

ITEM NO: 7c_Supp

DATE OF MEETING: August 23, 2016

SUSTAINABLE AIRPORT MASTER PLAN (SAMP) UPDATE

August 23, 2016

Port 
of Seattle®

Briefing overview

- Current work
- Development concept progression
- Implementation plan
- Program cost model
- Next steps

Current work

- Implementation plan
 - Project phasing
 - Program cost model
- Landside & airside people movers/passenger flow analysis
- Landside concept refinement
- South Aviation Support Area (SASA) concept refinement
- No action alternative
- Airside modeling
 - Determine annualized delay for 2029 & 2034
 - Determine delay reduction benefit of potential airside improvements
- Airfield compliance study to determine safety & efficiency improvements

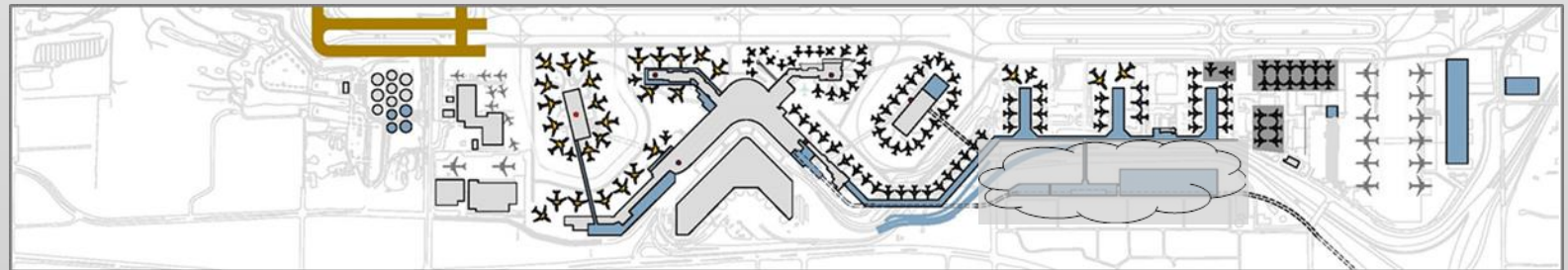
Development concept progression

Early development concept iterations

Concept 1



Concept 2



Concept 3



NOTE: Development concepts illustrate major plan elements independent of 1 vs 2 terminals

Concepts 1-3 do not meet airport wide program needs

Development concept progression

Concept 4 provided basis for development concept

Major elements

- New widebody international gates on Concourse B
- Gate expansion to the north
- Aircraft hold positions provided north and south of existing and future gates
- SASA to accommodate functions displaced by gate and hardstand expansion

Primary advantages

- Meets program needs
- Best operational layout

Primary challenges

- Complexity of developing new airfield-connected land
- Complexity of construction phasing

Concept 4

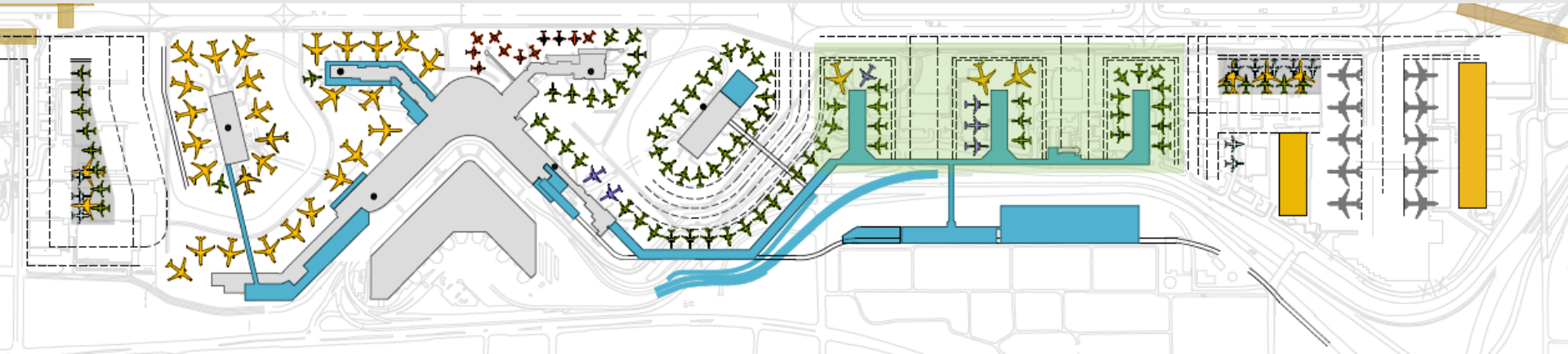


Concept 4 meets airport wide program needs

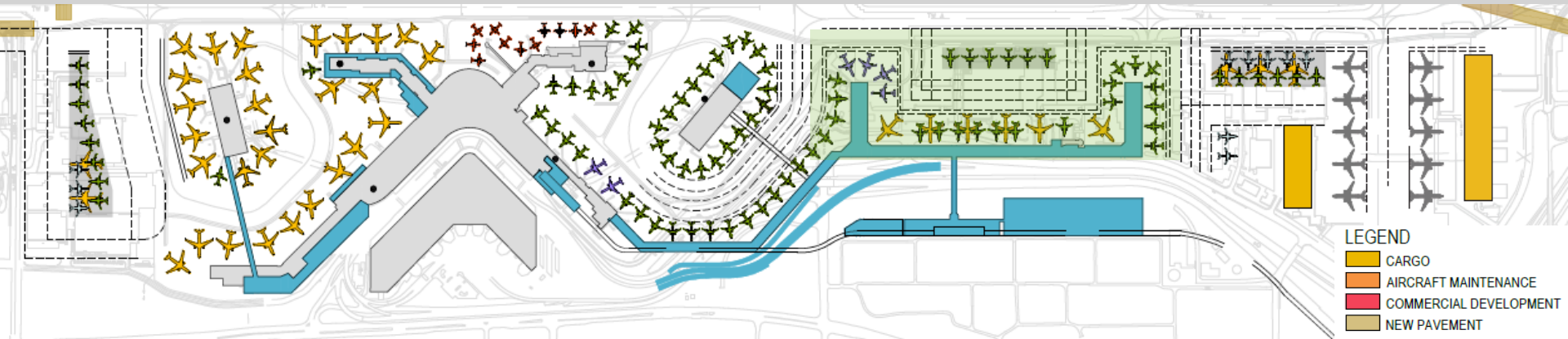
Development concept progression

Variations on gate expansion

- Three pier gate expansion to the north



- U-shaped gate expansion to the north



LEGEND
■ CARGO
■ AIRCRAFT MAINTENANCE
■ COMMERCIAL DEVELOPMENT
■ NEW PAVEMENT

Variations on gate expansion involve pros and cons

Development concept progression

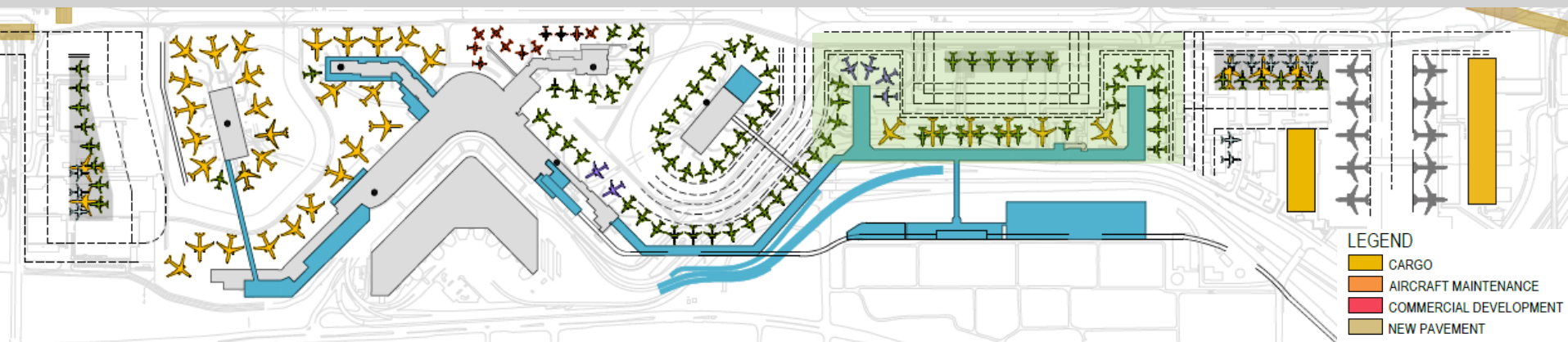
Pros & cons of U-shaped gate expansion concept

Pros:

- Provides same gate capacity as three piers
- Additional aircraft hold positions provided in ideal location west of gates
- Greater flexibility for gating airlines
- Greater flexibility for phasing in gates
- Relatively flexible string of dimension from south to north

Cons:

- Relatively inflexible string of dimensions from west to east
- Difficult to integrate with roadways
- Single loaded concourse provides less opportunity for shared holdrooms and concessions

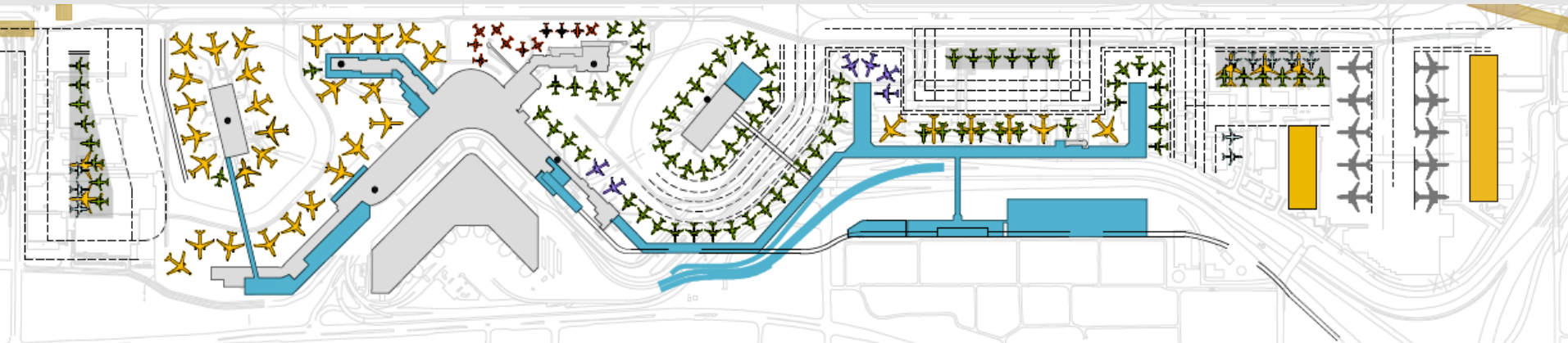


U-shaped concept provides additional aircraft hold positions and operational flexibility

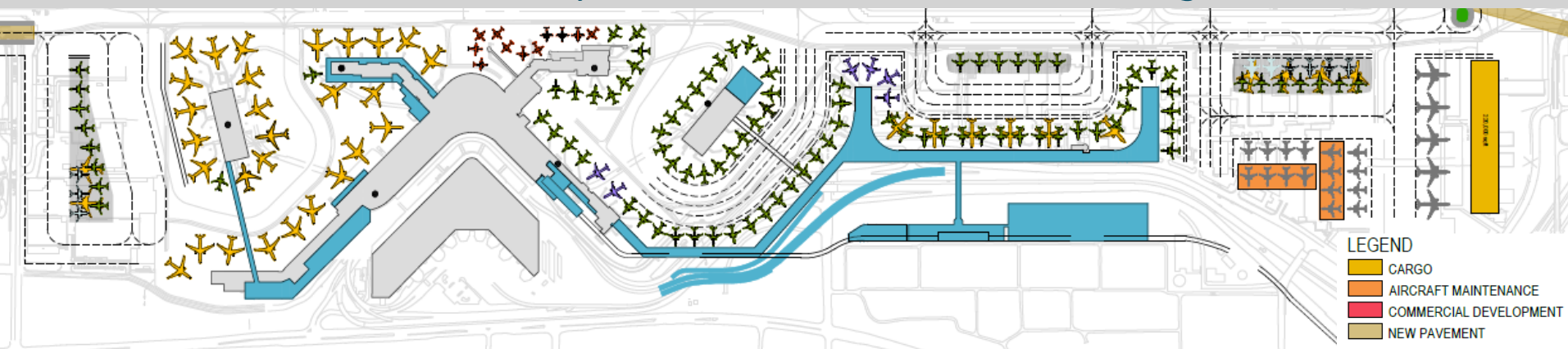
Development concept progression

Variations on aircraft maintenance locations

- All aircraft maintenance in SASA



- Aircraft maintenance split between SASA and north cargo area

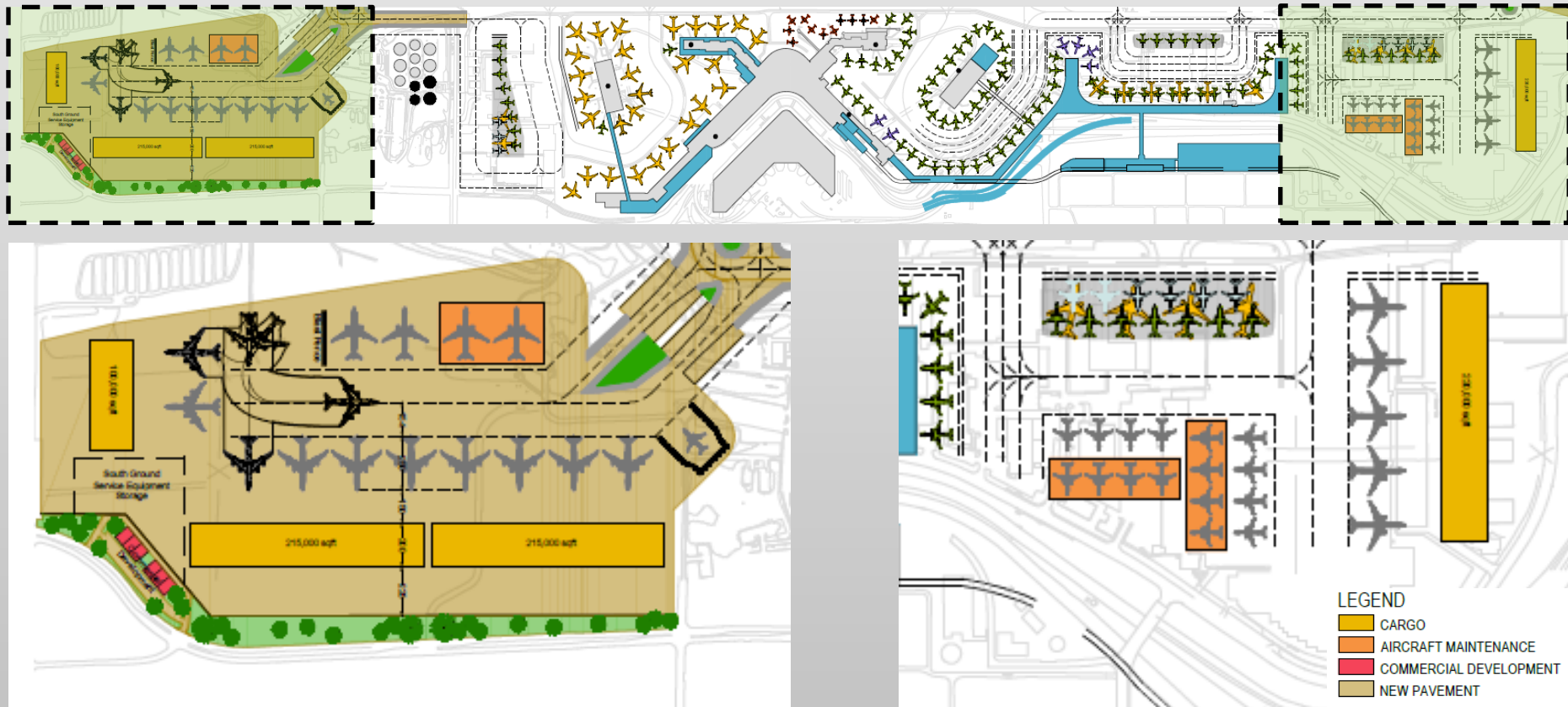


Aircraft maintenance in north cargo area involves trade-offs with cargo

Development concept progression

SASA alternative facilities layouts

- Aircraft maintenance split between SASA and north cargo area
 - Would reduce the overall number of cargo aircraft parking positions
 - GRE not located in convenient place for north end maintenance

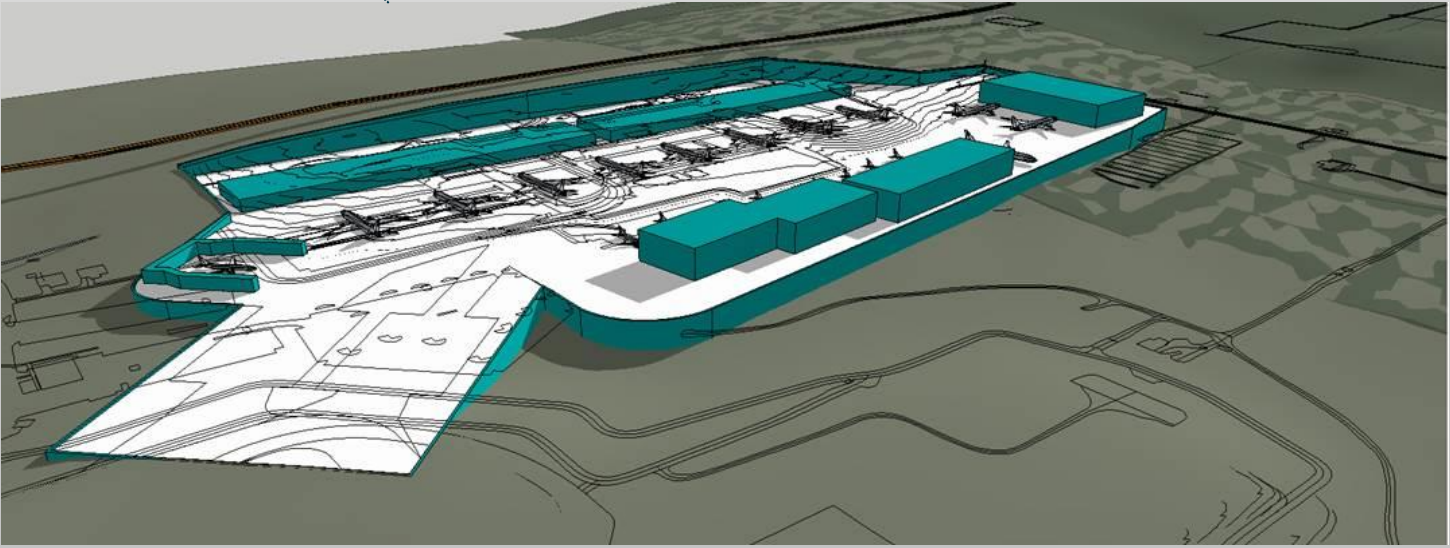


Aircraft maintenance in north cargo area involves trade-offs with cargo

Development concept progression

SASA 3D model perspectives

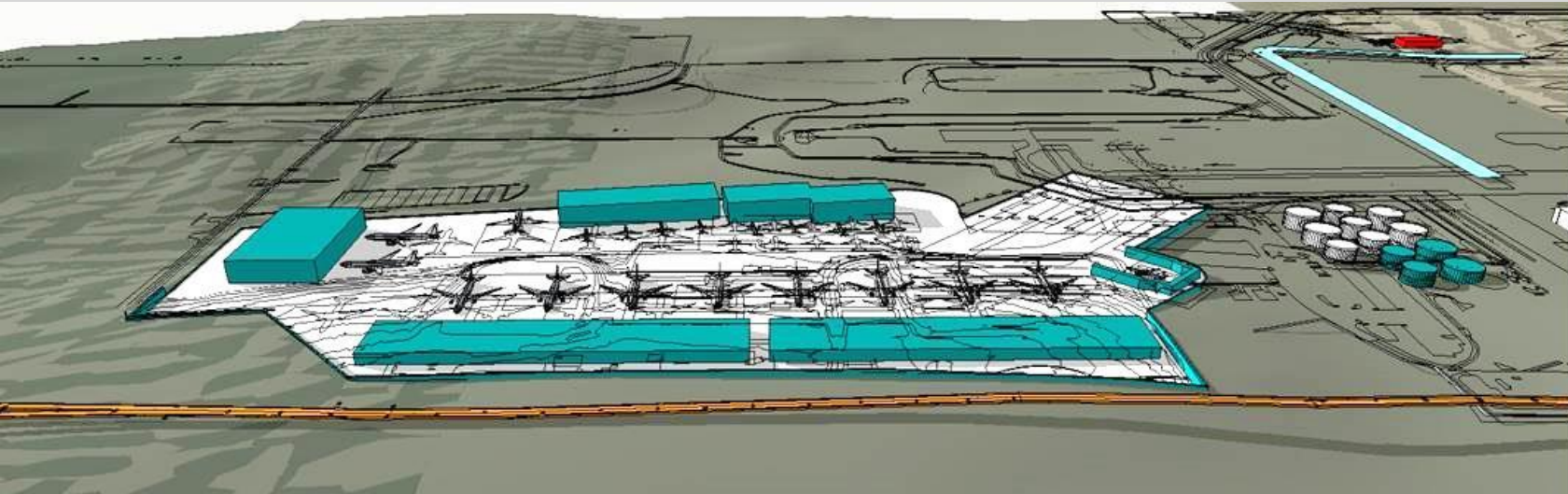
- Aerial view of SASA looking southeast



Development concept progression

SASA 3D model perspectives

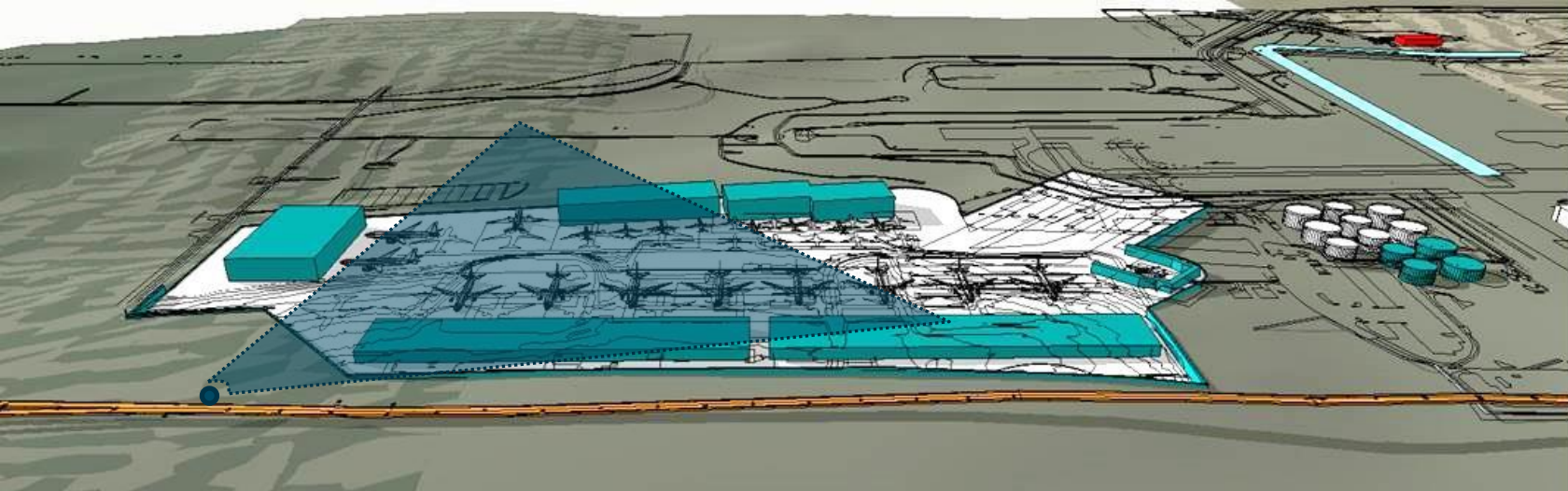
- Aerial view of SASA looking west



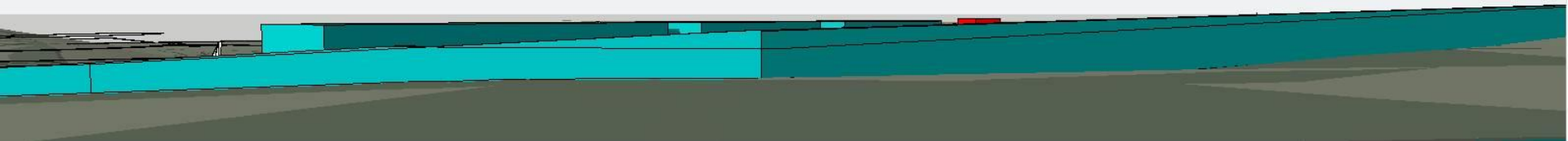
Development concept progression

SASA 3D model perspectives

- Aerial view of SASA looking west



- Ground level view of SASA looking northwest

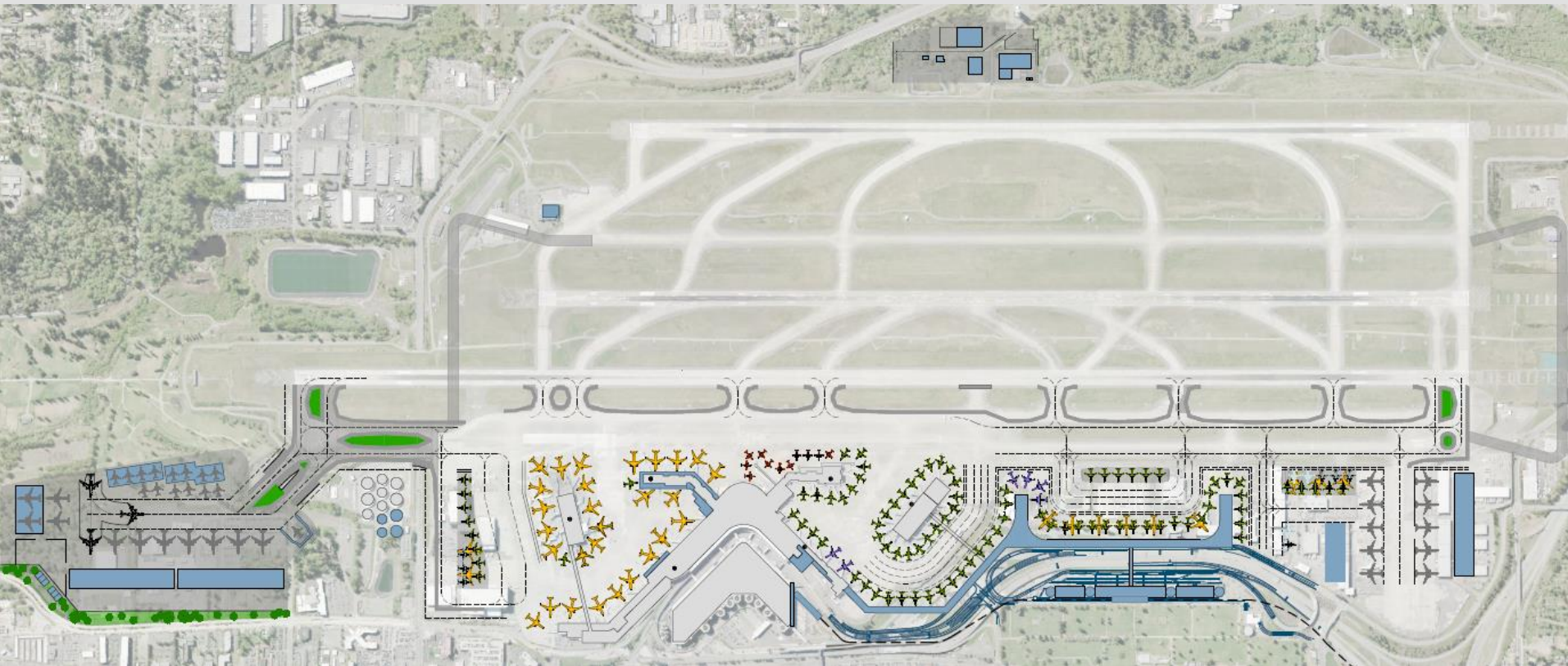


SASA cut walls on east side serve as a buffer to land uses to the east

Development concept progression

Status of current development concept

- On-going study to determine recommendations for the following:
 - Airside improvements
 - Landside and airside people movers
 - Commercial development in SASA (*working with CoST*)

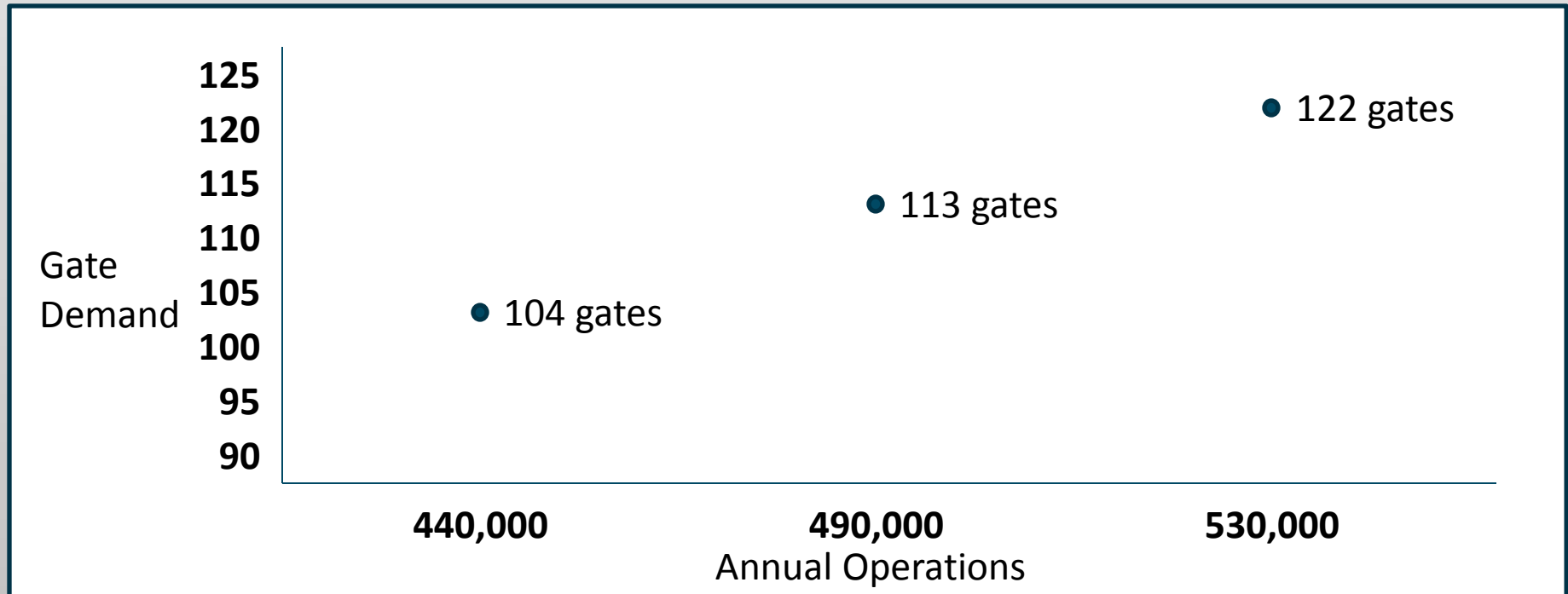


Working toward development concept recommendation

Implementation plan

Major driver for capital program is gate & hardstand demand

- Deficit of approximately 17 gates in the mid-term
 - 87 gates post opening of IAF & NorthSTAR
 - 104 gate demand forecasted by 2024 at 440,000 annual operations
- Need approximately 35 gates in the long-term
 - 122 gate demand forecasted by 2034 at 530,000 annual operations



Deficit of approximately 17 gates at 440,000 annual operations

Implementation plan

Purpose

- Determine logical sequence of projects to deliver needed capacity thru full build-out of airport facilities
- Target capital investments to minimize throwaway
- Determine high level scope, purpose and timing of projects to inform environmental review
 - Identify enabling & capacity enhancement projects
 - Identify near-term projects requiring “project specific” environmental review
- Build program cost model to inform plan of finance
 - Determine order of magnitude project costs
 - Approximate mid point of construction & day of operation

Implementation plan purpose is high level phasing/definition of projects

Implementation plan

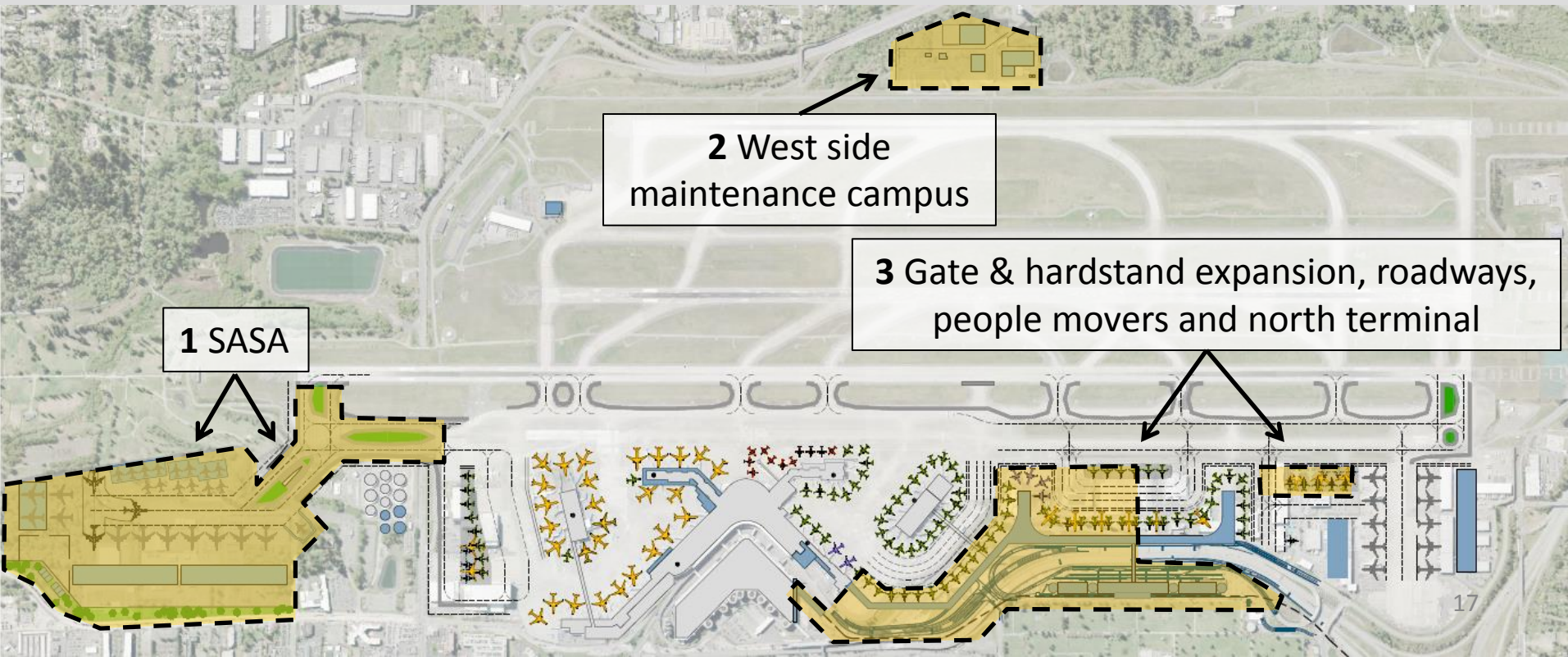
Approach

- Sequence projects to add gate & hardstand capacity as soon as possible
- Sequence North Terminal to align with gate expansion
 - Roadway improvements to connect North Terminal to regional network, local streets, and Main Terminal
 - Pedestrian bridge to connect North Terminal to new gates
- Minimize impacts to cargo facilities until additional capacity is constructed in SASA
- Construct landside & airside people movers and improved light rail access as soon as possible
- Maintain Airport Rescue and Firefighting (ARFF) response capabilities (airside, terminal & landside)

Implementation plan

Phase 1 construction

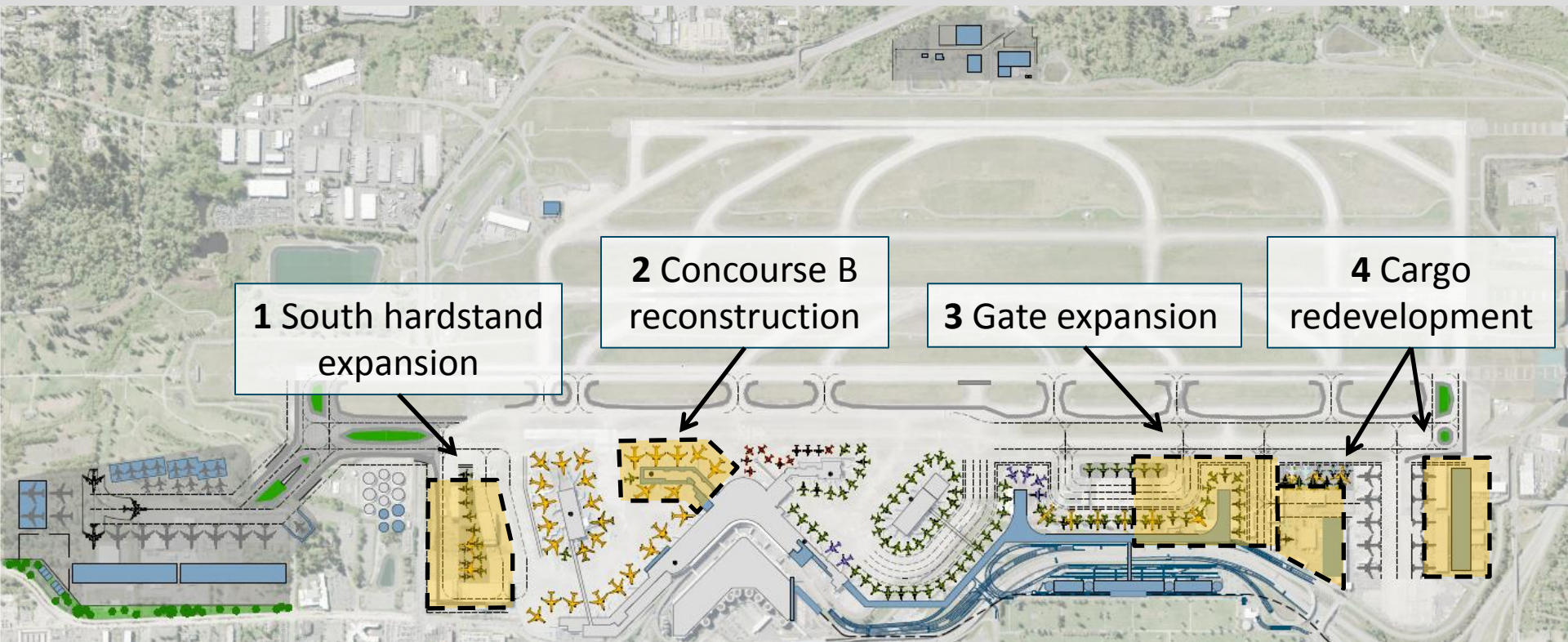
1. SASA platform & aircraft bridge, aircraft maintenance hangars to clear site for south hardstand, and cargo facilities to enable additional impacts to cargo in phase 2
2. West side maintenance campus to clear SASA site and area for north hardstand
3. Gate & hardstand expansion with minimal impact to cargo, roadway improvements, landside & airside people movers, and north terminal connected to gates



Implementation plan

Phase 2 construction

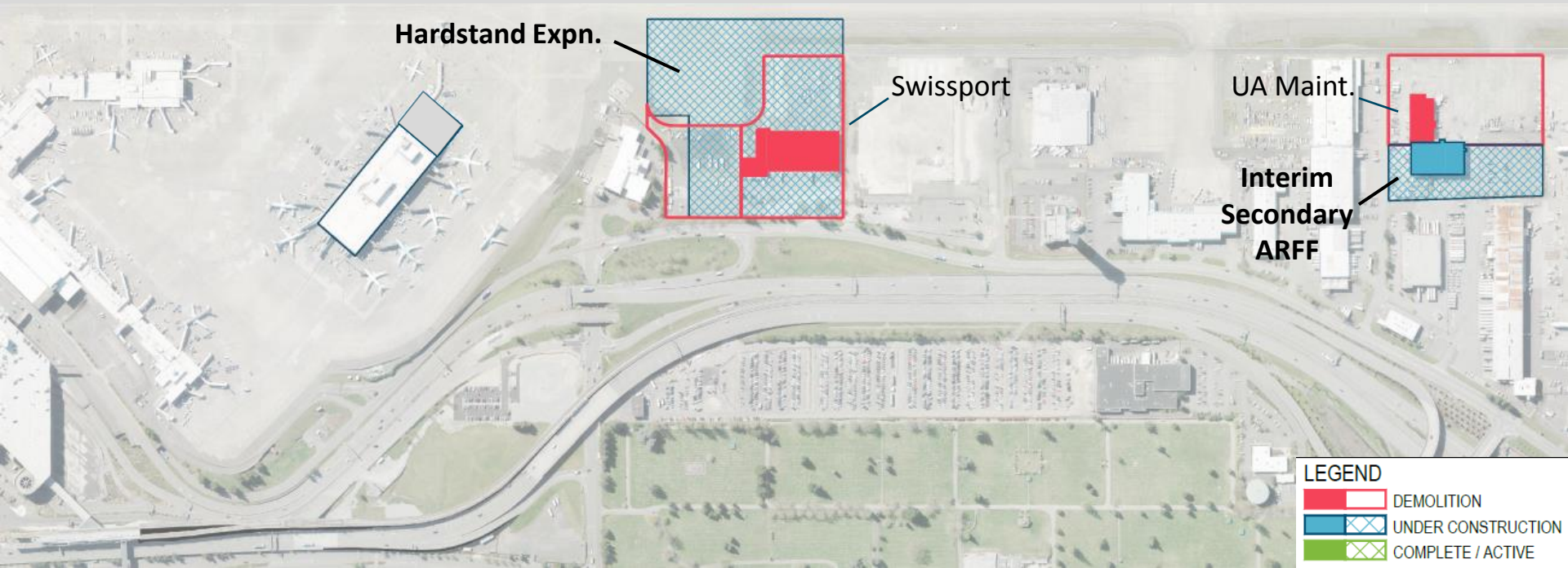
1. South hardstand expansion
2. Concourse B reconstruction to provide international widebody capable gates
3. Gate expansion to the north with significant impacts to cargo
4. North end cargo facilities redevelopment



Implementation plan

Phase 1A

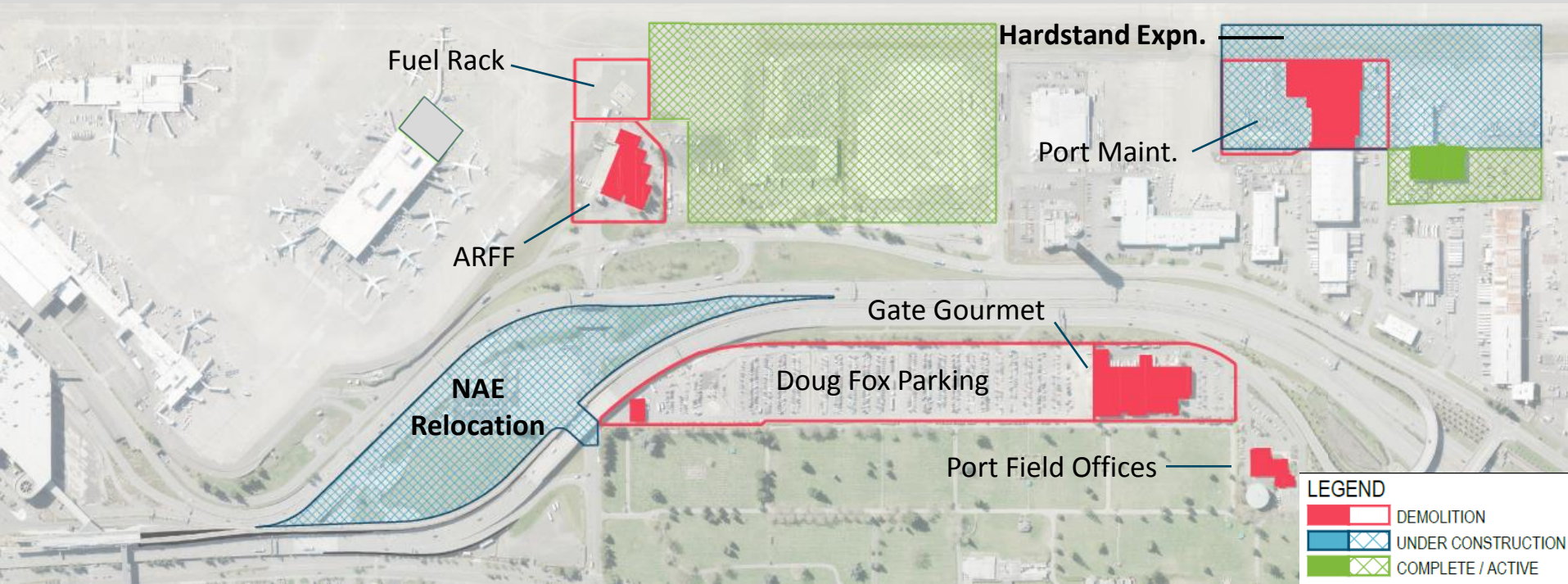
- Expand Cargo 5 hardstand
 - Vacate and demolish Swissport cargo building
- Construct interim secondary ARFF
 - Vacate and renovate United Airlines aircraft maintenance
- Construct primary ARFF in GA area (*not shown*)



Implementation plan

Phase 1B

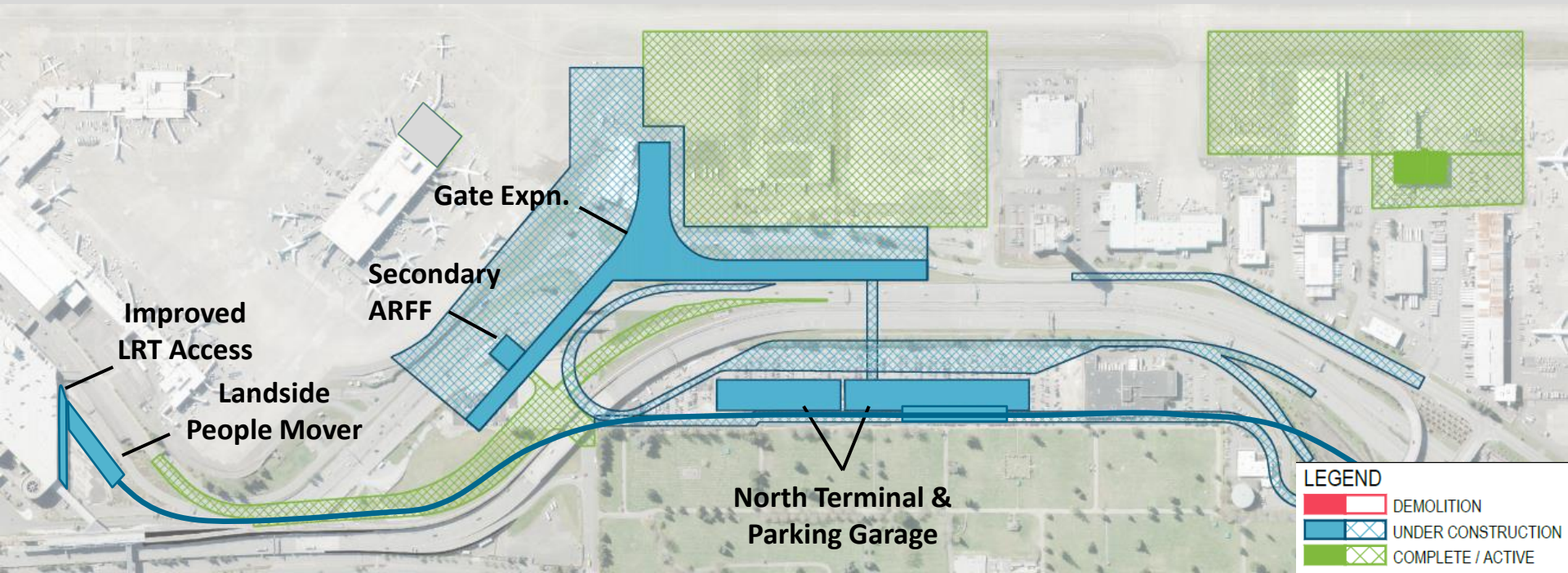
- Clear area for gate expansion
 - Relocate southbound lanes of North Airport Expressway (NAE)
 - Relocate fuel rack & demolish ARFF
- Expand Cargo 4/3 hardstand
 - Vacate and demolish Port maintenance (*requires west side maintenance campus*)
- Clear area for construction of North Terminal
 - Vacate and demolish Gate Gourmet and Port field offices



Implementation plan

Phase 1C

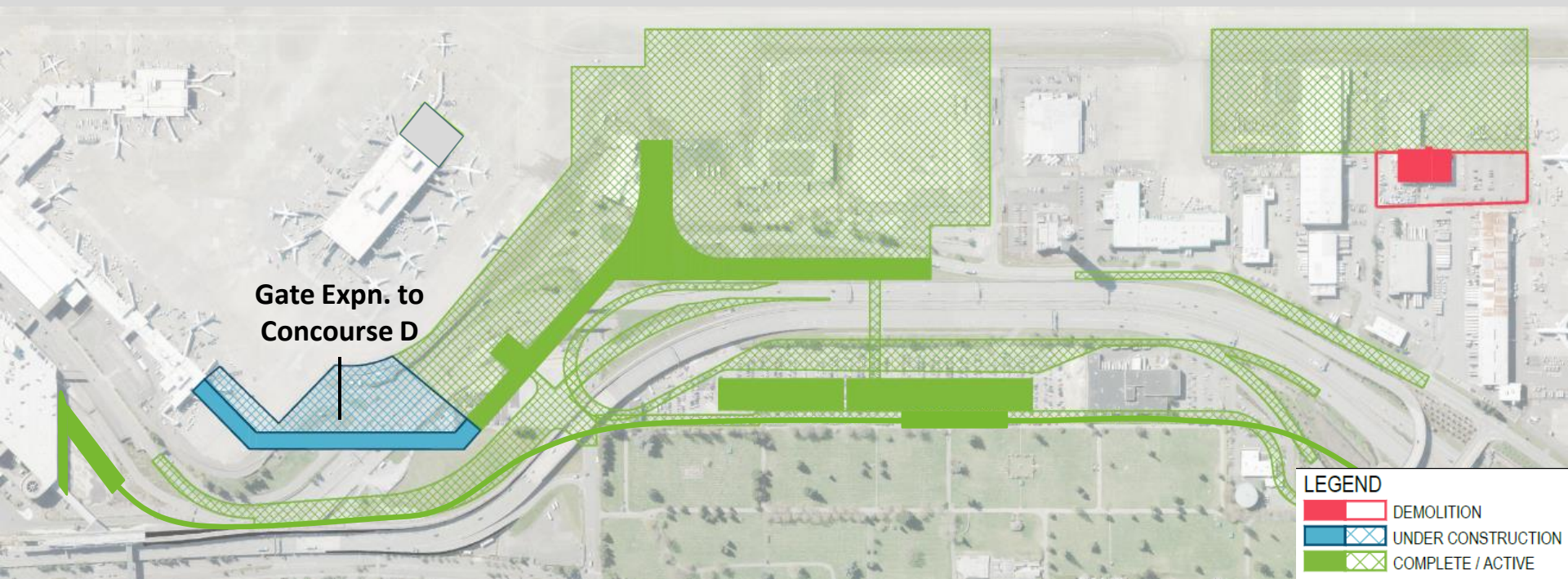
- Construct gate expansion
- Construct ARFF
- Construct North Terminal & parking garage
 - Pedestrian bridge connection to gates
 - Curbs and roadway connections to regional and local network
- Construct landside & airside people movers and improved LRT access



Implementation plan

Phase 1D

- Construct gate expansion to Concourse D
- Demolish interim ARFF



Implementation plan

Factors that could impact project delivery

- Funding
- Economic downturn
- Resource availability
- Project approvals
- Utilities
- Environmental review/permitting
- Project linkages

Many factors could impact project delivery

SAMP program cost model

Preliminary range of full program costs

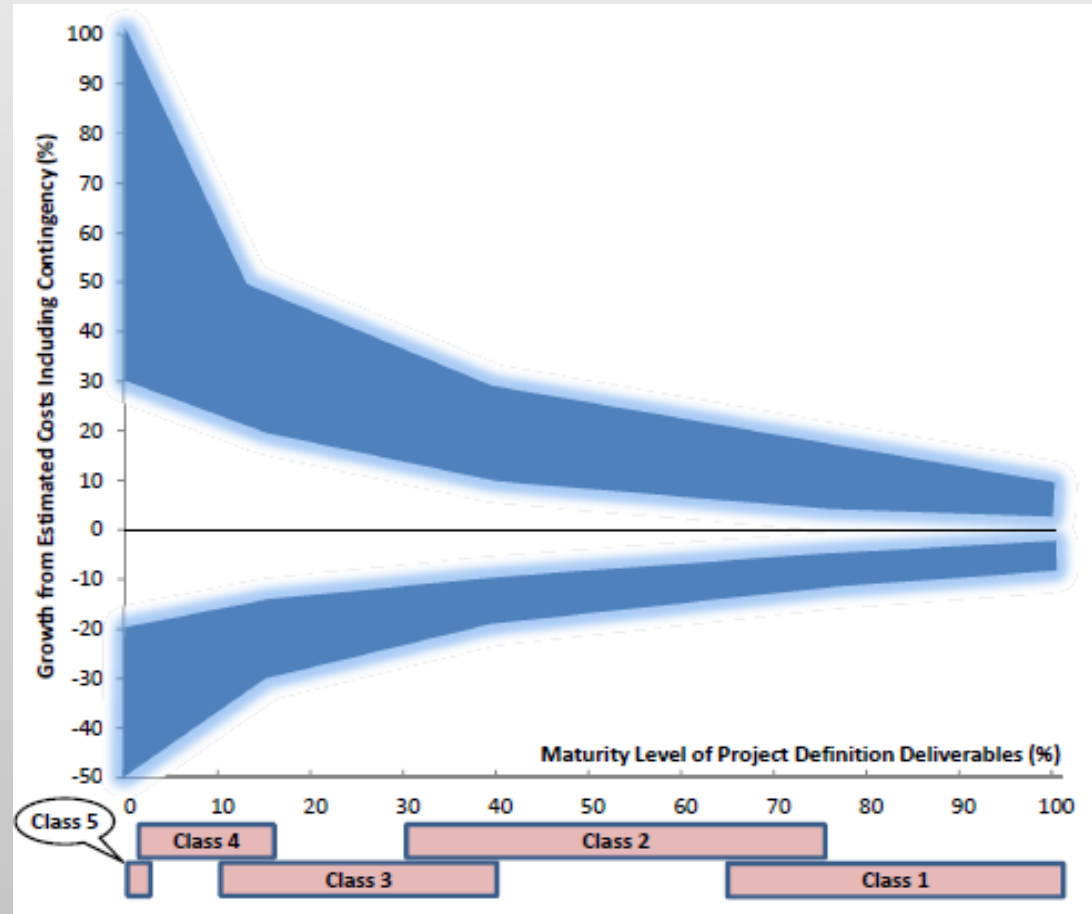
- At this stage, program cost range is very preliminary: \$10B - \$15B
 - Includes prospective placeholder estimates for individual projects
 - Some project scopes and placeholder estimates are not yet fully synced up with phasing plan which is in progress
 - Some potential projects are still being studied and so have not been adequately defined – examples include:
 - Airside & landside people movers
 - End around taxiways

Program cost range is very preliminary

SAMP program cost model

Several factors can influence project cost post SAMP

- Additional layers of project planning and definition
- Utilities survey, planning and design
- Project phasing/constructability



Program cost range is very preliminary

Next steps

- Implementation plan
 - Finalize phasing plan recommendation
 - Refine program cost model
- Continued coordination with FAA
 - Airfield compliance and airside modeling
 - SAMP documentation
- Finalize passenger flow analysis and recommendation for airside and landside people movers
- Refine North Terminal roadway and curbside concept
- Continued work with environmental review team to define no action alternative and draft project descriptions
- Commission update in September