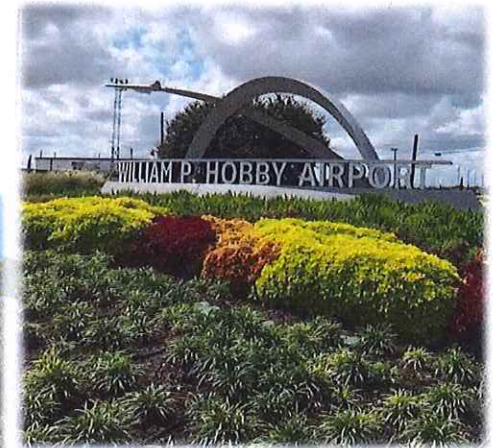




Welcome



Houston Airports – Industry Day

March 25, 2022



Agenda

Scott B. Hill, Director of Maintenance



- *Welcome to the Houston Airports (HAS) Industry Day*
- *Opening Remarks*
 - HAS Director of Aviation
 - HAS Chief Operating Officer
 - HAS Chief Development Officer
- *HAS Supply Chain Management and Office of Business Opportunity (OBO)*
 - HAS Aviation Procurement Officer
 - HAS Interim Deputy Assistant Director - OBO

HAS Industry Day Agenda

March 25, 2022

Start Time 1:00pm

I.) Introductions (20 Minutes)

- a. Welcome
- b. HAS Senior Team
 - i. Director of Aviation
 - ii. Chief Operating Officer
 - iii. Chief Development Officer
- c. United Airlines
- d. Supply Chain and OBO
 - i. SCM
 - ii. OBO

II.) Part I Presentations (25 Minutes)

- a. IAH Central Utilities Plant Renovation & Upgrades
- b. IAH Power Generation
- c. IAH Subway, ITT, Replacement and Expansion
- d. Part I - Q&A

III.) Break – Presentation Transition (10 Minutes)

IV.) Part II Presentations (1 hour and 5 Minutes)

- a. IAH Curbside Capacity Improvements
- b. IAH Flyover Bridge Repair at Will Clayton Parkway
- c. IAH Remain Overnight (RON) Terminal A Infill
- d. Passenger Loading Bridges at IAH & HOU
- e. HOU ARFF Station B1 – Rehab and Expansion
- f. IAH ARFF Station 92 Replacement
- g. HOU Central Concourse Tile Flooring Construction
- h. HOU Restrooms Renovation Phase II
- i. HOU Information Booths Installation
- j. IAH Skyway Station B & C Flooring Replacement
- k. IAH FIDS/BIDS Install
- l. IAH FIS/CBP Immigration Wayfinding Install
- m. Domestic Redevelopment Program Update
- n. Upcoming Large Project Program Management Opportunities
- o. Part II – Q&A

V.) Closing Remarks





IAH Central Utilities Plant – Renovation & Upgrades

Scott B. Hill, Director of Maintenance

March 25, 2022



Background – IAH Central Utilities Plant

Scott B. Hill, Director of Maintenance



- *IAH Central Utilities Plant* built in 1965, supplies Chilled Water and Hot Water to IAH core Terminal Area
- *Asset Management Assessments* performed in 2020 and 2021 and identified assets reaching end of service life
- *Renovation and Upgrade* required

Various Assets To Be Replaced:

Pumps, Transformers, Switchgear, Motor Control Centers, Cooling Towers, Air Handling Units, Chillers, Boilers, Controls, Electrical Feeders and other Building Structural Components such as Building Envelope, Roof, and Utilities Tunnel





Upcoming Procurement – IAH Central Utilities Plant

Scott B. Hill, Director of Maintenance



- ***Renovation & Upgrades Procurement***

- Method: Design Build
- Two Step: RFQ/RFP
- M/WBE: 8% MBE; 2% WBE
- Procurement Advertisement:
Anticipated By July 2022

- ***More Information*** contact:

- Scott Hill, Director of Maintenance
(scott.hill@houstontx.gov)

Partnership: Scope and Procurement
Document Development



**ENERGY SYSTEMS
LABORATORY**
TEXAS A&M ENGINEERING EXPERIMENT STATION



DFW Consulting Group, Inc.
Mechanical Electrical Plumbing • Engineering




**Command
Commissioning** LLC






Overview - Summary





IAH Central Utilities Plant Renovation & Upgrade Project



Mario Diaz – Director of Aviation
Jaret Simmons – Deputy Director Infrastructure/Chief Development Officer

Scott Hill – Director of Maintenance
Omar Mendoza – Sr. Project Manager – Asset Maintenance

Erin Selton – HAS Asset Engineering
Bruce Hayes – HAS Energy Manager



Background

- Originally constructed in 1965
- Supplies Chilled Water (22,280 tons chiller capacity) and Hot Water (70,250 MBH boiler capacity) to IAH core Terminal Area
 - 7 Chillers
 - 33 Pumps
 - 4 Cooling Towers
 - 5 HW Boilers
 - 2 Steam Boilers
- Asset Management Assessments performed in 2020 and 2021 identified assets reaching end of service life
- Renovation and Upgrade required to improve reliability and efficiency of the plant
- Procurement
 - Method: Design Build
 - Two Step: RFQ/RFP
 - Procurement Advertisement: July 2022
- More Information contact:
 - Scott Hill, Director of Maintenance (scott.hill@houston.tx.gov)

Mechanical

ANTICIPATED REPLACEMENT SCOPE


- 4 Chillers (2 steam-driven)
- 10 Pumps
- 3 Cooling towers (10 Cells)
- 9 Air handling units
- Sensors and control valves
- BAS Controllers
- Removal of abandoned equipment (chiller, boilers, pumps, etc.)



Electrical

REPLACEMENTS & UPGRADES


- Switchgear, MCCs, & Panels
- Transformers
- Variable frequency drives
- LED lighting upgrade




Building Envelope


REPAIRS

- CUP Roof
- Utility tunnel leaks






ENERGY SYSTEMS LABORATORY
THERMAL AND ENGINEERING EXPERIMENT STATION



DFW Consulting Group, Inc.
Mechanical / Thermal / Plumbing



Command Commissioning LLC





IAH Power Generation

Scott B. Hill, Director of Maintenance
March 25, 2022



Background – IAH Power Generation

Scott B. Hill, Director of Maintenance



- *One of the HAS Strategic Priorities is to* act responsibly to achieve social, environmental and economic sustainability
 - *Initiative* to improve the resilience and reliability of our electrical infrastructure through on-site Power Generation
[Power generation current and future needs include 40MW to 70MW of power]

Key Energy Infrastructure Objectives - Summary



1. Renew Infrastructure
 - Ensure Utilities Systems Have At Least 10 Years Remaining Service Life At Time Of Opening International Terminal
2. Improve Resilience And Reliability Of Utility Systems
 - Diversify Energy Supply Through Multiple Energy Resources
3. Position Central Terminal Area (CTA) Electrical Distribution To Facilitate Sustainable Strategies
4. Support Sustainable Energy Service Strategies
 - Position For Renewable And / Or Lower Cost Energy Sources
 - Reduce Airport And Regional Air Emissions Footprint
 - Achieve CTA Net Zero Energy Objective

May 8, 2018, Infrastructure Industry Day





Upcoming Procurement – IAH Power Generation

Scott B. Hill, Director of Maintenance



- **IAH Power Generation Initiative**
 - **Scope:** Development of an on-site 40MW (expandable to 70MW) power plant using Combined Heat, or other, acceptable alternative power generation methods. Including:
 - Long term operation and maintenance (O&M) which may include Central Utilities Plant O&M
 - **Method:** Design Build Finance Operate & Maintain
 - **Two Step:** RFQ/RFP
 - **M/WBE:** TBD
 - **Procurement Advertisement:**
Anticipated Fall 2022





Upcoming Procurement – IAH Power Generation

Scott B. Hill, Director of Maintenance



- *More Information* contact:
 - Bruce Hays, HAS Energy Manager
(bruce.hays@houstontx.gov)

Partnership: Scope and Procurement
Document Development



**ENERGY SYSTEMS
LABORATORY**
TEXAS A&M ENGINEERING EXPERIMENT STATION



DFW

Consulting Group, Inc.
Mechanical Electrical Plumbing • Engineering

METC 
ENGINEERING





Overview - Summary



IAH Power Generation Project 40 MW to 70 MW

Mario Diaz – Director of Aviation
Jarret Simmons – Deputy Director Infrastructure/Chief Development Officer

Scott Hill – Director of Maintenance
Omar Mendoza – Sr. Project Manager – Asset Maintenance

Eren Selcen – IAH Asset Engineering
Bruce Hayes – IAH Energy Manager

Background

Power Requirements are changing

- **Energy demand is growing**
 - Terminal expansions
 - Electric Vehicles Charging Stations – Rentals, customers, airport fleet
 - Electric aircraft (electric vertical take off and landing)
 - Trains
- **Greater need for energy resiliency**
 - Weather events
 - Peak demand due to EV
 - Aging electrical infrastructure
 - More flexibility
- **Time to adopt improved energy future**
 - Onsite clean energy production
 - Energy storage
 - Load leveling
 - Fuel diversity
 - Upgrade inefficient infrastructure
 - Sustainability
- **More Information contact:**
– Scott Hill, Director of Maintenance
(scott.hill@houston.tx.gov)

Solution

POWER GENERATION PROJECT

- Onsite clean energy systems
- Improved efficiency
- Fuel diversity
- Sustainable
- Reliable
- Resilient

Business Model

Procurement

RFQ/RFP

- Design-Build
- Long term Energy Services Agreement
- Includes Operations & Maintenance
- Neutral HAS budget impact
- Neutral HAS staff impact
- Improve IAH rating to Skytrax 5-Star

Advertisements

- August 2022





IAH Subway, ITT, Replacement & Expansion

Scott B. Hill, Director of Maintenance

March 25, 2022



Background – IAH Subway (ITT) Replacement & Expansion

Scott B. Hill, Director of Maintenance



- **IAH Subway, Inter-Terminal Train (ITT)**, originally built in 1968, and upgraded in 1972 and 1981
 - Non-Secure/Landside Automated People Mover
 - Moves 240,00 travelers a month
 - Operates 365 days per year; average 21 hours per day
 - **Asset Management Assessments** have identified the need for full system replacement (end of service life and obsolete parts)
 - **Expansion needs** due to terminal expansion and increase traffic requires the subway to be expanded to:
 - Rental Car Facility
 - Potential East Developments





Procurement – IAH Subway Replacement & Expansion

Scott B. Hill, Director of Maintenance



- *IAH Subway ITT Replacement & Expansion*

- **Scope:** Replace existing system with a modern landside automated people mover (APM), make improvements to the subway tunnel, expand the new APM system and tunnel to selected areas
- **Method:** Advanced Planning - Design Build Finance Operate & Maintain
Two Step: RFQ/RFP
- **M/WBE:** TBD
- **Procurement Advertisement:**
TBD





Procurement – IAH Subway Replacement & Expansion

Scott B. Hill, Director of Maintenance



- ***More Information*** contact:

- Scott Hill, HAS Director of Maintenance
(scott.hill@houstontx.gov)
- Jeffrey Tennyson, HAS Senior Project Manager
(jeffrey.tennyson@houstontx.gov)

*Partnership: Scope and Procurement
Document Development*

Jacobs

LEA ■ ELLIOTT



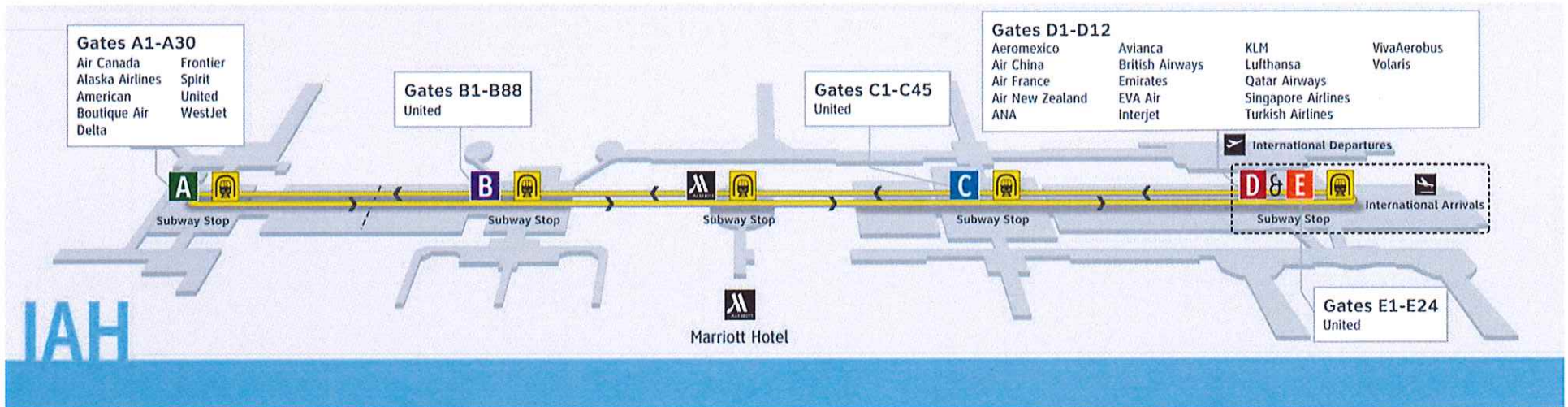


SUBWAY REPLACEMENT PROJECT





CURRENT ITT/SUBWAY SYSTEM



The Replacement System will retain the existing Station Stops at Terminals A, B, C, D/E and the Airport Marriott



ITT/SUBWAY SYSTEM STATISTICS



System Name:	Subway (formerly Inter-Terminal Train)
Role:	Landside Conveyance (Non-Secure)
In Service:	1981
System Operation Configuration:	Loop. Underground
Guideway Length:	2.0 miles single-lane guideway
Vehicle/Train Configuration:	Three Car Trains
Fleet Size:	Eight Trains
Propulsion:	LIMs embedded in the track
Control System:	PLC fixed block control of wayside linear induction motors (passive vehicles)
Peak Hour Capacity:	720 pphpd
Headway:	3.0 minutes





Direct Replacement of the Existing ITT/Subway with Stops at:

- Terminals A, B, C, D/E, and
- Airport Marriott



Direct Replacement of the Existing ITT/Subway with Stops at:

- Terminals A, B, C, D/E, and
- Airport Marriott



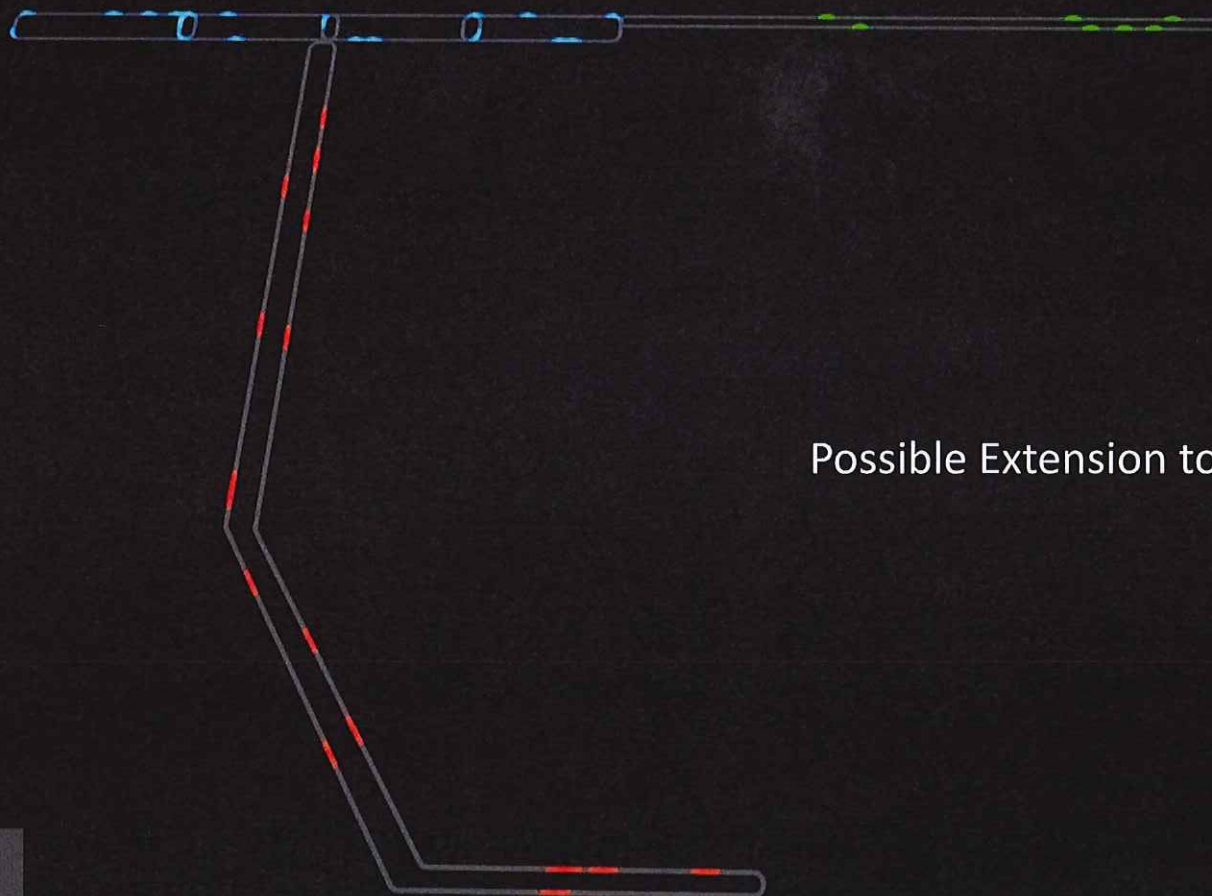
Possible Extension to Side East Parking



Possible Extension to Side East Parking



Possible Extension to Rental Car Center



Possible Extension to Rental Car Center



DESIGN LIFE



50 Years - Fixed Facility Structures

- Tunnels, Guideways, Stations, MSF, and All Other Fixed Facility System Related Structures

30 Years – Guideway Equipment

- Running Surfaces
- Guidance Equipment

30 Years - Power Distribution System Substations and All Wiring and Cabling

15 Years - ATC, Communication Equipment and All Other Major System Equipment

Vehicle Design Life

- At Least 30 years or 3,000,000 miles
- Full Rehabilitation of the Vehicle will be permitted at 15 years or 1,500,000 mile



Questions and Answers

IAH Central Utilities Plant Renovation & Upgrades

IAH Power Generation

IAH Subway, ITT, Replacement & Expansion



BREAK
10 Minutes



IAH Terminal A Curbside Capacity Improvements

David Robbins, Director of Program Management



Terminal A Curbside Capacity Improvements Projects at IAH

John Allen, Sr. Project Manager

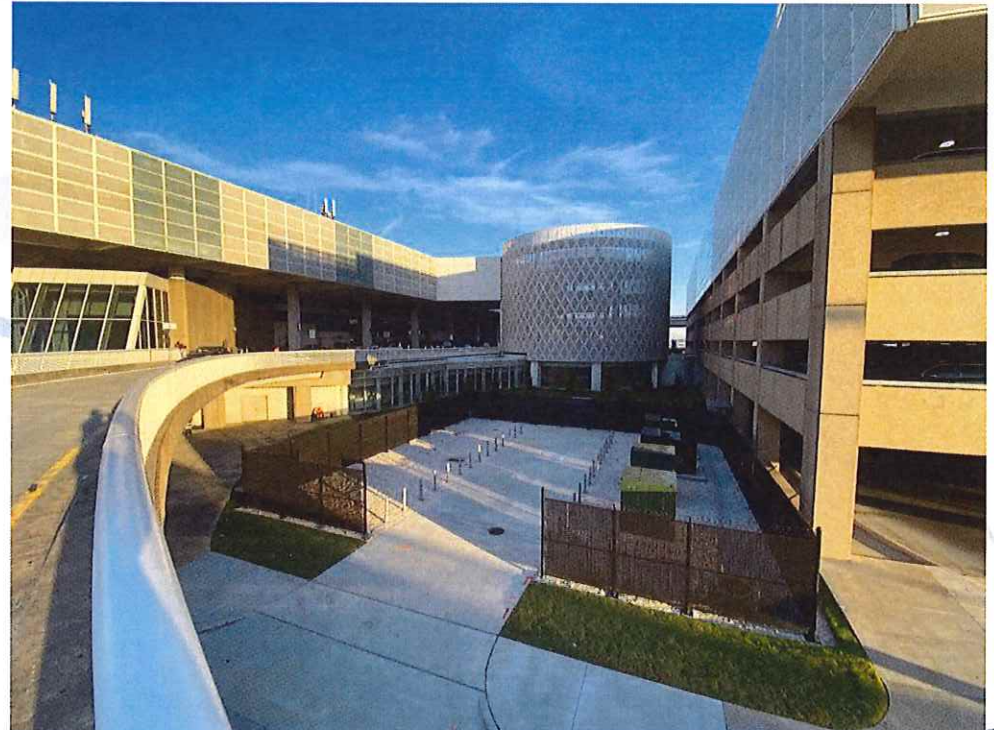


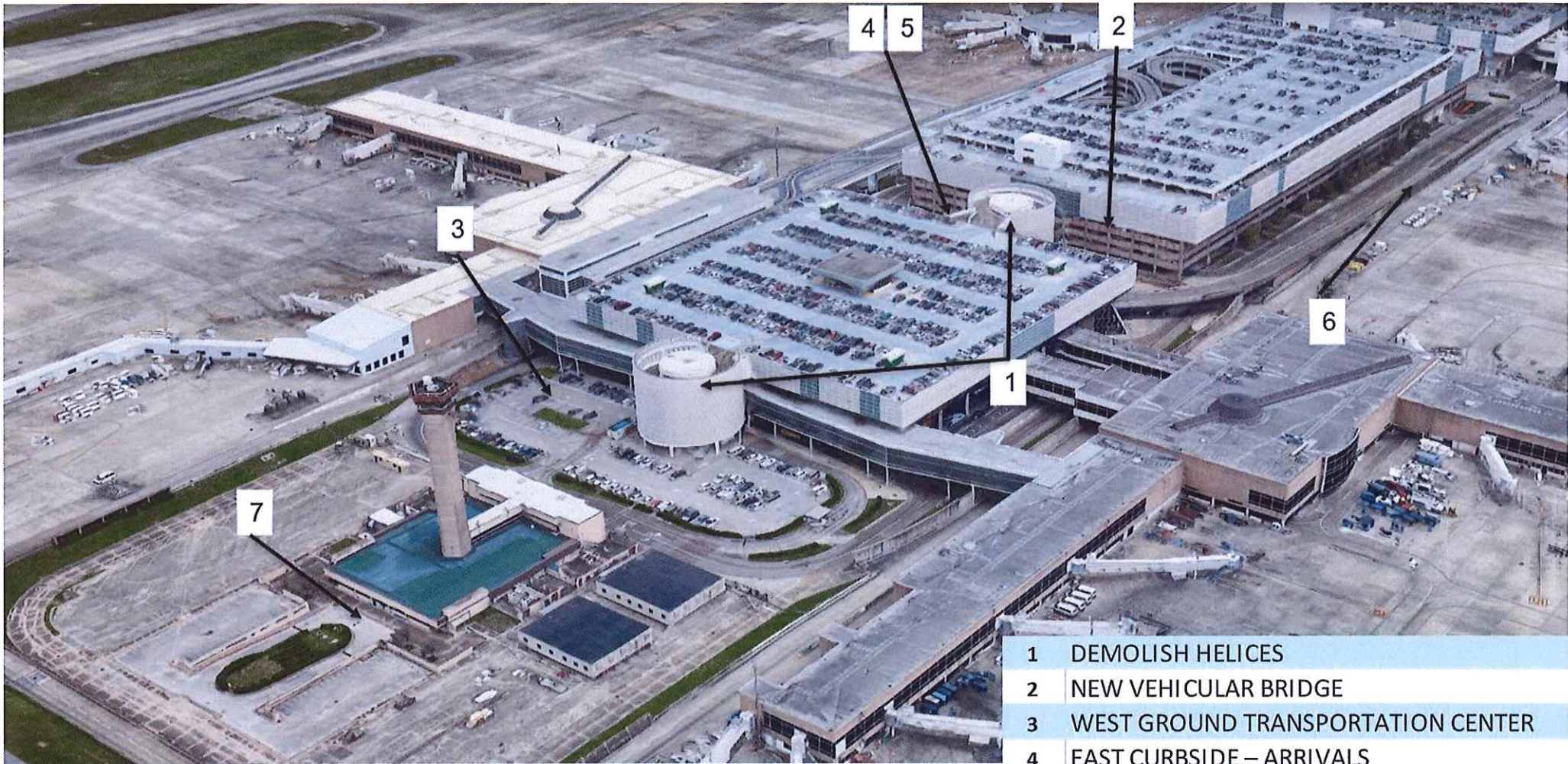
Project Objectives

- Correct the current Level Of Service (LOS) deficiencies at Arrival and Departure Curbsides for both private and commercial vehicles.

Delivery Method

- Design Build





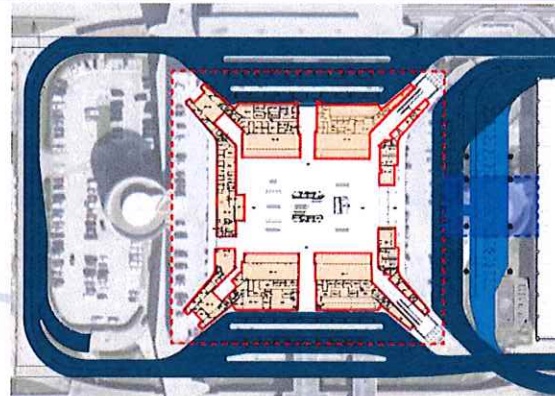
- 1 DEMOLISH HELICES
- 2 NEW VEHICULAR BRIDGE
- 3 WEST GROUND TRANSPORTATION CENTER
- 4 EAST CURBSIDE – ARRIVALS
- 5 EAST CURBSIDE - DEPARTURES
- 6 RESTRIPE SOUTH TERMINAL ROAD
- 7 NEW WEST TRITURATOR



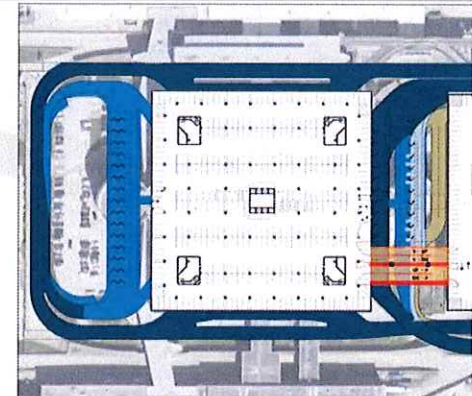
Curbside Expansion (cont.)

Curbside Capacity Improvements

- Demolish two existing helices (East/West)
- One new vehicular bridge connecting AB garage to Term. A garage
- West Ground Transportation Center
- East curbside arrivals/departures
- Restripe South Terminal Road to three lanes



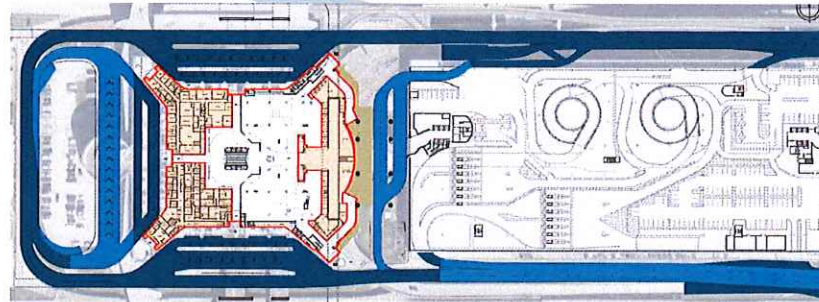
Departures – Additional Curbside Lanes



Garage Bridge Connection

Project Status

- Design Builder Procurement Fall 2022
- Completion Summer 2024



Arrivals – Relocation of Commercial Vehicles and Additional South Terminal Road Traffic Lane



Will Clayton Pkwy/JFK Blvd Flyover Bridge Safety Improvements

David Robbins, Director of Program Management



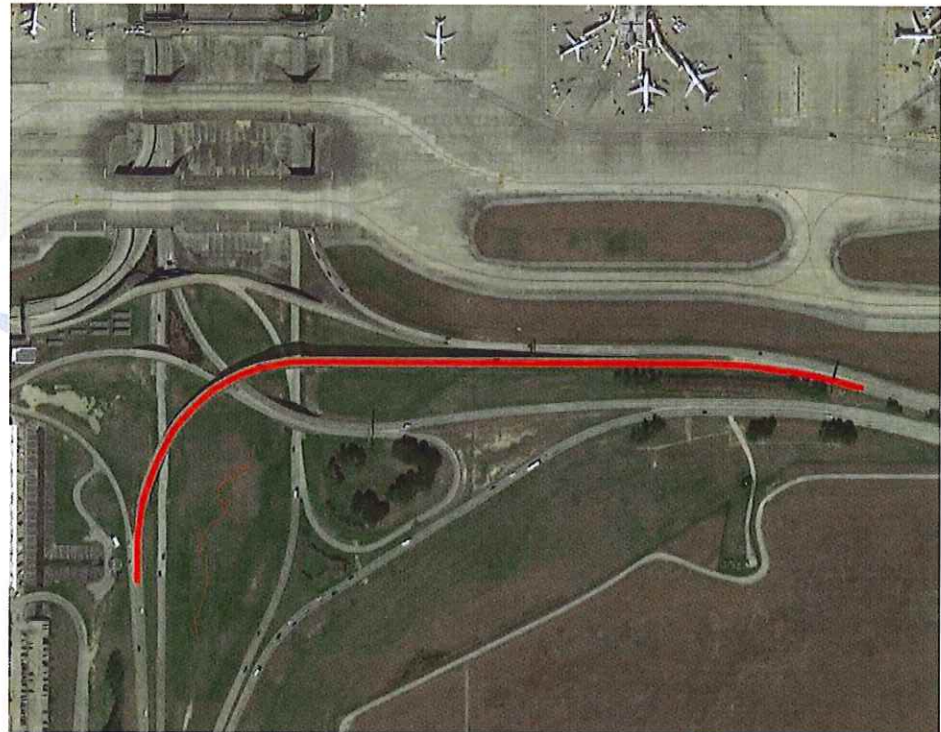
WCP/JFK Flyover Bridge Safety Improvements

Roger Hebert, Sr. Project Manager



Project Objectives:

- Railing Upgrades
- Signage Improvements
- Installation of End Treatments
- Removal of Sidewalk Pavement
- Reconstruction of Roadway Surface
- Additional Traffic Control Devices





WCP/JFK Flyover Bridge Safety Improvements (cont.)

Delivery Method

- Invitation to Bid

Project Status

- Construction Procurement July 2022
- Project Completion December 2022





IAH Remain Overnight (RON) Terminal A Infill

David Robbins, Director of Program Management





Remain Overnight (RON) Parking – Terminal A North Infill

Javier Sartorio, Sr. Project Manager

Project Objectives

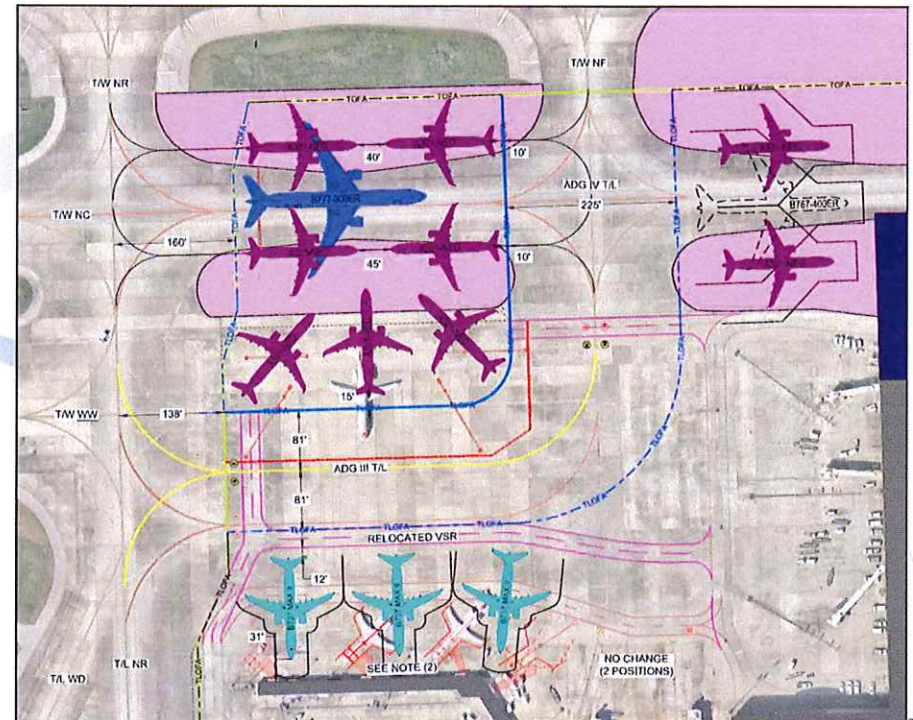
- Create a larger apron to be used for RON parking and de-icing operations with scope as noted:
- Taxiway NC between Taxiway NR and Taxiway NF.
- Accommodate the gate expansion and future parking at Terminal A North.
- Provide accommodate of ADG IV aircraft to facilitate ingress and egress to Gate A14
- Existing utility work required

Delivery Method

- Design Build

Project Status

- Project will be advertised late April





Passenger Loading Bridges at IAH & HOU

David Robbins, Director of Program Management



Passenger Loading Bridge Procurement at IAH and HOU

John Allen, Sr. Project Manager



Project Objectives

- Provides for the removal and replacement of:
- 5 PLB's (PLB, GPU, PCA) for HOU
- 5 PLB's (PLB, GPU, PCA) for IAH
- Turn-key 25 – year maintenance contract for 16 total (IAH) PLB, PCA and 400hz systems

Key Milestones:

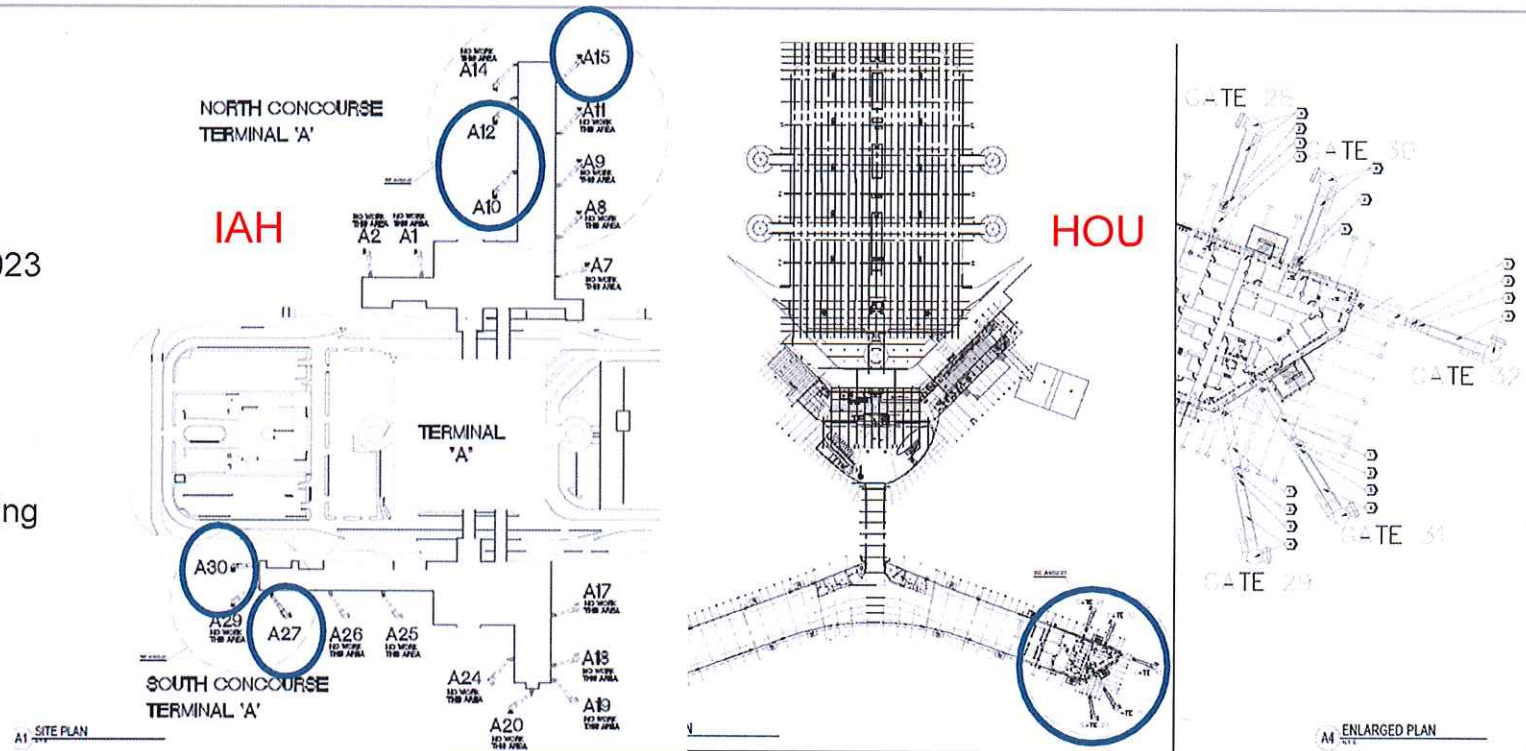
- Contractor Procurement Fall 2022
- Completion Summer 2023





PLB Locations - IAH & HOU (cont.)

- Assuming 90 days lead time for Jan 2023 bridge delivery.
- 6 weeks per bridge install, IAH / HOU concurrent completing August 2023.





HOU Aircraft Rescue and Fire Fighting Station 81

IAH Aircraft Rescue and Fire Fighting Station 92

David Robbins, Director of Program Management



HOU Aircraft Rescue and Fire Fighting Station 81

Project Manager: Robert Lengefeld

Design Manager: Robert Plushnick, RA AIA



Project Objective:

- Construct a new one-story 20,513,GSF, ARFF facility.
- The program includes 6 apparatus bays, living quarters and administration offices.
- The site will include phased construction, underground detention, and access to Taxiways K & J.

Project Delivery Method

- Invitation to Bid

Project Status

- The project will advertise in May 2022.





HOU Aircraft Rescue and Fire Fighting Station 81 (cont.)



IAH Aircraft Rescue and Fire Fighting Station 92

Project Manager: Robert Lengefeld

Design Manager: Waldo Maffei, AIA



Project Objective:

- Construct a new one-story 21,700,GSF, ARFF facility.
- The program includes 6 apparatus bays, living quarters and administration offices.
- Will include new sitework, utility connections and access to runway 9/27.

Project Delivery Method

- Invitation to Bid

Project Status

- The project will advertise in June 2022

IAH Aircraft Rescue and Fire Fighting Station 92

Project Manager: Robert Lengefeld
Design Manager: Waldo Maffei, AIA





HOU Central Concourse Tile Flooring HOU Restrooms Renovation Phase II HOU Information Booths Installation

Nicole Owens, Assistant Director of Project Delivery



PN957-HOU CENTRAL CONCOURSE FLOOR REPLACEMENT

Roger Hebert, Sr. Project Manager
Robert Plushnick AIA, Design Manager



Project Objective:

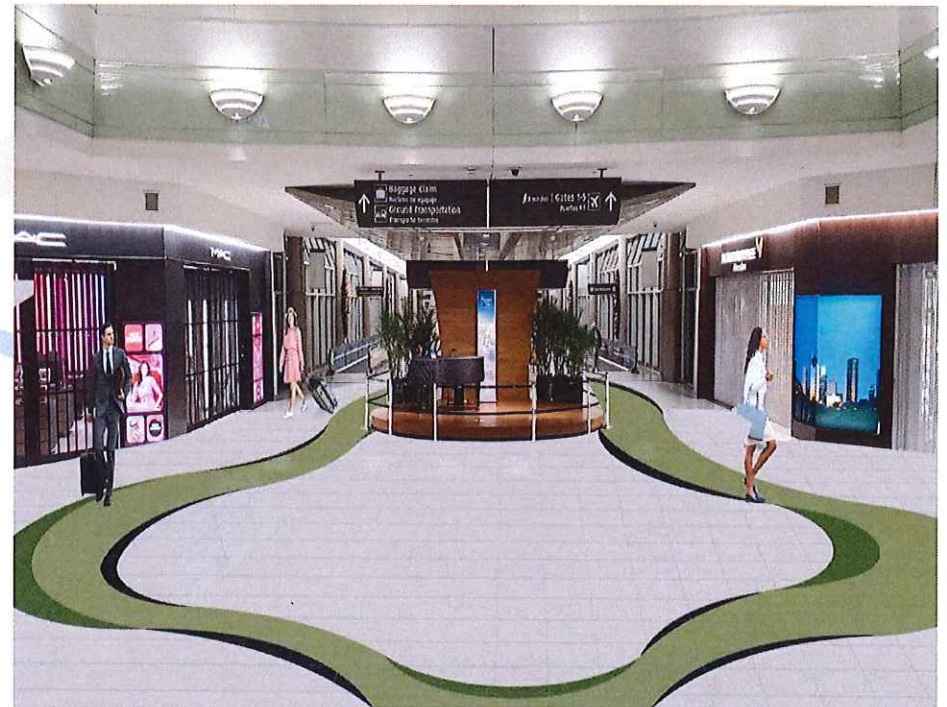
- Install new quartz tile in the Central Concourse of Hobby Airport.

Project Delivery Method

- Invitation to Bid

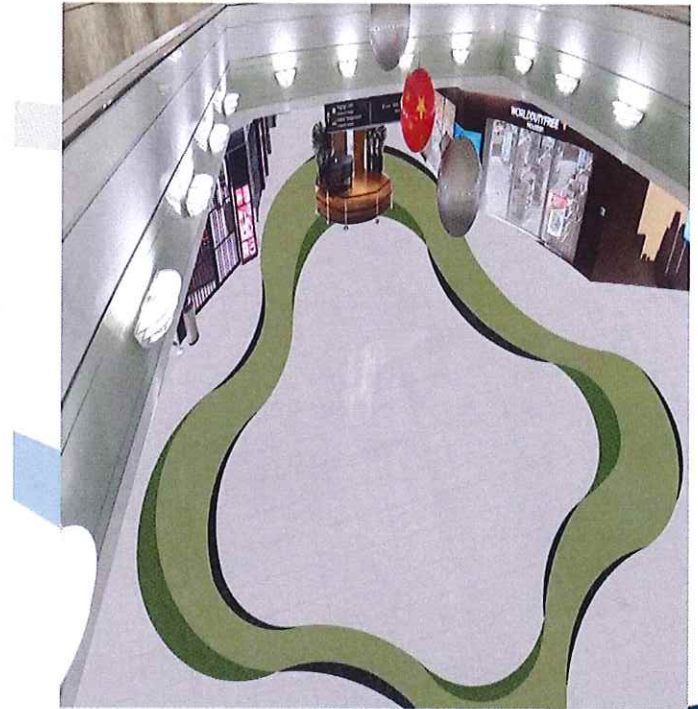
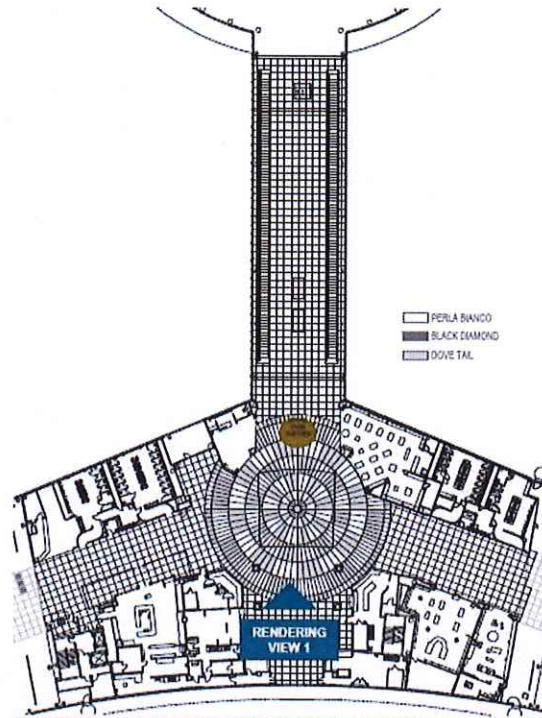
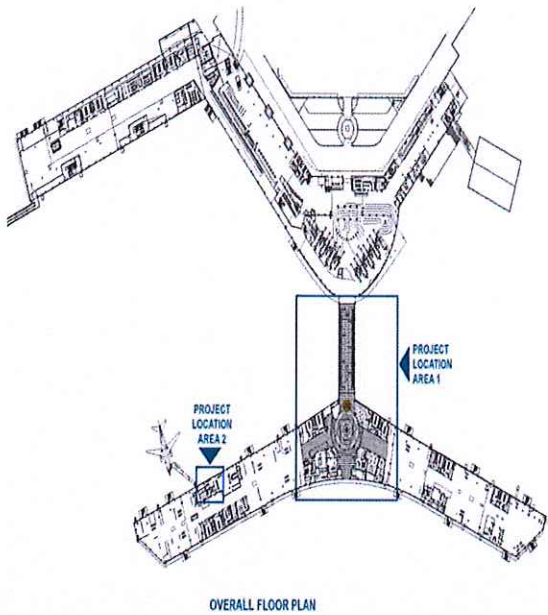
Project Status

- The project will advertise in September of FY22.





PN957-HOU CENTRAL CONCOURSE FLOOR (cont.)



HOU Restrooms Renovation Phase II (East Concourse)

Project Manager: Robert Lengefeld
Design Manager: Robert Plushnick, RA AIA



Project Objective:

- Modernize the existing restrooms to improve customer experience
- Phased restrooms renovation at Gates 20-23, 24-27 and 28-32
- Includes Men's, Women's Assisted Restrooms

Project Delivery Method

- Invitation to Bid

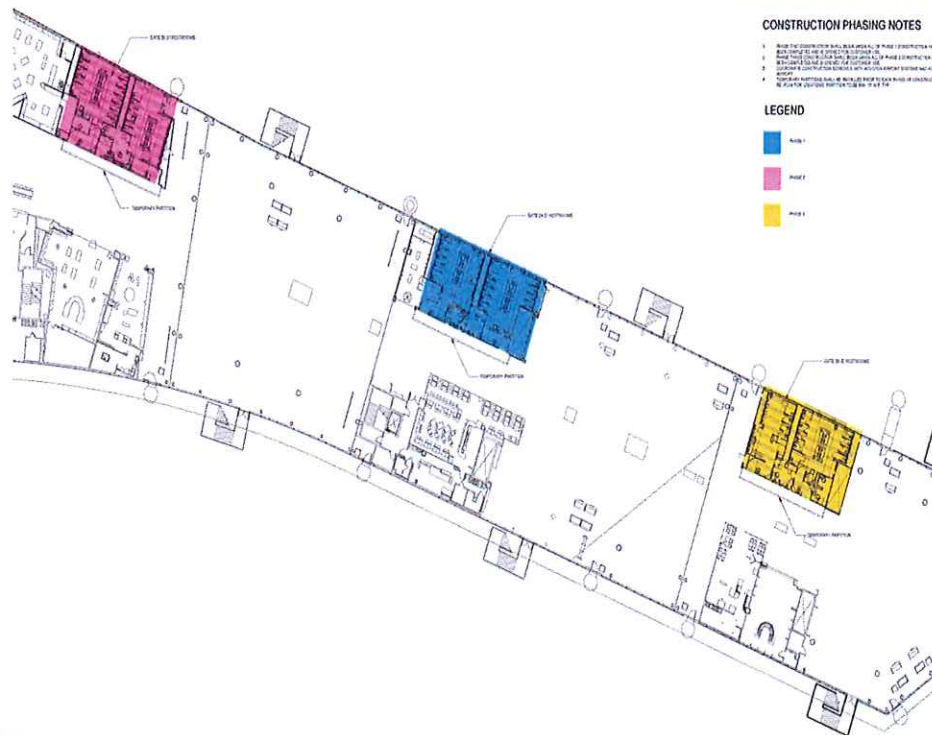
Project Status

- The project will advertise in May FY22.





HOU Restrooms Renovation Phase II (East Concourse) (cont.)



PN941 – Information Counters Renovation HOU

Jeffrey Tennyson, Project Manager
Robert Plushnick AIA, Design Manager



Project Objective:

- Replacement of four (4) information counters and one (1) new information counter.
- Two on Baggage Level, Three on Level 1
- LED Display wall behind each counter
- New desktop LED display monitors

Project Delivery Method

- Invitation to Bid

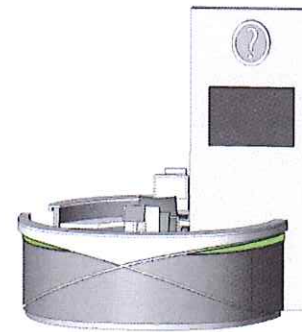
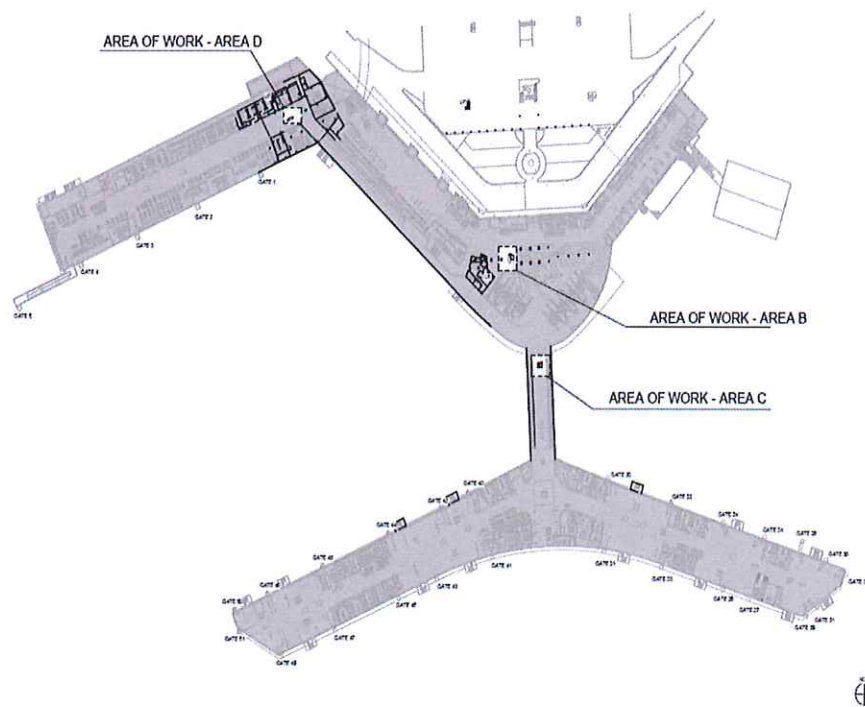
Project Status

- The project will advertise in 3rd Quarter of FY22.

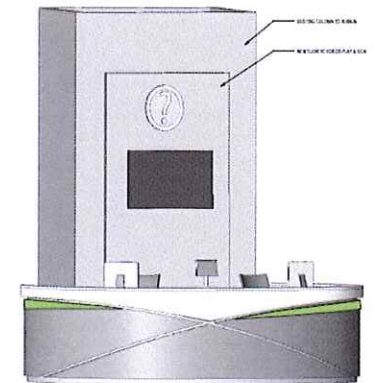




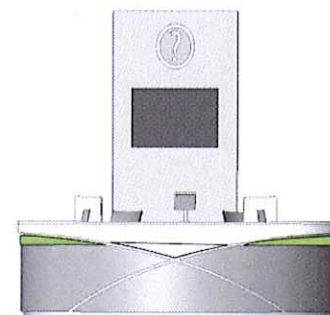
PN941 – Information Counters Renovation HOU (cont.)



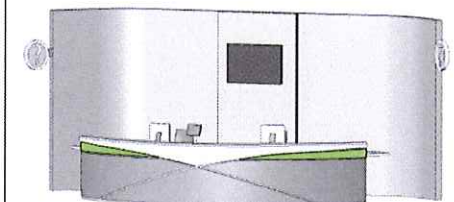
KIOSK 3D VIEW @ AREA C [02]



KIOSK 3D VIEW @ AREA B [02]



KIOSK 3D VIEW @ AREA D [01]



KIOSK 3D VIEW @ BAGGAGE CLAIM [01]



IAH Skyway Stations B&C Replacement IAH FIDS/BIDS Install IAH FIS/CBP Immigration Wayfinding

Nicole Owens, Assistant Director of Project Delivery



PN255-IAH TB & TC SKYWAY STATION CARPET REPLACEMENT

Project Manager: Korvin Banks
Design Manager: Waldo Maffei, AIA



Project Objective:

- Update/Replace existing carpet with new engineered stone tile flooring or quartz tile.
- 7,629 sf in Skyway Station Terminal B
- 6,359 sf in Skyway Station Terminal C

Project Delivery Method

- Invitation to Bid

Project Status

- Currently out for bid. Bids due April 2022.



TERMINAL B

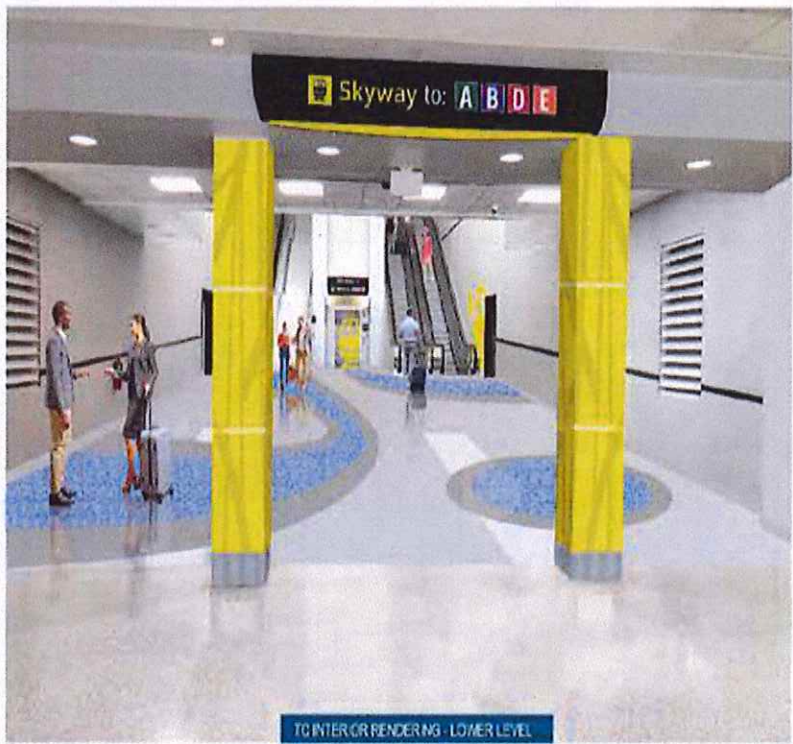


TERMINAL C



PN255-IAH TB & TC SKYWAY CARPET REPLACEMENT (cont.)

MMA
IAH TB AND TC SKYWAY STATION FLOOR REPLACEMENT
FLOOR FINISH MATERIAL SELECTION



7

MMA
IAH TB AND TC SKYWAY STATION FLOOR REPLACEMENT
FLOOR FINISH MATERIAL SELECTION



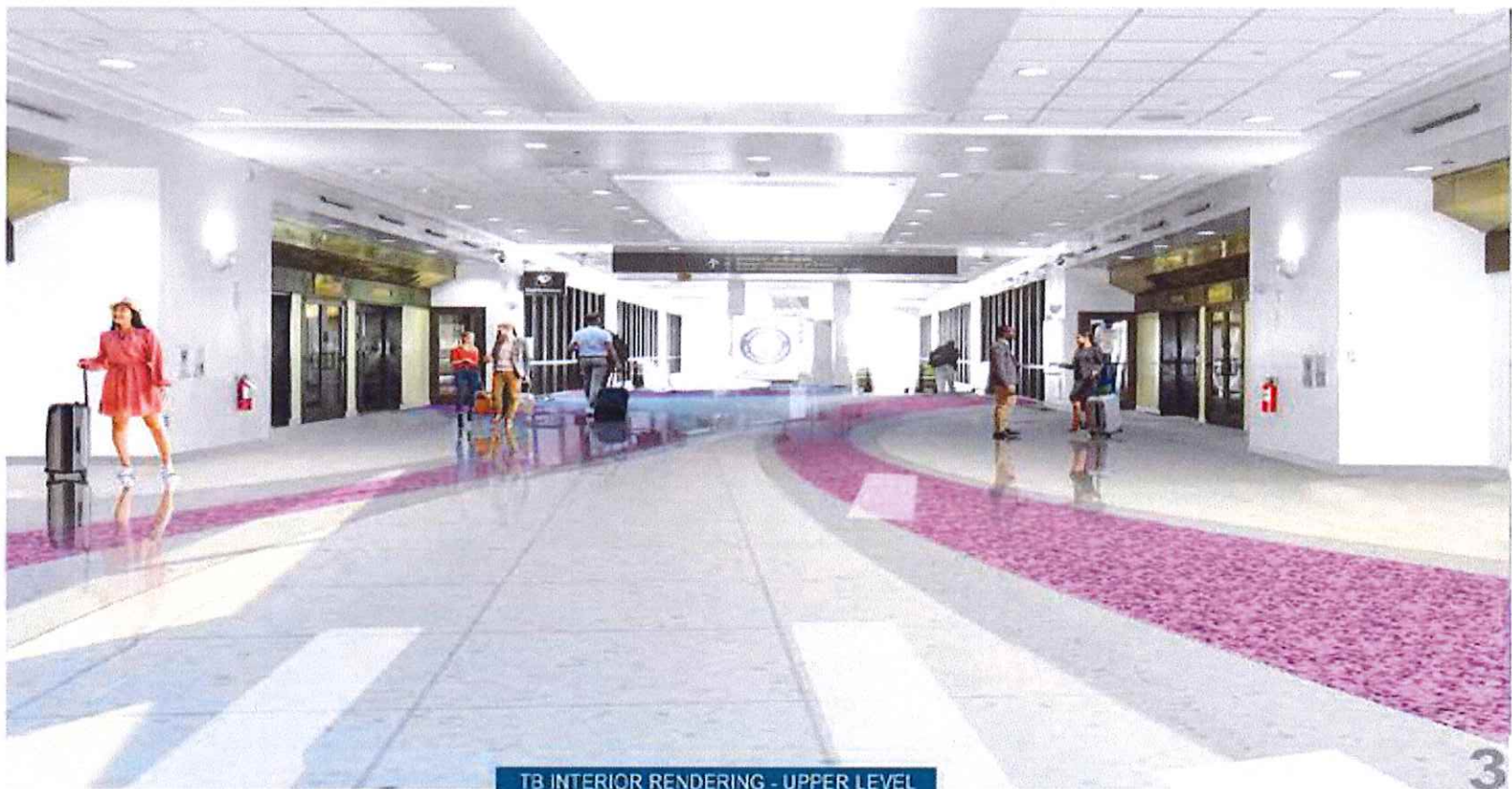
6

HOUSTON AIRPORTS

PN255-IAH TB & TC SKYWAY CARPET REPLACEMENT (cont.)



MWA
ARCHITECTS
IAH TB AND TC SKYWAY STATION FLOOR REPLACEMENT
FLOOR FINISH MATERIAL SELECTION
HOUSTON AIRPORTS



TB INTERIOR RENDERING - UPPER LEVEL

ON
TS

IAH Terminal A Flight Information Display and Baggage Information Display (FIDS & BIDS)

Project Manager: Jeffrey Tennyson
Design Manager: Waldo Maffei, AIA



Project Objective:

- Install LED accent lights at 20 locations throughout Term. A at both Concourse and Baggage Claim levels.
- Coordinate new monitors for Flight Information and Baggage Claim Information Display in existing locations.

Project Delivery Method

- Invitation to Bid

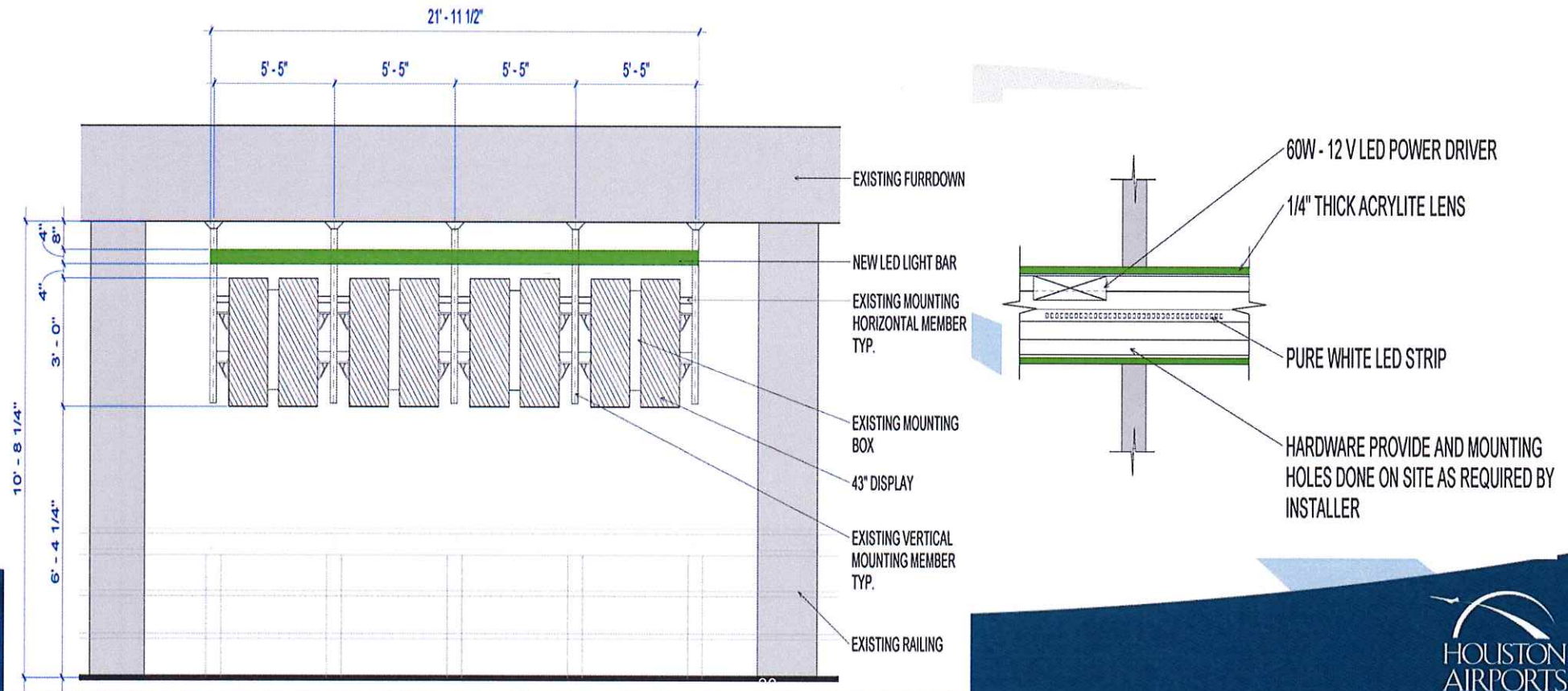
Project Status

- The project will advertise in June 2022.





IAH Terminal A FIDS & BIDS (Cont.)



Project 972 – FIS/CBP Signage and Wayfinding

Project Manager: Doyle Black
Design Manager: Waldo Maffei, AIA



Project Objective:

- Install new digital dynamic signage at the Federal Inspection Services and US Custom Border Protection in order to accommodate international travelers by providing real time arrival flight information and multilingual messaging.

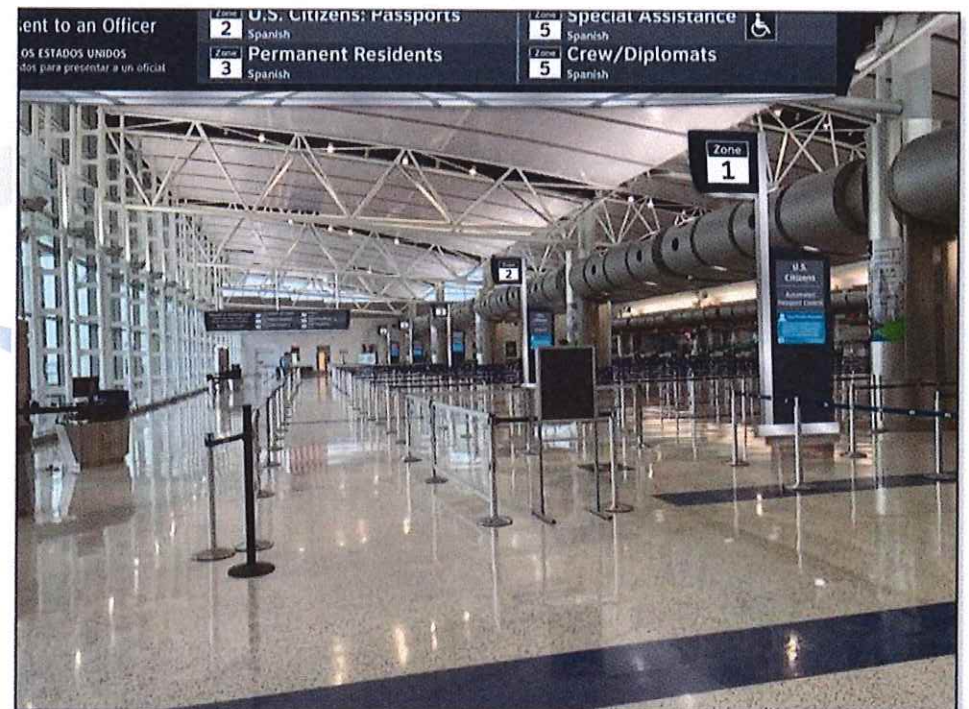
Project Delivery Method

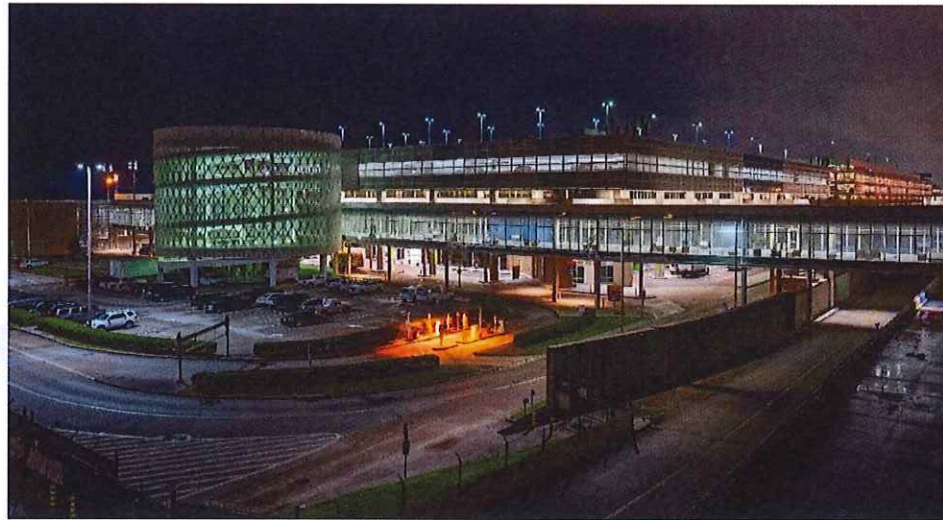
- Invitation to Bid

Project Status

- The project will advertise in June 2022.







IAH

Domestic Redevelopment Program

Industry Day March 25, 2022

IAH Domestic Redevelopment Program (DRP) Overview



- Terminal A Projects
 - Baggage Handling System Optimization
 - Construction Contract Awarded
 - Project 65% complete
 - Early And Enabling Works (Curbside and RON)
 - Modernization & Expansion





Terminal A Modernization & Expansion Scope Description

- Scope Elements
 - Add 10 Gates To Meet Domestic Airline Needs
 - Core Building Systems Service Life Extension
 - Inbound Baggage Handling Service Extension
 - Gate Support Equipment Replacement
 - New, Renovated and Expanded Restrooms and Concessions
 - Refreshed Finishes, Furniture, Fixtures & Equipment



Terminal A Modernization & Expansion Project Status



- Anticipated Solicitation Dates
 - Executive Program Manager - Spring 2022
 - PM Support Services - Fall 2022
 - Architectural Services - Fall 2022
 - Construction Services - Fall 2022





HAS 5 Year Project Portfolio Project Management Responsibilities

