

PORT CANAVERAL CRUISE OVERVIEW

AAPA FACILITIES ENGINEERING CONFERENCE

- Large Capital Project Highlights
- Construction Contract Types
- Construction Project Innovation
- Designing of Modern Facilities
- Drone Usage in Construction and Facilities Management
- LNG Fuel
- INFRA Grant Funding
- Engineering Department Management
- Facilities Maintenance Management

CRUISE INDUSTRY NEWS CRUISE SHIP ORDERBOOK

Order Book by the Numbers:

- Ocean Vessels on Order 112
- Average Size 97,736 Tons
- Average Capacity 2442 Guests
- Average Cost \$605,000,000
- Order Book Value \$66.5B
- Total Berths 268,674
- Average Price per Berth \$247,631



Cruise Industry News

Cruise Ship Orderbook

Ocean Ships On Order: 112	Orderbook Value: \$66.5 Billion
Average Size: 97,736 Tons	Total Berths: 268,674
Average Capacity: 2,442 Passengers	Average Price/Berth: \$247,631
Average Cost: \$605,000,000	

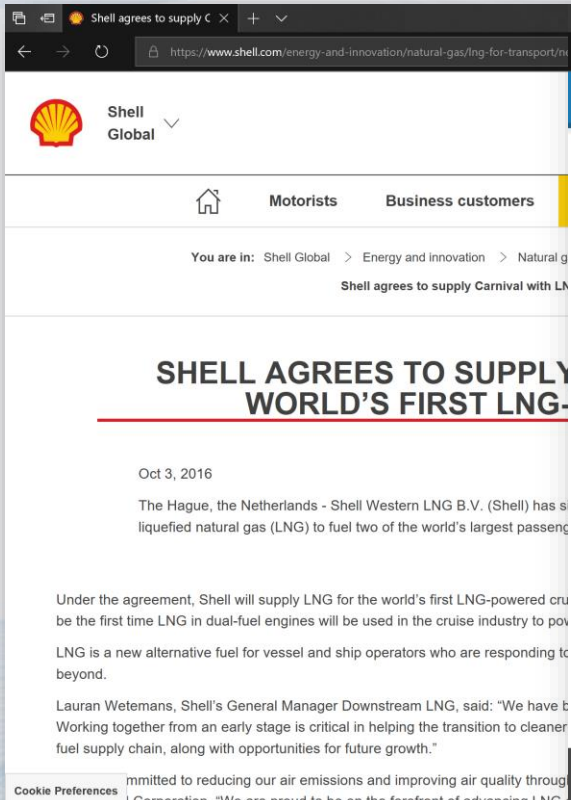
Cruise Line	Ship	Cost(1)	Tonnage	Capacity	Yard	Sailing	Delivery
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2018:

☑ Carnival	Horizon	\$780	135,000	4,000	Fincantieri	Eur/Carib	March
☑ Royal Caribbean	Symphony/Seas	\$1,300	227,625	5,400	Chantiers	Eur/Carib	March
☑ Norwegian	Bliss	\$1,100	164,600	4,200	Meyer	Alas/Carib	April
☑ Seabourn	Ovation	\$350	40,350	604	Fincantieri	World	April
☑ MSC Cruises	Seaview	\$950	154,000	4,140	Fincantieri	Europe	May
☑ TUI	Mein Schiff 1	\$625	110,000	2,900	Meyer Turku	Europe	May
☑ Ponant	Le Lapérouse	\$110	10,000	180	VARD	World	June
☑ Viking Ocean	Viking Orion	\$400	47,000	930	Fincantieri	World	June
☑ Ponant	Le Champlain	\$110	10,000	180	VARD	World	September
Celebrity	Edge	\$900	129,500	2,900	Chantiers	Eur/Carib	November
Holland America	Nieuw Statendam	\$520	99,000	2,660	Fincantieri	Carib	November
■ Mystic Cruises	World Explorer	\$85	9,300	200	West Sea	World	December
■ AIDA Cruises	AIDAnova	\$950	183,900	5,200	Meyer	Europe	December

Note: For a full accounting of cruise ship orderbook trends dating back to 1988, please see the [Cruise Ship Orderbook Report](#)

CARNIVAL SHELL AND Q-LNG PRESS RELEASE



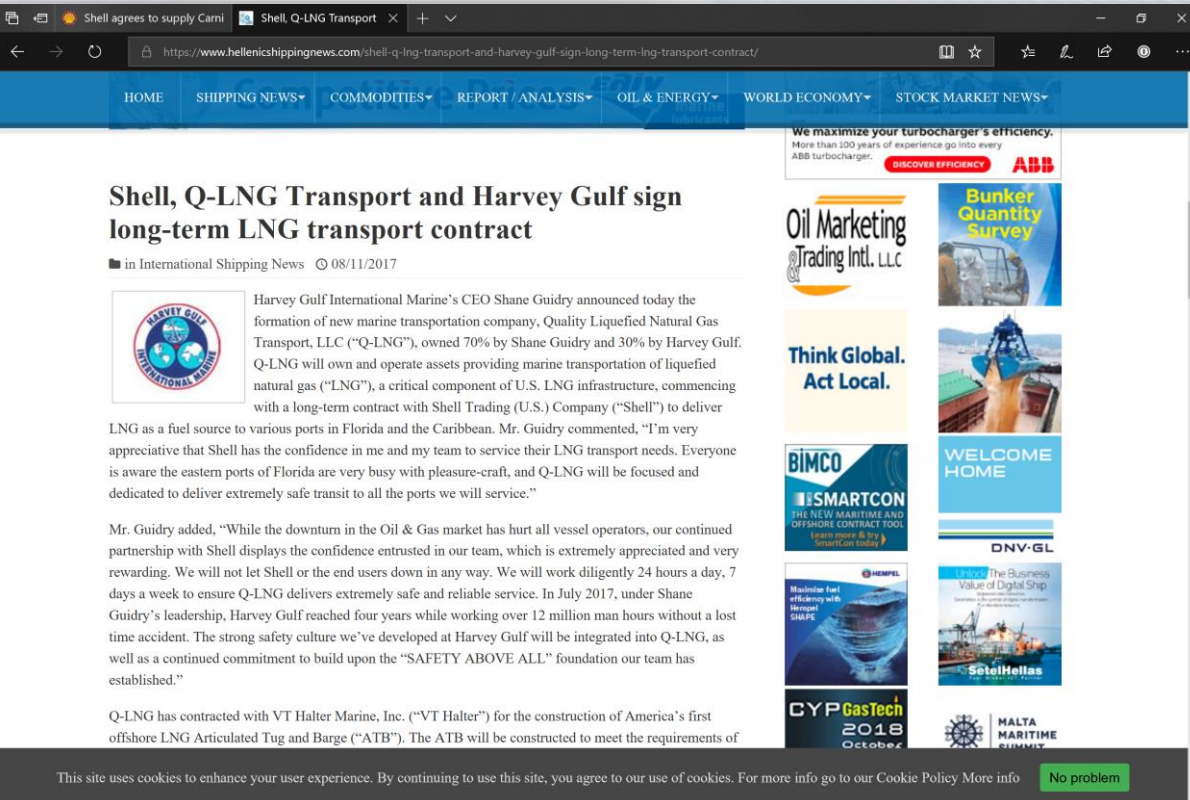
SHELL AGREES TO SUPPLY WORLD'S FIRST LNG-POWERED CRUISE SHIP

Oct 3, 2016

The Hague, the Netherlands - Shell Western LNG B.V. (Shell) has signed a long-term contract to supply liquefied natural gas (LNG) to fuel two of the world's largest passenger cruise ships.


Under the agreement, Shell will supply LNG for the world's first LNG-powered cruise ship. This will be the first time LNG in dual-fuel engines will be used in the cruise industry to power a ship. LNG is a new alternative fuel for vessel and ship operators who are responding to the industry's demand to go beyond.

Lauran Wetemans, Shell's General Manager Downstream LNG, said: "We have been working together from an early stage is critical in helping the transition to cleaner fuel supply chain, along with opportunities for future growth."



Shell, Q-LNG Transport and Harvey Gulf sign long-term LNG transport contract

in International Shipping News 08/11/2017



Harvey Gulf International Marine's CEO Shane Guidry announced today the formation of new marine transportation company, Quality Liquefied Natural Gas Transport, LLC ("Q-LNG"), owned 70% by Shane Guidry and 30% by Harvey Gulf. Q-LNG will own and operate assets providing marine transportation of liquefied natural gas ("LNG"), a critical component of U.S. LNG infrastructure, commencing with a long-term contract with Shell Trading (U.S.) Company ("Shell") to deliver LNG as a fuel source to various ports in Florida and the Caribbean. Mr. Guidry commented, "I'm very appreciative that Shell has the confidence in me and my team to service their LNG transport needs. Everyone is aware the eastern ports of Florida are very busy with pleasure-craft, and Q-LNG will be focused and dedicated to deliver extremely safe transit to all the ports we will service."

Mr. Guidry added, "While the downturn in the Oil & Gas market has hurt all vessel operators, our continued partnership with Shell displays the confidence entrusted in our team, which is extremely appreciated and very rewarding. We will not let Shell or the end users down in any way. We will work diligently 24 hours a day, 7 days a week to ensure Q-LNG delivers extremely safe and reliable service. In July 2017, under Shane Guidry's leadership, Harvey Gulf reached four years while working over 12 million man hours without a lost time accident. The strong safety culture we've developed at Harvey Gulf will be integrated into Q-LNG, as well as a continued commitment to build upon the "SAFETY ABOVE ALL" foundation our team has established."

Q-LNG has contracted with VT Halter Marine, Inc. ("VT Halter") for the construction of America's first offshore LNG Articulated Tug and Barge ("ATB"). The ATB will be constructed to meet the requirements of

LNG POWERED VESSELS ON THE ORDERBOOK

2019: 1 LNG-Powered Vessel

2020: 2 LNG-Powered Vessels

2021: 5 LNG-Powered Vessels

2022: 6 LNG-Powered Vessels

2023: 4 LNG-Powered Vessels – 50% of all current vessel orders!

TUI	Mein Schiff 7	\$625	110,000	2,900	Meyer Turku	Europe	Spring
■ AIDA Cruises	Unnamed	\$950	183,900	5,400	Meyer	TBA	Spring
■ Princess	Unnamed	\$1,000	175,000	4,300	Fincantieri	TBA	Q4
■ Disney	Unnamed	\$900	140,000	2,500	Meyer	TBA	TBA
Norwegian	Unnamed	\$850	140,000	3,300	Fincantieri	TBA	TBA
■ Carnival China	Unnamed	\$750	135,000	5,000	CSSC	China	TBA
MSC Cruises	Unnamed	\$1,100	169,380	4,560	Fincantieri	TBA	TBA
Viking Ocean	Unnamed	\$400	47,000	930	Fincantieri	World	TBA
■ MSC Cruises	Unnamed	\$1,000	177,000	4,888	Chantiers	TBA	TBA
Viking Ocean	Unnamed	\$400	47,000	930	Fincantieri	World	TBA
Viking Ocean	Unnamed	\$400	47,000	930	Fincantieri	World	TBA
■ Disney	Unnamed	\$900	140,000	2,500	Meyer	TBA	TBA
Cunard Line	Unnamed	\$600	113,000	3,000	Fincantieri	World	TBA
■ Crystal	Unnamed	\$195	19,800	200	MV Werften	World	TBA
■ P&O Cruises	Unnamed	\$950	183,900	5,200	Meyer	TBA	TBA
■ Crystal	Unnamed	\$195	19,800	200	MV Werften	World	TBA

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**American Association
of Port Authorities**

Alliance of the Ports of Canada, the Caribbean, Latin America and the United States



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For Your Information

What is LNG?

Find out more

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- CRUISE PARKING & TERMINAL INFORMATION
- BEACHES, PARKS & CAMPING RESERVATIONS
- ENVIRONMENTAL STEWARDSHIP

Our cruise terminals are new, innovative and ultra modern, Learn more about the world's most popular cruise port.

By Day...Enjoy Sand, Sun and a Breeze off the Water By Night...Stalk Fish or Dream Under the Stars

We are committed to advancing environmental excellence and promoting programs, plans, and initiatives that focus on sustainability.

It is our job to balance of phy allows Port C many

LNG: FUELING THE FUTURE

Liquefied Natural Gas (LNG) is on the rise to become the preferred marine fuel of the future. The clean burning properties of LNG means for less ship emissions to meet the global emission standard of the International Maritime Organization (IMO) effective January 2020. The new standard requires ships limit emissions that negatively affect the environment. LNG has safely been used to fuel ship engines for over 50 years. LNG is transported in specialized containers that meet all international and U.S. regulatory requirements for safe transport. Canaveral Port Authority has committed resources and is working closely with Canaveral Fire and Rescue, the U.S. Coast Guard and other federal and state agencies to ensure the safe use of LNG at Port Canaveral.

What is LNG? Liquefied Natural Gas (LNG) is a natural gas — the same product widely used in homes, schools, hospitals and businesses for heating, cooling, cooking and hot water.

LNG is super cooled to **-260°F** to become a colorless and odorless liquid.

Converting natural gas to LNG reduces its volume by 600 times, allowing for efficient transport over long distances by ship, train or truck.

LNG is warmed back to a gaseous state at its destination before being used in a pipeline grid or so transportation fuel.

Environmental Impact LNG as ship fuel significantly reduces harmful emissions of ship operations.

Marine engines powered by LNG virtually **eliminate** sulfur oxides (SOx) and reduce nitrogen oxides (NOx) up to 85%.

Natural gas generates 27% less carbon dioxide than diesel fuel oil in combustion.

Insulated tank walls are specifically designed to safely store LNG at the correct pressure and temperature.

More than 151 million miles safely traveled

The Future LNG is the fuel of the future for commercial space and cruise industries, which requires our Port to invest in capabilities, partnerships and infrastructure to support its use.

The space industry plans to power launch vehicles with LNG because it's an ideal fuel for deep space missions due to its high energy content and cryogenic properties.

LNG market demand by millions of tons

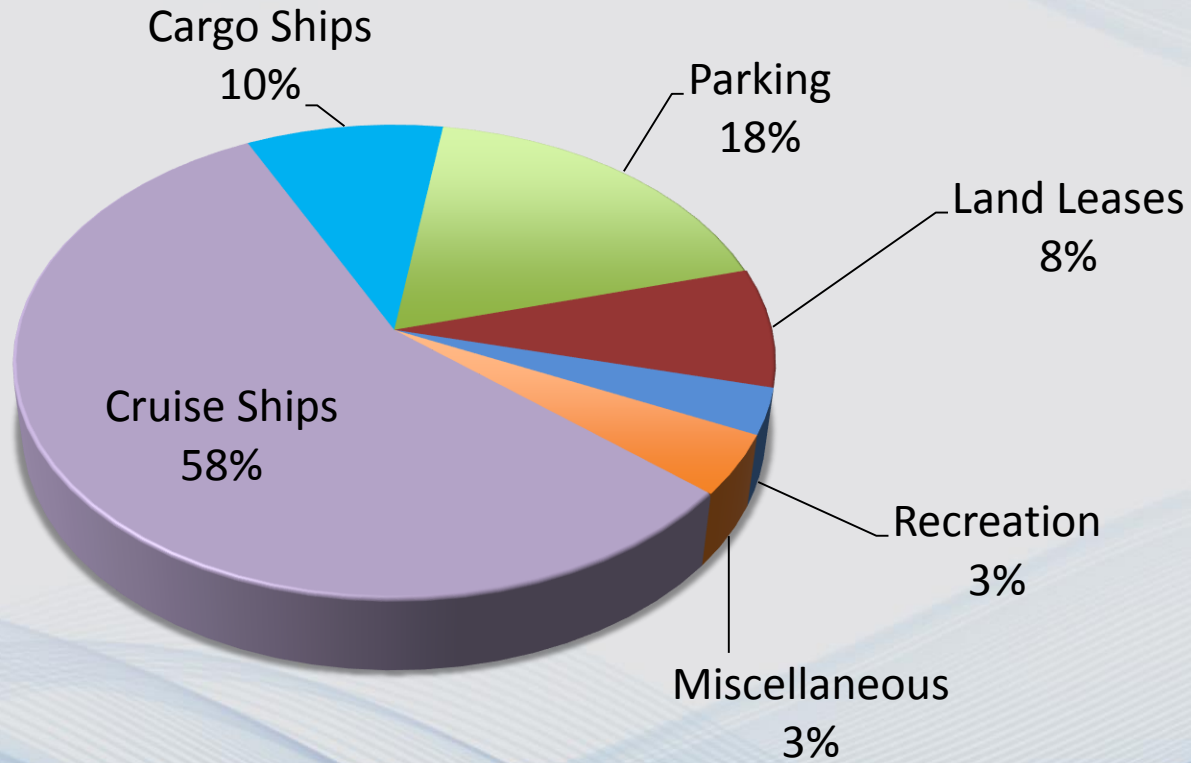
Number of LNG cruise ship orders by company through 2027 (as of August 2018)

Carnival	11
MSC Cruises	5
Disney	3
Royal Caribbean	2
Viking Ocean	2
TUI Cruises	2
Pearl	1

©2018 Port Canaveral Authority
 Source: U.S. Energy Information Administration, "International Energy Statistics," 4th Quarter 2018, U.S. Department of Energy.

FINANCIAL IMPACT OF THE CRUISE BUSINESS

Total Operating Revenues - \$94,968,148



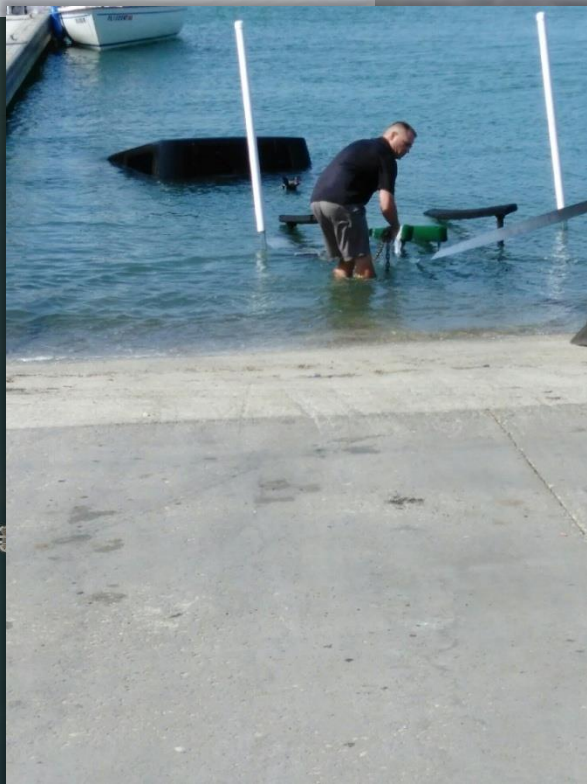
Cruise

AUGUST (\$ in Millions)	FY18 Actual	Prior Year	Prior Year Variance
Total Cruise Revenues	\$71.33	\$ 68.73	\$ 2.60

- Cruise: \$ 53.8 M
- Cruise Parking: \$ 17.4 M
- 4.2M Multi-day Passengers
 - Up 235K or passengers (6%)
- Grand total of passengers is up 5% at 4.5M

Passenger Count



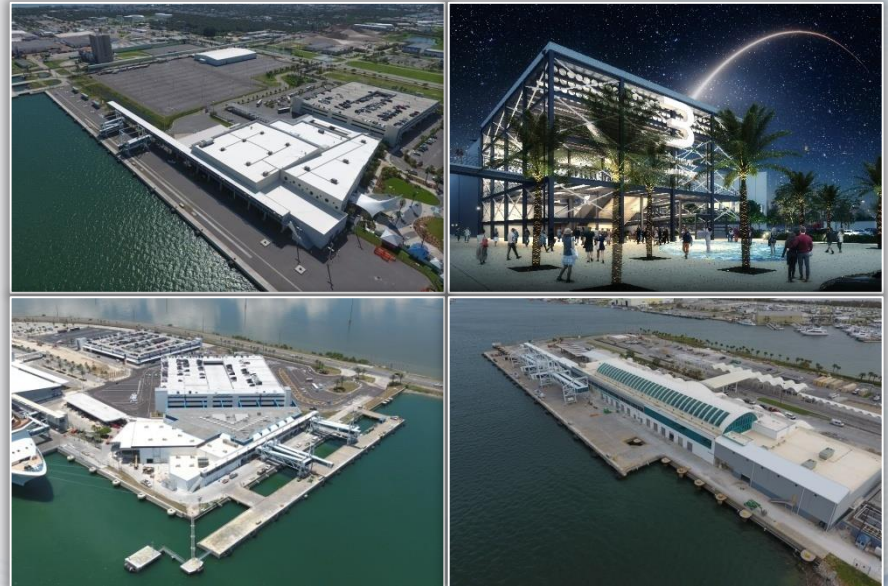


COST OF CAPITAL PROJECTS

\$300M in Capital Projects 2014-2016

\$200M 2018-2020

- Cruise Terminal #1 - \$104.2M
Completed December 2014
 $\$53,434,891 / 180,313 \text{ SF} = \$296 / \text{SF}$
- Cruise Terminal #5 Renovation - \$44.6M
Completed May 2016
 $\$20,939,587 / 89,547 \text{ SF} = \$234 / \text{SF}$
- Cruise Terminal #10 Renovation - \$30.7M
Completed November 2016
 $\$25,693,355.00 / 125,824 \text{ SF} = \$204 / \text{SF}$
- Cruise Terminal 3 - \$150M
Currently Under Design
Completed May 2020
- Cruise Terminal #8 & #10 Renovation - \$45M
Currently Under Feasibility Study



Top Left, Cruise Terminal 1; Top Right, Cruise Terminal 3;
Bottom Left, Cruise Terminal 5; Bottom Right, Cruise Terminal 10

DESIGN OF A MODERN CRUISE TERMINAL

2018 MARINE TERMINAL MANAGEMENT TRAINING



“TYPICAL” DEBARK / EMBARK OPERATION

Debark:

- Pilot Call: 0500-0600
- Vessel at Dock / Tie Up 0600-0700
- Gangways Attached 0630-0730
- Vessel Agent and CBP board
- BCSO USCG if needed
- Early Walk-offs 0630-0730
- General Debark 0800
- CBP Customs Clearance
- “0” Count 1015-1030
- Buses, Shuttles, Taxis, POV 0700-1200

Embark:

- Guest Arrival 0930
- Scheduled Guest Arrival 1030-1100
- Security / Check In 1015-1030
- VIP (Concierge) Boarding 1030-1045
- General Boarding 1500
- Wedding / Event Parties
- Detach Gangways 1540
- Detach Lines 1600-1630
- Vessel Departs 1600-1700

DESIGN OF A CRUISE TERMINAL

- Linear PAX bridge and mobile passenger boarding bridges for increased flexibility for vessel door arrangements compared to legacy fixed gangways
- Seating for roughly 1/3 of the vessel capacity (depending on cruise line)
- Use of two-story ADA-compliant internal and external pedestrian ramps for vertical transport in place of multiple elevators and escalators
- Baggage laydown area for approximately 1.5 to 2.0 bags per person (depending on cruise line)
- Roadways and access for commercial stores, busses, charter busses shuttles, taxis, POV parking and POV drop off



Top Left, CT-10 PAX Bridge; Top Right, Cruise Terminal 5 Mobile Gangways; Bottom Left, Cruise Terminal 5 Pedestrian Ramp; Bottom Right, Cruise Terminal 10 Baggage Laydown Area

CARNIVAL CRUISE LINE TERMINAL 3

Stand along bag drop building

5 level Parking Garage with 1,762 spaces

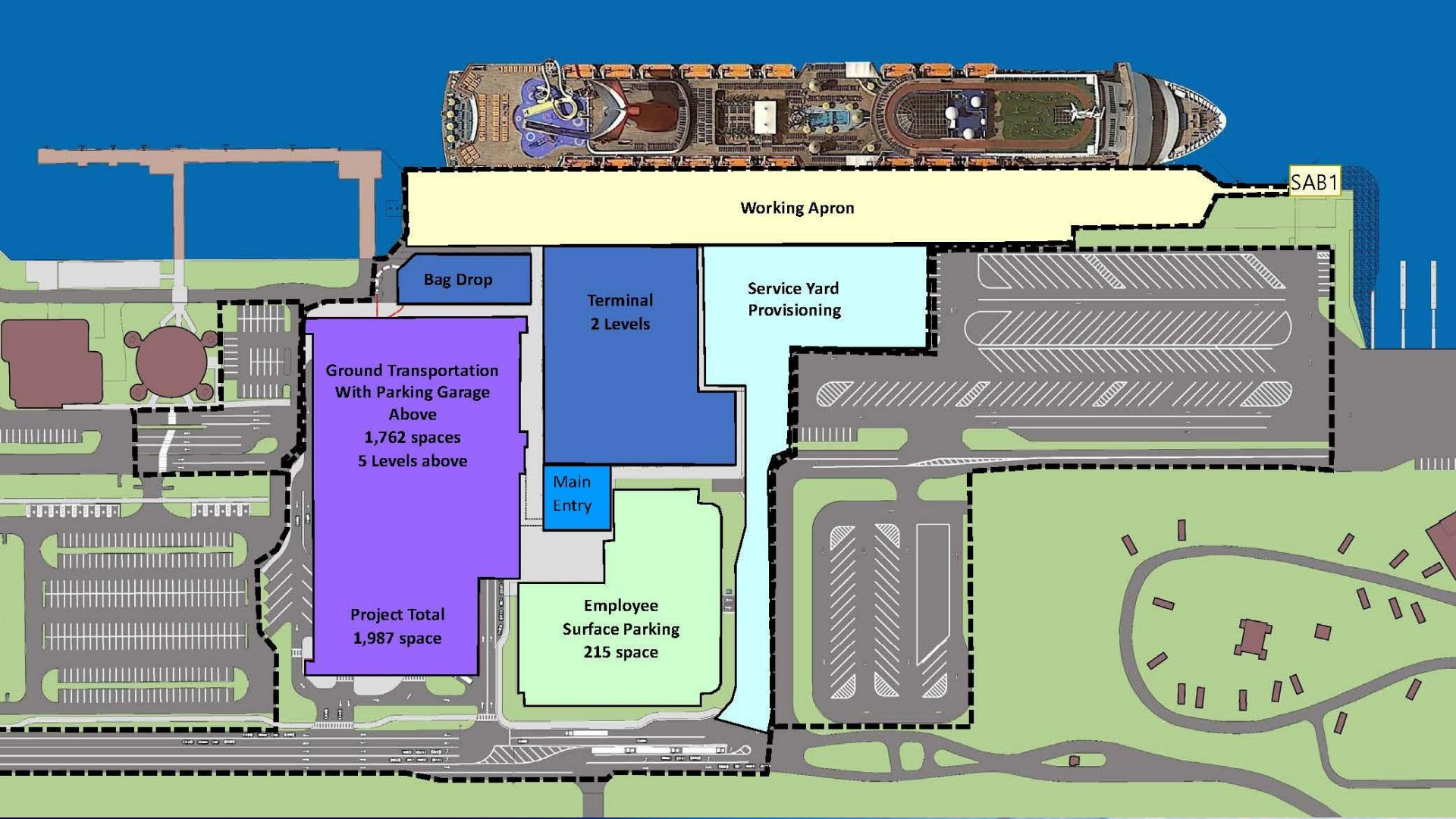
186,986 s.f. 2 Story Cruise Terminal
Ground Floor: 10,000 bag lay down area, fully complaint CBP Facility
Second Floor: State of the art check-In area with 12 X-ray screens and 17 check-in kiosks 10 counters and 1,700 seats

GTA for 30 Buses and separate POV Area

Employee Parking 215 [1,987 total]

Service / Provisioning area separate from passengers





SAB1

Working Apron

Bag Drop

Terminal
2 Levels

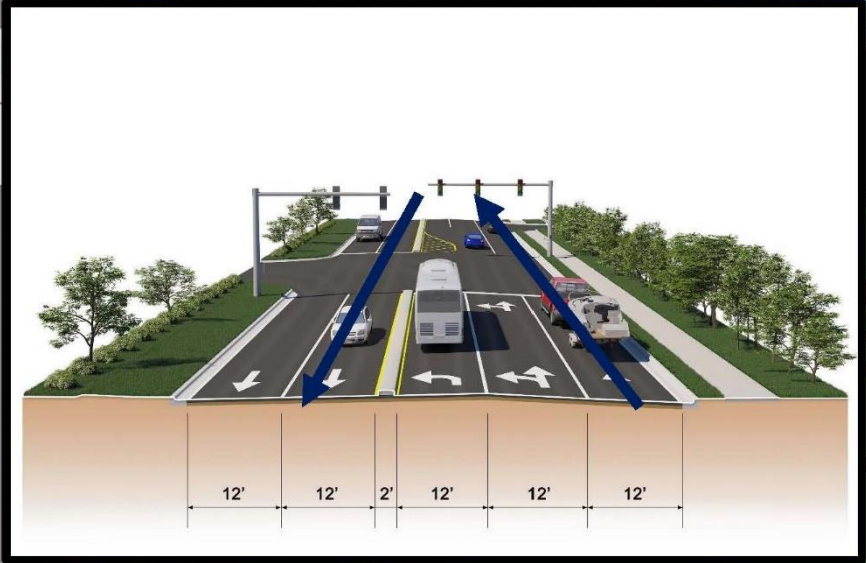
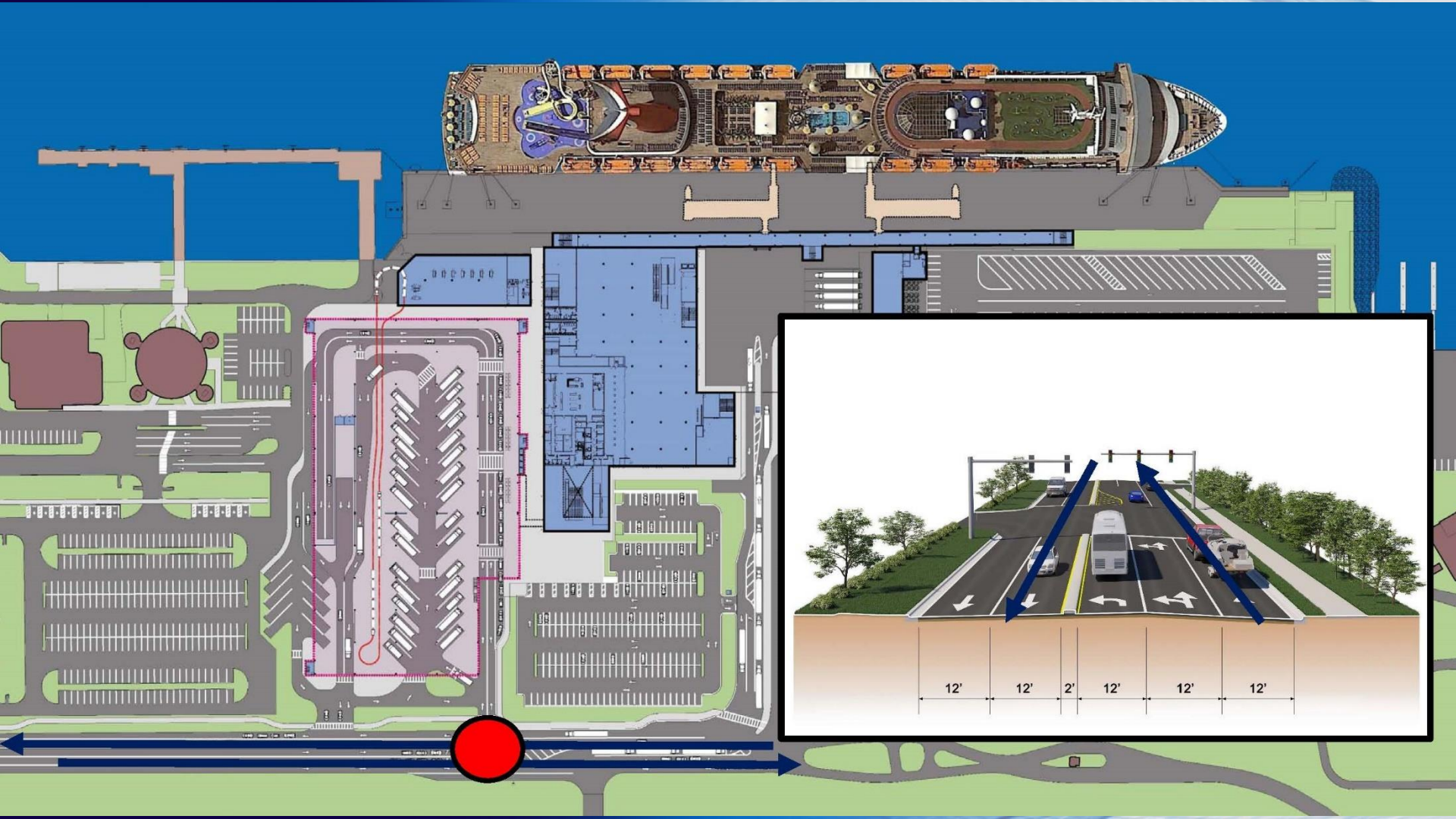
Service Yard
Provisioning

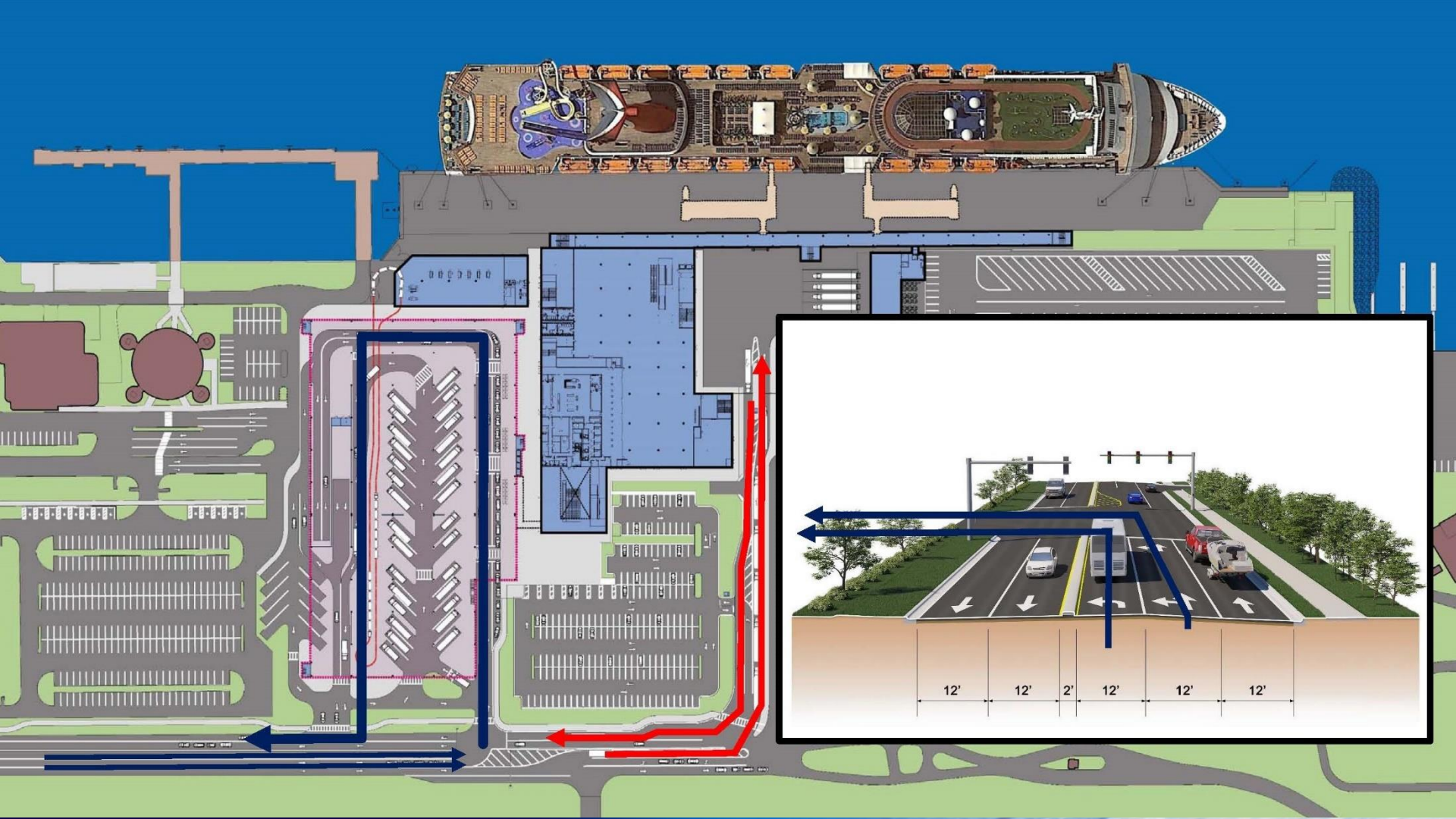
Ground Transportation
With Parking Garage
Above
1,762 spaces
5 Levels above

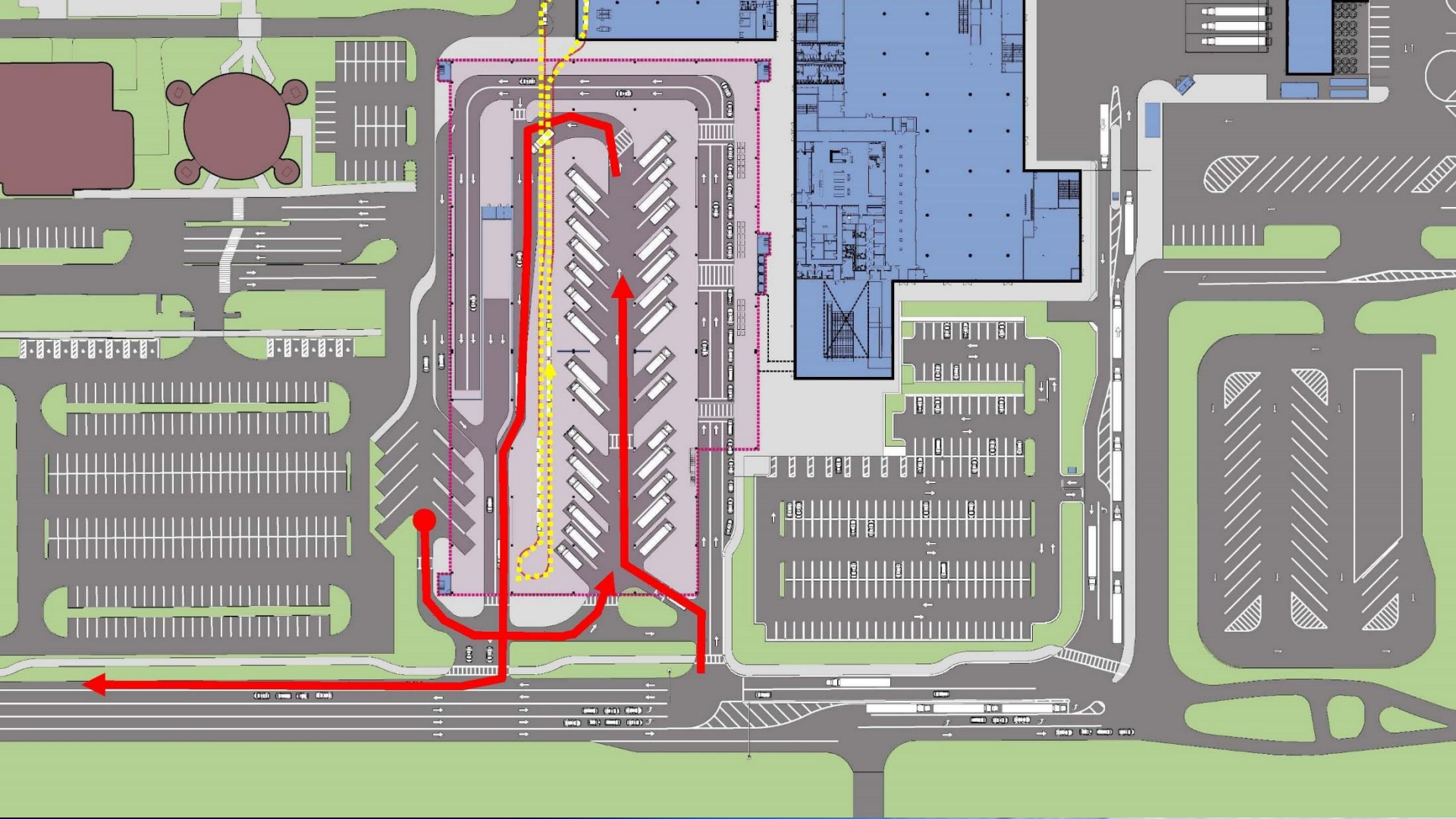
Main
Entry

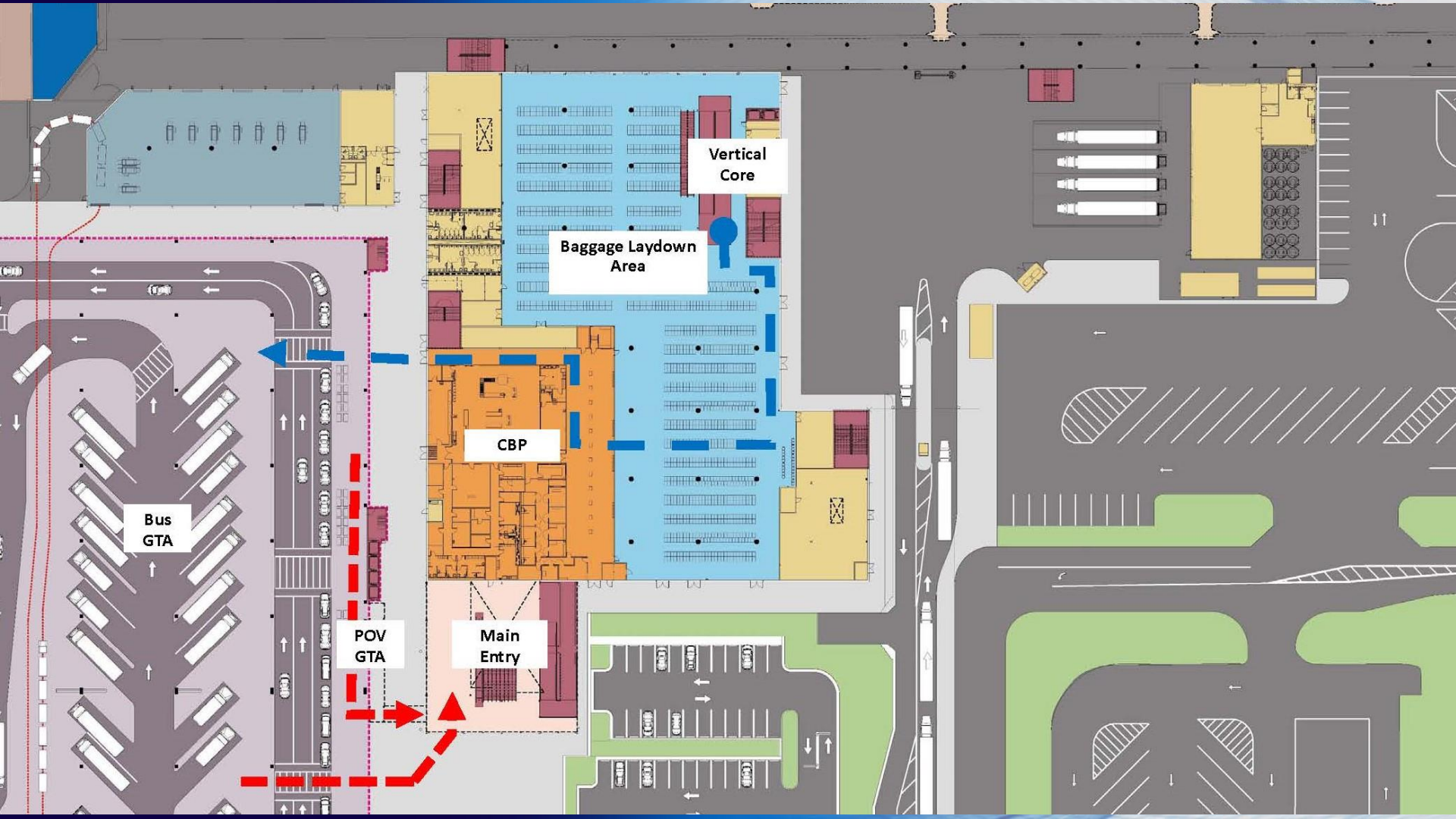
Employee
Surface Parking
215 space

Project Total
1,987 space









Vertical Core

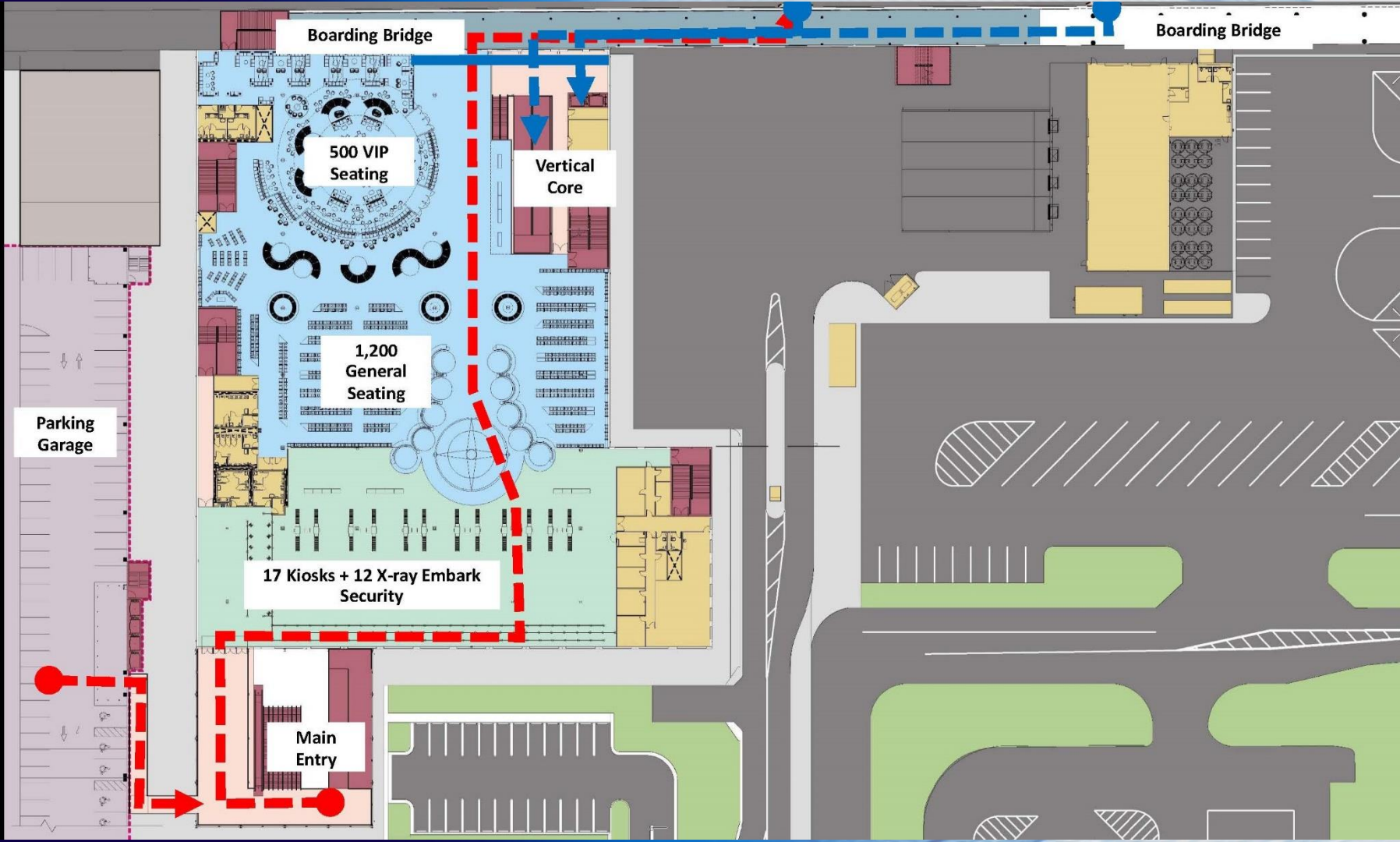
Baggage Laydown Area

CBP

Bus GTA

POV GTA

Main Entry



Boarding Bridge

Boarding Bridge

500 VIP Seating

Vertical Core

1,200 General Seating

17 Kiosks + 12 X-ray Embark Security

Main Entry

Parking Garage





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