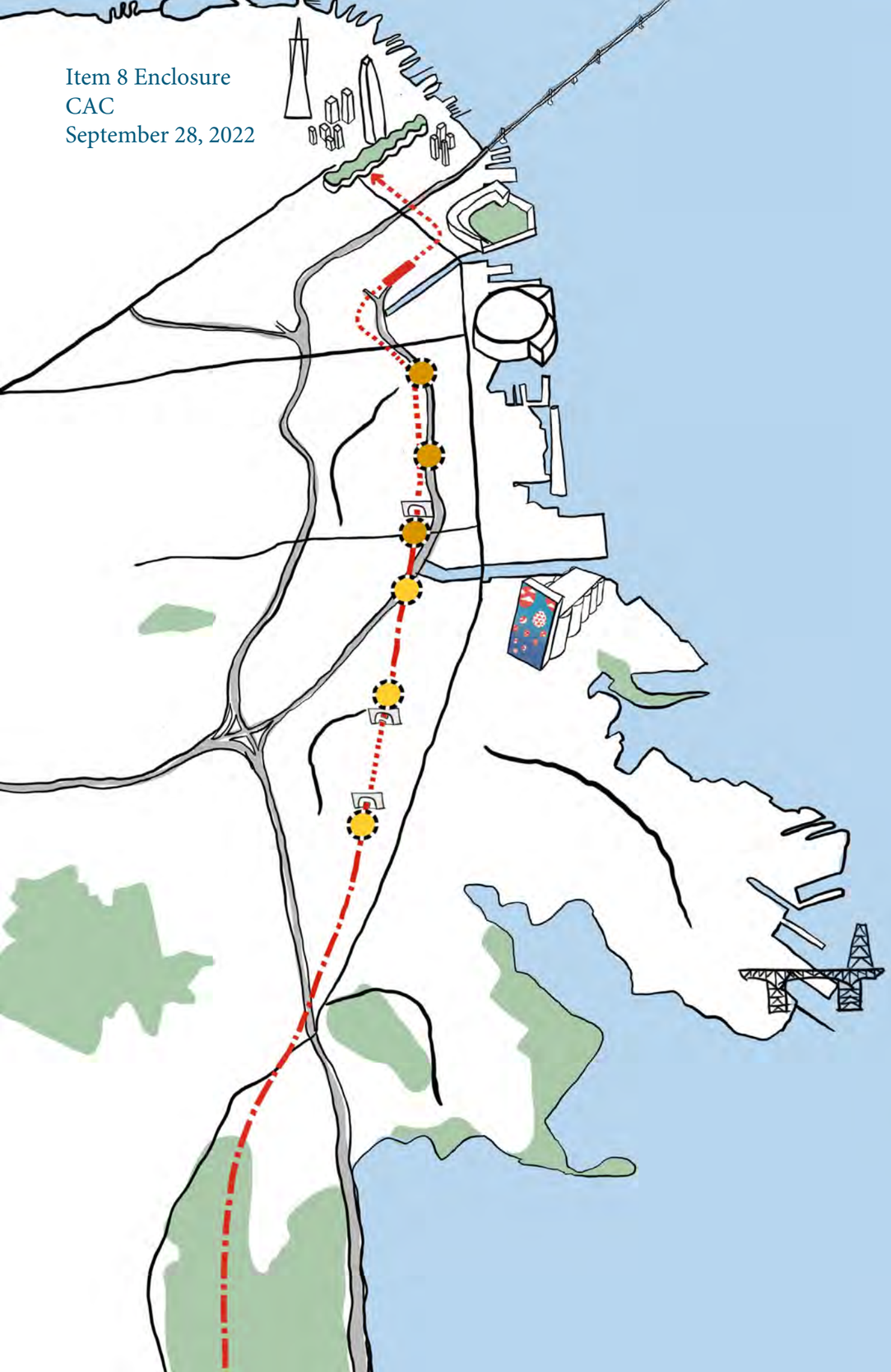
Item 8 Enclosure
CAC
September 28, 2022



SOUTHEAST RAIL STATION STUDY

Final Report - 2022

ACKNOWLEDGMENTS

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EXECUTIVE SUMMARY

STUDY PURPOSE

Passenger rail service from San Francisco to San José started over 150 years ago. Caltrain service saw steady ridership growth in San Francisco in the decades before the pandemic. Looking forward, the launch of Caltrain's electric service in 2024, the extension of service to the Salesforce Transit Center, and the arrival of High Speed Rail will expand travel options for residents, workers, and visitors within San Francisco and throughout the region. Increasing the use of these transit investments is critical to the city meeting its greenhouse gas reduction commitments and to meeting travel needs. To realize these benefits, San Francisco needs improved access to Caltrain service in the form of new and improved Caltrain stations between the future underground Fourth & Townsend Station and the Bayshore Station at the county line.

The City started study and analysis of the Pennsylvania Avenue tunnel in 2015. Construction of the Pennsylvania Avenue Extension (PAX) and Downtown Rail Extension (DTX) tunnels will fully underground the passenger rail corridor in San Francisco from north of Cesar Chavez to the Salesforce Transit Center. The current 22nd Street Caltrain station may need to be relocated or reconfigured as part of the PAX tunnel project and this study set out to identify where that station would be.

In the Bayview, the City seeks to restore regional rail service to the neighborhood that was lost when the Paul Avenue Caltrain station closed in 2005. Planning has been underway, with previous commitments by San Francisco City departments dating to 2005 and reaffirmed in the Bayview Community Based Transportation Plan and the ConnectSF Transit Corridors Strategy. With changes in community land use, transportation, and commute patterns since 2005, the team re-assessed potential station sites.

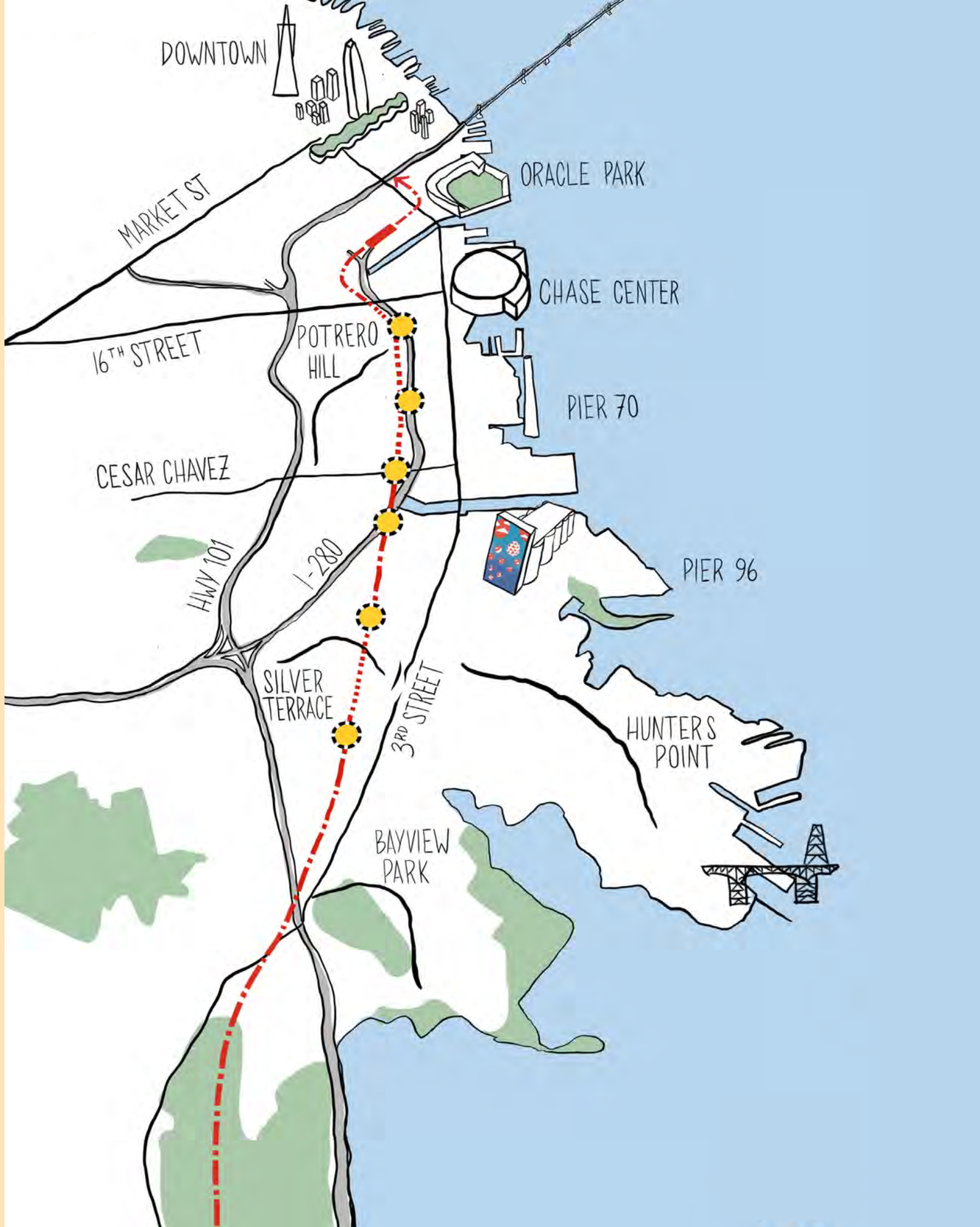
STUDY OUTCOMES

There is no single station site that can adequately serve the Bayview, Dogpatch/Potrero and their adjoining neighborhoods effectively given the distance, topographic barriers, and connectivity gaps between these areas. As a result, the City explored two stations to address the mobility needs of these communities. This study identifies three options to go with the Pennsylvania Avenue Tunnel at or near the existing 22nd Street Station and three options located in the Bayview neighborhood.

LEGEND

Station Options

STUDY OVERVIEW



STUDY AREA

The Caltrain rail corridor in San Francisco is part of a larger 77-mile rail corridor that runs all the way to San José and beyond into southern Santa Clara County. The San Francisco segment runs along US-101, through the Bayview, parallels I-280 through the Dogpatch, Potrero Hill, and Mission Bay, and terminates at the 4th & King station in SoMa. In addition to 4th & King, San Francisco has two other existing stations, one at 22nd Street in between Potrero Hill and the Dogpatch and a second, called Bayshore, right on the city boundary with Brisbane.

Built environment characteristics and population demographics vary dramatically within the corridor. The corridor contains a mixture of land uses ranging from low-density residential to multi-family high-rise apartments and from medical campuses to warehouse and industrial facilities. Freight transportation is important to the industrial land uses in the corridor, with the bulk of this activity occurring between Cesar Chavez and Oakdale Avenue. Several large development projects including Pier 70, Potrero Power Station, Potrero HOPE SF, India Basin Mixed-Use Project, and Candlestick Point/Hunter's Point Shipyard are all within the catchment area of the corridor. The corridor passes through multiple communities with the highest level environmental justice burden, as defined by CalEnviroScreen[1] and supplemented by local pollution and demographic data.

All parts of the corridor have some connectivity to the existing transit network. Bus routes and shuttle services may be adjusted in the future to serve the future station locations while the T-Third and other light rail lines are generally fixed in place. The many topographic and human-made barriers in the southeast also play a role in current and future station access. Walk and bike routes are constrained or made more stressful by the I-280, US-101, Islais Creek, and Caltrain infrastructure barriers that define this portion of the city. Some of the traffic stress and connectivity issues will be addressed in coming years by projects such as the Bayshore Boulevard protected bike lanes, implementation of the Bayview Community-Based Transportation Plan recommendations, and the 16th Street improvement project. Grade separating the Caltrain corridor with the PAX project will also help to improve connectivity to Dogpatch and Mission Bay.

Lastly, significant portions of low-lying southeastern San Francisco, including portions of the rail alignment, are at risk of sea level rise, more regular flooding and salt water intrusion. Corridor maps showing sea level rise, mobility barriers, land use patterns, and all the other topics mentioned above are available in Appendix I: Existing and Future Conditions.

[1] A tool created by CalEPA& OEHHA that maps California communities that are most affected by pollution and other health risks.

LEGEND

- Study Corridor
- Central Subway Project
- Downtown Extension
- Pennsylvania Ave Extension Study
- Salesforce Transit Center
- BART Station
- Caltrain Station
- Muni Metro
- BART
- Caltrain

STUDY BACKGROUND

SF Planning is evaluating the medium- to long-term future of Caltrain stations in southeast San Francisco. In March 2020, SF Planning — in partnership with the San Francisco County Transportation Authority (SFCTA), the San Francisco Municipal Transportation Agency (SFMTA), and Caltrain — began to explore options should the extents of a planned rail tunnel under Portrero Hill require the redesign or relocation of the Caltrain 22nd Street Station. Acknowledging the Planning Commission's charge to center the Planning Department's work program around racial and social equity through Commission Resolution No. 20738, as well as prior commitments to a future Bayview station, the Study's scope was subsequently expanded to include a priority to restore regional rail access to the Bayview-Hunters Point neighborhoods. The work was then renamed to the Southeast Rail Station Study.

The Southeast Rail Station Study builds on many decades of planning and operational changes in the southeast rail corridor. All of these efforts must work together and complement one another.

TRAIN OPERATIONS

There has been passenger rail service on the corridor for more than 150 years. Caltrain currently operates passenger rail and shares the tracks with freight trains operated by Union Pacific Railroad. Caltrain owns most of the corridor. Freight trains deliver and receive shipments at the Port of San Francisco. In the future, California High Speed Rail will also share these tracks.

The system known today as Caltrain had its start in 1992, when San Francisco, San Mateo and Santa Clara counties took over operation of the train. Caltrain currently operates a regional rail service, running over 100 trains per day with 31 stations between San Francisco and Gilroy.

RAIL IMPROVEMENT PROJECTS IN THE CORRIDOR

Caltrain operates on a dynamic corridor that is in the process of several major studies and changes that will improve the service and allow for increased access to the system.

Caltrain Electrification: Caltrain is in the middle of their electrification program, where it is replacing diesel trains with new electric train sets. This includes the installation of electric infrastructure and wires along the tracks. Caltrain Electrification will improve Caltrain system performance and curtail long-term environmental impacts by reducing noise, improving regional air quality, and lowering greenhouse gas emissions. The majority of these environmental impacts have disproportionately affected the lower income and predominantly Black, Indigenous, Hispanic, and Asian communities along the rail tracks including Visitacion Valley, Bayview, and Dogpatch.

22nd Street Access Study: Caltrain is nearing the end of a feasibility study investigating potential station access and accessibility improvements within the footprint of the existing 22nd Street Station. The study identified ramp improvement options for the northbound and southbound platforms. These are near- to medium-term improvements.

Caltrain Long Range Service Vision: In 2019, the Caltrain Board adopted a long-range service vision that includes higher frequency electrified service that would allow ridership to grow to 180,000 daily riders. This would be the equivalent of eliminating 825,000 car trips and 110 metric tons of carbon emissions every day and would put an estimated 5.5 lanes worth of commuter traffic onto Caltrain instead of the region's highways.

Downtown Rail Extension (DTX):DTX will extend Caltrain from its current terminal at 4th and King to the Salesforce Transit Center via a new tunnel. The project will construct a new station at 4th and Townsend streets and bring rail service to the underground train station that was built as part of the construction of Salesforce Transit Center. This project is environmentally cleared and is in final design. Construction is anticipated to begin in 2025 and to last approximately 6 to 8 years. The Transbay Joint Powers Authority (TJPA) is the lead agency.

Pennsylvania Avenue Extension (PAX): PAX is being designed by the SFCTA to connect DTX to a tunneled rail alignment south from 4th and Townsend along 7th Street and Pennsylvania Avenue. This route was endorsed by the Mayor's Office and the Board of Supervisors in 2018 following completion of the San Francisco Planning Department's Railyard Alignment and Benefits Study. PAX will eliminate conflicts between trains and street users at Mission Bay Drive and at 16th Street, reconnect neighborhoods, and improve safety for pedestrians, bikes, buses, and cars. PAX would eliminate gated crossings and long gate-down times, which would increase to unworkable levels with Caltrain's Service Vision and the addition of High Speed Rail service. The PAX project is still in concept development and the southern terminus of the tunnel is still unknown. Moving the tracks to fit in the new PAX tunnel may require construction of a new station to replace 22nd Street and the best place might not be right at 22nd Street but somewhere else in the stretch between 16th Street and Cesar Chavez. There are three tunnel options under consideration at this time.

RAIL SERVICE IN THE BAYVIEW

The Paul Avenue Caltrain station in the Bayview was closed in 2005. Several studies conducted both prior to and after the Paul closure explored alternative station locations. A 1988 Caltrans study assessed the feasibility of replacing Paul Avenue with a new station to the north at Williams Avenue, Palou Avenue, or Evans Avenue, with Evans Avenue identified as a preferred location.[1] A 2002 San Francisco Redevelopment Authority plan identified the Oakdale-Palou area as the community's preferred location for a Caltrain station. The SFTCA completed a 2005 study, which proposed and confirmed the engineering feasibility of a new station just north of Oakdale Avenue, and a subsequent study in 2014 confirmed the ridership potential of a Caltrain station in that location.[2,3] The recently completed Bayview Community Based Transportation Plan includes an Oakdale Caltrain Station as one of the neighborhood's most pressing transportation needs.[4] ConnectSF's Transit Strategy also recommended a new station in the Bayview.[5]

The Southeast Rail Station links prior findings to the rail improvement projects described above. In particular, this study links the intention to restore a Bayview station to PAX's need to relocate or redesign a station in the Dogpatch/Potrero.

CORRIDOR LAND USE

Land uses in the area have been planned with extensive community input over the last 20 years. The Bayview Hunters Point Area Plan, Eastern Neighborhoods Plan, Mission Bay Plan, and the Central Waterfront Plan guide development in the corridor. These plans balance community needs and wishes for these districts across critical needs for community services, transportation access, housing options, a diversity of employment, and institutional functions. The draft 2022 Housing Element is another key milestone as the City looks to balance recent planned and approved growth in the eastern part of San Francisco and increase housing supply more evenly across the city.

[1]Evaluation of the Feasibility of Constructing a Peninsula Commute Service (CalTrain) Station in the South Bayshore/Hunters Point Area of San Francisco and of Closing the Paul Street Station. California Department of Transportation, District 4: Public Transportation Branch. Fall 1988.
[2]Bayview-Oakdale Caltrain Station Study: Design Feasibility Assessment and Station Concepts Final Report. SFTCA. February 2005. https://www.sfcta.org/sites/default/files/2019-03/bayviewoakdalecaltrainstudy-finalv2.pdf
[3]Caltrain Oakdale Station Ridership Study. SFCTA. March 2014. https://www.sfcta.org/sites/default/files/2019-03/OakdaleRidership_final_report.pdf
[4]Bayview Community Based Transportation Plan. SFMTA. February 2020.
[5]ConnectSF's Transit Strategy. December 2021. https://connectsf.org/transit-strategy/

APPROACH AND PROCESS

The Southeast Rail Station Study included five phases of work:

PHASE 1: CORRIDOR CONTEXT RESEARCH (SUMMER/FALL 2020)

The study team reviewed studies previously completed within the southeast rail corridor. The historic findings and recommendations were summarized alongside information on the current state of the corridor to understand the possible paths forward. It was at this stage in the work that the study was expanded from a narrow focus on the PAX corridor to include consideration of a station in the Bayview. Topics explored in this phase of work included land use regulations, current and future development, demographics, the circulation network, natural topography and water features, hazards, and community facilities. A visual summary was prepared for this phase of work and is preserved as Appendix I.

PHASE 2: STATION LOCATION RESEARCH AND CONCEPT DEVELOPMENT (FALL/WINTER 2020-21)

The discoveries from phase 1 were paired with more recent station standards and electrification plans provided by Caltrain and High-Speed Rail to inform the station location survey. In this phase of work, the study team identified all possible station sites between the future 4th & Townsend station and the existing Bayshore station. The evaluations considered the following criteria when identifying feasible locations: track geometry (stations cannot be built on a curve), topography (hills and creeks are barriers), infrastructure (I-280 and railroad accessory structures are constraints) and critical land uses (facilities such as the Southeast Wastewater Treatment Plant cannot be moved). All three location options identified in the Bayview – Evans Avenue, Oakdale Avenue, and Williams Avenue – were options previously studied by the community; this study confirmed that no other sites are feasible. The three location options identified in the Dogpatch/Potrero stretch – Mariposa Street, 22nd Street, and Cesar Chavez Street – are now the station option inputs for ongoing analysis of the PAX tunnel.

PHASE 3: STATION LOCATION EVALUATION, CONCEPT REFINEMENT, AND ENGINEERING FEASIBILITY (SPRING/SUMMER 2021)

The location options identified in phase 2 were refined and explored in more detail in phase 3. As an example, the corridor-level data assembled in phase 1 was summarized at the station-level in this phase. The study Goals and Objectives (shown on the next page) were used to create an evaluation matrix of station-area characteristics. More complete engineering feasibility studies were undertaken, and the concept plans in this report were prepared to help visualize the alternatives. It was during this phase, that the study team reached the conclusion that two separate stations would be needed to adequately serve the Dogpatch/Potrero and Bayview communities. The conclusions from this phase of work are summarized in the Key Findings section.

PHASE 4: COMMUNITY OUTREACH (FALL/WINTER 2021-22)

The study team summarized and shared the work completed in phases 1-3 with the various communities in southeastern San Francisco. Many of these communities had been involved in the previous corridor and station studies and it was important to provide an update on how work was progressing and to paint a complete picture of the station options with a clear articulation of the pros and cons of each location. This phase included two rounds of online workshops and 15 one-on-one meetings with community groups and stakeholders. The workshops were recorded and made available for wider distribution and to memorialize the findings beyond the end of the study. Although this study did not set out to select a preferred station option, many community members and groups provided input on their preferred station location. The structure and details of phase 4 are documented in the Engagement Summary section and feedback takeaways are summarized in the Key Findings section.

PHASE 5: DOCUMENTATION (WINTER/SPRING 2021-22)

The final phase of work involved documenting all the work completed in phases 1-4. This report is the product of that work and is accompanied by an appendix covering the breadth of work completed throughout the study. Documentation of the very detailed technical work, including the engineering feasibility, cost estimates, and station evaluations are compiled in a separate compendium available to aid in advancing these stations to design and construction. Outreach to community groups, community advisory committees, and boards and commissions continued during this phase.

CORE TEAM

A working group of key agency stakeholders was formed at the beginning of the study and participated in all five phases of work. This group, referred to as “the Core Team,” included representatives from Caltrain, the San Francisco County Transportation Authority (SFCTA), the San Francisco Municipal Transportation Agency (SFMTA), San Francisco Planning Department, and the consultant team. The group met 16 times between April 2020 and December 2021 to discuss study progress and offer direction on the next steps. Additionally, core team agencies provided regular updates on the PAX project, the Caltrain 22nd Street Access Study, and ConnectSF’s Transit Corridors Study. It will be important to maintain close coordination between these agency partners and their work as station design and engineering progress in the southeast corridor.

GUIDING GOALS & OBJECTIVES

ConnectSF is the City's long-range transportation planning program that integrates transportation investments in tandem with how San Francisco will grow and develop. The goals and objectives for this study are adapted from the ConnectSF's goals by converting citywide objectives into neighborhood- and station-scale objectives. These objectives were further cross-checked and refined against the goals created for the Railyard Alignment and Benefits (RAB) Study and the Bayview Community Based Transportation Plan — the two most recent plans to suggest new or relocated rail stations in southeast San Francisco. These goals and objectives establish the framework for key findings in the next section.

ConnectSF Goal	Goal Description	Southeast Rail Station Study Objectives	
Equity	San Francisco is an inclusive, diverse, and equitable city that offers high-quality affordable access to desired goods, services, activities, and destinations	1a	Create equitable access to schools, jobs, and services that is fast and convenient
		1b	Expand affordable travel options for low- and moderate-income households and for historically disenfranchised communities
		1c	Add housing for low- and moderate-income groups and families
		1d	Preserve affordable housing, especially in areas receiving new infrastructure investment
Economic Vitality	To support a thriving economy, people, and businesses easily access key destinations for jobs and commerce in established and growing neighborhoods both within San Francisco and the region	2a	Increase capacity, reliability and connectivity of regional transportation connections
		2b	Maintain efficient goods movement to, from, and within the Eastern waterfront
		2c	Minimize construction and station placement impacts in order to retain small businesses and the production/ distribution/repair (PDR)[1] sector, with businesses of all sizes and with a range of job opportunities for people of all skills sets
Environmental Sustainability	The transportation and land use system support a healthy, resilient environment and sustainable choices for future generations	3a	Establish low-carbon and active transportation modes as the preferred means of travel in San Francisco
		3b	Major transportation investments maximize climate change resiliency and hazard mitigation
		3c	Add transit-oriented and infill development as well as development in Priority Development Areas (PDAs)[2] to reduce local and regional pollution
Safety & Livability	People have attractive and safe travel options that improve public health, support livable neighborhoods, and address the needs of all users	4a	Improve the transportation system's ability to accommodate all users, especially those with mobility impairments
		4b	Create regional transit stations that are attractive to the local community, safe, green places to walk, bike, and socialize
Accountability & Engagement	San Francisco city agencies, the broader community, and elected officials, work together to understand the city's transportation needs and to deliver projects, programs, and services needed in a clear, concise and timely fashion	5a	Increase engagement with under-represented communities and groups
		5b	Provide timely and frequent information and engagement opportunities, with transparent decision-making processes, so that the community and decision-makers share ownership of actions
		5c	Allocate capital resources efficiently and cost-effectively
		5d	Coordinate with parallel studies efficiently and cost-effectively

[1] PDR represents a range of business types and industries that despite their obvious diversity, share the need for relatively flexible building space, cheap rents, and in most cases, a separation from housing. PDR includes the following activities: food and beverage wholesale and distribution; fashion/garment design and manufacture; delivery services (messengers, airport shuttle vans, taxis, limousines); event production and catering; construction contractors and building material suppliers; wholesale and retail of furniture, equipment, appliances, and furniture manufacture; printers, designers, photographers, film producers, graphic designers, and sound-recording firms; and repair shops for cars, trucks, equipment, and appliances.

[2] Local governments define areas with high-quality public transit and a mix of land uses as PDAs to concentrate growth in population, jobs, and community amenities. This approach was developed by the Metropolitan Transportation Commission and is consistent across all Bay Area cities and counties.

KEY FINDINGS

The purpose of the Southeast Rail Station Study was to identify all possible station locations in the Dogpatch/Potrero and Bayview sections of the corridor, document attributes of each location that might influence station design and ridership potential, and share this information with the community. A secondary purpose of the study was to determine whether, given the station options and community input, southeast San Francisco would be best served by one or two stations in this stretch.

The City recommends that in the future there be two stations between the 4th & King and Bayshore stations: one at or near the existing 22nd Street Station and a new station that restores service to the Bayview. Station location possibilities were determined based on the engineering criteria described in the Study Overview section. Station location options in the Dogpatch/Potrero are centered around Mariposa Street, 22nd Street, and Cesar Chavez Street, and station location options in the Bayview are centered around Evans Avenue, Oakdale Avenue, and Williams Avenue.

Of these options, there is no single station site that can adequately serve both the Bayview and the Dogpatch/Potrero neighborhoods given the topographic barriers and connectivity gaps between these two areas. Community feedback also indicated support for a station in each neighborhood.

Future PAX studies can advance the Dogpatch/Potrero station, while the City, the community, and Caltrain can independently advance a station in the Bayview. Service planning for the two stations will need to be a coordinated effort with Caltrain.

Tables 2 summarizes analysis findings and community input for the Dogpatch/Potrero station options. Table 3 does the same for the Bayview station options. These findings are associated with the preferred station concepts identified in the engineering feasibility stage of this work.

TABLE 2: SUMMARY OF FINDINGS FOR DOGPATCH/POTRERO STATION OPTIONS

Station Attributes & Findings (SERSS Objective)	**Mariposa Street**	**22nd Street**	**Cesar Chavez Street**
STATION AREA & ACCESS			
Population Density – how many people live or work in the immediate catchment area (0.5 miles) today and are projected to in the future? (1b, 2a)	People per square mile: 2017: 12K residents 2040: 35K employees, 36K residents	People per square mile: 2017: 12K residents 2040: 15K employees, 25K residents	People per square mile: 2017: 6K residents 2040: 15K employees, 12K residents
Connecting Streets – what streets would provide walk, bike, transit, drive access, and pick-up/drop-off? (3a)	Pennsylvania Avenue Mariposa Street[1] 16th Street[2] 17th Street[1] 18th Street Owens Street [1] Primary freight corridor [2] Connection would be provided via pathways or tunnels under I-280	22nd Street 23rd Street Pennsylvania Avenue Iowa Street	Cesar Chavez Street[1] Pennsylvania Avenue 25th Street[2] Mississippi Street Marin Street [1] Primary freight route [2] Connection would be provided via path through Tunnel Top Park
Development and Placemaking Potential – what opportunities exist to add residential or commercial density around the site and create a vibrant station area? (2c, 3c)	Located in a Priority Development Area, which means that the City encourages development in this area, with funding support from the region. Of parcels within 1/4-mile, about one-quarter are zoned for residential and the rest are zoned for mixed use. Residential and employment uses can be added and commercial can support placemaking. Multiple adjacent developments are in planning or already permitted.	Located in a Priority Development Area, which means that the City encourages development in this area, with funding support from the region. Of parcels within 1/4-mile, about one-third are zoned for residential, one-third for mixed-use or neighborhood commercial, and one-third for PDR. PDR zoning does not support denser uses, but residential uses could be added, and neighborhood commercial can support placemaking. Neighborhood is already oriented around the existing station and multiple site offer opportunity to develop further. SF Muni Woods Division unlikely to move but could add housing.	Located on the border of a Priority Production Area, which is reserved for PDR uses, and Priority Development Area. Of parcels within 1/4-mile, nearly all parcels are zoned for PDR with only a small section zoned for residential or mixed-use development. PDR zoning does not support denser uses, but residential uses could be added. Islais Creek Muni Facility unlikely to move but could add housing. Multiple adjacent PDR projects are in planning or already permitted.
STATION CHARACTERISTICS			
Station Type– what type of station design is most likely at this station? (4a)	Below ground tunnel station similar to a Market Street BART station. Stairs, elevators, and escalators would be required.	Three design options: an open-air station with the same general feel as the current station, a split station with one open-air platform and one tunnel platform, and a fully below-ground tunnel station similar to BART on Market Street. All options would require stairs, elevators, and ramps.	Open-air platform between the tunnel portal and Marin Street. Station would be below Tunnel Top Park, at street-level along Mississippi, and above street-level south of Cesar Chavez. Stairs, ramps, and elevators would be required.
Rider Experience – are there opportunities for a station entrance/ plaza? Other notable components of the rider experience? (4b)	Plaza opportunity at Owens and Mariposa. Station experience would be similar to that of a deep BART or Central Subway station.	Existing plaza on 22nd Street would remain and new opportunity along 23rd Street. Tunnel options also open programing opportunities in the space vacated by the existing station platforms and tracks.	Opportunities for station entrance plazas at Cesar Chavez and at Tunnel Top Park via 25th Street/Pennsylvania Avenue. Good visibility between platforms and surrounding street network. Little protection from the elements.
Hazard Risks – what environmental risks are present at the site? (3b)	Located within moderate to very high earthquake liquefaction susceptibility zone.	Surface level design options would be susceptible to damage from I-280 collapse and landslide; tunnel options have little exposure to hazard risks.	Located within sea-level rise vulnerability zone, 100-year flood risk zone and very high earthquake liquefaction susceptibility zone. Within 100' buffer of waterfront, soft soils, and high water table.
Construction Cost – how much would the most likely design cost?* (5c) *Rough-order-magnitude station cost estimates exclude PAX tunnel costs.	$$$ Largest costs: constructing a very deep underground station with mezzanine level while working within a constrained space between the I-280 columns, paralleling station, and adjacent land uses.	$$-$$$ Largest costs: depends on design option (see Station Options section for more details on designs). Components include moving the existing retaining wall, adding access from 23rd Street, and constructing an underground station with mezzanine level.	$$ Largest costs: rebuild Marin Street and Cesar Chavez Street bridges, widen embankment, and construct elevated plaza at Cesar Chavez all within poor soil condition and around high-risk utilities. *PAX would need to tie-in north of tunnel portal for this design to work
Operational Complications – who else uses this site and what effect would construction have on train operations? (2b, 5d)	Caltrain could operate normally during station construction. PAX design and operations still to be determined.	Caltrain could operate normally during station construction of a full tunnel station; the 22nd Street station would have to close during construction with the split or rebuild options. PAX design and operations still to be determined.	Targeted, extended interruption for bridge replacements. Otherwise, normal operation during construction. PAX design and operations still to be determined.
COMMUNITY SENTIMENT			
Community Feedback – what arguments did community members share in favor of or against the site? (5a, 5b)	*Positive:* density of people and jobs *Negative:* station access interplay with freeway off-ramps	*Positive:* existing rider community is already established, density of people *Negative:* commuters parking in the residential neighborhood	*Positive:* more easily accessible by car *Negative:* not a pedestrian-friendly environment,lots of trucks, and seems far from current and planned housing and jobs

TABLE 3: SUMMARY OF FINDINGS FOR BAYVIEW STATION OPTIONS

Station Attributes & Findings (SERSS Objective)	**Evans Avenue**	**Oakdale Avenue**	**Williams Avenue**
STATION AREA & ACCESS			
Population Density – how many people live or work in the immediate catchment area (0.5 miles) today and are projected to in the future? (1b, 2a)	People per square mile: 2017: 1K residents 2040: 19K employees, 3K residents	People per square mile: 2017: 14K residents 2040: 14K employees, 16K residents	People per square mile: 2017: 21K residents 2040: 8K employees, 26K residents
Connecting Streets – what streets would provide walk, bike, transit, drive access, and pick-up/drop-off? (3a) High-Injury Network Corridor (see Vision Zero SF for more information)	Evans Avenue[1] Jerrold Avenue[2] Rankin Street[2,3] [1]Primary freight corridor [2]Complicated by SF Wholesale Produce Market entrance [3]Complicated by active freight spur east of tracks	Quint-Jerrold Connector Road[1] Oakdale Avenue Quint Street (east) Phelps Street[2] Jerrold Avenue[3] Palou Avenue[4] [1]Currently in design phase [2]Would require easement on City College/SE Facility site [3]Complicated by SF Wholesale Produce Market entrance [4]Close parallel suitable for primary bike and/or transit connections	Williams Avenue Kalmanovitz Street Egbert Avenue Mendell Street Carroll Avenue[1] [1] Complicated by active freight spur east of tracks
Development and Placemaking Potential – what opportunities exist to add residential or commercial density around the site and create a vibrant station area? (2c, 3c)	Located in a Priority Production Area, which is intended to be preserved for PDR uses. Located outside of Priority Development Area. All parcels within 1/4-mile are zoned for PDR or Public uses and other uses are prohibited. SF Wastewater Treatment Plant and SF Wholesale Produce Market are unlikely to move. Multiple adjacent PDR project are in planning or already permitted.	Located on the border of a Priority Production Area and Priority Development Area. Of parcels within 1/4-mile, about half are zoned for PDR and half are zoned either for residential or neighborhood commercial. PDR and Industrial zoning does not support denser uses, but residential uses could be added, and neighborhood commercial can support placemaking. SF Water Treatment Plant and SF Wholesale Produce Market are unlikely to move. Southeast Community Facility could be redeveloped.	Located in a Priority Development Area, which means that the City encourages development in this area, with funding support from the region. Of parcels within 1/4-mile, about one-third are zoned for PDR or Industrial and the rest are zoned for either residential or neighborhood commercial. PDR zoning does not support denser uses, but residential uses could be added, and neighborhood commercial can support placemaking. Florence Fang Community Farm is unlikely to move.
STATION CHARACTERISTICS			
Station Type– what type of station design is most likely at this station? (4a)	Raised, open-air platform on an embankment between Jerrold Ave. and Evans Ave. Stairs, ramps, and elevators would be required.	Open-air platform, below street-level at Oakdale Ave., even with street-level alongside the Quint-Jerrold Connector, above street-level at Jerrold Ave. Stairs, ramps, and elevators would be required.	Open-air platform below street-level in canyon below Williams Ave. Stairs, ramps, and elevators would be required.
Rider Experience – are there opportunities for a station entrance/ plaza? Other notable components of the rider experience? (4b)	Limited space for entrance plaza, may be a small opportunity off Evans. Good visibility between platforms and surrounding street network. Little protection from the elements.	Opportunity for entrance and possibly even a station building on PUC site. Opportunity for plaza at Quint and Newcomb. Good visibility between platforms and surrounding street network. Little protection from the elements.	Limited space for entrance plaza, may be a small opportunity off Williams. Platforms would be below street-level and would feel disconnected from surrounding street network and neighborhood.
Hazard Risks – what environmental risks are present at the site? (3b)	Located within sea level rise vulnerability zone, 100-year flood risk zone, very high earthquake liquefaction susceptibility zone, soft soils, and high water table zone.	Located at the edge of the sea level rise vulnerability zone and within soft soils and high water table zone.	Located within 100-year flood risk zone and high earthquake liquefaction susceptibility zone.
Construction Cost – how much would the most likely design cost? (5c)	$$ Largest costs: embankment widening in soft soil site, limited access between bridges, proposed HSR radio site, and I-280 columns.	$ Largest costs: embankment grading and widening, relocate freight spur.	$ Largest costs: grading to access station, elimination of freight spur activity.[1] [1] If freight spur remains, the station would need to move north and the Williams Street bridge would need to be rebuilt.
Operational Complications – who else uses this site and what effect would construction have on train operations? (2b, 5d)	Possible single tracking for trains during construction. Active UPRR freight spur east of tracks would remain in operation.	Single tracking required during construction. Active UPRR freight spur east of tracks would remain in operation.	Single tracking required during construction. Active UPRR freight spur east of tracks would need to be taken out of service.
COMMUNITY SENTIMENT			
Community Feedback – what arguments did community members share in favor of or against the site? (5a, 5b)	*Positive:* connection to Hunters Point Shipyard, proximity to new Southeast Community Center *Negative:* surrounded by industrial uses, Evans is unsafe for walking and has limited transit access	*Positive:* close to the heart of the Bayview, potential to repurpose Southeast Community Center for transit station/hub/community use, strong transit connectivity, connection to India Basin/Hunters Point Shipyard, historic City and community support for this location and through Quint Street *Negative:* surrounded by industrial uses	*Positive:* none *Negative:* concerned about impact on Florence Fang Community Farm

STATION OPTIONS

This chapter presents six different location options named after their main cross street: the Mariposa, 22nd Street, and Cesar Chavez options serve the Dogpatch/Potrero and Mission Bay; and the Evans, Oakdale, and Williams options serve the Bayview and Hunters Point. The 22nd Street location shows three different design alternatives, each of which was conceived to fit with one or more of the PAX tunnel alternatives. All other locations have just one design at this stage in the planning process and all designs are subject to change with further engineering and design studies.

Three shortlisted alignment alternatives were evaluated in the PAX project initiation study as follows: 1) a full-length tunnel alignment in either single-bore or twin-bore configuration connecting the DTX interface to Cesar Chavez Street, which bypasses the existing 22nd Street Station; 2) a mid-length tunnel alignment in either single-bore or twin-bore configuration connecting the DTX interface to the existing rail alignment north of the existing 22nd Street Station, which allows for continued use of the 22nd Street Station with some modifications; 3) a short alignment with split tunnels for different directions connecting the DTX interface to the existing rail alignment north of the existing 22nd Street Station, which allows for continued use of the 22nd Street Station.

Each option is introduced with a high-level context view followed by one or more side-angle or close-up views. Each option has a summary page, which serves as a comparison tool to highlight differences. Much of the background information that this summary relies on can be found in Appendix I - Existing Conditions.

STATION OPTIONS:

Mariposa St. | 22nd St. Rebuilt | 22nd St. Split | 22nd St. Tunnel | Cesar Chavez St.

DOGPATCH/ POTRERO OPTIONS

Evans Ave. | Oakdale Ave. | Williams Ave.

BAYVIEW OPTIONS

THESE BUTTONS ARE SHORTCUTS!

THEY ARE ALSO AT THE TOP OF THE FOLLOWING PAGES.

MARIPOSA ST.

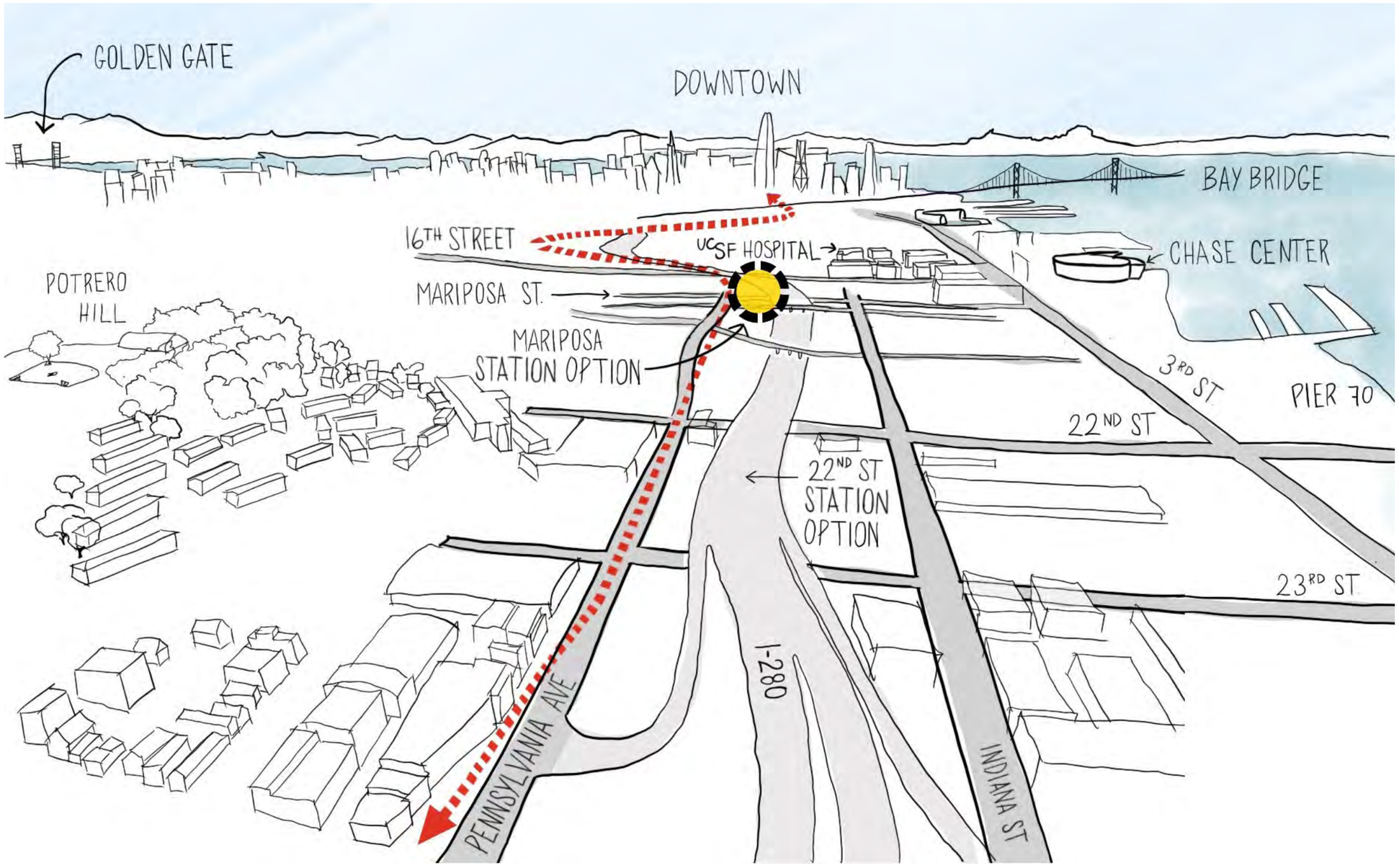
Station Context
Adjacent to I-280 in unused freeway and rail right-of-way, this station option is in between the Mission Bay, Potrero Hill, and Dogpatch neighborhoods.

Station Configuration
The station box would be in the PAX tunnel with multiple points of surface access (elevators and stairs) and a station head house. There are ample opportunities for public realm improvements and placemaking, e.g. connecting to Mariposa Park, and amenities such as scooters or bike share stations.

Community Served
The station would serve Potrero Hill, Mission Bay and the Dogpatch. It is close to the UCSF Benioff Children's Hospital, UCSF Mission Bay campus, the Chase Center, and major employers (Genentech and Kaiser Permanente).

Access/Connections
The station would have several opportunities for entries at Mariposa Street, with the potential to support an enhanced bike/pedestrian route through the area. It is ¼ mile to the nearest Third Street light rail stop and could be connected directly to 16th Street transit via a new off-street trail. The station option has good bus and vehicle access via a NB US-101 off ramp. A pedestrian bridge over I-280 at 18th Street connects to Central Waterfront neighborhoods.

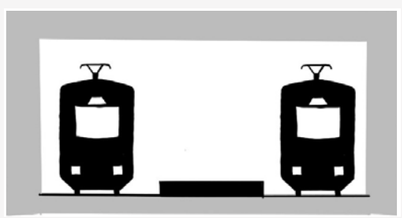
Constructability
This location is constrained by the I-280 freeway columns to the north. The future Pennsylvania Avenue Extension project would determine the construction method for the tunnel: either a single bore tunnel or twin-bore tunnel. A deep tunnel station potentially associated with the single bore tunnel option may be less disruptive than cut and cover construction associated with a twin bore tunnel.



MARIPOSA STREET

EXISTING STATION CHARACTERISTICS

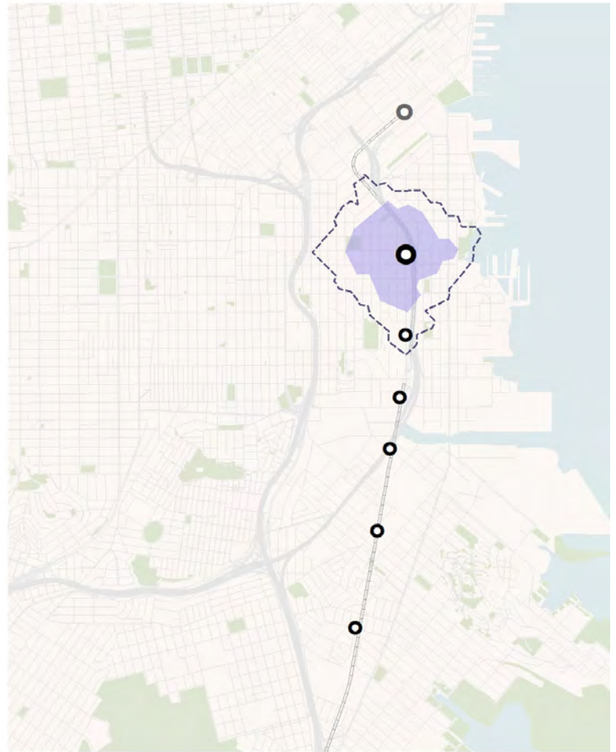
Major planned and approved developments	Pier 70
Primary land uses	Residential; Cultural, Institutional, Educational; Production, Distribution, Repair
Existing Density	12K/sqm
Future Density*	36K/sqm; 35k/sqm
Applicable PAX tunnel	Long
Cost**	$$$
Risks	Constrained Site; Expensive; Complex Geotechnical Setting
Station diagram	Tunnel Station



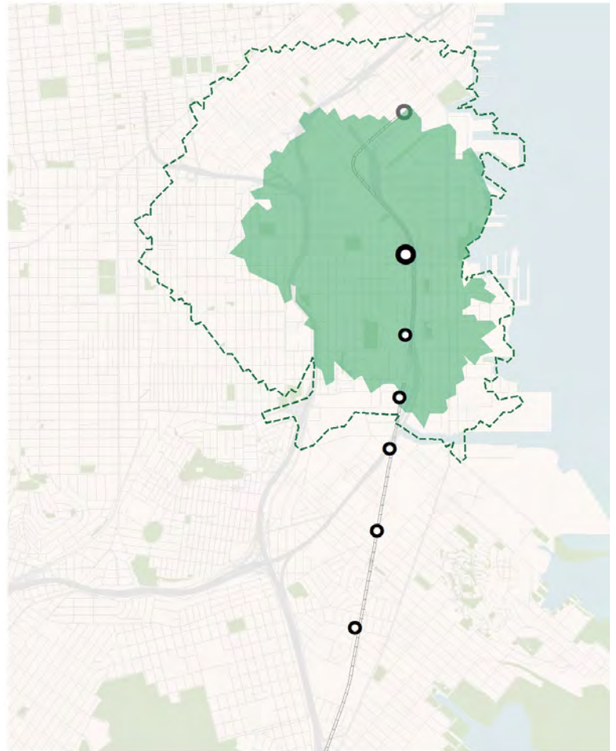
*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.

EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



NETWORK CONNECTIVITY

High

Medium

Medium-High

LEGEND

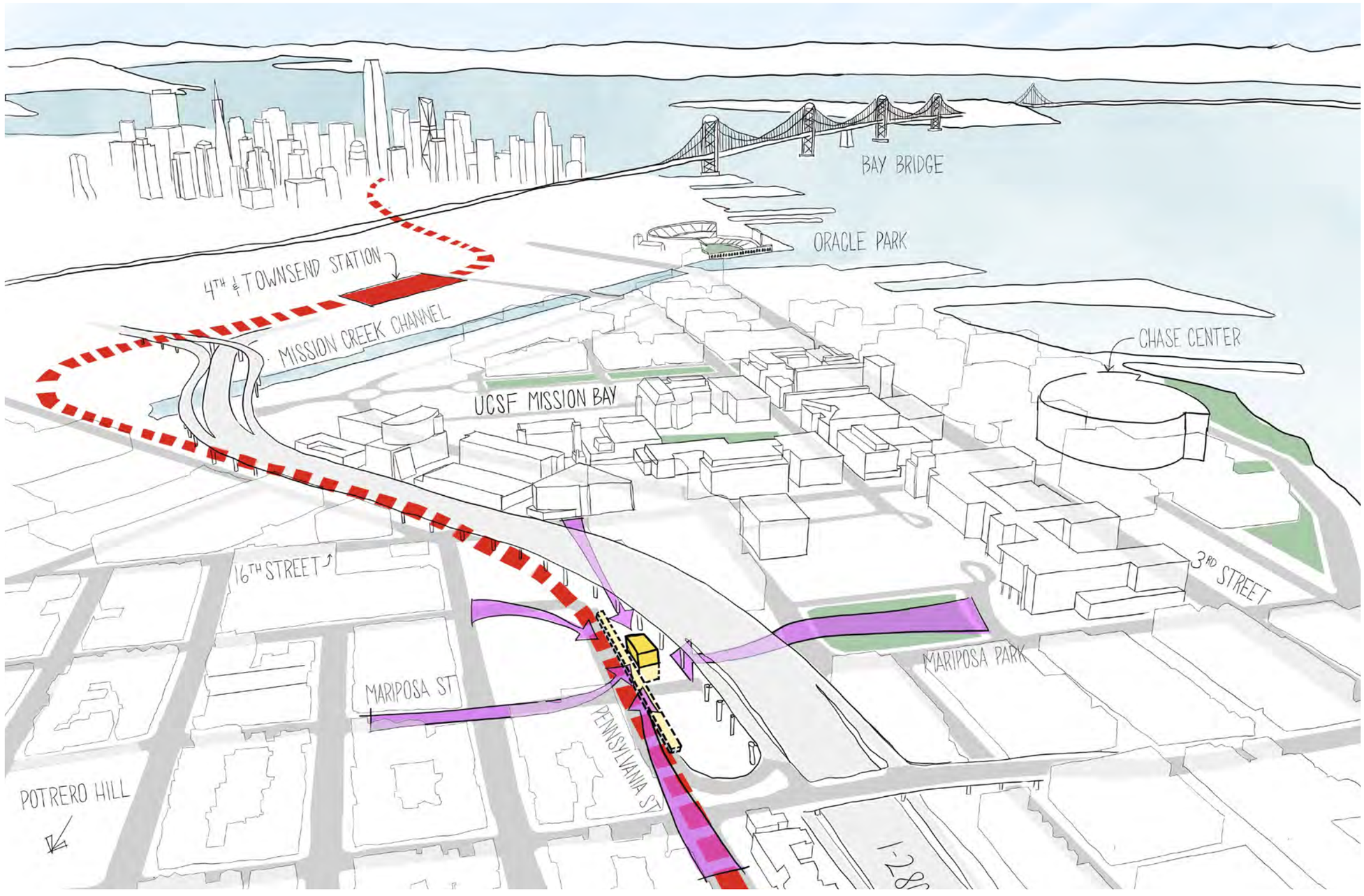
Walk Travel Shed
10mins 15mins

Bike Travel Shed
10mins 15mins

Network connectivity scores are based on WalkScore.com relative rankings.

MARIPOSA STATION

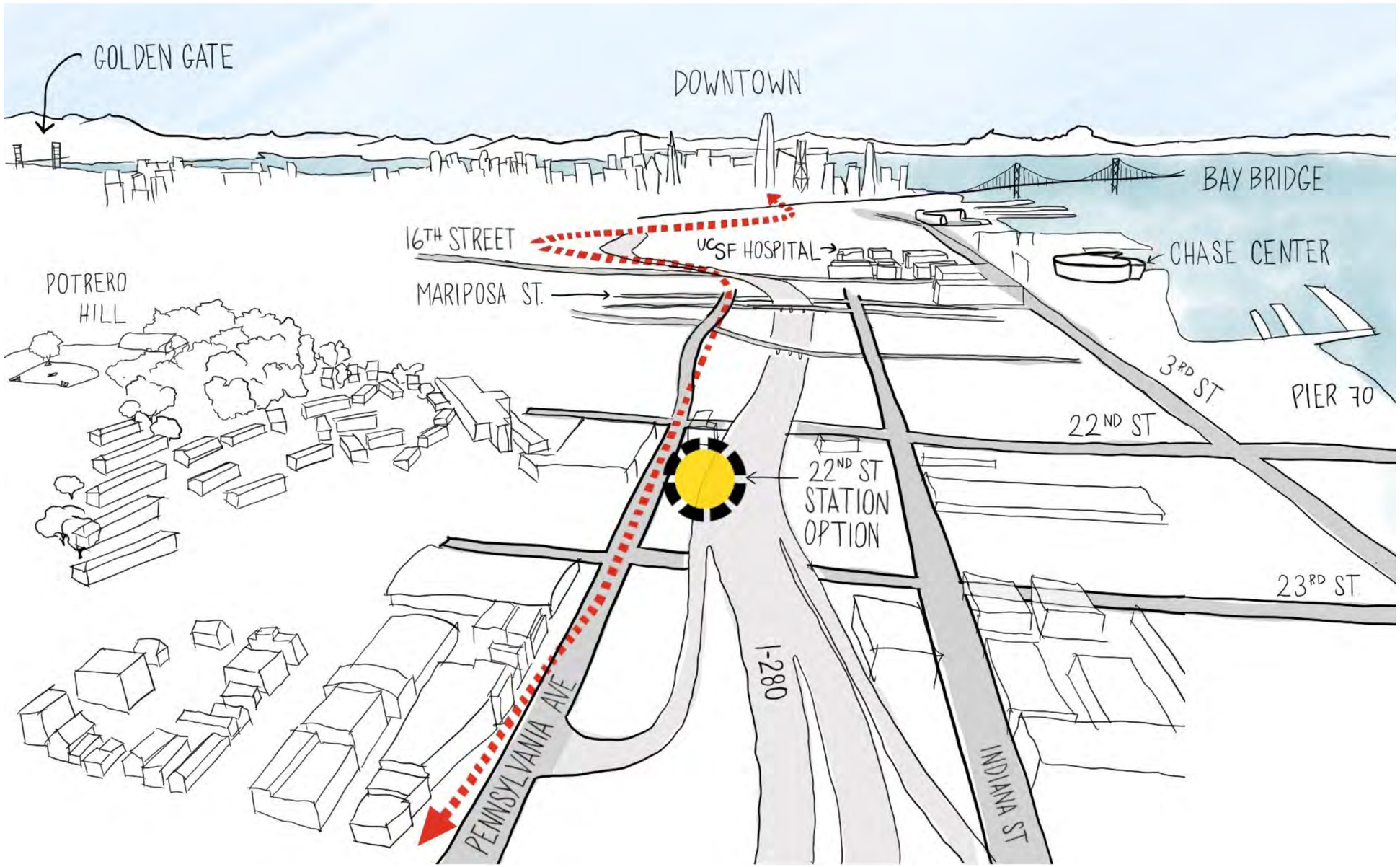
Looking Northeast



22nd STREET STATION OPTIONS

Station Context
The three design options for 22nd Street are in the same general location as the existing 22nd street station location. Positioned below I-280, the station is generally bound by industrial uses and a MUNI depot. The following pages illustrate three different design options for this location: Rebuilt, Split, and Tunnel.

Community Served
The station option serves Potrero Hill, Central Waterfront, Pier 70, Potrero Power Station, Dogpatch and is down the hill from the Potrero Hill HOPE SF housing.

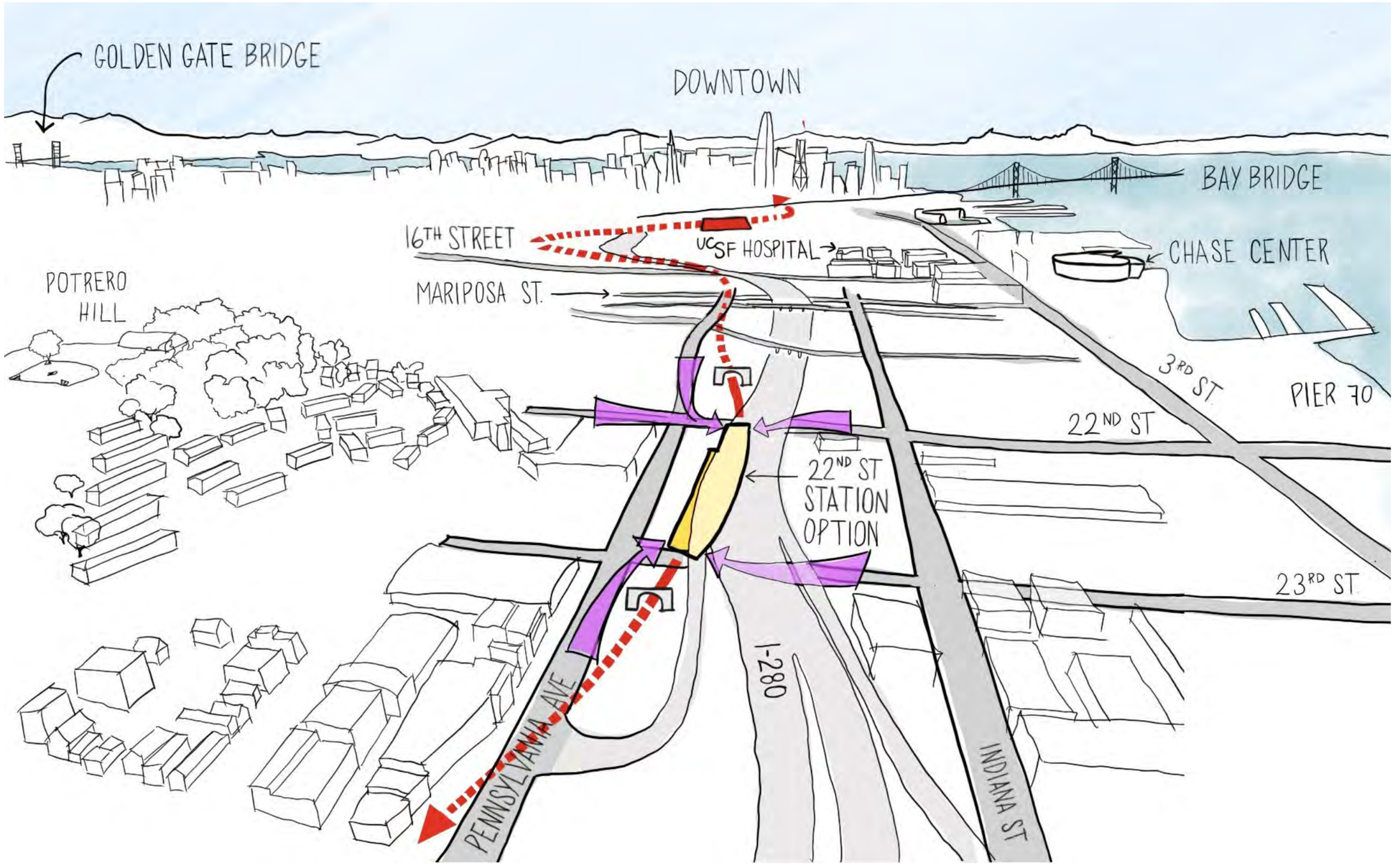


22nd STREET STATION-REBUILT

Station Configuration
The current side platform station would be reconfigured to a center platform. The tracks would move to the outside of the new center platform and the station would remain as an open air station below the I-280 freeway. There are ample opportunities for future enhancements along Iowa Street to support both placemaking and shared mobility.

Access/Connections
Access improvements would be included in any future rebuilt station, possibly including additional elevators, ramps and/or stairs. Access is proposed from 22nd Street, 23rd Street, Iowa Street and Pennsylvania Ave. The station is ½ mile to the closest Third Street light rail stop.

Constructability
This option is likely to be the least costly to develop but would require a short PAX alignment to be selected.

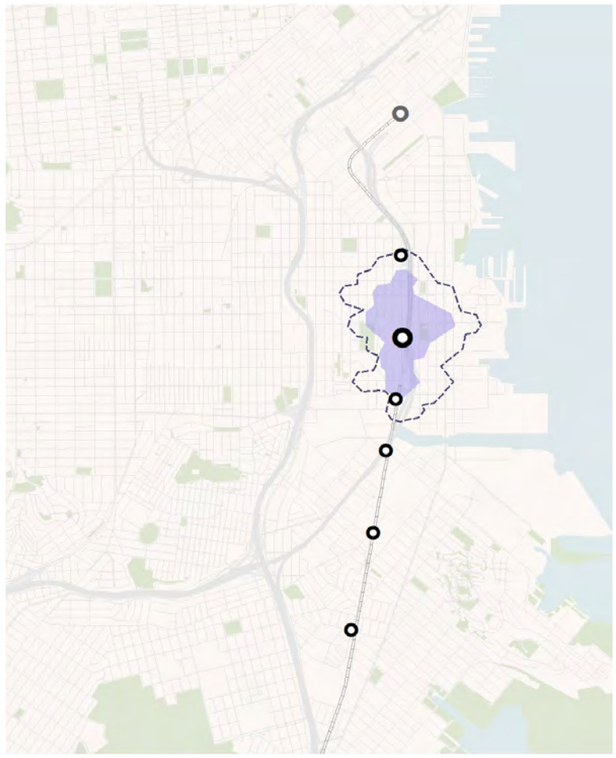


22ND STREET REBUILT

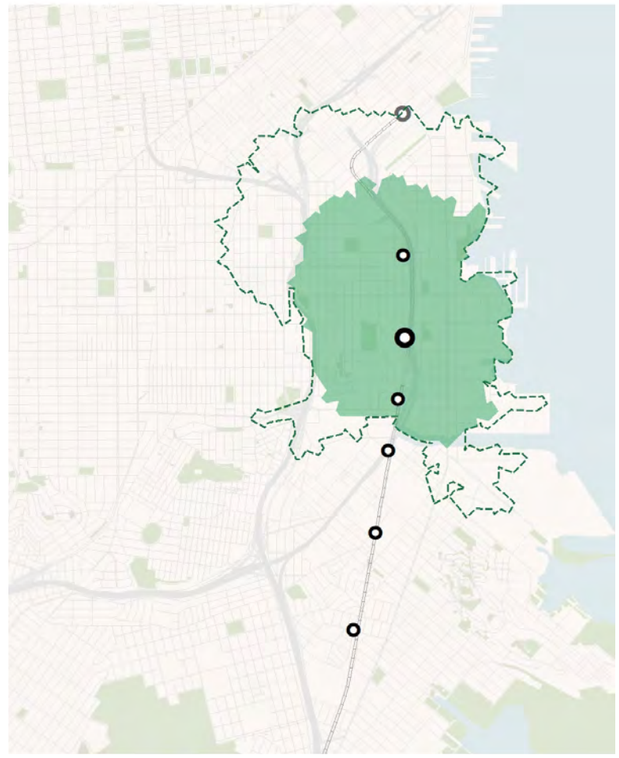
EXISTING STATION CHARACTERISTICS

Major planned and approved developments	Pier 70, Potrero Power Station
Primary land uses	Residential; Production, Distribution, Repair
Existing Density	12K/sqm
Future Density*	25K/sqm 15k/sqm
Applicable PAX tunnel	Short
Cost**	$$$
Risks	Underpass Aesthetic; Potential Property Impacts
Station diagram	At-Grade Center Platform

EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



NETWORK CONNECTIVITY

High

Medium-High

Medium

LEGEND

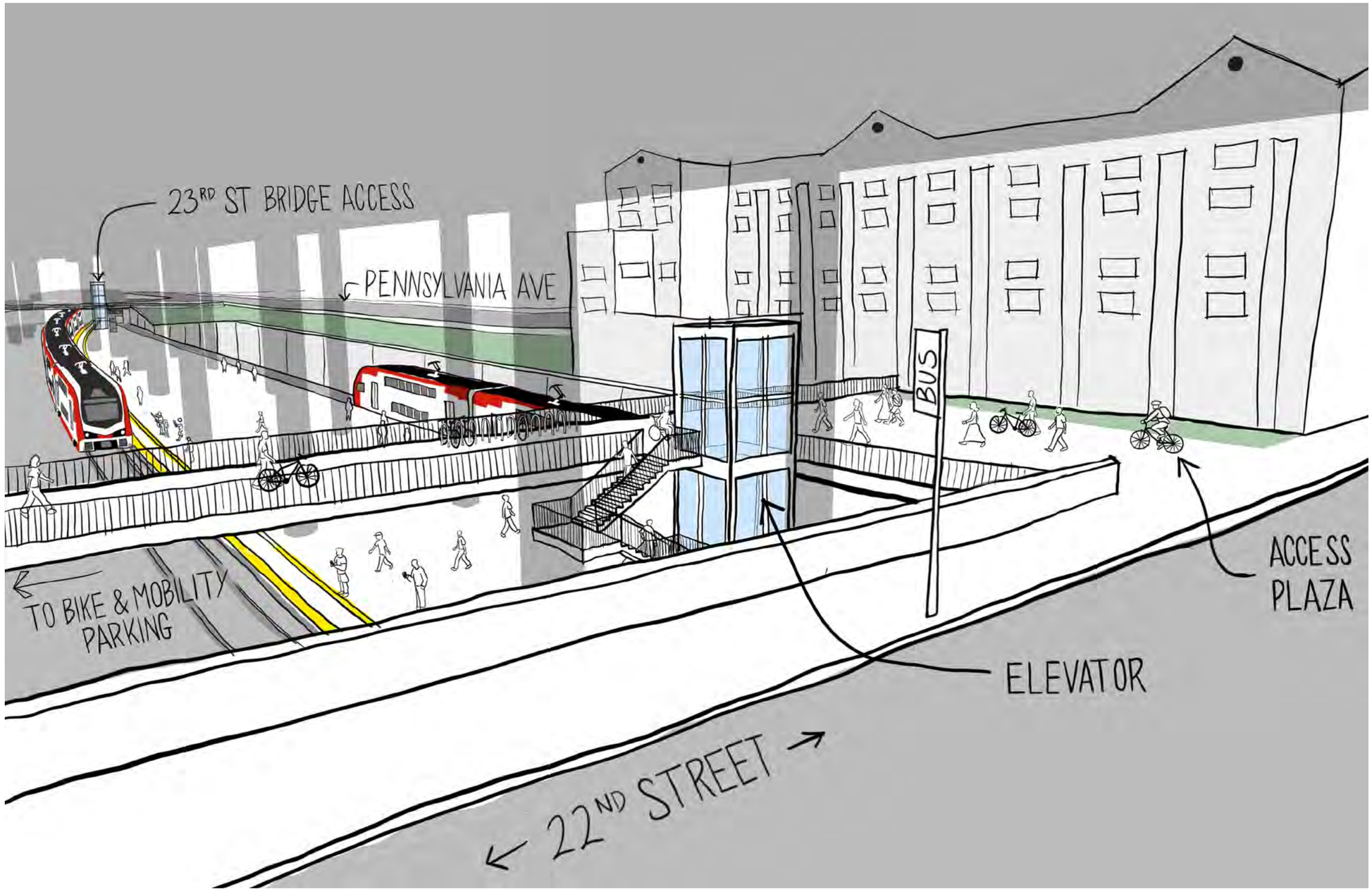
Walk Travel Shed
- 10mins
- 15mins

Bike Travel Shed
- 10mins
- 15mins

Network connectivity scores are based on WalkScore.com relative rankings.

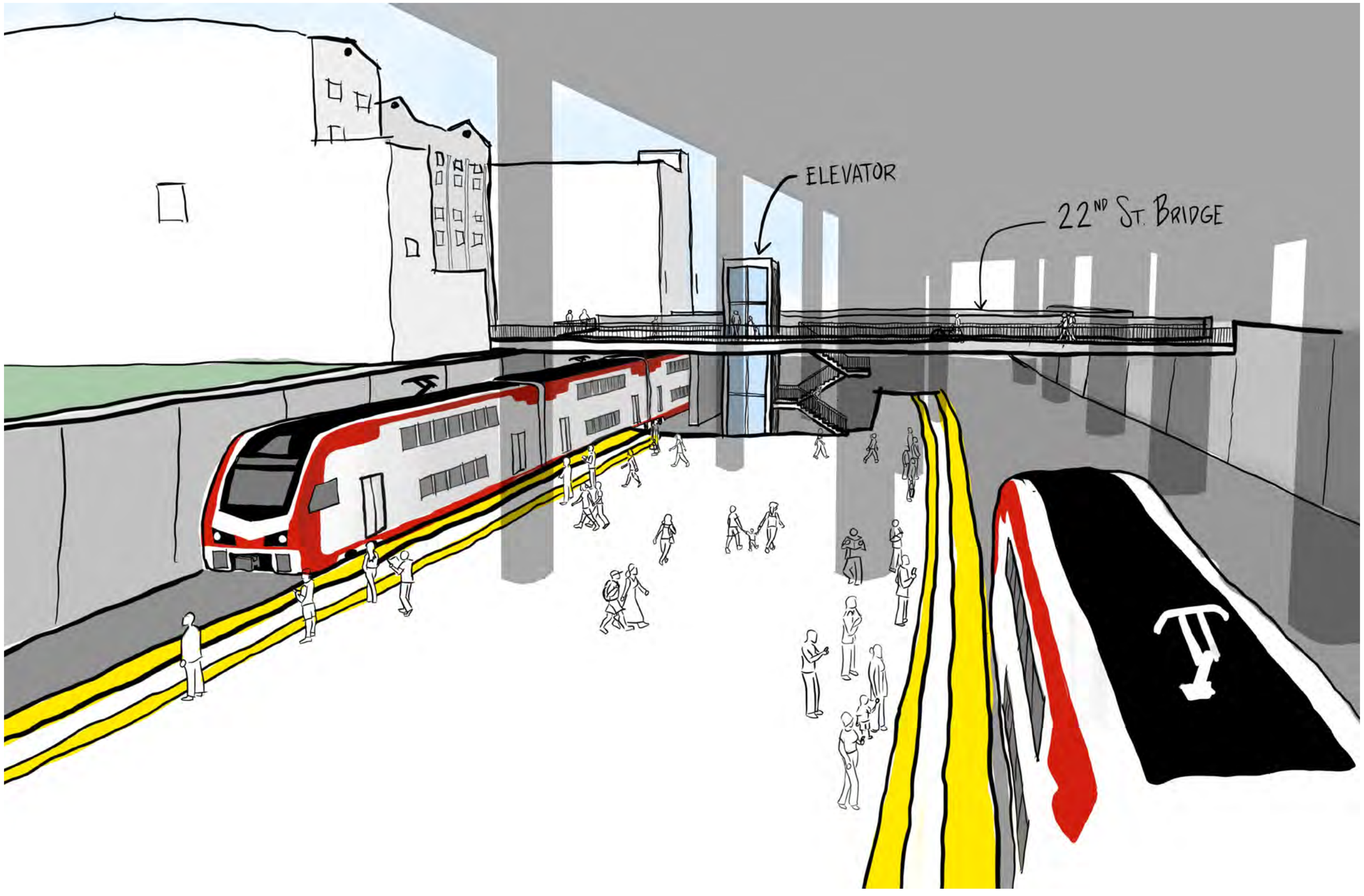
*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.



22ND STREET STATION-REBUILT

View from 22nd St. Bridge, Looking South



22ND STREET STATION-REBUILT

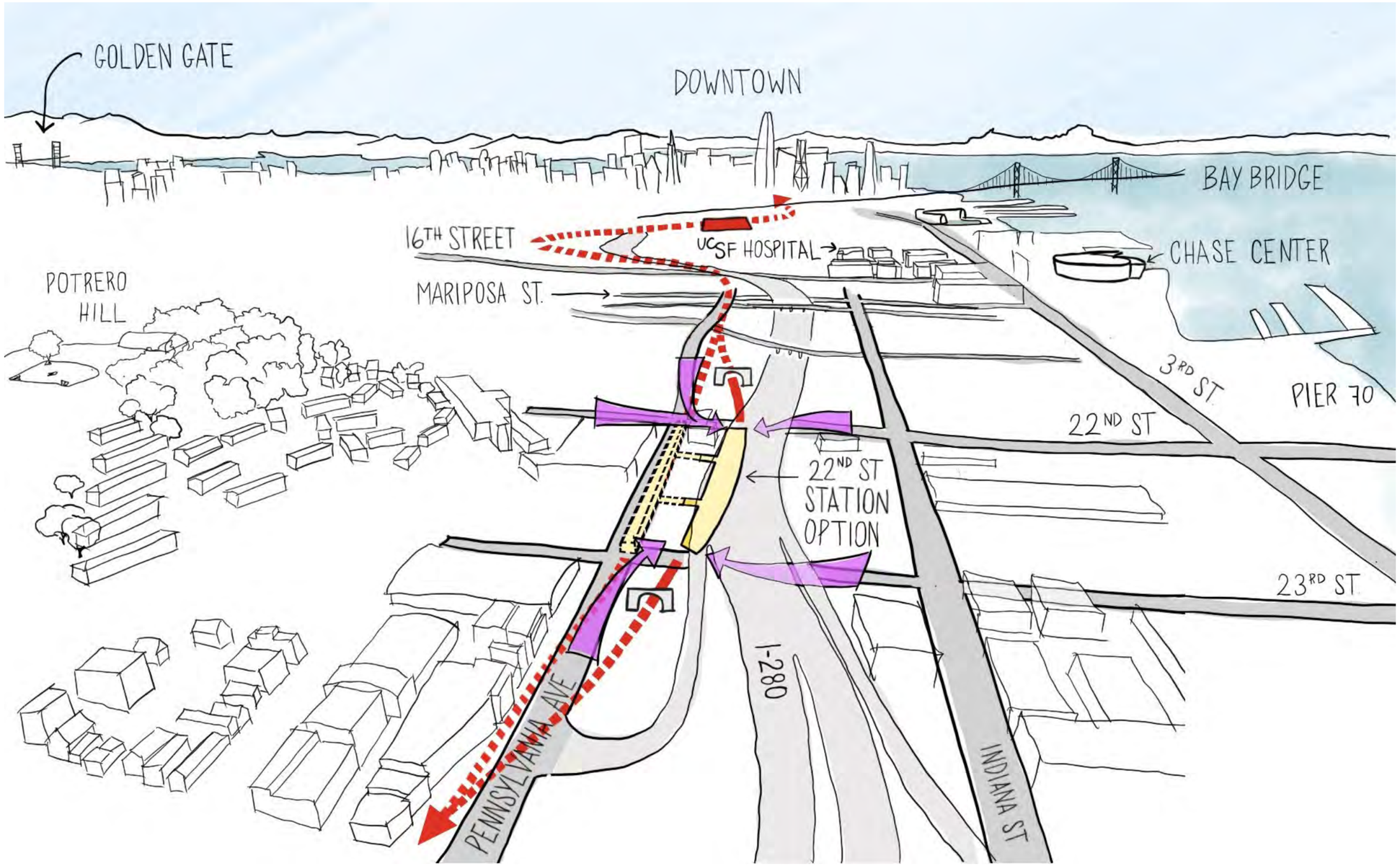
View from 23rd Street Bridge Looking North

22nd STREET STATION-SPLIT

Station Configuration
The 22nd Street split option proposes a grade level northbound platform below the I-280 freeway, and an underground southbound platform to the west, accessed via a broad concourse.

Access/Connections
Access would be available from 22nd Street, 23rd Street, Iowa Street and Pennsylvania Avenue. Station access to the southbound underground platform is via an open concourse from the northbound platform. The station is ½ mile from a Third Street light rail stop.

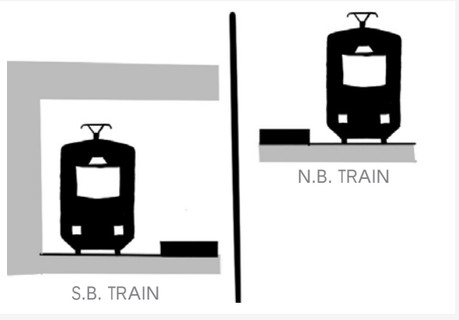
Constructability
This configuration makes ongoing operations of the Caltrain system possible while constructing the southbound tunnel platform. This option requires the PAX alignment to deviate from a direct path of travel northbound but preserves a direct path of travel southbound.



22ND STREET SPLIT STATION OPTION

EXISTING STATION CHARACTERISTICS

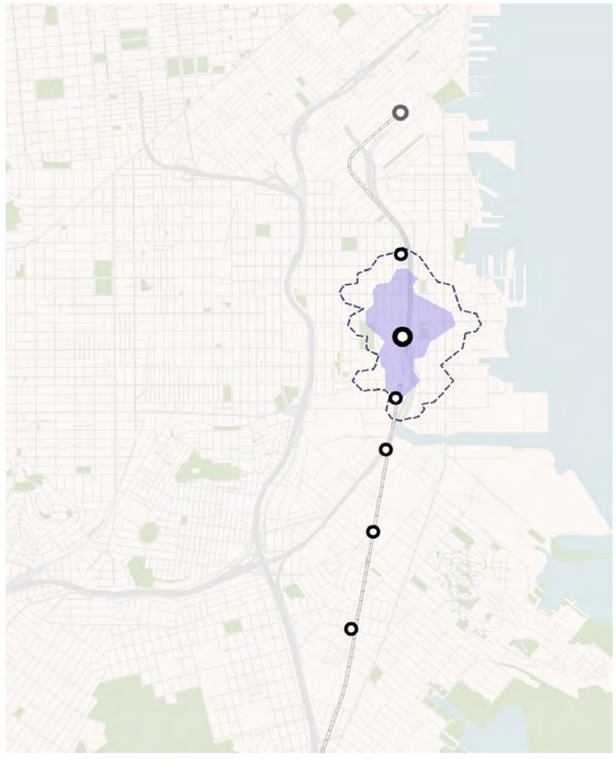
Major planned and approved developments	Pier 70, Potrero Power Station
Primary land uses	Residential; Production, Distribution, Repair
Existing Density	12K/sqm
Future Density*	25K/sqm, 15k/sqm
Applicable PAX tunnel	Long, Short, Mid-Length
Cost**	$$$
Risks	Underpass Aesthetic; Potential Property Impacts
Station diagram	Split Station



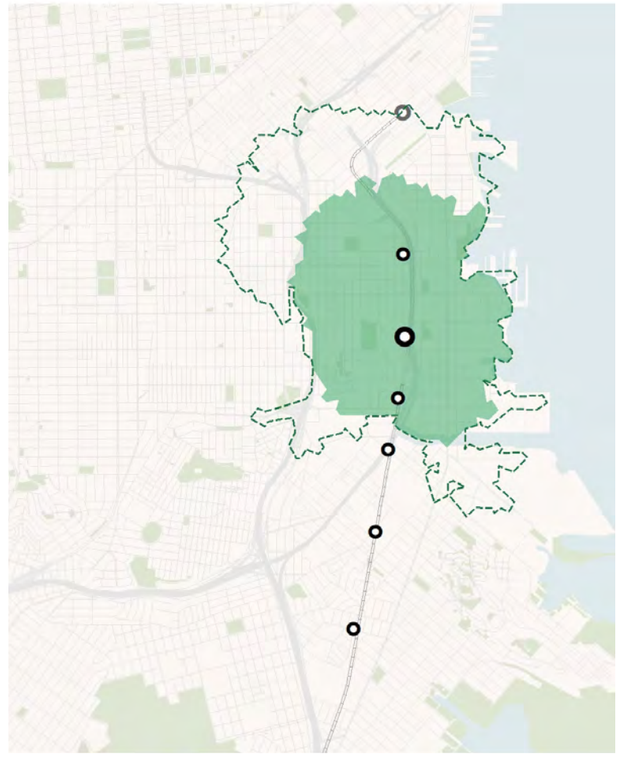
*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.

EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



LEGEND

Walk Travel Shed
- 10mins
- 15mins

Bike Travel Shed
- 10mins
- 15mins

NETWORK CONNECTIVITY

High

Medium-High

Medium

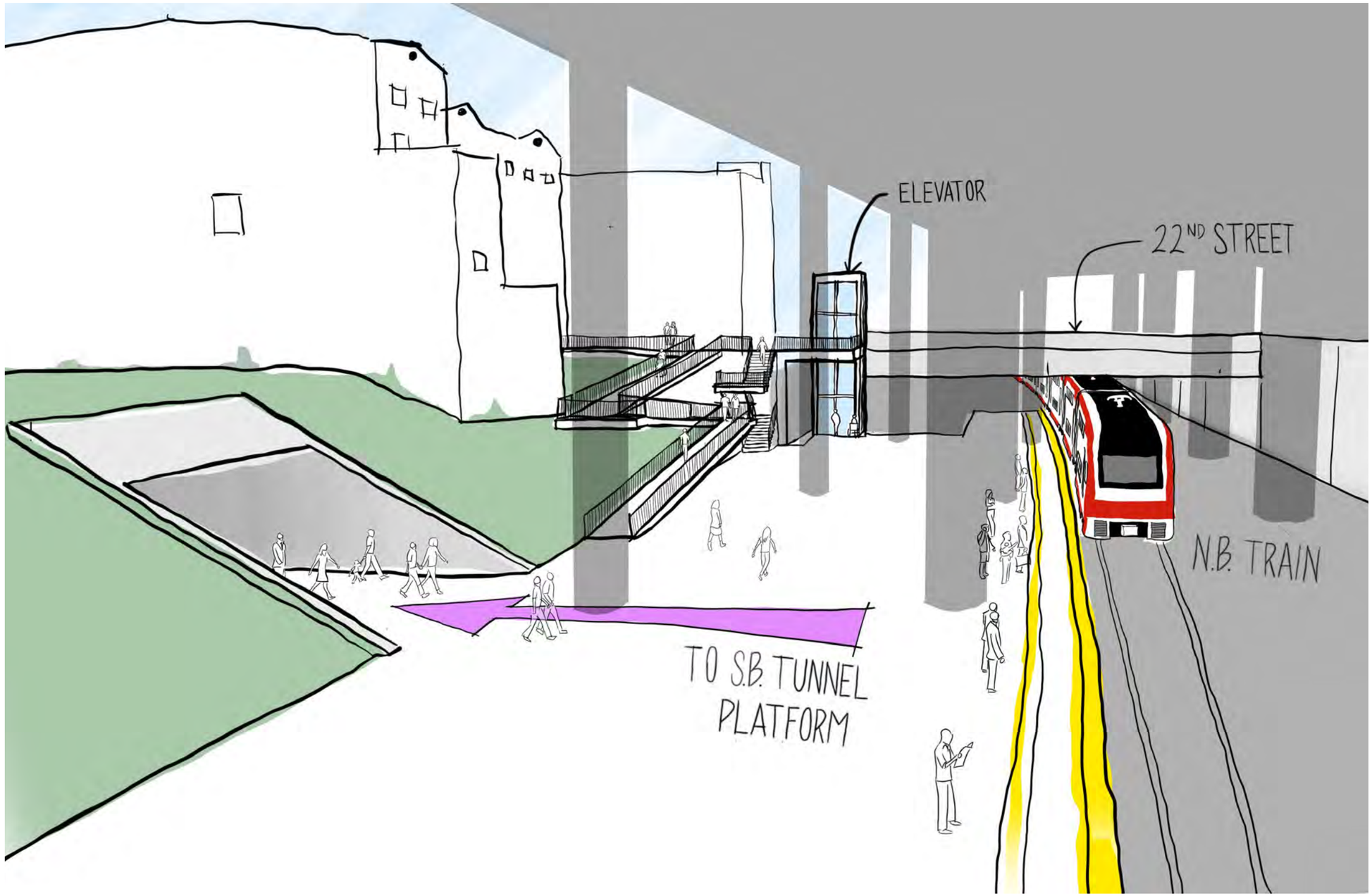
Network connectivity scores are based on WalkScore.com relative rankings.

22ND STREET STATION-SPLIT

View from 22nd St. Bridge, Looking South

LEGEND

Station Access Route



22ND STREET STATION-SPLIT

View from Platform Looking North

LEGEND

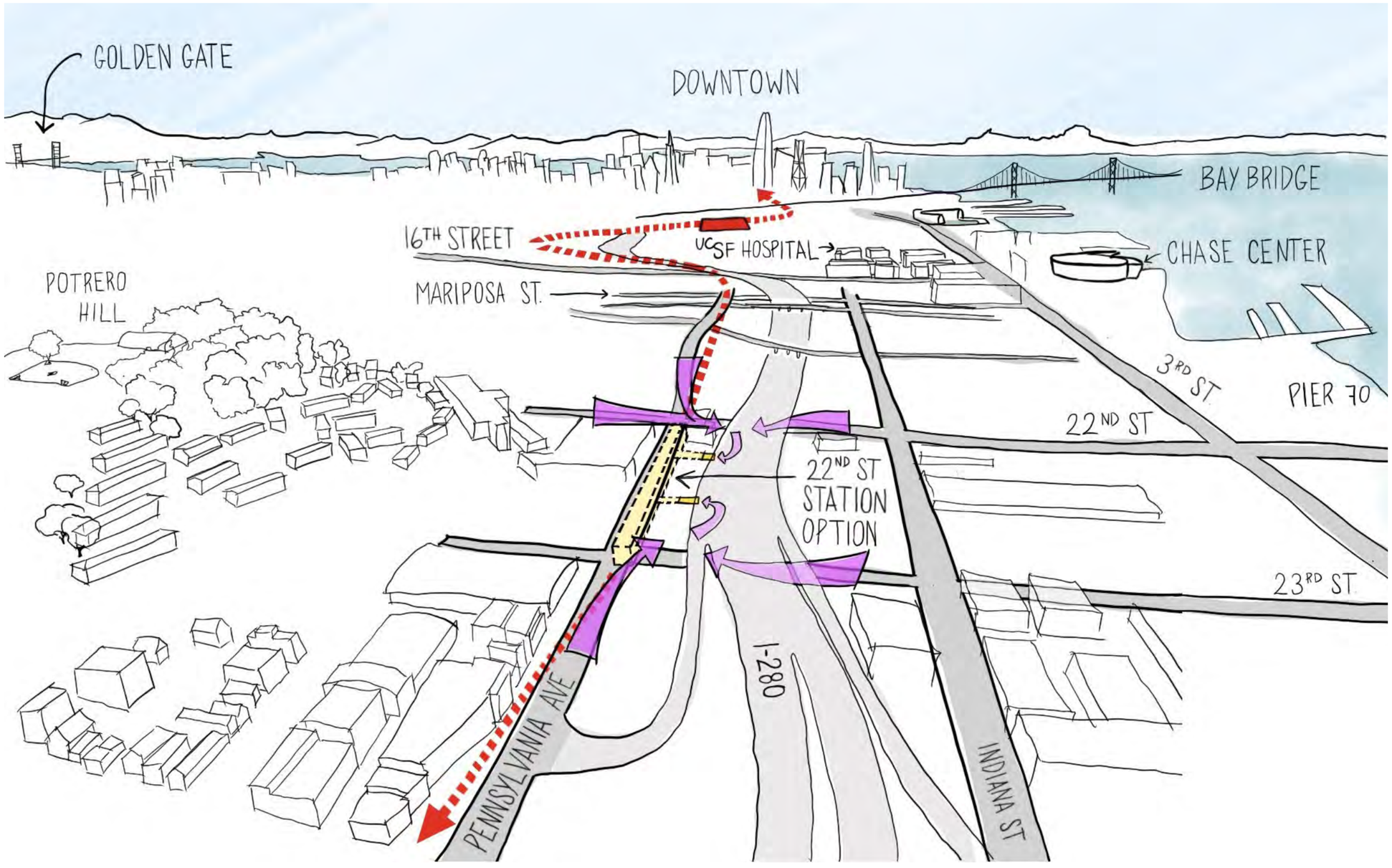
Station Access Route

22nd STREET STATION-TUNNEL

Station Configuration
The station platform would be entirely within the PAX tunnel below Pennsylvania Avenue. The design of the station box would be confirmed in a later project phase.

Access/Connections
Access points to the station are envisioned at 22nd Street, 23rd Street, Iowa Street and Pennsylvania Ave. There are opportunities to design public realm connections for pedestrians and bicyclists and provide ADA access with elevators, ramps, and stairs.

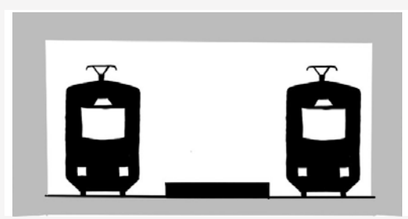
Constructability
The station location is constructable, more information would be determined in a later project phase.



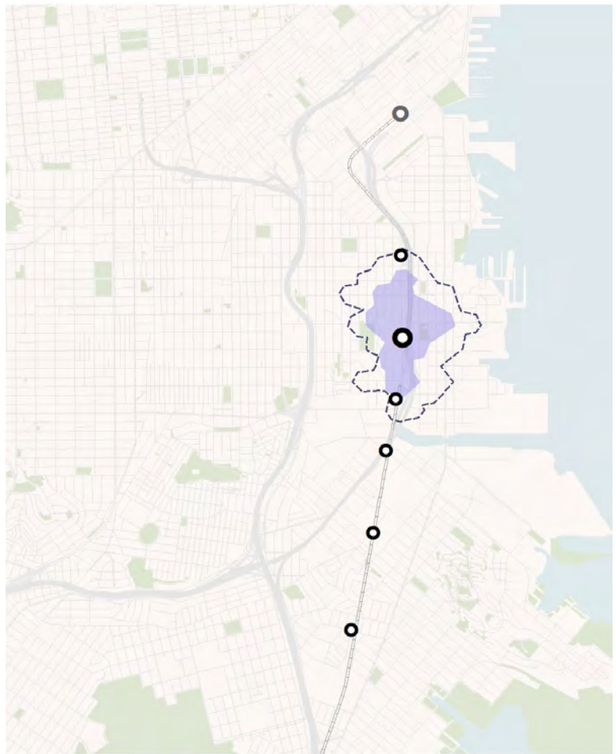
22ND STREET TUNNEL STATION OPTION

EXISTING STATION CHARACTERISTICS

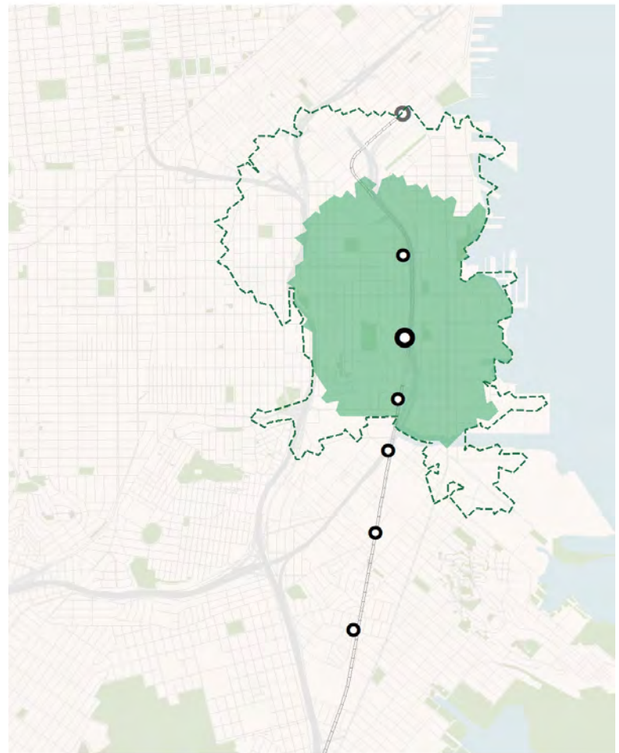
Major planned and approved developments	Pier 70, Potrero Power Station
Primary land uses	Residential; Production, Distribution, Repair
Existing Density	12K/sqm
Future Density*	25K/sqm 15k/sqm
Applicable PAX tunnel	Long
Cost**	$$$
Risks	Underpass Aesthetic, Expensive; Potential Property Impacts
Station diagram	Tunnel Station



EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



NETWORK CONNECTIVITY

High

Medium-High

Medium

LEGEND

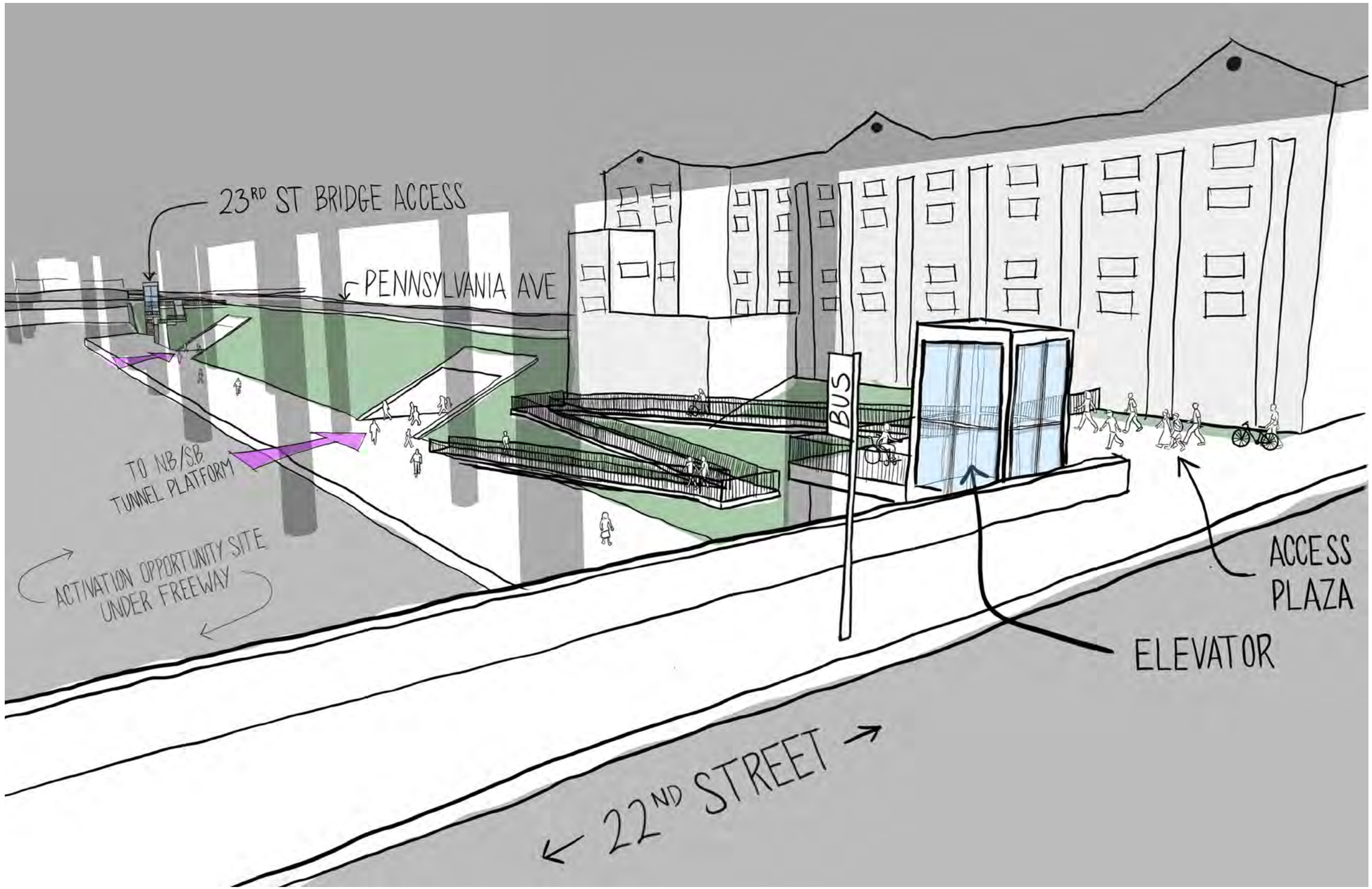
Walk Travel Shed
10mins 15mins

Bike Travel Shed
10mins 15mins

Network connectivity scores are based on WalkScore.com relative rankings.

*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.

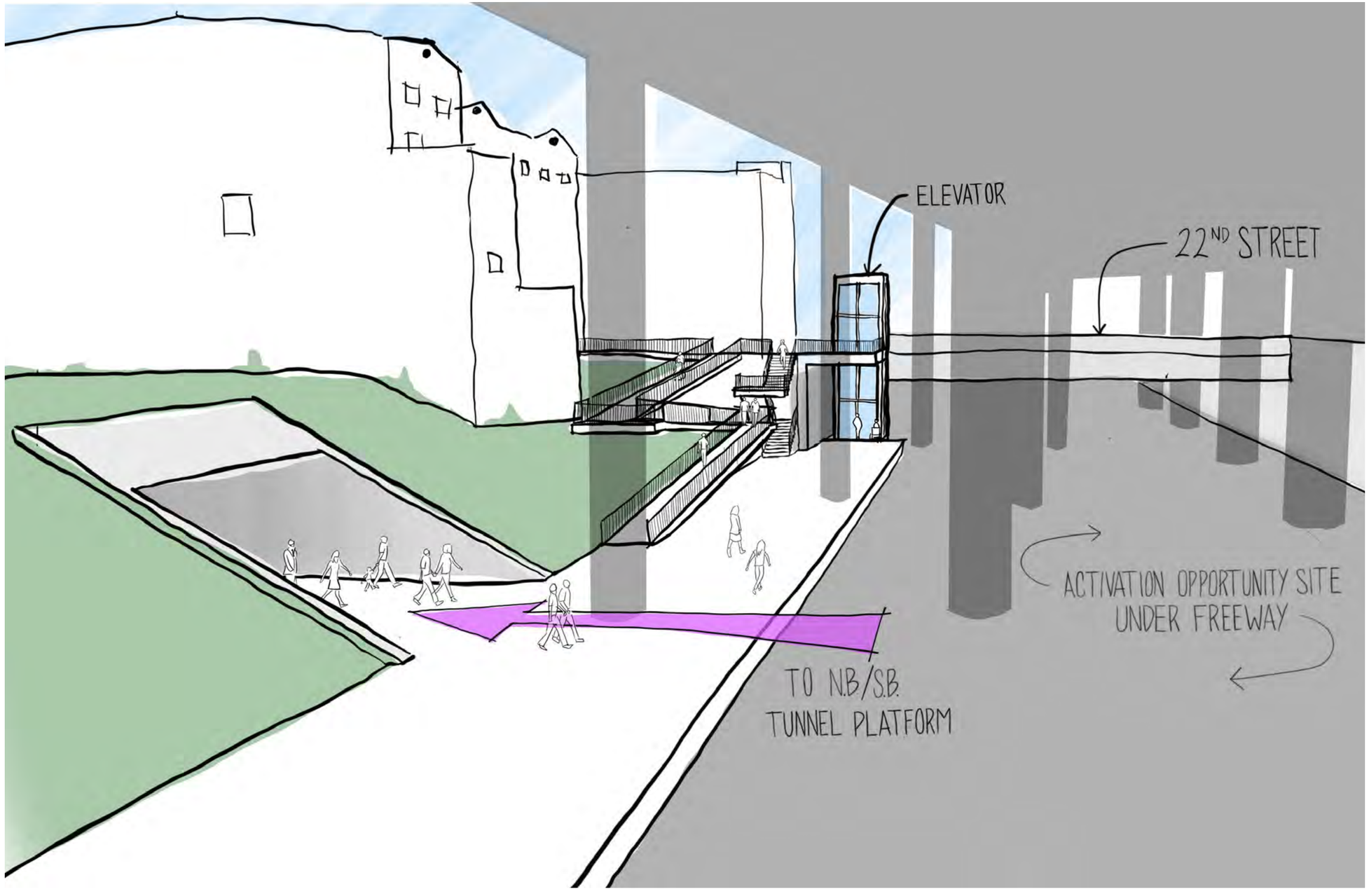


22ND STREET STATION-TUNNEL

View from 22nd St. Bridge, Looking South

LEGEND

Station Access Route



22ND STREET STATION-TUNNEL

View from 23rd Street Bridge Looking North

LEGEND

Station Access Route

CESAR CHAVEZ STATION

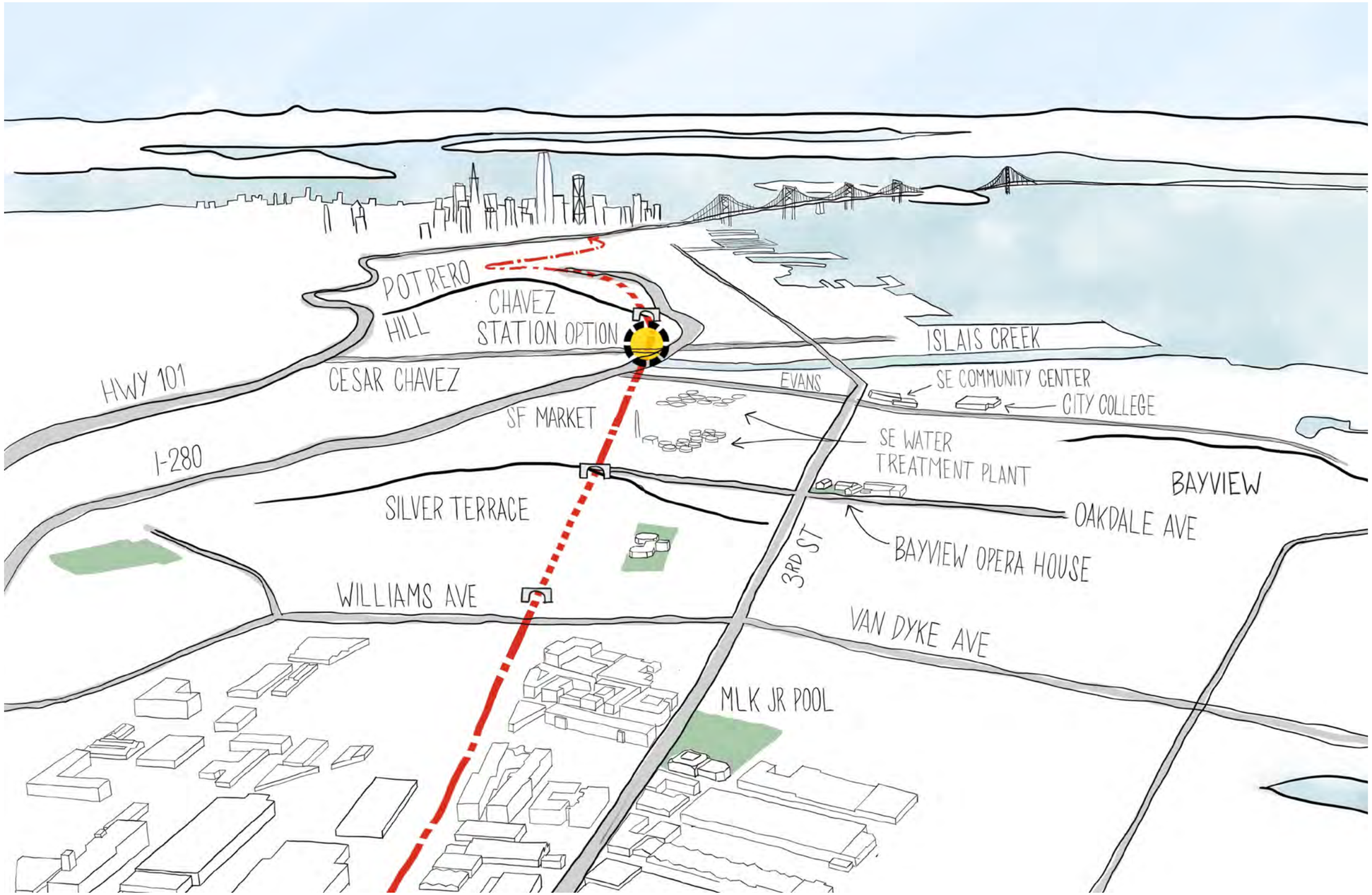
Station Context
Located near 25th Street just south of Tunnel Top Park, the station platform would span Cesar Chavez extending south toward Marin Street. It is bounded by industrial uses, with good vehicular access to both I-280 and US-101.

Station Configuration
The station would have side platforms elevated above the street on berms, and would be accessed via stairs and/or ramps.

Community Served
Near to the Potrero Hill HOPE SF project, this station option serves Central Waterfront neighborhoods to the north, Pier 80 and Islais Creek to the east, and northern Bayview to the south.

Access/Connections
Northbound and southbound platform access is proposed from both 25th Street/Tunnel Top Park and Cesar Chavez. Marin Street is an option for access to the Southbound platform. The station is a 10-minute walk from a Third Street light rail stop. As a citywide bicycle route and major arterial, Cesar Chavez connects to Pier 80 to the east and Bernal Heights and the Mission District to the west.

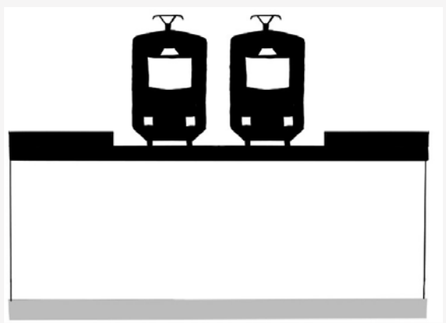
Constructability
The station would require modifications to the tunnel portal to the north and adding new bridges to replace the existing ones over Cesar Chavez and Marin.



CESAR CHAVEZ STATION OPTION

EXISTING STATION CHARACTERISTICS

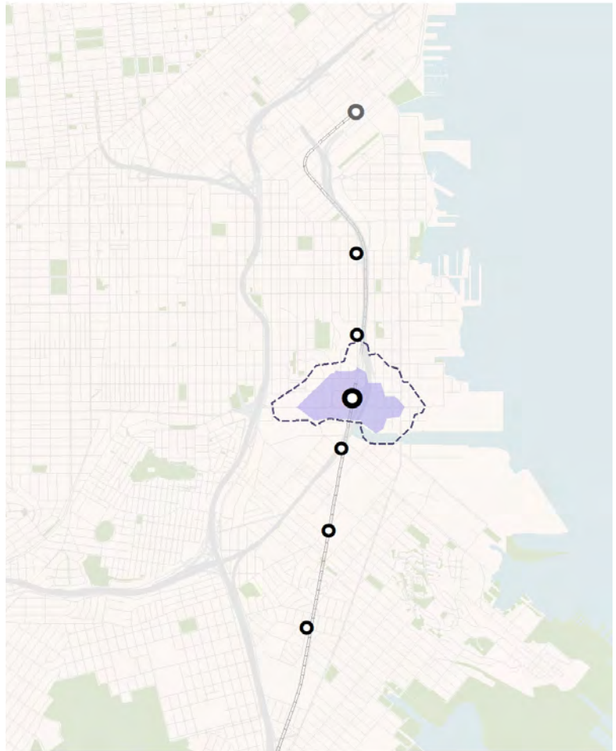
Major planned and approved developments	Potrero HOPE SF
Primary land uses	Residential Production, Distribution, Repair
Existing Density	6K/sqm
Future Density*	12K/sqm 15k/sqm
Applicable PAX tunnel	Long
Cost**	$$$
Risks	Access Barriers, Constrained Site, Sea-level Rise, Industrial Surroundings, Complex Geotechnical Setting
Station diagram	Elevated Station



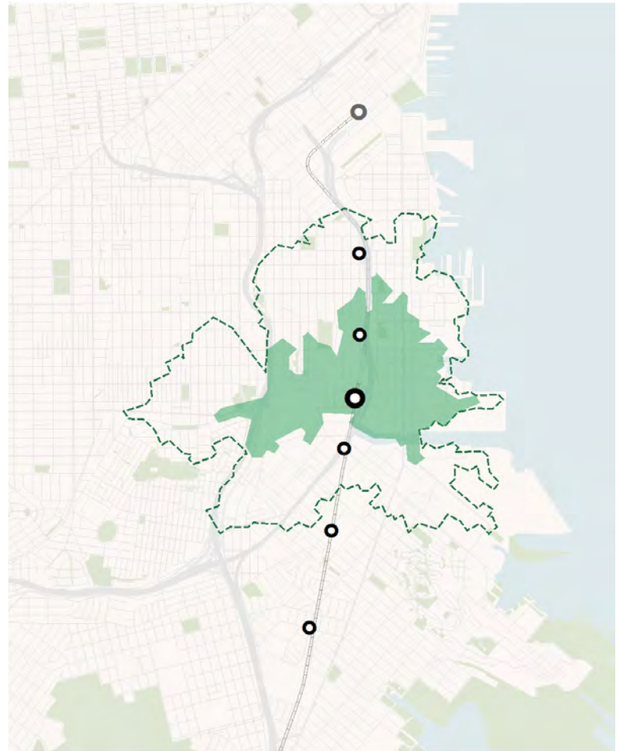
*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.

EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



LEGEND

Walk Travel Shed
- 10mins
- 15mins

Bike Travel Shed
- 10mins
- 15mins

NETWORK CONNECTIVITY

Medium

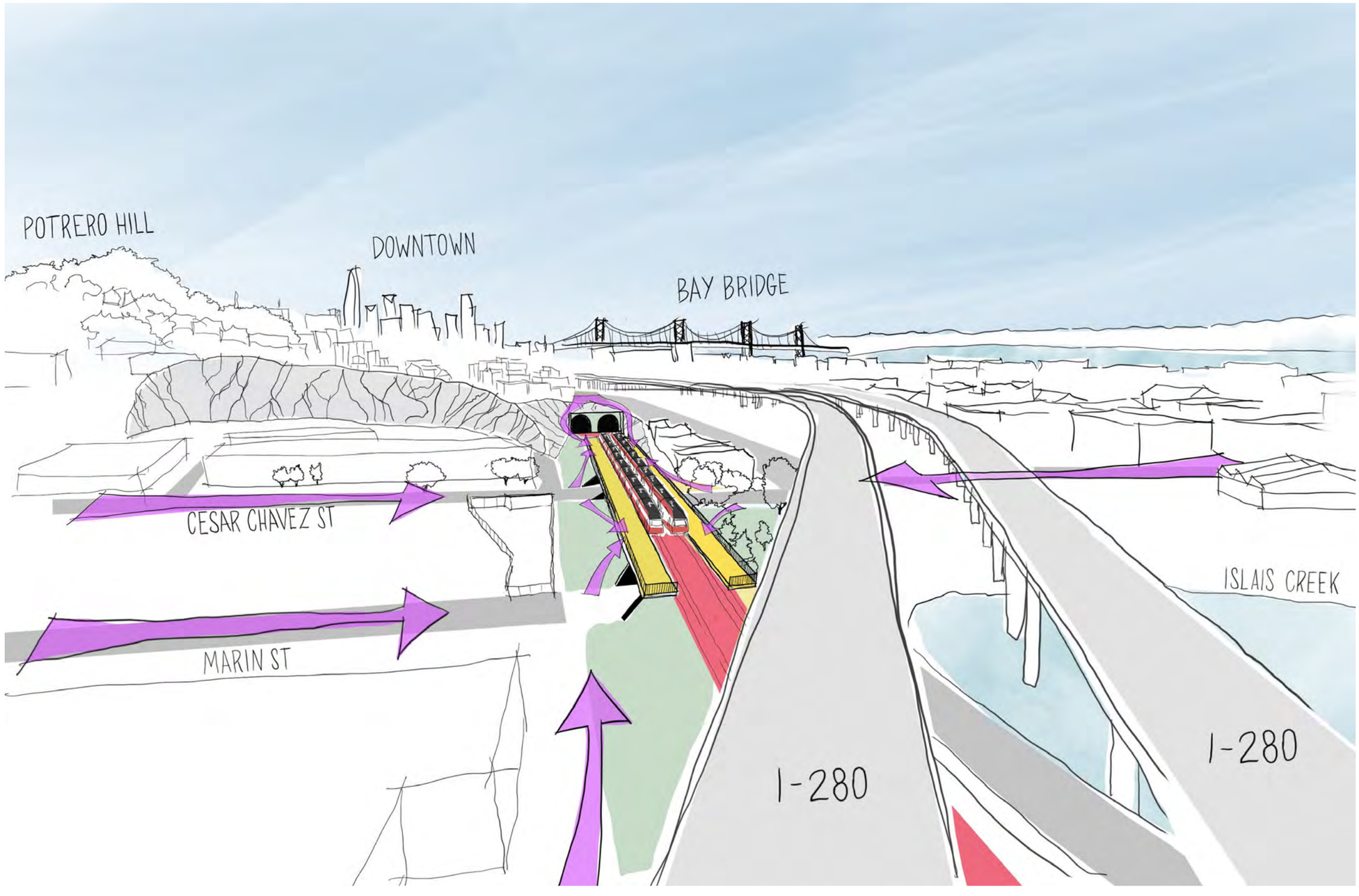
Medium-High

Medium

Network connectivity scores are based on WalkScore.com relative rankings.

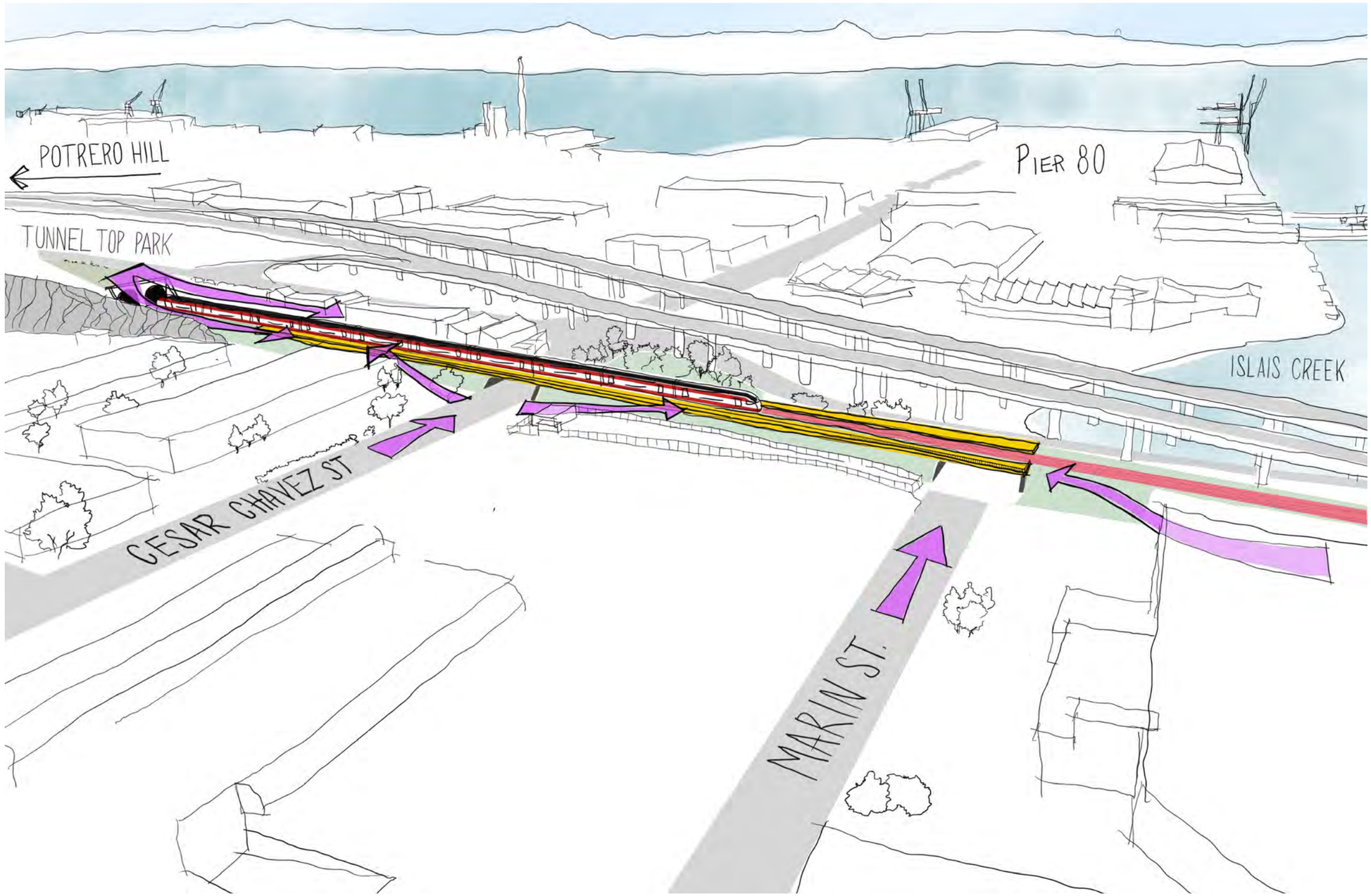
CESAR CHAVEZ STATION

Looking Northeast



LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route



CESAR CHAVEZ STATION

Looking East

LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route

EVANS AVENUE STATION

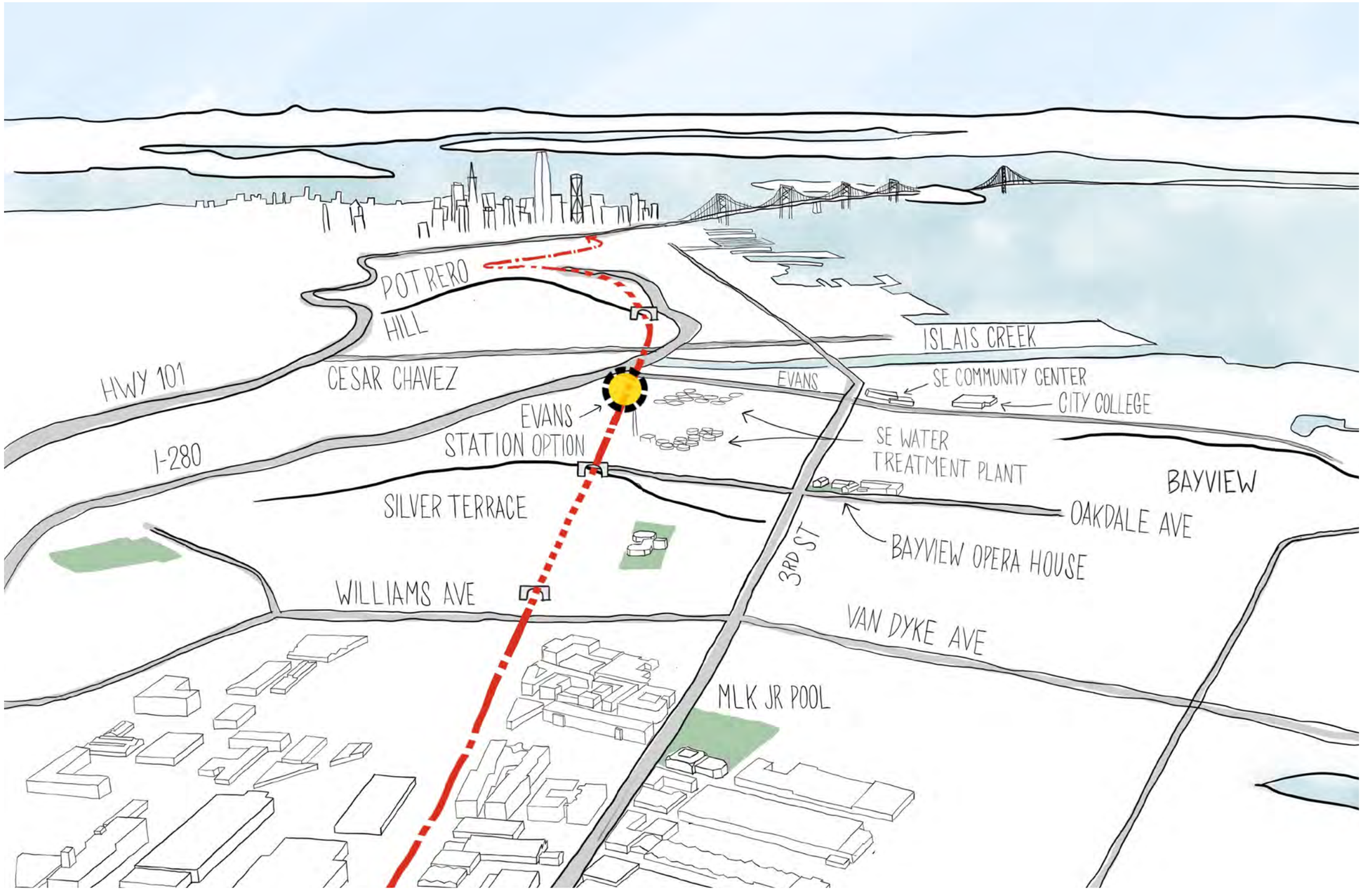
Station Context
The station option sits south of Islais Creek between Evans and Jerrold Avenues, adjacent to the Southeast Wastewater Treatment Plant with industrial uses on all sides.

Community Served
The station would serve the northern portion of the Bayview—including the new Southeast Community Center, the Islais Creek industrial area and the southern part of the Dogpatch. While mostly outside the ½ mile walkshed of residential or commercial neighborhoods, this station is around ½ mile from the intersection of Third Street and Evans Avenue, and today is directly connected to Potrero Hill and Hunters Point by transit.

Access/Connections
Both northbound and southbound platforms could be accessed from Evans Avenue from the north, and Jerrold Avenue from the south. The station would serve nearby neighborhoods primarily via transit connections, bicycle routes, and passenger drop-off.

Station Configuration
Station configuration would be confirmed during future project phases. The station location could accommodate either a center platform or side platforms.

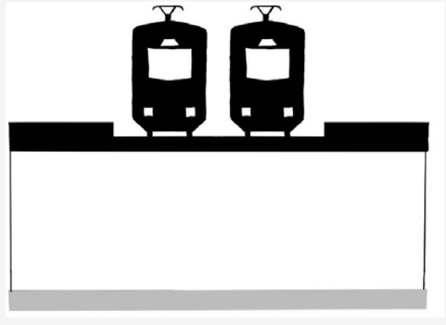
Constructability
A center platform station at Evans would require new bridges at Evans, Jerrold, Napoleon, Marin, and Cesar Chavez.
A side platform station configuration could retain the existing bridges while requiring widening to the embankment to accommodate the platforms.



EVANS AVENUE STATION OPTION

EXISTING STATION CHARACTERISTICS

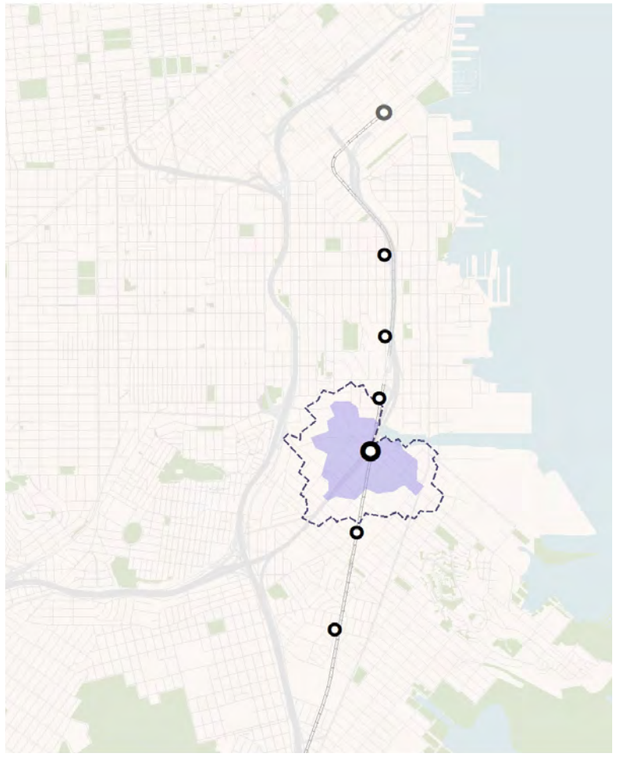
Major planned and approved developments	Southeast Community Center; Prologis Warehouse; SF Wholesale Produce Market
Primary land uses	Production, Distribution, Repair
Existing Density	1K/sqm
Future Density*	3K/sqm; 19k/sqm
Applicable PAX tunnel	All Options
Cost**	$$$
Risks	Constrained Site; Sea-level Rise; Freight Operations; Industrial Surroundings; Complex Geotechnical Setting
Station diagram	Elevated Station



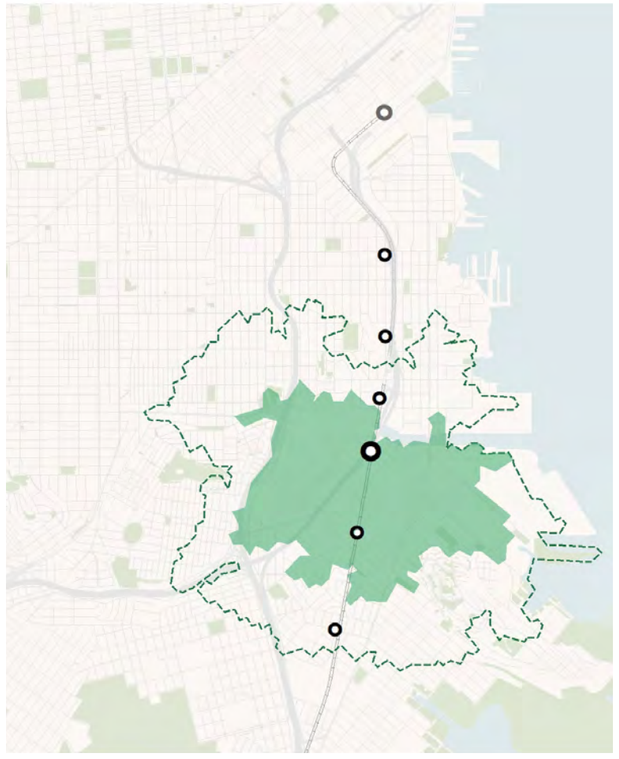
*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.

EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



NETWORK CONNECTIVITY

Medium

High

Medium

LEGEND

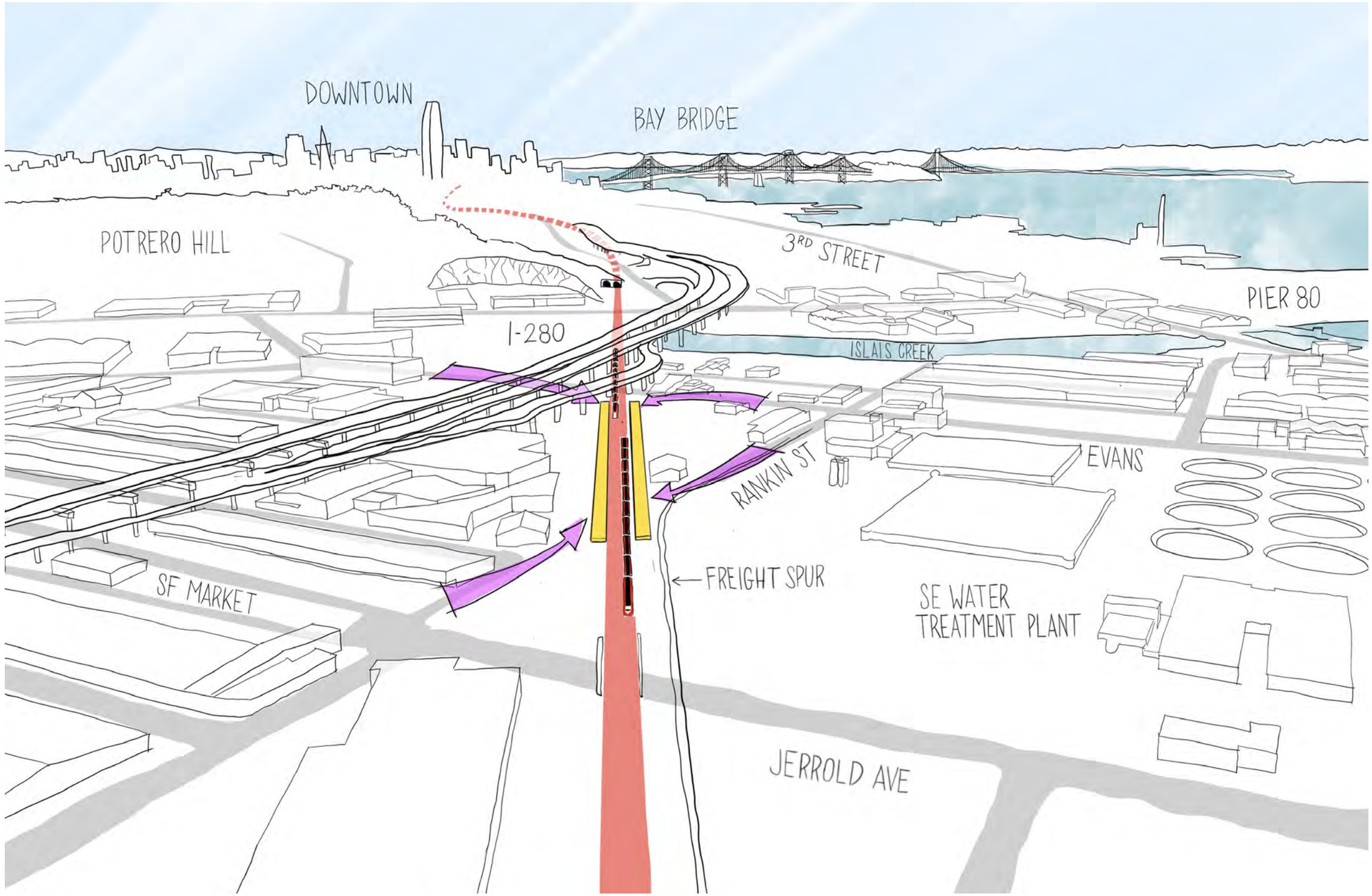
Walk Travel Shed
- 10mins
- 15mins

Bike Travel Shed
- 10mins
- 15mins

Network connectivity scores are based on WalkScore.com relative rankings.

EVANS AVENUE STATION

Looking North

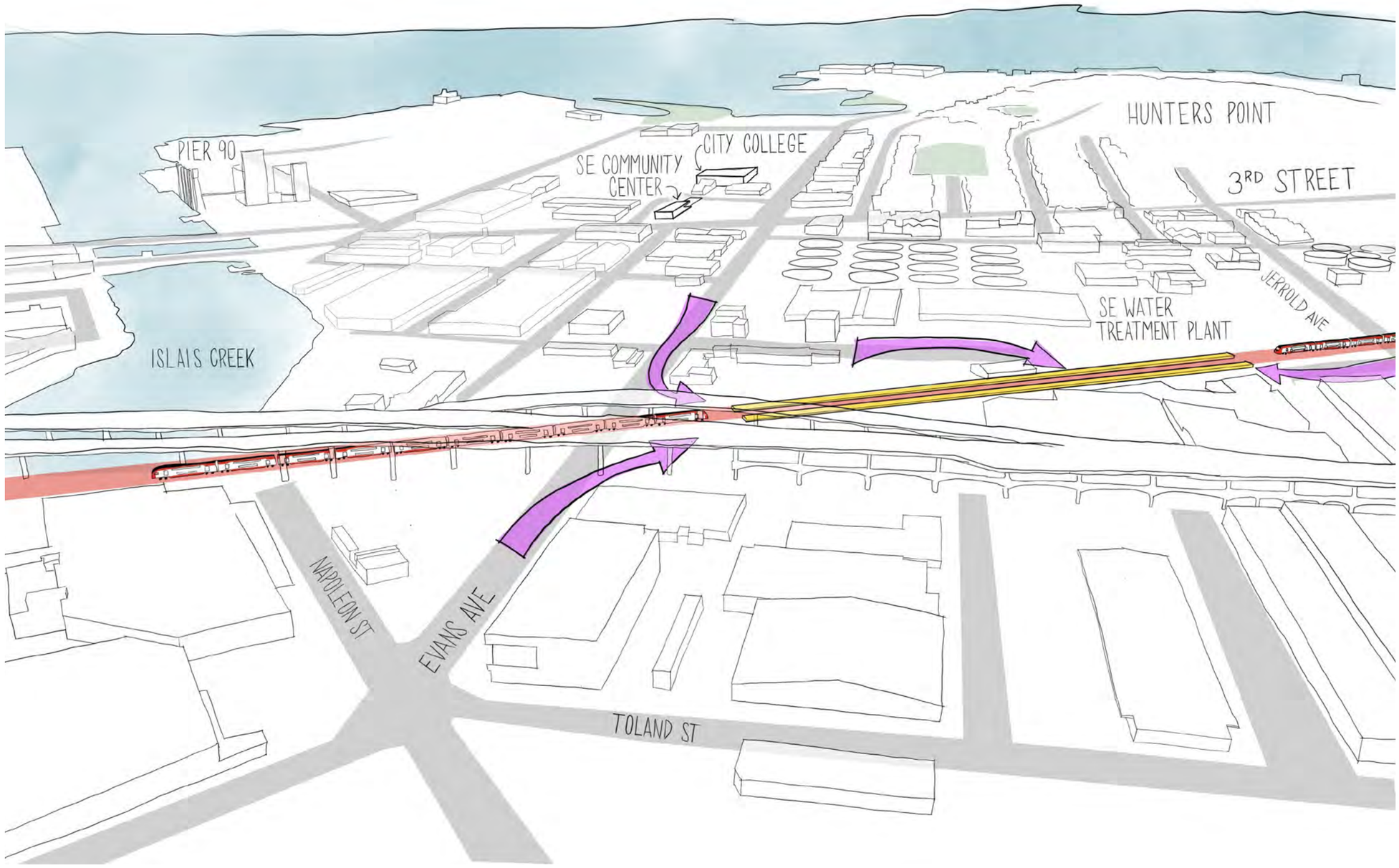


LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route

EVANS AVENUE STATION

Looking Southeast



LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route

OAKDALE AVENUE STATION

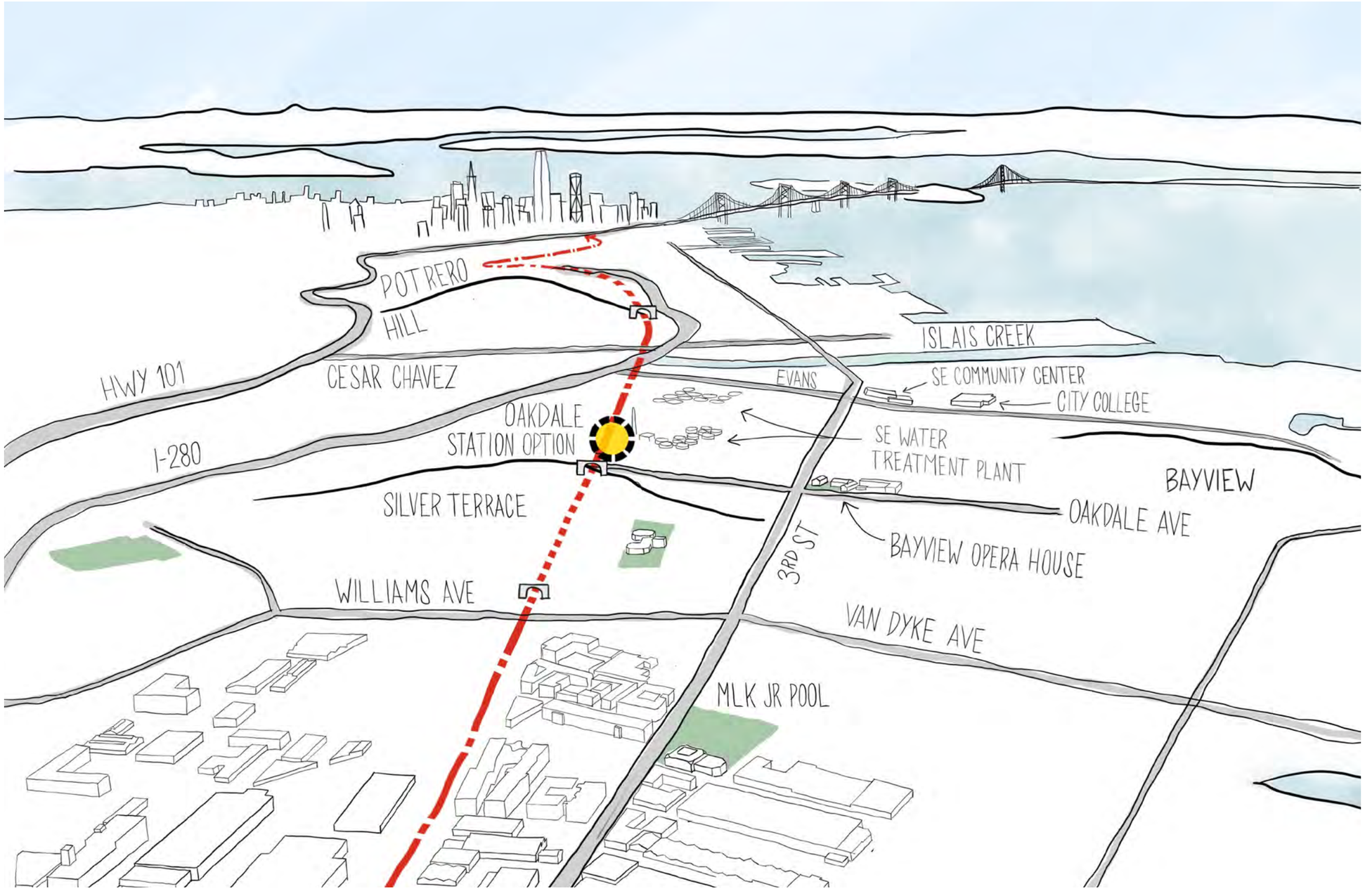
Station Context
This station option is located between Jerrold Avenue and Oakdale Avenue in the Bayview. There are industrial uses to the north and west and residential neighborhoods to the south and east. Hunters Point is a short distance to the east.

Station Configuration
This station would have side platforms at grade. Adjoining land could provide space for passenger amenities including drop off, personal mobility parking and storage, and/or public plazas.

Community Served
The station serves the Bayview and Hunters Point with residential and commercial neighborhoods nearby.

Access/Connections
The station would be accessed from Oakdale Avenue from the south and Jerrold Avenue and Quint Streets from the north. Access from the east would need to be coordinated with private property owners. The station has good existing bus service and is within a 5-minute walk to a Third Street light rail stop.

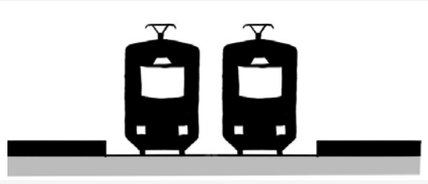
Constructability
A station at Oakdale would work in tandem with the proposed Jerrold/ Quint Street connector road and would modify the Quint Street berm to provide access to the platform.



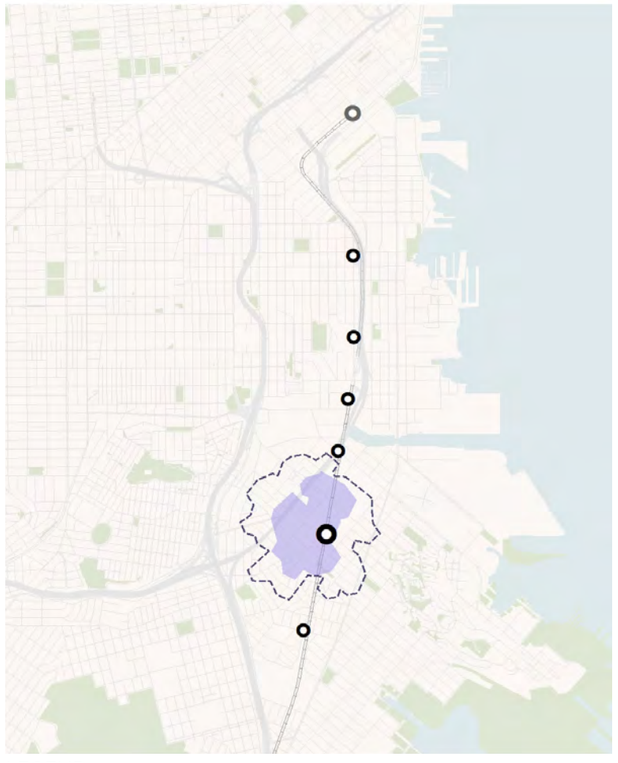
OAKDALE AVENUE STATION OPTION

EXISTING STATION CHARACTERISTICS

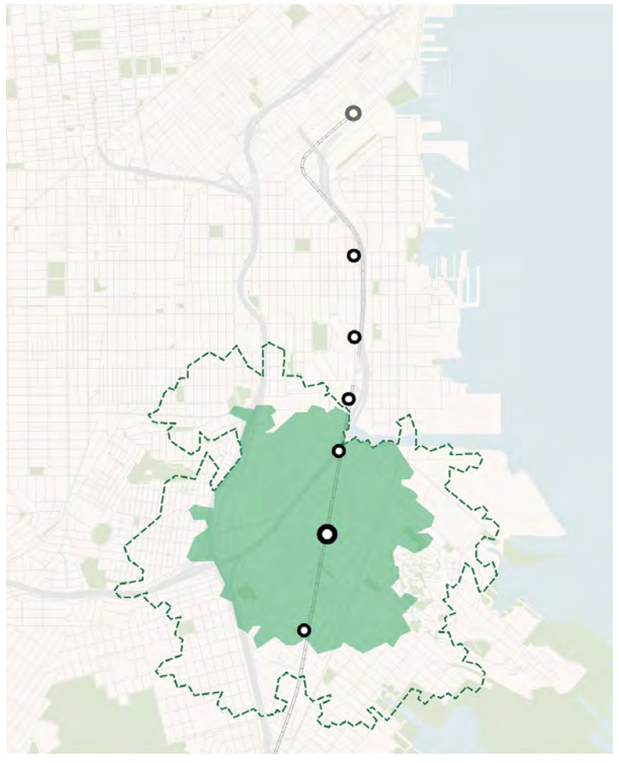
Major planned and approved developments	Hunters Point Shipyard & Candlestick Point; India Basin; SF Wholesale Produce Market; Prologis Warehouse
Primary land uses	Residential; Production, Distribution, Repair
Existing Density	14K/sqm
Future Density*	16K/sqm; 14k/sqm
Applicable PAX tunnel	All Options
Cost**	$$$
Risks	Sea-level Rise; Complex Geotechnical Setting; Freight Operations; Industrial Surroundings
Station diagram	At-Grade Side Platform



EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



NETWORK CONNECTIVITY

Medium-High

Medium-High

Medium-High

LEGEND

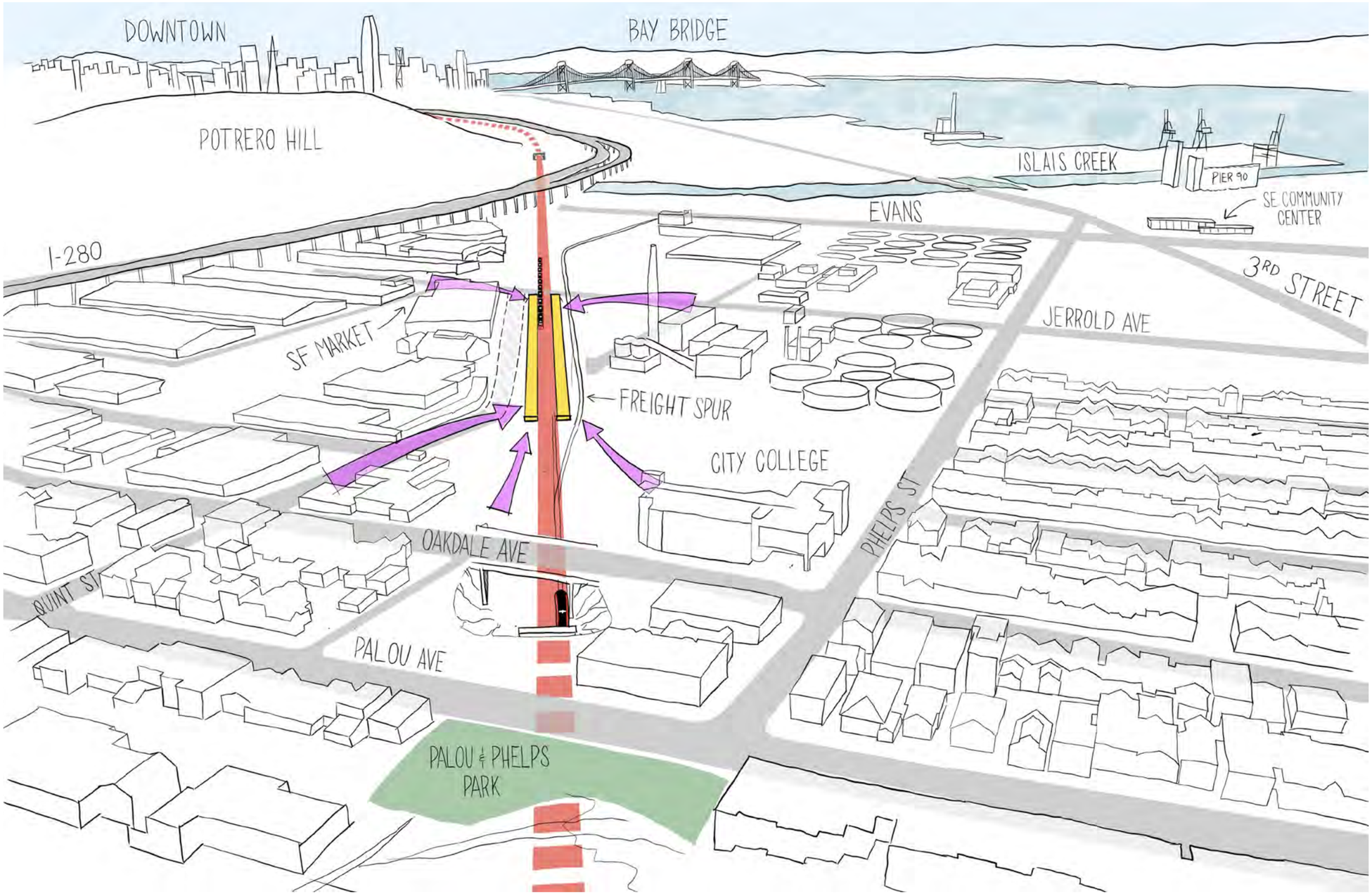
Walk Travel Shed
- 10mins
- 15mins

Bike Travel Shed
- 10mins
- 15mins

Network connectivity scores are based on WalkScore.com relative rankings.

*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.



OAKDALE AVENUE STATION

Looking Northeast

LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route

OAKDALE AVENUE STATION

Looking Southeast

LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route

WILLIAMS AVENUE STATION

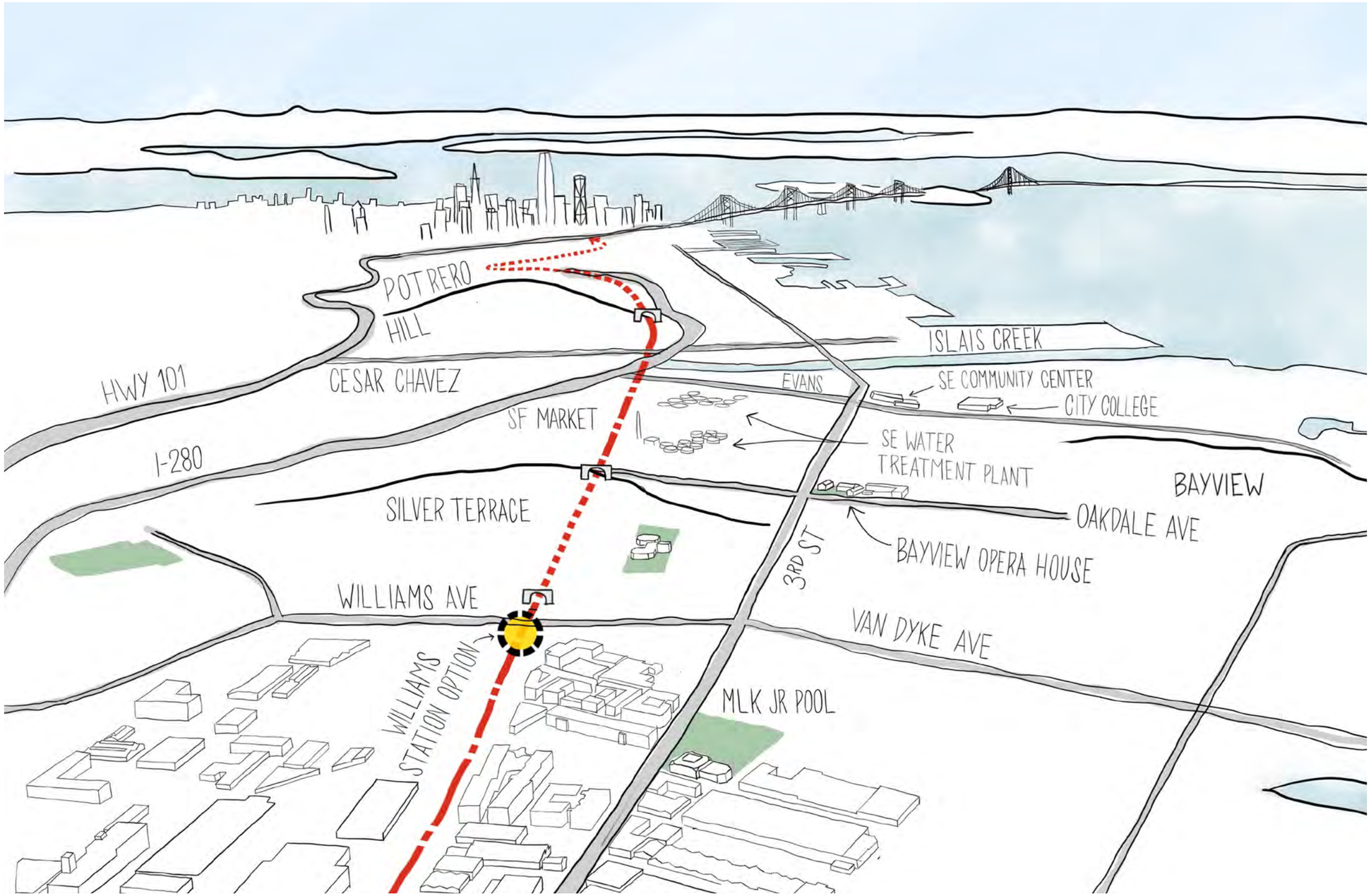
Station Context
This station option is located between Williams Avenue and Egbert Avenue in the Bayview. The Florence Fang Community Farm is to the north of the station platform. The Bayview Police Station and a commercial area including a grocery store are to the west of this station option.

Station Configuration
The station would be configured with side platforms at grade. A pedestrian bridge may be desirable to better connect the south end of the platform.

Community Served
The station serves the surrounding Bayview residential and commercial neighborhoods, and is located less than ¼ mile from the intersection of Third Street and Williams Avenue. Many people live within walking distance of this station option.

Access/Connections
Station access is proposed from Williams from the north, and Egbert and Carroll Streets from the south. The station is already well served by local transit service and is within a 5-minute walk to a Third Street light rail stop.

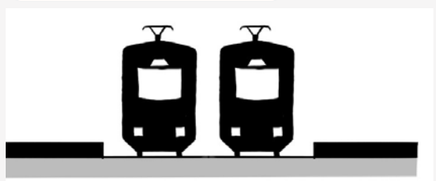
Constructability
A station at Williams would require accommodation or closure of the UPRR freight spurs at the east side of the tracks. The Williams Avenue bridge may require replacement for platform access, the tunnel portal to the south may also require rebuilding.



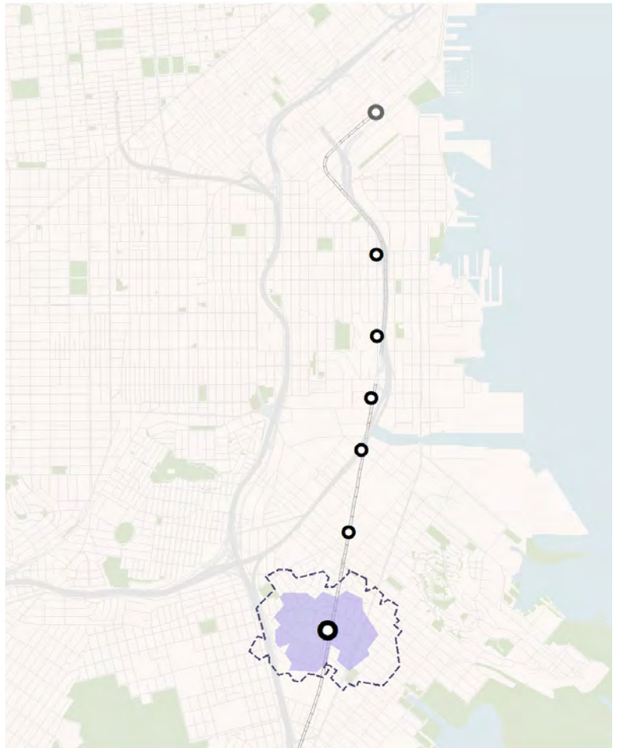
WILLIAMS AVENUE STATION OPTION

EXISTING STATION CHARACTERISTICS

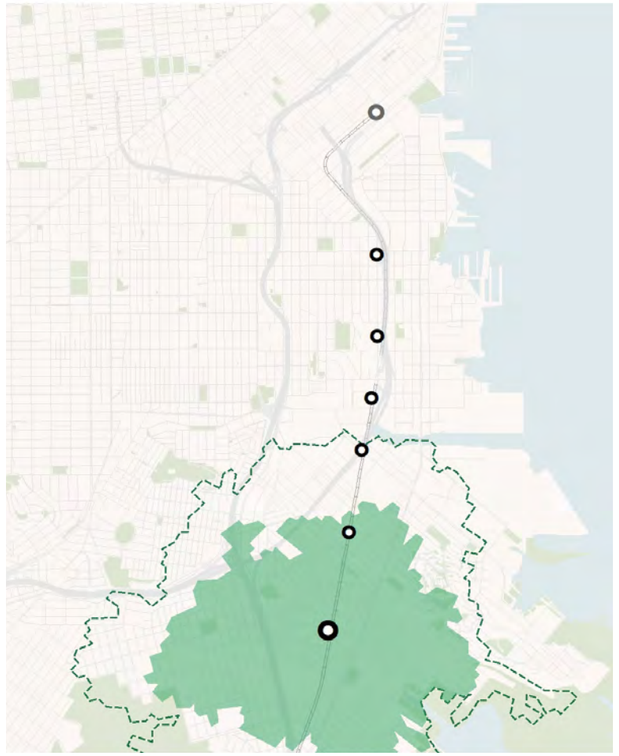
Major planned and approved developments	Hunters Point Shipyard & Candlestick Point
Primary land uses	Residential
Existing Density	21K/sqm
Future Density*	26K/sqm 8k/sqm
Applicable PAX tunnel	All Options
Cost**	$$$
Risks	Freight Operations
Station diagram	At-Grade Side Platform



EXISTING WALK TRAVEL SHED



EXISTING BIKE TRAVEL SHED



LEGEND

Walk Travel Shed
- 10mins
- 15mins

Bike Travel Shed
- 10mins
- 15mins

NETWORK CONNECTIVITY

Medium-High

Medium

Medium-High

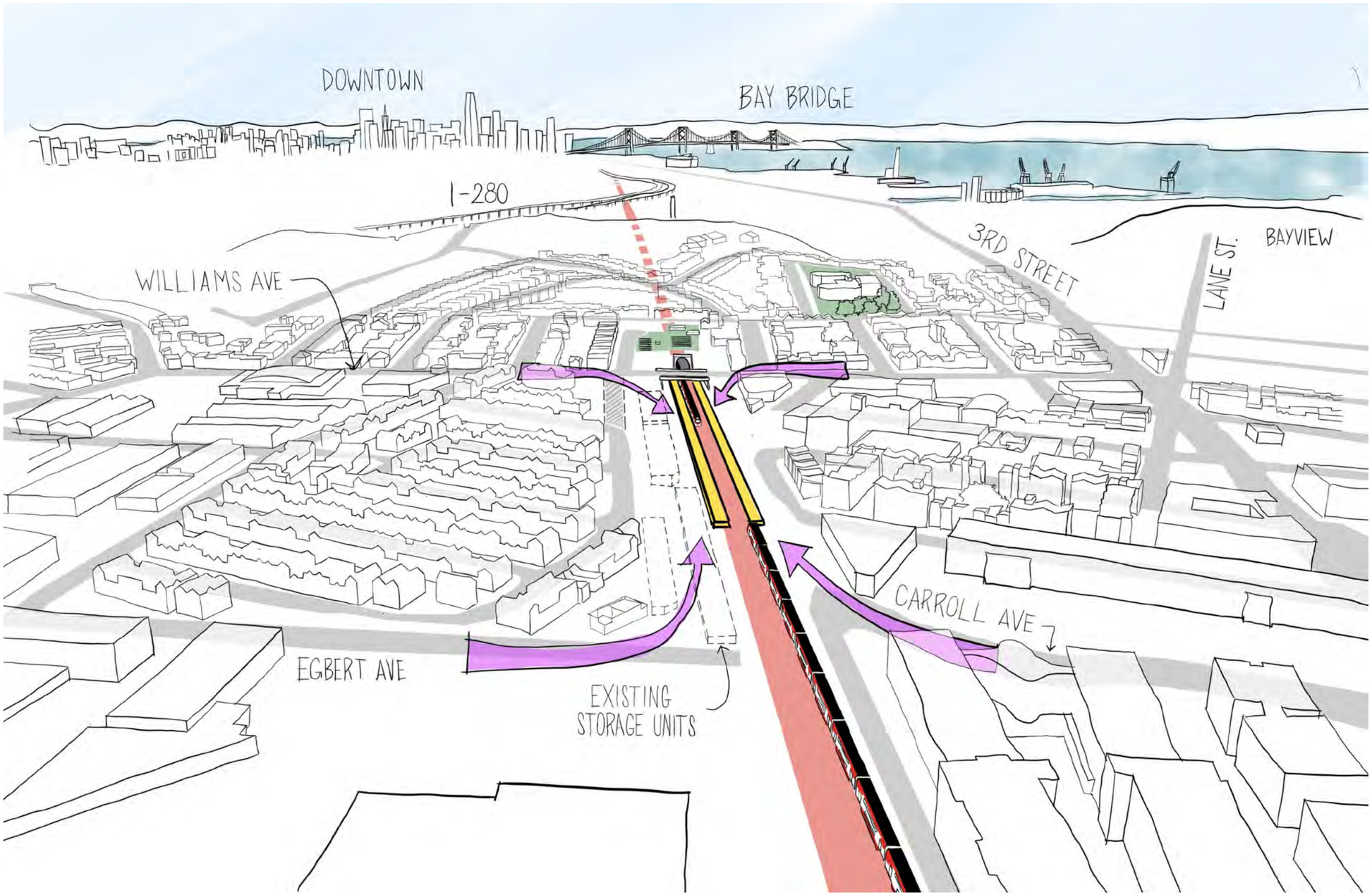
Network connectivity scores are based on WalkScore.com relative rankings.

*Future employment estimate from SF-CHAMP.

**Costs Ranges: $ = Less than $150 Million, $$ = $150 Million to $500 Million, $$$ = More than $1 Billion. Cost estimates are independent of PAX tunnel costs.

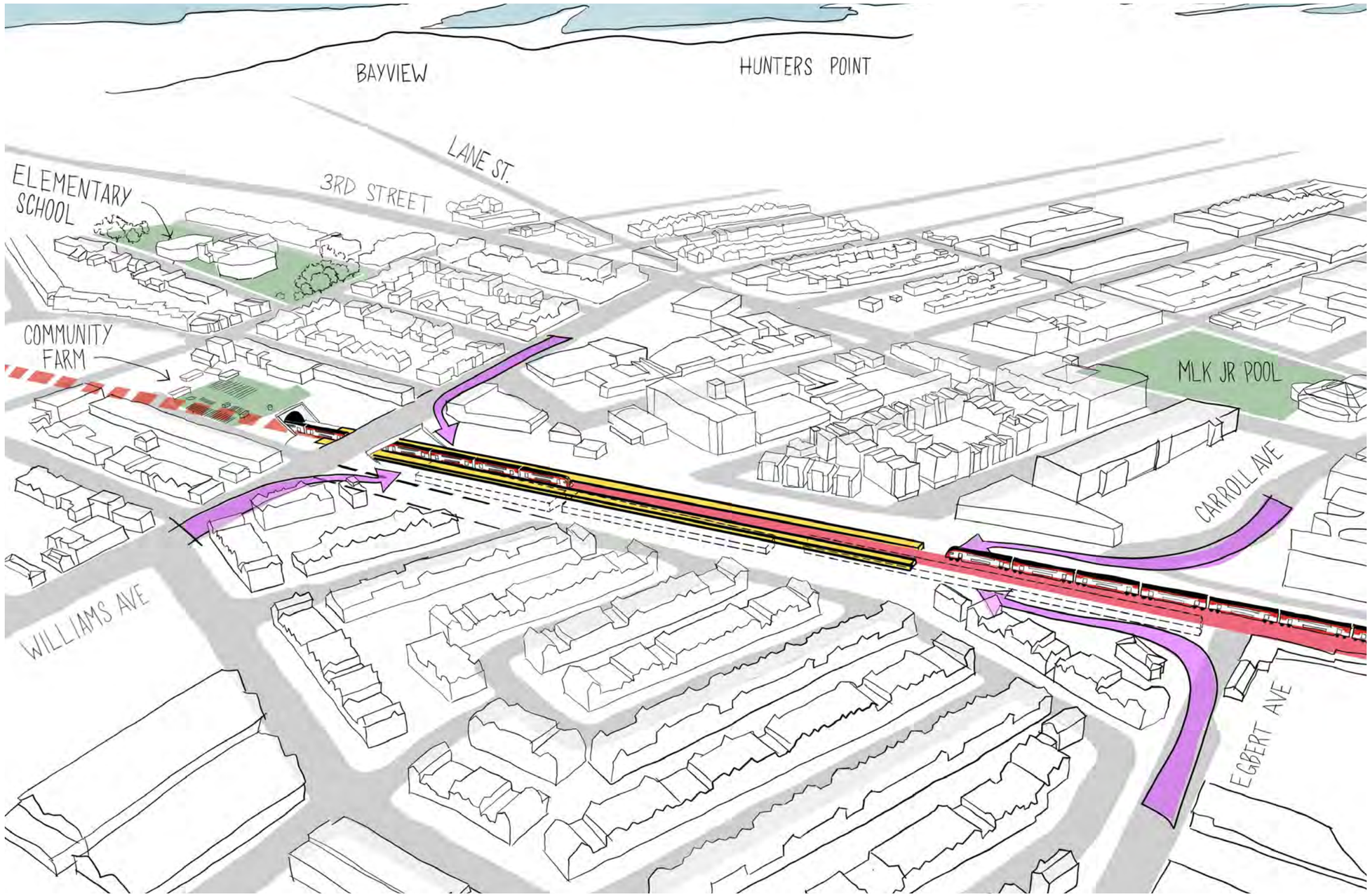
WILLIAMS AVENUE STATION

Looking Northeast



LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route



WILLIAMS AVENUE STATION

Looking East

LEGEND

- At Grade
- Tunnel
- At Grade Station
- Tunnel Station
- Station Access Route

ENGAGEMENT SUMMARY

When the Southeast Rail Station Study commenced in March 2020, COVID-19 was just beginning and community outreach was deferred to a later phase in hopes of improved public health circumstances. As the study was drawing to a close in summer 2021, the decision was made to move ahead with public outreach with the acknowledgment that it would need to be conducted virtually. The study team aimed to build off prior outreach conducted by the ConnectSF long-range transportation planning study as well as the Bayview Community Based Transportation Plan.

Outreach and engagement activities were split into three stages: Round 1 Workshops, Round 2 Workshops, and Community Group Meetings. A project web page, email, and voicemail were created prior to the first round of workshops. Around 20 individuals reached out to voice opinions or request more information or clarifications using the project email. Fewer than 10 voicemails were received, with most being a request for more information.

PROJECT OUTREACH

Outreach preceded each phase of engagement and covered a geographic area from Mission Bay in the north to the southern edge of the Bayview Hunters Point neighborhood and as far west as the Mission. Given the historical inequities in the eastern part of the city, the project team more heavily targeted outreach to the Bayview Hunters Point area. Most of the outreach efforts were completed by the project team, but some outreach was funneled through local community-based organizations who were offered a $250 stipend for sharing the project information through social media or by posting the outreach materials. The following organizations agreed to help distribute project information: WalkSF, Livable City, Potrero Hill Boosters, The Landing, Green Benefit District, Southeast Community Facility Commission, and the Potrero-Dogpatch Neighborhood Association. Digital ads were placed with the San Francisco Bayview and the Potrero View. The SF Examiner independently covered the project.

The project team developed two types of collateral using a diagram of the proposed station locations, door hangers and posters. In the weeks leading up to the Round 1 workshops in early October and the Round 2 Workshops in early November the following activities were conducted:

- Approximately 2,500 door hangers were distributed in the Mission District, Potrero Hill, Portola, Visitacion Valley, and the Bayview. The door hangers were distributed to residential locations and used as a flyer for intercept outreach.
- Over 250 posters were placed along main corridors with high foot traffic: along 24th Street and Mission Street near the BART station, on Bayshore from Silver Avenue to Mansell Street, Third Street from Key Avenue to 16th Street, Evans Avenue from Third Street to Hunters Point Boulevard, 16th Street from Valencia Street to Mississippi Street and 18th Street from Arkansas Street to Pennsylvania Street.
- Posters and door hangers were also dropped off at key locations, including but not limited to: elementary schools, public housing units, food banks, and hospitals.
- The poster included tear-offs with a phone number so that people could request an information packet be mailed.
- Seven requests for hard copies of the meeting materials were responded to.
- Nine hours of intercept outreach were conducted at the 22nd Street Station.
- Social media posts (Nextdoor, Facebook and Twitter) were made to promote the workshops.

SF Planning Project Web-page: https://sfplanning.org/project/southeast-rail-station-study
Project Email: CPC.SERSS@sfgov.org

VIRTUAL WORKSHOPS

Each of the two virtual workshops included a presentation from the project team followed by time for audience questions. Each round's workshop was offered on two separate dates and times to expand opportunities for participation. All workshop materials were prepared in English, Spanish, and Cantonese, and recordings of the presentation in all three languages are available on the project web page. The Southeast Rail Station Study Core Team, including SF Planning, SFMTA, SFCTA, and Caltrain were involved in planning, coordinating, and hosting both rounds of workshops.

	Round 1 Workshop	Round 2 Workshop
Dates and Times	Thursday, October 7th at 6PM Saturday, October 9th at 12PM	Thursday, November 4th at 6PM Saturday, November 6th at 12 PM
Number of Attendees	35	50
Workshop Goals	– Ensure the public's general understanding of the project – Provide context and explain the connection between the Southeast Rail Station Study and other rail efforts in SF – Answer general questions about the project – Obtain public feedback on analysis and alternatives / allow stakeholders to hear directly from each other – Ask about priorities for possible station sites (for example, regional connectivity or economic vitalization) – Take a temperature check on public's appetite for these projects – Promote second workshop	– Ensure the public's general understanding of the project – Share station option pros and cons discovered through engineering feasibility, land use, demographic, and network analysis – Collect community feedback on the station alternatives and allow attendees to hear each other's feedback – Answer questions about the project

AGENCY BOARDS, COMMITTEES, AND COMMUNITY GROUP PRESENTATIONS

The third stage evolved more organically as community groups expressed interest in the project. Ultimately, the Southeast Rail Station Study team coordinated with 15 community groups, most often joining the community group's regularly scheduled meetings.

Date	Organization	General Feedback
10/20/21	Caltrain CAC	broadly supportive
10/21/21	SF Planning Commission	broadly supportive, questions about how outreach is reaching the Bayview and a request to represent upcoming development projects on a map along with the station alternatives
10/26/2021	SFCTA Board	supportive comment for a new Bayview station from D10
10/26/2021	Potrero Boosters	strong interest in maintaining 22nd Street Station at its current location, some interest in Mariposa, lack of interest in Cesar Chavez, concerns about safety, transit reliability, and construction impacts of PAX
10/27/2021	SFCTA CAC	broadly supportive
11/2/2021	UCSF Staff	received a follow-up email requesting to be kept informed, and noting past investments in the Green Benefits District that improved existing 22nd Street Station
11/8/2021	Friends of Caltrain, SF Transit Riders and Streets for People	broadly supportive, questions about why not both Mariposa and Cesar Chavez
11/9/2021	Dogpatch Neighborhood Association	broadly supportive, concerns about Cesar Chavez alternative, questions about increased train service, safety and ADA access at the existing station
11/17/2021	Southeast Community Facility Commission	concerns about the level of outreach and participation in the Bayview, desire to see a concept sketch for Evans, and interest in understanding how community input would be weighted in selecting the station site
12/9/2021	City College of San Francisco Board of Trustees	request to add CCSF facilities to the project graphics
12/11/2021	Florence Fang Community Farm	interest in a station but not at Williams due to potential impacts to the farm, some Caltrain riders shared that they drive to Millbrae as there is abundant parking there
1/5/2022 2/2/2022	Bayview Hunters Point CAC	concerns about breadth and depth of outreach to the Bayview community, interest in submitting a position letter, strong support for Oakdale and discussion about Evans
2/14/2022 5/9/2022	Hunters Point Shipyard CAC	concern about timing of outreach to CAC, support for Evans given the proximity to the Southeast Community Center, request for draft plan, and concern about lack of Bayview community representation on consultant team
5/12/2022 June 2022	SF Planning Commission	TBD
June 9, 2022	Bayview Community Public Meeting including CACs	TBD

FEEDBACK ON STATION OPTIONS

Community members and stakeholders were united in their support for regional rail service and station access in southeast San Francisco. There was support from each of the distinct communities – Dogpatch/Potrero and Bayview/Hunters Point – for a station of their own. The summaries below capture comments shared through in-person, online, and community group venues, and represent the latest feedback in a multi-decade planning process. A detailed record of feedback can be found in the Appendix.

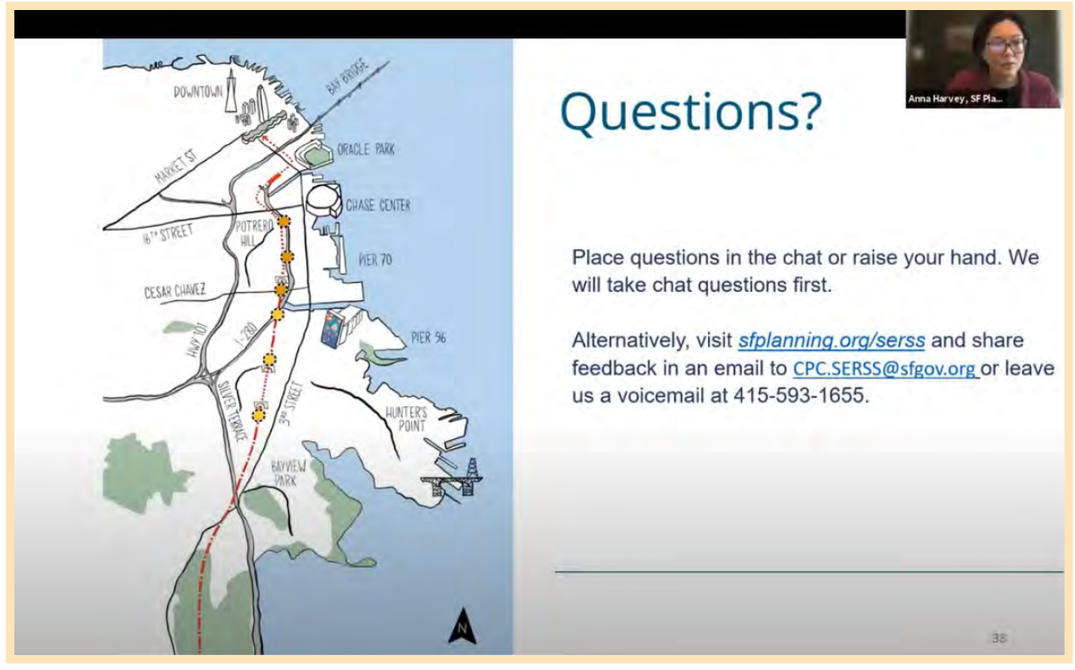
DOGPATCH/POTRERO OPTIONS

Most commenters expressed interest in retaining a station in the vicinity of the existing 22nd Street station. Some commenters were intrigued by the Mariposa option, however, and noted the proximity to Mission Bay jobs, event centers, and 16th Street transit as positives. Cesar Chavez was the most criticized option and was not favored by many commenters due to the auto-oriented nature of the street network and the distance from residential and employment hubs. In addition to feedback on the station options, many community members expressed interest in speeding up the timeline for nearer-term accessibility upgrades to the existing 22nd Street station.

BAYVIEW/HUNTERS POINT OPTIONS

Community members expressed a mix of appreciation that a station might be moving forward and frustration that the community has been without a station since 2005 with little progress to show after many prior station studies.

There was no consensus on a preferred station option. Oakdale received the most direct support from a range of community members as a central place in the Bayview with strong connectivity to the rest of the neighborhood and potential to repurpose the Southeast Community Facility site on Oakdale Avenue as a transit-oriented community space. Both Oakdale Avenue and Evans Avenue have been the subject of prior station studies although Oakdale has been the focus in recent decades and has the full support of the Bayview Hunters Point CAC. The Evans Avenue location received support from the Hunters Point Shipyard CAC since Evans Avenue is one of the primary routes into and out of the future Hunters Point Shipyard development. Early in the process, the Williams Avenue option was flagged by the Florence Fang Community Farm as a possible negative impact to their property. Although the station design would not directly touch the property, the Farm's leaders expressed concern about development pressure and many community organizations and individuals reinforced the Farm's concerns about the Williams Avenue option.



NEXT STEPS

Constructing stations in the Bayview and Dogpatch/Portrero neighborhoods will require a series of activities which can begin immediately. This section provides an overview of some of the key steps for successful implementation.

COORDINATION WITH CALTRAIN & FREIGHT OPERATOR

Caltrain and San Francisco are key partners in the location and design of new station facilities in the Dogpatch/Portrero and Bayview communities. This includes coordination on station design parameters in the context of both current and planned rail operations when electrified rail service is available in late 2024. Key issues to be considered in the next phase of work include the design of key station elements to accommodate all trains, service planning, and the ability to maintain passenger rail operations during construction.

Union Pacific currently operates freight trains along the Caltrain corridor, mostly at night when passenger rail traffic is limited. Freight spur tracks that provide access to local industries and Pier 96, are located at the Evans, Oakdale, and Williams station sites. Key issues to be coordinated with Union Pacific include the future need for these spur tracks as well as right-of-way considerations related to both design of the station platforms and access facilities.

DOGPATCH/POTRERO NEXT STEPS

Station alternatives in the Dogpatch/Potrero community were developed to pair with PAX tunnel alignment alternatives at approximately Mariposa Street, 22nd Street, and Cesar Chavez Street.

IMPLEMENTATION TIMEFRAME

The DTX tunnel, just north of the PAX tunnel segment, was environmentally cleared in 2019 and construction is expected to begin in approximately 2025. Rail operations within the DTX tunnel are expected to begin in the early 2030s. The PAX tunnel segment and station would be several years behind the DTX tunnel. The next stage of work will involve additional focused design and coordination efforts that will identify the most feasible PAX alignments that will proceed into environmental studies.

The PAX Project Initiation Report, which documents the development and preliminary screening of tunnel alignment alternatives conducted in 2021, will be completed by SFCTA in early 2022. The PAX concept planning study identifies three shortlisted alignments including a long alignment, a mid-length alignment, and a short alignment with split tunnels. The next phase of PAX work will consist of a follow-up technical study to further investigate PAX alternatives and recommend the approach to advancing the project into environmental review.

FUNDING OPPORTUNITIES

Construction of a modified version of the current 22nd Street station or a new replacement station would occur in conjunction with the PAX tunnel project. During future stages of planning and development for the PAX tunnel project, a funding plan will be prepared, and the process will be structured to reflect grant program requirements. As an example, pursuit of federal grant funds would require that a NEPA environmental assessment be completed in conjunction with a state CEQA environmental assessment.

Major rail subway projects such as PAX are typically funded by a package of federal, state, regional, and local sources. The New Starts element of the Federal Transit Administration's (FTA) Fixed Guideway Capital Investment Grant (CIG) Program is the largest federal transit funding program that could be applicable to the PAX tunnel project. The recent Infrastructure Investment and Jobs Act (IIJA) authorizes $3 billion per year in annual appropriations for the CIG program.

A variety of state transportation funding sources may be pursued for the PAX tunnel project. In July 2021, the California State Transportation Agency adopted the Climate Action Plan for Transportation Infrastructure (CAPTI) that commits the state to investing billions of discretionary dollars annually to aggressively combat and adapt to climate change. The first of 10 guiding principles in the plan is "Building toward an integrated, statewide rail and transit network."

Most grant programs require a match with one or more sources of local funds. For the PAX tunnel project, this could include funds from sources such as the local sales tax program and funding associated with the potential development of the 4th and King Railyards and the surrounding area that would be supported by under-grounding the rail line.

Finally, the PAX project is necessary to support increased operations on the rail corridor with the future arrival of High-Speed Rail and the growth of Caltrain service in the future. Capital contributions from one or both of the rail operators could be considered as part of the overall funding strategy.

To chart a clear path forward on funding for major infrastructure projects, the City is currently updating its countywide transportation plan. This plan, known as SFTP2050, is the city's funding blueprint for transportation priorities to move the city towards a sustainable, equitable, and affordable transportation system. The SFTP will support implementation of these projects, along with a new expenditure plan for the existing transportation sales tax, which will help implement SFTP 2050 and include funding for local and regional investments, including projects discussed in this study. It will prioritize $2.4 billion over 30 years, with the majority of funding going to transit consistent with the City's transit first policy.

FUTURE PROJECT DELIVERY ACTIVITIES

The objective of future phases of PAX studies is to narrow the alignment alternatives and ultimately select a single alignment to design and construct. Project impacts and benefits will be evaluated in more detail at the next stage and will be used to focus the scope for future state and federal environmental review of the project.

Stakeholder engagement will also occur at key planning and environmental milestones to gather input on PAX tunnel and station options. Community stakeholders include neighborhood organizations (Potrero Hill, Dogpatch, Central Waterfront, Mission Bay), employers, Caltrain riders, schools, and hospitals. Agency stakeholders include Caltrain, California High-Speed Rail Authority, Caltrans, the Port of San Francisco, and the City .

Key steps in delivering a new Dogpatch/Potrero station include identification of a lead agency, detailed design and engineering, environmental review, acquiring funding, and solidified neighborhood stabilization policies.

DISPLACEMENT CONSIDERATIONS & DEVELOPMENT PIPELINE

Displacement typology maps prepared by the Urban Displacement Project, a research initiative of UC Berkeley and the University of Toronto, provide an indication of gentrification status by census tract. The census tracts surrounding the Dogpatch/Potrero station locations are designated as "Advanced Gentrification" or "Stable/Advanced Exclusive." Advanced Gentrification typology areas are identified as having gentrified over the past three decades and having housing affordable to middle, high, mixed moderate and mixed high-income households. Stable/Advanced Exclusive typology areas are identified as having gentrified over the past two decades and being affordable to high or mixed high-income households. The Community Stabilization initiative is a multi-agency San Francisco effort to mitigate the impacts of ongoing displacement. While most housing in this part of the corridor is considered stable, the displacement potential of a new or rebuilt station should be considered when designs are advanced for a Dogpatch/Potrero station.

Development is booming along the PAX corridor. Small and medium residential projects dominate on Potrero Hill west of the corridor and much larger projects are in the pipeline east of the corridor. The Dogpatch projects between Mariposa Street and 22nd Street are residential and mixed-use while the projects between 22nd Street and Cesar Chavez are primarily light industrial and warehousing. The development pipeline is visualized in Appendix I.

BAYVIEW NEXT STEPS

Station alternatives in the Bayview community were identified at approximately Evans Avenue, Oakdale Avenue, and Williams Avenue.

IMPLEMENTATION TIMEFRAME

It is anticipated that SFCTA will advance design and prepare for environmental clearance activities over the next 12-18 months. These steps can begin upon completion of this study although schedule will be impacted by the ability to select a preferred station. SFCTA is committed to seeing it through to completion.

FUNDING OPPORTUNITIES

Funding for a Bayview rail station would likely come from a mix of federal, state, regional, and local programs. As a standalone rail station project, the project would not qualify for New Starts funds but would be a strong candidate for other federal sources including the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) discretionary grants program. The Justice40 Initiative launched by the Biden Administration aims to deliver 40 percent of the overall benefits of federal investments in climate and sustainable transportation to disadvantaged communities such as the Bayview. The state has made similar commitments to set aside substantial portions of future grant allocations to benefit disadvantaged communities.

As discussed on the previous page, the City is currently updating its countywide transportation plan, SFTP2050. The SFTP will support implementation of the southeast rail station projects, along with a new expenditure plan for the existing transportation sales tax. Local transportation funding sources are critical for local match for funds from regional, state, and federal sources like the federal Infrastructure Investment and Jobs Act (IIJA) that passed in 2021.

FUTURE PROJECT DELIVERY ACTIVITIES

Regardless of where the station is located, design challenges include active freight spur tracks, providing pedestrian access to the grade-separated platforms, and multimodal access with possible adjustments to the Muni bus network, truck routes, and active transportation corridors. As an example, Evans Avenue is proposed to accept truck traffic diverted from Third Street as part of a freight circulation plan. This diversion would need to be rethought in the event that the City moves forward with the Evans Avenue station option. The City is currently advancing the Quint Street Connector Road Project, which will restore a connectivity gap lost with the replacement of the seismically deficient Quint Street Bridge with a berm in 2016. The Connector Road Project, which is immediately west of the Oakdale Station option, is being designed to be compatible with and support a potential station. Key steps in delivering a new Bayview station include confirmation of a lead agency, detailed design and engineering, environmental review, acquiring funding, and solidified neighborhood stabilization policies.

DISPLACEMENT CONSIDERATIONS & DEVELOPMENT PIPELINE

Displacement typology maps prepared by the Urban Displacement Project, a research initiative of UC Berkeley and the University of Toronto, provide an indication of gentrification status by census tract. The census tracts surrounding the Bayview station locations are designated as “Low-Income/Susceptible to Displacement”. These low or mixed low-income tracts are at the highest risk of gentrification. Anti-displacement strategies specific to the Bayview community should be developed and funded in conjunction with the station project improvements to address gentrification risks. The Community Stabilization initiative is a multi-agency San Francisco effort to mitigate the impacts of ongoing displacement. The Community Stabilization Report (May 2020) describes key priorities, potential City programs and policies, and next steps. The report sets the stage for a scoping process to determine the feasibility, level of impact, and opportunities to increase community stabilization through a combination of programs and policies.

The existing development pipeline includes a couple medium to large light industrial projects around Evans, many small residential projects clustered between Oakdale and Williams, a handful of medium non-residential projects south of Williams, and a mix of small to medium projects stretching out to Hunters Point. Hunters Point itself is one of the city’s largest pipeline projects in decades and will introduce nearly ten thousand new residential units into a mixed-use neighborhood.