AAPA CRUISE SEMINAR

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY

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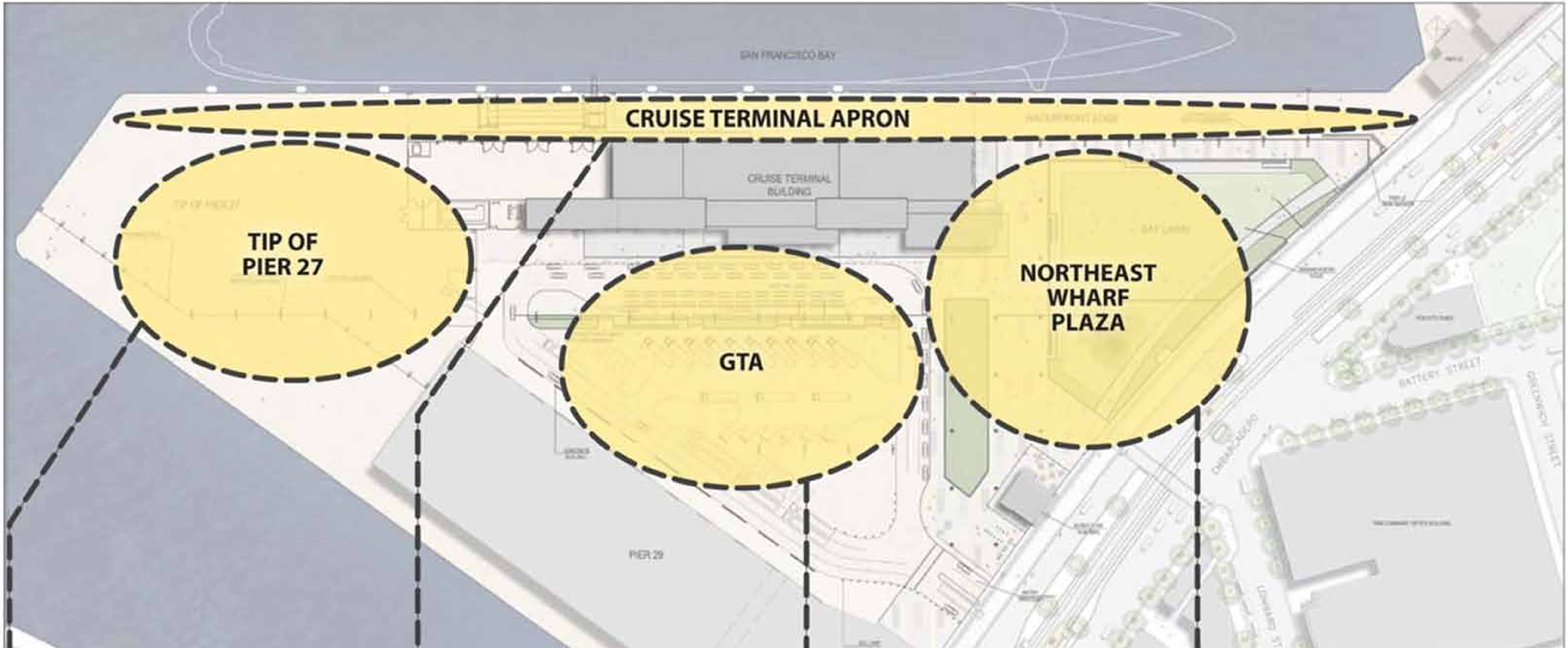
Bermello Ajamil & Partners

APRIL 25, 2013

AGENDA

- SF PIER 27 – DESIGN PROCESS
- MIXED USE and PUBLIC ACCESS
- CBP GUIDELINE INTEGRATION with MIXED USE
  - OPPORTUNITIES & PITFALLS
- PASSENGER CIRCULATION SIMULATION
- SF PIER 27 – FINISHED PRODUCT…ALMOST!

MASTER PLAN – MIXED USE & PUBLIC ACCESS

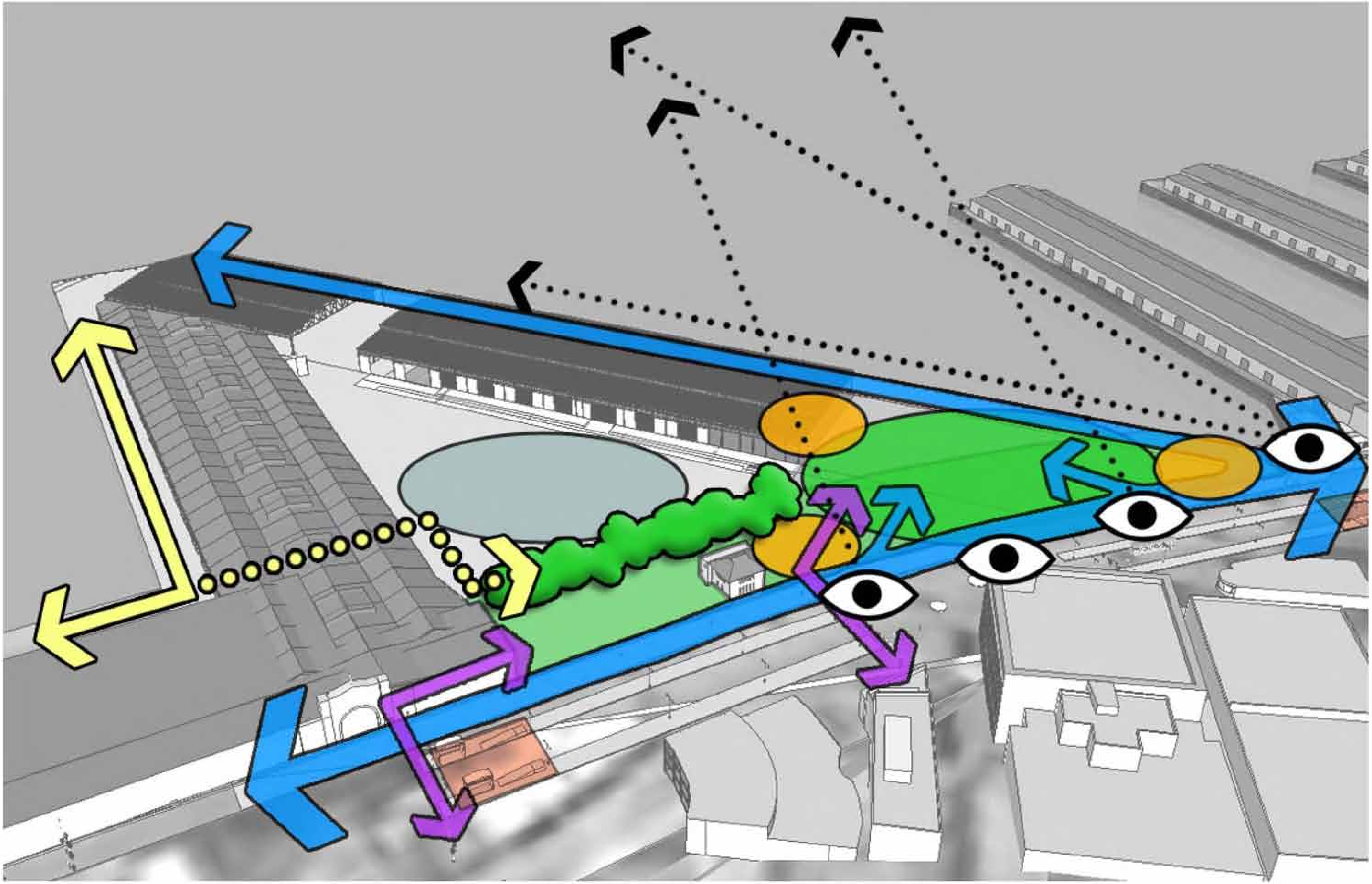


Tip of Pier 27
A 3 acre open asphalt space that would be closed for ship provisioning about half the year. Will include public improvements on a portion where not interfering with truck movements.

Cruise Terminal Apron
A 50 foot by 580 foot asphalt circulation area with a large movable gangway. The Apron will be open for public access when not in use for cruise ships or visiting ships.

Ground Transportation Area (GTA)
A 2.2 acre open asphalt space bordered by the historic Pier 29 Shed, the proposed Pier 27 Cruise Terminal, and the Northeast Wharf Plaza. The GTA would be used for cruise terminal buses and other vehicle circulation when the Terminal building is in use. When not used for parking, this space is envisioned to function as multipurpose space. It could accommodate farmer's markets, concerts or other outdoor events.

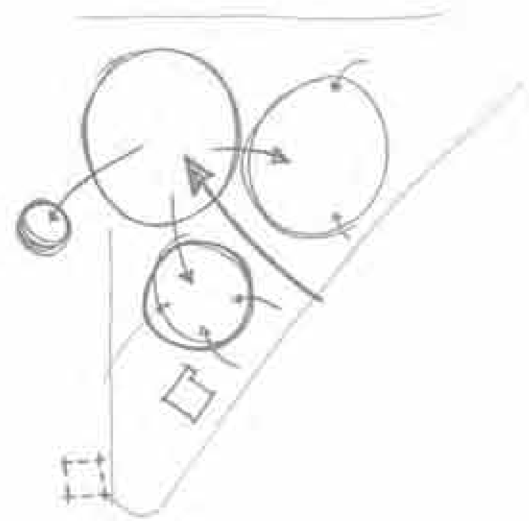
Northeast Wharf Plaza
A 2.5 acre public space with a Bay oriented lawn, plaza spaces, seating, and the historic Beltline Railway building. Except for the apron which would be closed when a cruise ship is in berth, the Plaza would be open at all times.



COMPOSITE SITE PLANNING DIAGRAM

Piers 45 & 46
Hudson River Park
New York,NY

Race Street Pier
Delaware River Waterfront
Philadelphia, PA



SITE COMPONENTS

The project master plan is made up of a series of complimentary components that engage the bay, the city, and each other. Regardless of the specific master plan solution, these components will make of the moving parts of any overall design solution for the site. Each of these seven primary components will be the subject of continuing design investigations moving forward and are identified in the diagram to the right. Specific solutions to these components have been included in the base master plan presented in this concept document, for the sake of clarity of the base case. However, several other possible approaches for each of these components have been developed by the design team and are presented in the following section as design alternatives. These alternates demonstrate the flexibility of the master plan concepts and will serve as tools to help engage the public process as the project moves forward.

While the original Special Area Plan (SAP) suggested the Northeast Wharf Plaza might be configured as a singular public open space with no related uses, the design process strongly suggested that the Northeast Wharf Plaza be developed to integrate other compatible site uses that might help to assure the vitality of the public spaces. In light of this, potential commercial and restaurant uses on the site were studied, and it was concluded that these uses would not be commercially viable at the north end of the plaza and that the project is best served by pushing any future retail and restaurant components closer to the Embarcadero where they can engage the promenade, as well as activate the larger Waterfront Plaza. A natural grouping of these commercial uses at the west end of the Embarcadero frontage, well out of the "view corridor" to the water, was identified as desirable. This leads to the notion of a small urban piazza in this location that broke down the scale of the larger Plaza space, benefited from the southern light and drew pedestrian energy directly off of the embarcadero.

As configurations for the Ground Transportation Area (GTA) were developed, it was discovered that GTA access point was smaller that previously assumed and that the "public park" environment of the new plaza could extend further along the Embarcadero Promenade. This resulted in the opportunity to further shield the promenade edge from the effects of GTA operations, and adds more "park" to the western end of the Northeast Waterfront Plaza.

PROVISIONING SPACE
The northern portion of the existing Pier 27 shed building that intersects with Pier 29 will remain intact and continue to serve as provisioning space with truck access for the terminal operations.

CRUISE SHIP TERMINAL
The new cruise ship terminal will provide San Francisco with a more fitting port of entry, improving the experience of passengers as well as the improving the Port's operations.

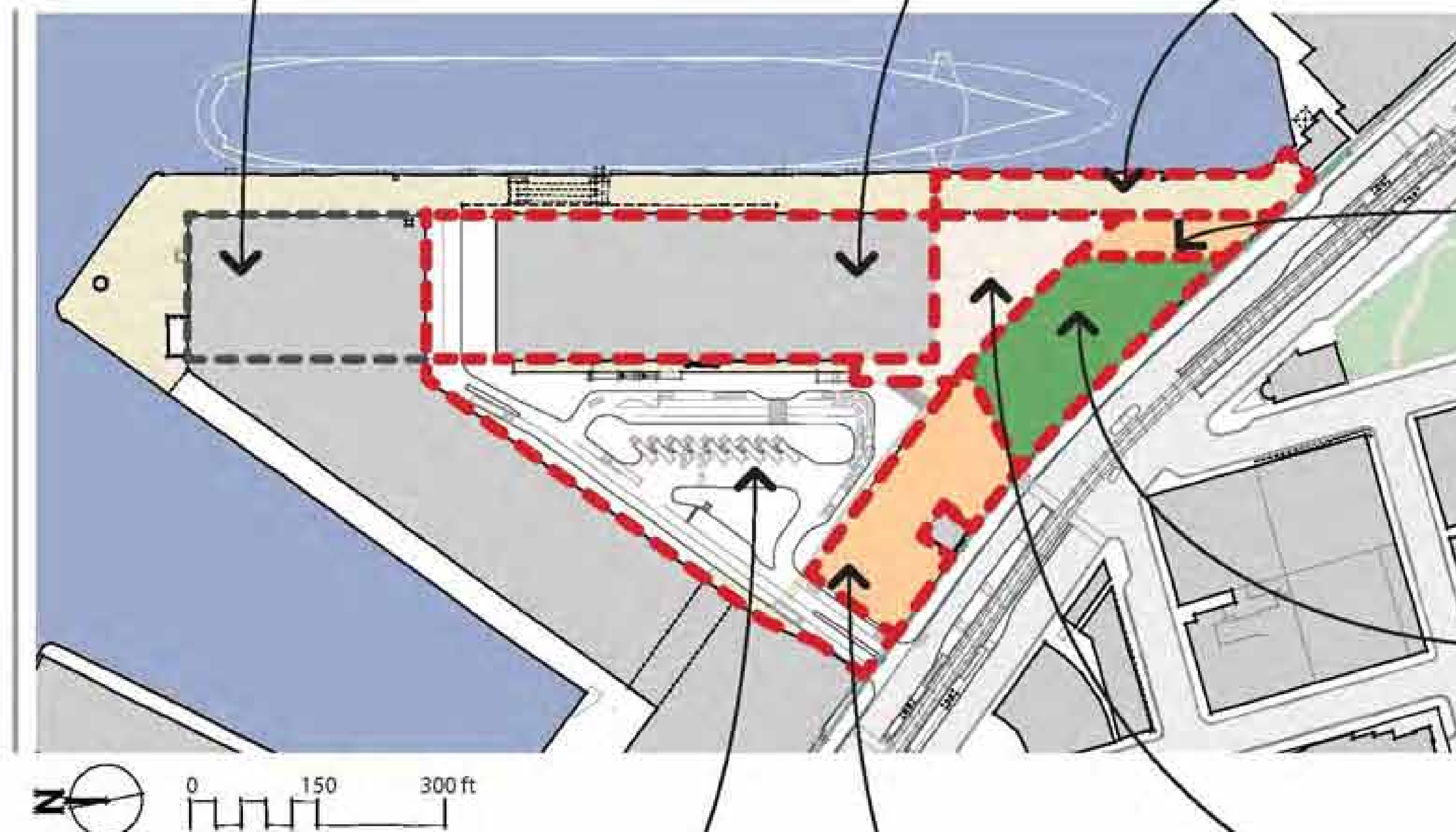
Either of the two conceptual design schemes represented in this document would be located within the region indicated below.

WATER VIEW / SECURITY EDGE
The waterside edge of Pier 27 offers continuous public waterfront access reaching as far as the northern tip of Pier 27 during non-cruise days. Lighting will be provided.

A modular moveable gate system provides security during cruise operations in accordance with Homeland Security regulations.

PLAZA ENTRY PORTAL / "GATE HOUSE"
The Southeast corner of the Northeast Wharf Plaza is a natural place to connect to the pedestrian activity along the Embarcadero Promenade. Locating a retail or restaurant node here creates a point of activity capable of drawing pedestrians deeper into the site. Any use located here has continuous access to the waters edge, even during cruise ship days as it lies outside of the secure perimeter zone.

Synergy between this new node and the existing Pier 23 Cafe will create a new and unique public outdoor space gathered between the two, with prime views of both the bay and cruise ship activity.



MULTI-USE RECREATION AREA
The portion of the new Northeast Wharf Plaza along the Embarcadero promenade offers a respite from the urban corridor. Expansive softscape surrounded with fixed seating walls provide a place to rest weary legs and enjoy a view of both the city and the bay. The same spaces offer open recreation space for locals and visitors alike.

GROUND TRANSPORTATION AREA (GTA)
Also referred to as "the valley", this three acre area provides vehicular circulation, stacking and loading of passengers for cruise operations. Traffic flow patterns will be established with striping and minimal contouring to allow the space to double as outdoor event space.

BELTLINE PIAZZA
The piazza gathers the small commercial components of the master plan and offers a smaller scale outdoor space to organize them and complement the Northeast Wharf Plaza.

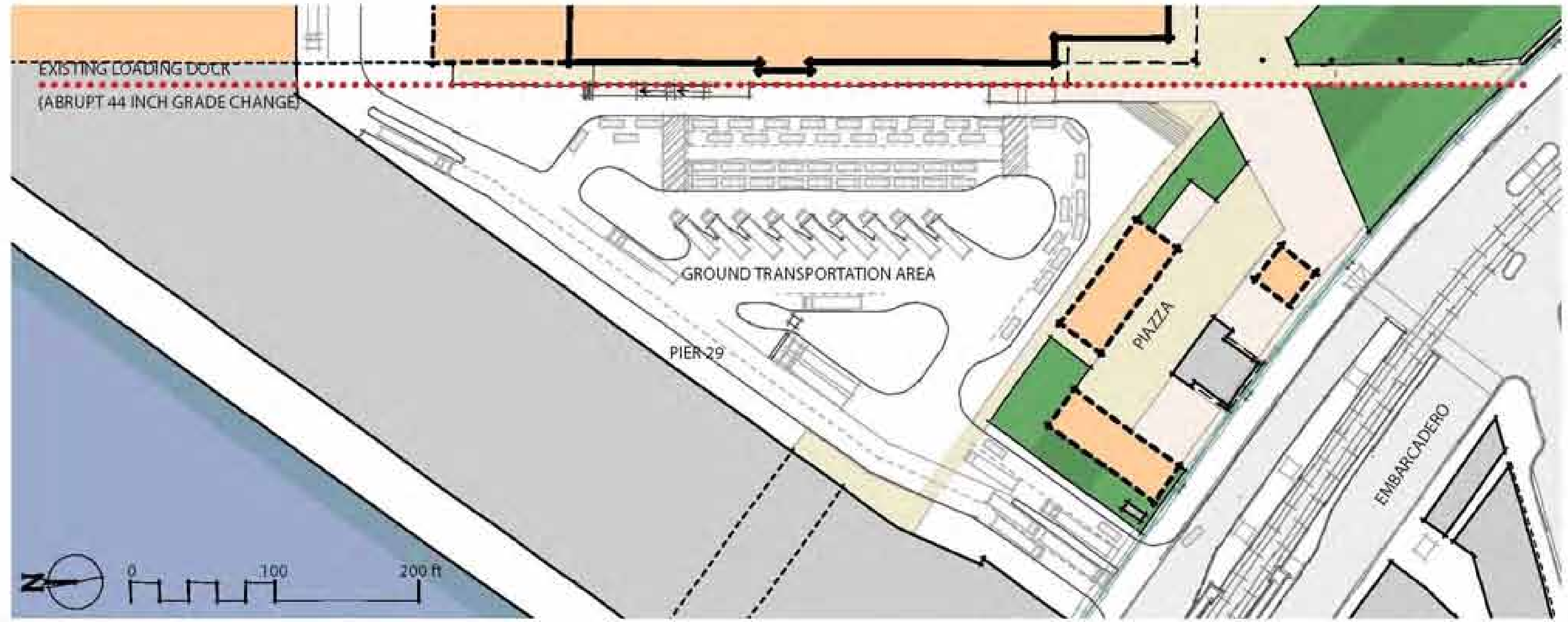
Among the venues that might spring up here include a cafe, a bicycle rental shop, or a gift shop. Such fixed buildings or kiosks could be joined by outdoor recreation uses such a chess or bocce ball courts.

MAIN EVENT SPACE
The portion of the new Northeast Wharf Plaza adjacent to the cruise terminal will offer a large and flexible hardscaped area suitable for large gatherings and events, providing an entry forecourt between the city of San Francisco and the Bay.

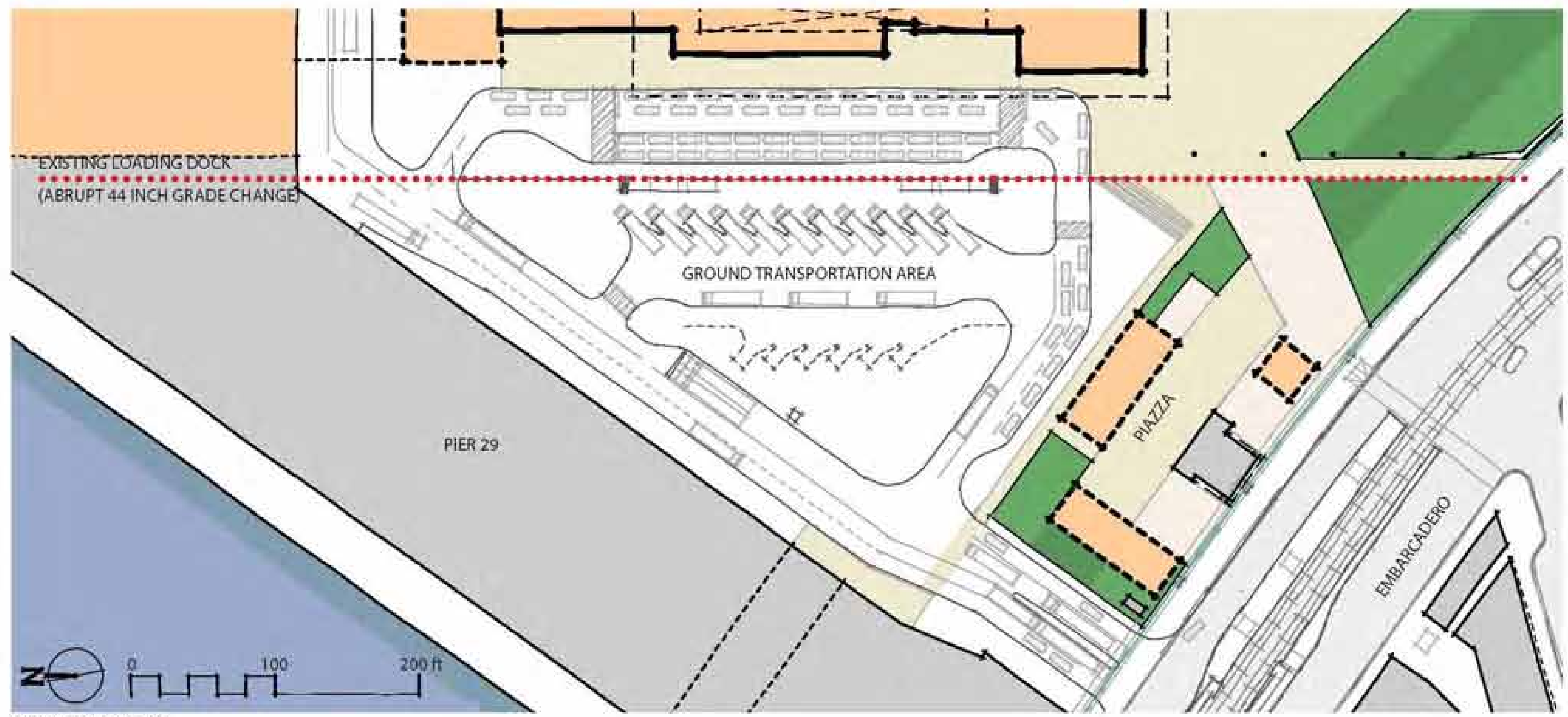
GROUND TRANSPORTATION AREA

One of the major benefits of the new building is that it allows the building footprint to be narrower than the existing Pier 27 industrial shed. Among the benefits of a narrower footprint is the increased site area available for other uses such as ground transportation queuing and circulation. This additional space has a major impact on the number of cars, taxi's and buses that can be accommodated, improving efficiencies and reducing the potential for traffic impact to the Embarcadero.

In addition to providing increased capacity, the strip of site area freed up by a narrower building footprint is at the same elevation as the interior finish floor of the terminal whereas the majority of the GTA is roughly 44 inches lower due to the existing loading dock along the west edge of Pier 27. Using this strip of land for car and taxi drop-off and pick-up removes the need for passengers arriving by car or taxi to ascend stairs or ramps with their luggage when moving from the GTA to the terminal.

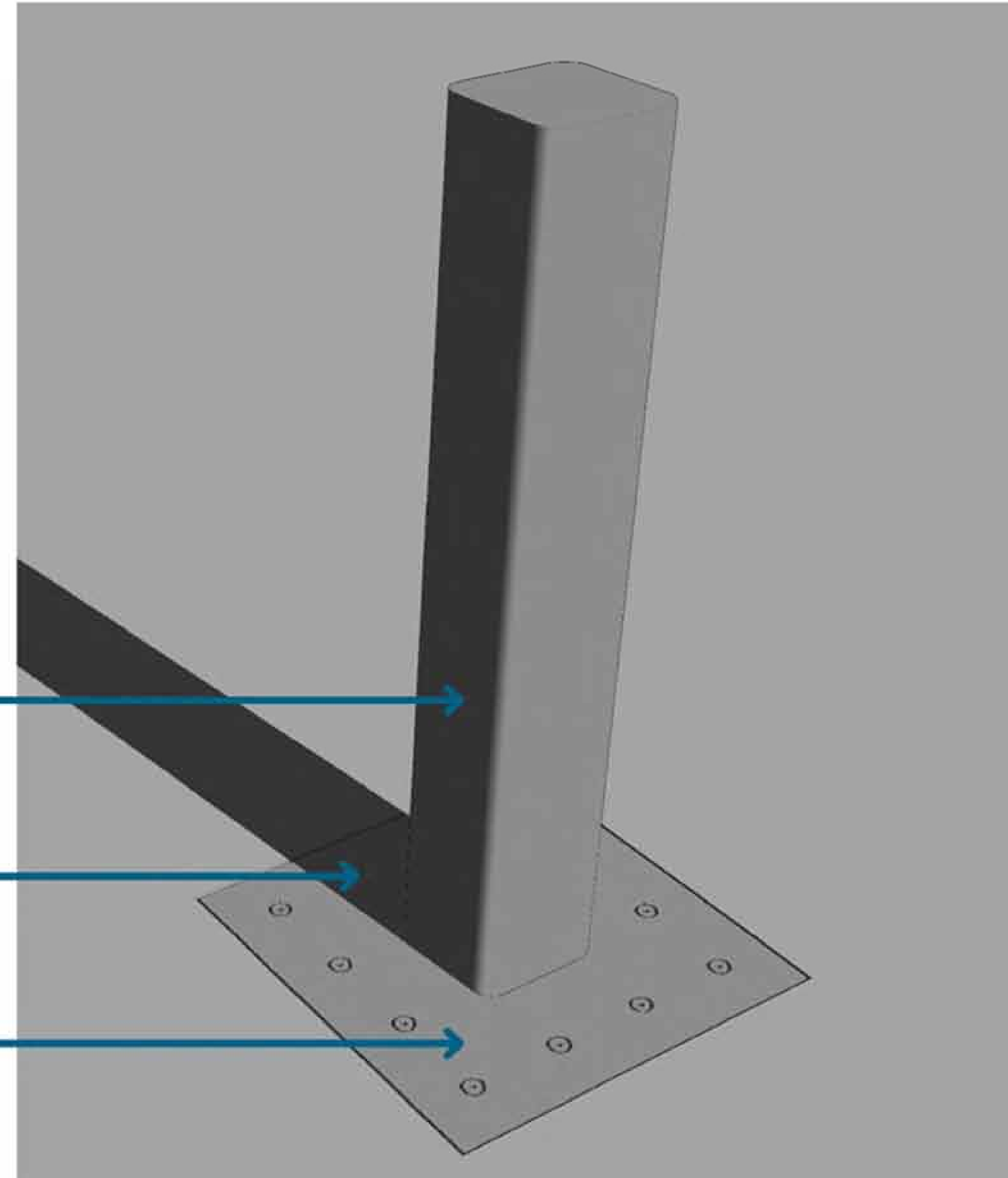


SCHEME A GTA PLAN



SCHEME B GTA PLAN

Example of Curbless Drop-off Edge



HSS Post

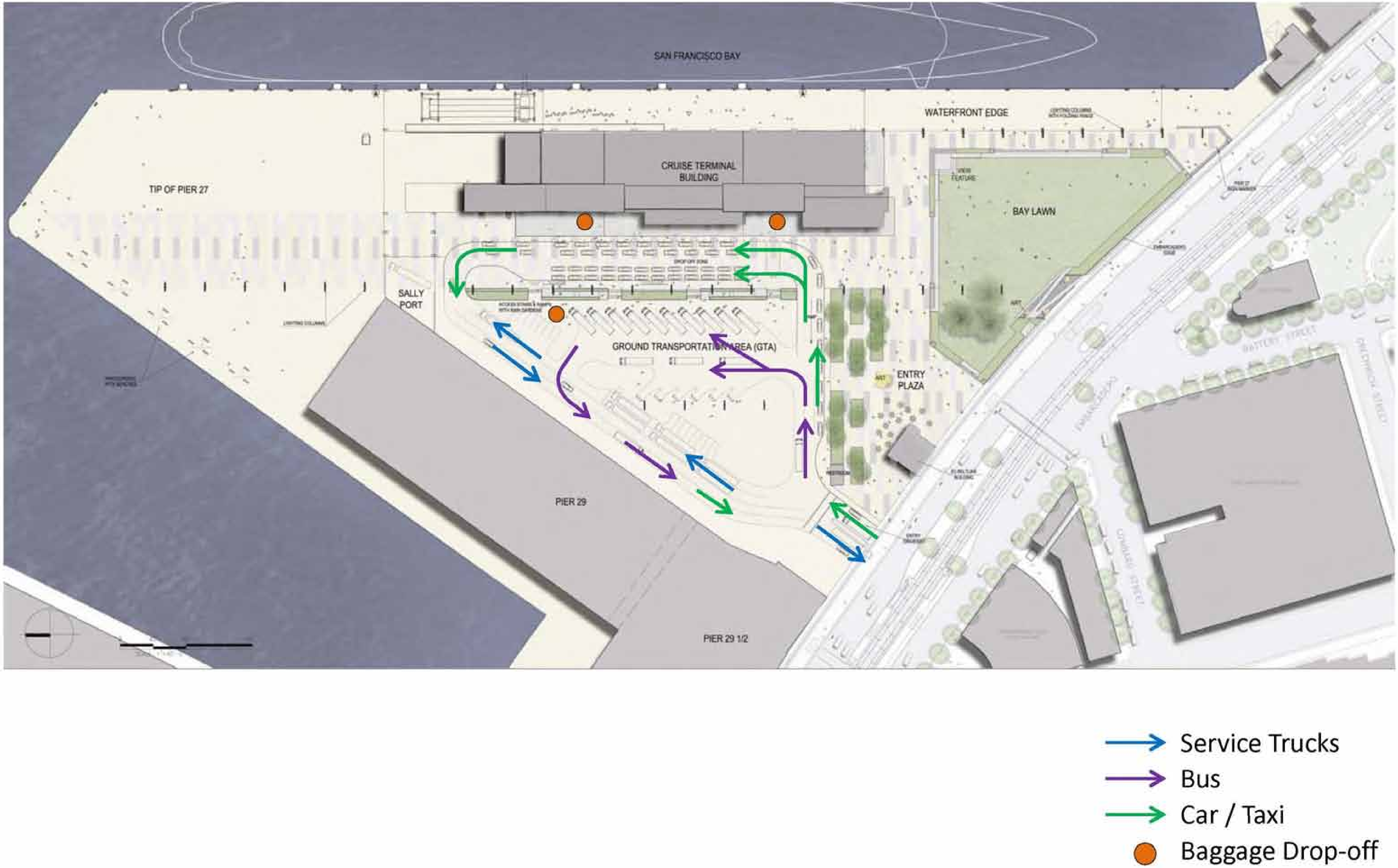
6" Diameter tube steel section

Countersink Bolt

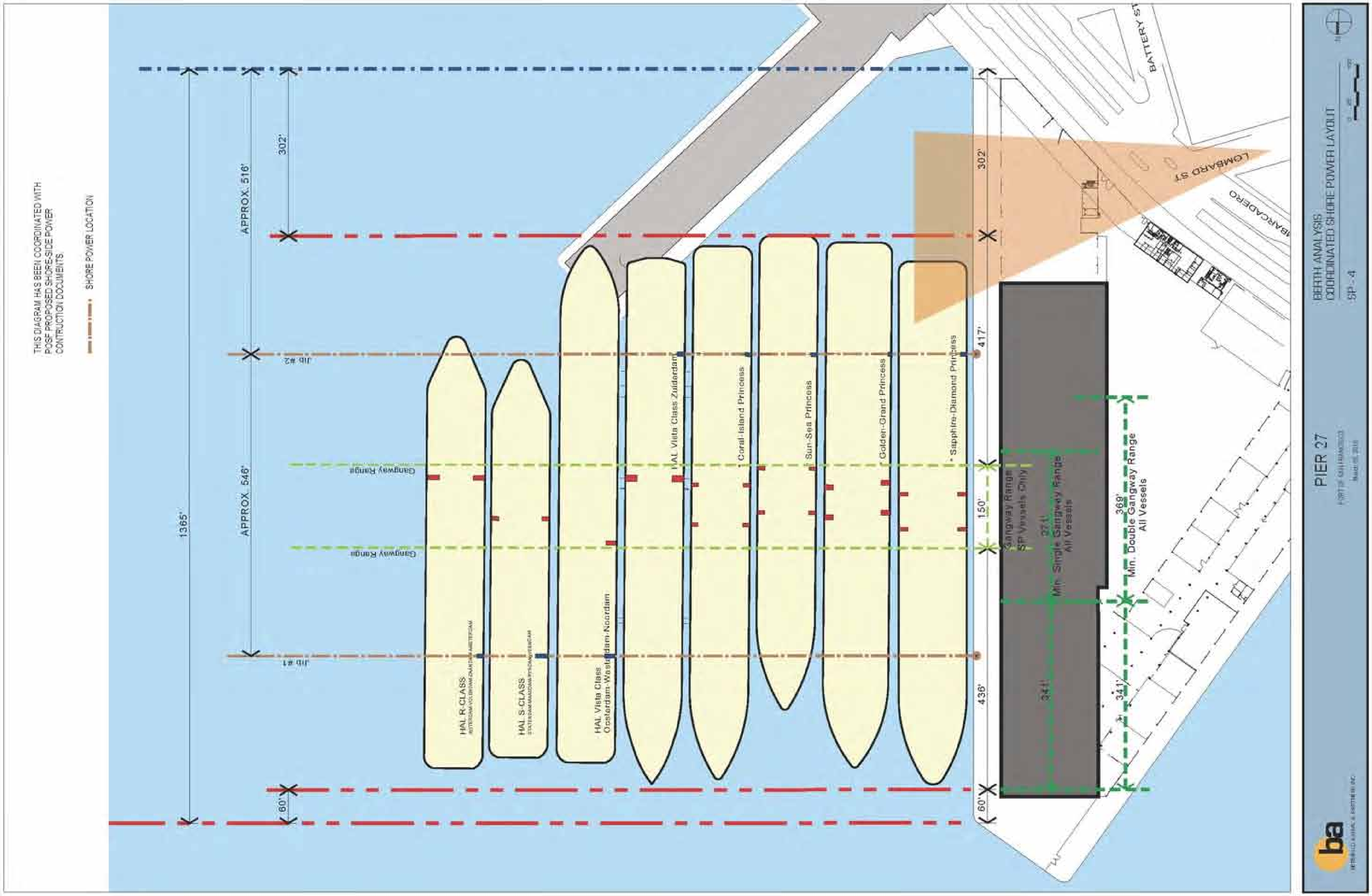
3/4" Diameter countersink bolt to prevent tripping hazard

Base Plate

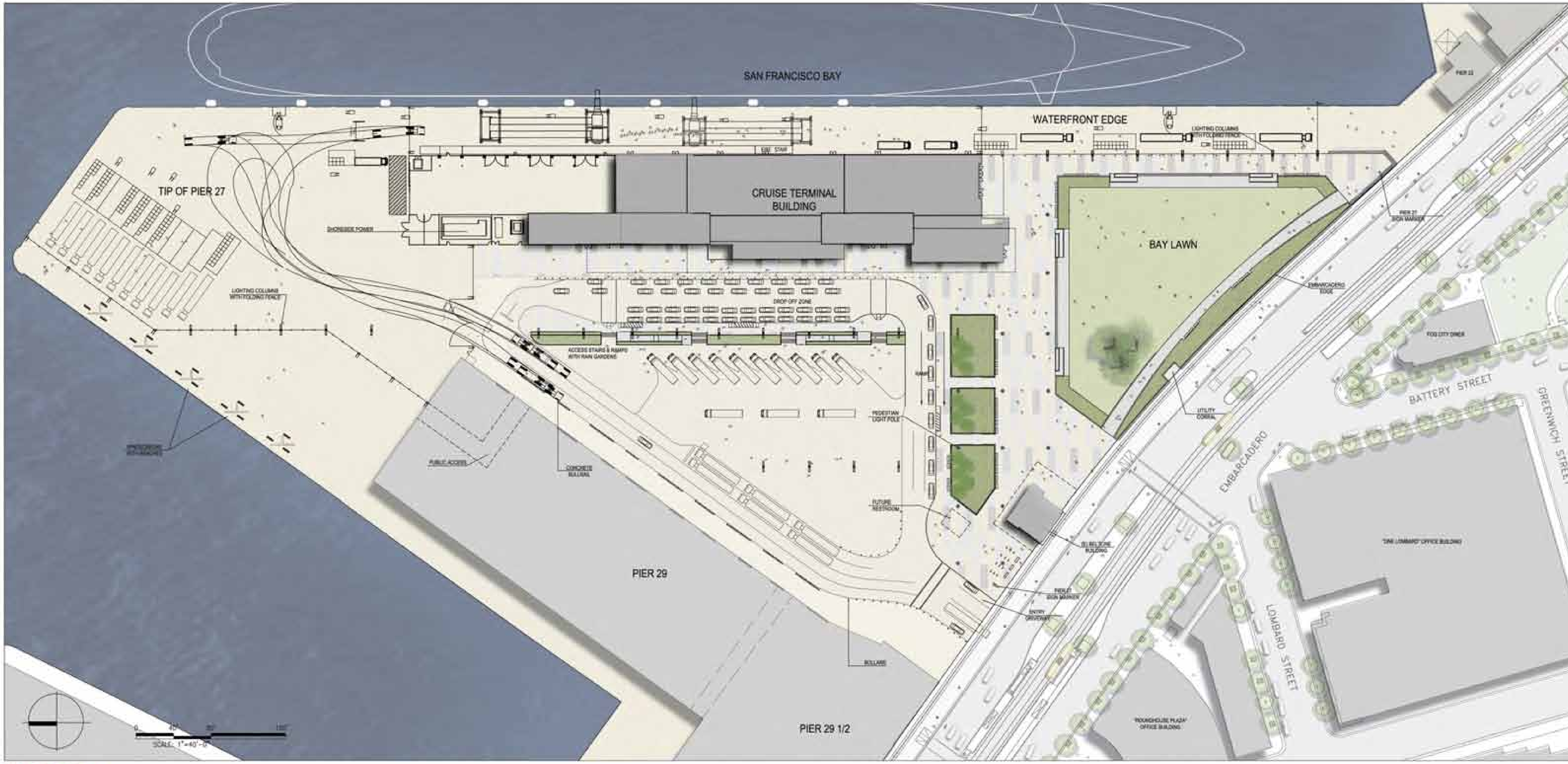
1" Base plate recessed into asphalt topping



GROUND TRANSPORTATION AREA CIRCULATION DIAGRAM



ON-SHORE POWER & GANGWAY RANGE ANALYSIS



TIP OF PIER 27

After demolition of the Pier 27 shed and the northern portion of the Pier 29 shed, the north end of Pier 27 will be used for provisioning of cruise ships and public access. A required security fence follows the line of the previous Pier 27 shed which is acknowledged by 30 foot tall lights both in front of the terminal and through the provisioning area. Public access would occur on the west side of the Tip on all days and on the entire Tip when not needed for provisioning, security purposes, or limited special events. When needed for provisioning, the public will be able to view provisioning activities through the fence. The fence would swing open making it available for daytime public use about half the days per year. Access to the Tip is along the southeast edge of the Pier 29 shed and through a portion of the interior of the shed on all days. Access to the Tip when not needed for provisioning would also be along the Pier 27 apron and through the security gate at the north end of the GTA that is used for truck inspection and control to the provisioning area. The gates would be open for pedestrian access when not required for cruise ship provisioning.

The Tip of Pier 27 offers unique public space opportunities by the combination of its size, position at the end of a pier with expansive views across the Bay, and its requirement to have a substantial portion of the space remain without improvements to enable provisioning from large trucks.

The current proposed improvements are limited to a row of 30 foot tall lights at 48 feet on center that delineate the path from the Embarcadero to the furthest point out on the Tip, and benches, litter receptacles and wind screens along the apron of Pier 29.

SAN FRANCISCO CRUISE TERMINAL

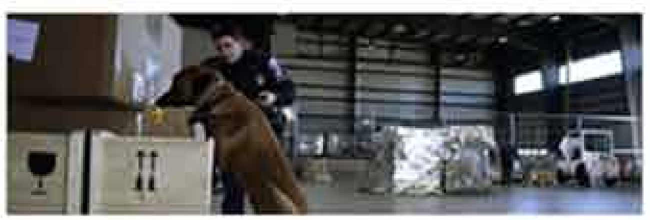
KMD / PLA JOINT VENTURE + ba

NORTH POINT PROVISIONING AREA

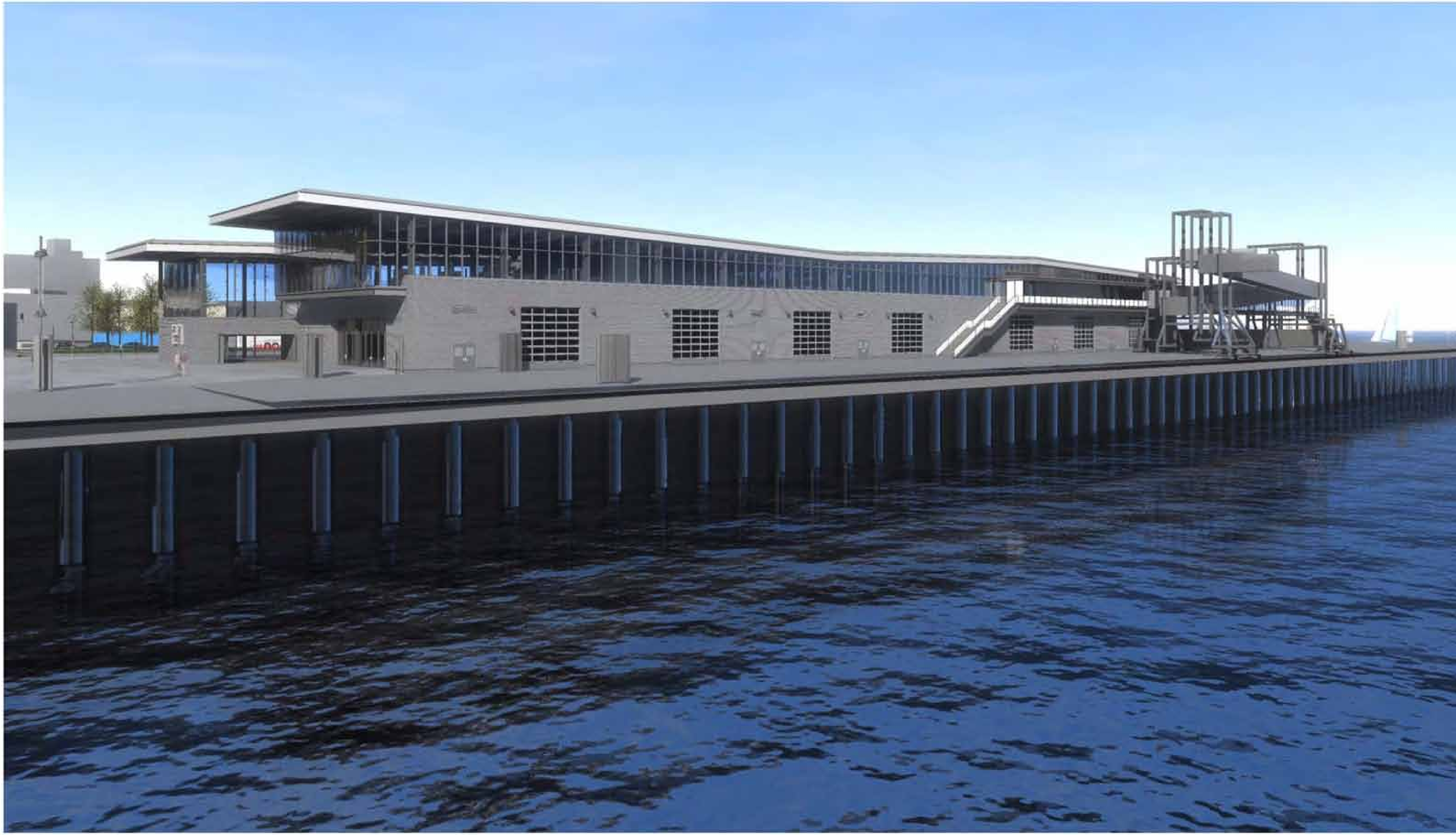
SHARED PUBLIC ACCESS ON CRUISE DAY

NOVEMBER 15, 2011

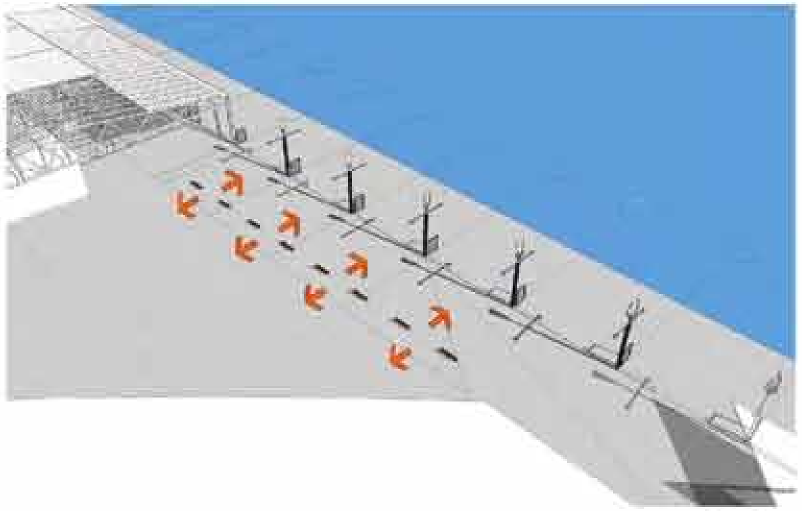
AERIAL PERSPECTIVE



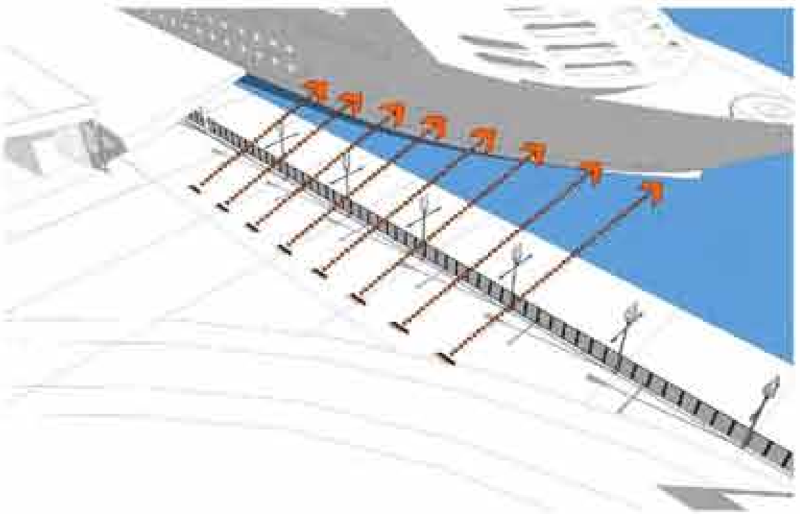
TIP OF PIER 27 & CRUISE TERMINAL APRON PROVISIONING ACTIVITIES



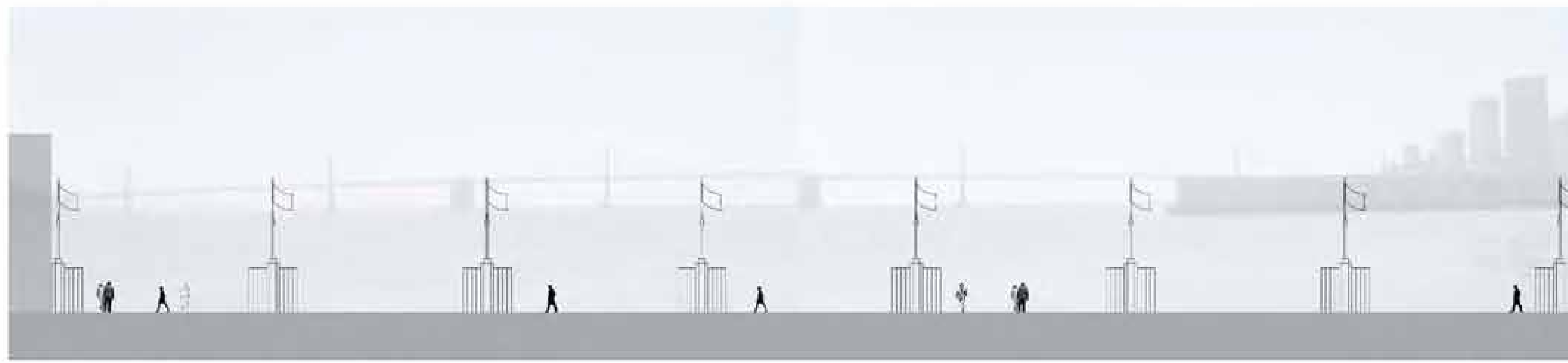
WATERSIDE PERSPECTIVE



apron on non-cruise days



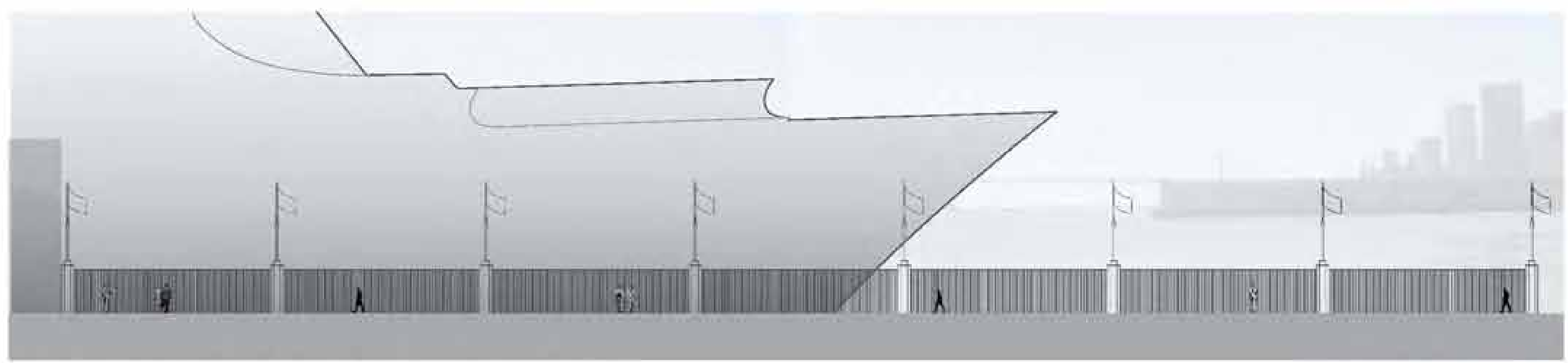
apron with ship docked



SECTION 1: SECURITY FENCE & GATE OPEN

SCALE 1 : 10'
0' 10'

eye level view towards water

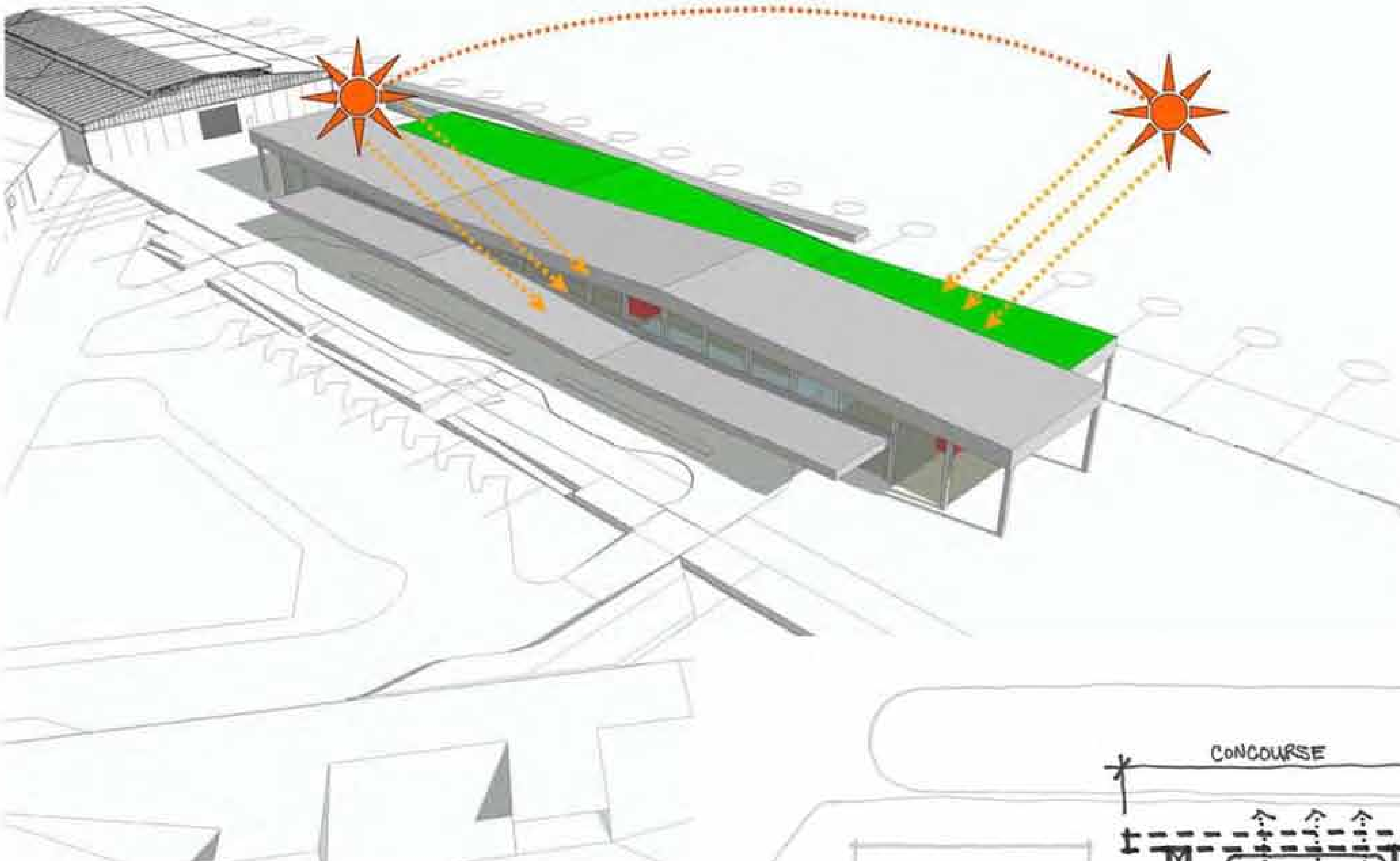


SECTION 2: SECURITY FENCE & GATE CLOSED

SCALE 1 : 10'
0' 10'

PERIMETER SECURITY ANALYSIS

NORTHEAST WHARF PLAZA VIEWS OF RECOMMENDED OPTION



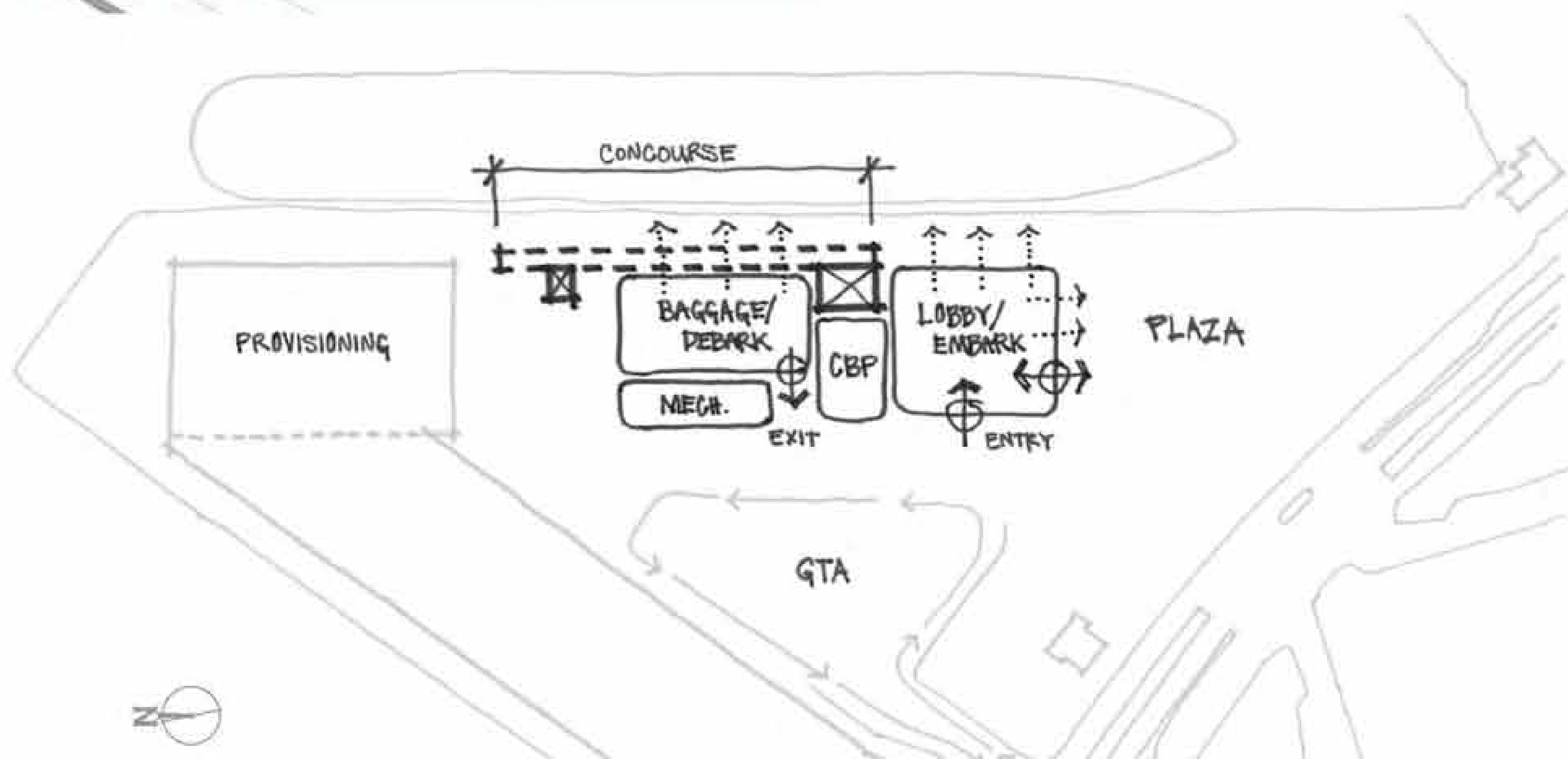
New Construction Study D

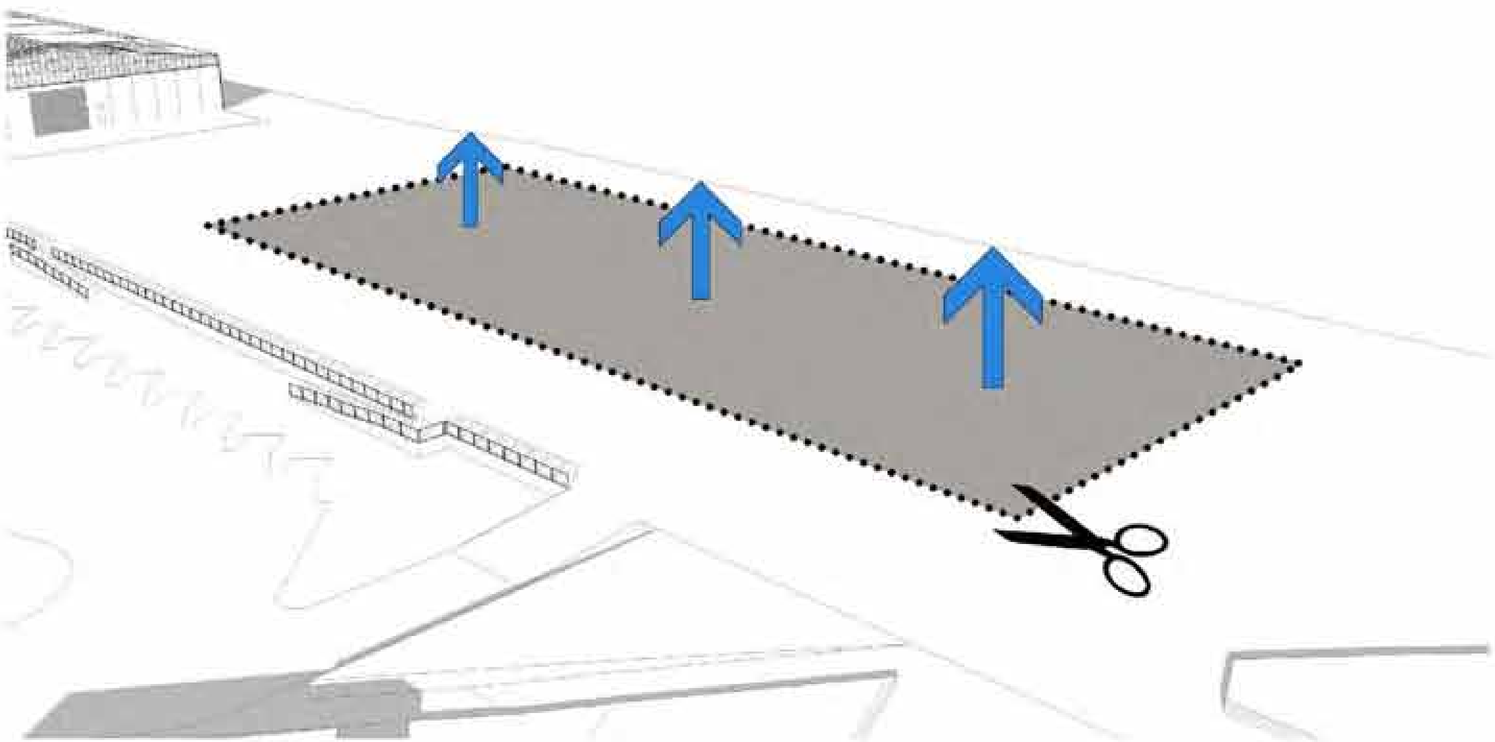
BUILDING DESIGN

The proposed development requires demolition of the existing non-historic shed at Pier 27 as well as the annex office building between Piers 27 and 29 and clearing of the remainder of the Pier 27 site including all tenants. The historic Beltline Building will remain intact. The new building will be built on the existing pier structure consisting of a concrete desk supported by concrete piles over the San Francisco Bay, built in 1965. The superstructure of the proposed terminal is a steel moment frame construction with concrete fill over metal deck at the second floor diaphragm and metal deck without fill at the second floor roof. The building skin is a combination of glazing and a modular metal panel assembly. As part of the proposed development, the existing 12 megawatt shore power substation will be relocated to an open air electrical yard immediately behind the new cruise terminal.

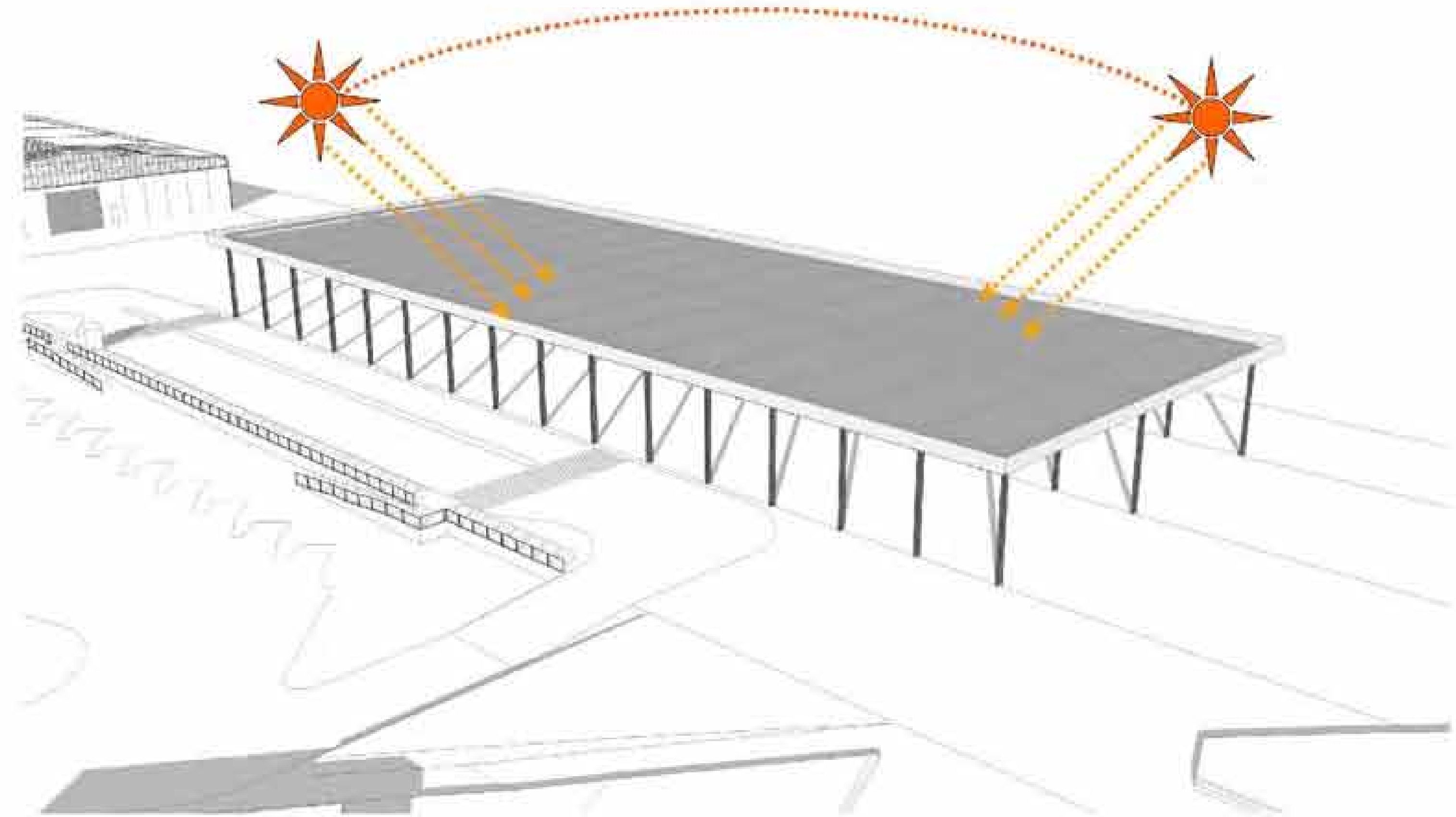
MECHANICAL SYSTEMS

Due to the nature of its intended transitory use, a large portion of the ground floor baggage hall will not be heated or air-conditioned, only mechanically ventilated. All CBP and building Operations and Security office spaces will include heating, ventilation and air-conditioning. The entrance lobby and second level passenger screening, ticketing and waiting areas will include heating and ventilation only.

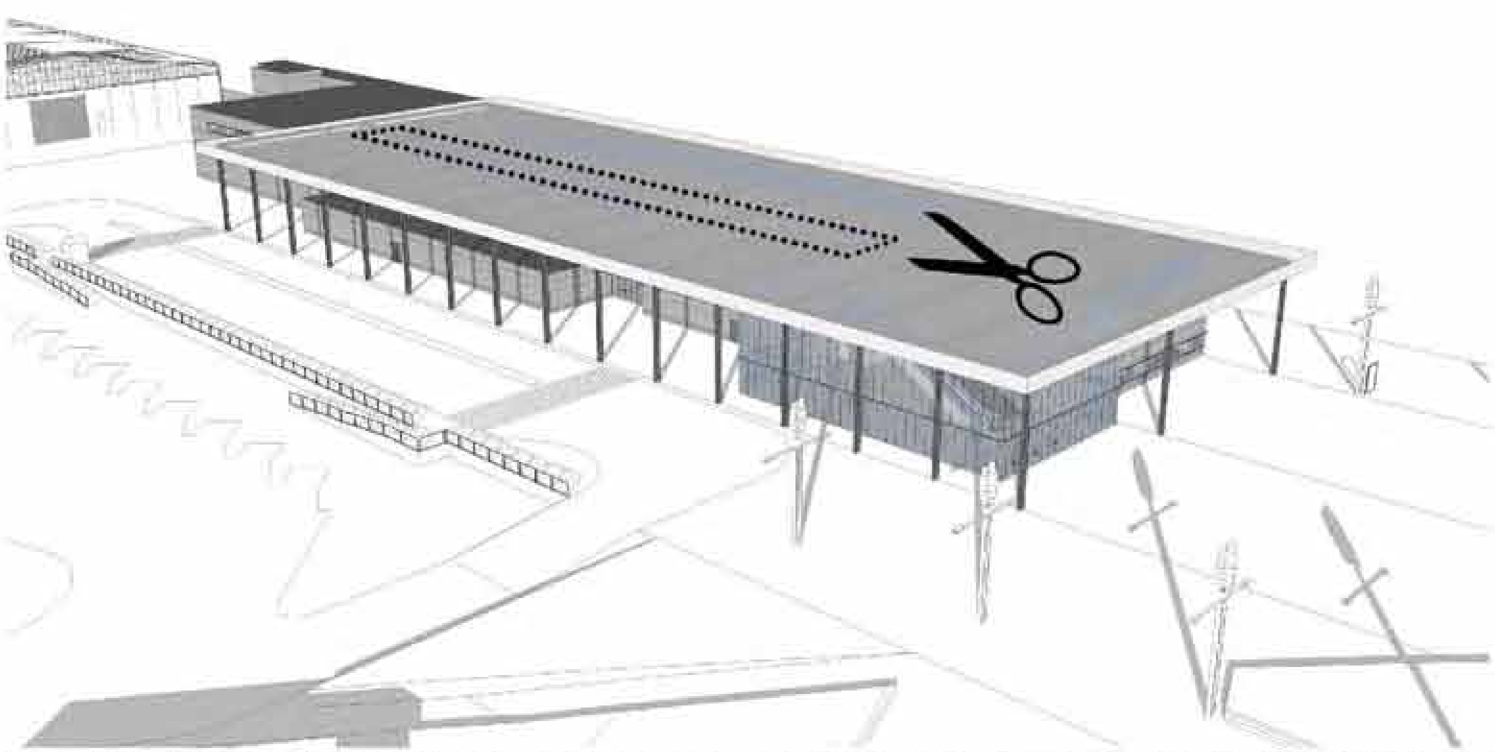




Demolish all of the Pier 27 shed except the northern portion attached to pier 29.

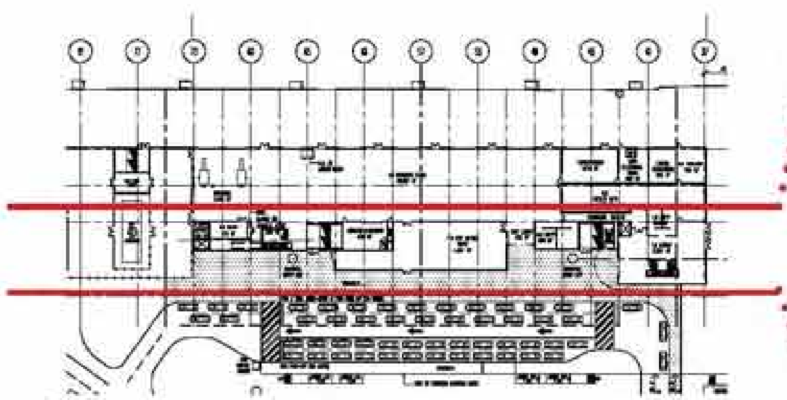


Construct a new roof plane and supporting structure to provide protection from the elements.



Insert new construction as required to enclose the space beneath the new roof, divide it into rooms, and add visual interest. Create openings in the new roof plane where possible.

Scheme B



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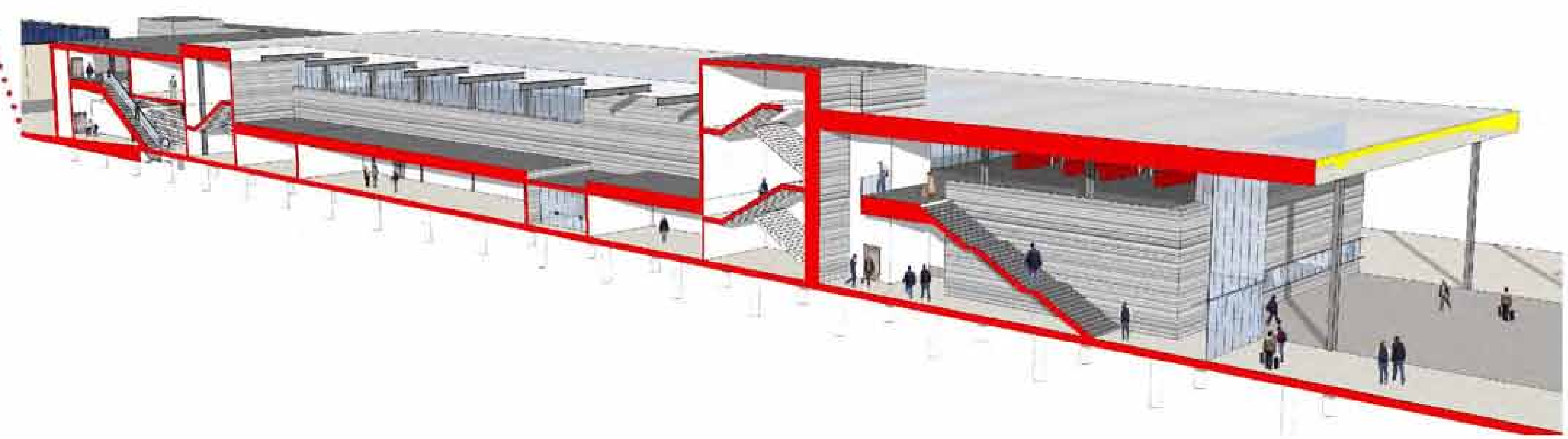
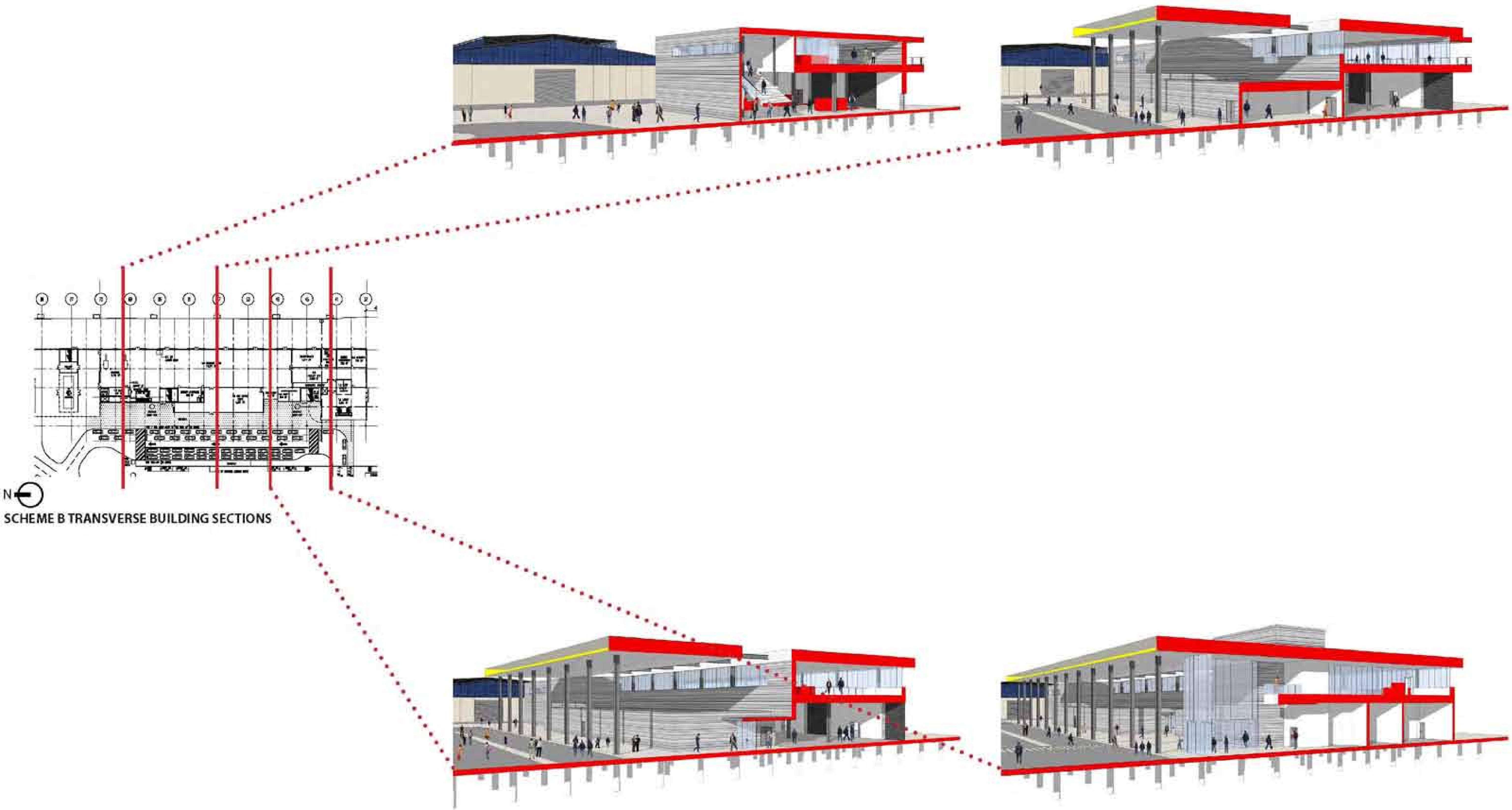
SCHEME B LONGITUDINAL BUILDING SECTIONS



TERMINAL CROSS-SECTION PARALLEL TO APRON



SCHEME B TRANSVERSE BUILDING SECTIONS

PERSPECTIVE OF LOBBY APPROACH

Note: Light fixtures shown in this image are out of date. See page 19 for correct fixtures.

Building Identification (W)

PERSPECTIVE FROM EMBARCADERO APPROACH

PERSPECTIVE OF PEDESTRIAN APPROACH

Building Identification (W)

PERSPECTIVE FROM EMBARCADERO

AERIAL PERSEPCTIVE

AERIAL PERSPECTIVE FROM COIT TOWER

MIXED USE FACILITY KEY FEATURES

- OPERABLE PERIMETER FENCING
- CONSOLIDATED CBP OFFICE FUNCTIONS
- OPEN DESIGN PLAN – EASILY “STERILIZED”
- GLASS DOORS TO APRON & WATERFRONT
- HIGH CEILINGS / SPACE EASILY TRANSFORMED
- THROUGH ACCESS TO ENTRY LOBBY FOR EVENTS
- CONSERVATIVE REGULATORY SIGNAGE PLACEMENT

CTDS, Page 2-1:

Cruise ship passenger processing facilities in the U.S. may or may not be staffed by CBP staff. Staffing requirements at each facility are dictated by local operational and processing requirements. Staffing levels vary in the field per available resources.

Based upon input received from local stakeholders and users for pre-programming analysis, **CBP officials will evaluate the port's traffic projections on a case-by-case basis.** If the standards presented in the CTDS seem stringent, **CBP may reduce selected requirements accordingly** (i.e., for a smaller facility that would process a low volume of traffic arriving aboard a limited number of international ships).

CBP as a Design Team Member

PEAK HOUR OPS

- Design Vessel Load
- Gangway Quantity
- Simulation
- Findings and Case Building
- Reduced Space Sizes
- Reduced Construction Costs

PASSENGER CIRCULATION SIMULATION

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY
PASSENGER CIRCULATION DESIGN CRITERIA

CRUISE TERMINAL PASSENGER PROCESSING EFFICIENCIES

OVERVIEW

The design team performed a computerized simulation of both scheme A and scheme B to evaluate passenger processing efficiencies, and ensure that both schemes meet the desired performance criteria. Processing rates established for this project were based on historical performance at similar US ports of entry provided by Bermello Ajamil and CBP and are listed in the chart to the right.

Both schemes A and B perform almost identically with respect to flow rates. As such, analysis focused on evaluation of BDL and PDL functionality with respect to programmed areas and quantities. This facility will operate within the performance parameters set in the Facility Program Statement if recommendations provided in the simulation report are implemented. There are no major choke points within the facility and there are no major queues or waiting time except during a few, brief peaks. Simulated space densities are within the areas allocated in the Facility Program Statement. 100% of the passengers disembark the terminal from gangway to facility exit in under 30 minutes. A detailed synopsis of findings is located at the end of this document.

100% CONCEPT DESIGN SIMULATION REPORT

INTRODUCTION

This report summarizes the results of the first iteration of the terminal passenger flow simulation program. This simulation will be used during design progression to evaluate passenger flow, determine processing rates at critical screening checkpoints, and verify that required queuing areas within the terminal are right-sized.

The results of this first iteration will be used to guide the design team as we move through the schematic design phase of terminal design. The conclusions drawn here
to make this terminal efficient and to

DESIGN CRITERIA RATIONALE

The design team has recommended t
design load (PDL). The BDL will cons
of a total one-way occupant load of 4

For calendar year 2010, the Port plans
less, including 11 calls of 1200 passe

Examples of common calling vessels

- Sea Princess – 1950 pax
- Radiance of the Seas – 2496
- Norwegian Star – 2224 pax

Example of common calling vessel of

- Norwegian Pearl – 4080 pax

The rationale for this approach is to m
The strategy will be to provide the m
infrastructure such that the operator
ods to handle a PDL event. Under a
will require temporary operational m
parameters (e.g. 5 minute queues, 90
satisfactorily. This will offer the best o
available construction budget. It should be noted that the recommended design criteria above should not be considered preventative to servicing any size vessel.

2010 Itinerary (43 calls)

41 calls: 2600 pax or less
(11 calls: 1200 pax or less)

2 calls: up to 4080 pax

PERFORMANCE PARAMETERS FOR THE BASE DESIGN LOAD (2600 PAX)

The size requirements for the majority of the terminal spaces are driven by total passenger capacity served during a home-port operation and total staff positions available to process passengers. To maximize efficiency, minimize required terminal size, and ultimately maximize the construction budget, the Team must carefully examine passenger processing through each of the various circulation nodes to avoid critical bottlenecks that will require area for queuing.

DESIGN (TARGET) PROCESSING TIME FOR A SINGLE PASSENGER:

The success of a cruise terminal in the eyes of the passenger is primarily related to the amount of time spent waiting in the terminal, specifically queuing or at circulation bottlenecks. For design purposes and under the BDL, the design team has recommended that a maximum period of 30 minutes from ship to terminal exit, or vice-versa is a worthwhile target and would be consistent with other world-class terminals. In addition, we recommend that a passenger be cleared of each individual queue within this process in less than 5 minutes. Our target is to process 90% of the passengers within these durations.

DESIGN (TARGET) OPERATIONAL CYCLE:

Current vessel Itineraries dictate a tightly sequenced operational cycle. Based on the POSF current operating methodology, we recommend a maximum BDL disembarkation process of 3.75 hours and an embarkation process of 5 hours. These processes may not overlap as CBP will require that the vessel be fully cleared between cycles.

COMPUTER SIMULATION INPUT PARAMETERS

INPUT MODEL VARIABLE AND CAPACITIES – BDL 2600 PAX

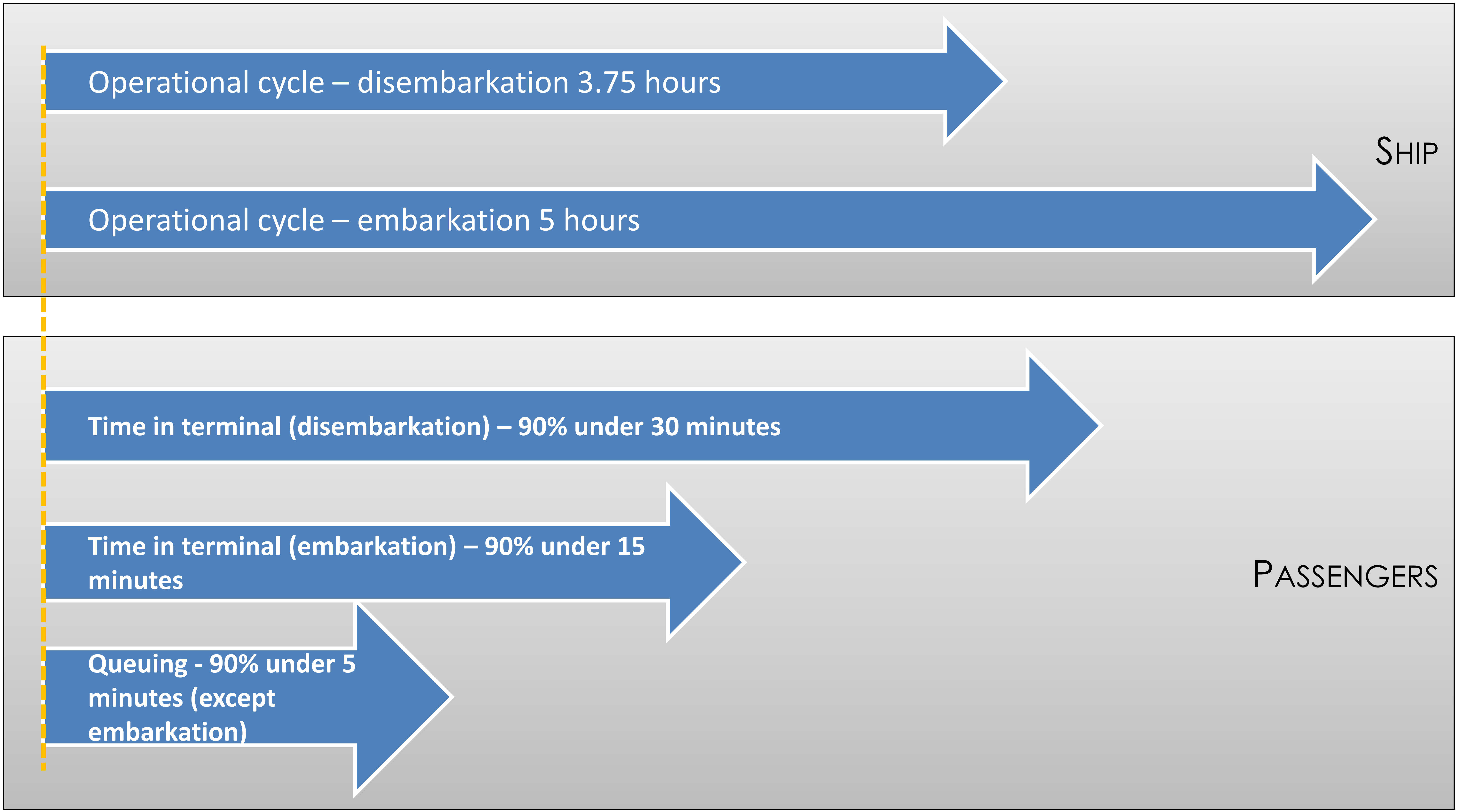
Component:	Quantity:	Avg. Rate: (pax/station/5 minutes)
Gangway	1	100
CBP Primary Processing	10	33.33 (US – 80% ratio)
		5.76 (Foreign – 20% ratio)
Arrival to Facility from GTA		*
Entrance Security Screening	6	32.08
Ticketing/Check-in	26	2.29

INPUT MODEL VARIABLE AND CAPACITIES – BDL 4000 PAX

Component:	Quantity:	Avg. Rate: (pax/station/5 minutes)
Gangway	1	100
CBP Primary Processing	10	33.33 (US – 80% ratio)
		5.76 (Foreign – 20% ratio)
Arrival to Facility from GTA		*
Entrance Security Screening	6	32.08
Ticketing/Check-in	40	2.29

*Facility arrival times and rates were deduced from actual survey data collected by the design team at Piers 27 and 35 with results ratio adjusted to a 2600 and 4000 passenger design load, respectively. These arrival patterns will continue to be fine-tuned during the schematic design phase.

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY
PERFORMANCE STANDARDS – BASE DESIGN LOAD



PERFORMANCE STANDARDS – CBP PROCESSING

Pier 27 - Simulation Inputs/Variables		Scheme A & C Quantities		Scheme B - SFCBP Quantities		COMMENTS
PROCESSOR	TIME/PAX (SECONDS)	US. 80% ratio - 30 sec/pax FOR. 20% ratio - 52 sec/pax		US. 80% ratio - 30 sec/pax FOR. 20% ratio - 150 sec/pax		
		2600 pax	4000 pax	2600 pax	4000 pax	
DEBARKATION PROCESS		3.75 hours	4.00 hours	4.75 hours	6.00 hours	
GANGWAY	3-5	1	1	1	1	Based on Histogram
CBP PRIMARY US/RESIDENTS/VISA HOLDERS/NON RESIDENTS	AS NOTED	10	14	14	14	Inspection Stations
BAGGAGE CLAIM	120-600	1	1	1	1	1 Floor Claim Area
EXIT PODIUM (10% Redirect to Secondary)	3-15	4	4	4	4	2 Double Podiums
SECONDARY TRIAGE PODIUM (70% to Waiting/30% to Inspection)	3-15	2	2	2	2	1 Double Podium
ADMISSIBILITY WAITING AREA	180-7200	9	9	9	9	9 Seats (expandable)
SECONDARY BAGGAGE INSPECTION	720-1200	5	5	5	5	4 tables + 1 x-ray station table
EMBARKATION PROCESS		5 hours	5 hours	5 hours	5 hours	
GTA ARRIVAL	VAR.					Based on Survey at Pier 27/35
SECURITY SCREENING	10	5	7	5	7	X-ray machines
TICKETING / CHECK-IN	120	26	40	26	40	Mobile Desks

INITIAL FINDINGS – QUEUE VS. PROCESSING STAFF

Vessel Debark Rate per Hour

4000 pax / 3.75 hours debark = 1066 pax / hour = 10 Booths

Average Passenger Processing Rate

(80% pax @ 30 sec / pax) + (20% pax @ 150 sec / pax) = 54 sec / pax average

Total Minimum Debarkation Time Required

4000 pax x 54 sec / pax / 10 booths = 6 hours

U.S. Customs and Border Protection

CHAPTER 3

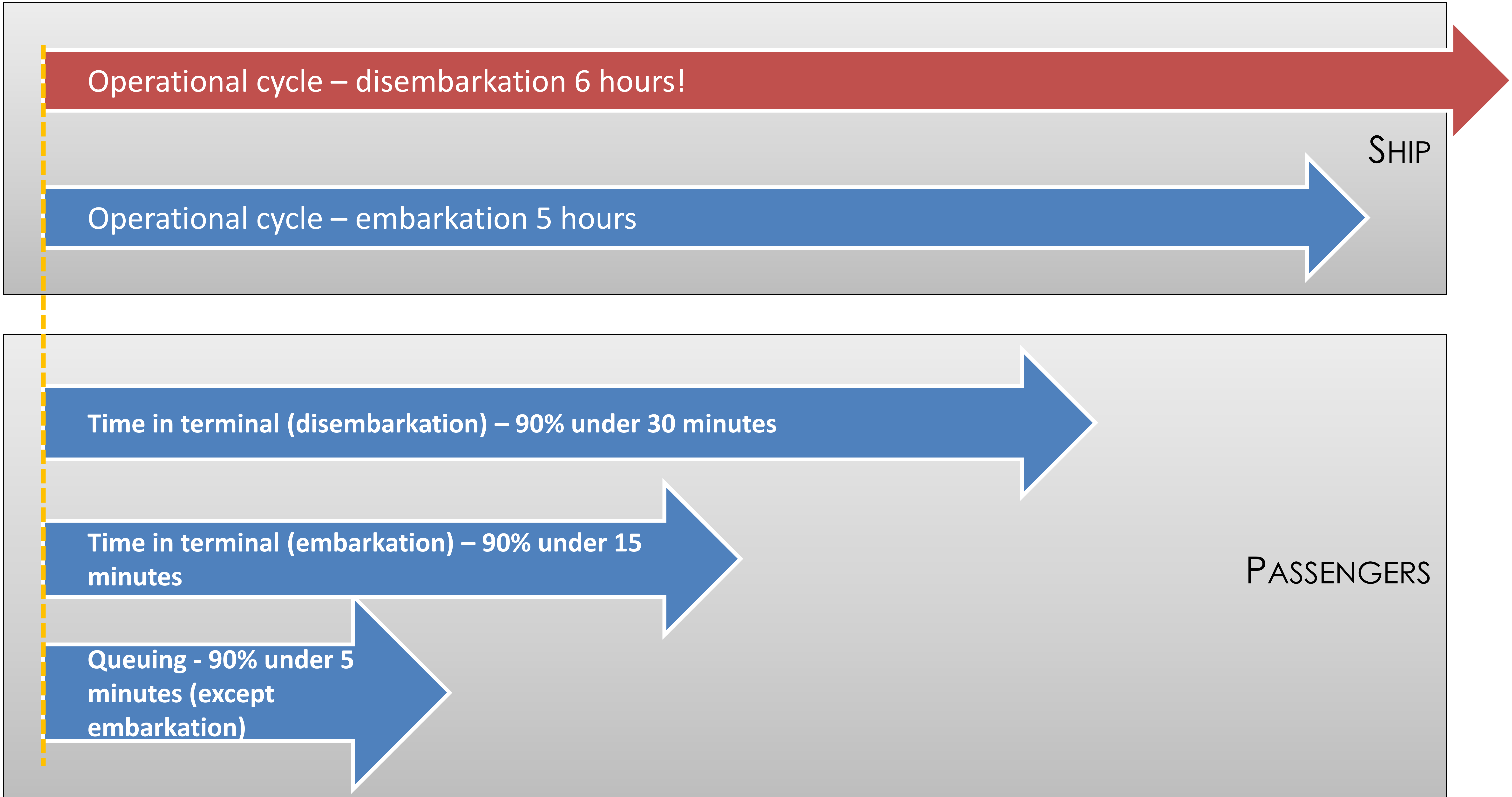
10 Booths

U.S. Customs and Border Protection

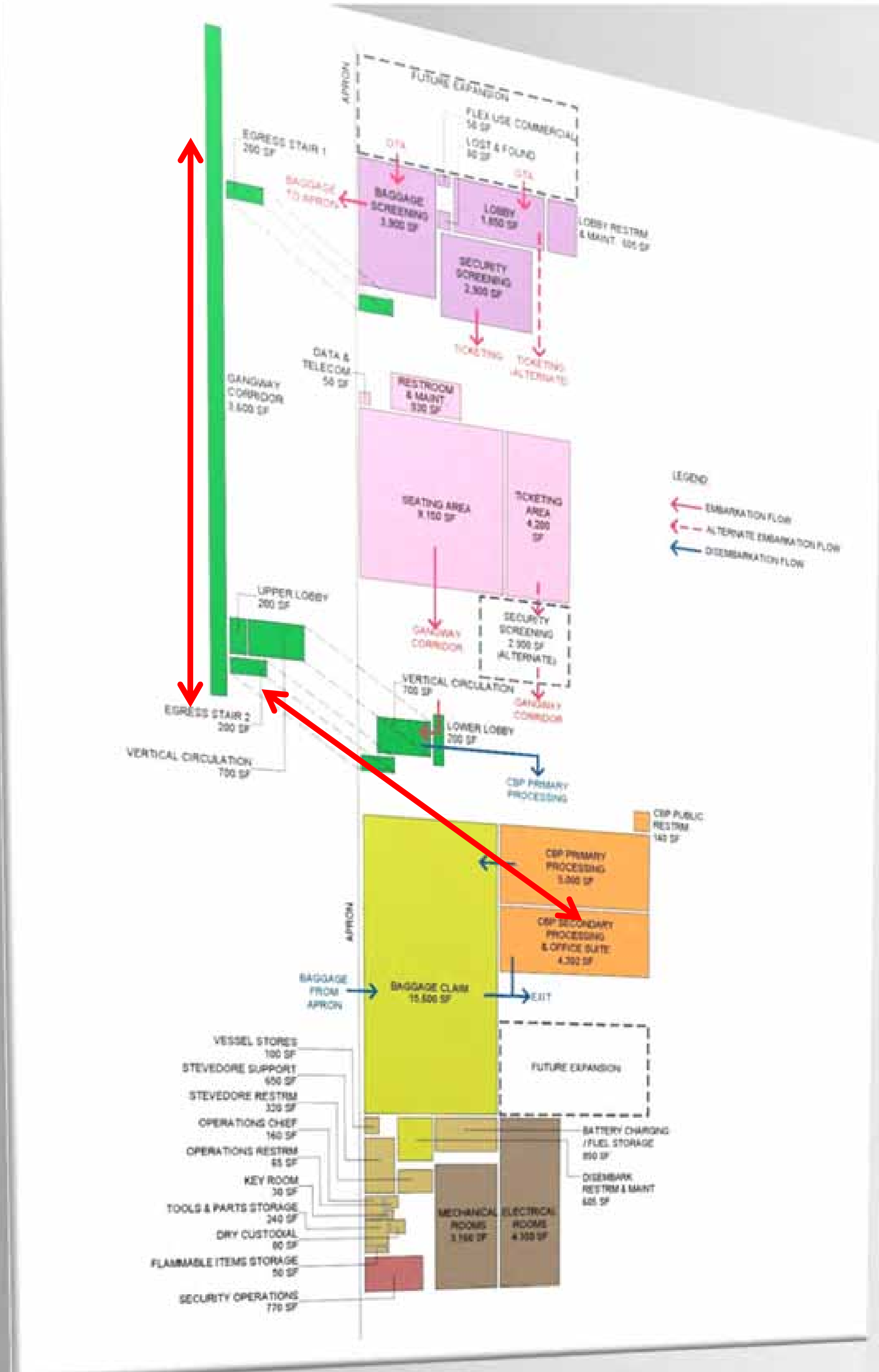
	Table of Space Requirements	Planning Parameters	CRUISELINE (MED) 800 Qty	NSF	1200 Qty	NSF	1400 Qty	NSF	1800 Qty	NSF	Re-marks
Gangway/Sterile Corridor System											
SCS-01	Gangway/Sterile Corridor System	Varies. Coordinate with CBP	V		V				V		
	Total										
Primary Processing											
PP-01	Primary Booth, Queuing, Processing & Exit (per booth)	See Diagrams 1,1a,1b,1c,1d&1e	8	10,560	12	15,840	1	18,480	18	23,760	1

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY

PERFORMANCE STANDARDS – PEAK DESIGN LOAD



FINDINGS – RATE OF PROCESSING – RESULTANT QUEUE SIZE



Base Design Load:

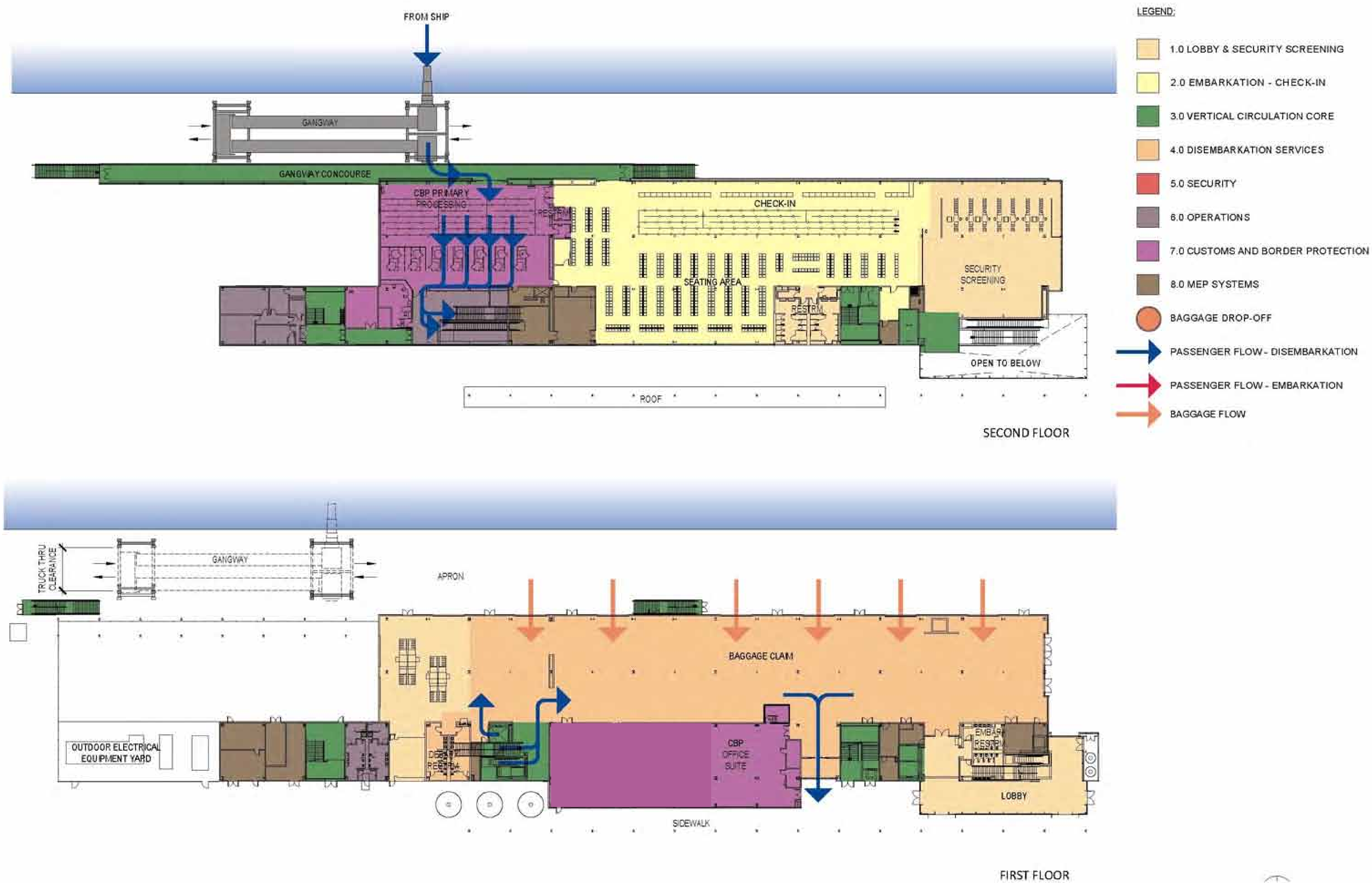
- 2600 passengers
- 1 Gangways
- 3.75 hour debarkation cycle
- 700 pax/hour

Peak Design Load:

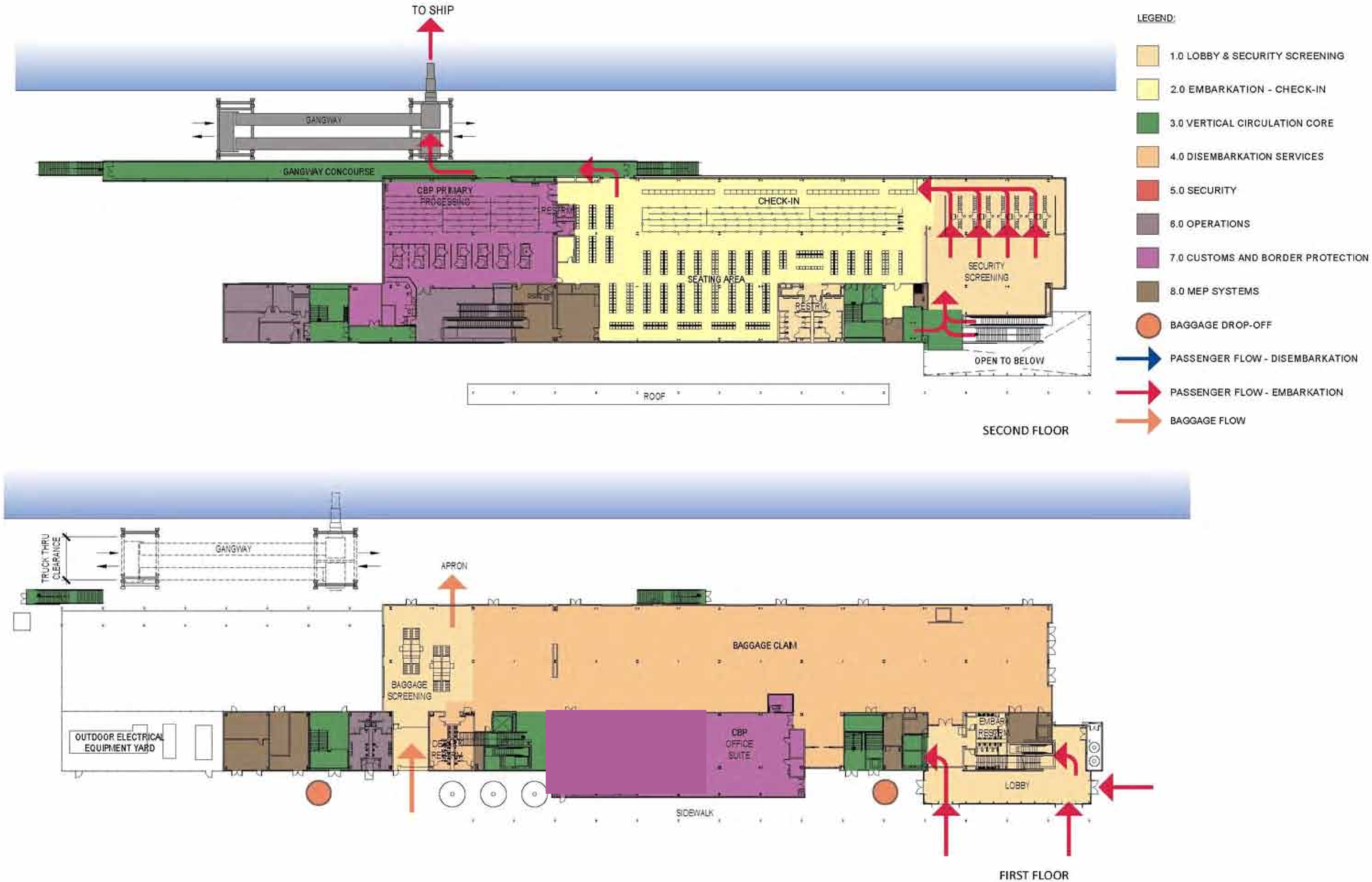
- 4000 passengers
- 1 Gangway
- 4.75 hour debarkation cycle (extended)
- 840 pax/hour

Future Expansion Design Load:

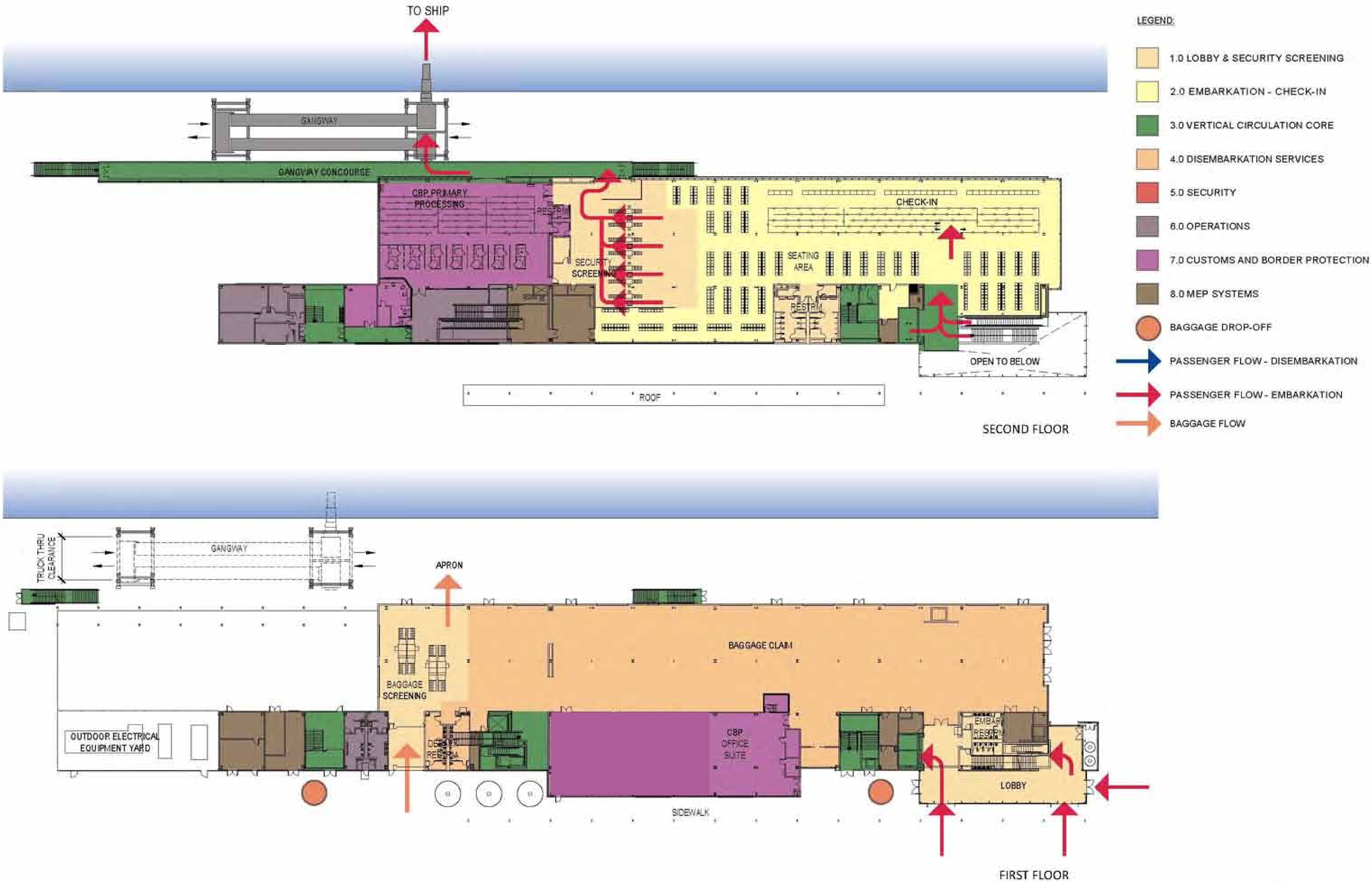
- 4000 passengers
- 2 Gangways
- 3.75 hour debarkation cycle
- 1100 pax/hour



TERMINAL CIRCULATION DIAGRAM DEBARKATION

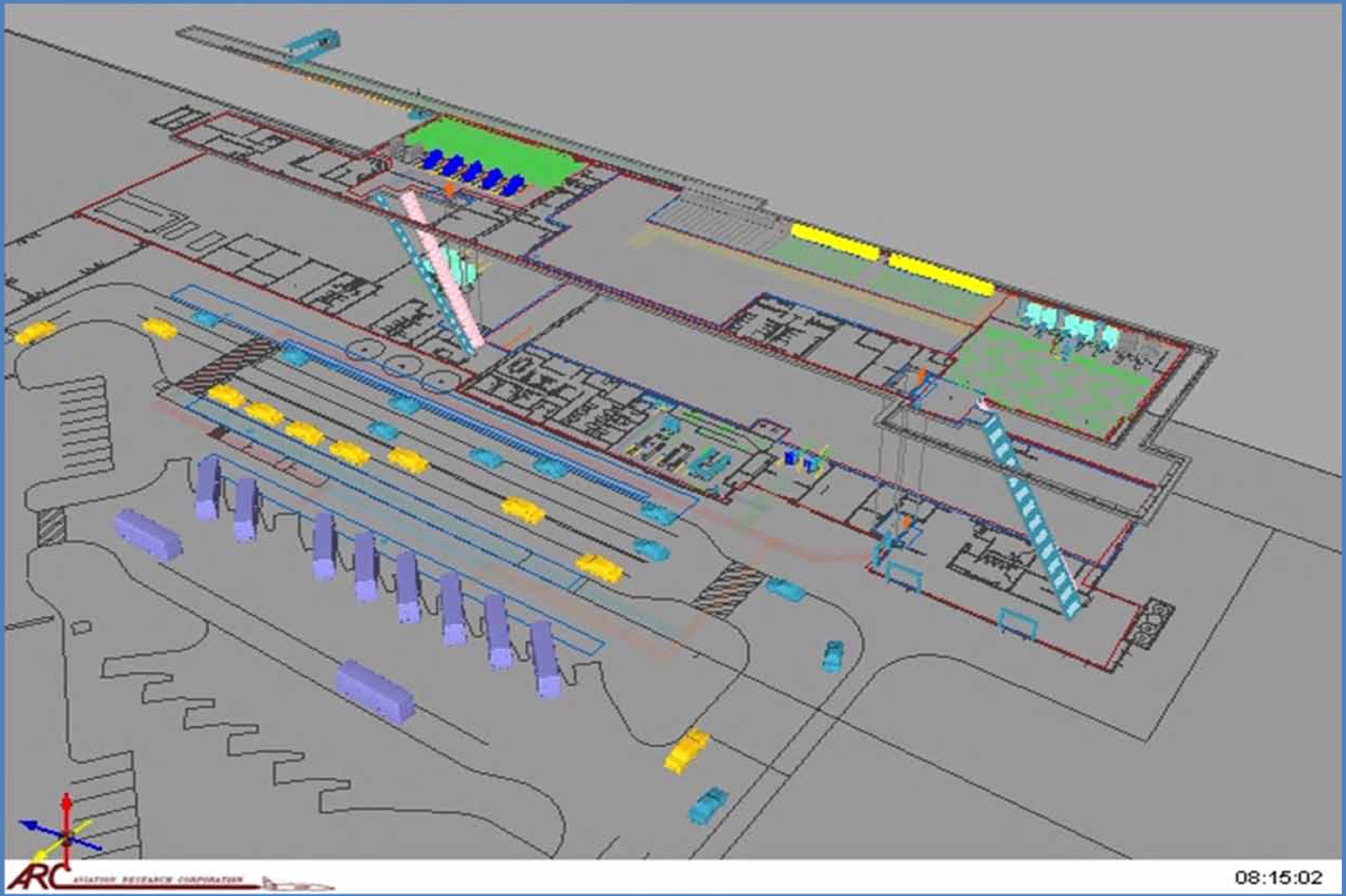


TERMINAL CIRCULATION DIAGRAM EMBARKATION



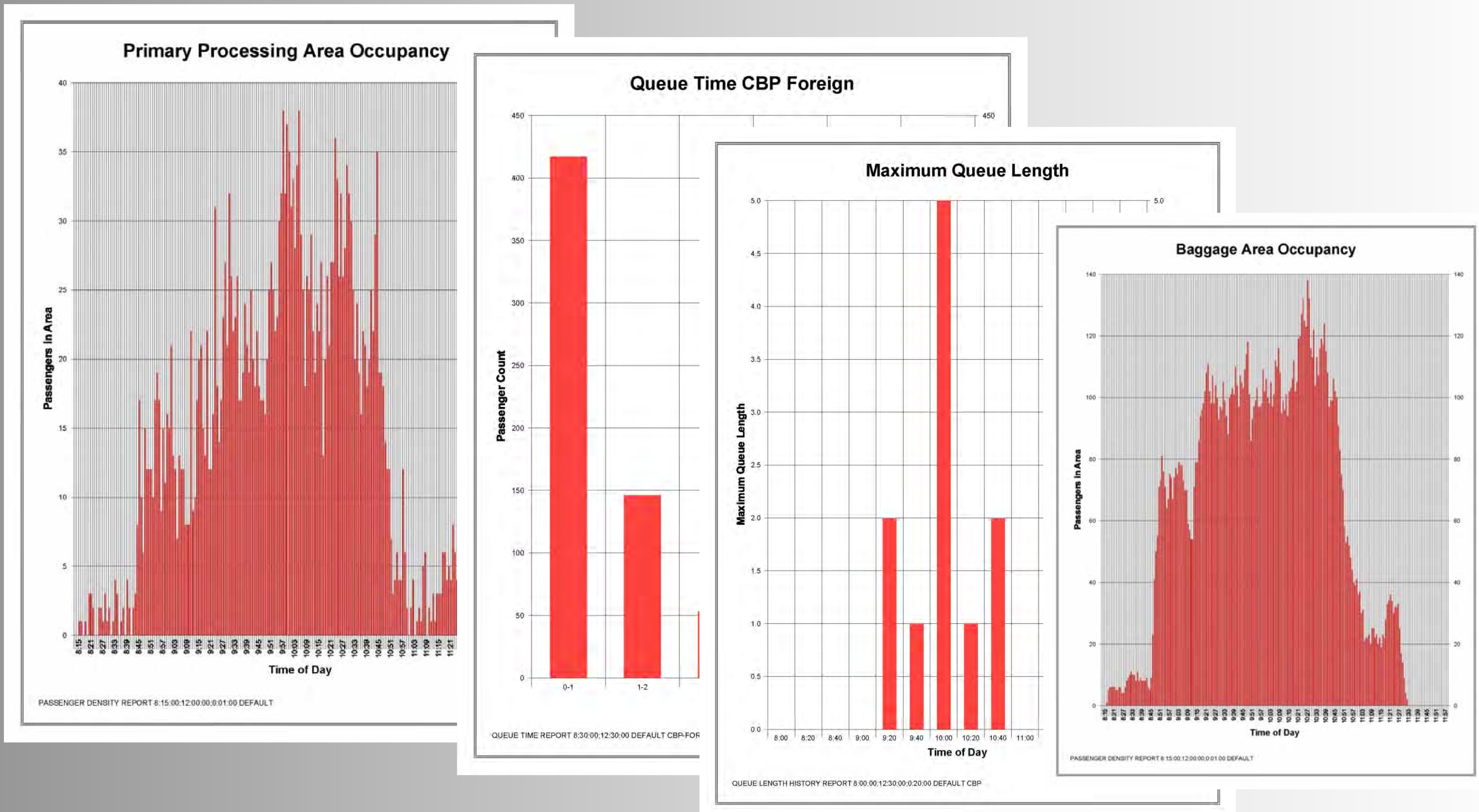
TERMINAL CIRCULATION DIAGRAM EMBARKATION - PRE-SECURITY CHECK-IN PROCESSING

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY
SIMULATION



CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY

FINDINGS – RATE OF PROCESSING – RESULTANT SPACE SIZE



CTDS, Page 1-2:

The Assistant Commissioner, Office of Field Operations, and the Assistant Commissioner, Office of Finance are jointly responsible for the implementation and administration of national policy for the CTDS. **CBP Field Offices** are responsible for applying the policies and procedures contained in the CTDS.

Alternate or equivalent means, exceptions and deviations to the CTDS may be proposed to meet a specific requirement, as discussed in Section 1.1.3 below.

1.1.3 Alternate or Equivalent Means, Exceptions and Deviations

In the event certain **constraints** or **operational requirements** require an **alternate or equivalent means, exception or deviation** to these standards for a particular cruise terminal project, a proposal shall be submitted to CBP for review and consideration. The proposal shall address many unique characteristics of cruise ship operations of the proposed project including: operational flow, space configurations, passenger facilitation, safety and security concerns. **The proposal shall not compromise security, safety, and CBP operations.**

The Director, Field Operations (DFO) with concurrence from CBP Headquarters (HQ), will make final CBP approval determination regarding all requests for alternative or equivalent means, exceptions, and deviations to the CTDS.

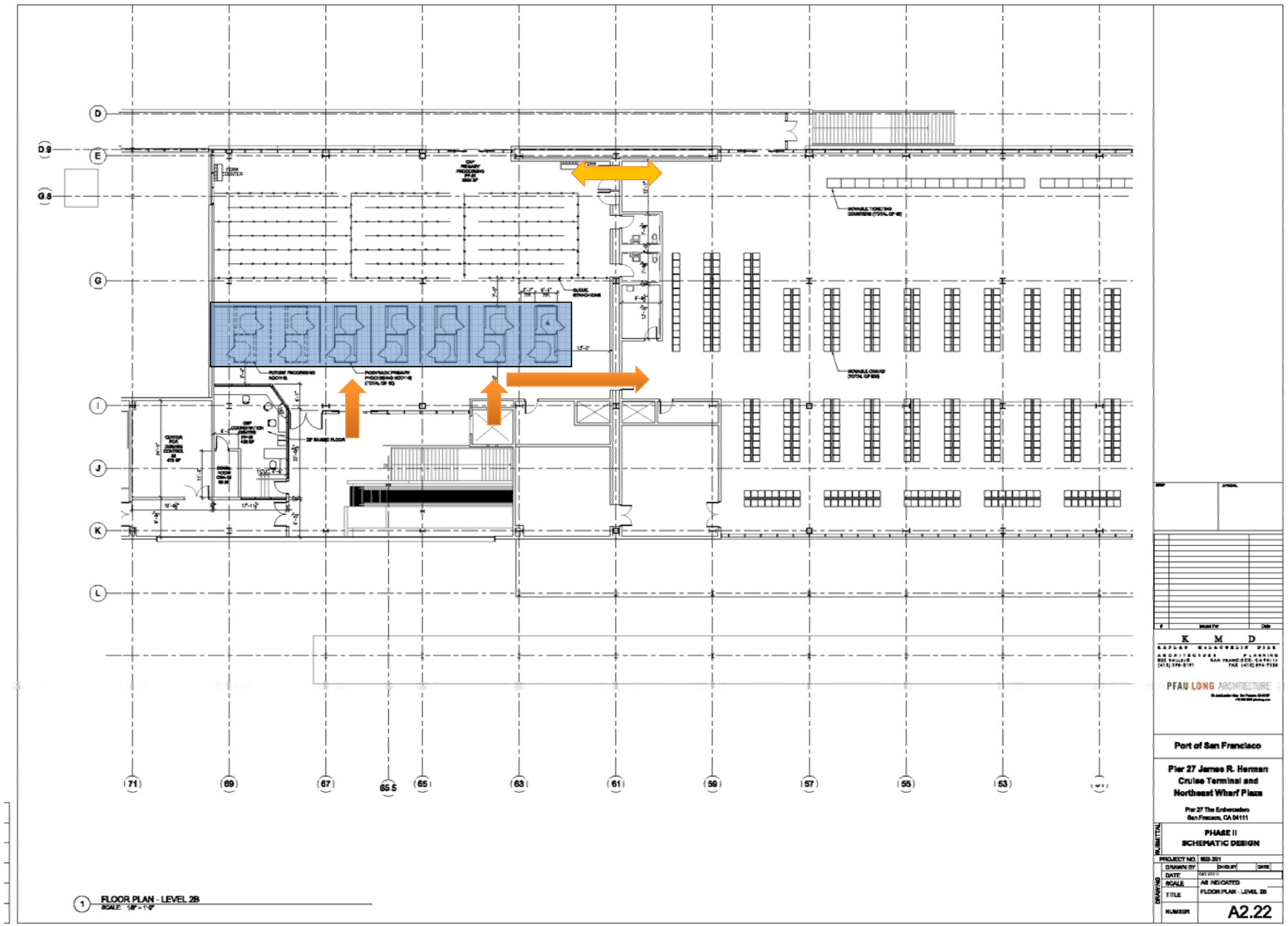
CBP as a Design Team Member

PROGRAM COORDINATION

- **Multi-Use Space Concepts**
- **Leveled Expectations**
- **Meticulous Record Keeping**
- **Defensible Space Design**
- **Technology Integration vs. Application**
- **Additional Revenue Potential**

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY

CBP Standards in a Mixed Use Facility

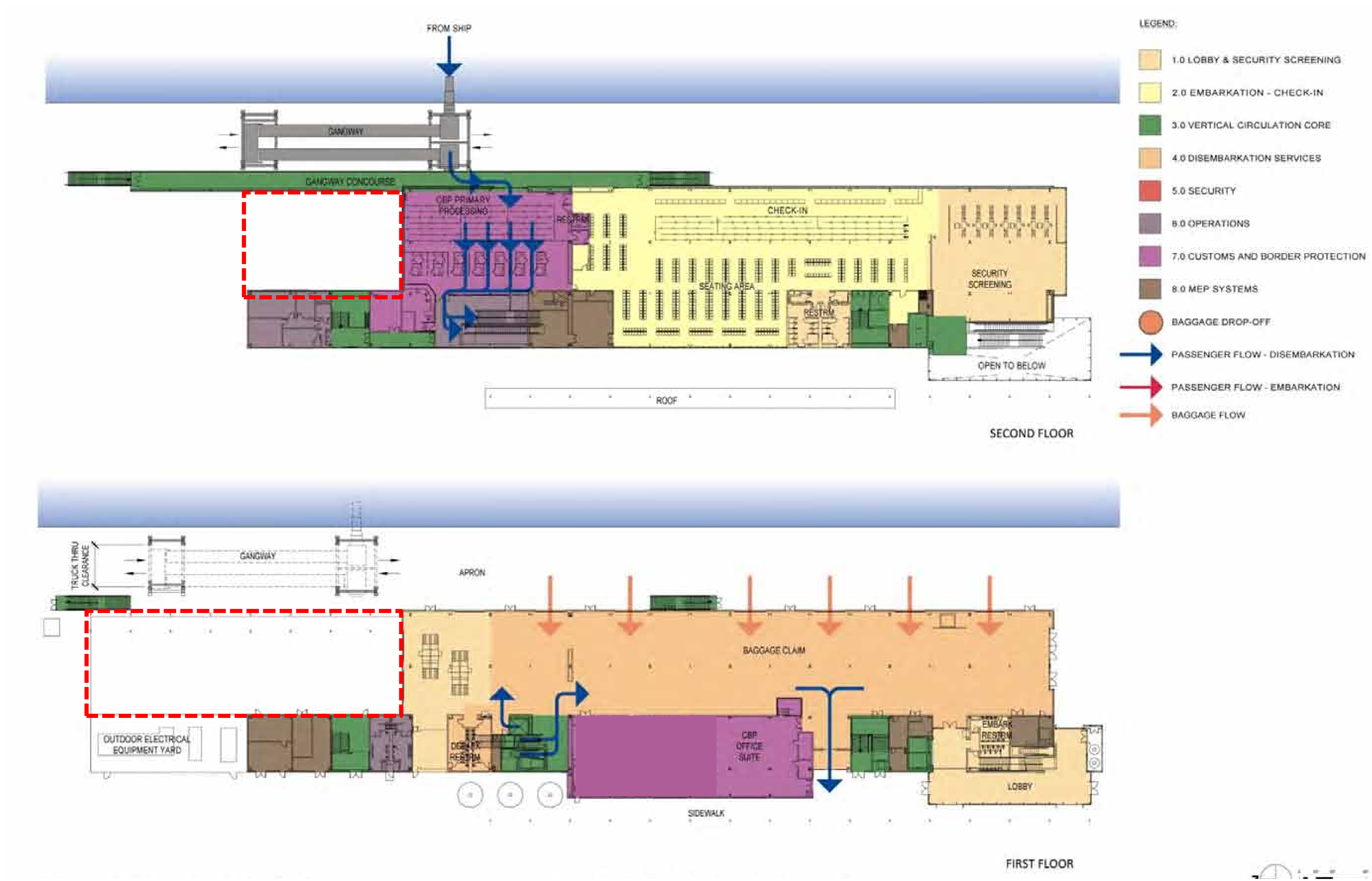


CBP Standards in a Mixed Use Facility

CBP Standards in a Mixed Use Facility

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY

CBP Standards in a Mixed Use Facility



CBP Standards in a Mixed Use Facility

CBP Standards in a Mixed Use Facility

CBP Standards in a Mixed Use Facility

FINISHED PRODUCT…ALMOST!


PIER 27


PIER 27

AAPA CRUISE SEMINAR

CRUISE FACILITY DESIGN, PROCESSING, SAFETY & SECURITY

Jim Rowe, AIA
Bermello Ajamil & Partners

APRIL 25, 2013