



Society of American Military Engineers

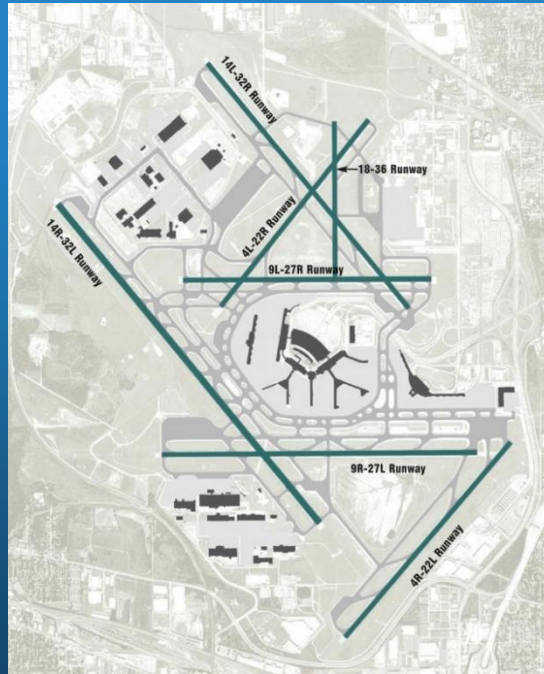
CDA DESIGN AND CONSTRUCTION

Frank Grimaldi, A.A.E. - Assistant Commissioner
May 10, 2018

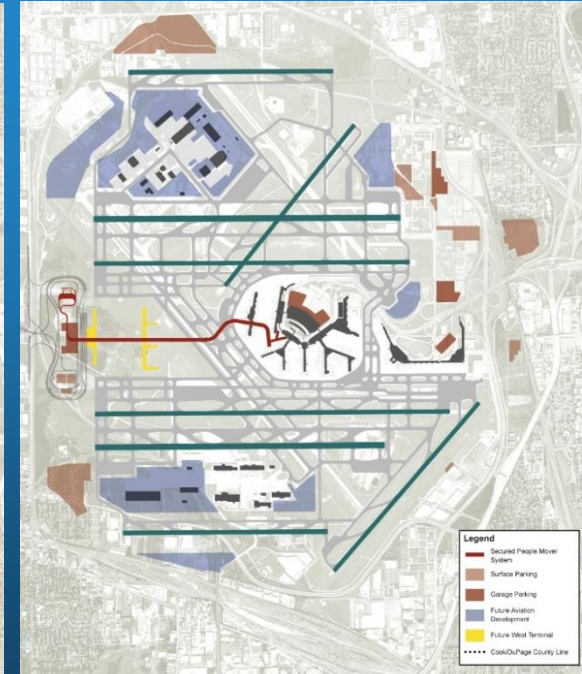
CONSTRUCTING A NEW FUTURE
NOT JUST RUNWAYS

O'HARE MODERNIZATION PROGRAM

- Announced in 2001 to reduce delays, improve airport capacity, and improve efficiency by reconfiguring existing runways into a modern parallel runway layout.
- Major elements
 - 6 parallel runways capable of all weather (CAT II/III) operations.
 - 3 new terminal facilities incorporated from the World Gateway Program.
 - Western access to the airport.



EXISTING (2005)
Airfield Configuration



FUTURE
Airfield Configuration



O'HARE MODERNIZATION PROGRAM

MAJOR ELEMENTS
DELIVERED TO DATE

PAVEMENT CROSS SECTION

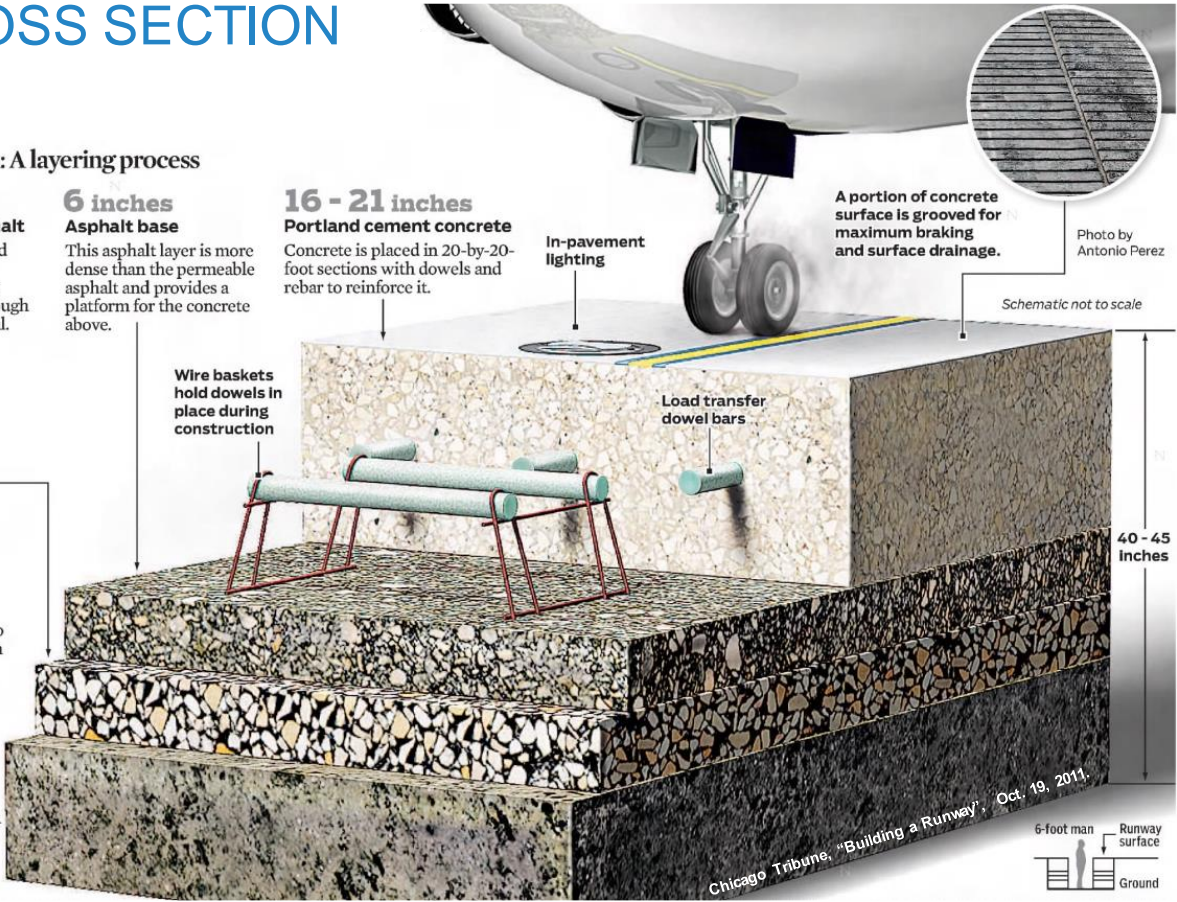
Construction: A layering process

6 inches
Permeable asphalt
The asphalt-treated permeable base is flexible and allows water to drain through the porous material.

6 inches
Asphalt base
This asphalt layer is more dense than the permeable asphalt and provides a platform for the concrete above.

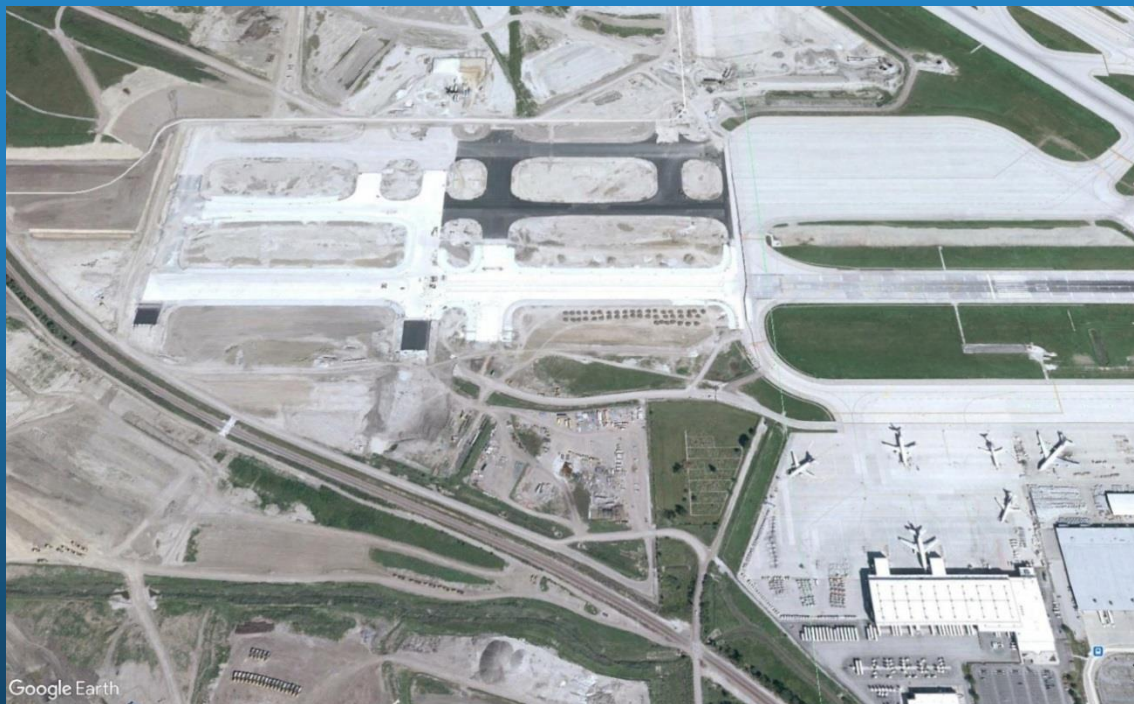
16 - 21 inches
Portland cement concrete
Concrete is placed in 20-by-20-foot sections with dowels and rebar to reinforce it.

12 inches
Lime and soil base
A lime and water mixture is added to existing soil, which provides frost protection to the pavement above.



RUNWAY 10L EXTENSION

- The Runway 10L Extension was commissioned on September 25, 2008.
 - The runway was extended 3,000 feet to the west for a total length of 13,000 feet, making it the longest runway at O'Hare.
 - Originally designated Runway 9R-27L and was opened in 1968.
 - Redesignated Runway 10-28 on July 5, 2007.
 - Redesignated Runway 10L-28R on May 2, 2013.



RUNWAY 9L-27R & NORTH AIR TRAFFIC CONTROL TOWER

- Runway 9L-27R and the North Air Traffic Control Tower were commissioned on November 20, 2008.
 - Runway 9L-27R is 7,500 feet long by 150 feet wide and built to accommodate ADG-V aircraft.
- The NATCT is 255 feet tall and was the first air traffic control tower to receive a LEED Silver rating.
- Runway 9L-27R was the catalyst for the removal of FAA imposed flight caps at O'Hare.



RUNWAY 10C-28C



Commissioned on
October 17, 2013

10,801 feet long by
200 feet wide

Built to handle the Airbus A380
and other large ADG-VI aircraft.

RUNWAY 10C-28C CONSTRUCTION FACTS

7.2 million

cubic yards of earthwork

940,000

square yards of pavement

265

miles of airfield cabling



2,800+

airfield lights

17.5

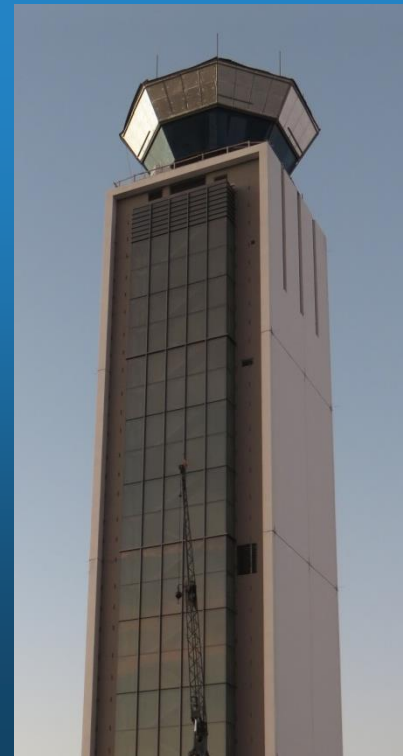
miles of subsoil drains

680,000

tons of asphalt

RUNWAY 10R-28L & SOUTH AIR TRAFFIC CONTROL TOWER

- Runway 10R-28L and the South Air Traffic Control Tower (SATCT) were commissioned on October 15, 2015.
 - Runway 10R-28L is 7,500 feet long by 150 feet wide and built to accommodate ADG-V aircraft.
 - Runway 10R-28L was the first runway in the U.S. to utilize recycled asphalt shingles for paving.
- The SATCT is 218 feet tall and is LEED Gold certified.



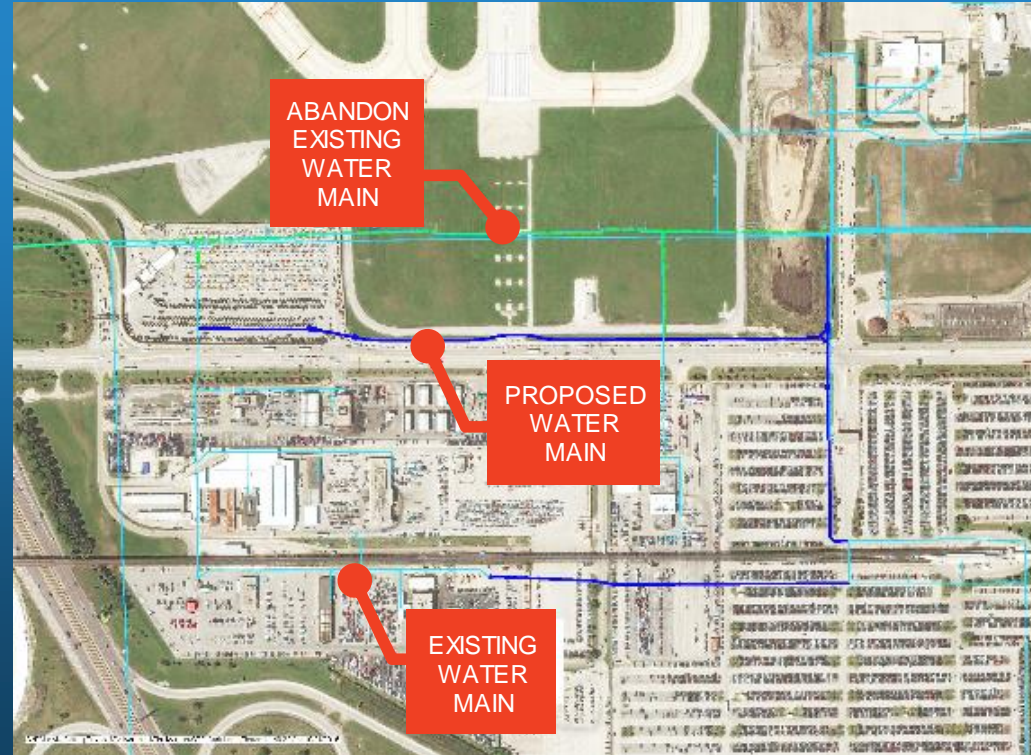


UPCOMING PROJECTS

CAPITAL IMPROVEMENT
PROGRAM

BESSIE COLEMAN WATERMAIN REPLACEMENT

- Replacement of approximately 5,000 LF of water main along Bessie Coleman Drive, a connection to the existing 12" service line adjacent to the Lot E ATS Station, and abandoning the existing water main running underneath I-190.
- Lateral runs to fire hydrants, isolation valves, valve boxes, fire hydrants, cathodic protection.



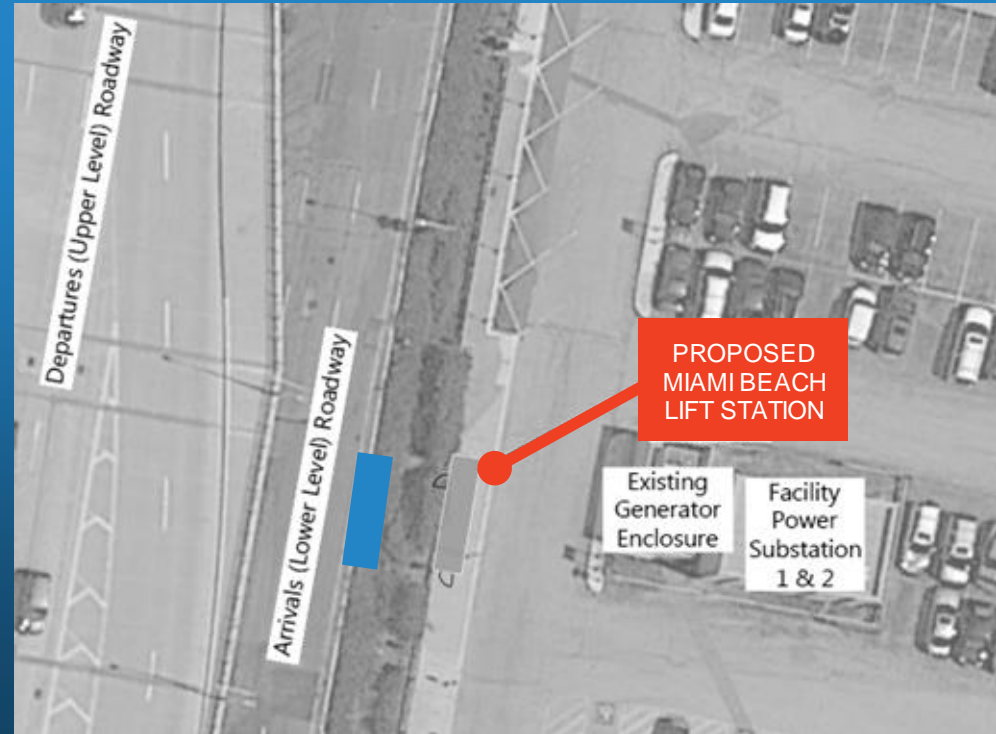
NORTH AIRFIELD SANITARY SEWER REPLACEMENT

- Construction of a sanitary sewer system that will serve the North Airfield buildings. The existing flow that travels northwest to the MWRD Kirie Plant will be intercepted and sent to an existing forcemain sewer on airport property near Building 850.
- A new lift station will be included as well as approximately 6400 LF of gravity pipe and forcemain.



MIAMI BEACH LIFT STATION IMPROVEMENT

- Replace a 31 year old lift station that is outdated and at capacity.
- Improve worker safety through replacing wet well system with wet/dry pit system.
- Scope of Work:
 - Demolish existing lift station and specified equipment, erosion control and paving.
 - Site utility installation, including jacked sanitary sewer, excavation and construction of the new Lift Station Facility in the southwest corner of LOT B, electrical and communications duct bank installation.
 - SMS installation and tie-in, and C1 electrical vault switchboard replacement and lighting upgrades.



PEDESTRIAN TUNNEL REPAIRS



Remodel and update pedestrian tunnels to remediate **water infiltration**.

Create a **back-up drainage system** to defend against water migration through the tunnel structure.

Install new **energy efficient lighting** and mechanical distribution throughout the entire tunnel system.

RECIRCULATION BRIDGE RECONSTRUCTION



Replacement of the three-span entrance roadway recirculation bridge and associated ramp and approaches for the structure. The bridge structure, substructure, and superstructure will all be replaced.



UPCOMING PROJECTS

O'HARE MODERNIZATION PROGRAM

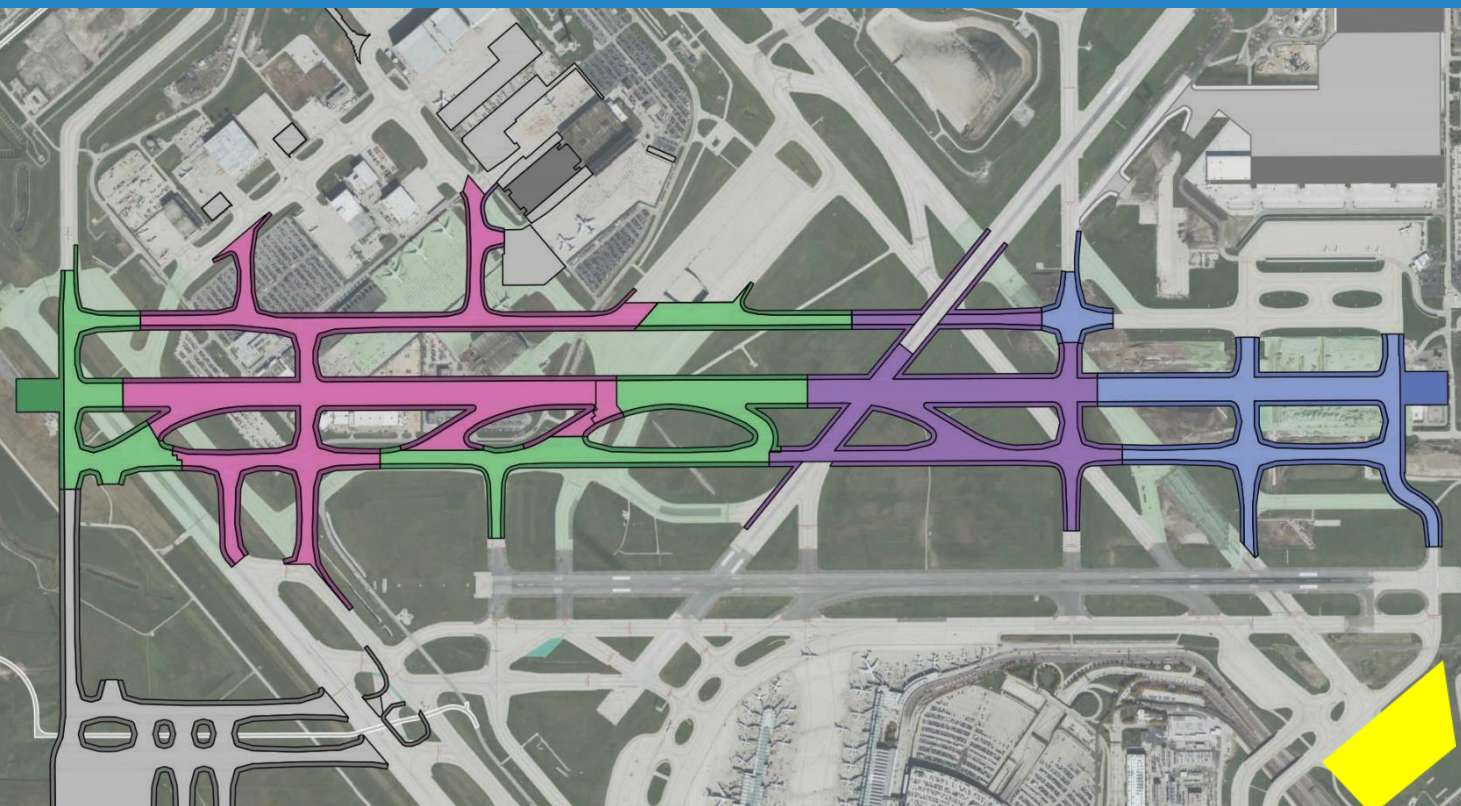
2005 AIRFIELD



FUTURE AIRFIELD



RUNWAY 9C-27C



LEGEND

Runway 9C-27C East Package

Runway 9C-27C Package 1

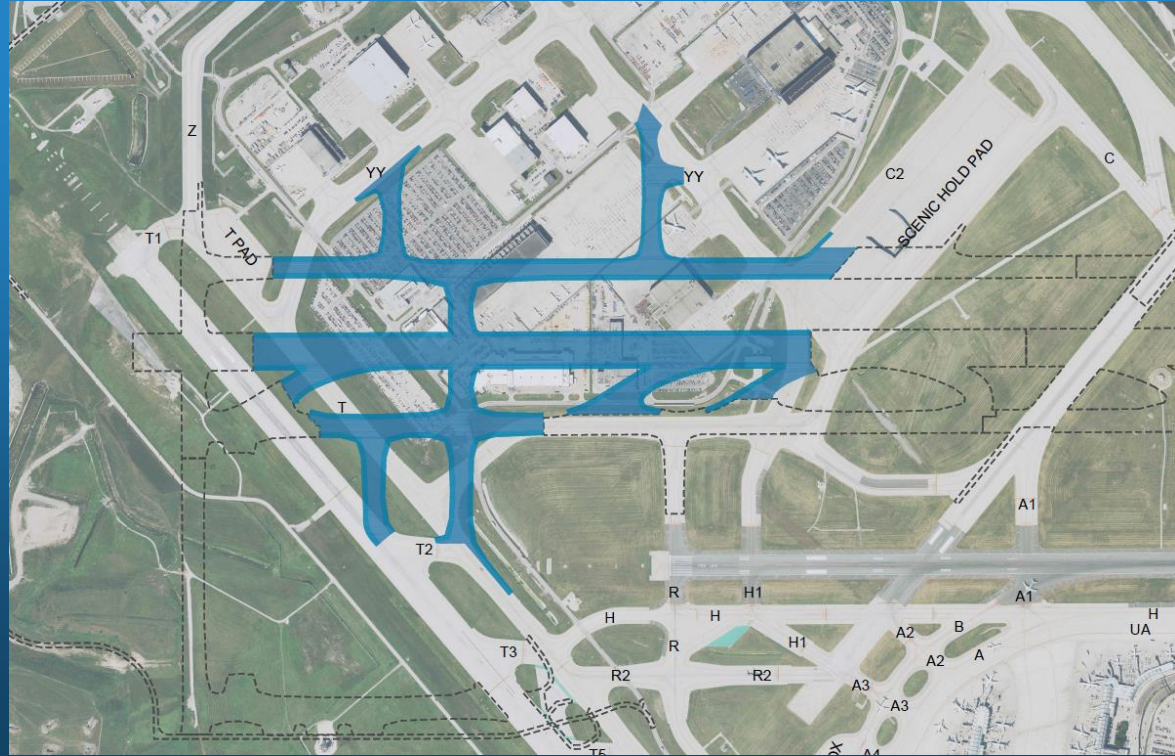
Runway 9C-27C Package 2

Runway 9C-27C Package 3

Airline Employee Parking Lot

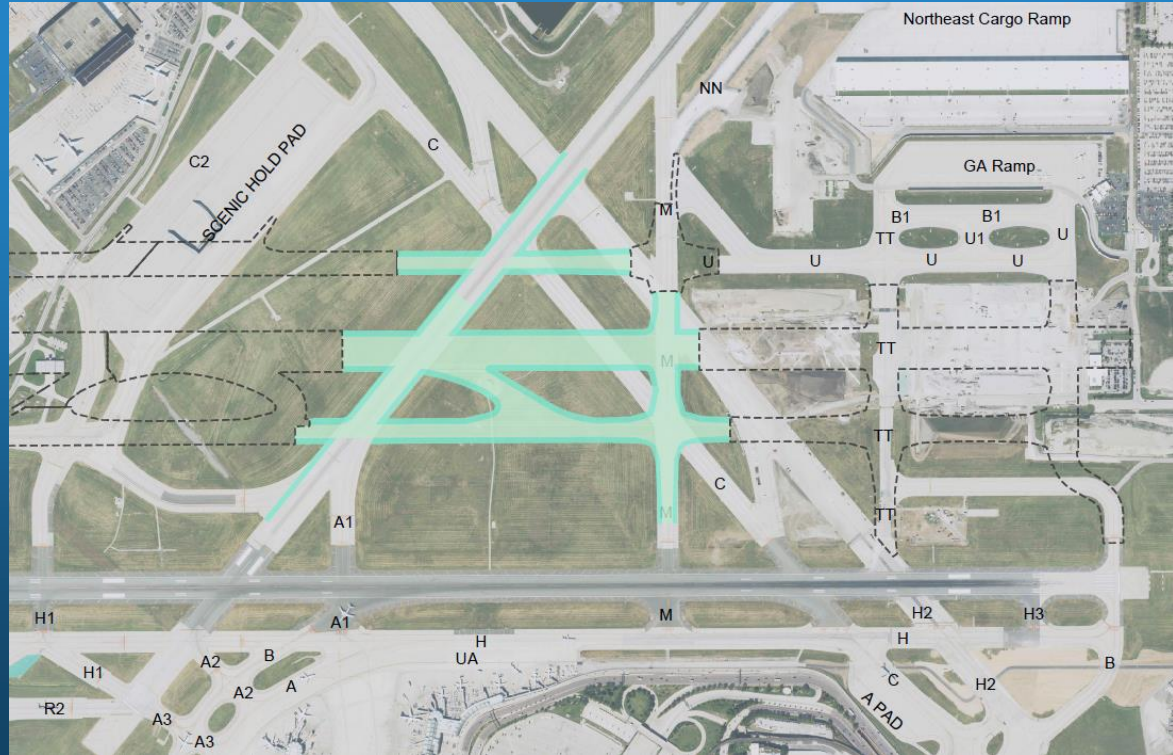
RUNWAY 9C-27C – PACKAGE 2

- Demolition of existing structures, underground utilities, and other improvements.
- Site preparation, grading and drainage, site restoration, utilities and other incidental work.
- Construction of PCC and AC airfield pavements, airfield lighting, and signage.
- Project site is located in the Air Operations Area (AOA).



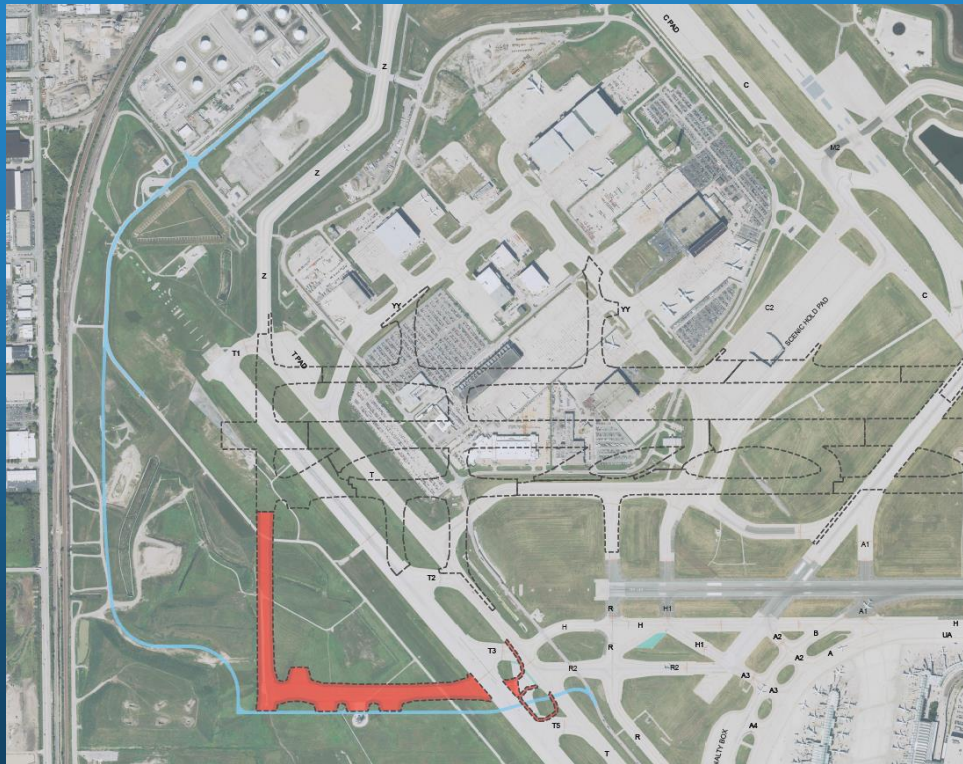
RUNWAY 9C-27C – PACKAGE 3

- Site preparation, grading and drainage, site restoration, utilities and other incidental work.
- Construction of PCC and AC airfield pavements, airfield lighting, and signage.
- Project cannot start until existing VOR is decommissioned.
- Project site is located in the Air Operations Area (AOA).



TAXIWAY Z/J & TANK FARM ROAD

- Construct the southern 1,900 feet of Taxiway Z.
- Construct the western 2,000 feet of Taxiway J.
- Relocate Tank Farm Road around the west side of future Runway 9C-27C.
 - Tank Farm Road spans from the north airfield fuel farm to the inner western airfield access road.
 - Tank Farm Road consists of two 16 foot lanes and two 4 foot shoulders.
- The majority of work will be done outside of runway critical areas.



CENTRAL DEICING FACILITY

- Designed to hold up to 20 ADG-III aircraft or 5 ADG-VI aircraft.
- 2,000,000 ft.² of new apron and taxiway pavement.
- 42,000 gallon spent deicing fluid capacity storage tank.
- High mast perimeter lighting and variable message boards.
- Snow dump area and two mobile propane-fueled snow melters.
- New airfield lighting and South Airfield Lighting Control Vault.
- Ramp control tower to manage deicing operations.



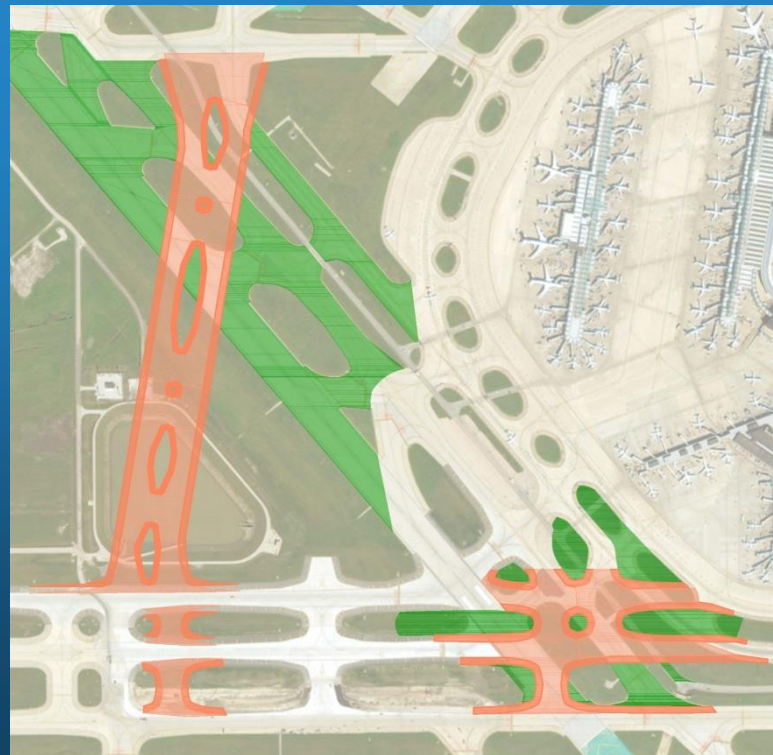
FUEL LINES TRANSMISSION MAIN RELOCATION

- Reroute two 24" main fuel lines coming from the north airfield fuel farm, around the footprint of future Runway 9C-27C, and into the main system at Taxiway R2.
- Removal of abandoned fuel lines.



RELOCATION OF TAXIWAYS A & B

- The relocation of Taxiways A and B is needed to allow future construction of Satellite Terminals 1 and 2.
 - The geometry is aligned with current drawings of Satellite Terminals 1 and 2.
- The relocation will allow the circular taxiway core flow to be maintained around the expanded terminal complex.
- The relocation will require the reconfiguration of the central basin.



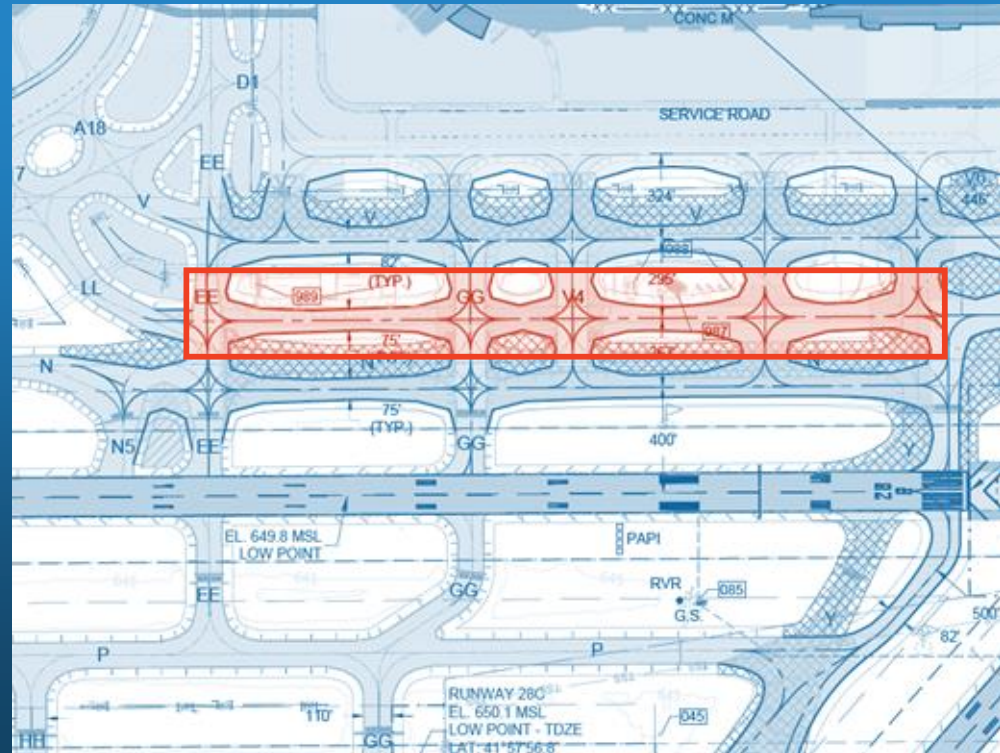
CENTRAL BASIN RECONFIGURATION

- Modifications to the Central and South Basins to accommodate the future terminal development and the relocation of Taxiways A and B.
- Earthwork, large diameter deep tunnel construction, and modifications to mechanical equipment including an existing pump station.
- Project may be delivered as design-build.



TAXIWAY LL EXTENSION

- The Taxiway LL extension will improve circulation routes between Terminal 5 and the runways at the airport by reducing aircraft interactions during taxi operations.
- The Taxiway LL extension will require the relocation of the Super Fuel Satellite facility and airline glycol facility.
- As part of the project, existing Taxiway N will be shifted south to its permanent location already constructed.



JOINT USE FACILITY

The Joint Use Facility will combine a consolidated rental car facility and public parking.

- 4-5,000 anticipated rental car spaces and up to 8,300 public parking spaces on 10 levels.
- Facility includes a 3 level Quick Turnaround Area (QTA), an ATS public access station, and a surface cell phone/public parking lot of approximately 450 spaces.
- Potential for 90,000 square foot vegetated roof for the QTA, rainwater harvesting system, and 10 acres of solar panel canopies.





UPCOMING PROJECTS

TERMINAL PROGRAMS



O'HARE & MIDWAY

INTERNATIONAL AIRPORTS



WWW.FLYCHICAGO.COM

TERMINAL 3 CONCOURSE L STINGER

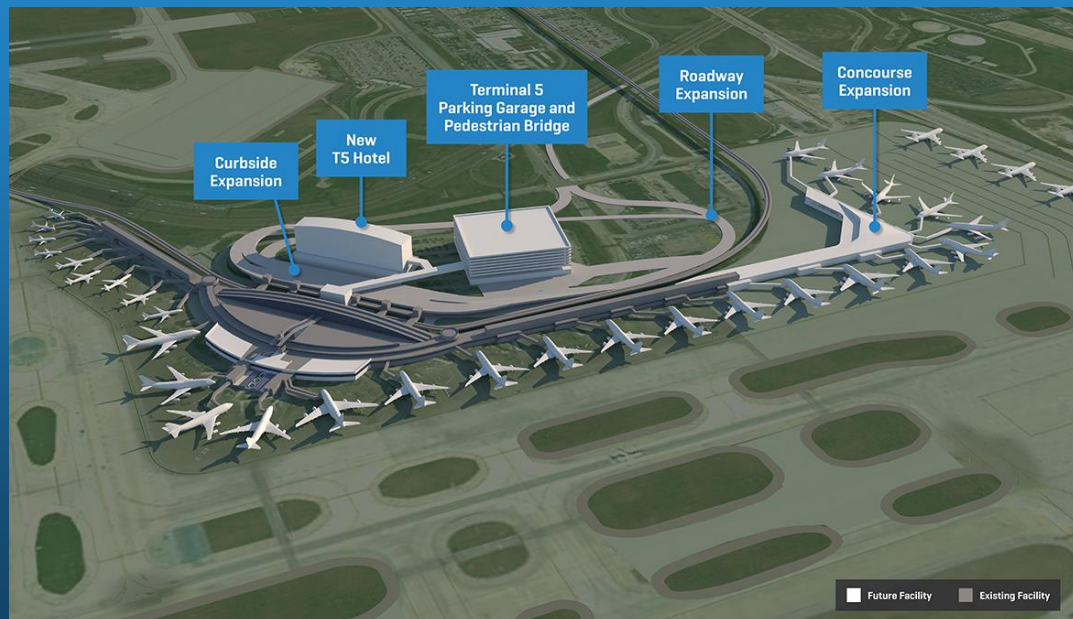
- Construction of five contact gates designed for regional jet aircraft.
 - Maximum aircraft is Embraer 175 with Enhanced Wing Tips.
- Built on the site of the intended Terminal 4 from the World Gateway Program and the O'Hare Master Plan.
- The 50,000 SF facility opened on April 18, 2018, at a cost of \$55,000,000.



TERMINAL 5 EXTENSION

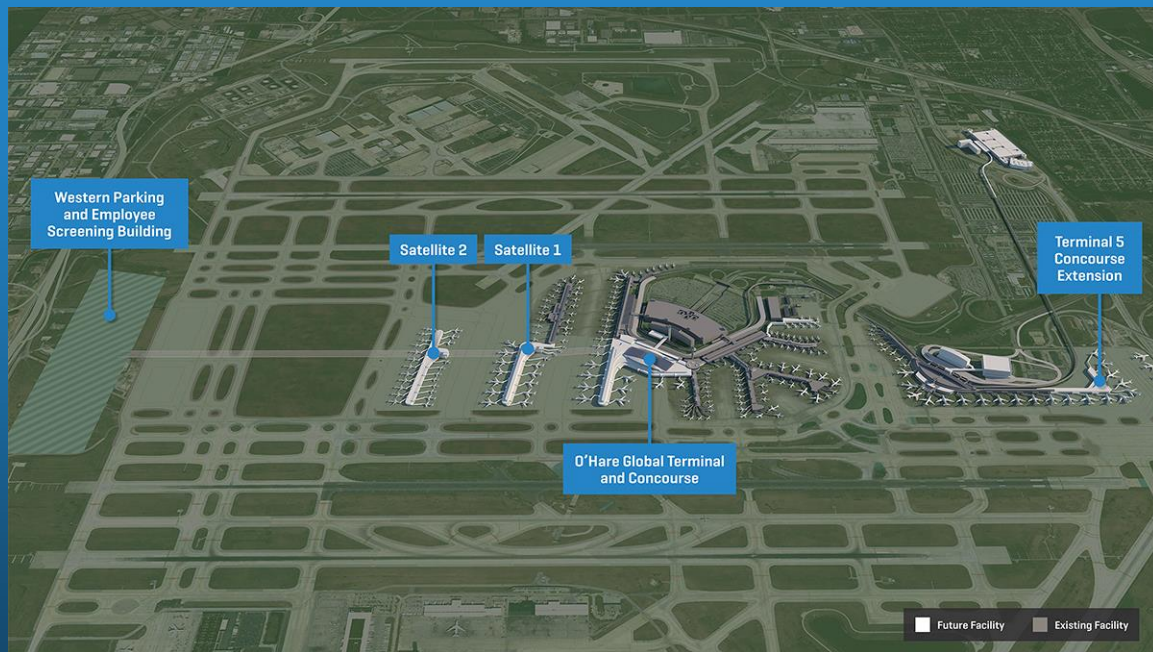
Addresses near-term demand and capacity of International Terminal gates and facilities.

- 9 new wide-body gates, including a second A380 gate.
- 4 new hardstand locations.
- Renovation of Gates M1 to M6 to add two additional contact gates for future operations.
- Includes expanded security screening and Federal Inspection Services (FIS) facilities.
- Modifications throughout the building including checkpoint, ticketing, FIS areas, baggage areas, and airside bus connections.



TERMINAL AREA PLAN (TAP)

- Terminal facility modernization was first established through the now superseded World Gateway Program.
- TAP is intended to provide adequate terminal, gate, and apron facilities through:
 - Additional gates
 - Decreased physical separation of alliance partners
 - Additional FIS facilities
 - Flexibility to accommodate new entrants



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Rahm Emanuel, Mayor

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AWARENESS &
ASSISTANCE



AIRPORTS
GOING GREEN



SIGN UP FOR
WEB ALERTS