel traffic to access the surface for vehicle loading and unloading as shown in Figure 12.

Figure 12 – Rendering of a Cut-and-Cover Ramp Station

Open-Air Stations

Similar to subsurface stations, open-air stations are excavated shafts. Passengers access open-air stations using a combination of elevators, escalators, and stairs which lead directly to platforms where they board vehicles. Unlike subsurface stations, open-air stations remain uncovered after excavation as shown in Figure 13.

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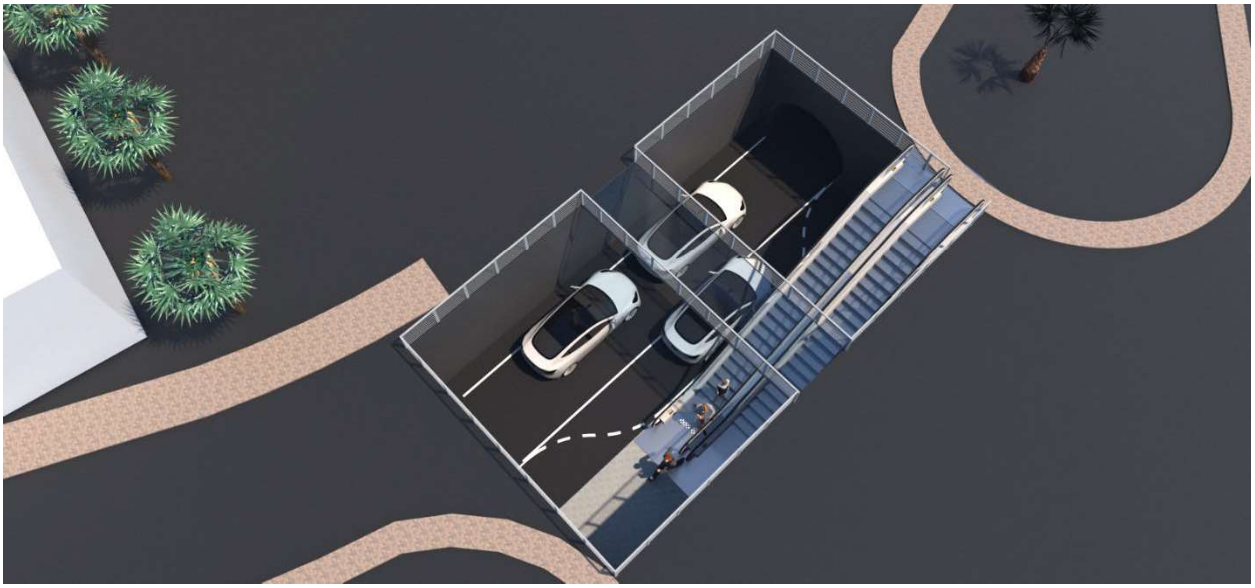
Figure 13 – Rendering of an Open-Air Station



Egress Shafts

Egress Shafts are built along the tunnel alignment at intervals no greater than 2,500 feet unless a station is provided at a lesser interval. Potential Egress Shaft locations include adjacent areas on private land or within the public right-of-way (e.g., sidewalks, parkways, traffic islands). Each Egress Shaft connects to the tunnel to provide refuge for passengers in accordance with applicable safety standards. Each Egress Shaft has a stairway and a hatch providing access to the surface; the total surface impact of each Egress Shaft is approximately 150 square feet. Figure 14 below shows a typical egress hatch from the Resorts World-LVCC Connector project.

Figure 14 – Resorts World Connector Egress Hatch

Maintenance Terminal

Inspection and maintenance of vehicles occur in the Maintenance Terminal, which is similar to a commercial Tesla Service Center. The location of the Maintenance Terminal is flexible and subject to land availability and the preference of the jurisdiction. Alternatively, vehicles can be driven off-site to a nearby TBC maintenance and inspection location.

Operations Control Center (OCC)

The OCC serves as the primary location for Loop system management, safety and security monitoring, and emergency identification and notification. OCC operators trained in response protocols will manage all operational safety and vehicle dispatch within Loop. The OCC can be located either in one of the Loop stations or at another designated secure location.

Proposed Alignment and Stations

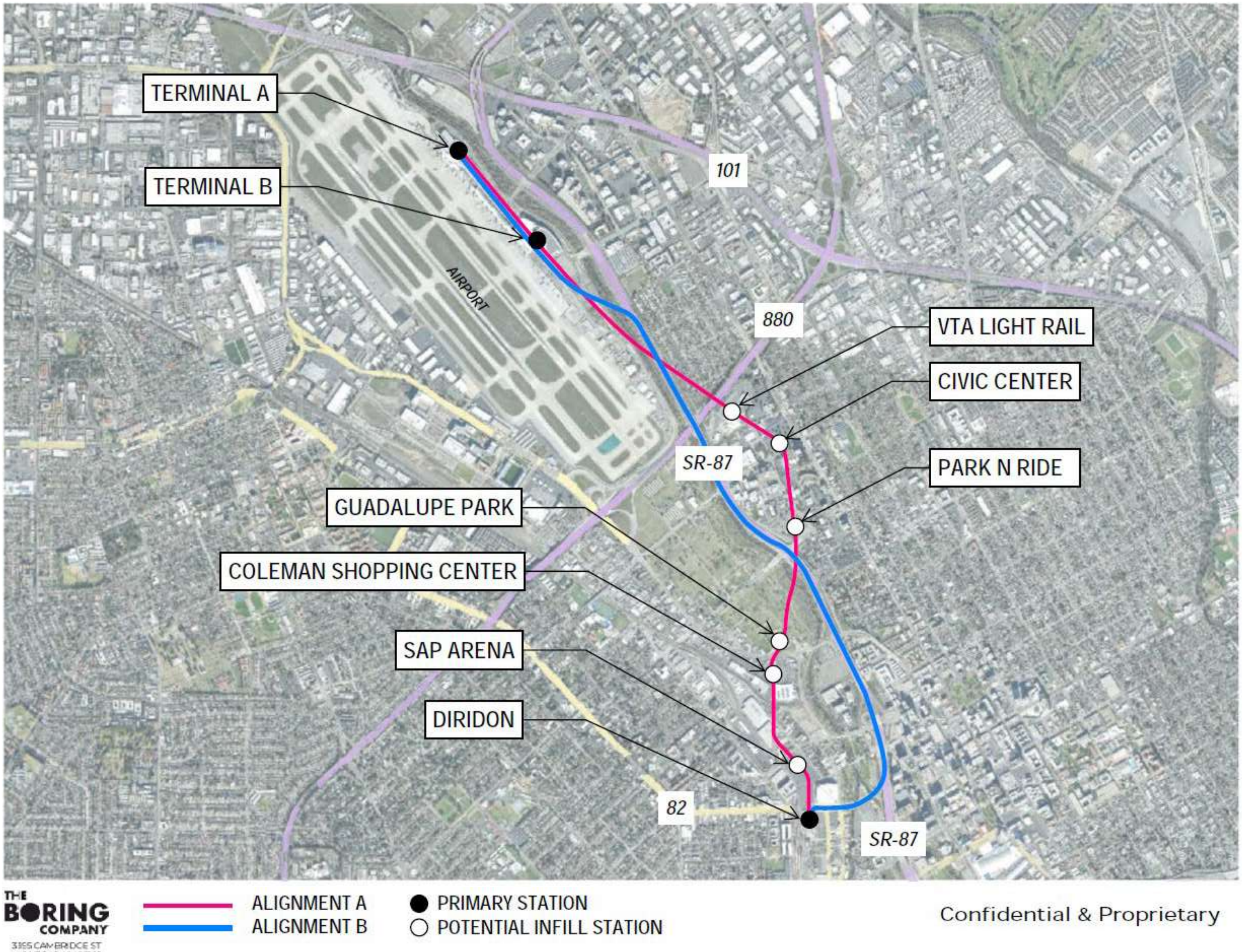
SJC Loop will efficiently and economically transport people between the Norman Y. Mineta San José International Airport and Diridon Station through twin 12-ft inner diameter tunnels constructed, operated, and maintained by TBC. TBC has identified two conceptual tunnel alignments that would provide two separate value propositions: Alignment A – a corridor including many local and civic resources where infill stations can be developed, and Alignment B – a corridor that primarily utilizes public right-of-way.

From Diridon Station, Alignment A proceeds north to the SAP center, merges onto North Montgomery Street, passes through the parking lot for the Coleman Shopping Center and under Guadalupe River Park, crosses under West Taylor Street and SR-87, under an existing parking lot at 174 Asbury St, and continues onto North San Pedro Street, past the Santa Clara Civic Center, bears northwest under the VTA Light Rail Facility, crosses I-880/Nimitz Fwy and SR-87, then follows Airport Boulevard to Terminal B and Terminal A stations. In addition to the three primary stations serving SJC Loop, Alignment A could develop infill stations at SAP Center, Coleman Shopping Center, Guadalupe River Park, Santa Clara Civic Center and administration offices, and park and ride facilities.

TBC understands that because this Project is still in its early stages, access to private subsurface easements may or may not be available. As such, an alignment that exclusively utilizes public ROW and the private parcels controlled by the City could be pursued as an alternative. Originating from Diridon Station, Alignment B proceeds east along The Alameda, turn north onto land adjacent to or under SR-87, bears left onto Airport Boulevard, and terminates at SJC Terminal A.

TBC is committed to working with the City and stakeholders during the PDA Phase to study and select an optimal project alignment.

Figure 15 – SJC Loop Alignment Alternatives



Conformance with Project and Procurement Objectives

Table 1 – Conformance with Project Objectives

#	Criteria	Pass/Fail	Conformance with Objective
1	Is capable of being certified for passenger operations/revenue service and is ADA-accessible;	Pass	Loop is currently certified for passenger operations/revenue service with ADA accessible vehicles.
2	Provides for operator flexibility for the City over the long term (i.e., an ability to repurpose the system and any permanent infrastructure from one operator to another);	Pass	TBC is committed to best-in-class transit service. As such, operating contracts would be structured with biennial renewals to incentivize optimum service by TBC and to allow the City to change operators if desired.
3	Is scalable to allow for future system growth	Pass	The adaptive infrastructure of Loop enables the low-cost addition of intermediate stations and/or expansion by the addition of tunnel spurs. For example, TBC recently expanded a 3-station system at LVCC Loop in Las Vegas to integrate with the Resorts World-LVCC Connector with zero service disruptions to operational transit routes.
4	Provides safe, fast, frequent, and reliable service for passengers that is separated from mixed traffic	Pass	San José Loop is an underground, fixed guideway transit system providing passenger service from Diridon Station to SJC in under 6 minutes with rapid headways and wait times less than 30 seconds.
5	Integrates Diridon Station and SJC as a single facility from the passenger's perspective and creates a seamless travel experience for passengers with luggage	Pass	SJC Loop will transport passengers and their luggage on express, transfer-free trips from Diridon Station to SJC.

Table 2 – Conformance with Procurement Objectives

#	Criteria	Pass/Fail	Conformance with Objective
1	Implement a technically and commercially viable revenue risk project;	Pass	Loop has been deployed on multiple projects showing successful operation under multiple revenue models including revenue risk. As described below, the economics of San José Loop are projected to have strong positive cash flow, supporting a revenue risk model.

#	Criteria	Pass/Fail	Conformance with Objective
2	Focus on goals and outcomes so as to create space to leverage private-sector expertise and innovation for early project decisions (i.e., with respect to the Transit Technology, the cost of the Transit Solution, and the approach to project risks such as interfaces, stakeholder/third-party/community engagement, ROW, utilities, etc.)	Pass	As a standardized and established transportation product, Loop has well-defined technological, financial, and engineering parameters and processes to limit project risks and rapidly deploy the Transit Solution.
3	Leverage schedule savings	Pass	TBC has well-established due diligence processes and engineering documents that will enable the advancement of multiple workstreams early in project development.
4	Use a competitive procurement to engage a long-term private-sector partner to deliver the Project through its entire life-cycle	Pass	TBC is a vertically integrated DBFOM transit provider.
5	Conduct the procurement to provide full and open competition and preserve flexibility for future funding and financing sources	Pass	As elaborated further below, San José Loop will require zero public dollars to build, operate, and maintain.
6	Develop a Project with a total Project cost of no more than $500 million	Pass	The proposed total Project cost for San José Loop is <$150 million.

System Operation

SJC Loop would operate as an on-demand, express transportation system, facilitating the transport of passengers between any station pairs along the tunnel alignment without stopping at intermediate stations. Unlike traditional transit lines that run on fixed schedules where passengers often wait at stations for an inbound transit vehicle, passengers approaching a Loop station generally see a Loop vehicle ready to take them to their destination. TBC will work with stakeholders to determine the hours of operations and the number of vehicles in the system to meet demand. Currently, TBC assumes operating hours will be from 3:30 AM to 11:30 PM to provide 30 minutes before open and after close of SJC's TSA security lines.

Travel Times

Because of the express design of the system, SJC Loop would offer the fastest peak-hour travel times compared with traditional transportation modes. In-vehicle travel times for SJC Loop would be under 4 minutes between all destinations and 1.5 minute between terminals. Median wait times observed at LVCC Loop are 0 seconds, meaning that Loop Vehicles are typically waiting for passengers when they arrive. Even during major events such as Consumer Electronics Show, median wait times are less than 1 minute.

Median boarding times into and out of Loop Vehicles is 30 seconds. Headways within SJC Loop will be a minimum of 4 seconds per vehicle.

Table 3 – SJC Loop Travel Times

Parameter	Diridon Station to/from Terminal B	Terminal A to/from Terminal B	Diridon Station to/from Terminal A
Median Wait Time	0 seconds	0 seconds	0 seconds
Median Boarding/Dwell Time	30 seconds	30 seconds	30 seconds
In-vehicle Travel Time	4 minutes	1 minute, 30 seconds	5 minutes
Median Deboarding/Dwell Time	30 seconds	30 seconds	30 seconds
Total Travel Time	5 minutes	2 minutes, 30 seconds	6 minutes

System Capacity

The proposed SJC Loop initial operating plan will accommodate over 1,600 passengers per hour per direction between Diridon Station and Terminal B and between the San José International Airport Terminal A and B stations (over 6,400 passengers per hour system-wide) with the ability to increase capacity for each segment as demand grows and Loop usage increases.

Final capacity is subject to each station's ultimate size and the quantity and type of vehicles in operation. If system demand grows significantly, station sizes can be increased, and additional stations can be added along the alignment once the Project is operational in order to provide additional service to more areas as needed.

Station Experience

Loop is designed to be simple for passengers to use, as described below.

1. Passengers enter a Loop Station.
2. Wayfinding signs provide clear directional instructions to guide passengers to their boarding areas. A dynamic video display will indicate the numbered boarding stalls serving each destination. For example, at Diridon Station, passengers traveling to Terminal A might use boarding stalls #1-5, whereas passengers traveling to Terminal B might use the remaining stalls. The destination assigned to each stall will be regularly adjusted based on user data to optimize transit operations according to rider demand.
3. Once arriving passengers have deboarded, departing passengers board the vehicles and proceed to their desired destination.
4. Upon arrival at their destination, station signage will guide arriving passengers to the nearest key points of interest (e.g., Terminal B Security).

Vehicle Experience

With rubber tires (as opposed to steel wheels), a tightly controlled riding surface (e.g., no potholes), and ride profiles designed with low longitudinal and lateral accelerations, a Loop ride is smooth and comfortable.

Large digital displays provide passengers with useful information, such as prompts when vehicles approach a destination or reminders for riders to bring their belongings when deboarding. The displays can show welcome messages, informational videos, or promotions from local businesses. Content updates can be performed “over-the-air,” allowing real-time updates to be displayed.

Figure 16 – Loop Station Experience

Accessibility to Passengers with Disabilities

SJC Loop will provide an accessible, comfortable experience for all passengers and will comply with applicable accessibility statutes and regulations. TBC views accessibility as a critical driver of system design and operation, and as such, will offer state-of-the-art accessibility features at every stage of a passenger's journey. Accessibility features, from the beginning of a passenger's journey and throughout (e.g., boarding and riding in a Loop Vehicle), include, but are not limited to:

- **Means of Access and Egress:** All stations will provide wheelchair access to SJC Loop and safe egress paths in the unlikely case of a tunnel evacuation.
- **Signage:** SJC Loop will employ clear, high-contrast signage with clearly visible letters and markings that are fully compliant with ADA standards regarding Braille, font and characters, non-glare surfacing, height and placement, and other conventions as set forth in Chapter 7 of the ADA Standards for Transportation Facilities.
- **Lighting:** TBC will design SJC Loop lighting to reduce the risk of triggering passengers with epilepsy or other photo sensitivities by eliminating flashing lights and contrast between light and dark at high speeds.
- **Stations**: Stations will be equipped with brightly delineated edges to any steps or platforms, tactile paving (truncated domes) at platform edges, curb cuts in contrasting colors, ramps to access stations as necessary, and walkways compliant with ADA standards.
- **Loop Vehicles:** Loop Vehicles will be equipped with electronically accessible screens and speakers with visual and audio instruction for the hearing and visually impaired respectively, during normal and emergency operation.
- **Wheelchair Vehicle Access**: A high percentage of Loop Vehicles will be able to accommodate a wheelchair and at least one traveling companion or another passenger and their belongings. Stations will be outfitted with ramps to enable passengers in wheelchairs to board the vehicles on a level surface without assistance. Gaps between the Loop Vehicle and ramp will be less than three inches. Loop Vehicles will also contain mechanisms to secure wheelchairs in place once boarded. Wait times will be consistent among ambulatory passengers and those requiring wheelchair accessibility.
- **Accessible Guideway**: The drive surface of the Main Artery Tunnels will be paved so that wheelchairs will roll smoothly across the surface in the event of an emergency and allow wheelchairs to move freely across the tunnel to exit.
- **Personnel Training**: All TBC personnel who serve as operators, attendants, and emergency services personnel will be trained in the practices and procedures to ensure the safety of disabled passengers in emergency situations. The ADA training will focus on the means and methods necessary to meet the varying needs of blind, deaf, mobility-impaired, and other passengers with disabilities.

Safety, Security, and Reliability

Loop has been designed to be the safest public transportation system ever built. As explained in greater detail below, the Department of Homeland Security (DHS) Transportation Security Administration (TSA) recently presented its prestigious Baseline Assessment for Security Enhancement (BASE) Gold Standard Award to the LVCC Loop. SJC Loop will be designed and operated with world-class features, policies, and standard of care to maintain impeccable safety, security, and reliability throughout the lifecycle of the transit system.

Vehicle Safety

Tesla's four production vehicles (Model S, 3, X, and Y) each received a 5-star safety rating from the National Highway Traffic Safety Administration's (NHTSA) 5-Star Safety Ratings Program in all categories; these vehicles have the lowest probability of injury of any vehicles tested by NHTSA in the previous eight years.

The Tesla vehicles comply with the Federal Motor Vehicle Safety Standards (FMVSS), administered by NHTSA. Therefore, the vehicles are compliant with a broad spectrum of FMVSS requirements relating to categories including controls, displays, brake systems, windshields, and tires.

Each Tesla vehicle will be equipped with collision avoidance functions common to all Tesla vehicles. Vehicle-mounted transponders and tunnel-mounted receivers transmit real-time vehicle position data between Loop Vehicles and the OCC. Loop Vehicles will also be equipped with additional safety features to ensure passengers' safety throughout their journey. These include:

- Touchscreens and speakers with visual and audio instruction to direct passengers during emergency operation; and,
- An emergency call button labeled "CALL FOR HELP" that connects the Tesla vehicle to the OCC.

System Safety Design

In addition to safe vehicle design, the SJC Loop will contain the following design features to ensure passenger safety.

- **Exclusion of Third Rail:** There is no live electric third rail (subways typically have a 600-volt rail), minimizing potential fire sources. Additionally, unlike a live rail system, the effects of infrequent water intrusion are minimal, as Loop Vehicles can drive through rain and water without issue.
- **Passive Guideway:** There are no touch hazards in the tunnel because it is not electrified, allowing passengers to walk upon the entirety of the tunnel road surface. As a result, Loop tunnels have wider walkways than subway tunnels, which are larger in diameter but require constricted walkways to avoid touch hazards such as electrified rails.
- **Access and Egress:** SJC Loop will be designed with proper means of emergency access and egress in accordance with National Fire Protection Association (NFPA) 130. Access/egress points, at a minimum, will be located at Loop Stations. In the event of an emergency, passengers will be able to identify the egress points with automated emergency lighting guiding them in the direction of the nearest walkable exit where they will safely exit the system. Additionally, first responders will be able to use these locations to access the system in case of emergency. Emergency egress locations will be designed for the safe egress of passengers with disabilities.

- **Ventilation:** The SJC Loop ventilation system will be designed to accommodate fire and emergency flow rates in accordance with NFPA standards. The tunnel's ventilation system will remove the smoke to allow passengers to safely evacuate during a fire.
- **Real-Time Telemetry:** Numerous sensors (e.g., carbon monoxide, hydrogen sulfide, smoke) will be installed in the tunnel to detect potentially hazardous conditions, which are monitored in real-time in the OCC. Alarms will be set in advance to notify competent personnel able to take proper safety measures should such an event occur.
- **Communication Systems:** Tunnel intercoms will have direct contact with the OCC, and in the event of an emergency, a warning will be broadcast over the PA system from the OCC. Cellular phone service and wireless internet provide additional communication paths to appropriate responders.
- **Camera System:** Camera feeds will provide visual monitoring of the Loop system to OCC Operators at all times.
- **Fire Suppression and Protection Equipment:** Loop will be equipped with the proper fire detection and fire suppression systems, with the exact implementation to be determined through coordination with the San José Fire Department.

Security

In 2021, the LVCC Loop received the Gold Standard Award from DHS TSA. The Gold Standard Award is the top recognition the TSA bestows to a transit provider for achieving the highest scores in a review that evaluates 17 categories of security and emergency preparedness. TBC achieved an overall score of 96.15%. The review, called the Baseline Assessment for Security Enhancement, is voluntary for transit providers and includes topics such as the provider's security plan, security training, drills/exercise programs, public outreach efforts, and background check programs.

DHS Cybersecurity and Infrastructure Security Administration (CISA) conducts Infrastructure Survey Tool Assessments for Loop on an ongoing basis. Initial reporting yielded overall scores that were best in class in comparison to the industry for the Protective Measure Index and greater than the average in the Resilience Measurement Index. TBC was commended by CISA for its information sharing, security activity background and management, security force profile, liaisons with partner agencies, and other practices. The LVCC Loop compared highly favorably to 12 other assessed transit bus terminals, and assessments are ongoing as the Loop expands.

SJC Loop will be built with the following security features consistent across all Loop projects:

- 24/7 system monitoring
- No camera "blind spots," as confirmed through local police department drills
- U.S. Department of Transportation hiring standards for all operations employees
- Access control for all critical areas and systems
- Several layers of vehicle validation to protect against unauthorized entry into system
- Multiple remote data systems for system monitoring
- Redundant communication systems (blue light stations, LTE cell service, public announcement system, Motorola radios, vehicle iPads, first responder radio signal amplification, lighting)
- Mitigation of vulnerabilities associated with buses (e.g., no access control, no closed fixed guideway, no universal camera coverage and monitoring) and trains (e.g., crowded passenger

carriages and stations heighten risk of altercations between passengers, and maximize possibility of mass casualty in cases of sabotage or terrorism)

Consistent with the measures taken to ensure security and safety on LVCC Loop, TBC will prepare project-specific safety and security plans for SJC Loop designed to address threats including basic trespassing, infrastructure damage, terrorism, and risks such as natural disasters. Both a risk assessment and a site-specific security plan will be created for the Project and is modeled using concepts presented in the US Department of Homeland Security's Transportation Systems Sector-Specific Plan.

Reliability

An inherent feature of the Loop that contributes to its reliability is the vehicle size; a single vehicle failure has minimal impact on the Loop's capacity as compared traditional transit systems with larger vehicles.

LVCC Loop has been fully operational for every scheduled date of service since it was opened in April 2021 and has never had an unscheduled cessation or had to close the system due to unscheduled maintenance. Figure 17 below shows one of the graphical user interface tools that tracks system operation to ensure high reliability and an excellent customer experience. In recognition of the excellent user experience, Time Magazine rated LVCC Loop as a must see for any visitor to Las Vegas.

Reliability, maintainability, and availability of SJC Loop is described in greater detail in the Transit Technology Development Plan below.

Figure 17 – LVCC Loop Graphic User Interface

TS Form B: System Expansion Capability

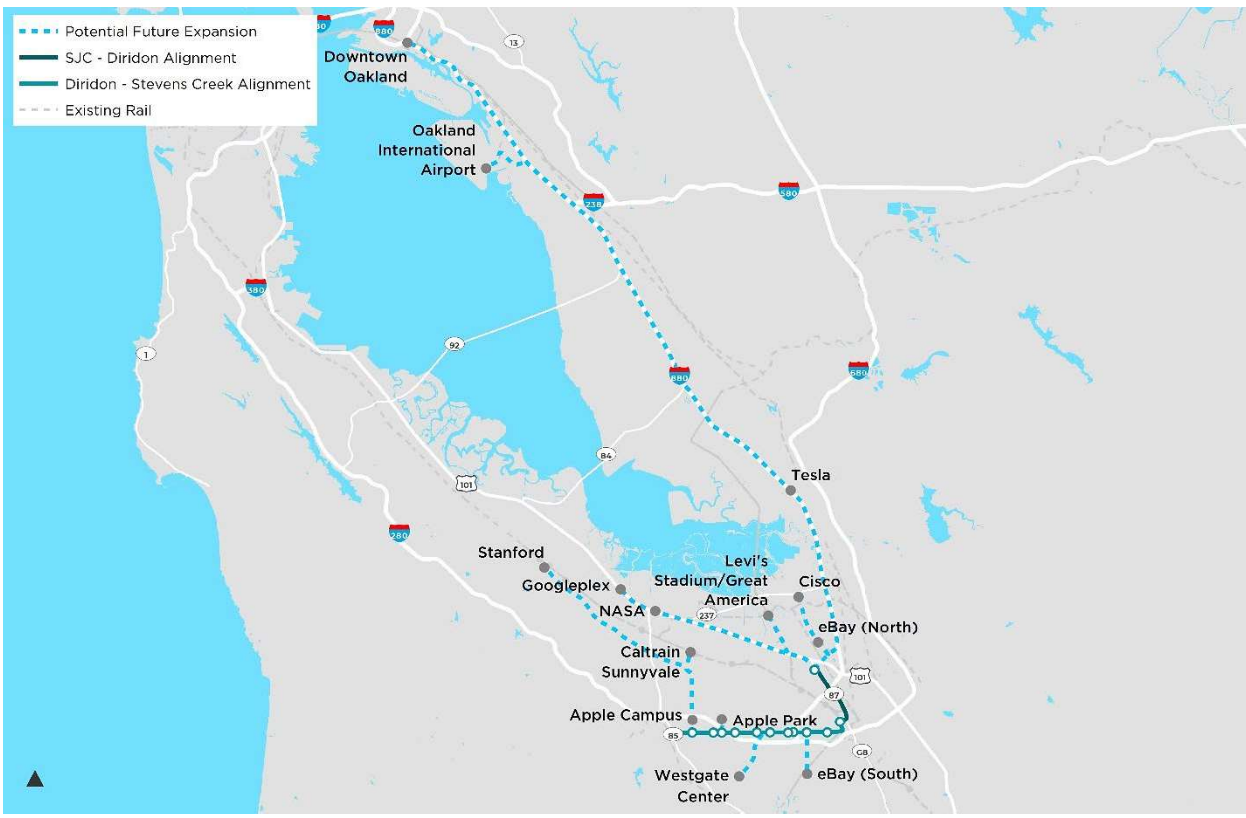
Attach to this form a narrative, no longer than five pages, that clearly and succinctly describes how the proposed type of Transit Technology facilitates and enhances expansion opportunities in terms of:

1. *Technical characteristics that potentially minimize right-of-way and environmental impacts in terms of:*
    a. *Guideway alignments in constrained urban environments*
    b. *Footprint of the Transit Infrastructure*
    c. *Size and spacing of stations*
2. *Cost-effectiveness of the Transit Solution*
3. *Compatibility and ease of integration with other transportation modes and with alternative Transit Technologies*

System Expansion Capability

Although SJC Loop has independent utility and a compelling business case as a standalone transit system, TBC views the City's desire to extend transit service along the Stevens Creek alignment as a tremendous upside to building SJC Loop. The combination of subsurface tunnels, surface and subsurface station options, and rubber-tired vehicles makes Loop easily expandible. Any future alignments can be connected to the existing network, enabling a one-seat-ride from origin to destination. For example, if Loop is expanded to the north to Apple Park or Oakland International Airport, a transfer-free ride from SJC to any of the expanded locations is possible. Additionally, infill stations can be built after SJC Loop is put into operation to augment the three primary stations at Diridon, Terminal A, and Terminal B at low marginal cost and with minimal disruption to revenue service. Figure 18 below provides a map of some of the potential expansion possibilities.

Figure 18 – Potential Expansions Possibilities



Technical Characteristics

Right of Way

Loop is designed to blend in with existing environments while minimizing impacts to existing surface and subsurface features. As with all TBC projects, Loop avoids contiguous property acquisition that results in the division of communities using existing public right of way. In addition, because TBC tunnels are relatively small in diameter, tunnels can be constructed deeper to avoid existing infrastructure such as deep utilities.

Stations

Stations can be designed in a range of types, sizes, and spacing. Because Loop is an express system, the addition of intermediate stations has zero impact on travel times and user experience. The Vegas Loop transportation system, which is designed to include more than 50 stations and move over 30,000 pphpd within a 6-mile north-south corridor, showcases this key benefit of the Loop architecture. Stations are sized according to the desired capacity and can be as small as two parking spaces or as larger as 10,000 to 20,000 square feet for high-capacity stations. A line capacity of over 4,500 passengers per hour per direction (pphpd) can be achieved with a configuration similar to the proposed transit solution to Diridon Station-SJC terminals. System capacity depends on the number and size of stations and the quantity and type of vehicles in operation which would be determined during the PDA Phase.

Utility Relocation

Utility relocation is not anticipated along the tunnel route as the depth of the tunnel is typically 30 feet deep which is well below typical utilities. TBC will coordinate with utility owners to locate major water mains and wastewater interceptors and ensure that Loop does not impact existing infrastructure.

Utility relocation may be required at station locations. TBC has reviewed available public information to locate stations to minimize utility conflicts and costs associated with relocation. Future diligence and coordination with utility owners will be incorporated into design refinements in future phases.

Egress shafts also require surface penetrations of the tunnel but egress shaft spacing is flexible so they can be located at locations with the fewest utility conflicts.

Cost Effectiveness

TBC delivers projects as a vertically integrated design-builder and full Project equity member. After construction, TBC operates and maintains its Projects based on revenue-risk fare collection.

TBC designed and constructed the 1.14-mile Hawthorne R&D Test Tunnel for a cost of under $10 million, demonstrating the ability to tunnel for a far lower cost than traditional public transit systems. Although future diligence is required to estimate project cost for expansion, TBC can state that its cost per tunnel-mile will be substantially below traditional pricing for fixed guideway APM and light rail systems. The total project delivery cost, including design, permitting, infrastructure, and Loop Vehicles, will also be substantially lower than industry standards (refer to Table 4).

Project costs are primarily driven by the quantity and size of stations, quantity, and type of Loop Vehicles, final tunnel length, subsurface geology, and operation and maintenance duration. TBC will work with the City on a fare strategy and fare payment method that best integrates with the existing transportation network.

Table 4 - Cost Values for Domestic Transportation Tunnel Projects

Project	Type	Total Cost	Length	Cost/mile
Los Angeles Airport Automated People Mover	Elevated	$4.9 billion	2.25 miles	$2.1 billion
Las Vegas Monorail	Elevated	$654 million	4.4 miles	$149 million
Miami Metromover	Elevated	$660 million	4.4 miles	$150 million
San Francisco Central Subway Tunnel	Underground	$1.57 billion	1.7 miles	$920 million
Los Angeles Regional Connector Tunnel	Underground	$1.75 billion	1.9 miles	$920 million
TBC Hawthorne R&D Test Tunnel	Underground	$10 million	1.14 miles	$9 million

Integration with the Urban Landscape & Other Transportation Modes

Loop is designed to integrate into existing environments and to avoid impacts typically associated with traditional transportation systems. Loop does not divide existing communities by requiring contiguous right-of-way acquisition typical to at-grade or above-grade rail or highway systems; as such, existing surface structures, roadways, and pedestrian or bicycle facilities are unaffected by Loop. Loop stations can occupy a very small surface footprint and, as a result, integrate easily into busy city-centers, parking garages, and residential communities. Loop can also connect other existing transportation system hubs and other important locations throughout the region.

Loop system operation is designed to maximize capacity and minimize wait times. The vehicle fleet can be dynamically adjusted based on demand, which will likely be determined by arriving rail and buses. Vehicle usage can be scaled down during periods of lower demand, and vehicles will either be returned to a queueing area within stations, taken to a Maintenance Terminal if needed, or reallocated for use in a different segment within the Loop system should a future expansion to other locations in the San José vicinity be implemented.

TS Form C: Transit Technology Development Plan

Attach to this form a narrative, no longer than five pages, that clearly and succinctly describes the approach to develop, test, obtain regulatory permits, and implement an innovative and viable Transit Technology, including each of its Major Subsystems.

As stated in TS Form D (Technology Maturity), if the proposed Transit Technology is below a TRL of 9, including each of its Major Subsystems, the narrative must address:

- *The proposed approach to develop the Transit Technology during the PDA phase to achieve TRL of 9*
- *The anticipated schedule and approach to manage the schedule to achieve TRL of 9 in alignment with the Procurement Objectives, including the proposed approach to address key technical and regulatory challenges affecting the PDA phase schedule*
- *Planning for ongoing development after start of revenue service to deliver value-added operational enhancements beyond those defined in Part C of Exhibit 5 (PDA Work Requirements) to Appendix D (Form of PDA)*
- *The proposed strategy to mitigate the risk of technology obsolescence*

As stated in TS Form D (Technology Maturity), if the proposed Transit Technology is at a TRL of 9, including each of its Major Subsystems, the narrative must address:

1. *Planning for ongoing development after start of revenue service to*
2. *deliver value-added operational enhancements beyond those defined in Part C of Exhibit 5 (PDA Work Requirements) to Appendix D (Form of PDA)*
3. *The proposed strategy to mitigate the risk of technology obsolescence*

Transit Technology Development Plan

Loop technology is currently in operation under an operating certificate issued by Clark County Department of Building and Fire Prevention, Amusement and Transportation Systems Division. Issuance of the permit to operate included reviews of the project for conformance with the following standards:

- NFPA 130 for all project components, including fire and life safety
- Automated People Mover Standards, ANSI/ASCE/T&DI 21-21 for passenger comfort
- ADA for the transportation system, including vehicles and stations

Operational Enhancements

TBC is committed to continuous improvement and advancement of Loop technology, which includes providing improved service, added features for passengers, and expansion. TBC has undertaken such measures on its existing revenue service lines, which include increasing system capacity, adding vehicles to its fleet, increasing the number of boarding stalls to provide connectivity to new destinations, and cycling out fleet vehicles with new vehicles. TBC will approach SJC Loop with the same value for perpetual improvement to provide a world-class user experience.

Avoiding Obsolescence

Loop is a technology that is under five years old with state-of-the-art features. Nevertheless, Loop is designed for long-term longevity through achieving excellence in reliability, maintainability, and availability of its infrastructure and vehicles as described below.

Infrastructure

Loop's civil structures are designed to exceed 100 years of continuous operation, and various existing similar structures built using older technology show that tunnel systems can last much longer (e.g., Chicago freight tunnels, 1906-present; Hoosac tunnel, 1875-present; and Thames Tunnel, 1843-present). Loop infrastructure is engineered to guarantee the integrity of structural components (i.e., tunnels and stations) and lifespan of electrical, mechanical, and communications system components. SJC Loop will be designed in general compliance with the following design standards or their approved equal as appropriate for local building requirements:

- FHWA - Technical Manual for Design and Construction of Road Tunnels - Civil Elements (FHWA-NHI-10-034);
- FHWA Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Volumes I and II;
- American Concrete Institute (ACI) 544.7R-16 Design and Construction of Fiber Reinforced Concrete Tunnel Segments; and
- National Fire Protection Association 130: Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA 130).

Loop infrastructure maintenance follows FHWA National Tunnel Inspection Standards (NTIS), which outline the types, procedures, and intervals of tunnel inspections. TBC will meet or exceed these standards in its SJC Loop inspections. The routine inspections will cover all tunnel systems, including structural, civil, electrical, communications, life safety, and security.

Additionally, built-in redundancy of the electrical, mechanical, and communications systems will allow SJC Loop to continue to operate even in the instance that an individual component exhibits failure.

Vehicles

Loop Vehicle maintenance requirements and activities follow the Loop O&M Manual prepared in accordance with ASCE-21 Standards. At a minimum, Loop Vehicles undergo routine inspection and preventive maintenance that meet or exceed manufacturer-specified performance criteria for maintenance.

Up to 10 percent of total fleet size will be dedicated to serve as reserve vehicles and kept in a stand-by mode to reduce unscheduled vehicle downtimes. Regularly scheduled downtimes will allow Loop Vehicles to undergo the scheduled inspections and maintenance necessary to keep vehicles in a state of good repair.

Onboard software systems, including remote diagnostics and over-the-air updates ensure Loop Vehicles are well-maintained and continuously evolving with technological improvements.

- **Remote diagnostics:** Loop vehicles are equipped with remote diagnostics capabilities, which allow for real-time monitoring of all main vehicle systems, or over 400 potential system warnings and faults. The remote diagnostics system also enables Loop maintenance technicians to review vehicle logs and over 2,000 vehicle system signals remotely, diagnose potential vehicle issues, and address maintenance issues. For example, technicians will be able to remotely detect low tire pressure warnings from tire pressure sensor readings, and temporarily take the vehicle out of service to conduct any necessary corrective maintenance before the issue escalates into a bigger problem.
- **Over-the-air updates:** Loop Vehicles receive over-the-air updates that provide reliability or performance improvements. Over-the-air updates enable gradual improvements to Tesla vehicles over time. Updates typically can be conducted during scheduled vehicle downtimes.

The Tesla production vehicles used to operate Loop are manufactured routinely and can easily be acquired to replace or augment the existing vehicle fleet. TBC may also replace vehicles at its choosing to take advantage of technological improvements in newer vehicles. Additionally, SJC Loop will be designed to be compatible operating other electric vehicles not produced by Tesla. Should TBC and the City desire to add new vehicle types to the fleet in the future, such as an autonomous minibus, it will be feasible to do so once requisite regulatory and contractual approvals are obtained.

Technological Maturity

TS Form D: Technology Maturity

Indicate the maturity of the proposed Transit Technology by selecting the appropriate TRL in the form below. The TRL must be stated in terms of the least mature Major Subsystem(s) of the proposed Transit Technology and will be evaluated by the City accordingly. All uses of the word "technology" in this TS Form D refer to the Transit Technology and each of its Major Subsystems.

Key terms are defined as follows:

Laboratory Environment	A fully controlled test environment where a limited number of critical functions are tested. Tests in a Laboratory Environment are solely for the purpose of demonstrating the underlying principles of technical performance (functions), without respect to the impact of environment.
Operational Environment	The environment in which the final Transit Technology will be operated (i.e., real-world conditions, including the user community). In this case it is the urban environment.
Proof of Concept	Analytical and experimental demonstration of hardware/software concepts that may or may not be incorporated into subsequent development and/or operational units.
Full-Scale Prototype	The Full-Scale Prototype demonstrates form, fit, and function of the final product at full scale and operating in its Operational Environment. This permits validation of analytical models capable of predicting the behavior of full-scale systems in an Operational Environment.
Relevant Environment	The specific subset of the Operational Environment that is required to demonstrate final product performance Operational Requirements. It must enable the Full-Scale Prototype to be tested in it. It is an environment that focuses specifically on "stressing" the technology advance in question.
Operational Requirements	The performance requirements in term of speed, reliability, accessibility, and capacity among others, as defined in Part C of Exhibit 5 (PDA Work Requirements) to Appendix D (Form of PDA).

	TRL	Description	To achieve the given TRL, you must answer yes to EVERY question. Discuss any uncertain answers.	Maturity of Proposed Transit Technology
Basic Research	1	Basic principles and research	Do basic scientific principles support the concept? Has the technology development methodology or approach been developed?	☒
	2	Application formulated	Are potential system applications identified? Are system components and the user interface (UI) at least partly described? Do preliminary analyses or experiments confirm that the application might meet the user need?	☒

	TRL	Description	To achieve the given TRL, you must answer yes to EVERY question. Discuss any uncertain answers.	Maturity of Proposed Transit Technology
	3	Proof of Concept	Are system performance metrics established? Is system feasibility fully established? Do experiments or modeling and simulation validate performance predictions of system capability? Does the technology address a need or introduce an innovation in the field of transportation?	☒
Applied Research	4	Components validated in Laboratory Environment	Are end user requirements documented? Does a plausible draft integration plan exist, and is component compatibility demonstrated? Were individual components successfully tested in a Laboratory Environment?	☒
	5	Integrated components demonstrated in a Laboratory Environment	Are external and internal system interfaces documented? Are target and minimum operational requirements developed? Is component integration demonstrated in a Laboratory Environment (i.e., fully controlled setting)?	☒
Development	6*	Prototype demonstrated in Relevant Environment *The minimum threshold level to respond to the RFP	Is the Operational Environment fully known (i.e., user community, physical environment, and input data characteristics as appropriate)? Has the Full-Scale Prototype been tested in a Relevant Environment and been demonstrated to substantially satisfy the Operational Requirements both in optimal conditions and when confronted with realistic problems in that environment? Has the UI been developed and tested in a Relevant Environment to verify its independent operation without an experienced/knowledgeable user?	☒
	7	Prototype demonstrated in Operational Environment	Are available components representative of production components? Is the fully integrated Full-Scale Prototype demonstrated in an Operational Environment? Are all interfaces tested individually under stressed and anomalous conditions?	☒
	8	Technology proven in Operational Environment	Do all system components form, fit, and function compatibly with each other and with the Operational Environment? Is the technology proven in an Operational Environment (i.e., does it meet target performance measures)? Was a rigorous test and evaluation process completed successfully? Does the technology meet its stated purpose and functionality as designed? Has the technology received all relevant third-party certifications, as required for deployment in an Operation Environment?	☒
Implementation	9	Technology refined and adopted	Is the technology deployed in its intended Operational Environment? Is information about the technology disseminated to the user community? Is the technology adopted by the user community?	☒

TS Form E: Compliance with System Performance Thresholds

Indicate the proposed Transit Technology's performance value or compliance as appropriate in the form below.

#	Requirement/Metric	Threshold	Transit Technology Performance and Justification[h]
Performance Requirements: System Operations			
1	Complies with applicable design standards, codes, and regulations for public transit and automated people mover systems as it pertains to "Passenger Comfort, Ride Quality" (7.7.3), which include vehicle acceleration and "jerk" limits, maximum sustained acceleration, interior noise levels - *see note (a)*	Compliant (Y/N)	Loop is currently operating under an operating certificate provided by Clark County Department of Building and Fire Prevention, Amusement and Transportation Systems Division. The approved operational certificate included reviews of the project for conformance with the following standards: • NFPA 130 for all project components, including fire and life safety. • Automated People Mover Standards, ANSI/ASCE/T&DI 21-21 for passenger comfort. • ADA for the transportation system, including vehicles and stations.
2	Total travel time (minutes) from ride request at origin station to arrival at destination station: Diridon station to Airport Terminal B stations- *see note (b)*	11 min. (maximum)	Total travel time: 5 minutes Refer to Table 3 – SJC Loop Travel Times.
3	Total travel time (minutes) from ride request at origin station to arrival at destination station: Airport Terminal B stations to Terminal A stations- *see note (c)*	6 min. (maximum)	Total travel time: 2 minutes, 30 seconds Refer to Table 3 – SJC Loop Travel Times.
4	Peak hour line capacity (persons per hour per direction (pphpd)) – Diridon to Airport Terminal B and between Terminals A and B	1,500 pphpd (minimum)	SJC Loop will provide peak hour line capacity in excess of >1,600 pphpd between these segments with the ability to increase capacity. Refer to System Operation section.
5	Peak hour line capacity, (persons per hour per direction (pphpd)) – Diridon to Stevens Creek Blvd segment (with system expansion)	4,500 pphpd (minimum)	A Stevens Creek expansion would accommodate >4,500 pphpd with the ability to increase line capacity. System Expansion Capability
6	Passenger wait time (minutes), throughout the span of service on weekdays and weekends/holidays – *see note (d)*	5 min. (maximum)	Median peak hour wait time: 0 seconds Median off peak hour wait time: 0 seconds Refer to System Operation section.
Performance Requirements: User Experience			
7	All stations shall be ADA compliant and provide level boarding – *see note (e)*	Compliant (Y/N)	Loop Vehicles are rubber-tired automobiles with a ground clearance of ~6 inches. Stations and/or vehicles will be designed with wheelchair access ramps to enable passengers in wheelchairs to board the vehicles independently. Refer to "Accessibility to Passengers with Disabilities" in System Operation section.
8	All vehicle interiors shall comply with ADA accessibility requirements and accommodate at least one wheelchair – *see note (f)*	Compliant (Y/N)	A high percentage of Loop Vehicles will be able to accommodate a wheelchair and at least one traveling companion or another passenger and their belongings. Wheelchair-compatible vehicles

			will be available within SJC Loop for passengers requiring wheelchair access. Passenger wait times for persons using wheelchairs will be comparable to wait times for ambulatory passengers. Refer to “Accessibility to Passengers with Disabilities” in System Operation section.
9	Number of seated adult riders per vehicle– excluding wheelchairs – *see note (g)*	4 passengers (minimum)	Loop vehicles accommodate a minimum of 4 passenger seats.
10	Users must be able to use the service without a smartphone app	Compliant (Y/N)	Ridership and operation of the system does not utilize a smartphone app. Ticket kiosks will be provided in stations to purchase fares.

Notes:

a. For the purposes of responding to this TS Form E only, the applicable design standards are:
  i. Automated People Mover Standards, ANSI/ASCE/T&DI 21-21
  ii. Standard for Fixed Guideway Transit and Passenger Rail Systems, NFPA 130
  iii. Americans with Disabilities Act (ADA) Standards for Transportation Facilities, US Department of Transportation as well as all applicable regulations and guidelines

b. Assume an alignment distance from Diridon to Airport Terminal B stations of 3.0 miles. Travel time includes average passenger wait time, dwell time at stations, and in-vehicle time.

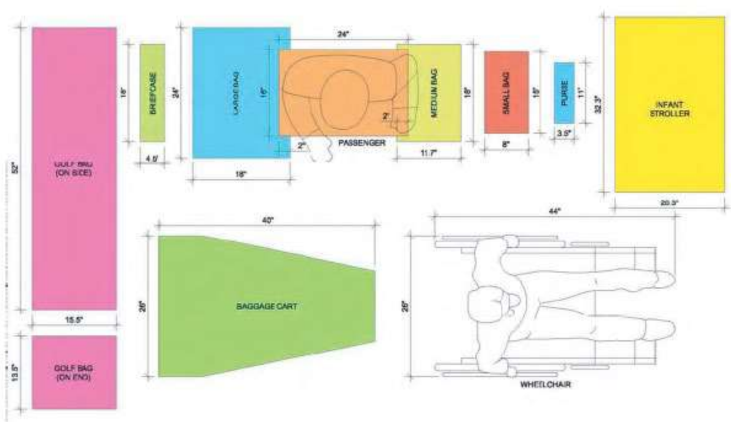
c. Assume an alignment distance from Airport Terminal B to Terminal A stations of 1.0 miles. Travel time includes average passenger wait time, dwell time at stations, and in-vehicle time.

d. Measurement of the time from when the passenger requests a ride or arrives at the station (whichever is earlier) until they board the vehicle.

e. FTA Circular 4710.1 – Americans with Disabilities Act Guidance – with level boarding, the platform height is coordinated with the height of the vehicle floor and gaps are minimized, ideally allowing persons who use wheelchairs to board independently. 38.95(c) and 38.125(c)” (§ 37.42(f)).

f. Code of Federal Regulations, Part 37 – Transportation Services for Individuals with Disabilities (ADA)

g. Guidebook for Planning and Implementing Automated People Mover Systems at Airports (Airport Cooperative Research Program (ACRP) Report 37, 2010) provides passenger space allocations. Each vehicle must be able to accommodate at least one wheelchair. Wheelchair, baggage carts (for travel between terminals) and luggage, can vary in size.



Source: Lea+Elliott, Inc.

Figure 8.4.2-1. Passenger space allocations.

h. Attach additional pages to provide documentary justification how the proposed Transit Technology meets the threshold.

i. For Airport Connector peak hour line capacity:
  a. 1,500 pphpd minimum
  b. 1,000 pphpd seating minimum. For standees, must assume minimum of 5.4 sq./ft standee pax, excluding seating areas (4.5 sq. ft/seat, per ASCE 21-21)
  c. If assuming standees, must meet ASCE 21-21 for passenger comfort for vehicles with standees and describe comfort level and accommodations for standing passengers

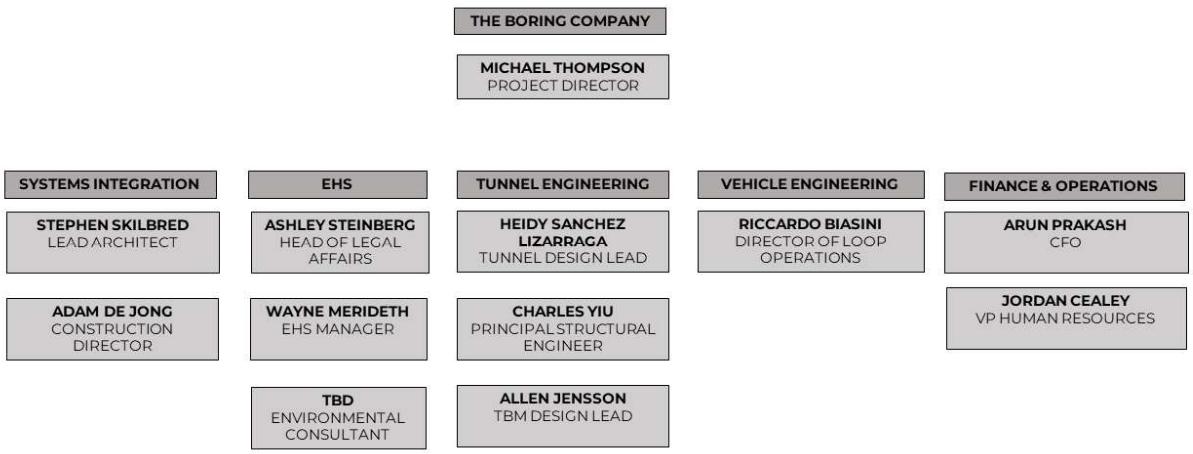
j. For system expansion peak hour line capacity:
  a. 4.500 pphpd minimum
  b. 1,800 pphpd seating minimum. For standees, must assume minimum of 4.3 sq./ft standee pax, excluding seating areas (4.5 sq. ft/seat, per ASCE 21-21)
  c. If assuming standees, must meet ASCE 21-21 for passenger comfort for vehicles with standees and describe comfort level and accommodations for standing passengers

Management and Partnering Approach

Functional Organizational Chart

As a vertically integrated provider, TBC's project team is fully involved throughout the project development process to provide a seamless experience the City. TBC's organizational chart for the Project is shown below. Resumes for TBC's Key Team Members for the Project are available upon request.

Figure 19 – SJC Loop Organizational Chart



TS Form F: Approach to Staffing and Resourcing

Attach to this form a narrative, no longer than three pages, that clearly and succinctly describes the proposed approach to staffing and resourcing for PDA Phase 1. The narrative should include a thoughtful and thorough description of:

1. *How the Proposer's team and organization structure will ensure that the scope of work under PDA Phase 1 will be completed successfully within the anticipated schedule*
2. *The Proposer's capability to provide continuity through all PDA phases*
3. *How the Proposer's and Major Participant's experience on staffing and resourcing the Reference Projects has led to lessons learned and practices that will be implemented to ensure a successful delivery of this Project.*

Organizational Structure

TBC employs a flat organizational management structure, much like that of SpaceX and Tesla. This structure has been developed based on lessons learned across these organizations. Each of the five teams has a Team Director who reports directly to TBC's President.

Individual employees are given a large degree of autonomy, and TBC expects fast, high-quality, and safe production from both individuals and teams. TBC has intentionally maintained a small team of key staff to ensure agility in design, production, and operation. TBC's achievements to date are in part the result of its lean management team. This streamlined decision-making process is backed by an intensive validation and verification program to ensure quality, safety, and efficacy. TBC's organization management is engineered to ensure continuity of process and personnel as well as the timely and quality delivery of work products during throughout the development of SJC Loop including the PDA process.

Figure 20 – TBC Organization Chart

SYSTEMS INTEGRATION	ENVIRONMENT, HEALTH & SAFETY	TUNNEL ENGINEERING	VEHICLE ENGINEERING	FINANCE & OPERATIONS
Oversees project development to ensure the integration of tunnel and Loop design, construction, operation, and maintenance	Ensures compliance and safe design, construction, operation, and maintenance of the tunnel and Loop infrastructure	Manages and implements tunnel design, construction, inspection, and maintenance	Designs, develops, and maintains Loop vehicles and infrastructure	Organizes finances and business operations to ensure on-time, successful project development and delivery

SJC Loop will be supported by local Systems Integration, Environment, Health, and Safety (EHS), Tunnel Engineering, Vehicle Engineering, and Business Operations teams. Below, TBC describes the roles and responsibilities associated with each team and presents key personnel within those teams.

Systems Integration: Led by the Systems Integration Director, this team:

- Oversees the entire project to ensure cohesive design and construction of all aspects of the transportation system, including tunnels, vehicles, and other infrastructure;
- Facilitates cross-team communication to coordinate execution of various project components in parallel with one another;
- Tracks project requirements and performance metrics, during both construction and operation; and
- Implements the safe, reliable, and functional day-to-day operation of the Loop system.

Environment, Health and Safety: Led by the EHS Director, this team:

- Implements proper health and safety protocols, including development and deployment of health and safety plans;

- Ensures compliance of TBC job sites with applicable safety standards and regulations, including OSHA compliance of all TBC workplaces;
- Oversees safety orientation and training of employees and supervisors;
- Leads daily meetings to review important safety practices with staff;
- Ensures environmental compliance of TBC job sites through proper materials management practices;
- Develops and implements soil management plans for soils generated from tunneling activities;
- Manages environmental due diligence and regulatory process for current and future projects; and
- Ensures safety of workers and passengers during operation through the implementation of an operational safety plan.

Tunnel Engineering: Led by the Tunnel Engineering Director, this team:

- Leads TBM design, engineering, assembly, commissioning, and launch preparation;
- Delegates tunnel engineering tasks and manages personnel involved in daily tunneling operations;
- Develops site layouts, structural design, and tunnel alignments;
- Oversees precast concrete segment design and production;
- Manages tunnel construction operations including site management and muck handling/disposal; and
- Implements quality control and assurance for tunnel design and tunneling operations.

Vehicle Engineering: Led by the Vehicle Engineering Director, this team:

- Ensures the safety, quality, and efficiency of Loop Vehicles implemented within the Loop system;
- Oversees the design, production, and implementation of Loop Vehicles and associated systems infrastructure;
- Manages the development of Loop system software and the integration of vehicle software;
- Develops operation and maintenance plans for vehicle systems; and
- Implements quality control and assurance for vehicle design and operations.

Finance & Operations: Led by the Finance & Operations Director, this team:

- Manages finances, including ensuring that TBC has funding and capacity in order to effectively achieve project milestones and execute large-scale, complex projects;
- Oversees day-to-day business operations, including accounting activities, contract negotiations and execution, supply chain management, and procurement; and
- Ensures TBC is properly insured and compliant with applicable business-related regulations.

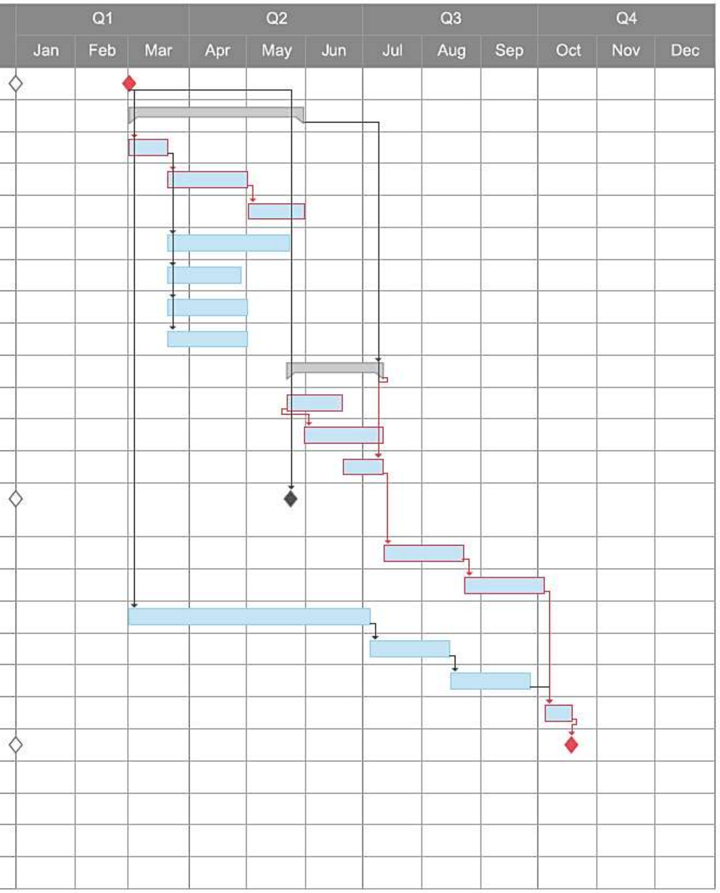
Subcontractors: TBC partners with certified subcontractors to perform certain specialized civil excavation, engineering, and security tasks, among others. As such, TBC will continue to develop alliances with various companies, many of which are local to Santa Clara County, that will play important roles in various aspects of the project.

PDA Phase 1 Schedule

SJC Loop PDA Schedule

THE BORING COMPANY

	Task Name	Duration	Start	Finish	Predecessors
1	PDA Signed/ NTP 1 Received from City	0	03/01/23	03/01/23	
2	Complete Technical Feasibility Studies	65d	03/01/23	05/30/23	
3	Conceptual Project Alternatives Analysis	14d	03/01/23	03/20/23	1
4	Land Inventory and Assessment	30d	03/21/23	05/01/23	3
5	Maintenance Facility Studies	21d	05/02/23	05/30/23	4
6	Utility Coordination Studies	45d	03/21/23	05/22/23	3
7	Preliminary Stakeholder Outreach and Input Gathering	28d	03/21/23	04/27/23	3
8	Geotechnical and Environmental Desktop Review	30d	03/21/23	05/01/23	3
9	NEPA and CEQA Framework Development	30d	03/21/23	05/01/23	3
10	Preliminary Engineering	37d	05/22/23	07/11/23	2FF +14d
11	10% Engineering Plans	21d	05/22/23	06/19/23	
12	Concept Level Expansion Plans	30d	05/31/23	07/11/23	11SS +7d
13	Draft Feasibility Validation Report	15d	06/21/23	07/11/23	2FF, 10FF
14	Technical Feasibility Assessment (Concept Design) & Financial Feasibility Assessment Progress Memo	0	05/24/23	05/24/23	1FS +60d
15	City Feedback Provided - Draft Feasibility Validation Report	30d	07/12/23	08/22/23	13
16	Final Feasibility Validation Report	30d	08/23/23	10/03/23	15
17	Draft Outline Project Plan	90d	03/01/23	07/04/23	1
18	City Feedback Provided - Draft Outline Project Plan	30d	07/05/23	08/15/23	17
19	Final Outline Project Plan	30d	08/16/23	09/26/23	18
20	Execute Validation Amendment	10d	10/04/23	10/17/23	16, 19
21	PDA Phase 1 Complete	0	10/17/23	10/17/23	20
22					
23					
24					
25					



TS Form G: PDA Phase 1 Management Plan

Attach to this form a narrative, no longer than 10 pages, that clearly and succinctly outlines the approach and work plan to perform the work for PDA Phase 1. The narrative should include a thoughtful and thorough description of:

1. *The partnering and collaboration strategy, including proposed interfaces and relationships with the City and proposed approach to resolving issues*
2. *The approach to Preparing and delivering a Business Case (including an economic cost-benefit analysis) and Feasibility Validation Report complies with the requirements of the PDA, including the PDA Phase 1 schedule*
3. *The process to develop the Project's PDA Phase 1 concept design and technical studies to inform the Business Case, including development of cost estimates, traffic and revenue projections, and incorporating the Transit Technology into a Transit Solution that is tailored for the Project and meets the Project Objectives, Procurement Objectives, and Technical Requirements*
4. *The process to identify the optimal environmental review and approval strategy for the Project during the PDA phase*

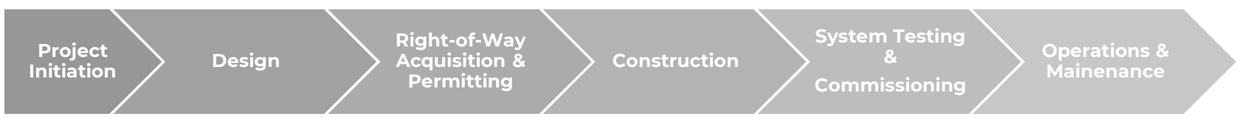
Phase 1 Management Plan

During the PDA Phase 1 process, TBC will foster an open and collaborative working relationship with the City and its affiliates so the PDA process moves swiftly while ensuring the SJC Loop meets and exceeds project requirements.

Approach to Project Development

As shown in Figure 21, the following sections provide an overview of TBC's project management and execution approach. Beginning at project initiation, TBC progresses through design, right-of-way acquisition, and permitting to construction. Following construction completion, and prior to the commencement of operations, Loop technology undergoes commissioning. During operation, maintenance is critical to ensure a state of good repair of the Loop system.

Figure 21 – SJC Loop Phases for Project Management and Execution



Throughout all project phases, the following management meetings occur on a recurring basis. As can be seen, there is an external stakeholder meeting, during which TBC will provide status updates to the City and other relevant stakeholders. These meetings will be supplemented with weekly, written project status reports.

Table 5 – Recurring Management Meetings

Meeting Name	Frequency	Led By	Attended By
Daily Safety Tag-Up	Daily	Safety Manager	All onsite employees and contractors
Daily Task Tag-Up	Daily	5 Team Directors	5 respective teams
Project Status	Daily	Systems Integration Director	Other 4 Team Directors
Project Risk Summary	Weekly	Systems Integration Director	Other 4 Team Directors and President
Project Cost and Schedule Summary	Weekly	Systems Integration Director	Other 4 Team Directors and President

Executive Staff	Weekly	President	5 Team Directors
External Stakeholder Project Update	Weekly	Systems Integration Director	External Stakeholders

TBC documents its standard operating procedures and management approach for project phases, as shown below. These plans, tailored to SJC Loop, will be available to the City upon request and pending further development of project design.

- Loop Geotechnical Work Plan
- Loop Construction Health and Safety Plan
- Loop Settlement Monitoring Plan
- Loop Construction Staging Plan
- Loop Injury and Illness Prevention Plan
- Loop Soil Management Plan
- Loop Maintenance Plan
- Loop Tunnel Inspection Plan
- Loop Operational Health and Safety Plan
- Loop Emergency Response Plan
- Loop Accessibility Plan

Partnering and Collaboration Strategy

The TBC project team will institute regular working meetings with the core City team members to quickly address questions that arise during the PDA process. Executive level briefings will also take place on a monthly basis to communicate progress and decision-making to executive and staff members. In discussions where design decisions need to be made, TBC will also engage the City and other relevant stakeholders in a variety of workshops using the real time adjustment of project designs and concepts. Leading up to the signing of the Validation Agreement, TBC will include a mix of subject matter experts in design, legal, and finance to review themes with City counterparts to efficiently work toward a signed agreement.

Feasibility Validation

Upon notice to proceed from the City, TBC will commence technical studies for the project encompassing all major areas where feasibility is to be evaluated.

- **Conceptual Project Alternatives Analysis:** Project feasibility will commence with a conceptual evaluation of project alternatives where various tunnel alignments and station options will be vetted with the City and other relevant stakeholders. This analysis is designed to identify the primary feasibility characteristics for the project ranging from land/right-of-way, utilities, stakeholder identification and coordination, geotechnical and environmental conditions, and environmental impacts. The outcome of this process is a list of identified critical design constraints, risks, and opportunities, and will give focus to the subsequent feasibility studies.

- **Land Inventory and Assessment:** An inventory will be developed for private and public right-of-way available to build the project, the ownership and control structures, probability and legal mechanisms available for accessing the land, as well as any infill station development opportunities.
- **Maintenance Facility Studies:** TBC will study and present various alternatives for the placement of maintenance facilities, as well as their costs, benefits, risks, and opportunities.
- **Utility Coordination Studies**: Utilities are of importance to the project because they are necessary for operating the system and are generally avoided to prevent relocations. TBC will engage utility owners early in the PDA process to understand available utilities to serve SJC Loop and identify areas of critical facilities to be avoided by project infrastructure.
- **Preliminary Stakeholder Outreach and Input Gathering**: If permissible by the City, TBC will engage with other key stakeholders to internalize their project goals for consideration in developing the Outline Project Plan, and proactively foster collaboration and goodwill among parties.
- **Geotechnical and Environmental Desktop Review:** TBC will conduct a review of existing data to develop a conceptual site model of the geological conditions that will impact how the project is implemented.
- **NEPA and CEQA Framework Development**: TBC will also engage with trusted NEPA/CEQA experts to prepare a framework for the SJC Loop environmental clearance process. A preliminary review will be performed to check for potential federal nexuses to the Project. Additionally, TBC will engage with leaders who have undertaken NEPA and CEQA within the San José region to identify opportunities and potential pitfalls of the environmental review process for which SJC Loop could be susceptible. The preliminary review will culminate in a register of anticipated impacts and a recommendation outline the most efficient pathway to obtaining environmental clearances.

Once these areas of the project are evaluated, TBC will prepare 10% engineering plans and conceptual expansion plans based on the results of the technical studies.

These work products will be included Draft Validation Report which summarizes key findings of the technical feasibility studies.

Business Case Validation

Development of the project business case will proceed in parallel with the technical feasibility evaluation. As outlined in Commercial Concept below, TBC has already developed an approach to the commercial viability of SJC Loop. TBC will utilize the PDA Phase 1 process to gather input from the City and further elaborate and build out its assumptions in order to validate the business case for the Project.

TS Form H: Approach to Risk Management

Attach to this form a narrative, no longer than five pages, that clearly and succinctly describes the proposed approach to risk management during the PDA phase. The narrative should include a thoughtful and thorough description of:

1. *The approach to identify, analyze, eliminate, minimize, and/or mitigate risk to the City and the Project and to appropriately allocate residual risks (between the Developer and the City) during the PDA phase*
2. *How the Proposer previously used the proposed approach effectively and how lessons learned have informed the proposed approach to risk management*
3. *An example risk tracking or management table (this is not required to be Project-specific) in 11 x 17 format*

Approach to Risk Management

TBC will implement a risk register using a risk management matrix as shown in Figure 22. The risk register will be updated on a weekly basis and reviewed on weekly progress meetings with key Project team members. In each meeting, an action plan with deadlines will be assigned and tracked. A risk escalation policy is in effect that ensures risks of the greatest exposure will be escalated as high as the company President if needed.

Risks to SJC Loop generally fall within major categories of financial risk, stakeholder risk, and technical risk. TBC's the responsibility of TBC's Project Director is to monitor and manage these risks so to an acceptable level of risk.

Financial Risk Management

During the PDA Phase, Financial Risk is primarily related to cost for consultants, studies, and internal resources. TBC is proposing to fully fund the Project and will assume these risks if not selected to a subsequent round, or if other factors cause the Project to terminate. TBC proposes to fully fund the Project. Thus, TBC is highly motivated to control costs and scheduling to bring the Project into operation. With 100% equity funding, there is no risk of funding insecurity such as requiring grants or fluctuating interest rates to affect project financial viability.

Stakeholder Risk Management

Relational risk is the risk associated with the actions and decisions of stakeholders to whom the Project requires approval or support. To effectively manage stakeholder risk, TBC will follow the procedures outlined in Approach to Community and Environment.

Technical Risk Management

TBC's primary source of project risk pertains to technical risk. TBC implements a percentage-based design workflow, as outlined by the milestones shown below. TBC intends to complete the below phases as part of the PDA Phase to mitigate technical risks.

15% Design. At this stage of the project design approach, TBC focuses on studying the existing subsurface environment.

- **Construction implementation plan**: TBC will study regional geologic information to determine best means and methods of construction.
- **Subsurface feasibility study**: TBC will review as-built drawings of above-ground structures, such as buildings and bridges, as well as underground structures, such as buried utilities, tunnels, and abandoned structures. If TBC identifies a structure or underground area that poses a construction risk, TBC will adjust its alignment (horizontally or laterally) to establish the necessary clearance or identify applicable best management practices (e.g., settlement monitoring, targeted environmental testing) to implement.
- **Utility coordination:** TBC will coordinate with utility providers during the planning stages to ensure that the system will not conflict with existing utilities.
- **Launch site design:** TBC will begin designing its TBM launch location during this stage. Preliminary analysis indicates logistics plans for TBM support systems such as a launch cradle

and soil storage locations. Because TBC uses a direct-launch TBM, no access shaft structure is anticipated.

Construction engineering: TBC develops its plan to construct the TBM launch location and stations. Finalizes logistics strategies, site layout, truck paths, etc.

30% Design. At this stage, TBC refines its designs using field-collected data.

- **Preliminary geotechnical investigation**: TBC will perform a geotechnical field investigation to fully characterize the geology along the alignment. The geotechnical investigation will include, at a minimum, soil borings, in-situ testing, and laboratory testing. The analysis will produce the following conclusions:
    - Tunnel design will be based on the results of the geotechnical investigation and augmented by existing geotechnical information. This analysis informs tunnel lining structural calculations.
    - Using available geotechnical information, as-built drawings, and the tunnel alignment, TBC employs well-established empirical methods to estimate the impact of construction to adjacent structures. Pending the results of the analysis from the investigation, the tunnel alignment can be redesigned (i.e., relocated laterally or deeper) to ensure negligible impact to adjacent structures.
- **Environmental investigation:** TBC reviews existing data and performs a field investigation to characterize environmental conditions associated with tunneling, including hazardous materials, brownfields, unfavorable soil/geology (e.g., mixed face conditions), contaminated groundwater) Appropriate measures for managing subsurface conditions (e.g., increased ventilation, special soil handling) are documented in a site-specific Soil Management Plan.
- **Refinement of design**: TBC refines and adds detail to its designs for various components of the project, including station sizes and configurations and supporting tunnel infrastructure. TBC also evaluates the geotechnical and risk evaluation assessments listed above. An optimal baseline design is then selected.

In addition to the above, TBC will undertake a variety of technical studies for SJC Loop as listed in Phase 1 Management Plan to further assess risk and design up-front mitigation measures early in the design process.

Figure 22 – Example Risk Register

PROJECT NAME

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Code: CATEGORY	Topic	Hazard	Location	I.D.	Hazard description: CATEGORY / Topic / Hazard / Location	Evaluation Criteria	TASK LEADER	Initial Hazard & Risk Level (Evaluation): Probability (Hazard frequency of occurence) [P]	Impact [I]: Financial loss	Impact: Delays	Impact: Health & safety	Impact: Natura / environment	Impact: Social	Risk [R = PxI]: Financial loss	Risk: Delays	Risk: Health & safety	Risk: Natura / environment	Risk: Social	Remarks	Mitigation measures (Response Strategy): Avoid	Reduce	Transfer	Retain	Remarks (mitigation measures types)
1					**General Hazards (management level)**		...																	
2					**Environmental Hazards**		–							0	0	0	0	0						
3					**Construction Hazards**		...							0	0	0	0	0						
3	1	0			Tunnel – Geologic Conditions		...																	
3	1	1	0		Ground – Rock Strength and/or hardness higher than anticipated	E	[NAME]																	
3	1	1	1	3.1.1.1	Area 1	E	[NAME]	3	2	3	1	1	1	6	9	3	3	3						
3	1	1	2	3.1.1.2	Area 2	E	[NAME]	2	1	3	1	1	1	2	6	2	2	2						
3	1	1	3	3.1.1.3	Area 3	E	[NAME]	2	2	3	1	1	1	4	6	2	2	2						
3	1	2	0		Ground – Abrasive rock/soil	E	[NAME]																	
3	1	2	1	3.1.2.1	Area 1	E	[NAME]	3	3	3	1	1	1	9	9	3	3	3						
3	1	2	2	3.1.2.2	Area 2	E	[NAME]	3	1	3	1	1	1	3	9	3	3	3						
3	1	2	3	3.1.2.3	Area 3	E	[NAME]	2	3	3	1	1	1	6	6	2	2	2						
3	1	3	0		Ground – Continuity/discontinuity of soil layers different than anticipated	E	[NAME]																	
3	1	3	1	3.1.3.1	Area 1	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	3	2	3.1.3.2	Area 2	E	[NAME]	1	1	2	1	1	1	1	2	1	1	1						
3	1	3	3	3.1.3.3	Area 3	E	[NAME]	1	2	2	1	1	1	2	2	1	1	1						
3	1	4	0		Ground – Top of bedrock different than anticipated	E	[NAME]																	
3	1	4	1	3.1.4.1	Area 1	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	4	2	3.1.4.2	Area 2	E	[NAME]	3	1	2	1	1	1	3	6	3	3	3						
3	1	4	3	3.1.4.3	Area 3	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	5	0		Ground – Top of weathered bedrock different than anticipated	E	[NAME]																	
3	1	5	1	3.1.5.1	Area 1	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	5	2	3.1.5.2	Area 2	E	[NAME]	3	1	2	1	1	1	3	6	3	3	3						
3	1	5	3	3.1.5.3	Area 3	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	6	0		Ground – High quartz content	E	[NAME]																	
3	1	6	1	3.1.6.1	Area 1	E	[NAME]	3	2	3	1	1	1	6	9	3	3	3						
3	1	6	2	3.1.6.2	Area 2	E	[NAME]	3	1	3	1	1	1	3	9	3	3	3						
3	1	6	3	3.1.6.3	Area 3	E	[NAME]	2	2	3	1	1	1	4	6	2	2	2						
3	1	7	0		Ground – Presence of faults and/or highly weathered / fractured zones	E	[NAME]																	
3	1	7	1	3.1.7.1	Area 1	E	[NAME]	2	3	3	1	1	1	6	6	2	2	2						
3	1	7	2	3.1.7.2	Area 2	E	[NAME]	1	3	3	1	1	1	3	3	1	1	1						
3	1	7	3	3.1.7.3	Area 3	E	[NAME]	2	3	3	1	1	1	6	6	2	2	2						
3	1	8	0		Ground – Presence of pressurized acquifer (artesian ground water table)	E	[NAME]																	
3	1	8	1	3.1.8.1	Area 1	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	8	2	3.1.8.2	Area 2	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	8	3	3.1.8.3	Area 3	E	[NAME]	2	2	2	1	1	1	4	4	2	2	2						
3	1	9	0		Gravity fall – Rock block fall	E	[NAME]																	
3	1	9	1	3.1.9.1	Area 1	E	[NAME]	1	2	3	3	1	1	2	3	3	1	1		D				
3	1	9	2	3.1.9.2	Area 2	E	[NAME]	1	2	3	3	1	1	2	3	3	1	1		D				
3	1	9	3	3.1.9.3	Area 3	E	[NAME]	1	2	3	3	1	1	2	3	3	1	1		D				
3	1	10	0		Water induced – Water inrush higher than anticipated in soil or rock	E	[NAME]																	
3	1	10	1	3.1.10.1	Area 1	E	[NAME]	1	2	3	2	2	1	2	3	2	2	1						
3	1	10	2	3.1.10.2	Area 2	E	[NAME]	2	2	3	2	2	1	4	6	4	4	2						

TS Form I: Approach to Subcontracting

Attach to this form a narrative, no longer than three pages, that clearly and succinctly describes the proposed approach to engagement and management of subcontracting for the Project. The narrative should include a thoughtful and thorough description of:

1. *How the Proposer will procure competitive pricing from qualified subcontractors for the work under the Implementation Phase in accordance with the PDA and Applicable Law;*
2. *The Proposer's plans for the structure and timing of competitive procurement and related selection and pricing processes within the PDA phase as the Project's development progresses to the Implementation Phase*
3. *The Proposer's expectations and proposal with respect to reporting to and reviews and approvals by the City for competitive procurement of qualified subcontractors*
4. *The Proposer's plans for incorporating into the competitive procurement process requirements for DBE service providers, suppliers, etc. as may be applicable*

Approach to Subcontracting

TBC is a vertically integrated company with a standardized tunnel design. As such, TBC's in-house project team has end-to-end control of finance, contracting, project development, manufacturing, construction, and operations. TBC maintains an in-house design and construction team capable of designing and building SJC Loop and manufactures its own TBMs and precast tunnel products. These aspects of TBC's organizational structure and engineering approach allow TBC to produce internal cost estimates without the need of outside subcontract agreements and enable rapid, high-quality project delivery through standardized operating procedures and workforce experience.

TBC utilizes subcontractors for select trade work and has developed strong vendor relationships with material suppliers. Because TBC's tunnel design is standardized, TBC will leverage these relationships to ensure the timely delivery of project supplies and services. TBC procurement staff will coordinate closely with City staff to review and seek consultation on City procurement policies and procedures to ensure compliance throughout the Project.

As described in the following section, TBC is committed to inclusion and will work with the City and other stakeholders to ensure DBE targets are exceeded.

TS Form J: Approach to Community and Environment

Attach to this form a narrative, no longer than 10 pages, that clearly and succinctly describes the proposed approach for community engagement and stakeholder communication, as well as environmental issues, during PDA Phase 1. The narrative should include a thoughtful and thorough description of:

1. *The relevant stakeholders and the Proposer's approach to work with stakeholders to achieve the Project Objectives*
2. *How the Proposer intends to develop the Project and formulate solutions so that public input and recommendations are incorporated to the appropriate extent to achieve buy-in and consensus*
3. *How equity and inclusivity will be incorporated to facilitate access and involvement from those affected, particularly from communities historically underrepresented in the public process*
4. *How the Proposer intends to develop the Project to consider and incorporate environmental issues*

Approach to Community and Environment

Community Engagement

TBC will implement a multi-disciplinary community engagement and enrichment program that integrates the key areas of:

1. Stakeholder engagement
2. Public outreach
3. Workforce development
4. Diversity and inclusion

TBC will develop and implement an outreach program in coordination with the City and other project stakeholders. The project will include a growing list of stakeholders, the preliminary of which include:

- City of San José
- SJC
- Diridon Station
- VTA
- Caltrain
- BART
- Santa Clara County
- Caltrans
- FAA
- San José Police Department
- San José Fire Department
- SAP Center at San José
- Utilities, including San José Municipal Water System, Santa Clara Valley Water, Pacific Gas & Electric
- San José Unified School District
- Local community groups

The outreach program will be documented in a Public Engagement Plan, the contents of which will focus on coordination, communication, and documentation.

Coordination

- Provide a decision-making liaison to attend public meetings in collaboration with City spokespeople.
- Provide spokespeople for media and maintain internet and telephone helpline communications. The contents of the outreach program will consist of the following general components.
- Participate at booths at local events and at neighborhood meetings.
- Facilitate programs and events to engage the community in information about labor, materials, design, and construction activities.
- Engage with other regionally significant projects, such as SJC Master Plan activities, to ensure proper coordination, mitigate community and project impacts, and identify opportunities resulting from the synergies of related project activities.
- Facilitate public outreach and technical working group meetings, and stakeholder meetings as needed to discuss current and planned construction activities and attend regular business support program meetings.
- In conjunction with the City, conduct briefings on an as-needed basis for regional emergency responders and transit operators (e.g., SJC Airport, police, fire, sheriff, California Highway Patrol,

ambulance, freeway service patrol, affected transit Agencies, local school districts) in advance of major construction activities, closures, and detours.
- Attend scheduled public outreach coordination meetings with local Agencies as needed to discuss project progress, upcoming activities, and potential issues.

Project Information Dissemination
- Provide detailed construction activity information to City staff in a timely manner. This information will be used for construction alerts or other communications for release by the City.
- Provide access to develop and produce outreach materials such as videos, project tours, and photo journaling, as authorized by TBC.
- Attend City Council presentations to assist with construction-related inquiries.
- Communicate project information in Spanish, as well as other language as appropriate to communicate with affected community representatives
- Publish project information in local publications and media sources to make best efforts of disseminating project information.

Documentation
- Collect and maintain current and accurate information about planned and actual construction activities, including location, estimated duration of activity, type of work being performed, physical impacts, and planned construction detours.
- Provide schedules, detour information, contact lists, answers to questions about design and construction, and other project information.
- Review written material prepared by the City.
- Produce exhibits such as maps and photo simulations of the Project to support the creation of informational material for the media or project audience.

Commitment to Inclusion

TBC is committed to the inclusion of disadvantaged business enterprises (DBEs) located and operating in Santa Clara County. TBC will demonstrate its commitment to inclusion through equal opportunity efforts; hiring locally; and establishing a Workforce Advisory Board.

Equal Opportunity Efforts

TBC affirms that for any contract executed pursuant to this Proposal, DBE firms will be afforded full and fair opportunity to work with TBC on this project. TBC will make the following, specific efforts to ensure that DBEs have an equal opportunity to compete for subcontracts:

- Prepare work scopes for each opportunity to ensure that the opportunity is consistently and fairly communicated to DBEs; and,
- Provide sufficient bid solicitation time for preparation of proposals, quantities of specifications, and delivery schedules to facilitate participation.

Hiring Locally

TBC will hire locally to contribute to the positive economic impact to the greater San José region. TBC will host multiple job fairs with respect to construction work and operation and maintenance employment. Additionally, TBC will use best efforts to participate in local job fairs relevant to either the construction or operation of SJC Loop.

Workforce Advisory Board

TBC will establish a Workforce Advisory Board to provide community input and strategic guidance. The Workforce Advisory Board will be representative of the communities impacted by SJC Loop, with membership likely drawn from:

- **Local community representatives:** TBC will partner with local community groups including those with expertise regarding local DBEs, to support the development of the local workforce.
- **Government officials:** TBC will engage with local government officials to understand the needs of community constituents.
- **School Districts:** TBC will seek ways to support local STEM education and innovation by speaking with key education stakeholders in Santa Clara County. To-date, TBC has hosted over 100 educational events for schools from throughout the country and will continue to offer similar opportunities in Santa Clara County.
- **Higher Education:** TBC will establish relationships with higher education institutions in Santa Clara County to support internship programs for engineering students. TBC intends to build upon this relationship, particularly with respect to promoting women and minorities in the engineering and STEM fields. TBC will also explore apprenticeship opportunities with these institutions.

TBC intends to work with the City to identify additional methods of demonstrating its commitment to inclusion.

Environmental Approach

TBC projects undergo stringent environmental reviews at the state and federal level. TBC and its in-house environmental team have worked closely with local, state, and federal stakeholders in conducting environmental reviews and outreach efforts pursuant to the California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA) to minimize potential impacts or adverse effects to the environment and human health. Examples of local, state, and federal agencies that TBC has worked closely with on environmental approvals in similar projects include:

- City of Los Angeles Bureau of Engineering (LABOE)
- City of Hawthorne Department of Planning
- Nevada Division of Environmental Protection (NDEP)
- Maryland Department of Transportation (MDOT)
- Federal Highway Administration (FHWA)

TBC will work with the City and key stakeholders to determine the ultimate scope of environmental review and outreach efforts for the proposed project. As a zero-emissions underground transportation system, Loop avoids many of the environmental impacts associated with typical surface transportation projects, such as noise, aesthetics, air quality, and relocation impacts. Based on TBC's prior experience in environmental coordination, TBC anticipates that an Initial Study (CEQA) and Environmental Assessment (NEPA) joint documentation will be appropriate for SJC Loop, subject to further project scoping. Table 6 below provides an example anticipated workplan and schedule based on TBC's prior experience with environmental approvals working with key local, state, and federal stakeholders.

Table 6 – Anticipated Environmental Approvals Schedule

Environmental Approvals Phase	Task	Anticipated Timeline	Total Time
Prepare Draft Environmental Document (Draft Initial Study – Environmental Assessment (IS/EA)*)	Prepare Draft IS/EA	8 weeks	8 weeks
	QA/QC Review	4 weeks (concurrent with legal review)	12 weeks
	Legal Review (if desired)	4 weeks (concurrent with QA/QC review)	
	Incorporate All Comments to Draft Document	2 weeks	14 weeks
Draft Environmental Document Phase			**14 weeks**
Circulate Draft Environmental Document	Prepare Notice of Availability, Public Notification for Public Comment Period (Newspaper ads and mailers) **CEQA:** Prepare Notice of Intent to Adopt Negative Declaration (ND) or Mitigated Negative Declaration (MND) **NEPA:** Prepare Notice of Public Hearing (NEPA)	1 week	1 week
	Public Comment Period	30 days	5 weeks
Public Comment Phase			**5 weeks**
Revise IS/EA and Respond to Public and Agency Comments	Incorporate Comments	2 weeks	2 weeks
	QA/QC Review	2 weeks (concurrent with legal review)	4 weeks
	Legal Review (if desired)	2 weeks (concurrent with QA/QC review)	
	Incorporate All Comments to Final Document	2 weeks	6 weeks
Draft Environmental Document Revision Phase			**6 weeks**

Environmental Approvals Phase	Task	Anticipated Timeline	Total Time
Finalize compliance with federal laws, regulations, and executive orders	**CEQA:** CA Department of Fish and Wildlife 2080.1 Consistency Determination or Incidental Take Permit (Not anticipated) **NEPA:** Section 106 Process Section 7 Consultation Section 4(f) Evaluation Section 408 Permit (if crossing any US Army Corps of Engineers [USACE] facilities) Air Conformity Statement	1 month (concurrent with IS/EA Revision)	N/A
Circulate Final Environmental Document	**CEQA:** Circulate Final IS ND or MND **NEPA:** Circulate Final EA with FONSI	30 days	30 days
Certify Environmental Document	**CEQA:** Prepare and File Notice of Determination (NOD) **NEPA:** Send Notice of Availability (NOA) of FNOSI to State Clearinghouse	1 week	5 weeks
Final Environmental Document Circulation and Certification			**5 weeks**
Total Time			**30 weeks (~7 months)**

*Assuming joint CEQA/NEPA documentation

TS Form K: Commercial Concept

1. Narrative

Attach to this form a narrative, describing the core elements of the Proposer's concept-level commercial structure for the Project. The narrative must address the Project Objectives and Procurement Objectives, including the expected revenue risk design-build-finance-operate-maintain (DBFOM) delivery of the Project.

The narrative must explain clearly and succinctly the proposed commercial structure, including but not limited to a thoughtful and thorough description or explanation of the following (a to h):

a. ProCo and subsidiaries

The Project Company (ProCo), its anticipated capital structure and governance structure, and any anticipated subsidiaries of the ProCo and the anticipated commercial and contractual relationships among the subsidiaries, and between each of the subsidiaries and the ProCo.

b. Risk allocation and procurement objectives

How the proposed commercial structure preserves the City's desired risk allocation and Project Objectives and Procurement Objectives both during construction and after completion during the operational phase.

c. Non-City risks

Plan for the management and mitigation of all risks assigned to the ProCo — and subsidiaries if that is the case — (i.e., the "non-City risks"), including expected security documents to be entered into with Major Participants and other subcontractors, members of the ProCo, and/or ProCo's subsidiaries, guarantors, and lenders.

d. Development of credible estimates

Proposer's approach to pricing the work under the Implementation Phase in an open and transparent cost estimating environment and so as to develop credible estimates for the design, construction, operations, and maintenance costs, including discussion of construction pricing and O&M pricing, and the means, methods, and other key assumptions used to derive pricing.

e. Construction financing

How the ProCo intends to finance the development of the Transit Technology to achieve TRL 9, if applicable, and construction of the Project, including expected capital structure (debt/equity gearing ratio), any construction or standby facilities available, and how the security package for the construction lenders will be structured.

f. Long-term financing

How the ProCo intends to implement the long-term financing consistent with a revenue risk delivery model, including public and private sources of financing. This includes expected capital structure (debt/equity gearing ratio), the potential risks and how they will be managed/mitigated, the potential pool of lenders, potential subordinated debt lenders, envisioned capital markets debt issuance, and internally generated funds and how the security package for the long-term lenders will be structured.

g. ProCo Equity

The pool of equity investors in the ProCo, as well as in any of the ProCo's subsidiaries, as the case may be, along with their credit status and the amounts of funds and the timing of investment of these funds for each one of them in the ProCo and/or ProCo's subsidiary.

h. External Equity

For any equity or quasi-equity finance to be raised from external sources, identify the intended sources.

2. Graphical Representation

Attach to this form a graphical representation of the proposed commercial structure, including all contractual relationships of the ProCo and the streams of funds.

Commercial Concept

TBC operates as a vertically integrated tunneling company that is responsible for all aspects of Loop build-out and operation. The project will be governed directly by the company. Consequently, TBC does not anticipate any subsidiaries or commercial and contractual relationships, mitigating counter-party or subsidiary risk.

TBC's concept-level commercial structure holistically evaluates the project's ability to function as an economically viable transportation network. The review evaluates ridership market sizing for a connector between SJC airport and Diridon Station and estimates the potential commercial revenue opportunity from the project. The commercial structure assesses SJC Loop's capital outlay and maintenance costs such that the commercial operation will be fully supported by revenues generated by the project. Development of SJC Loop will not pose a disruption or material risk to the city of San José. TBC intends to own and operate the Loop as a private network and will fully finance the project with company equity. TBC's SJC Loop transit solution would provide an efficient and affordable means of transportation for the San José community, reducing traffic congestion and connecting two of the city's key transportation hubs.

San José is a large and high-growth market

The San José area is a bustling metropolitan area located in the heart of Silicon Valley. The area is home to many high-tech companies and is a hub for innovation and technology. San José's population of 1 million residents ranks as the tenth highest in the United States, larger than cities such as San Francisco, Seattle, and Austin. It is the largest city in Northern California, and the third largest city in the state.

Figure 23 – Population *(M)*

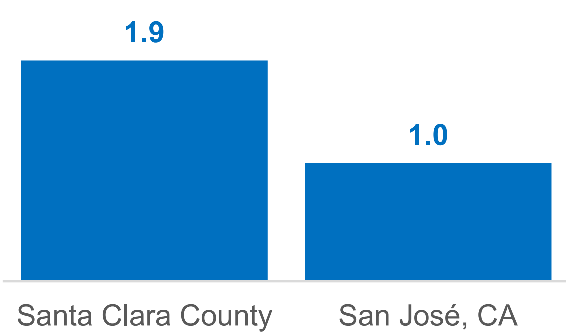
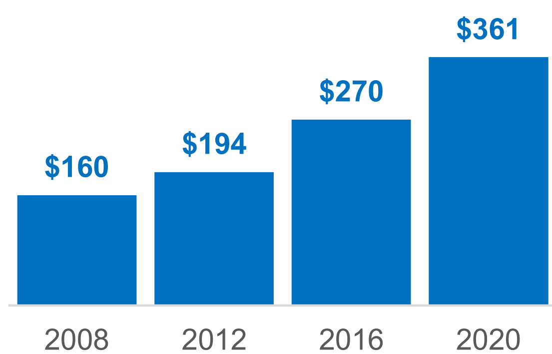
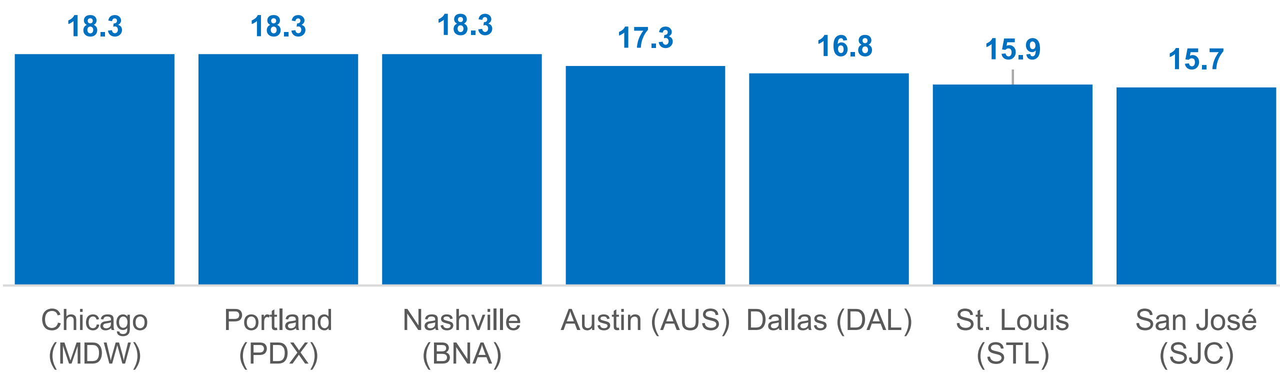


Figure 24 – San José MSA GDP ($Bn)



The broader Santa Clara County region represents a population of nearly 2 million (Figure 23) residents and generates more than $360 billion of annual GDP. The SJC Loop would operate in a sizeable demographic market and a high-growth economic environment. The growth of the technology industry in the Bay Area has added $190 billion in GDP value to the county over the last decade (Figure 24). Per capita personal income in Santa Clara has doubled from $61,000 in 2010 to $124,000 in 2020. SJC, one of the project's endpoints, welcomed 15.7 million passengers in 2019 (Figure 25).

Figure 25 – 2019 Air Passenger Throughput

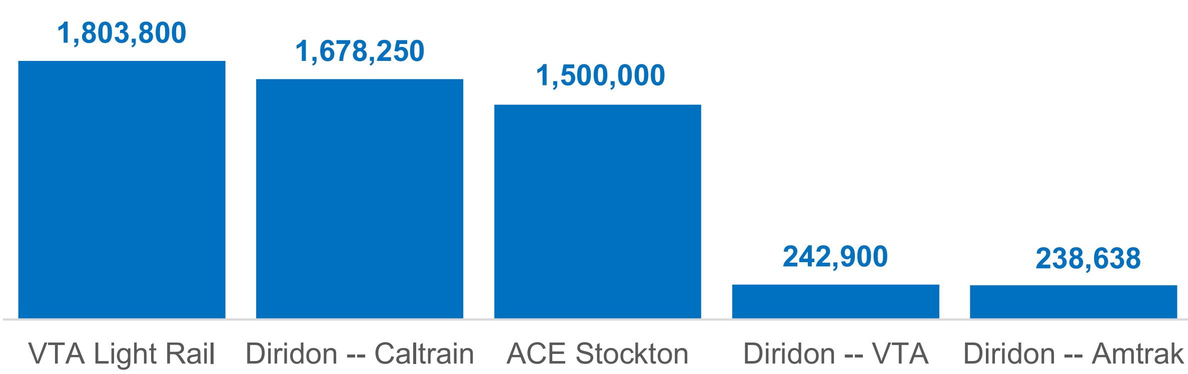


SJC's passenger volume is comparable to other metropolitan airports in high-growth cities such as Austin and Portland. The city's thriving economy, large population and significant airport ridership constitute an attractive market backdrop for a commercially successful SJC Loop.

Precedent San José transit networks have proven commercially viable

Diridon Station has a long history as a transportation hub and was first established as a rail station in 1878. Since then, numerous transit networks in San José have generated commercial traction and serve over 1 million annual rides (Figure 26).

Figure 26 – Annual Ridership Levels for Existing San José Transit Connections



The Caltrain stop at Diridon station alone serviced 1.7 million annual rides in 2019. Diridon's VTA light rail and Amtrak lines are used less, each with nearly 250,000 annual rides serviced. The VTA Light Rail and ACE Stockton consolidated network ridership including Diridon Station was 1.8 million and 1.7 million riders annually, respectively. VTA Light Rail primarily services Santa Clara County while ACE services the corridor from Stockton to San José. All connections serve as precedent that San José transit ridership levels are sufficient to generate multi-million passengers per year in SJC Loop ridership.

City of San José projects 12.5m+ annual rides at Diridon station across transit alternatives

The City of San José published a Diridon Station Area Plan that outlined a blueprint for the long-term development of Diridon Station. The report was drafted over five years with numerous public and private stakeholders, and projects future Diridon State ridership in 2030-2035 (Figure 27, Figure 27).

Figure 27 – Weekday 2030E Ridership

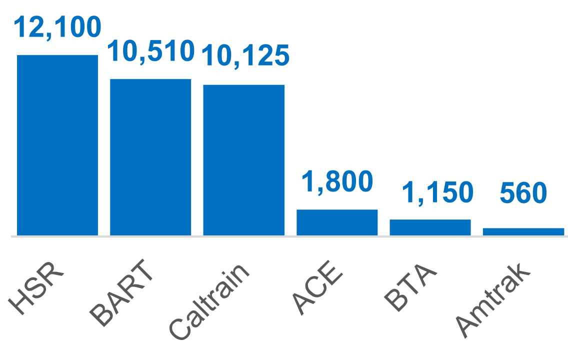
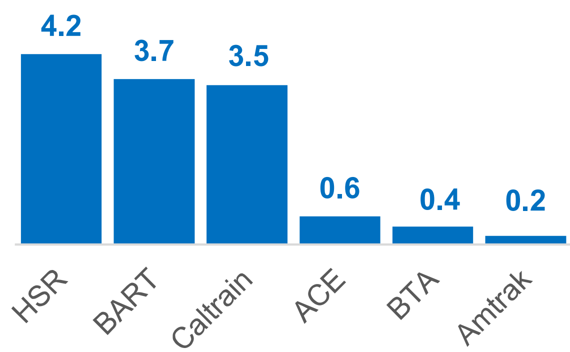


Figure 28 – Annual 2030E Ridership (M)



A portion of future projected ridership comes from high-speed rail and BART lines that do not currently exist. In total, the study projects Diridon Station will have 36,000 daily rides / 12.7 million annual rides, and three networks have multi-million annual ridership levels. A leading transit network that acquires even a fraction of the ridership market share at $20-25 ride fare could generate meaningful annual revenue. If selected by the City to engage in the PDA, TBC will share revenue and profitability models with sensitivity analysis to demonstrate the economic viability of SJC Loop.

Connecting SJC airport to Diridon Station unlocks a multi-million rider network

Today, the only public mode of transportation between San José Airport and Diridon is the DASH bus shuttle. The DASH shuttle services 600 daily rides which translates to 200,000 annual rides serviced. A peer service, the VTA Line 10, is a bus shuttle going from SJC to the Santa Clara Caltrain Station. Line 10 services 1,200 daily rides, double that of the DASH bus shuttle.

In 2017, the City of San José conducted an Automated Guideway Transit study that projected the ridership of a transit system connecting SJC with Diridon. Including SJC passenger and employee transport, as well as traffic from the ongoing California high speed rail project, the study projects a SJC to Diridon connector could generate up to 11,800 daily rides, or 4.1 million annual rides.

Figure 29 — Weekday SJC to San José

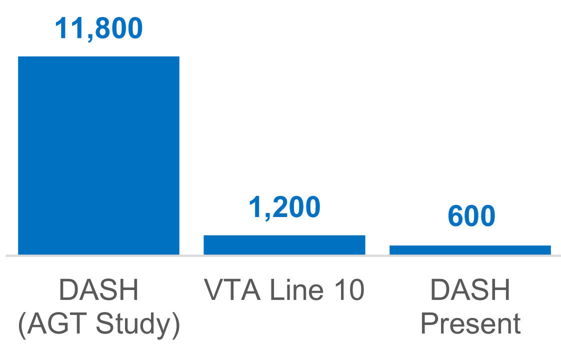
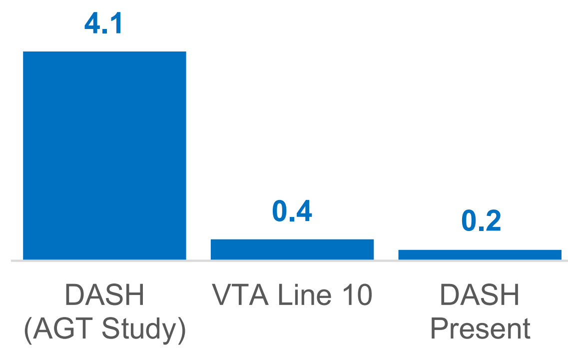


Figure 30 – Annual SJC to San José (M)

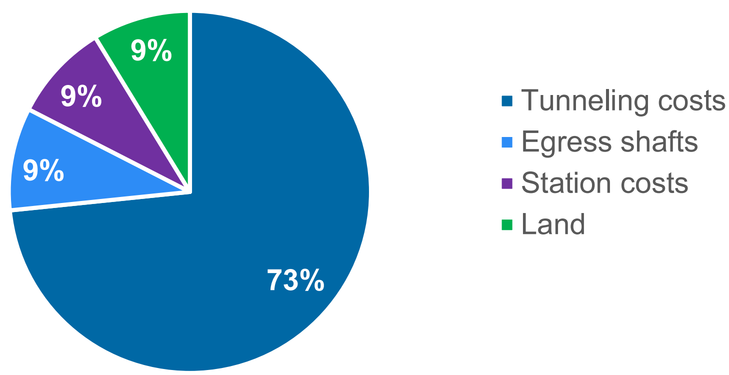


Considering the city report's guidance of 11,800 daily riders and a $10 to 20 ride fare (competitive with current rideshare fares), an SJC Airport to Diridon Station Connector is an eight-figure revenue opportunity.

Loop's cost and financing structure unlock an economically viable transit system

TBC estimates the capital expenditures for the project are $122.5 million:

Figure 31 – Breakdown of Project Capital Expenditure Base (%)



Tunneling costs cover most of the project's capex and include direct tunneling costs, buildout expenses and cost-plus labor wages. Conventional tunnels are expensive to dig, with many projects costing between $100 million and $1 billion per mile. TBC currently tunnels Loop at $10-15 million per mile, roughly a 10x cost improvement over traditional boring projects.

Operating expenses for an SJC Airport to Diridon Loop include variable operator fees as well as fixed administration and maintenance expenses in the seven-figure range per year. TBC expects to operate autonomous fleets long-term, further improving the cost structure. As a result, Loop transit system would be able to operate at profitable and sustainable margins.

TBC's 100% equity financing of the project would yield a profit even in low-ridership estimates. Although TBC is not relying on debt financing alternatives, the project is sufficiently profitable to afford debt financing interest expense.

At the projected capex and O&M budget values, even when assuming additional contingencies, the estimated revenue opportunity is sufficient to pay back the initial capital investment and maintain a profitable Loop network. Because SJC Loop would be 100% equity funded and would not use debt financing, it runs zero risk of bankruptcy; even at the lower end of the revenue range, SJC Loop would still be profitable, just with a longer payback period. As a pure equity investment with low capital and operational cost, the transit system has negligible risk of closure due to profitability in a risk-revenue setting. Based on the above, TBC has a high degree of confidence that it can deliver a high-quality SJC Loop system that is economically viable and offers users an incredible transportation experience that is rapid, efficient, and seamless.

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