



Houston Airport System Infrastructure Program

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July 20, 2018

Houston Airports System



- 54 million passenger movements (2017) – 4.6% increase over the last 10 years
- \$27 billion economic impact
- 230,000 regional jobs
- Global reach
- Concessions
- Technology-enabled





Overview of Houston Airports



GEORGE BUSH INTERCONTINENTAL AIRPORT (IAH)

- **29** passenger airlines
- **180+** destinations
- Nearly **42** million passengers in 2016

WILLIAM P. HOBBY AIRPORT (HOU)

- **4** passenger airlines
- **56** non-stop destinations
- Nearly **13** million passengers in 2016

ELLINGTON AIRPORT (EFD) / HOUSTON SPACEPORT

- Operations of the U.S. military, NASA and a variety of general aviation tenants
- Licensed commercial Spaceport






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4-Star Skytrax Ratings Highlights



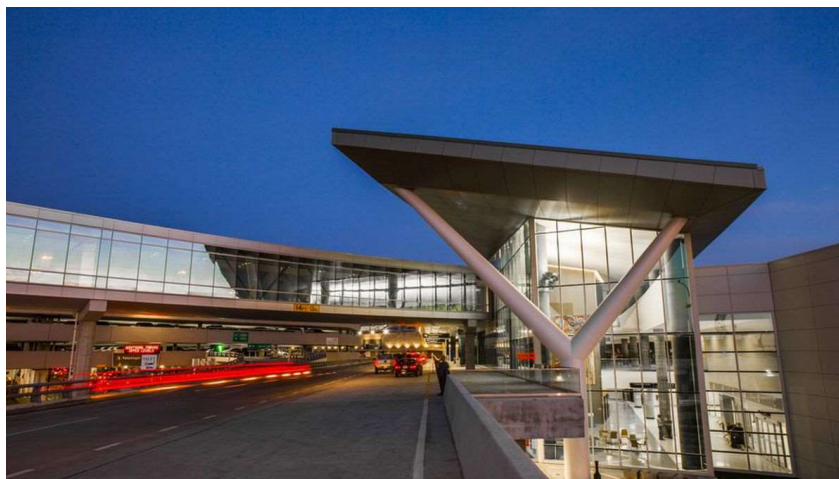

- Wifi (perfect score)
- Concessions program
- Signage Improvements
- IAH EcoPark & EcoPark2
- IAH Automated Security Lanes
- Customs/Immigration wait times (best in the nation)
- Mobile Terminal Maps (no app required)
- Fly2houston.com website with Spanish translation
- Improved cleanliness
- Smart Restrooms
- Harmony in the Air Music Program
- IAH Terminal C North – United Airlines
- HOU International Gates – Southwest Airlines
- HOU Blue Parking Garage with Automated Parking Guidance System
- Terminal Restroom Modernizations
- Service Animal Relief Areas

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HOU Four-Star Skytrax Rating



Southwest Airlines International Services Terminal



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HOU Four-Star Skytrax Rating



Blue Parking Garage



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HOU Four-Star Skytrax Rating



Blue Parking Garage – Automated Parking Guidance System & EV Charging Stations



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IAH Four-Star Skytrax Rating



Terminal D Automated Security Lanes by Scarabee

- Improved passenger throughput from 110 to 200 per lane per hour.



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IAH Four-Star Skytrax Rating



Terminal Restroom Modernization



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IAH Four-Star Skytrax Rating



Terminal Restroom Modernization

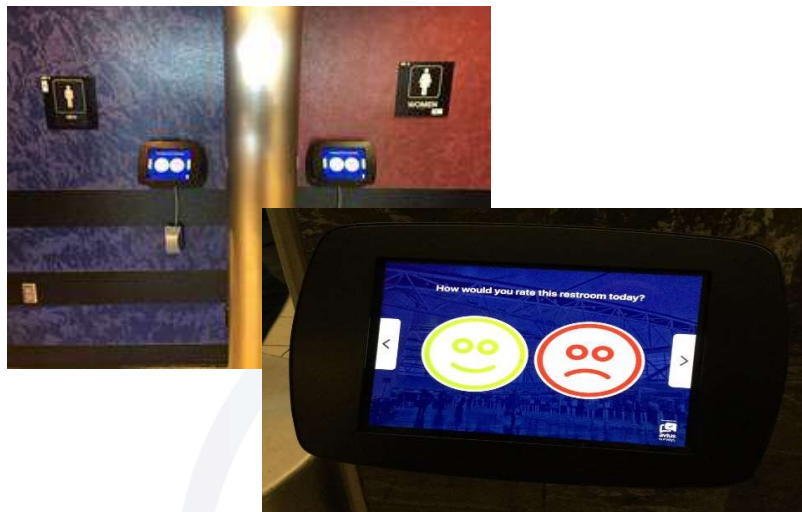


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IAH Four-Star Skytrax Rating



Smart Restrooms



IAH Four-Star Skytrax Rating



United Airlines New Terminal C North



IAH Four-Star Skytrax Rating



United Airlines New Terminal C North



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IAH Four-Star Skytrax Rating



EcoPark & EcoPark2



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HAS Vision: 5-Star Skytrax Ratings



OUR MISSION

We exist to connect the people, businesses, cultures and economies of the world to Houston.

OUR VISION

Establish the Houston Airport System as a 5-star global air service gateway where the magic of flight is celebrated.

Planned Infrastructure Improvements Lead to 5-Star Vision

- IAH Automated Parking Guidance System
- IAH Terminal Wayfinding Signage Improvements
- Intercontinental Terminal Redevelopment Program (ITRP)
- Terminal A Modernization & Expansion Program
- Terminal Restroom Modernizations
- Mothers Nursing Rooms
- Comfortable Hold Room Seating Initiatives

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Infrastructure Organization



Director of Aviation
Mario Diaz

Deputy Director
Robert Barker

ITRP EPM
Steven Andersen

Supply Chain Management
Justina Mann

- Supply Chain Management

Asset Planning
Monty Nunn

- Arts Management
- CIP, Grants
- Environmental
- GIS
- Planning
- On-Call Planning Resources
- Energy Mgmt

Asset Engineering
Guillermo Cabrera (I)

- Cradle-to-Cradle Life Cycle Mgmt:
 - Pavements
 - Grounds
 - Buildings
 - Utilities
 - Parking
 - Transportation
- On-Call Design Resources

FAR139 Pavements
Cynthia Straughan

- Cradle-to-Cradle Life Cycle Mgmt:
 - All FAR139 Regulated Airfield Pavement Systems

Major Maintenance
Peter Ferguson

- Fleet Management
- Horticulture
- JOC Resources

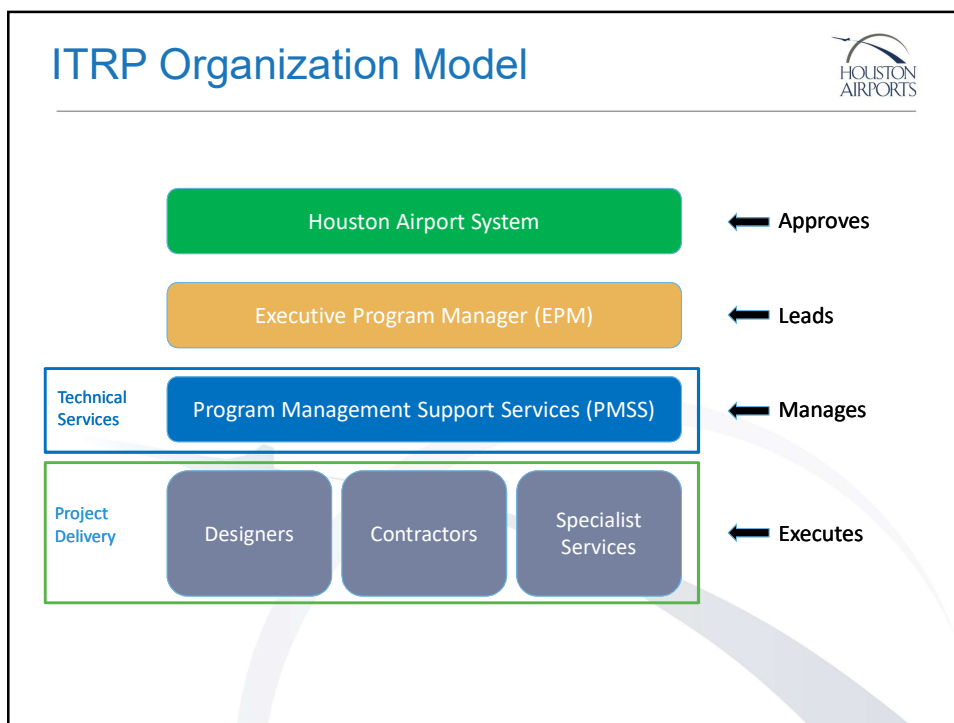
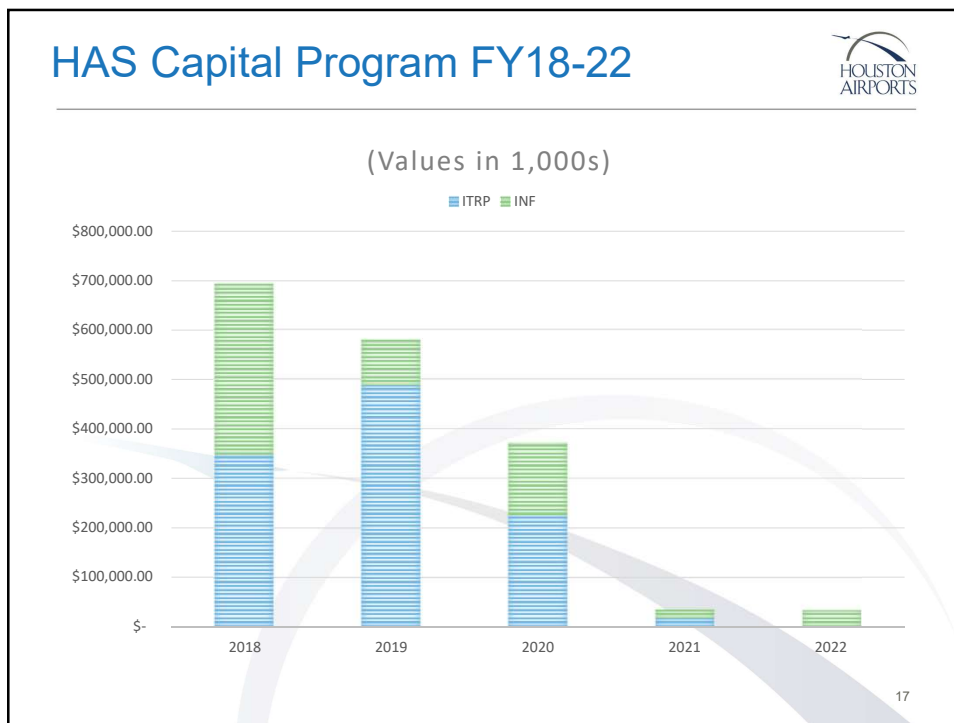
INF Controls
Hassan Sulehri

- Performance Measurement
- Risk Management, Safety
- Project Controls Management
- Resource Management
- ITRP Utilities
- Invoicing
- Administrative Support

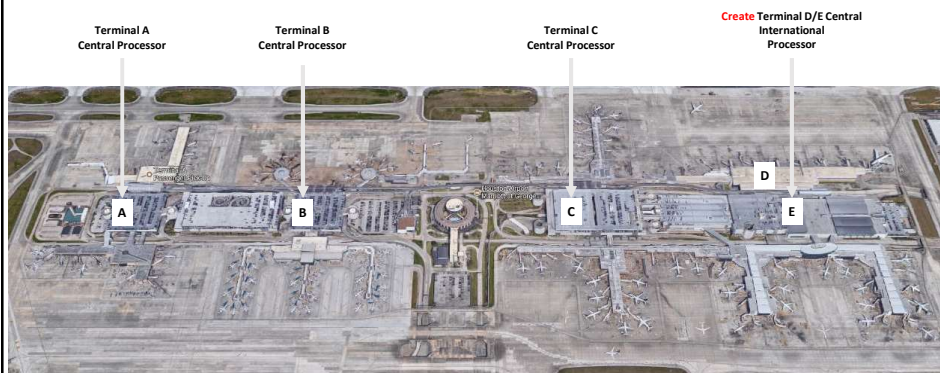
Building Standards
Devon Tiner

- Building Standards
- Permitting
- Tenant Improvement Program
- Construction Quality
- Code Inspections

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FIS & MLIT Integration Concept



- The processing functions within Terminal D will be centralized, aligning with Terminals A, B, C and E
- The functions to be removed from Terminal D and combined with Terminal E facility attached to the FIS building are:
Ticketing, Security Check Point, Checked Baggage Inspection & Screening (CBIS), Pre-cleared Baggage Claim and the Curb Front passenger drop-off

International Terminal Complex – Phase 1



Phase 1
Capacity - ~ 4500 PAX
Estimate - ~ \$1.2bn (+/- 15%)
Duration - ~ 45 Mths (4/18-7/22)

Note: Indicative layouts and subjective to further design, review and airfield planning.

Aircraft Type	No. *
Group VI	2
Group V	9
Group III	3
Group III (excluding int. Arrivals)	5
TOTAL	19

- Phase 1 (Old C North & D) Scope:**
- Refresh Old C North Concourse;
 - Re-Life Systems & Refurbish Terminal D & Old C-North; and
 - Sterile Corridor on East Side of Old C-North.
 - Construct New Pier D3; and
 - Temporary A380 Gate D9.

- Phase 1 FIS/International Hall Scope:**
- Demolish Terminal D Garage
 - New ticketing Hall
 - New Arrivals / Departures Curbs and Roadway modifications
 - Modified FIS & Tenants
 - New Arrivals Hall
 - Baggage Modifications
 - Deferred to Future Phase:
 - 2nd Ticketing Level;
 - Domestic Reclaim Belts;
 - Departures Vertical Circulation & Link Bridge; and
 - Additional Parking Levels on C-Garage.

International Terminal Complex – Phase 2



Note: Indicative layouts and subjective to further design, review and airfield planning.

Aircraft Type	No.*
Group VI	2
Group V	11
Group III	3
Group III (Excluding int. Arrivals)	5
TOTAL	21

Phase 2 (Old C North & D) Scope:

- Construct New Pier D2; and
- Construct New Connector Corridors.
- Phased Demolition of Terminal D; and
- Construct New East Concessions, VIP Lounges Core.

Phase 2 FIS/International Hall Scope:

- Complete IH/FIS Build-Out:
 - 3rd Ticketing Level (relocated FF Airlines)
 - 2nd Ticketing Level (relocate and expand UAL);
- Domestic Reclaim Belts & Basement Build-Out;
- Departures Curb Vertical Circulation & Link Bridge;
- Relocated Arrivals Curb.

International Terminal Complex – Phase 3



Note: Indicative layouts and subjective to further design, review and airfield planning.

Aircraft Type	No.*
Group VI	2
Group V	14
Group III	1
TOTAL	17

Phase 3 (Old C North & D) Scope:

- Phased Demolition of Terminal D, C-D Connector and Old C-North;
- Construct New Pier D1; and
- Construct New West Frontal Gates.

Phase 3 FIS/International Hall Scope:

- Work complete in Phase 2

ITRP Procurement Update



PROCUREMENT ACTION	PROCUREMENT METHOD	PROCUREMENT STATUS
Program Management Office (PMO)	Design-Build (RFQ Two Step Process)	Contract awarded 11/16/16
MLIT Design Services	Architect Engineer (AE) Design Services (RFQ)	Contract awarded 11/30/16
MLIT Construction Manager at Risk	Construction Manager at Risk (CMAR)	Contract awarded 5/9/2017
Enabling Utilities – Landside	Design-Build (RFQ Two Step Process)	In procurement quiet period.
Rolling Owner's Controlled Insurance Program (OCIP)	Request for Proposals (RFP)	In procurement quiet period.
FIS Design Services	Architect Engineer (AE) Design Services (RFQ)	In procurement quiet period.
FIS Construction Manager at Risk	Construction Manager at Risk (CMAR)	In procurement quiet period.
IAH Energy Initiatives	Request for Qualifications (RFQ)	RFQ specifications and scope of services under development.

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Terminal A Modernization Program



Terminal A Scope

The project will include the following:

- Renew core building systems
- Refresh interior finishes
- Exterior waterproofing and roof repairs
- Restroom renovations
- Check-in and hold-room counter replacements
- MEP/IT upgrades
- Ticket Lobby Architectural Enhancements
- Boarding bridge & GSE upgrades

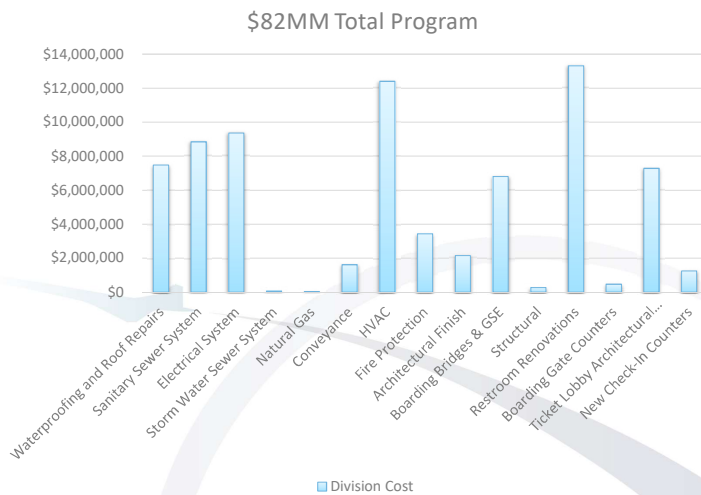
CIP Budget: \$82,000,000

Opportunity: Design-Build

Status: bridging documents in progress.

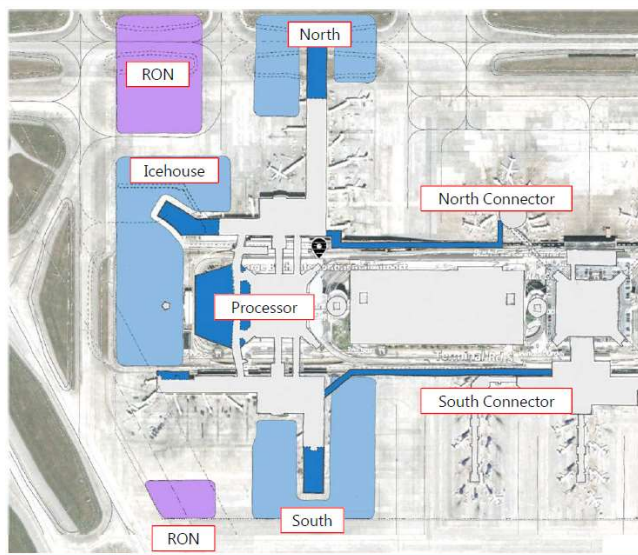
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Terminal A Modernization Program



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Terminal A Expansion Alternatives



Note: Indicative layouts and subjective to further design, review and airfield planning.

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TRACON Facility Demolition



TRACON Demo Scope

- Demolition of all the support buildings surrounding the old FAA Air Traffic Control Tower.
- Backfilling and paving the project site.
- The tower will be protected during the project and remain as a historical landmark.

Budget: \$3,000,000
 Opportunity: Construction Bid
 Status: In procurement quiet period

I. M. Pei – Chinese American Architect



Texas Commerce Tower currently known as JPMorgan Chase Tower
 Houston, Texas 1982

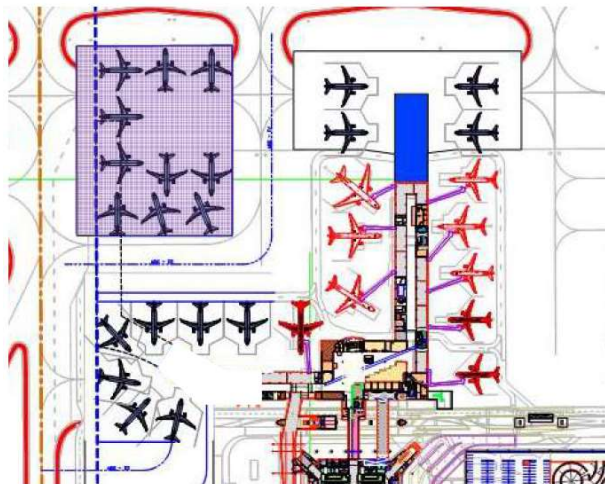


Designed 16 FAA air traffic control towers in various locations throughout the US in 1970, such as O'Hare International Airport, Tampa International Airport, Lambert-St. Louis International Airport, Columbia Metropolitan Airport and Indianapolis Airport (since demolished)
 Some 50-70 were originally planned for the contract, though only 16 were ultimately built.



The Louvre Pyramid
 Paris, France 1989

Terminal A Expansion Alternatives



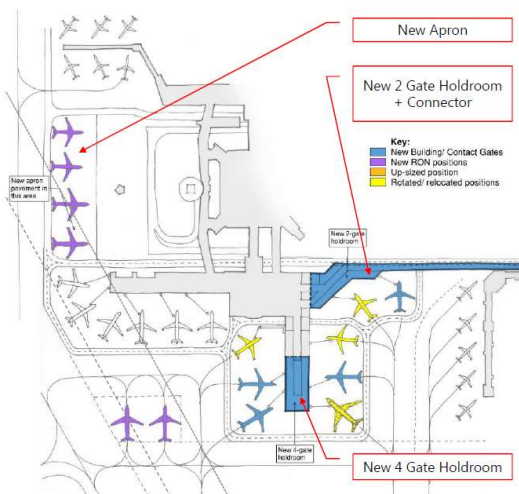
Terminal A North Expansion Alternative Scope:

- Extension of north concourse to accommodate 4 additional wide body passenger gates
- Provides for 10 new remain over night (RON) parking positions
- Fill airfield "ovals" adjacent to Taxiways NA and NB (similar to Terminal C North/Terminal D) to facilitate concourse expansion.
- Does not prohibit future Taxiway NR in IAH master plan
- Cost of Terminal A North extension & parking apron improvements not included in \$82MM program costs.

Note: Indicative layouts and subjective to further design, review and airfield planning.

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Terminal A Expansion Alternatives




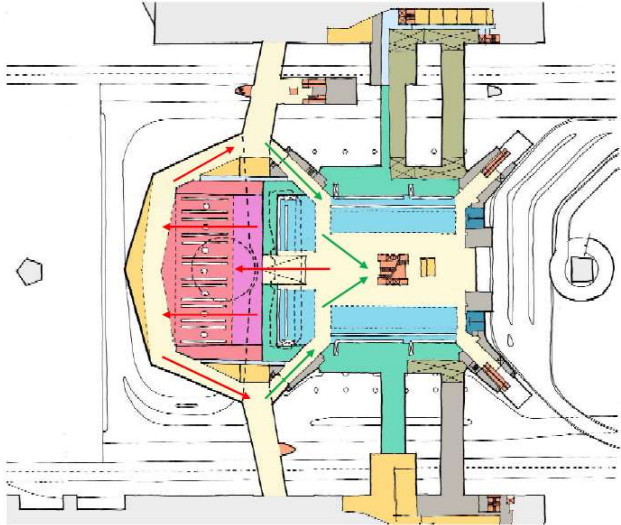
Terminal A South Expansion Alternative Scope:

- Provides for 4 new aircraft contact gates
- Provides for 4 new remain over night (RON) parking positions.
- Does not prohibit future Taxiway NR in IAH master plan
- Provides for new connectivity between Terminal A and Terminal B South
- Cost of Terminal A South proposed extension & parking apron improvements not included in \$82MM program costs.

Note: Indicative layouts and subjective to further design, review and airfield planning.

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Terminal A Expansion Alternatives

Terminal A Central Processor Expansion Alternative Scope:

- Consolidated SSCP capable of Terminal A+B capacity
- Increased Ticketing/Check-in to handle Terminal A+B capacity
- Cost of Terminal A Central Processor improvements not included in \$82MM program costs.

Note: Indicative layouts and subjective to further design, review and airfield planning.

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Infrastructure: Wayfinding & Signage



Wayfinding Signage for Terminals A, B, and C

- Fabrication & Installation of Wayfinding Signage in Terminals A, B and C.
- Fabrication and Installation of Interim Signs – High Density Extruded Polystyrene with Vinyl Graphics
- Fabrication and Installation of Aluminum Signs with Vinyl Graphics
- CIP Budget: \$1,500,000 in FY 2018
- Opportunity: Construction Bid
- Status: In procurement quiet period




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Infrastructure: Wayfinding & Signage



Wayfinding Signage for Terminals A/B, C, & D/E Garages

- Fabrication and Installation of Wayfinding Signage in Terminals A/B, C & D/E Garages
- Fabrication and Installation of Aluminum Signs with Vinyl Graphics
- Rebranding and eliminating the 3-Color identifiers of Terminal C Garages
- CIP Budget: \$2,500,000 in FY 2019
- Opportunity: Construction Bid
- Status: In design



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APM Control Center Upgrade



APM Scope

- Relocate control center to preferred office location
- Upgrade control system to current supported APM control platform by manufacturer (Bombardier)

CIP Budget: \$29,000,000
 Opportunity: Construction bid
 Status: Project in design



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Inter Terminal Subway Train Upgrade



Subway Train Scope

- Re-life or replace subway train system.
- Design Services in FY-2020
- Construction in FY-2022

CIP Budget: \$24,322,000
 Opportunity: Design/Construction
 Status: Pending Planning Documents.



The Subway is the only WEDway people mover built by the Walt Disney Company outside of a Disney property. It uses much of the mechanical technology used by the Tomorrowland Transit Authority PeopleMover, an attraction in the Magic Kingdom's Tomorrowland. The design permits the trains to make tight corners that are necessary along portions of the basement route, and is unusual in that on-train station announcements and audible warning messages are actually provided by a trackside audio system through openings in the tops of the vehicle car bodies. The train operates in a circuit, stopping at every terminal as well as the Houston Airport Hotel before returning to its starting point. The system is currently maintained and operated by JBT Aerotech.

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Infrastructure: Environmental



Project No. 676A Residential Noise Insulation Program

- Construction program to install new windows, doors, and insulation for reduction of aircraft noise in 184 single family homes
- CIP Budget: \$10,000,000
- Opportunity: Design-Build
- Status: In design for bridging docs



North Hollow Subdivision

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Infrastructure: Environmental



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Spaceport Infrastructure Phase One



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Spaceport Infrastructure Phase One



Thank you

