South Basin Ferry Terminal Design Project

DESIGN REVIEW SUBMITTAL

Prepared for the Water Emergency Transportation Authority and the Port of San Francisco by ROMA Design Group in association with Moffatt & Nichol and associated consultants

Joint Review on May 11, 2015 by the Port of San Francisco Waterfront Design Advisory Committee (WDAC)
and the San Francisco Bay Conservation and Development Commission's Design Review Board (DRB)

SOUTH BASIN DESIGN PROJECT
SAN FRANCISCO DOWNTOWN FERRY TERMINAL

INTRODUCTION

The last time we met with the Port WDAC and BCDC DRB, on June 6, 2011, we presented the update to the Master Plan for the Downtown Ferry Terminal Expansion Project Plan which provides for one additional gate, Gate A for North Basin and two additional gates, Gates F and G in the South Basin. The 2011 meeting addressed optional treatments for the public spaces associated with the ferry terminal expansion as well as potential improvements of the Ferry Plaza where the Golden Gate terminal is located on the bayside of the Ferry Building. At that meeting, the input of the WDAC and DRB was duly noted and taken into account in finalizing the Design Concept Plan as was the input gained from a number of stakeholders with interest in the future of the area.

Since the meeting in 2011, it was determined by the Port and WETA that the improvements that WETA would be undertaking would only be those associated with the ferry terminal expansion. The Ferry Plaza improvements were determined to be best addressed by the Port directly and its respective lessees including BART, Golden Gate Ferries, Equity Office Partners (EOP) and the Ferry Plaza Limited Partners (FPLP). In addition, it was agreed that the Port would be responsible for demolishing Pier ½, which has already been undertaken, and will soon demolish the Sinbad's building, which was formerly the construction shed when the BART platform was built. Also since our meeting, the Design Concept Plan was completed in 2012 and environmental documentation was completed and certified and permitting has been initiated with all of the federal regulatory agencies and the Port as well as BCDC. Subsequent to the completion of the Master Plan and certification of the EIS/EIR, WETA made the decision to advance construction of the South Basin and to defer the construction of Gate A until a future point in time.

THE SOUTH BASIN PROJECT

The South Basin includes the construction of two new terminals - Gates F and G – as well as the reconstruction of the existing terminal at Gate E. The project also includes the extension and expansion of the East Bayside Promenade for public access and the construction of a new plaza generally in the approximately 12,000 square foot lagoon area between the Ferry Building and Agriculture Building. To build the proposed improvements requires the demolition of Pier 2, the platform that supports Sinbad's and its associated parking. The project will retain the landside construction of Gate E that was undertaken previously by the Port. It also retains not only the Agriculture Building but also the pile-supported platform that was built in conjunction with it on the north, east and south sides. The Agriculture Building is not a part of the project, but consideration is given to ensure that the opportunity to preserve and adaptively reuse the building in the future is maintained. The South Bayside Promenade is also not a part of this project, but is shown on our graphics to indicate that our project takes into consideration how it might be implemented by the Port in cooperation with the leasehold interests of the Ferry Building area.

The first phase of the ferry terminals, promenades and public access areas that were funded and built after the Loma Prieta earthquake were designed to meet not only the functional requirements of ferry service but also to contribute to the redevelopment opportunities of the Ferry Building. Similarly, today, the improvements to the South Basin for the ferry terminal are designed not only for expanded and improved ferry service and emergency response, but also to create a multiplier effect for the potential future public and private investment into the historic Agriculture Building.

UPDATES AND REFINEMENTS

Since the initiation of the Design Concept Plan for the South Basin area, we have undertaken certain refinements related to layout and grading, based not only on comments previously received from the WDAC and DRB but also on new information related to sea level rise, storm water management and the performance of the existing seawall in a major seismic event. In addition, we have also refined the concept for how queuing, waiting and the public access opportunities along the edge could be enhanced by a canopy structure that unifies the terminals but that is less extensive than previously anticipated.

The size, configuration and design of the marine terminals (that is, the floats and gangways) that were built in Phase 1 for Gates A and E would be the basis of the design for the new facilities as well. The goal of WETA is to utilize standardized elements that can be relocated for servicing and/or replacement and that provide a consistent vocabulary for the berthing facilities. Minor modifications would be made in response to new vessel requirements, freeboard ranges and Clipper card ticketing. In addition, the design of the portal gates will also be maintained, because they have worked well in establishing an identity for the ferry terminals.

The updated design plan provides for the 2070 sea level rise for the 50-year life of the facility, which has been determined to be 14.5 NAVD88, or approximately 3 feet above the estimated total water level in this area of 11.5. In addition, it provides for a 44-foot extension from the promenade to the gates to create a better transition for boarding and arriving. This transition is basically the same dimension that exists today at Gate E and that would be truncated as the proposed promenade is extended eastward to create continuity with the promenade on the east side of the Ferry Building. This extension is also needed to provide adequate length at an acceptable accessible slope to adapt the ferry terminals in consideration of future sea level rise.

The concept of the plaza has been refined to respond to BCDC's requirement to build the public access areas in conformance with sea level rise projections. The geometry of the plaza has also been more closely shaped in response to the need to accommodate movement in the seawall during a major seismic event. The elevation and geometry of the plaza also creates a dynamic juxtaposition with the surrounding area and creates interesting new opportunities for amphitheater-like seating on the west and north edges of the plaza. It also clearly establishes the plaza as a staying area and a well defined gathering space, separated from adjacent vehicular movement areas.

The updated plan has also refined the approach being taken to stormwater management. Previously, consideration had been given to the use of bioretention flow through planters, located on the bayside of the promenade deck. However, concerns were raised regarding filling of the bay and the need to identify alternative upland locations. At the same time, the elevation and depth of the planters required for storm water management would preclude their effectiveness as sea level rise takes place and concerns for accumulation of trash and birds in the planters were also expressed. Therefore, a multi-pronged approach to stormwater management has been advanced in consideration of the constraints of the setting, the sources of pollutants and the long-term sustainability and effectiveness of the solutions. The physical implications of addressing this has resulted in consideration for an elevated curb wall along the edge that would preclude windblown trash from entering the bay, a major source of pollution today. The elevated edge would also allow us to address the adaptive need for additional elevation for future sea level rise, beyond the 2070 design year. The strategy also includes other measures including the elimination of vehicular traffic, the prohibition of smoking in the public spaces, the use of high volume trash containers, like the Big Belly solar compacters being used already in Fisherman's Wharf, the regular maintenance and cleaning of the public spaces with vacuum sweepers and shallow depth media filters.

In the passenger surveys that have been undertaken by WETA over the years, the need for some degree of weather protection at the terminals has been repeatedly expressed as one of the most significant elements affecting the quality of service. Although a need for weather protection is highly desirable, it is not the intention to create a fully protected space that distances the patron from the waterfront environment. In addition, just as there is a self-organizing aspect to queuing and waiting, as the volumes of passengers increase and the range of activities on the waterfront grow, the provision of a shelter can not only give that additional weather protection that is desired, but create a method of organizing queuing and waiting in an orderly fashion and provide for information, signage and even public access systems without creating a lot of clutter. Further, as envisioned, a shelter can also be exemplary of sustainability initiatives that WETA and the Port are interested in demonstrating. Therefore, a canopy has been proposed and was included in the Concept Plan that was environmentally reviewed and cleared for this project. As we are now proceeding to a more detailed design phase, we have further refined how the proposed canopy will be designed and realized.

We are now proposing that the canopy be subdivided into two segments, rather than one continuous length. One segment would be located between Gates E and F and the other between Gates F and G. This approach allows the canopy to still help integrate the three ferry terminals and give a better identity to them while punctuating the gate entrances, creating a greater spatial definition of the edge and more diversity in seating and viewing opportunities. Each canopy is approximately 20 feet wide and 125 feet long and is designed to allow for a 12 foot high clear height with columns at 35 feet on center. The canopy design has been designed to be as slender as possible with all components made out of powder coated metal and/or stainless steel. The roof of the canopy is semi-transparent with photovoltaic cells laminated in glass, similar to the approach that is used at the Academy of Sciences. The canopy will create a dappled shade minimizing the high contrast effect of a shadow. It is intended to provide rain protection when needed, to organize how queuing and waiting would best be accommodated and create a unity to the three terminals while maintaining an inviting place for public access and general use. The canopies would also help to organize other necessary functional elements, such as lighting, signage and a public address system. If necessary over time, they could also suggest how queue lines could be formed to provide an orderly assembly of passengers during peak demand periods. The canopies would also provided a protected space for queuing and waiting, allowing the gangway which has been used recently as a default covered queuing space to no longer be used for this purpose, which would be better for safety and security reasons particularly because of its movement and slope. It is important to note that the queuing and waiting function of the improvements is primarily in the 2 to 2-1/2 hour PM peak period departure time during the week. Retail and general tourist visitation, on the other hand, is greatest during the two-hour mid-day period and the peak use, which is significant, is on Saturday, when the farmer's market is in operation. Because these peaks occur at different times of the day and week, ferry passengers and general pedestrians have a synergistic relationship that together contributes to the overall life and vitality of the area.

ADDITIONAL BACKGROUND INFORMATION

Sea Level Rise

In response to issues related to sea level rise, consideration was first given to the total water level in the South Basin, estimated to be at 11.4 NAVD88 (which is very close to MLLW datum). For the 50-year life span of the ferry terminal facility, or the year 2070, the high end of the mean projected sea level rise is estimated to be approximately 38 inches, based upon the best available science developed by the National Research Council Sea-Level Rise for the Coasts of California. Therefore, by adding 38 inches to the design elevation for the ferry terminals and the related public access areas has been established at 14.5 NAVD88. The mean high end of the projected sea level rise elevation to the year 2100 is 46 inches, which would bring the 100-year elevation to approximately 15.5 NAVD88.

The concept is to build all of the new facilities and to rebuild Gate E at a higher elevation in order to meet the projected 50-year sea level rise of 14.5. Currently, Gate E is at an elevation of around 11.8 and would require a transition slope of less than 5% between the edge of

the BART platform and the future Bayside promenade. The approximate 44-foot length of the entry and arrival transition zone would be adequate to allow for a reasonable slope for future accessibility when this adaptive measure is implemented and this dimension is proposed for the transition zone to all three gates so that they could be adapted to future sea level rise. Coastal engineers, Moffatt & Nichol, have evaluated the implications of this transition zone on wind/wave conditions in the South Basin and do not believe that this further extension would have a significant change on the wind/wave regimen.

An initial analysis was undertaken as to whether the ferry terminal should be built to the 2100 elevation rather than the 2070 elevation, however, in this analysis it was determined that the requirements of the gangway relative to a reasonable tidal range during ferry operations at a 15.5 elevation would significantly limit accessibility requirements established by the Federal Access Board. The 14.5 elevation is a reasonable basis of design because it would enable the project to be capable of meeting both the requirements for sea level rise today and over the future 50 years. However, the project proposes that the curb at the railing be built at a 15.5 elevation around the perimeter. This would provide protection to the area in the event of sea level rise to the year 2100 and at the same time help meet other objectives, including the prevention of windblown trash from entering the bay, which is a major source of pollution. At 15.5, the railing would provide continuous protection to the area, except at the entrance to the gangways, which would need to be raised a foot in the future to meet the 2100 protection. The elevated curb at the railing would also prevent windblown trash from entering the bay.

In consideration of adjacencies, we assume that the podium of the future Agriculture Building, once rehabilitated and elevated, will be at a similar elevation of the plaza at 14.5. In addition, the future elevated plaza will be built bayward of the seawall and provide amphitheater seating along the edge to conform with the existing sidewalk grade of the Embarcadero Promenade at approximately 11-11.5. On the northern edge, it would also transition in a similar manner to the BART platform and its existing 11.5 NAVD88 elevation. On the south side of the plaza, a stair ramp would be constructed to provide accessible access and an appropriate grade transition to the Ag Building, but this stair ramp would be eliminated when the Ag Building is rehab and raised, so that it would directly connect to the plaza. It is important to note that the elevation of the plaza and the Ag Building would be compatible with the potential future seawall elevation between the Ag Building and the Pier 14 breakwater, which, at an approximate elevation of 15 NAVD, would connect in a gentle slope to the Pier 14 access pier.

Ferry Passenger Activities

From the ferry operational stand-point, the South Basin is designated for Central and South Bay ferries and the North Basin for North Bay ferries to minimize cross-over and potential vessel conflicts. Although more specific programming of the terminals will be undertaken, planning to date has assumed that Gate E, which is now used for Alameda, Oakland and Harbor Bay ferries, will be reserved for Treasure Island passengers; Gate F will be for Alameda and Oakland and Gate G will be for Harbor Bay and other ferries as well as visiting vessels. It is assumed that Gate F will be constructed early on in the sequence, allowing Alameda, Oakland and Harbor Bay services to relocate there while Gate E is rebuilt and the gangway and float are taken to a yard for inspection and retrofit.

Recent observations of ferry ridership indicate that only 10% of the riders arrive 15 minutes before the scheduled time; 20% come 10 to 15 minutes before, 40% arrive 5-10 minutes before, and 30% arrive 5 minutes before departure. Since boarding begins 10 minutes before departure, it is generally assumed that close to half of the passengers arrive "just in time" as vessel boarding is taking place.

Generally, it is assumed that waiting passengers require 7-10 square feet for Level of Service C and 3-7 square feet for Level of Service D. Passengers with bicycles require 15 to 20 square feet/person. Although ideally, bicyclists would be boarded first and depart last, today bicyclists and pedestrians are in mixed flow. On most of WETA's vessels today, there are 25 bicycle parking spaces, but on the new 399 passenger vessels, 50 spaces will be provided.

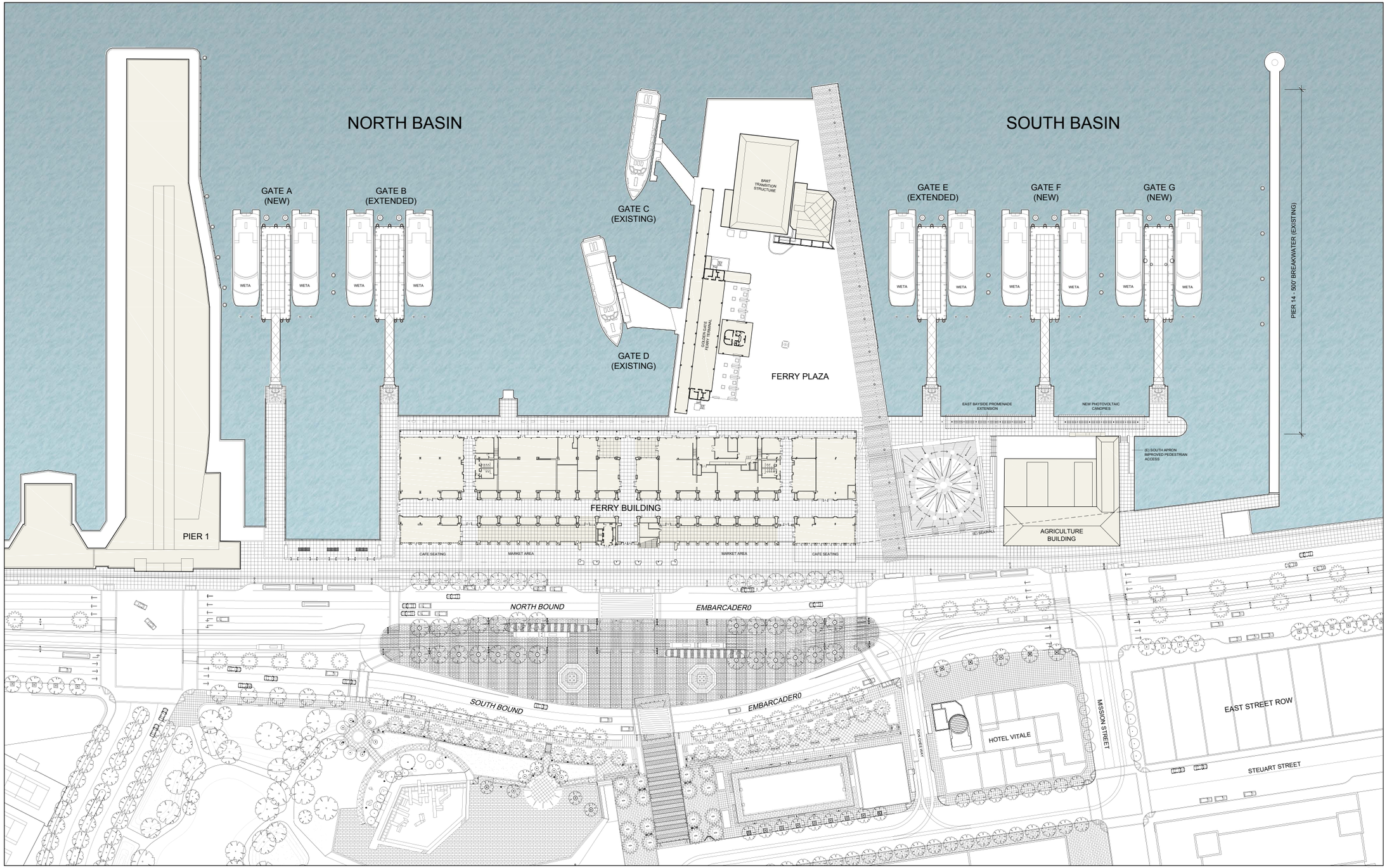
Today, sheltered queuing areas are not provided at the ferry terminals and due to rider requests, the Port security plan allows passengers to queue on the covered gangway ten minutes prior to arrival of the ferries. Much of the queuing, however, is generally a casual, self-organizing process and people line up in single file extending from the ferry terminals on the east generally to the west. The self-organizing process generally works well, but it would be greatly improved if the physical structure of the space gave an indication where best passengers should queue and wait for a ferry. The idea of the provision of a canopied area in close proximity to the ferry terminals would certainly be the kind of improvement that would naturally suggest how the queue could be organized. The advantage of a canopy like this is that it could also be used for signage, a public address system, could provide additional lighting and, if necessary over time, could suggest how queue lines could be formed to provide an orderly assembly of passengers. This would also allow the gangway to no longer be used for queuing, which might be better for safety and security reasons particularly because of its movement and slope.

Assuming a 399-passenger vessel and that 50% of the passengers and bicyclists arrive 10 to 15 minutes before departure, and if we might assume 200 passengers – 175 of which would be pedestrians and 25 bicyclists – then we would need at the high end of the space requirements, 1,750 for 175 pedestrians and 500 for 20 bicyclists for a total of 2,250 square feet. Assuming that we won't be using the gangway for queuing, then a canopy on the landside of approximately 18 by 125 feet would be required.

Since the ferries primarily serve commuter passengers, activities tend to concentrate in the weekdays and during the morning and evening hours. In the mornings, passengers arrive and disperse very quickly and travel – often in platoons – to the north and to the south. The most intense period is the PM peak, which takes place over a two hour period from 4:30 to 7:00 PM, when passengers are departing from work to home. For retail and recreational passengers, the peak takes place over a two hour period around lunchtime, with Saturdays experiencing the highest volumes. Because the peaks are at different times of the day and week, ferry passengers and general pedestrians have a synergistic relationship that together contributes to the overall life and vitality of the area.

LOCAL VICINITY MAP

SOUTH BASIN FERRY TERMINAL DESIGN PROJECT



MASTER PLAN

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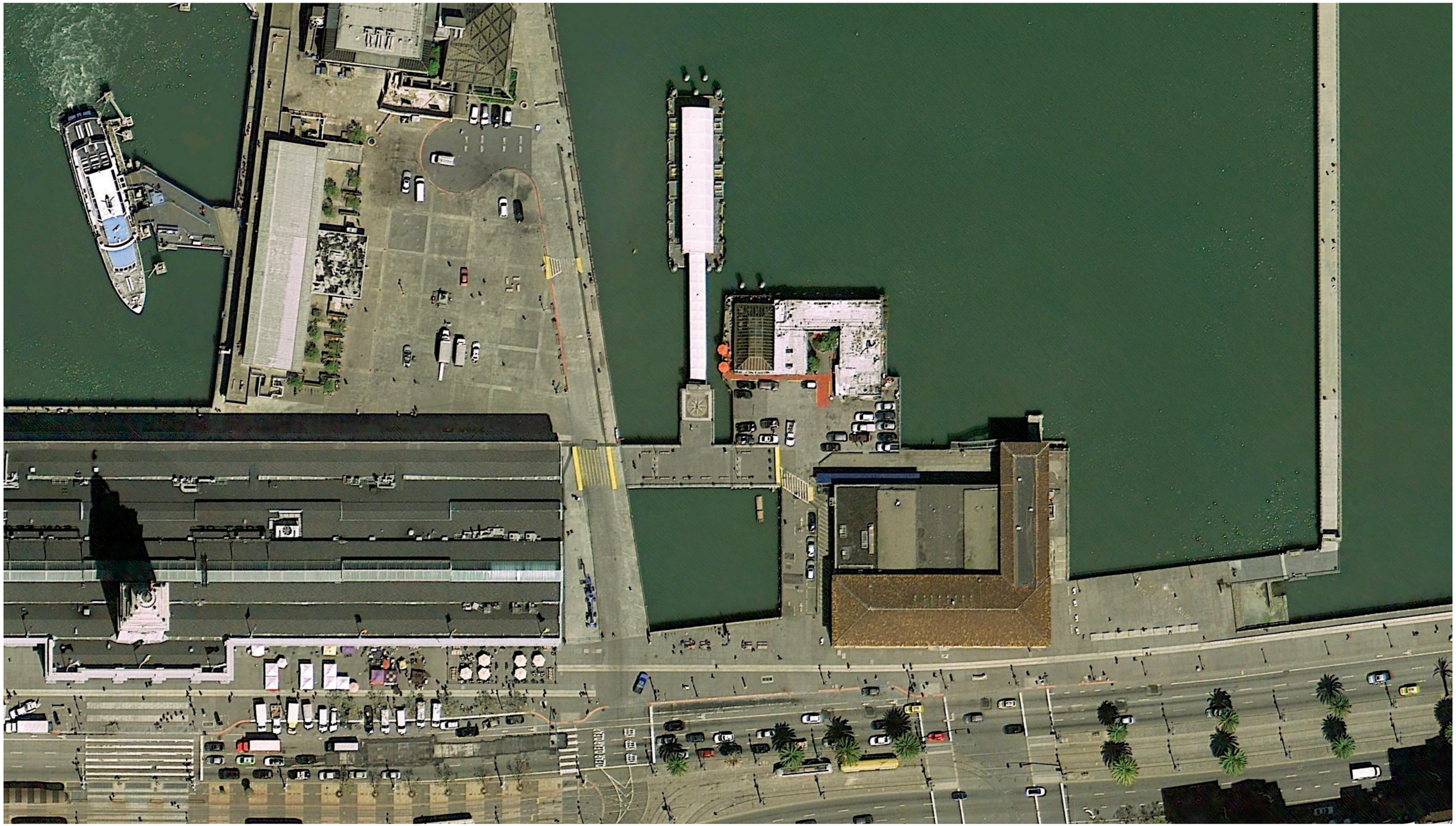

EXISTING CONDITIONS

SOUTH BASIN FERRY TERMINAL DESIGN PROJECT

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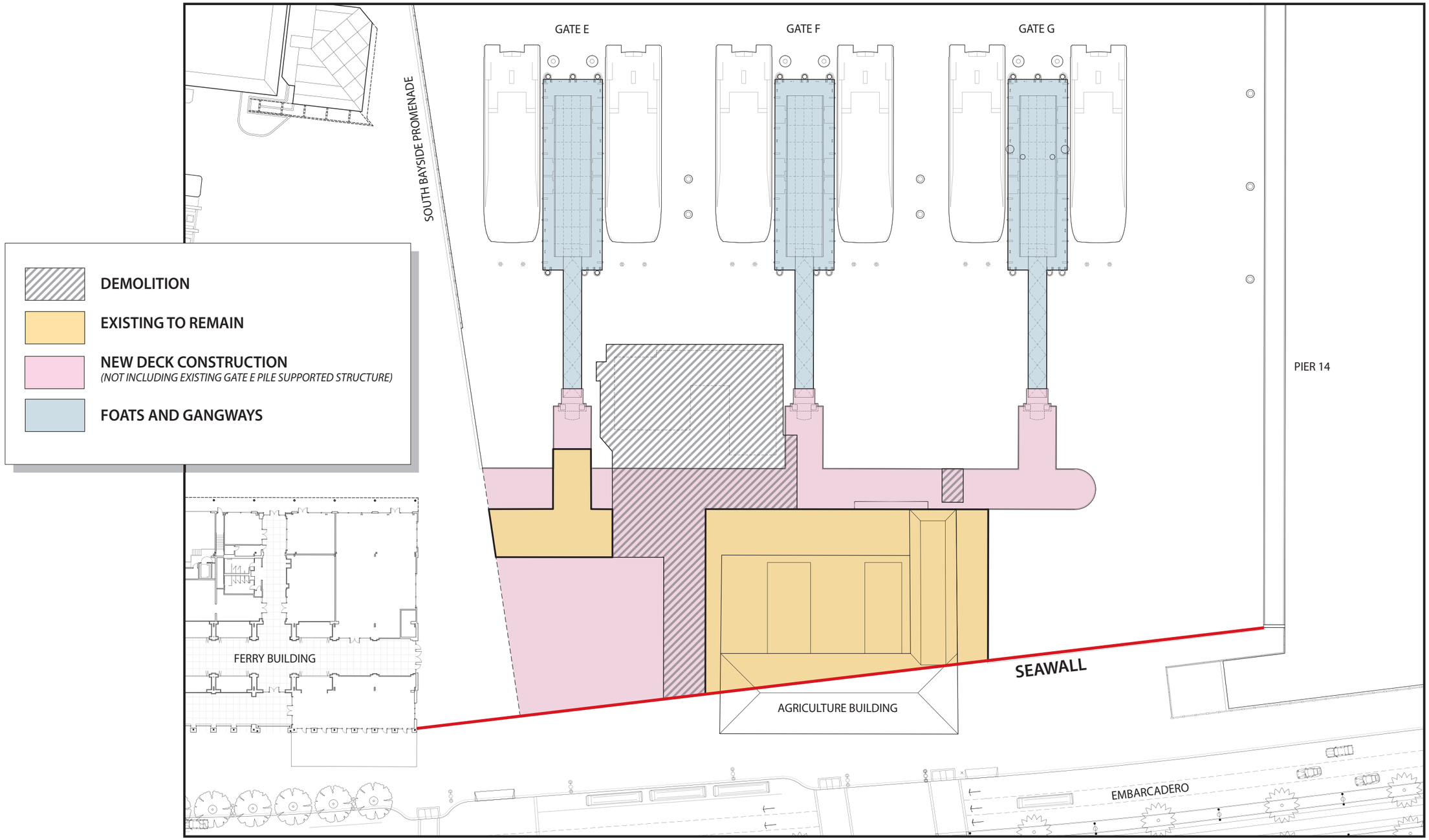
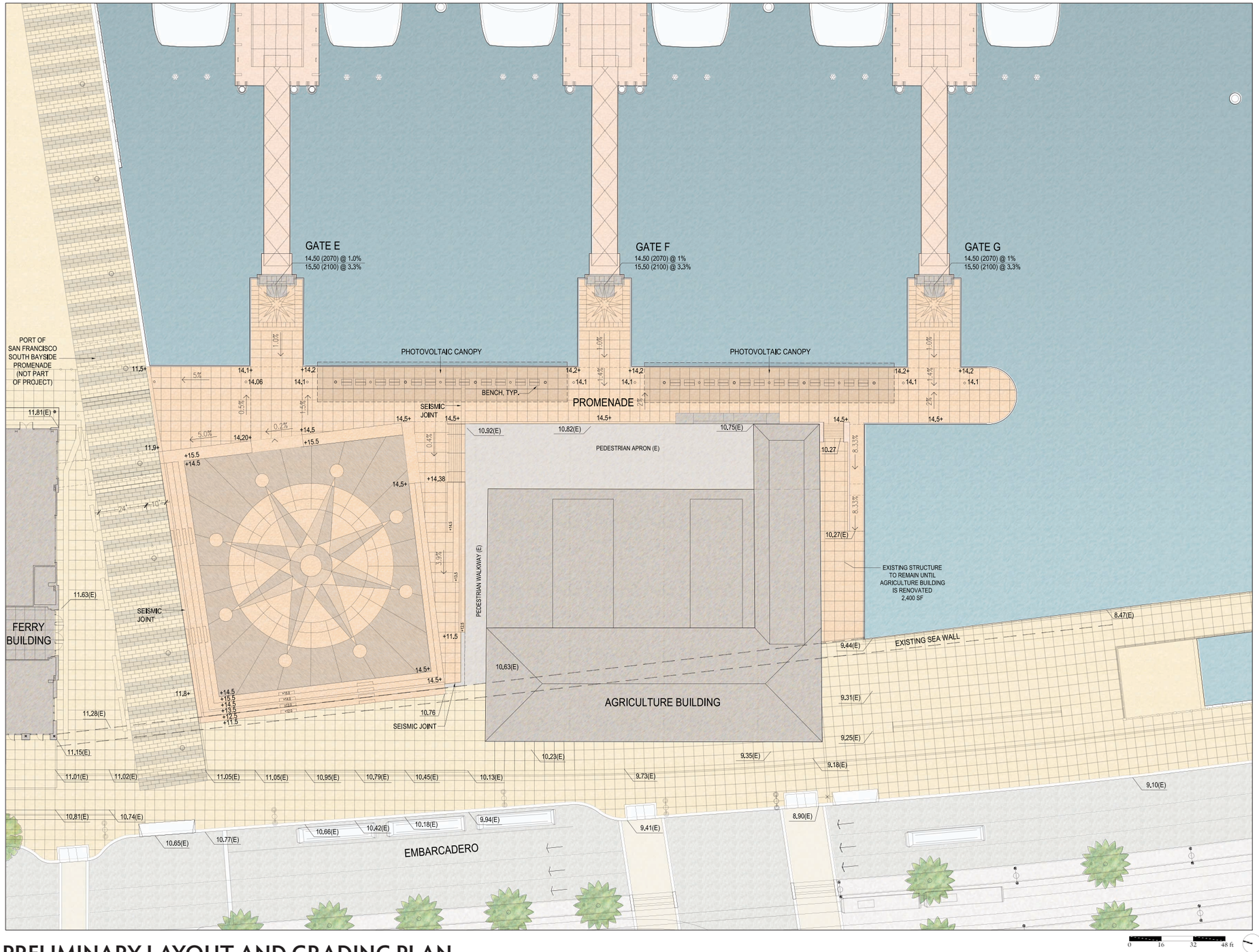
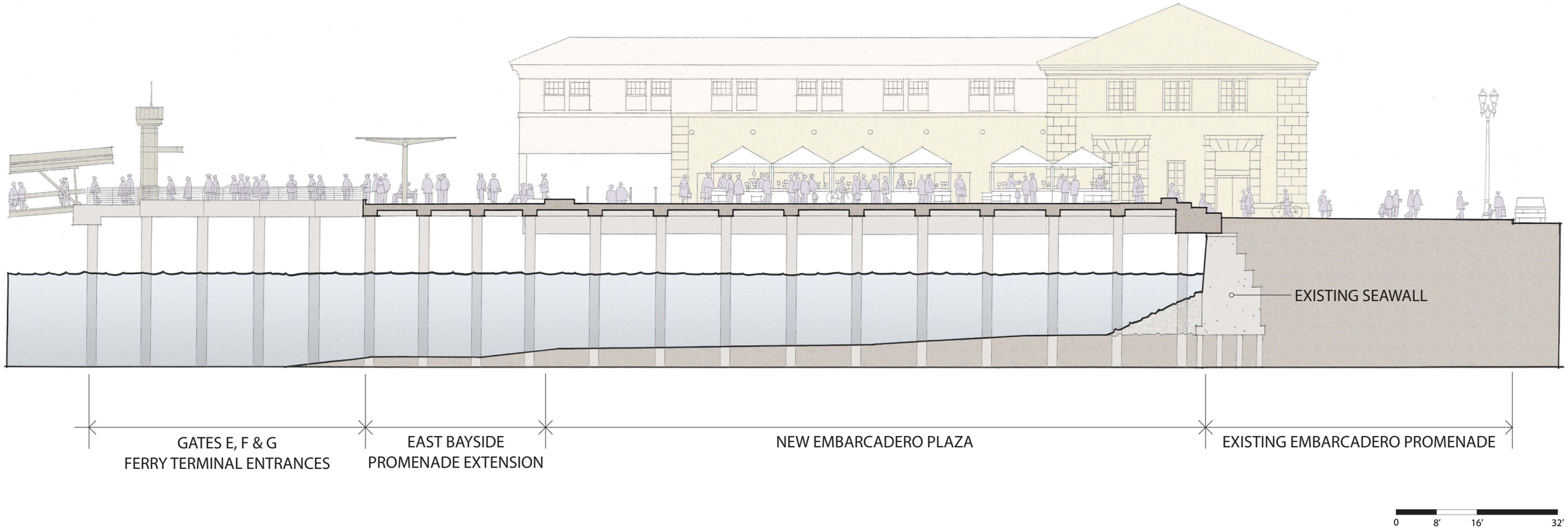


DEMOLITION AND CONSTRUCTION AREAS

SOUTH BASIN FERRY TERMINAL DESIGN PROJECT

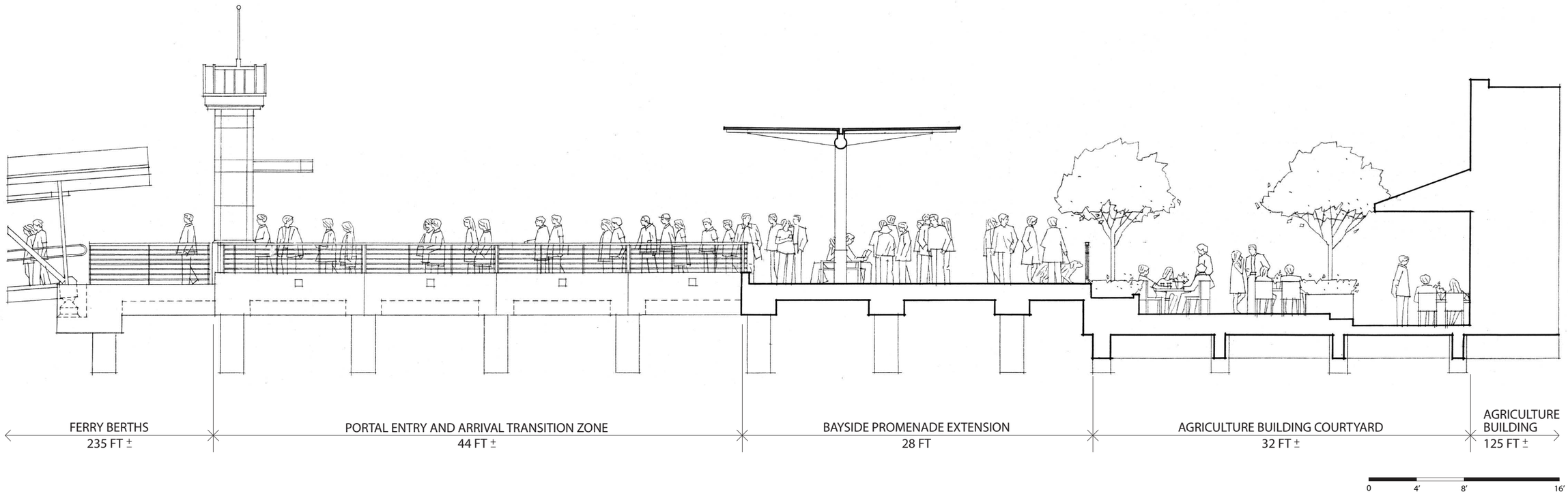


PRELIMINARY LAYOUT AND GRADING PLAN

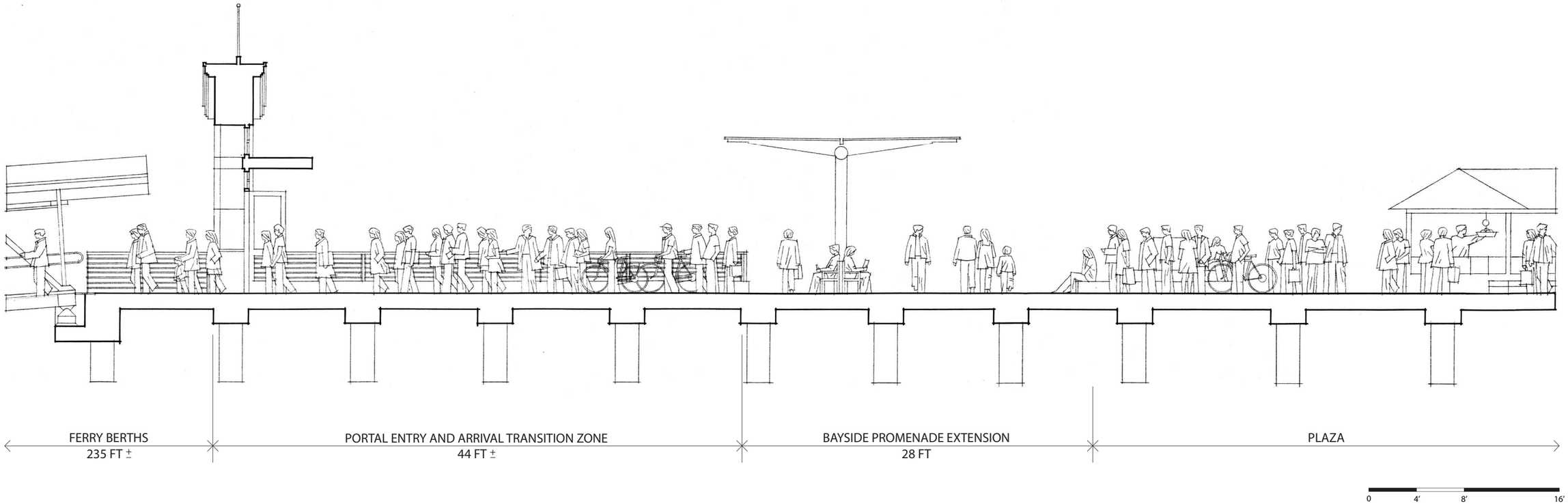


CROSS-SECTION FROM THE BAY TO THE EMBARCADERO

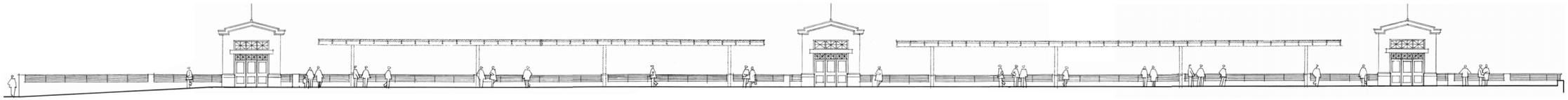
CROSS-SECTION OF PLAZA AT EMBARCADERO EDGE FACING SOUTH TO THE AGRICULTURE BUILDING

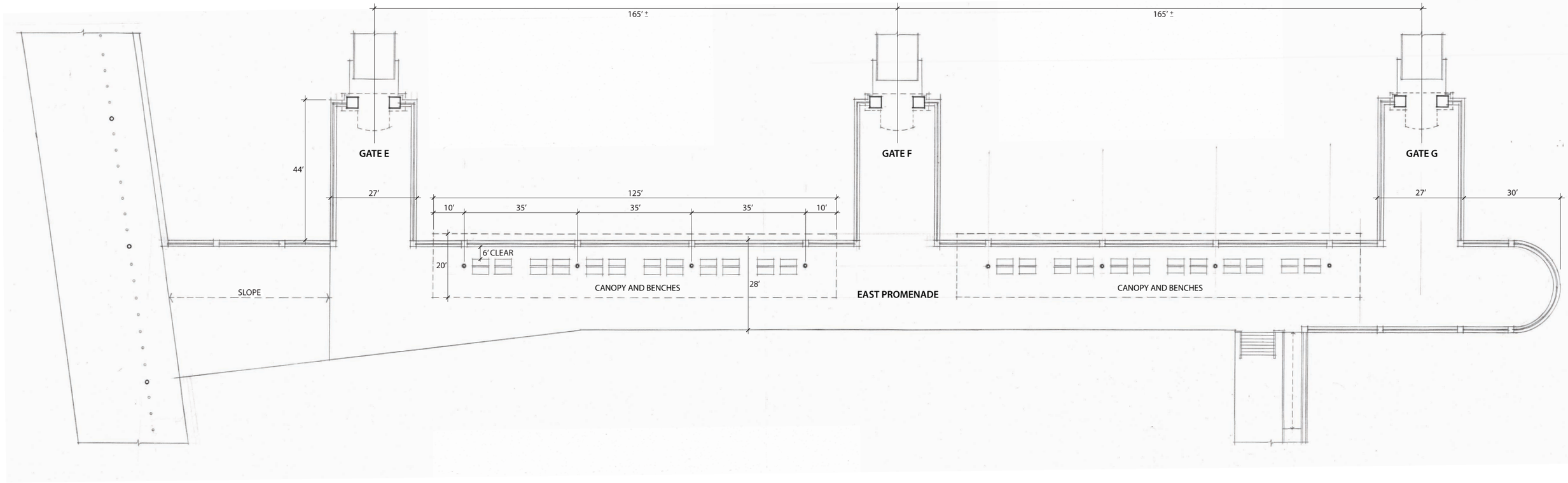


CROSS-SECTION GATE F APPROACH PROMENADE AND AGRICULTURE BUILDING EDGE



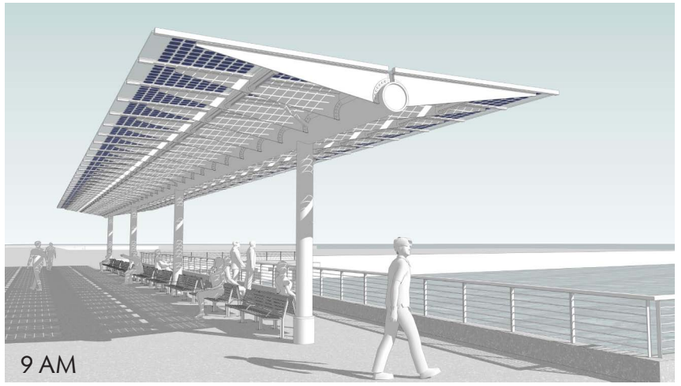
CROSS-SECTION THROUGH GATE E PORTAL APPROACH, PROMENADE AND EDGE OF PLAZA

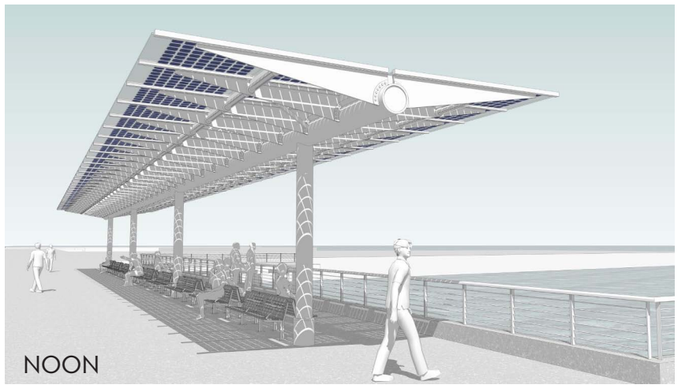


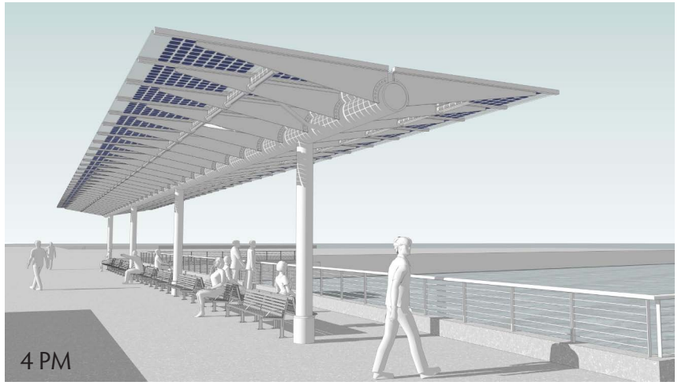


PROMENADE PLAN AND ELEVATION OF GATES E, F & G

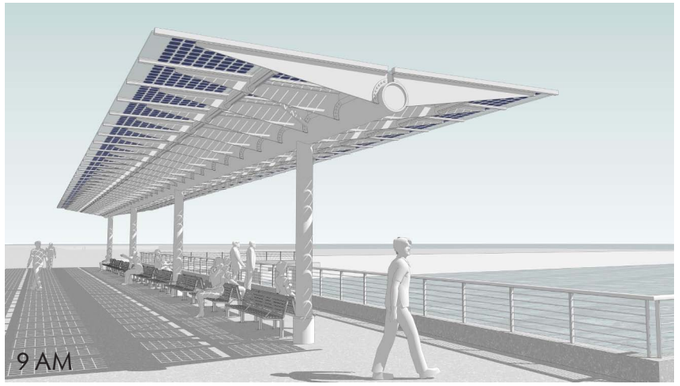
SPRING / FALL

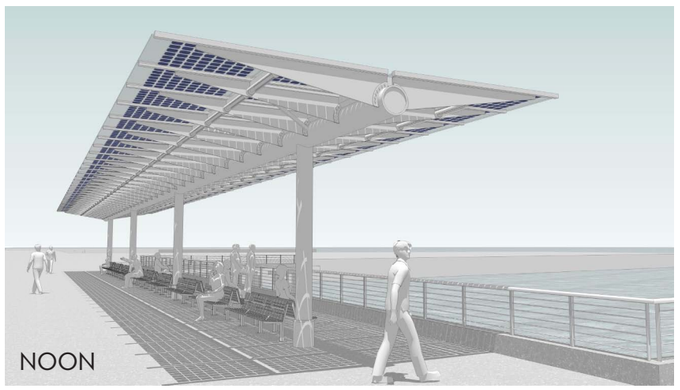


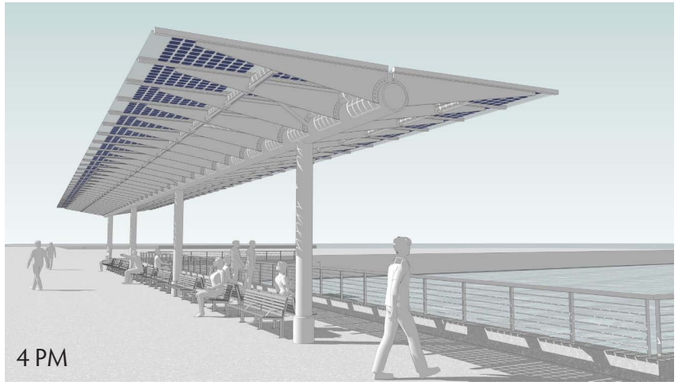




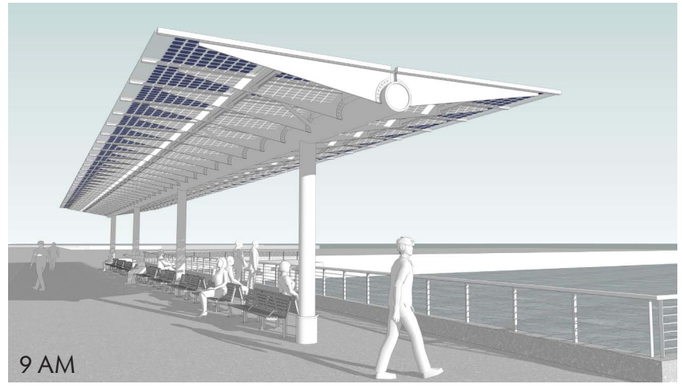
SUMMER

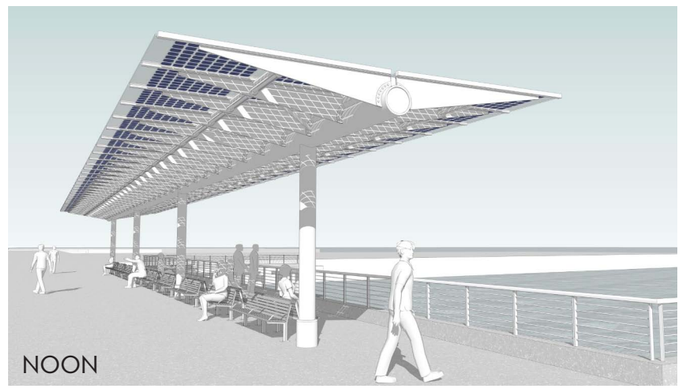






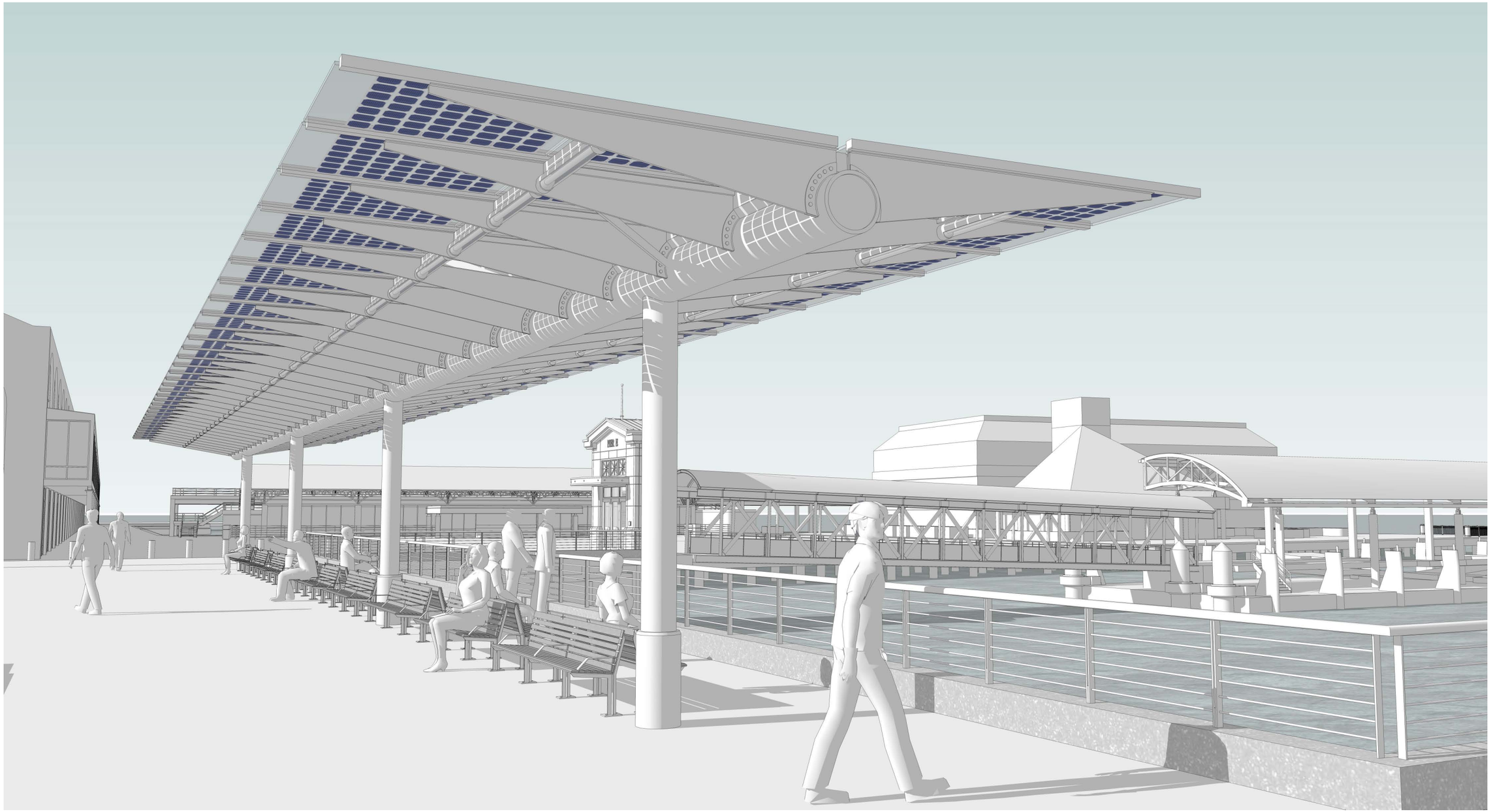
WINTER



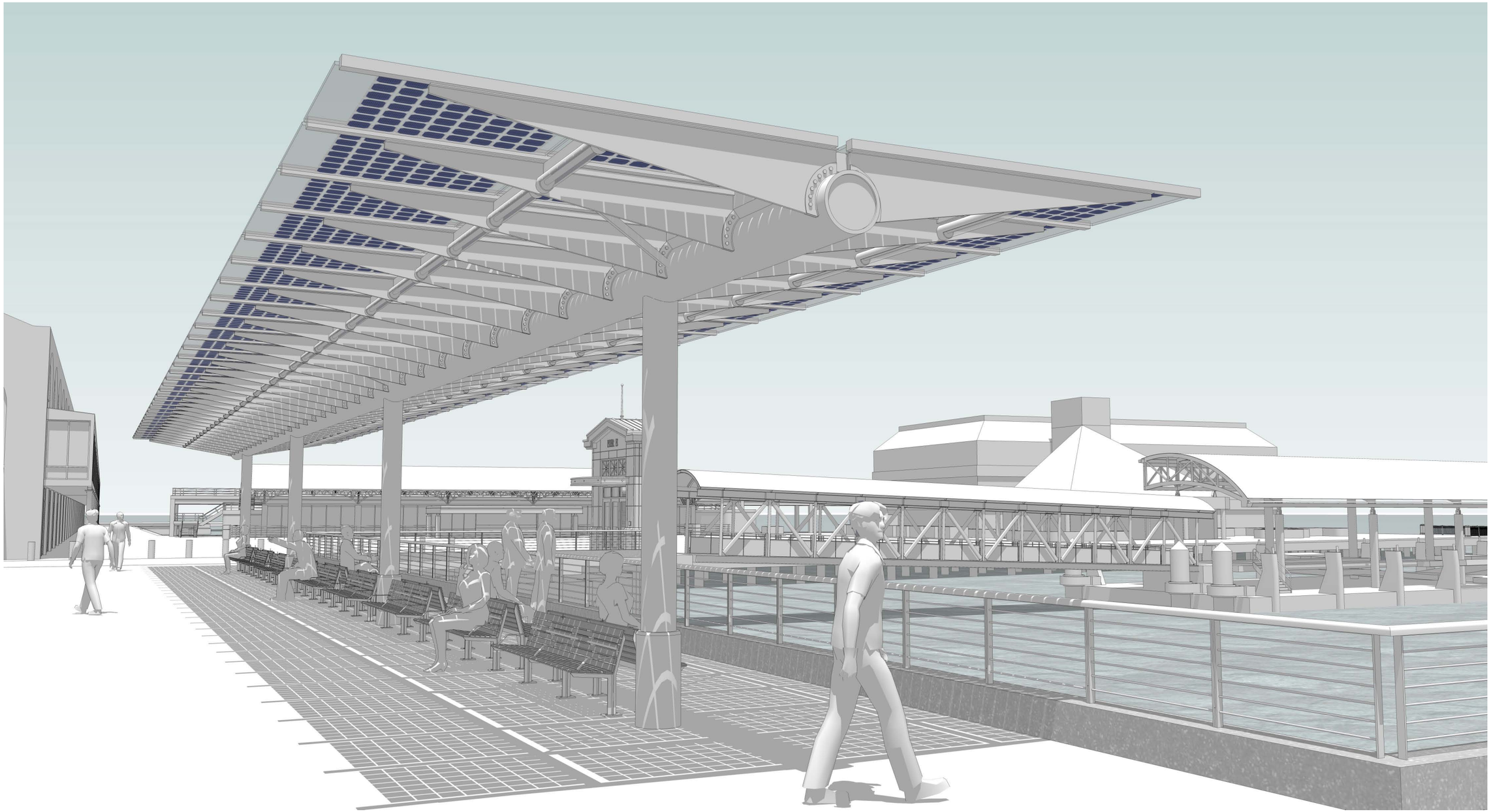


CANOPY DESIGN AND SHADOW STUDIES

SOUTH BASIN FERRY TERMINAL DESIGN PROJECT



CANOPY GENERALIZED SHADOW STUDY: SPRING / FALL DURING PEAK PM BOARDING (APPROXIMATELY 4:00 PM)



CANOPY GENERALIZED SHADOW STUDY: PEAK SUMMER MID-DAY PUBLIC VISITATION

SOUTH BASIN FERRY TERMINAL DESIGN PROJECT

UNION CITY BART STATION

ACADEMY OF SCIENCES

PHOTOVOLTAIC CANOPY EXAMPLES