



GALVESTON WHARVES

20 Year Master Plan Draft

Growing Port Business to provide for a thriving Community

June 2019





GALVESTON WHARVES

Total Approx. ~ 728.5 Acres

- HISTORIC PORT
- LINKED TO HOUSTON, TEXAS AND THE MIDWEST
- DIVERSIFIED CARGO OPPORTUNITIES
- KEY CRUISE HOMEPORT WITH GROWING CONSUMER MARKET
- INVESTMENT NEEDED FOR GROWTH



Work Completed to date

- Key Market Assessments
 - Cargo opportunities including RO RO, Auto, Container, Commodities, etc.
 - Cruise
 - Commercial
- Infrastructure Assessment
 - Primary focus on piers
 - Secondary building structures
 - Conducted on site visual inspections / interviews with Port Engineering Staff
- Public / stakeholder outreach
 - Round 1 completed / Round 2 upcoming
- Preliminary Port Vision Layouts
 - ID of key infrastructure improvements / currently finalizing budgets
 - Financial Model development – including input / analysis of Capital Plan and long-term financial forecasting

PUBLIC FEEDBACK

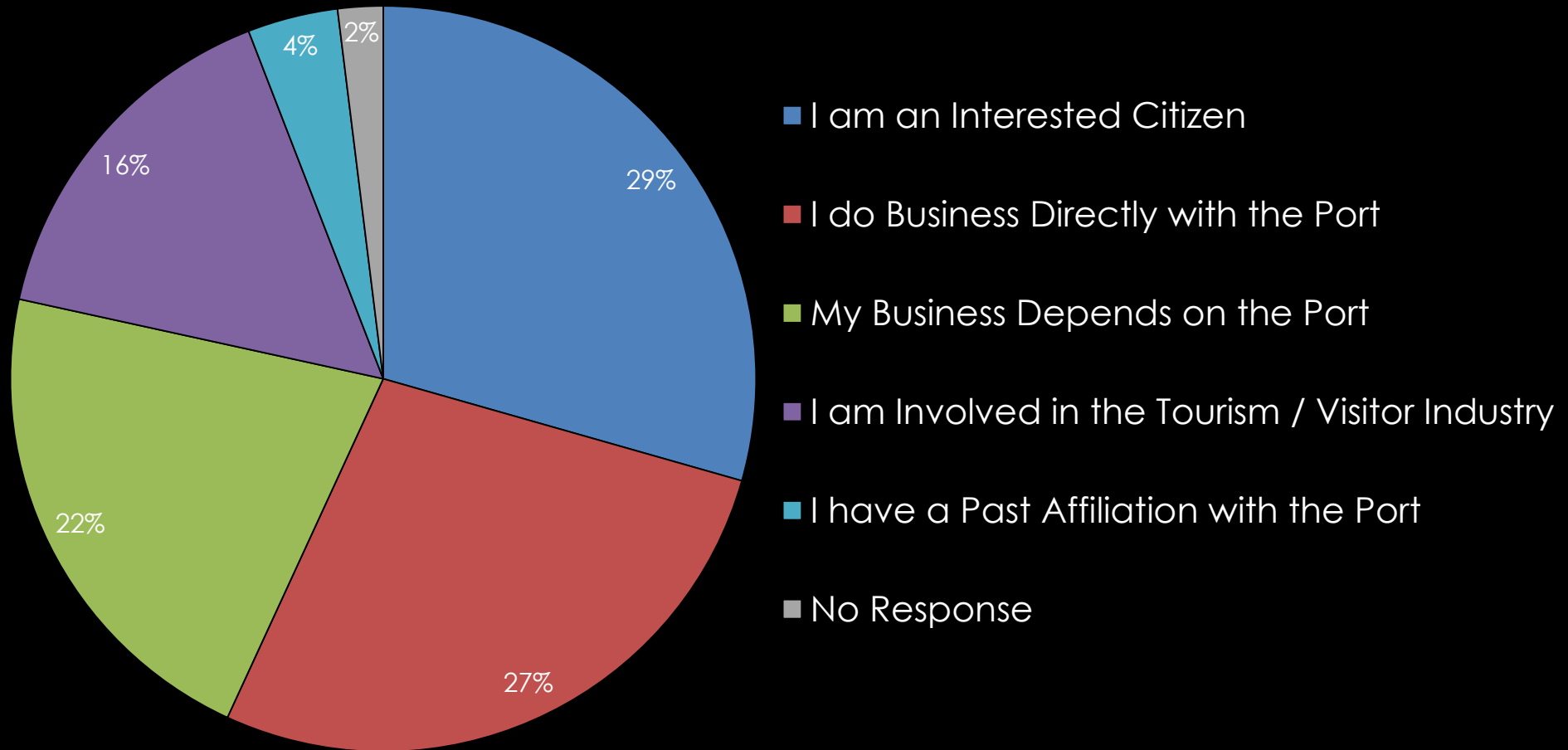
Initial Public Commentary

- First Public outreach meetings - February 26 and February 27, 2019
- Comments received were used to refine the draft Master Plan prior to the next workshop process with the Galveston Wharves Board of Trustees and other important Port stakeholders
- Attendance to the Open House meeting, based on the sign-in sheet, was 107 people
- Attendance to the smaller meetings with stakeholders and key community opinion leaders, based on the sign-in sheet, was 28 people.
- A total of 19 comment cards, 33 questionnaires and 1 email were received at and after the meetings
 - Attendees were able to fill out both the comment card and questionnaires.
 - ~ 90 comments across the key categories: General, Traffic / Environment, Cargo, Cruise, Commercial Development, Parking, Security, Financial

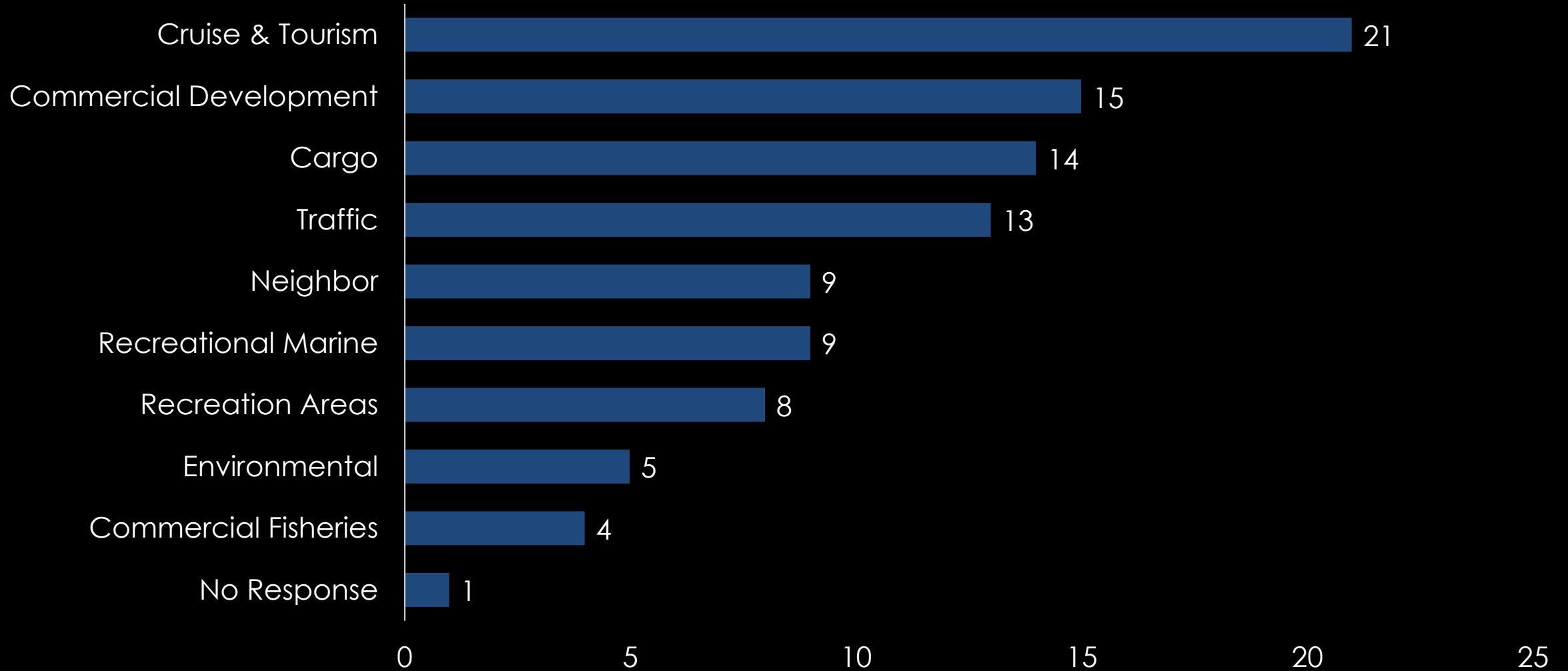
General observations

- Of the 107 people at the meeting, just over 50 had written comments and in general showed interest in the future of the port.
- Cruise and Tourism was the major area of interest to most attendees, followed by Commercial Development and Cargo.
- Traffic congestion was the topic that drove highest concern across respondents, the future of cargo was the secondary concern.
- A few respondents felt the plan focused too much on cruise over cargo.
- There existed some confusion of the scale of the project and how the Port could possibly add or develop given the current land / buildings in existence.

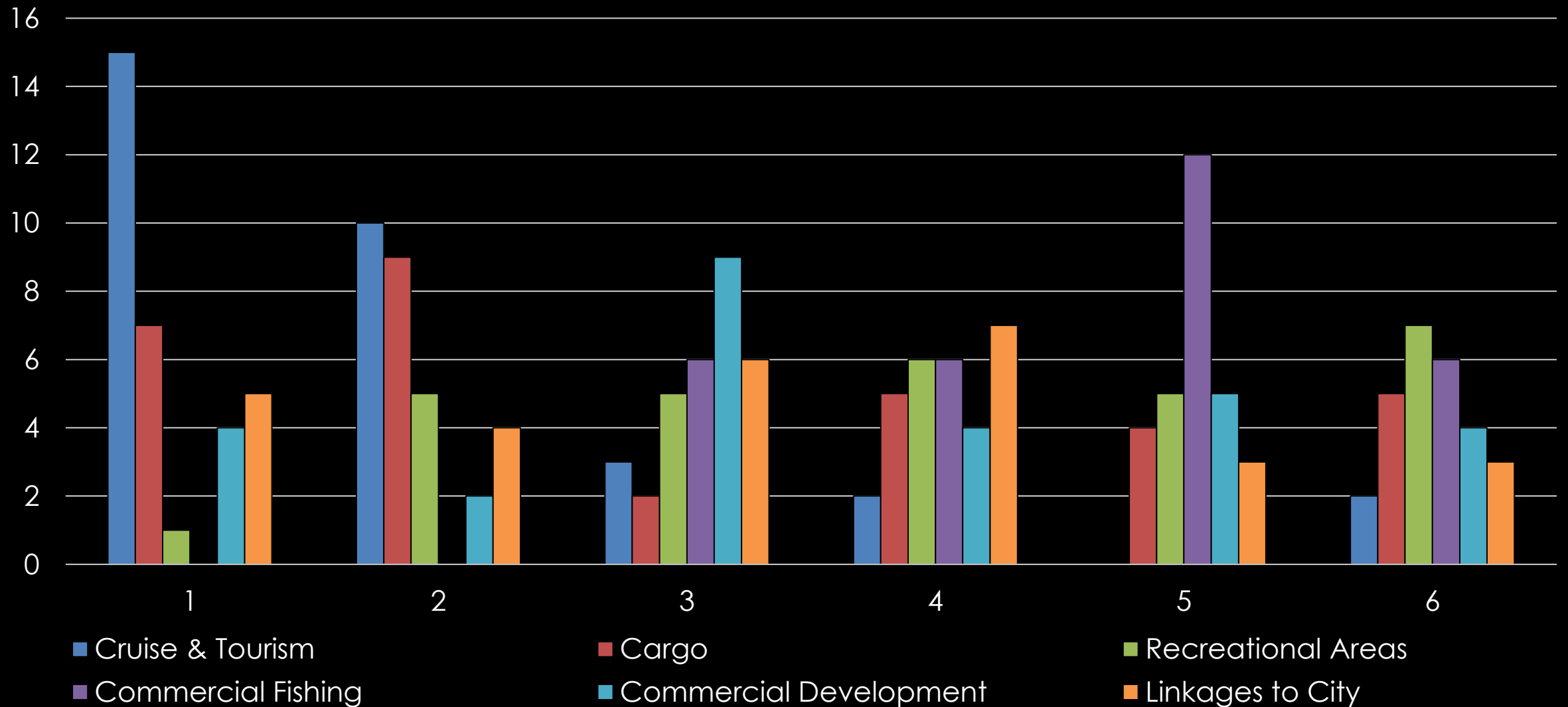
Respondents Affiliation to Master Plan Updates (multiple responses selected by respondents)



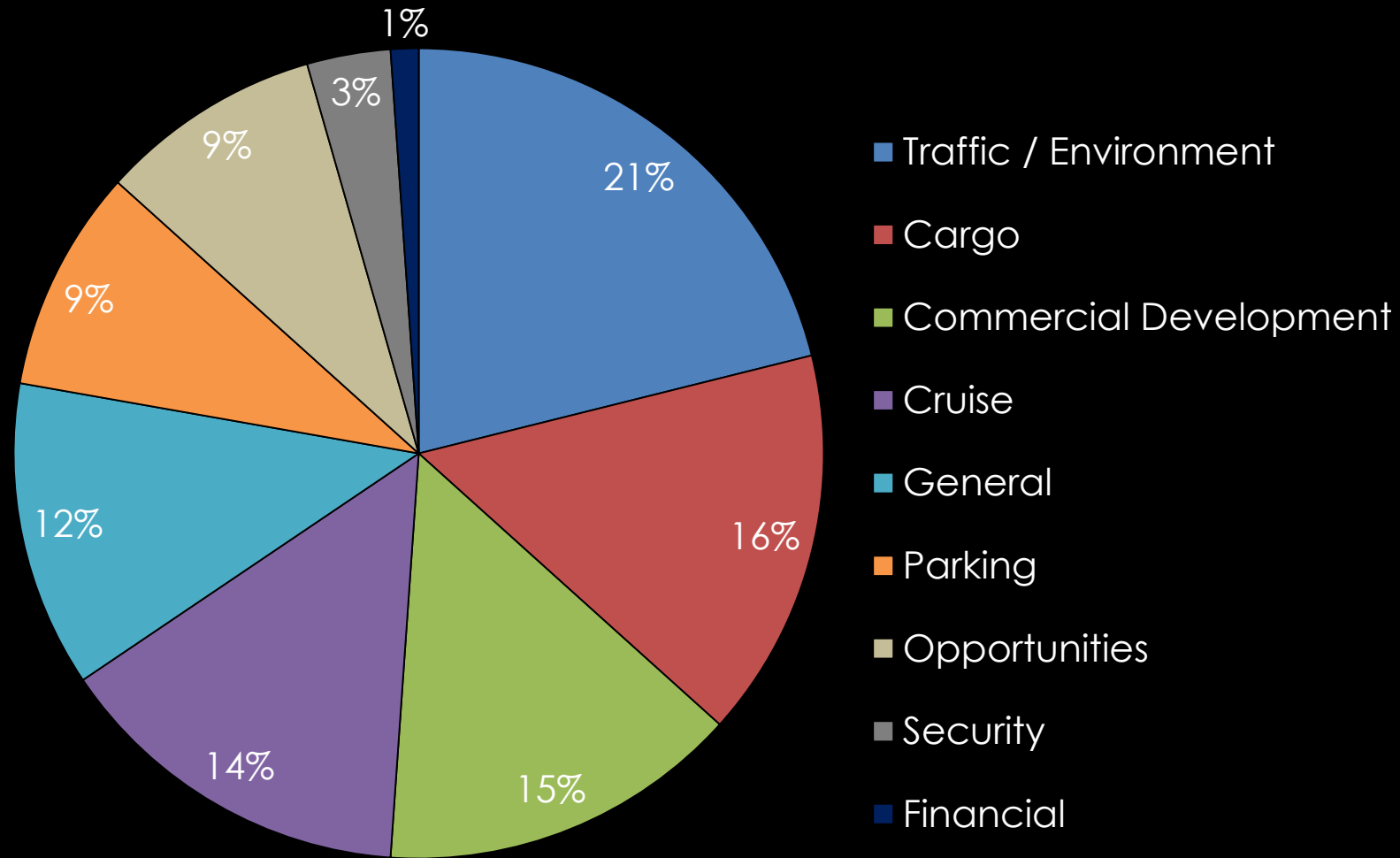
Respondents Area of Interest (multiple responses selected by respondents)



Respondents Prioritization of Port Strategic Direction (Rank 1 to 6, 1 being the highest, 6 being the lowest)



Comments Received per Category (multiple responses selected by respondents)



General conclusions

- There is great interest and support for the future of the Port of Galveston and a desire to continue a dialogue with the public and working with stakeholders while the Strategic Master Plan is furthered developed and as implementation proceeds over the years.
- Thoughtful input was provided from the public on all areas of interest.
- It is beneficial to continue the dialog and share updates with the public as the Master Plan progresses into the next phases.
- There is general support for the draft plan while addressing the specific comments.

INFRASTRUCTURE ASSESSMENT

Infrastructure Assessment

- The condition assessment is performed in order to quantify the extent of the deficiencies and damage of the port marine infrastructure, assess the use of existing piers and establish a general sense of the priority of repairs.
- Most piers are in fair condition and would require some minor repairs or modifications to accommodate existing or new operations.
 - Repair estimates ~19-million long-term (shown) including Pier 10 work
- Warehouses and cruise terminals generally in good repair
 - Del Monte - roof repairs completed as needed
 - CT 1 repairs 19/20 budget roof repair and slab issues in terminal / walkway upgrades now
 - CT 2 excellent shape – A/C unit replacement
 - Other warehouses / C&M buildings – good shape

Existing Port Wide Elements

- Channel, Berths and Uplands – key port elements
- Interior Transportation Network – rail & roadways
- Primary structures – supporting cargo and cruise
- Support infrastructure – Maintenance facilities, drainage and outfalls



2018 Port of Galveston Strategic Master Plan Preliminary Condition Assessment Map



PIER 37
ASCE Rating: FAIR
B&A Rating: FAIR

PIER 34-35
ASCE Rating: FAIR
B&A Rating: FAIR

PIER 30-32
ASCE Rating: FAIR
B&A Rating: FAIR

PIER 26
ASCE Rating: FAIR
B&A Rating: FAIR

PIER 12
ASCE Rating: SERIOUS
B&A Rating: POOR

PIER 41 (T-HEAD)
ASCE Rating: SATISFACTORY
B&A Rating: GOOD

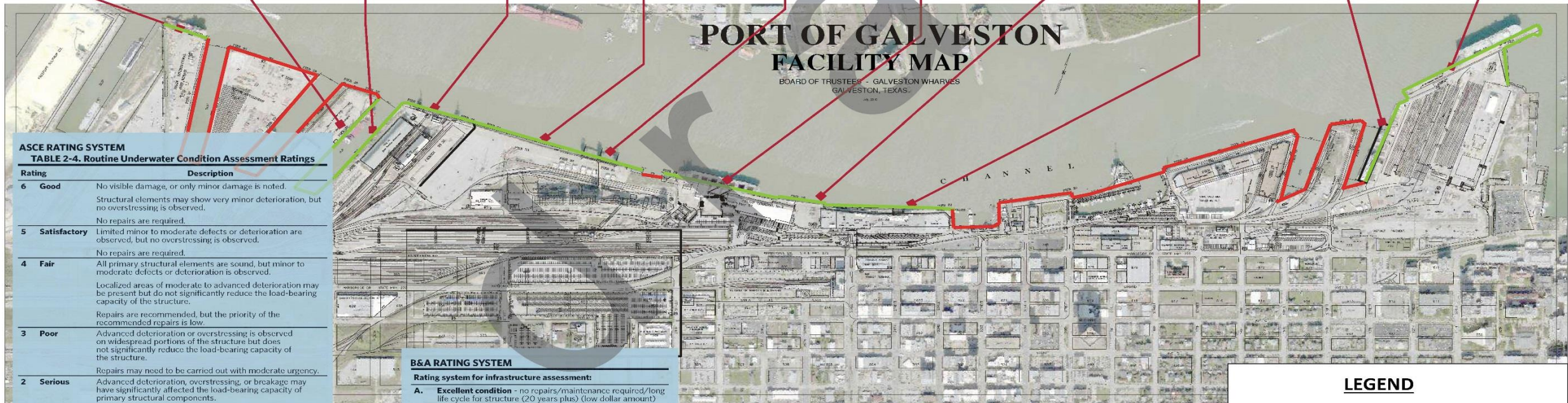
PIER 36
ASCE Rating: CRITICAL
B&A Rating: WORST

PIER 33
ASCE Rating: FAIR
B&A Rating: FAIR

PIER 27-29
ASCE Rating: FAIR
B&A Rating: FAIR

PIER 23-25
ASCE Rating: POOR
B&A Rating: POOR

PIER 10
ASCE Rating: FAIR
B&A Rating: GOOD



**PORT OF GALVESTON
FACILITY MAP**
BOARD OF TRUSTEES - GALVESTON WHARVES
GALVESTON, TEXAS.

ASCE RATING SYSTEM
TABLE 2-4. Routine Underwater Condition Assessment Ratings

Rating	Description
6 Good	No visible damage, or only minor damage is noted. Structural elements may show very minor deterioration, but no overstressing is observed. No repairs are required.
5 Satisfactory	Limited minor to moderate defects or deterioration are observed, but no overstressing is observed. No repairs are required.
4 Fair	All primary structural elements are sound, but minor to moderate defects or deterioration is observed. Localized areas of moderate to advanced deterioration may be present but do not significantly reduce the load-bearing capacity of the structure. Repairs are recommended, but the priority of the recommended repairs is low.
3 Poor	Advanced deterioration or overstressing is observed on widespread portions of the structure but does not significantly reduce the load-bearing capacity of the structure. Repairs may need to be carried out with moderate urgency.
2 Serious	Advanced deterioration, overstressing, or breakage may have significantly affected the load-bearing capacity of primary structural components. Local failures are possible and loading restrictions may be necessary. Repairs may need to be carried out on a high-priority basis with urgency.
1 Critical	Very advanced deterioration, overstressing, or breakage has resulted in localized failure(s) of primary structural components. More widespread failures are possible or likely to occur, and load restrictions should be implemented as necessary. Repairs may need to be carried out on a very high priority basis with strong urgency.

B&A RATING SYSTEM
Rating system for infrastructure assessment:

A. Excellent condition - no repairs/maintenance required/long life cycle for structure (20 years plus) (low dollar amount)
B. Good condition - minimal repairs/maintenance required for a specific purpose/life cycle (15 - 20 years)
C. Fair condition - some repairs/maintenance required to be used for a specific purpose / life cycle (5 - 10 years) (midpoint dollar amount)
D. Poor condition - substantial repairs / maintenance required to be used for a specific purpose / life cycle (5 years or less)
E. Worst condition - complete rebuild / renovation required to be used for a specific purpose / life cycle (none) left for structure (high dollar amount)

LEGEND

- High Priority Docks to be Assessed (Detailed Level 1 Observation)
- Low Priority Docks (Float-by Observation)

Improvement projects, *Bulkhead*

Item	Timeline	Budget	Notes
Pier 10 - Pier, Pile, Hardware	0-5 YR	\$8.0 M	Concrete Patching – \$100,000; Concrete Pile Repair – \$300,000; Hardware Updates – \$7.6 M. Assumes new fenders / paneling are installed for cruise ships.
Pier 23-25 – Pile, Jetty, Fenders	0-5 YR	\$2.8 M	Steel Pile Repair – \$1.6M; Jetty Platform Demolition - \$250,000; Jetty Platform Construction – \$750,000; Fender Repairs – \$200,000. Pile, cap, fender damage.
Pier 26 – Pile, Jetty, Hardware	0-5 YR	\$750,000	Jetty Platform Demolition - \$250,000; Jetty Platform Construction – \$500,000. New jetty and updated fenders and bollards.
Pier 27-29 – Pile, Cap	0-5 YR	\$250,000	Steel Pile Repair – \$200,000; Concrete Patching - \$50,000. Spalling, pile repair.
Pier 37 – Deck, Cap, Pile, Hardware	0-5 YR	Slip Fill	Concrete Patching – \$100,000; Concrete Pile Repair – \$100,000; Hardware Updates - \$300,000.
Pier 41 (T-Head) - Hardware	0-5 YR	Slip Fill	Hardware Updates– \$10,000; Dive Inspection – \$20,000. Assumes no pile damage.

Item	Timeline	Budget	Notes
Pier 16/18 – Pier, Pile, Hardware	5-10 YR	\$4.5 M	Pile/Patch Repair – \$500,000; Jetty Platform Construction – \$2.0M; Hardware Updates – \$2.0M. Upgrade for New Cruise Facility.
Pier 30-32 –Cap, Hardware	5-10 YR	\$750,000	Concrete Patching - \$100,000; Hardware Updates – \$600,000; Dive Inspection – \$50,000. Assumes no pile damage on inspection.
Pier 33 – Pile, Hardware	5-10 YR	\$350,000	Concrete Pile Repair - \$200,000; Fender Repairs – \$150,000. Install new piles as needed for pier repurposing.
Pier 34 – Cap, Hardware	5-10 YR	\$350,000	Concrete Patching - \$100,000; Hardware Updates – \$50,000; Demo/Pull Sheet Piles - \$200,000. Repair spalling and update hardware.

Improvement projects, *Bulkhead*

Item	Timeline	Notes
Pier 14 – Sheet Pile Bulkhead	NA	Complete replacement likely would not occur.
Pier 15 – Jetty Platform	NA	Spalling observed. Fix and maintain.
Pier 16-18 – Jetty Platform	NA	Maintain.
Pier 36 - Replacement	Slip Fill	Demolition - \$1.0M; New SSP and Cap – \$21.0M; Hardware Updates - \$500,000.
Pier 38 – Concrete Bulkhead, Cell	NA	Failed bulkhead. Likely part of fill project.
Pier 39-40 – Sheet Pile Bulkhead	NA	Failed sheet piles in some sections. Likely part of fill project.
Pier 41 – Concrete Jetty (slip)	NA	Fair condition. Damaged fenders, hardware, etc.

Item	Timeline	Notes
Pier 12 - Demo, Jetty, Hardware	TBD	Demolition – \$1.25M; Jetty Platform Construction – \$5.0M; Hardware Updates – \$500,000. Severe pile damage and spalling.

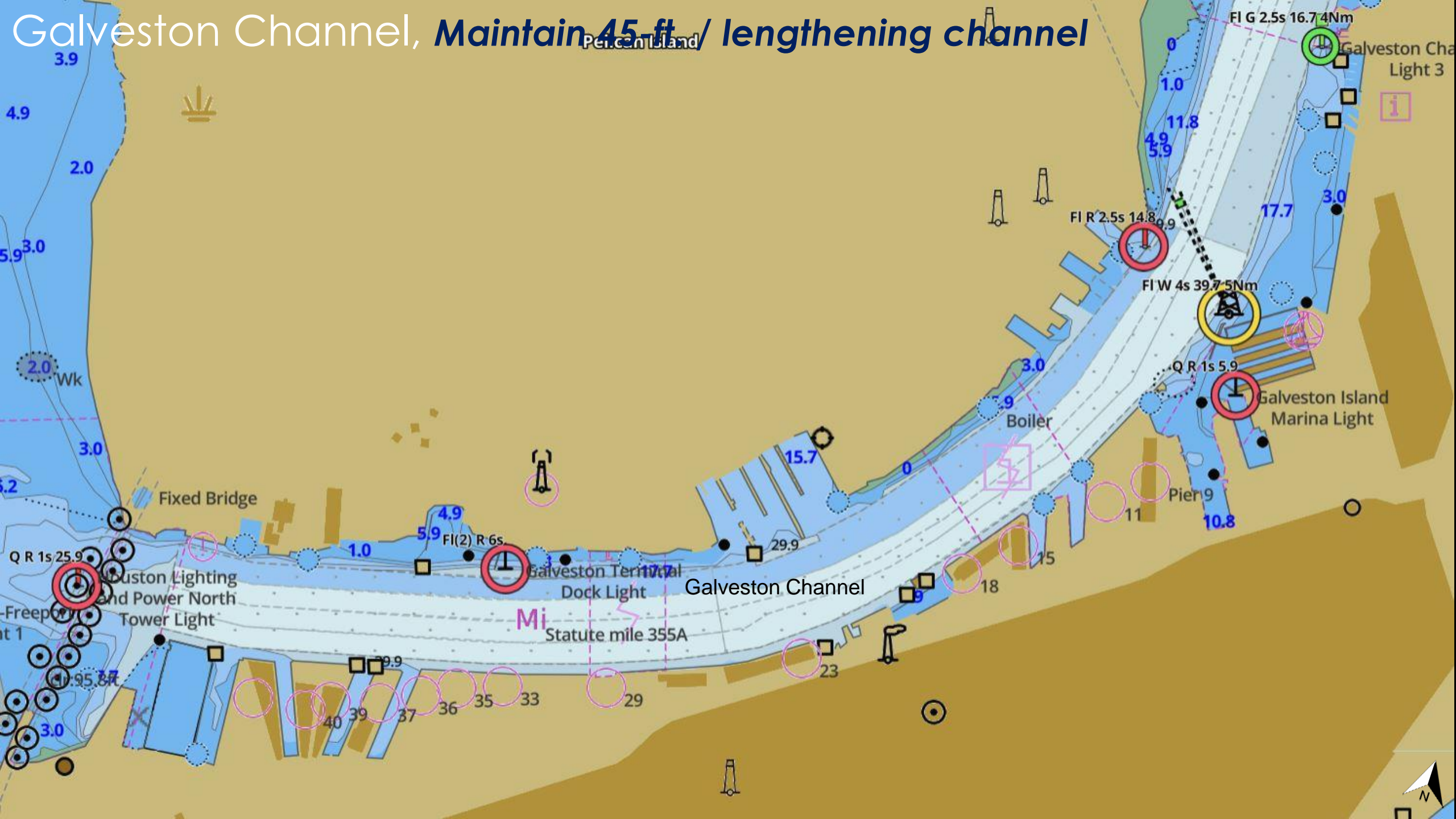
Existing Port Wide Storm & Drainage

Legend

- Storm Sewer
- Man Holes
- Catch Basins
- Outfalls?
- Drainage Issues?



Galveston Channel, *Maintain 45 ft. / lengthening channel*



Improvement projects, *Port Wide & Miscellaneous*

Item	Timeline	Notes
USACE Channel Dredging	0-5 YR	On-going capital program for navigation channel - ~45 ft. plus 1; 41-ft. at berths. Backlog of fees plus new dredging to bridge.
Signage Program	0-5 YR	Done in conjunction with revised port facilities layout; internal roadway; gate revisions; cruise terminal/GTA/Parking development; and, City traffic program.




Item	Timeline	Notes
Renew & Replace Equipment	5-10 YR	Terminals, gate complexes, buildings, etc.
City / Port Outfall Renovation	5-10 YR	As part of the development of the port drainage program, renovation of the outfalls to prevent continued degradation and collapse issues.

Item	Timeline	Notes
Misc. Infrastructure	ANNUAL	Renewal & Replacement Budget - Annual routine maintenance (if not included in other programs)
Utility Infrastructure Improve	ANNUAL	
Fender, moorings & bollard Upg.	ANNUAL	

Item	Timeline	Notes
Land Acquisition / Development	On-going	Purchase tracts of land / rail yard adjacent to Harborside Drive (N & S) for cargo yard, gate and roadway access projects.

ROADWAY / PEDESTRIAN CONNECTIVITY

Legend

-  Internal Roadway
-  Harborside Drive
-  Cargo Roadways
-  Cruise Ingress / Egress



PIER 41

PIER 40

PIER 39

PIER 38

PIER 37

PIER 36

PIER 34

PIER 28

PIER 23

PIER 21

PIER 20

PIER 18

PIER 16

PIER 14

Cargo Gate

Cruise Gate

BMW Gate

Del Monte Gate

GTA 2

GTA 1

25TH ST

STATE HWY 275

HARBORSIDE DR

WHARF RD

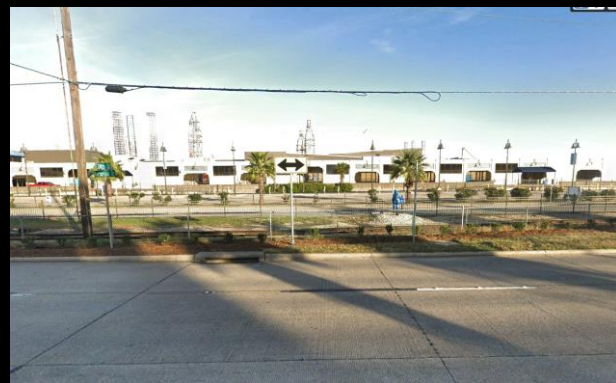
OFFSHORE RIG MUSEUM

MAJIN INTERNATIONAL SHIP REPAIR





1. EXIT ONLY



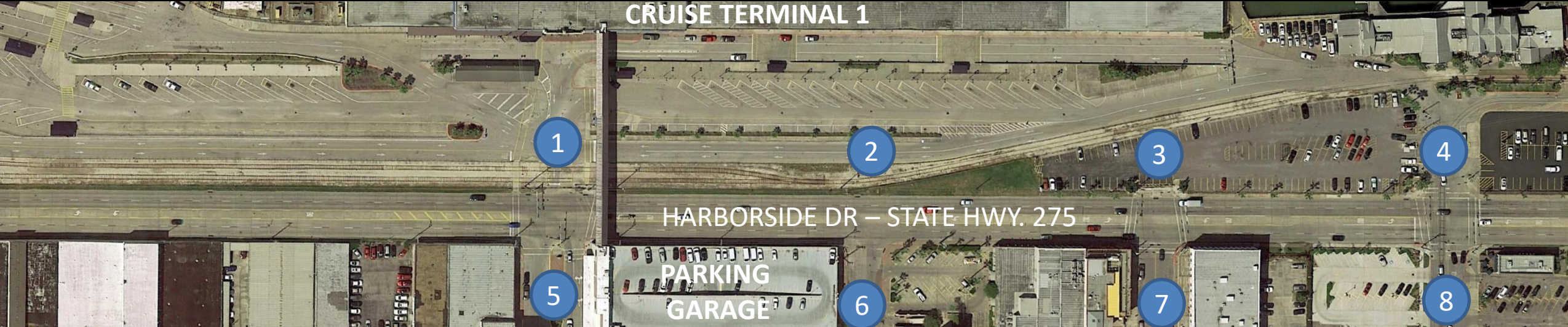
2. NO EXIT



3. CONTROLLED EXIT



4. MAIN ACCESS



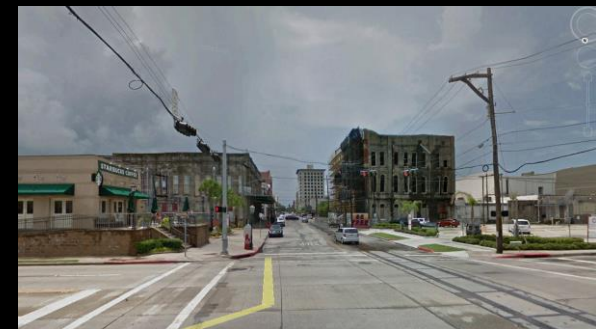
5. 25TH STREET (MEDIANS)



6. 24TH STREET

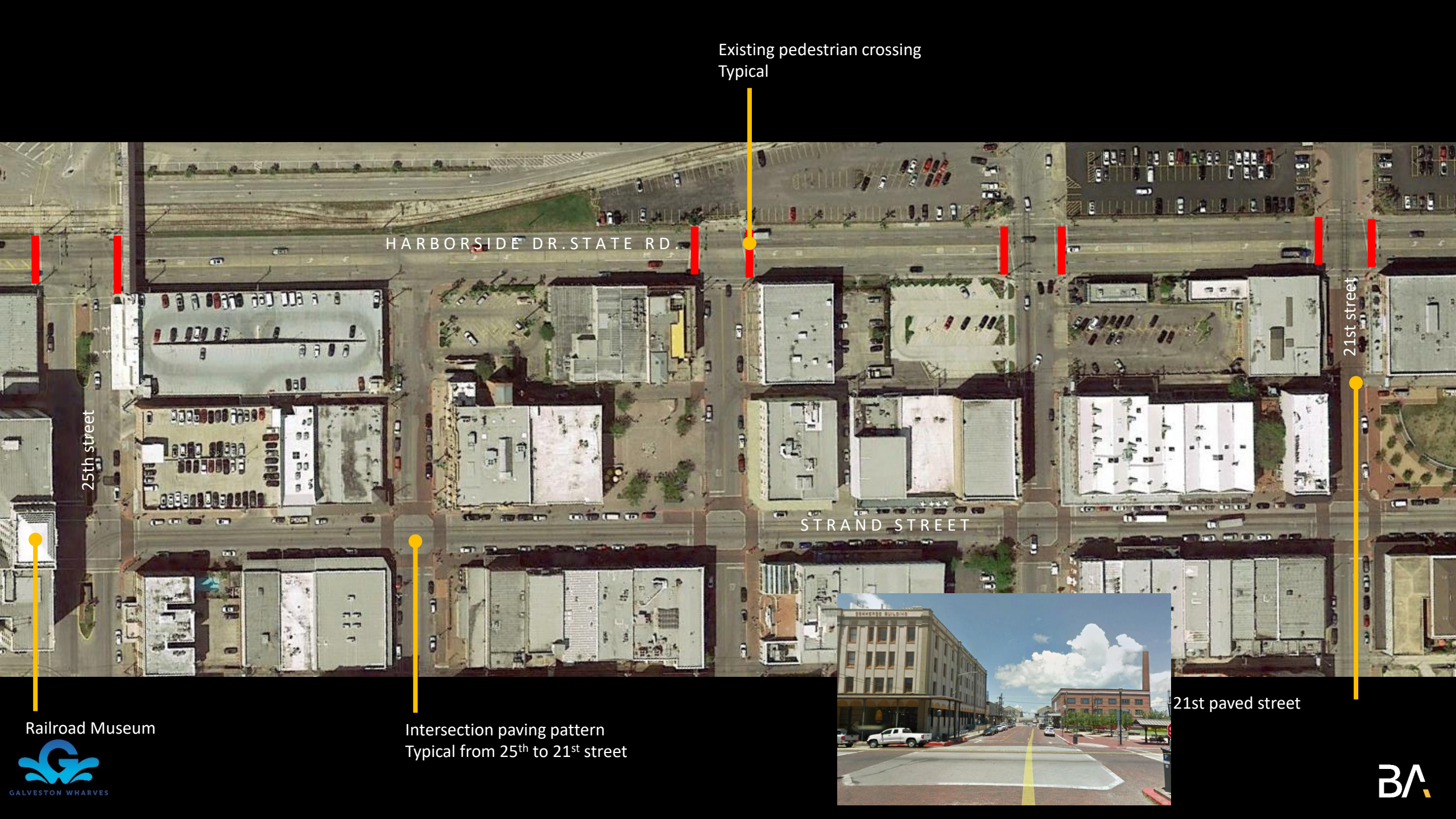


5. 23TH STREET



6. 22TH STREET





Existing pedestrian crossing
Typical

HARBORSIDE DR. STATE RD

25th street

21st street

STRAND STREET

Railroad Museum

Intersection paving pattern
Typical from 25th to 21st street

21st paved street





Railroad Museum



Old Galveston Immigration Station



Existing Cruise Terminals

Commercial

Future Cruise Terminal

HARBORSIDE DR.

STRAND STREET



Shearn-Moody Executive Plaza



Historic Downtown Strand Seaport Partnership



Ashbel Smith Building
"Old Red"





HARBORSIDE DR.

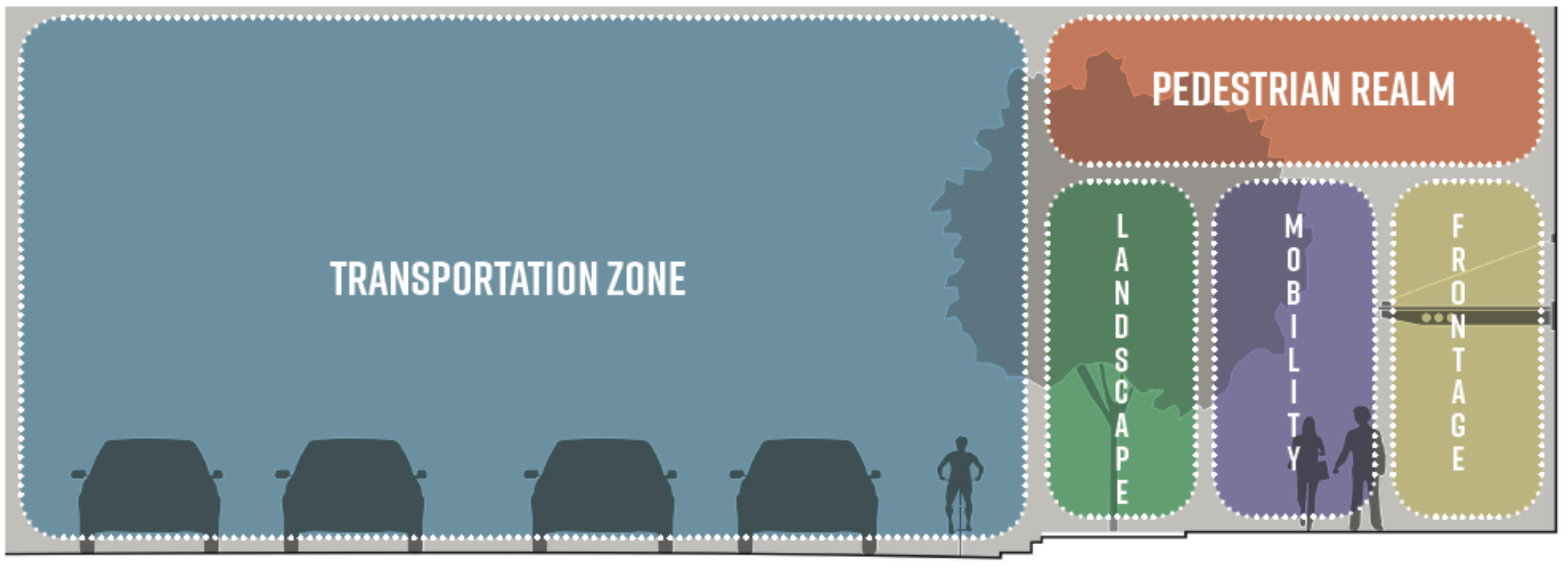


FRONTAGE

FRONTAGE

STRAND STREET

STREET SCENES



COMPOSITION OF THE STREET SCENE

COMPLETE STREET DESIGN CHARACTERISTICS

TRANSPORTATION

- VEHICULAR TRAVEL LANES
- TRANSIT LANES
- BUS PULL-OFF
- BICYCLE LANES
- BICYCLE PROTECTION
- ON-STREET PARKING
- LANDSCAPE MEDIAN/BUFFER

LANDSCAPE

- LANDSCAPING/GROUNDCOVER
- STREET TREES
- TREE GRATES
- PAVING
- STREET FURNITURE
- GARBAGE CANS
- STREET LAMPS
- WAYFINDING/SIGNAGE
- BICYCLE RACKS
- PUBLIC ART
- TRANSIT STOPS

PEDESTRIAN REALM

MOBILITY

- PAVING
- SPECIALTY SURFACE (STONE, TILE, BRICK PAVERS)
- TRANSIT STOP (LIMITED)

FRONTAGE

- PAVING
- BUILDING FRONTAGE TYPE
- BUILDING ENTRY
- STORE SIGNAGE AND MERCHANDISING
- OUTDOOR DINING
- LIMITED LANDSCAPING
- PEDESTRIAN LIGHTING
- WEATHER PROTECTION



TRANSPORTATION
ZONE



LANDSCAPE
ZONE



MOBILITY
ZONE

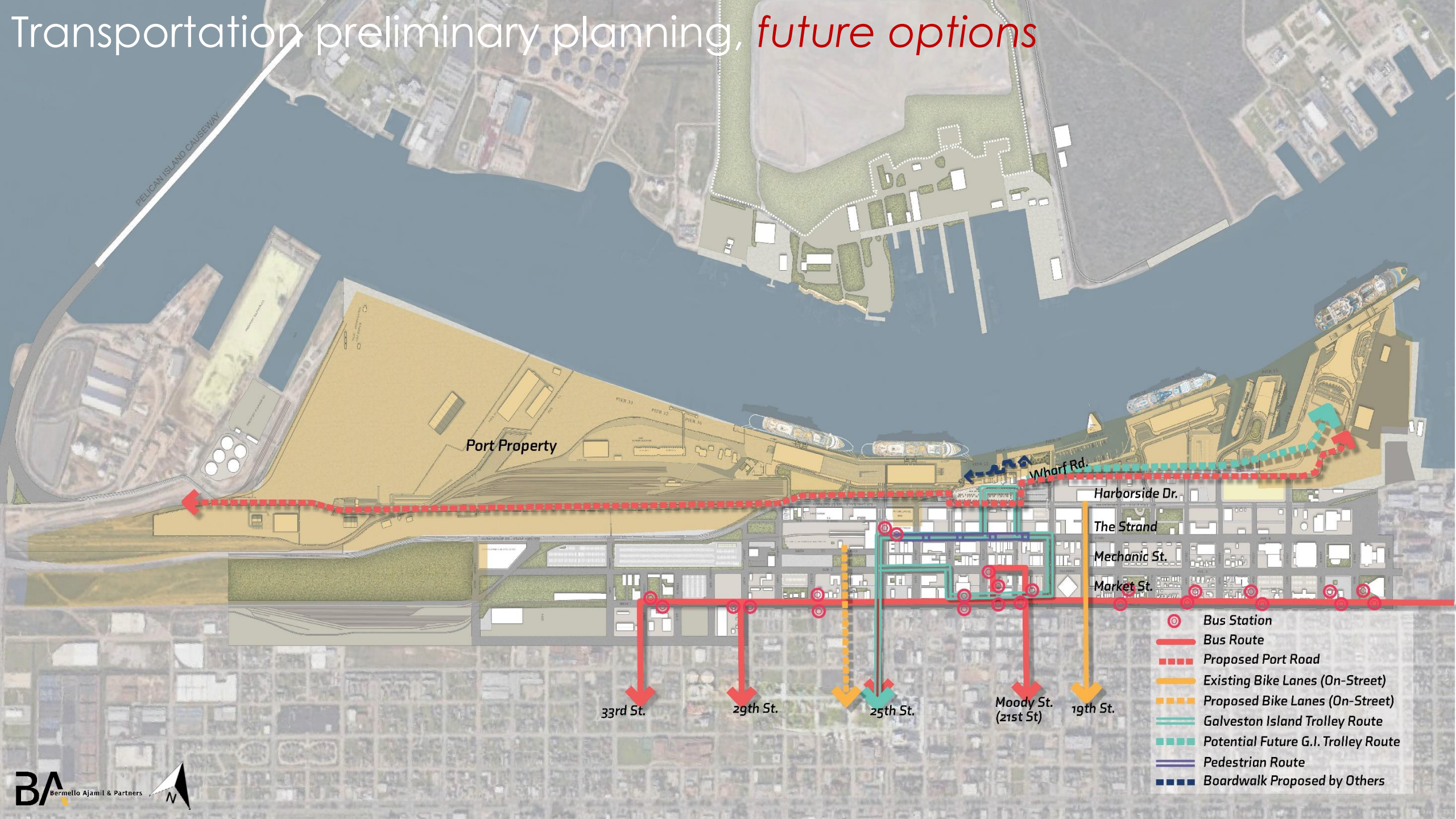


FRONTAGE
ZONE

Roadway next steps

- Traffic study RFQ closed – 4 submittals
 - Used to inform master plan traffic patterns, design work
 - Long-term traffic generation for port and off island traffic issues
- Plan Recommendations to date:
 - Internal port road for cruise traffic to east End from 21st street
 - Internal port road for Midport cruise terminals to West End of Port
- Further define linkage between Strand and Port Commercial areas / cruise
 - Walkways
 - Bridge
 - Trolley

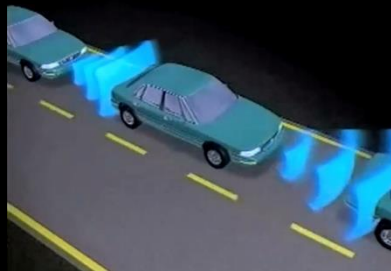
Transportation preliminary planning, *future options*



PORT TRANSPORT / PARKING

The future of parking

- What is the impact of AV technology?
- Will people still drive to the Port to cruise?



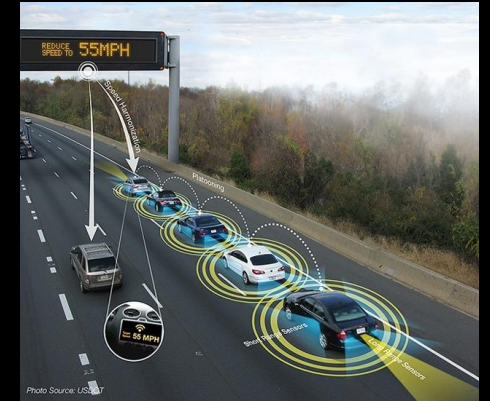
Where is AUTOMATED VEHICLES headed?

▶ Short-term

- Increased safety
- Incident management
- Improved trip time reliability
- Ease driving load

▶ Long-term

- Dedicated automated vehicle lanes
- Intra-City Commute



INTERCITY DRIVING MAY **INCREASE** DUE TO IMPROVEMENTS IN DRIVING TECHNOLOGY AND SAFETY

Transport / Parking Strategy

- Irrespective of the technology, people need to get to and from the ship
- The Port needs a “SMART” transport plan that will respond to changes

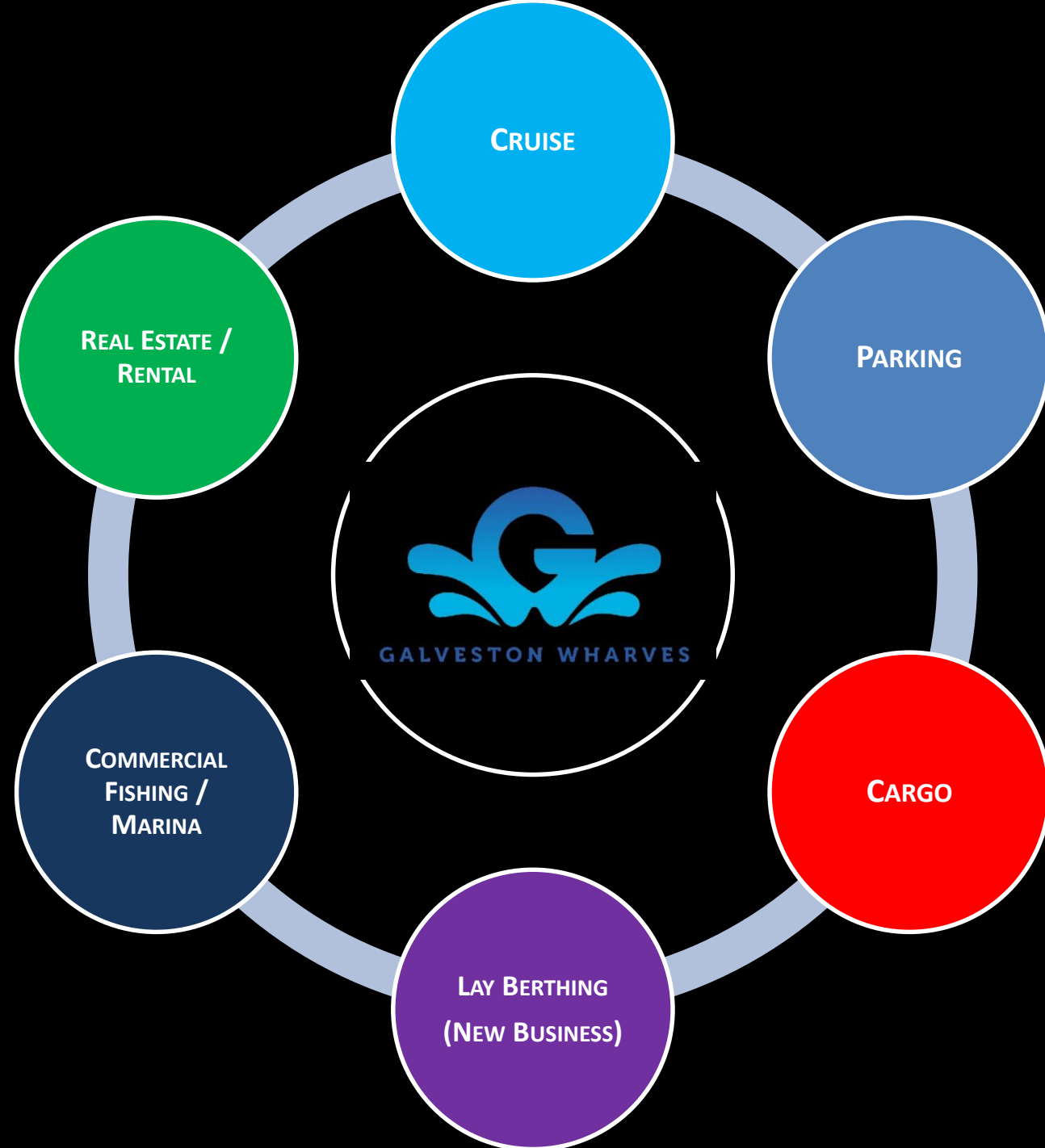
- Either increase parking
- Or
- Increase Intermodal capacity

- Moderate tariffs to respond either way

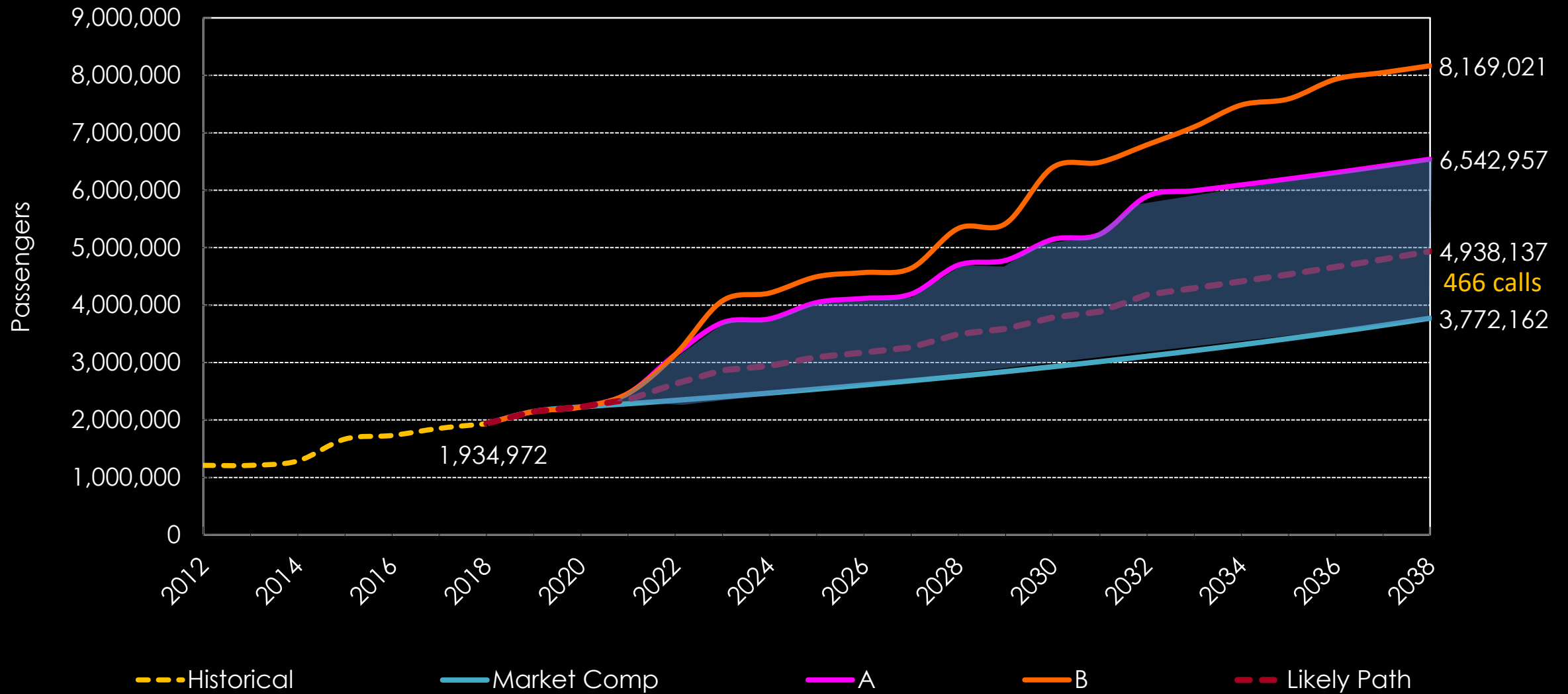
- Parking will continue to increase until pricing pushes to another mode

MAJOR BUSINESS LINES

Business lines

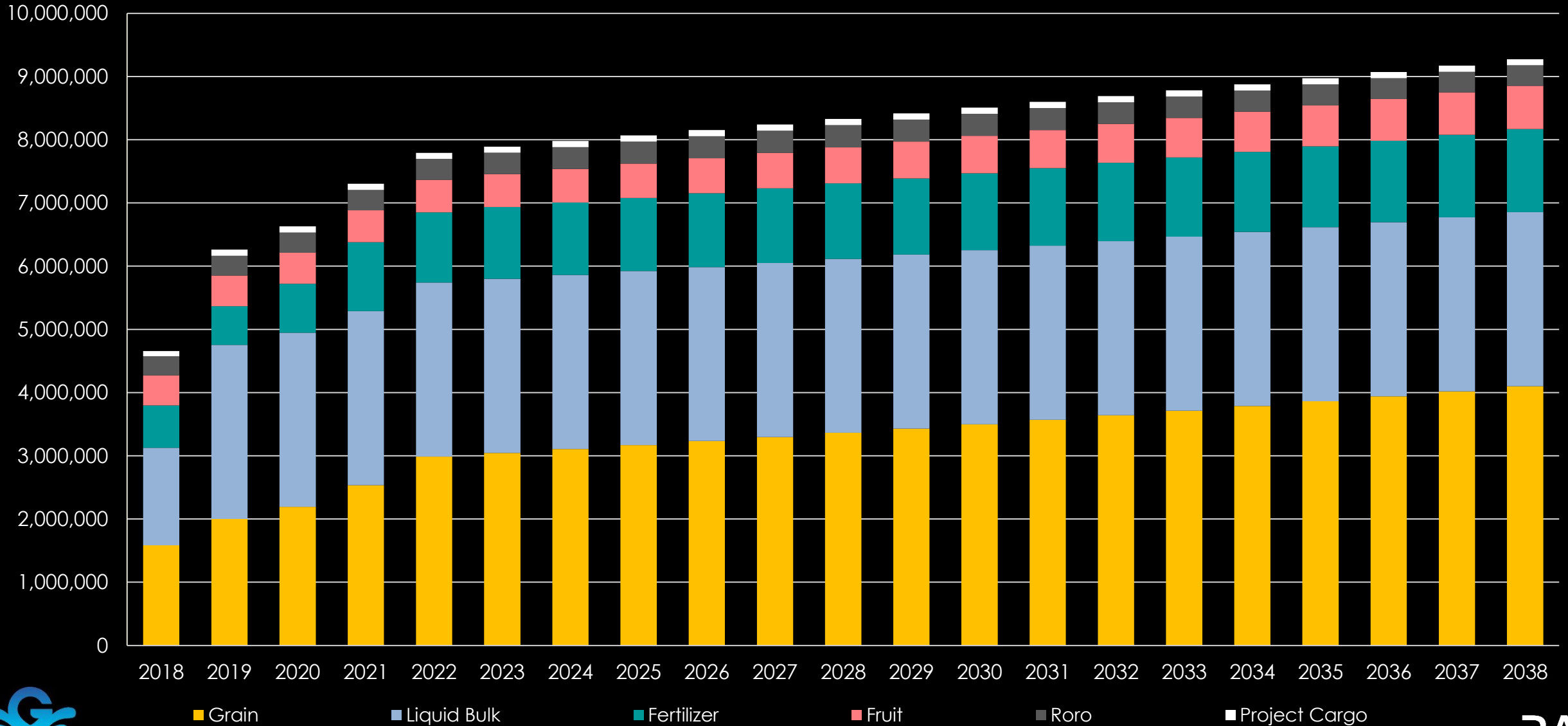


Passenger projection Range, 2012 - 2038



Cargo Tonnage, High Forecast

Capital improvements (rail / yard capacity) included to handle / facilitate new business in the high cargo forecasts



Cargo Analysis

- New cruise terminal will displace WWL
 - 25 acres plus 4 overflow acres and covered storage in FTZ
- No leasehold terminal space for Ports America or Metro
 - PA shares with Metro's project cargo and wind energy
 - If slip is filled, approximately 80 plus acres available
 - In order to accommodate near-term cargo displacement and needs, long-term leases with terminal operators are recommended
 - allows individual tenants to maximize financial operations and to market to new customers
- Potential auto account would require about 100 rail-served acres

Cargo Analysis

- Pelican Island has long been an identified area for expanded cargo
 - No rail access, no truck bridge access
 - Terminal, equipment, berths, channel, rail, bridge issues
- Will revenue generation of cargo operations be able to carry development costs??
 - Unclear if traditional cargo operations can support terminal development and bridge/ rail construction
 - Time horizon of development – 5-10 years
- Other industry, not displaced cargo or containers, will likely be required to financially justify development costs at Pelican Island
 - Private sector investment in such LOBs as methanol, ethane crackers, fertilizer production, LNG/LPG, pipe manufacturing, etc.

Commercial Analysis

- Limited commercial opportunity in the office market
 - Only tied to new port office building, none included at present
- Hotel opportunity at the port is viable over the longer term
 - Not included as a plan element; preferred outside port property
- Rental housing continues to be a bright spot in the market
 - Where maritime activity is unlikely rental housing development should be considered
- Developing retail and restaurants along Harborside Drive / surrounding core areas of the port would enhance connectivity to existing commercial core
 - Long term potential for new commercial in port if strategy fits
- Pedestrian linkage between the cruise port and historic commercial district of the City needs to be strengthened
 - Natural and seamless commercial pedestrian oriented connection
 - As passenger traffic grows, the opportunity to better tie the historic commercial avenues with the port will be enhanced

PORT WIDE VISION PLAN

20 Year Vision Plan, Draft Plan

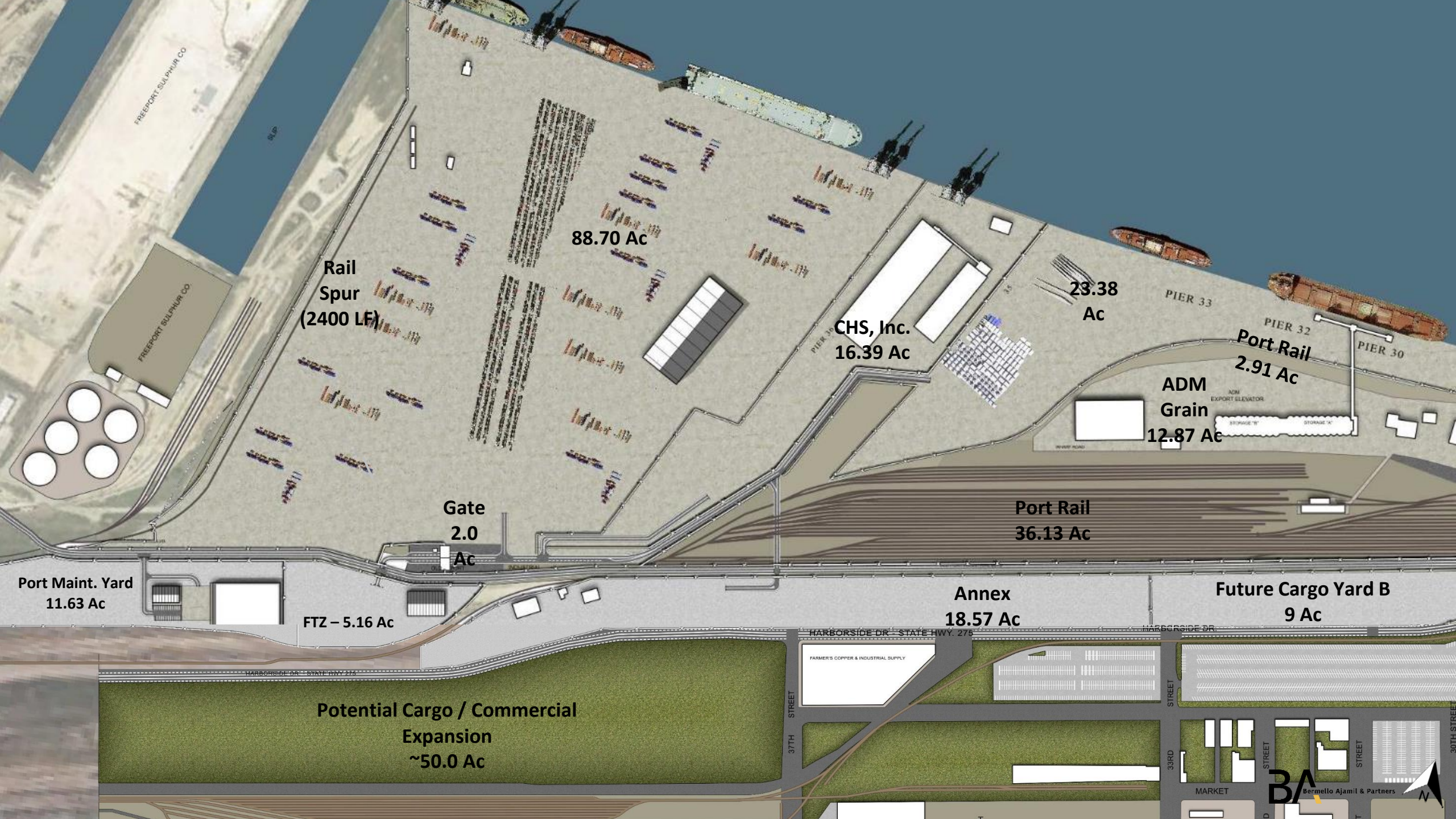


INFRASTRUCTURE PROGRAM - WEST END

West End Property Needs / Options

Current Cargo Area	~58.67 Ac
Leased Cargo Area	~21.04 Ac
Fill Cargo Area	~11.21 Ac
Total Cargo Area Avail.	~90.92 Ac
Needed Cargo Area	~92.50 Ac
Gate Acc. Cargo Area	~ 3.00 Ac
Primary Property	~27.68 Ac
Secondary Property	~132.20 Ac





FREEPORT SULPHUR CO

SLIP

FREEPORT SULPHUR CO

Rail Spur
(2400 LF)

88.70 Ac

CHS, Inc.
16.39 Ac

23.38
Ac

PIER 33

PIER 32

PIER 30

Port Rail
2.91 Ac

ADM
Grain
12.87 Ac

ADM
EXPORT ELEVATOR

STORAGE 'B'

STORAGE 'A'

Port Rail
36.13 Ac

Port Maint. Yard
11.63 Ac

FTZ - 5.16 Ac

Gate
2.0
Ac

Annex
18.57 Ac

Future Cargo Yard B
9 Ac

Potential Cargo / Commercial
Expansion
~50.0 Ac

HARBORSIDE DR - STATE HWY. 275

HARBORSIDE DR

37TH STREET

39TH STREET

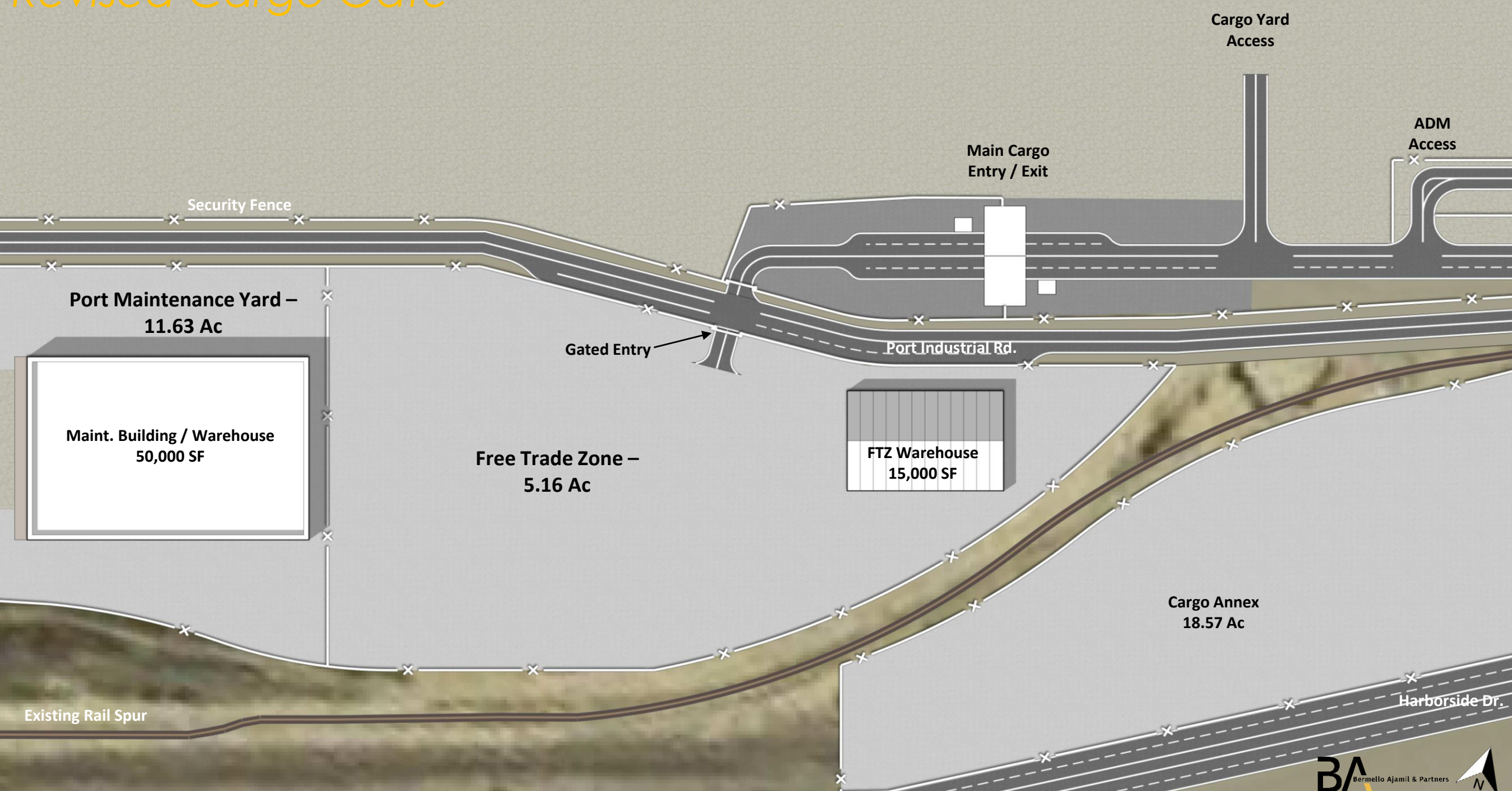
30TH STREET

MARKET

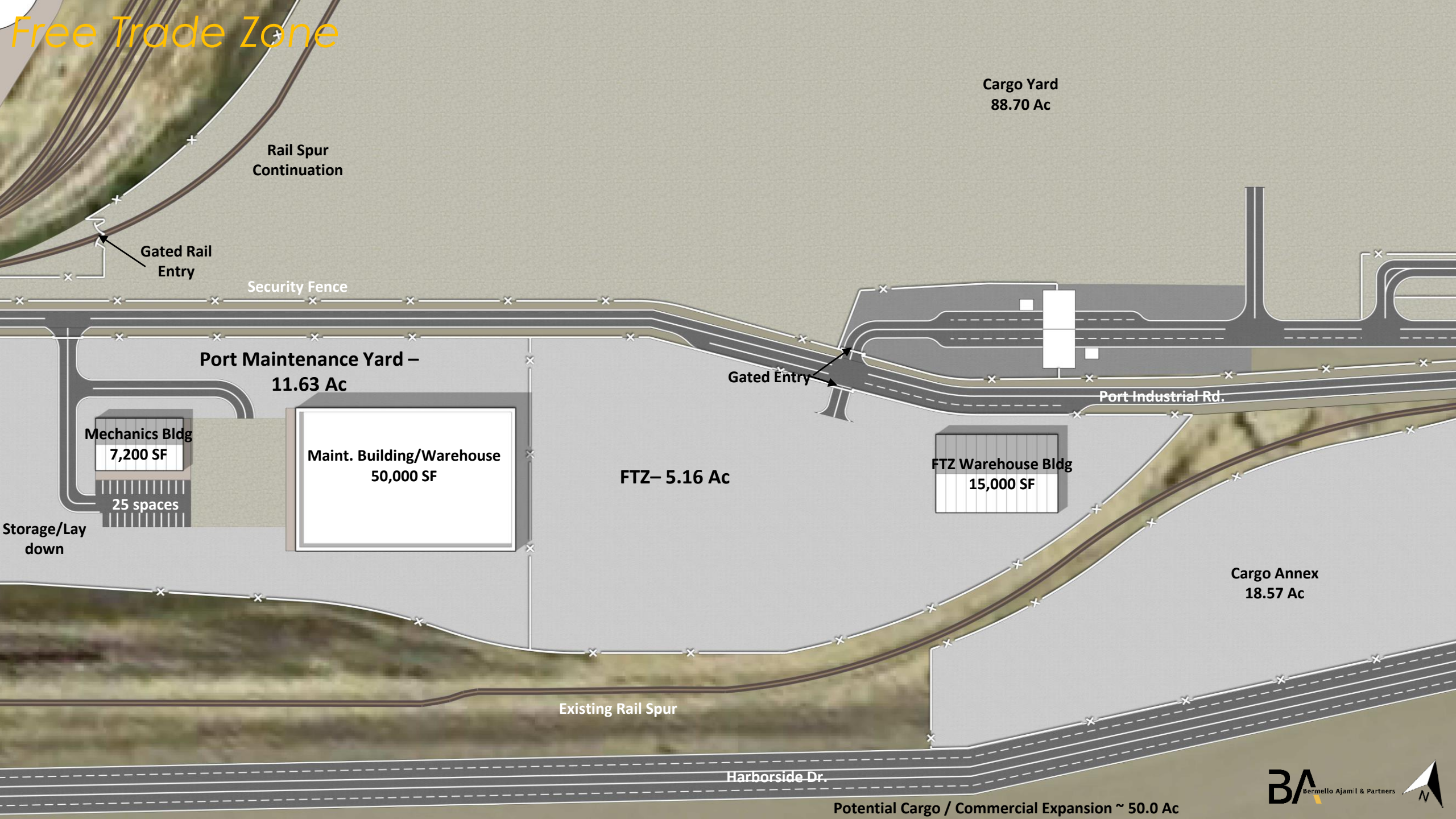
BA
Bermello Ajamil & Partners



Revised Cargo Gate



Free Trade Zone



Potential Cargo / Commercial Expansion ~ 50.0 Ac



Maintenance Yard



88.70 Ac

Rail Spur to Continue

Gated Rail Entry

Security Fence

Port Industrial Rd.

Gated Entry

Security Fence

Storage / Lay down

Port Maintenance Yard -
11.63 Ac

Mechanics Bldg
7,200 SF
25 spaces

Maint. Building/Warehouse
50,000 SF

Security Fence

Existing Rail Spur

Harborside Dr.

Potential Cargo / Commercial Expansion
~50.0 Ac

Improvement projects, *West End 0-5 years*

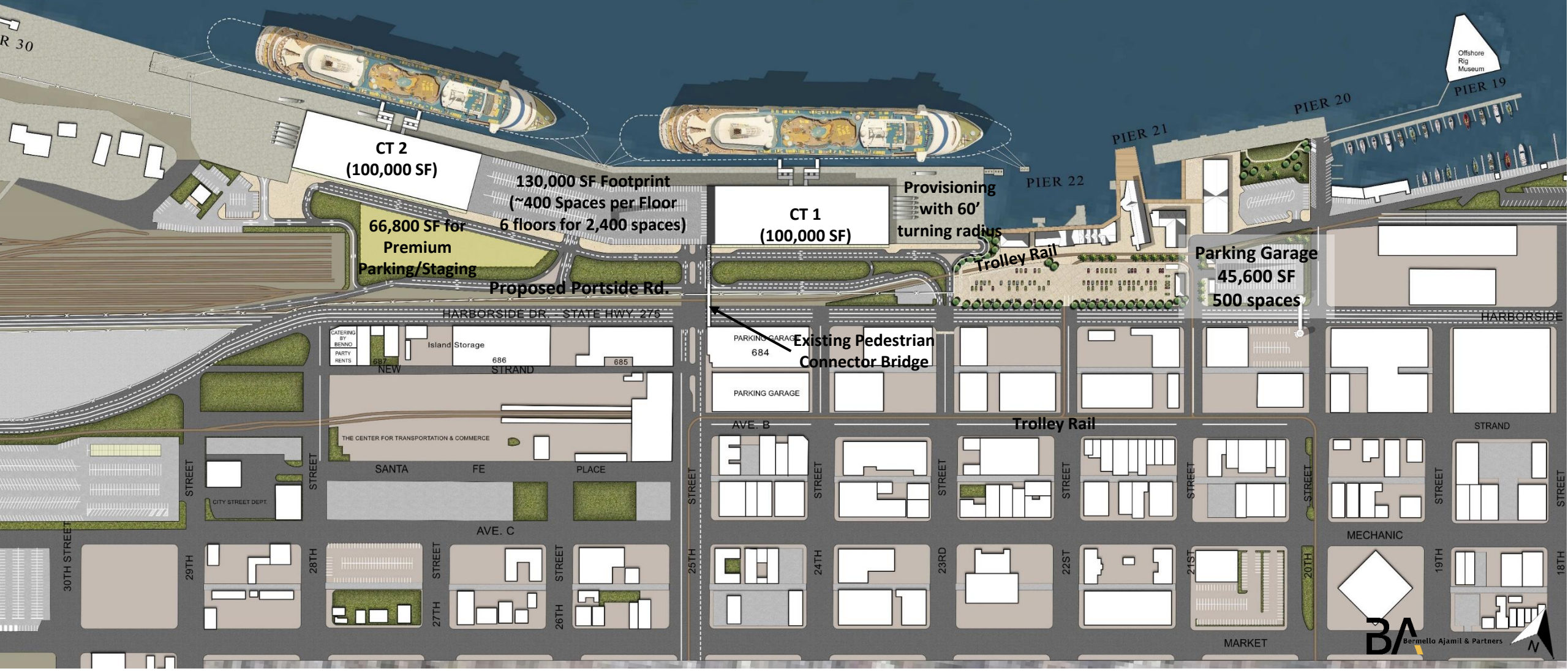
Item	Notes
Slip 36 Infill / Bulkhead / Topped	Infill ~5.0 ac. of slip with fill and include new bulkhead T Pier.
Slip 38 Infill / Bulkhead / Topped	Infill ~6.5 ac. of slip with fill and include new bulkhead T Pier.
Slip 40 Infill / Bulkhead / Topped	Infill ~5.5 ac. of slip with fill and include new bulkhead T Pier.
Expanded Cargo Yard Phase 1	~88.70 acres, berth adjacent, warehouse rehab. Pave, fence, gate.
Roadway / Drainage Improvements	~6,500-LF, 97,500 CF new roadway – paved for heavy duty vehicles (w/drainage). Raise roadway and yard levels for flooding and develop drainage system (included with roadway improvements).
Gate 41 Complex Redevelopment	Minimizing gate structure and area top provide more cargo laydown space. Use grant monies for new canopy. Upgrade tech. package for security, processing.
Free Trade Zone Relocation	FTZ relocation from existing East End to West End. ~ 5.16 acre gated site plus 15,000 sf storage shed. Fenced facility with single gate.
Cargo Yard Expansion Phase 2	~23.38 acres, berth adjacent - Piers 39/40. Repair pavement, roadway
Cargo Annex Ph. 3	~18.57 acres, Rip rail, pave site, fence, lighting, gate.
Maint. & Const. Unit Relocation	~ 11.63 acres, move existing facilities to new site. Bldgs, yard, pave, office, gate.
CHS Inc. Expansion	Add ~2.5 ac. Prop. S Pier 36; New Fence line; Road / Gate to 37 th St.; CHS funded.

Improvement projects, *West End 5-10 years*

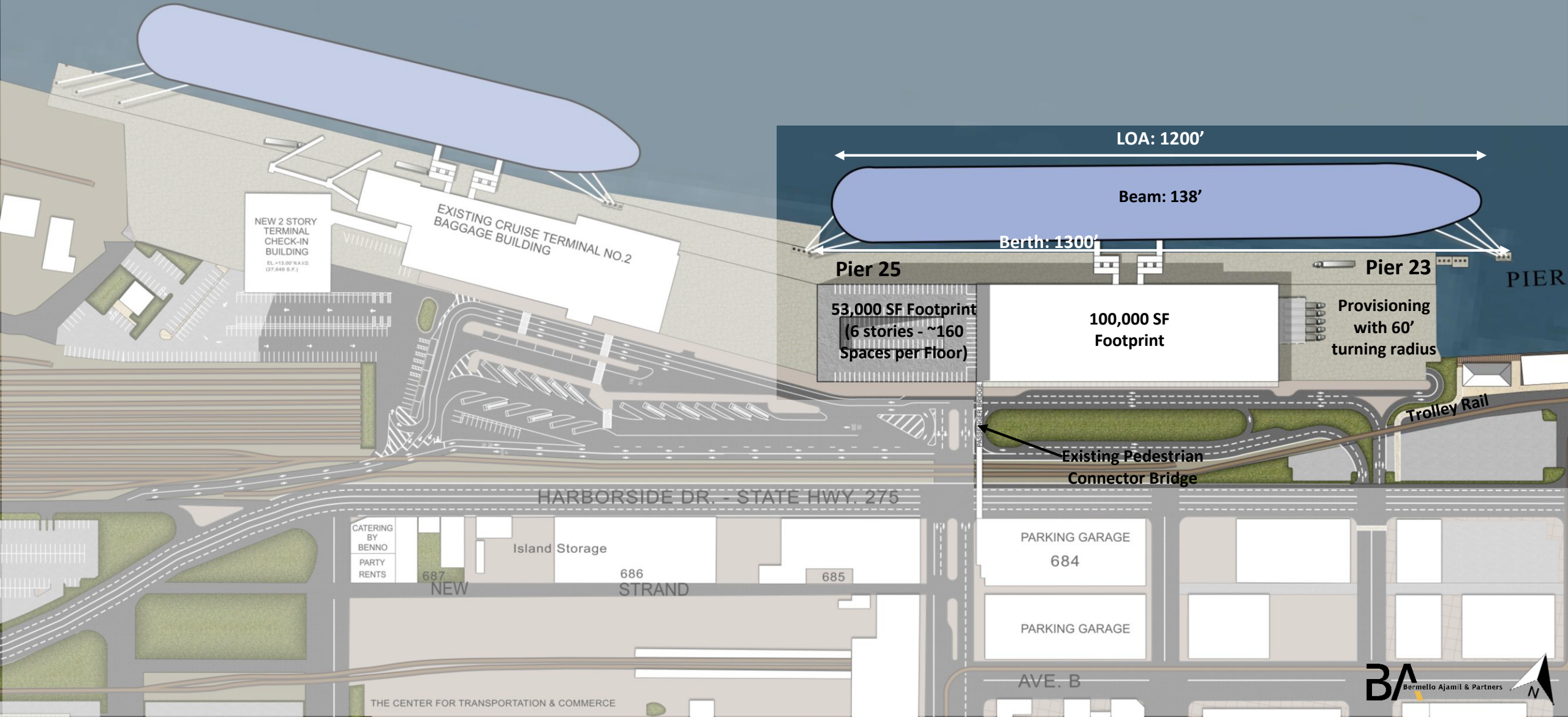
Item	Notes
Rail Spur & Loading Area WWL/PO Yd.	~ 2,500-ft. single line rail spur from existing track. Add switch, gate, track.
Cargo Yard Ph. 3 Expansion	~ 9.0 acres, Re-pave site, fix fence, improve lighting and gate.

INFRASTRUCTURE PROGRAM – MIDPORT

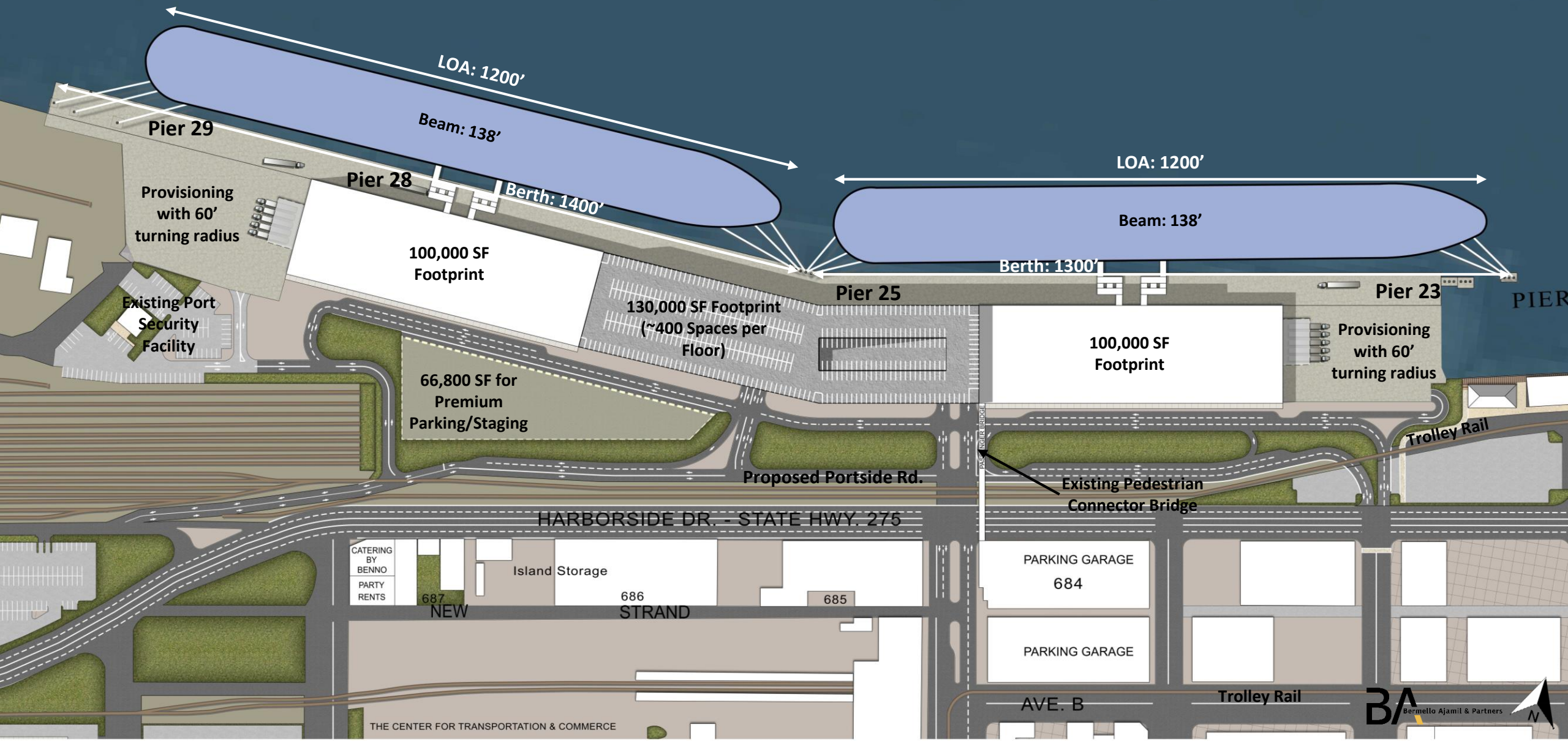
MIDPORT LONG TERM VISION, *Alt. A*



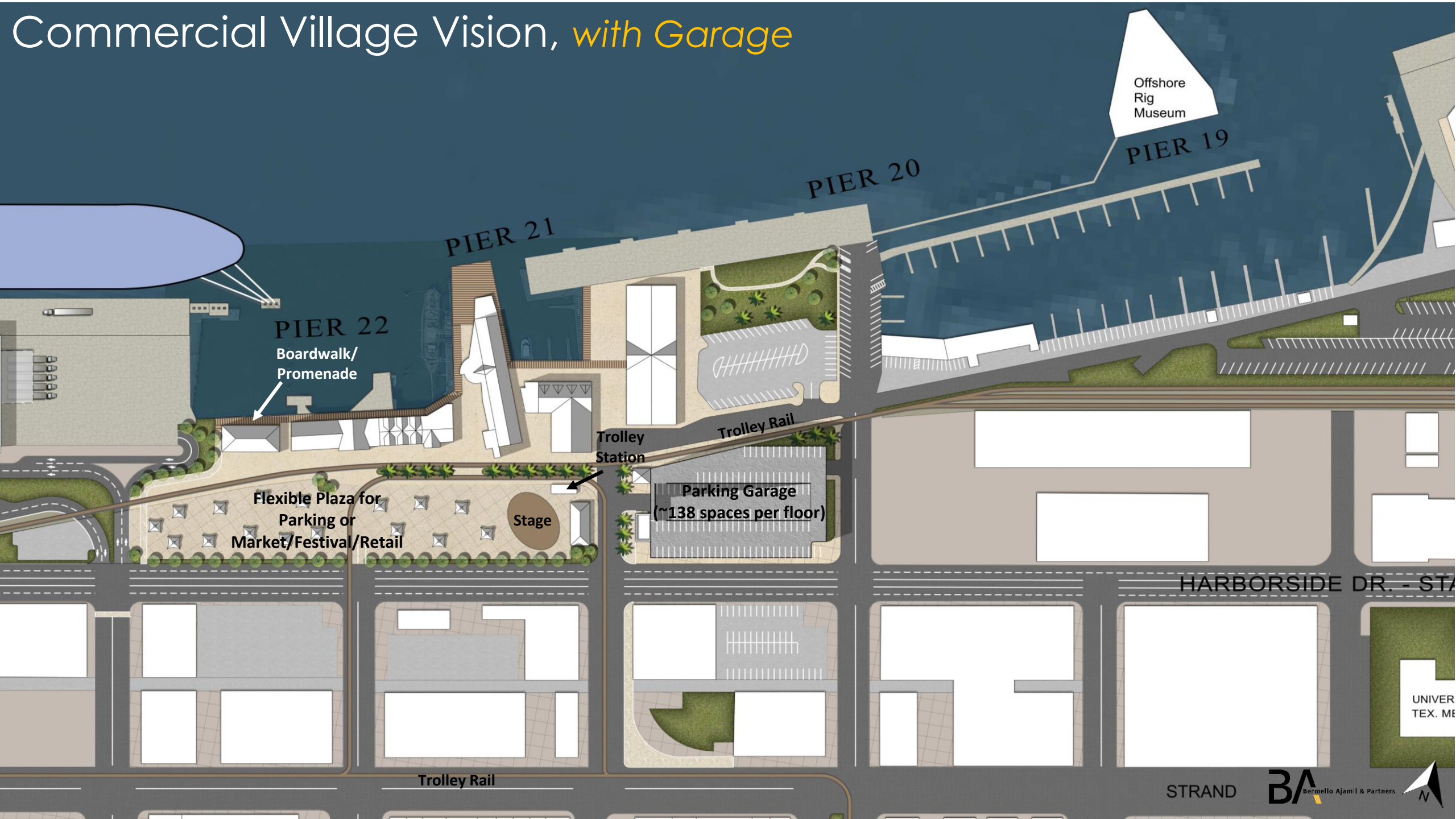
Mid Port – Cruise Facilities Reconfiguration Vision, *Phase 1*



Mid Port – Cruise Facilities Reconfiguration Vision, *Phase 2*



Commercial Village Vision, *with Garage*



Offshore
Rig
Museum

PIER 19

PIER 20

PIER 21

PIER 22
Boardwalk/
Promenade

Trolley
Station

Trolley Rail

Flexible Plaza for
Parking or
Market/Festival/Retail

Stage

Parking Garage
(~138 spaces per floor)

HARBORSIDE DR. - ST

UNIVER
TEX. ME

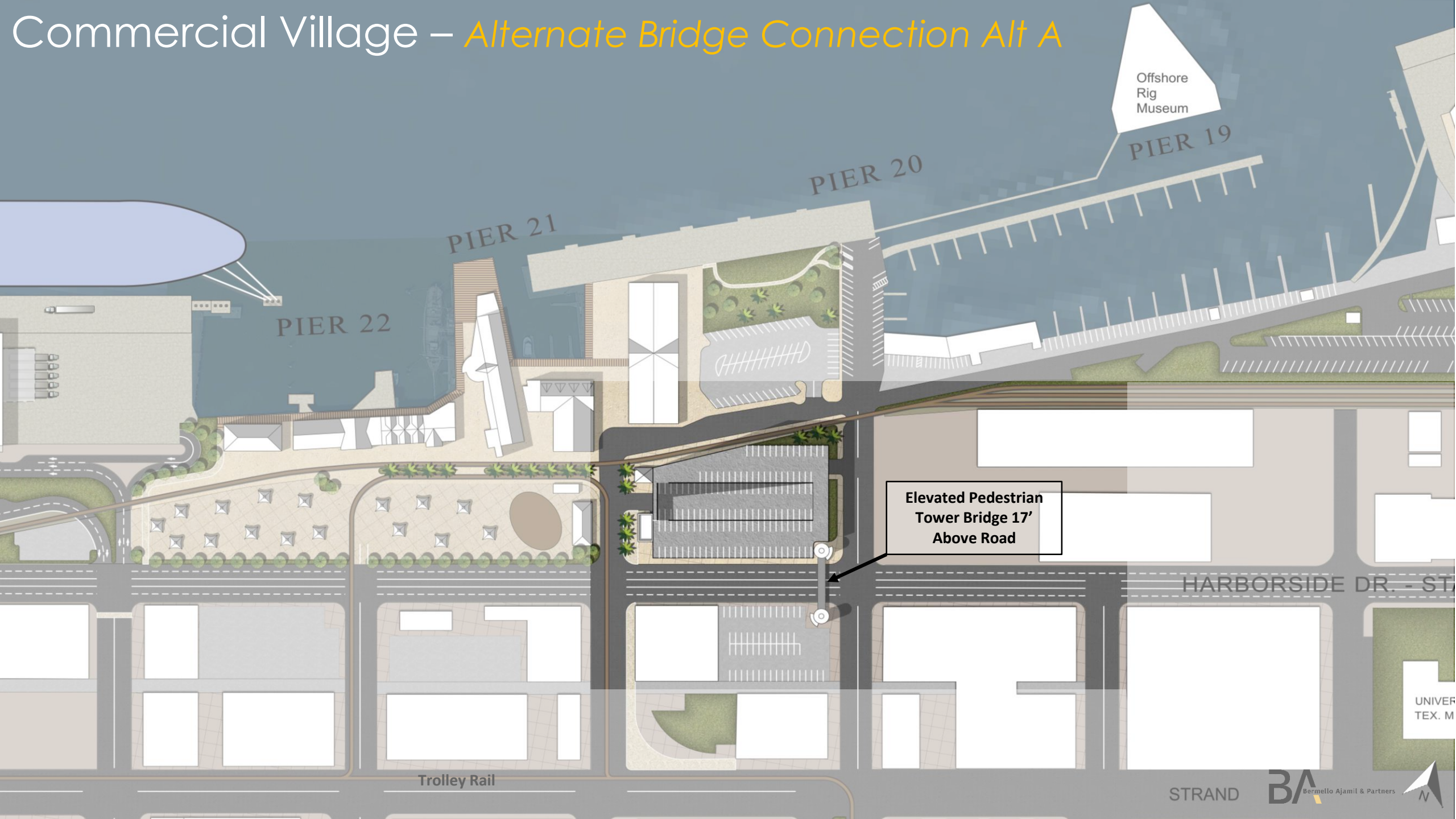
Trolley Rail

STRAND

BA
Bermello Ajamil & Partners



Commercial Village – *Alternate Bridge Connection Alt A*



Offshore
Rig
Museum

PIER 19

PIER 20

PIER 21

PIER 22

Elevated Pedestrian
Tower Bridge 17'
Above Road

HARBORSIDE DR. - ST

Trolley Rail

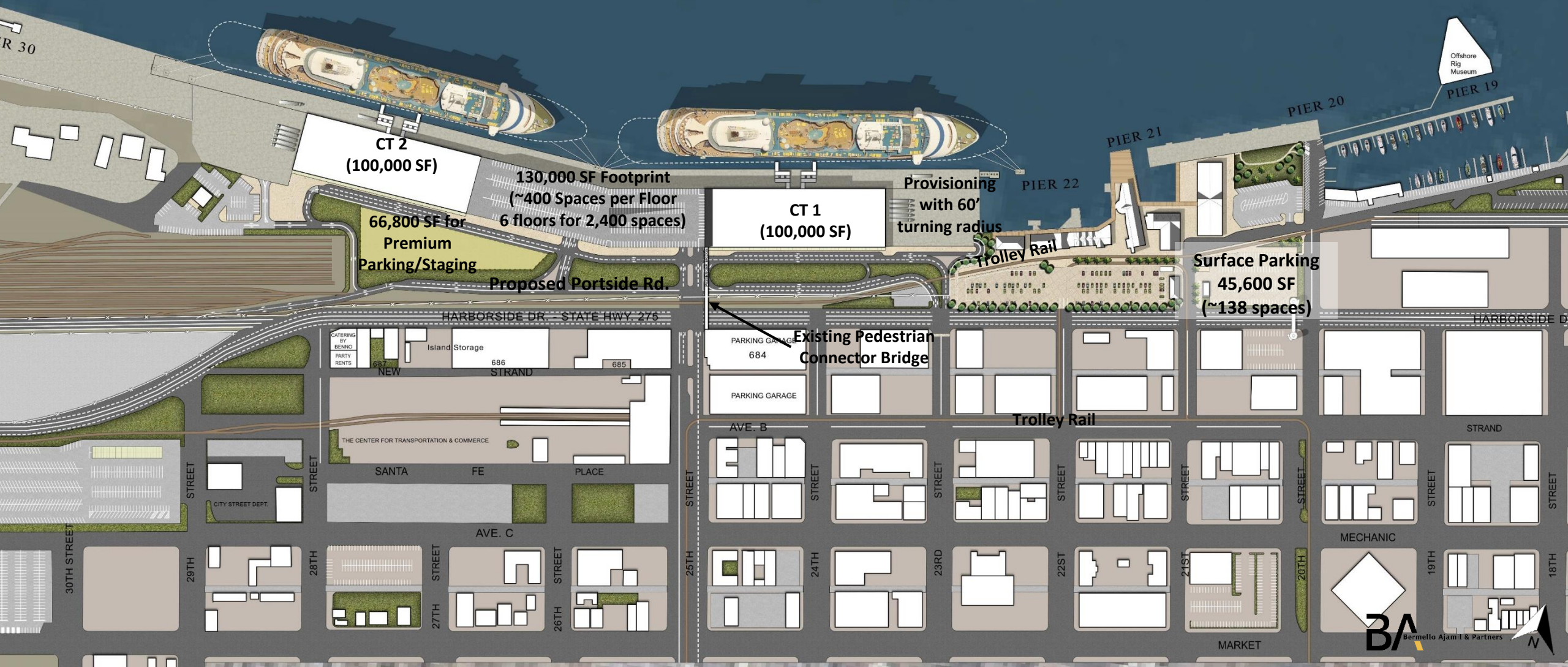
UNIVER
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STRAND

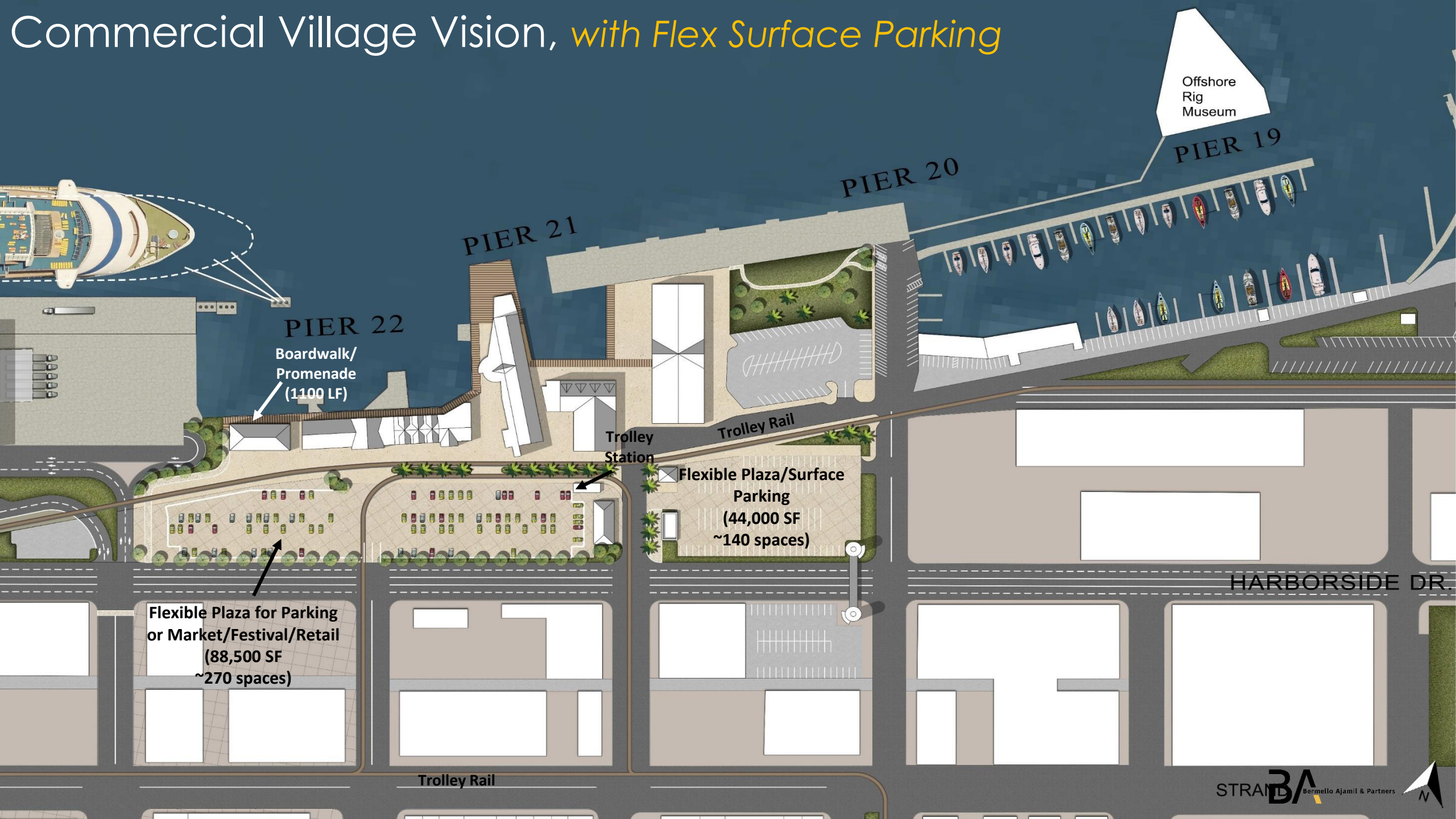
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MIDPORT LONG TERM VISION, *Alt. B*



Commercial Village Vision, *with Flex Surface Parking*



Offshore
Rig
Museum

PIER 19

PIER 20

PIER 21

PIER 22

Boardwalk/
Promenade
(1100 LF)

Trolley
Station

Trolley Rail

Flexible Plaza/Surface
Parking
(44,000 SF
~140 spaces)

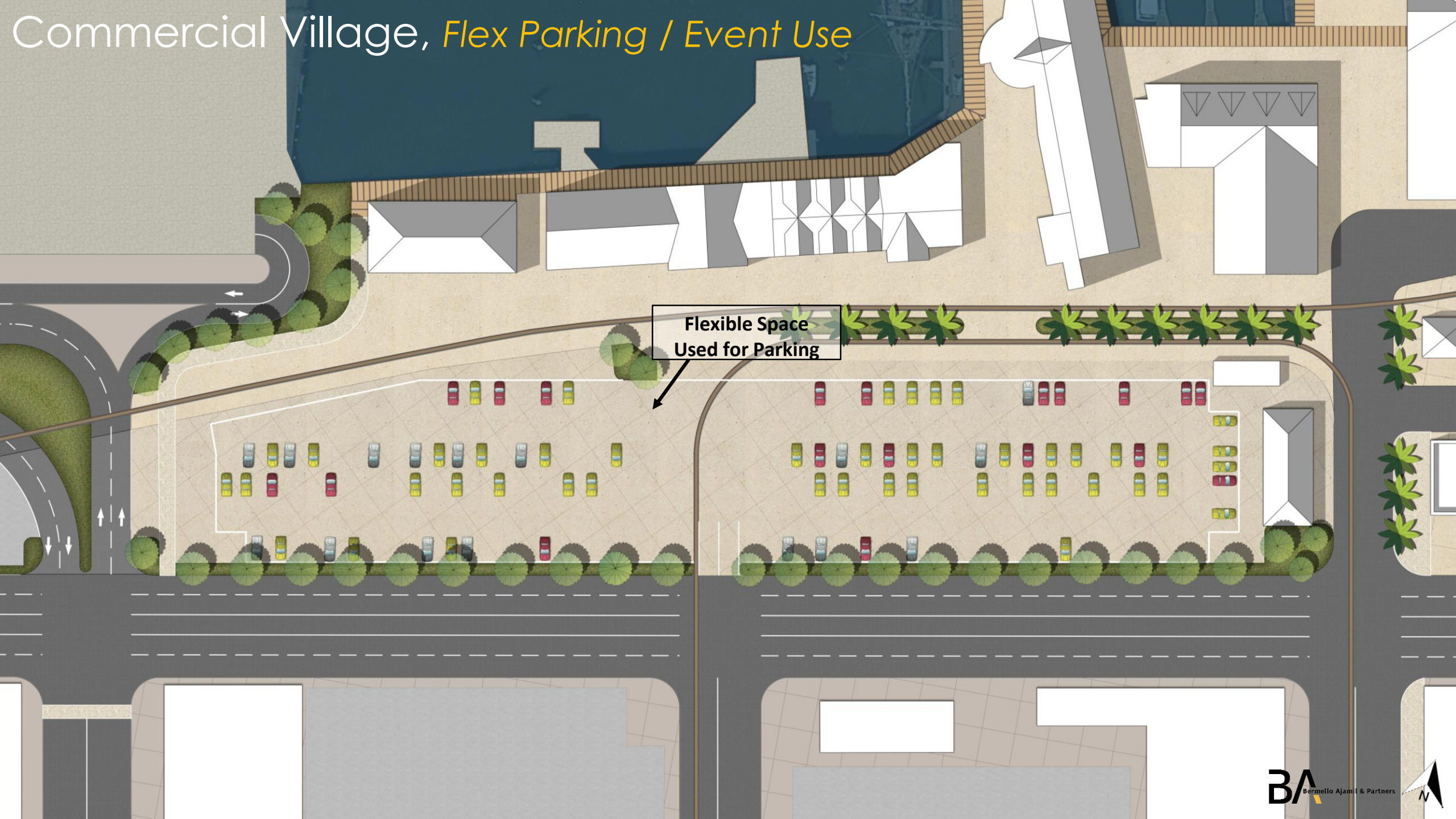
Flexible Plaza for Parking
or Market/Festival/Retail
(88,500 SF
~270 spaces)

HARBORSIDE DR.

Trolley Rail



Commercial Village, *Flex Parking / Event Use*



Flexible Space
Used for Parking



Improvement projects, *Midport 0 – 5 years*

Item	Notes
CT 1 GTA Improvements Phase 1	Reconfiguration of GTA done with new internal roadway access. Separate Terminal 1 and 2 from traffic flows. Add weather protection, signage, etc.
CT 2 GTA Improvements Phase 1	Reconfiguration of GTA done with new internal roadway access. Separate Terminal 1 and 2 from traffic flows. Add weather protection, signage, etc.
Ground Lot Flex Parking Development	Convert lot to flex parking for events, optional stage, vendor booths
Trolley Rail / Station Development	New Trolley Route on Rail w/station adjacent to flex parking space
Pier 21 /22 Boardwalk Promenade	Create Ped. friendly wooden boardwalk connecting cruise / commercial areas
Commercial Interior Road / Curb Dev.	Develop internal roadway from Commercial to East End adjacent to trolley; new curbside, sidewalk, landscaping to define commercial area

Improvement projects, *Midport 5 – 10 years*

Item	Notes
Pier 21 / City Pedestrian Corridor	Ground level Ped friendly linkage from Pier 21 to the downtown core
Harborside Drive Bridge Crossing	Elevated Ped Tower Bridge for access to / from Pier 21 commercial area / downtown
Pier 21 Parking Garage Dev.	~138 spaces per floor to service the port commercial area. 3 to 4 stories with bottom area for possible commercial / bus options (500 spaces)

Improvement projects, *Midport 10 – 20 years*

Item	Notes
Cruise Terminal 1 Demo/Newbuild	New Terminal Development – possibly using Terminal 1 façade with marine works for 1,200-ft. Vessel, 100,000 SF.; new gangways and provisioning area.
CT 1 GTA Improvements Phase 2	Reconfiguration of GTA with new terminal option – bottom floor garage GTA
CT 1 Cruise Parking Garage Dev.	Multi-Level Parking Garage / GTA for T1 - ~1,200 spaces
Cruise Terminal 2 Demo/Newbuild	New Terminal Development – with marine works for 1,200-ft. Vessel, 100,000 SF.; new gangways and provisioning area.
CT 2 GTA Improvements Phase 2	Reconfiguration of GTA with new terminal option – bottom floor garage GTA
CT 2 Cruise Parking Garage Dev.	Multi-Level Parking Garage / GTA for T1 - ~1,200 spaces
Ground Lot Premium Parking/Valet	Repurpose land lot for Valet service – paving, fencing, gate with weather protection

INFRASTRUCTURE PROGRAM – EAST END

Existing East End Elements



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Google

BA

Current Plan Option, *RCCL Terminal*



Pier 10

Pier 14

Pier 16

Pier 18

Del Monte Terminal

Spoils Area

Future Cruise terminal and Parking

BMW Vehicle Processing Facility

Harborside Dr.

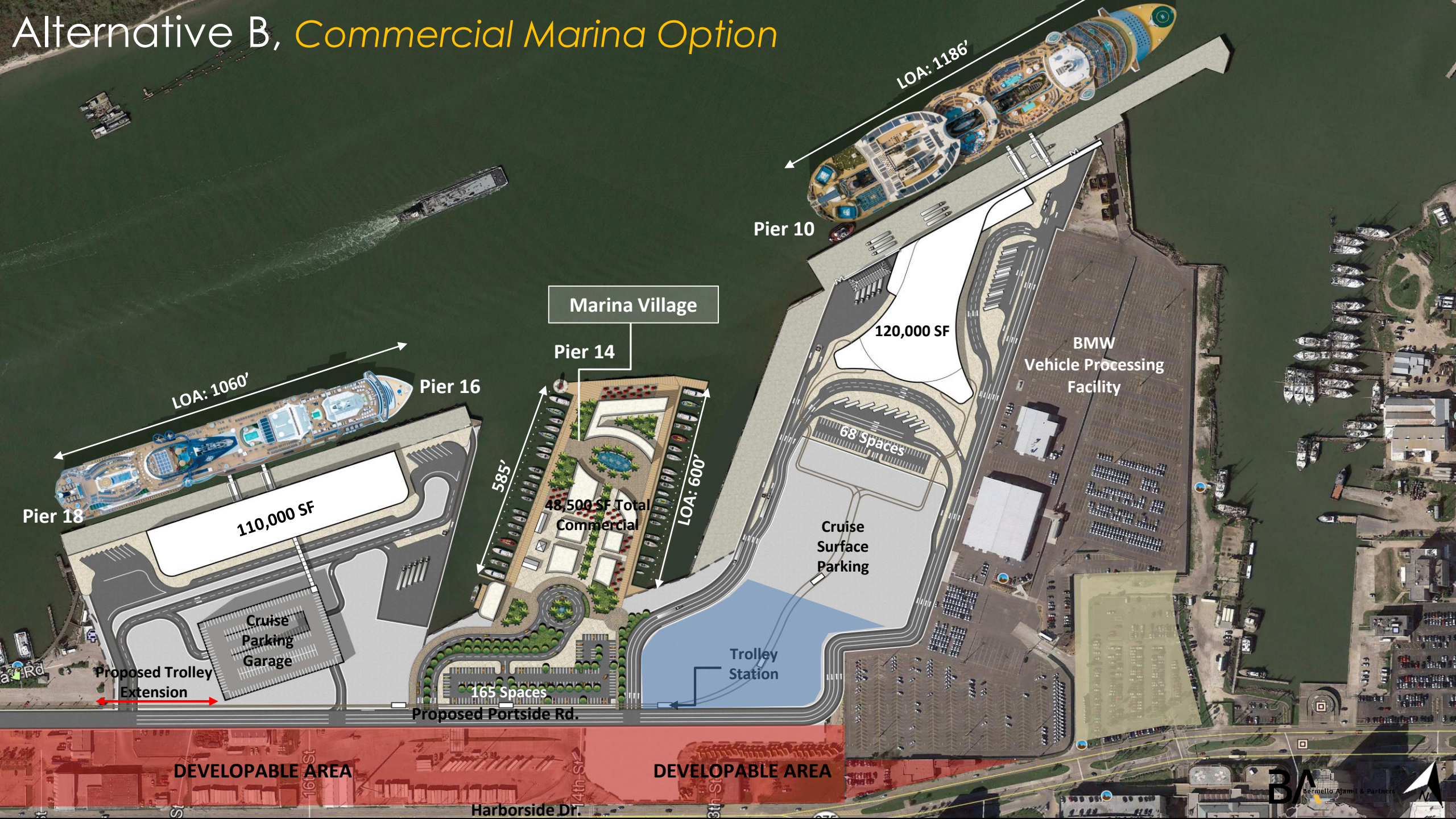
275



EAST END VISION, A



Alternative B, Commercial Marina Option



Pier 18
LOA: 1060'

110,000 SF

Cruise Parking Garage

Proposed Trolley Extension

DEVELOPABLE AREA

Marina Village

Pier 14

48,500 SF Total Commercial

585'

LOA: 600'

165 Spaces

Proposed Portside Rd.

DEVELOPABLE AREA

Pier 10

120,000 SF

68 Spaces

Cruise Surface Parking

Trolley Station

LOA: 1186'

BMW Vehicle Processing Facility

Alternative B



Pier 14

F & B

Retail

F & B

Retail

Retail

Retail

Retail

F & B

F & B

Drop-Off

Marina Club

Trolley Station

55' rad.

55' rad.

Proposed Trolley Extension

Trolley Station

Trolley Station

165 Spaces (144 required)

Trolley Station

Proposed Trolley Extension

Proposed Portside Rd.

BA Bermello Ajamil & Partners



Improvement projects, *East End 0 – 5 years*

Item	Notes
Trolley Route / Station Extension	Extend Trolley line to Terminal 3 with trolley stations
14 th St. Gate Reconfiguration	Gate relocation to service Del Monte operation (may be own gate access); and re-alignment of internal roadway / RCI Terminal access.
East End Portside Rd. & Drainage Imp.	Internal roadway system development with paving, striping as required
Cruise Terminal 3 Development	RCI 120,000 SF Terminal Development; PPP; Port responsible for road linkage, access, utilities.
Cruise Terminal 3 GTA	With Terminal and roadway development – internal and Harborside Drive access.
Berth 10 Renovation	Upgrade of hardware, cap to meet design vessel requirements, Gangways.

Improvement projects, *East End 5 – 10 years*

Item	Notes
WWS RO/RO Operation Consolidation	Add property to existing area via lease; configure adding pavement, fencing, gate
Del Monte Demolition / Revisions	Demo / Revise use of area and surrounds

Improvement projects, *East End 10 – 20 years*

Item	Notes
Cruise Terminal 4 Development	110,000 SF Terminal Development for 1,100-ft. vessel; PPP; with road linkage, access, utilities
CT 4 Cruise Parking Garage Dev.	Parking Garage / GTA for T4; ~1,200 spaces. 264 per floor
Pier 15/16 Renovation	Upgrade of hardware, cap to meet design vessel requirements, Gangways.
Mega Yacht Cruise Facility Dev. (B1)	PPP Development with berths (2 sides), GTAs, roadway and upland connections. Built on spoils site. ~54,000 SF Facility for dual vessels
Mega Yacht Ground Parking Dev. (B1)	~125 surface parking spaces with gated access
Marine Village Development (B2)	PPP Development with 1,185-LF. Marina slips (2 sides), Walking Promenade, Commercial options (48,500 SF), roadway and upland connections. Built on spoils site
Marina Village Parking Dev. (B2)	~165 surface parking spaces with gated access
Trolley Extension / Station Dev. (B2)	Extension of Trolley Line into Marina Village with stations
CT 3 Cruise Parking Garage Dev.	Parking Garage; ~1,800 spaces plus for T3 and adjacent development option
Commercial Development Parcels	Parcel development options along Harborside Dr, and Portside Rd. and ground lot development option on existing T3 parking area

INFRASTRUCTURE PROGRAM – PELICAN ISLAND

Auto Facility Processing Center



36,500 sf

12,800 sf

80.00 Ac

2-Way Road
Circulation

1000'

PIER 18

PIER 16

PIER 14

Improvement projects, *Pelican Island*

Item	Timeline	Notes
Roadway / Bridge Improvements	0 - 5 years	Done in conjunction with Auto Processing Facility Launch
Auto Processing Facility		80 acre site; Processing warehouse, office, paving, fencing, gate
Auto Processing Berth		1,000-ft. Berth for Auto Ro Ro Vessel
Haliburton LandLease Modification		Done in conjunction with Auto Processing Facility – option instead of new berth.

Item	Timeline	Notes
Industrial / Cargo Dev. Phase 1	5 – 10 years	PPP Industrial / Cargo Area Development
Rail / Auto Bridge Development		New Rail / Auto Bridge to support Industrial Development
Roadway/Drainage/Utilities Dev. 1		Done in conjunction with Industrial / Cargo Dev. Phase 1

Item	Timeline	Notes
Industrial / Cargo Dev. Phase 2	10 – 20 years	PPP Industrial / Cargo Area Development
Roadway/Drainage/Utilities Dev. 2		Done in conjunction with Industrial / Cargo Dev. Phase 2

VISION PLAN



USACE
Port of Houston
Properties

Port Bolivar Causeway

Seawall Pkwy

Port Bolivar - Galveston

87

Ferry Rd

Seawall Blvd

275

2nd St

NEXT STEPS

Next steps

- Next round of feedback / Input from public, port stakeholders, Board and Staff
 - Include additional comments, traffic study and cruise survey in planning documents
 - Add Environmental elements (involve Atkins Engineering)
 - Expand on socio-economic and public issues relevant to master plan
 - Safety, security, environment, sustainability
- Review and refine capital improvements plan
 - Continue building financial model
 - Conduct ROI sensitivity case studies on key elements (Cargo, cruise, etc.)
 - Recommendations on business strategies moving forward – leaseholds, rates, etc.
- Revise Master Plan
 - Refine detail
 - Present preliminary plan to Board / Report Document for review and approvals



GALVESTON WHARVES

20 Year Master Plan

Growing Port Business to provide for a thriving Community

June 2019

