ITEM NO: 7b_Supp

DATE OF MEETING: April 12, 2016

Sustainable Airport Master Plan (SAMP) Update

April 12, 2016

Port of Seattle®

Briefing overview

- Where we are in the planning process
- Major plan elements
- Airside simulation modeling
- Landside simulation modeling
- Public outreach
- Next steps

Where we are in the planning process

Current work

- Developed options for major plan elements
  - Exploring various facilities layouts within Concept 4
- Airside simulation modeling
  - Assessed capacity of existing airfield at increased activity levels
  - Assessed capacity of airfield with improvements at increased activity levels
  - Determined aircraft hold positions are critical to airfield/gate operations
  - Additional modeling to better understand timing of need for aircraft hold positions and inform recommended layout of facilities and phasing plan
- Assessing impacts of runway/taxiway separation
- Evaluated one and two terminal options
  - Continued study of one terminal option to avoid or delay second terminal
- On-going work to explore phasing for gates, terminal and hardstands

Where we are in the planning process

Stakeholder feedback

- Airlines
  - Use of aircraft hold positions for departures metering is reasonable
  - Hardstand for aircraft hold positions and Remain Over-Night (RON) parking is needed both north and south of future gates
  - Alaska Airlines prefers aircraft maintenance facilities on existing Air Operations Area (AOA) as opposed to SASA
- FAA
  - Use of potential centerfield hardstand for RON would create significant operational impacts due to towing aircraft across runways
- City of SeaTac
  - Would like to see commercial development in SASA in support of transit oriented development around Sound Transit's Angle Lake Station
    - Passed resolution requesting that "the Port of Seattle Commission not authorize actions related to SASA that would conflict with the City's Comprehensive Plan and the Angle Lake District Station Are Plan"
    - Formed SeaTac Airport Committee

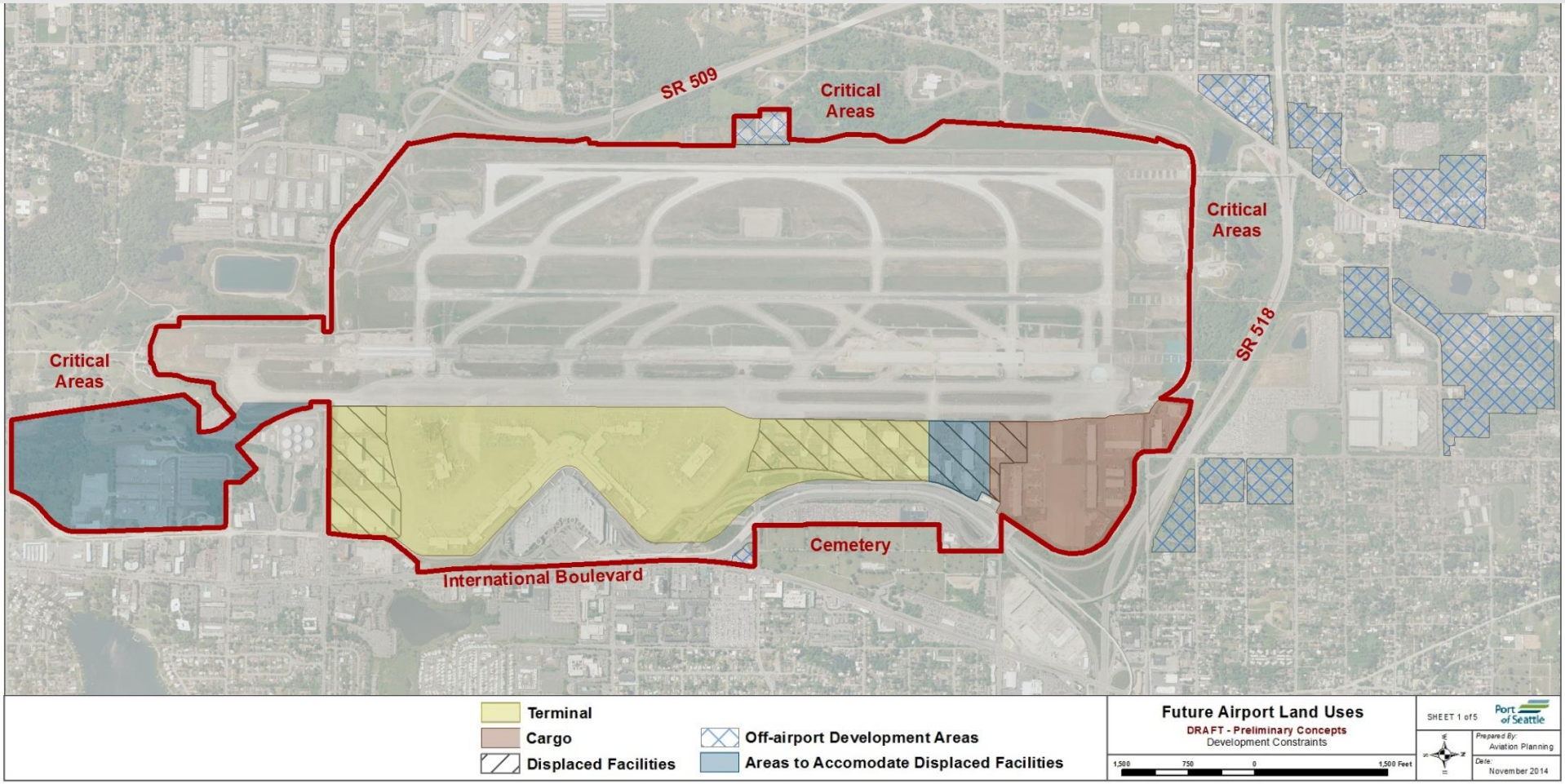
Major plan elements

Plan development *(iterative process)*

- Determine preferred gate expansion concept
- Assess airside capacity and required airfield & terminal facilities
  - Gates
  - Aircraft hold positions
  - Airfield improvements
- Allocate remaining land based on hierarchy
  - Terminal
  - Airfield
  - Landside
  - Cargo
  - Airline support
  - Airport support

Major plan elements

Development constraints & key functional areas



Major plan elements

Plan development and narrowing of alternatives

- SAMP planning objectives and FAA guidance on working towards preferred alternative(s):
  - Provide balanced facilities capacity for all functional areas of the airport
    - Airport capacity limited to the fixed capacity of the 3 runway airfield
    - Provisions for gates, terminal, cargo, landside and airline & airport support facilities
  - Eliminate alternatives that do not meet long term needs/requirements of the airport to meet the region's forecasted demand
  - Demonstrate through Implementation Plan and Plan of Finance that preferred alternative is reasonable

SAMP planning objectives and FAA guidance on alternatives analysis

Major plan elements

Federal and State rules for narrowing of alternatives

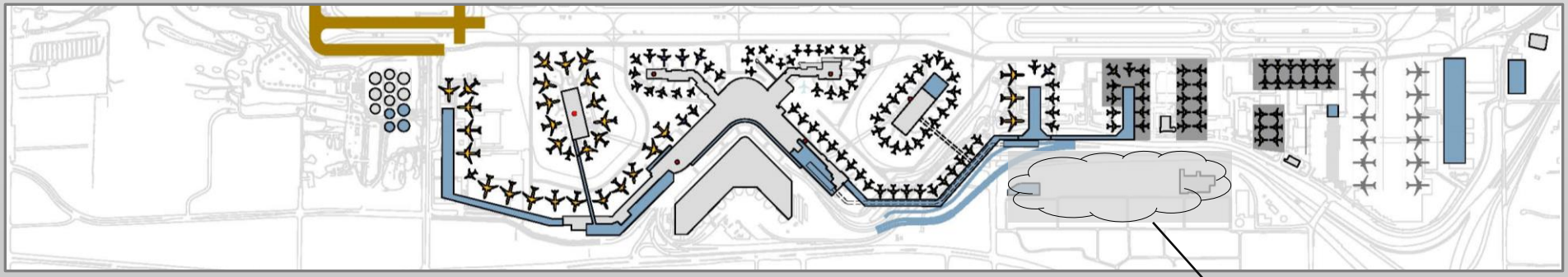
- Environmental review requirements for narrowing of alternatives are defined by the National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA)
  - Alternatives carried forward for environmental review must:
    - be "reasonable" and "prudent and feasible"
    - Must fulfill the "purpose and need" for the proposal NEPA Order 5050.4(B), section 201(B)
  - "Reasonable alternatives" are actions capable of attaining or approximating the proposal's objectives WAC 197-11-440(5)(b)
  - Alternatives that fail to satisfy the "purpose and need" for the proposal and are not "prudent and feasible" should not be carried forward for environmental analysis
  - Requires analysis of a "No Action" alternative
  - Recommend that the agency's "preferred alternative" be identified

Federal and State rules for narrowing of alternatives

Major plan elements

Concept 1

- Description
  - New widebody international gates on extension of Concourse A
  - Extension of Concourse D to two piers to the north
  - Aircraft hold positions provided to the north only
- Primary concerns/flaws
  - New south end gates in congested aircraft movement area
  - Does not provide aircraft hold positions on south end
  - Eliminates aircraft maintenance



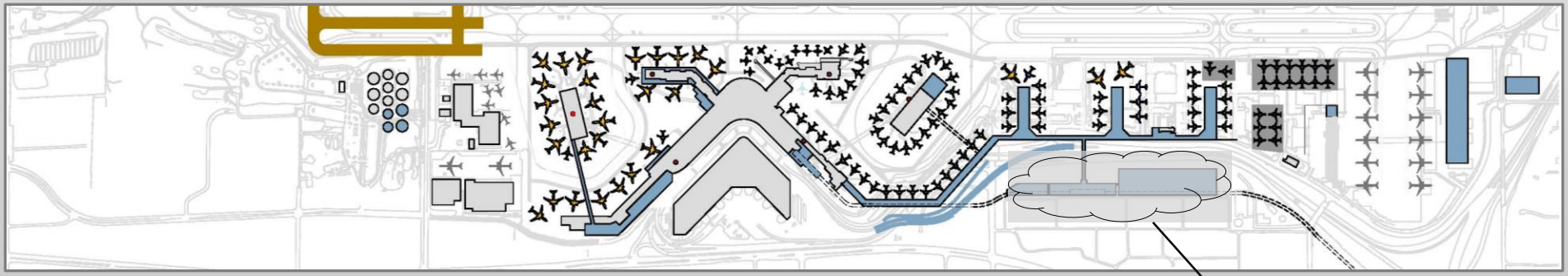
NOTE: Development concepts illustrate major plan elements independent of 1 vs 2 terminals

Concept 1 does not meet all program needs

Major plan elements

Concept 2

- Description
  - New widebody international gates on Concourse B
  - Extension of Concourse D to three piers to the north
  - Less aircraft hold positions provided to the north
- Primary concerns/flaws
  - Does not provide aircraft hold positions on south end



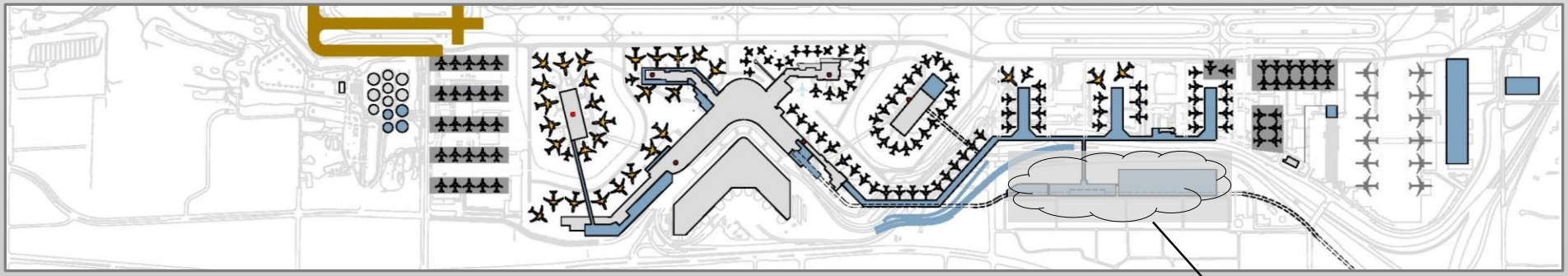
NOTE: Development concepts illustrate major plan elements independent of 1 vs 2 terminals

Concept 2 does not meet all program needs

Major plan elements

Concept 3

- Description
  - New widebody international gates on Concourse B
  - Extension of Concourse D to three piers to the north
  - Aircraft hold positions provided to the south and north
- Primary concerns/flaws
  - Eliminates aircraft maintenance



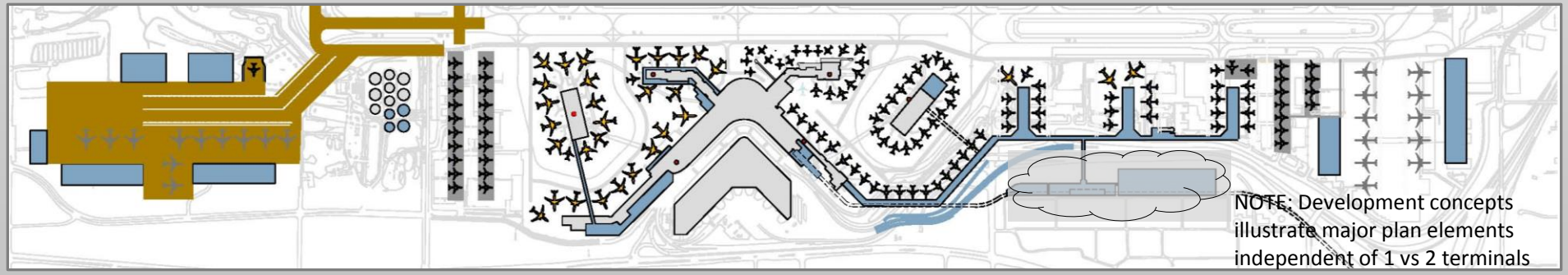
NOTE: Development concepts illustrate major plan elements independent of 1 vs 2 terminals

Concept 3 does not meet all program needs

Major plan elements

Concept 4

- Description
  - New widebody capable international gates on Concourse B
  - Extension of Concourse D to three piers to the north
  - Aircraft hold positions provided to the south and north
  - SASA accommodates displaced aircraft maintenance and cargo growth
- Primary concerns/flaws
  - Displaces aircraft maintenance
  - Cost
- Primary advantages
  - Meets all program needs
  - Best operational layout in terms of gate access/distribution of activity



Concept 4 meets all program needs and provides best operational layout

Major plan elements

Plan development

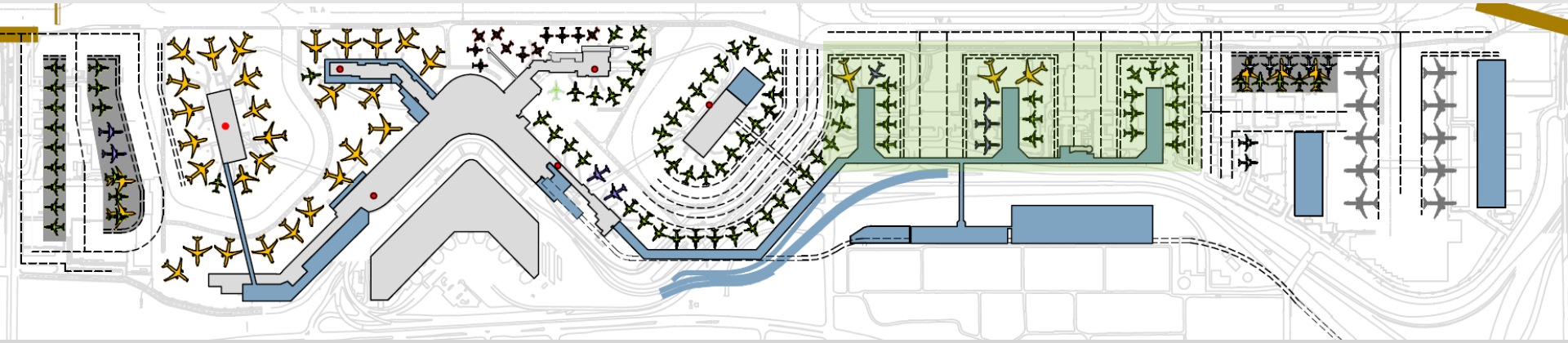
- Staff is recommending additional analysis of Concept 4
  - New widebody capable international gates on Concourse B
  - Aircraft hold positions provided to the south and north of future gates
  - SASA required to meet gate need, accommodate displaced facilities and provide for cargo growth
  - Consideration of accommodating airport needs for SASA and allowance for local development goals
- Elimination of Concepts 1, 2 and 3 will allow staff to test variations of Concept 4 and develop a recommended alternative(s) for Commission consideration
- Further analysis is needed on:
  - Potential to delay the need for second terminal
  - Airport access and modeling to test performance of landside concepts

Staff recommends carrying Concept 4 forward for additional analysis

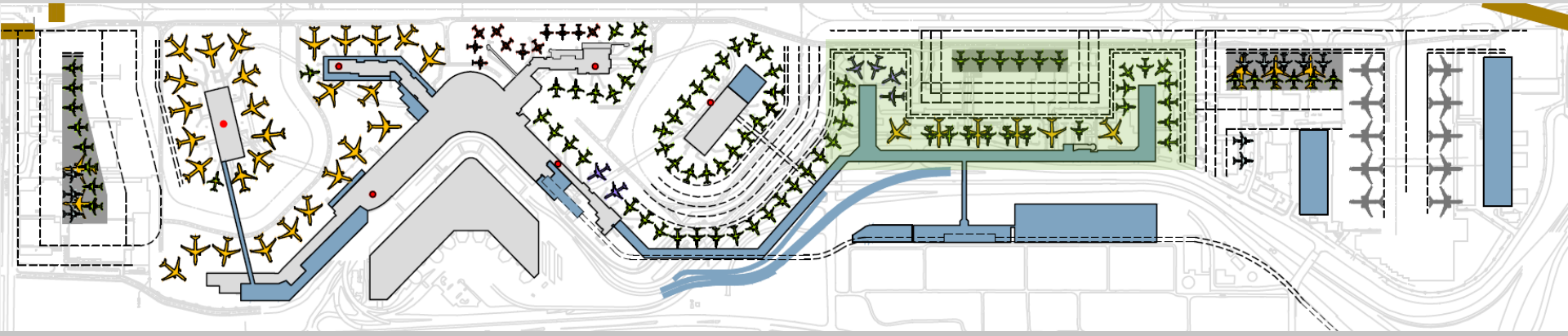
Major plan elements

Variations on Concept 4

- Three pier gate expansion to the north



- U-shaped gate expansion to the north

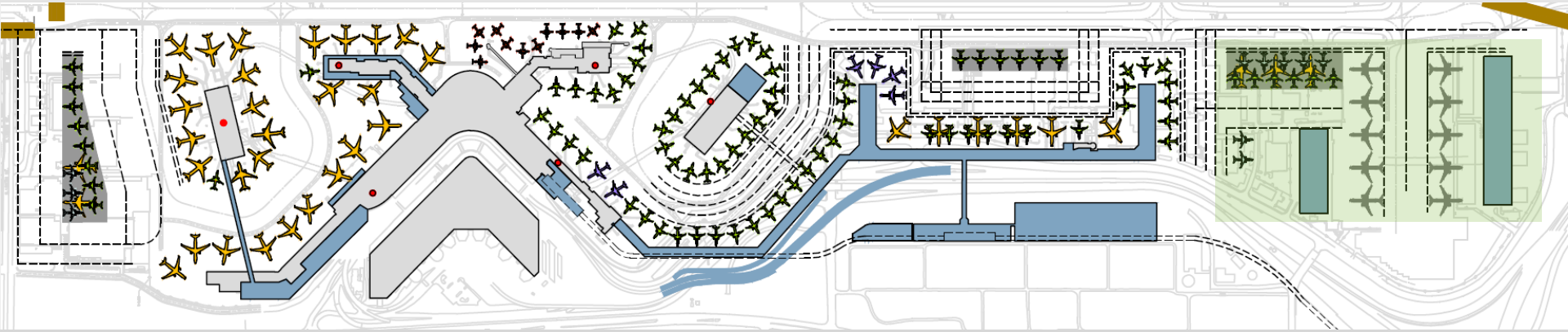


Variations on Concept 4 could involve gate layouts

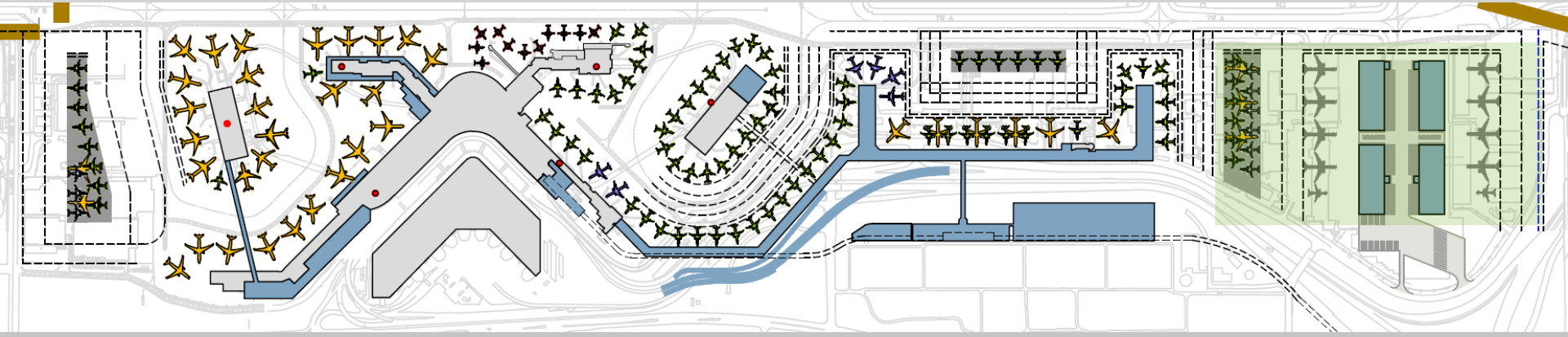
Major plan elements

Variations on Concept 4

- Reconfigured cargo area with shared taxilane



- Reconfigured cargo area with shared landside

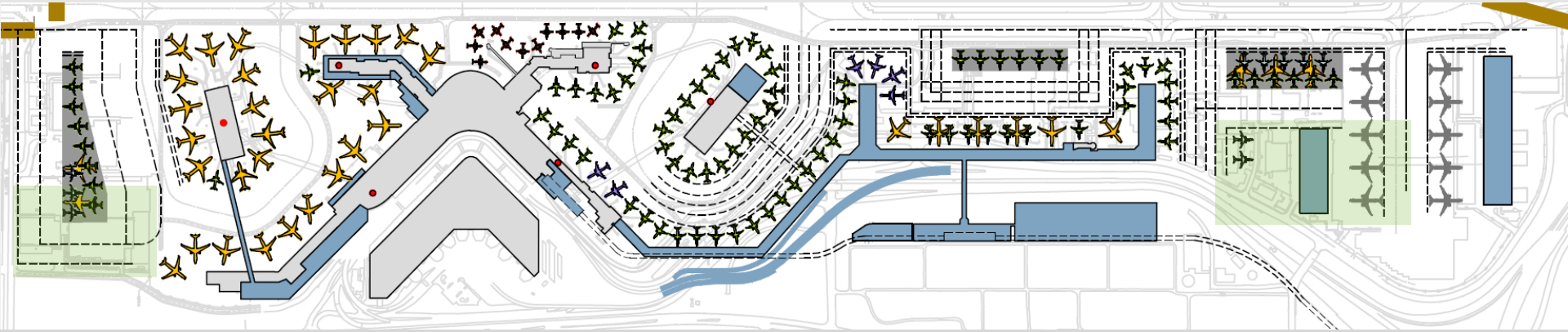


Variations on Concept 4 could involve capacity tradeoffs in cargo functional areas

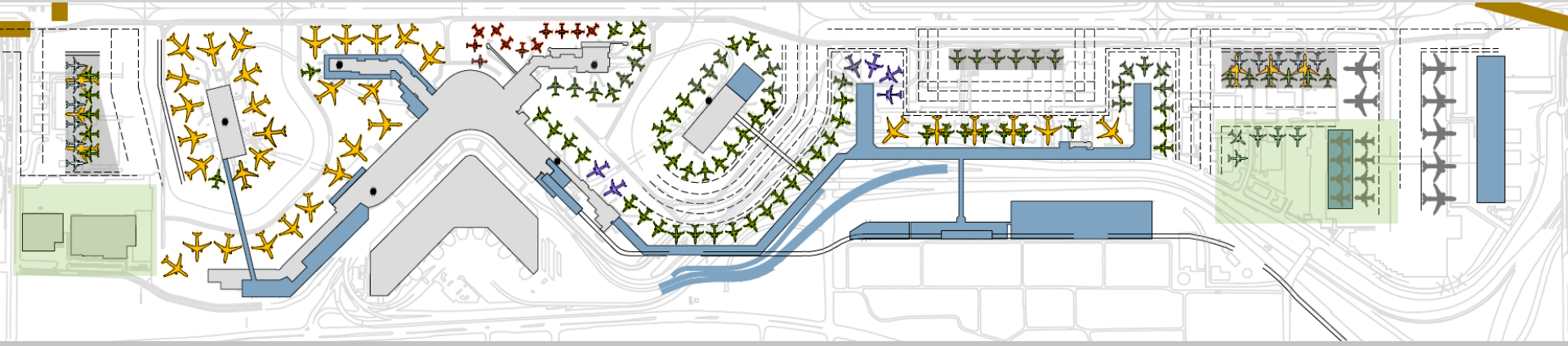
Major plan elements

Variations on Concept 4

- Aircraft maintenance in SASA



- Aircraft maintenance on existing air operations area



Variations on Concept 4 could involve capacity tradeoffs with aircraft maintenance

Airside simulation modeling

Modeling Objectives:

- Determine timing of need for aircraft hold positions
  - Informs construction phasing
- Determine delay-reduction benefit of potential airside improvements at 2034 activity level
- Test 2034 demand against alternative facility layouts
  - Need ultimate facility layouts before work can progress on implementation plan
  - Requirement for aircraft hold positions south and north of future gates will likely be a critical element to managing: (1) the departure queue, (2) movements on and off the gates, and (3) overall congestion on airfield

Airside modeling results inform construction phasing

Airside simulation modeling

Modeling Approach:

- Model runs at 2029 & 2034 activity levels
  - Establish refined rules base for use of gates and aircraft hold positions
  - Gates and aircraft hold positions provided based on reasonable assumption of what can be built
  - Test scenarios with variations on number of aircraft hold positions provided south and north of future gates
  - Annualized delay indicates whether or not facilities provided are adequate

Airside modeling tests variations on aircraft hold positions provided

Landside simulation modeling

Current work

- Model Mid-term improvements & strategies
  - Dwell time enforcement
  - Divert demand to alternate drive and/or main garage
  - Dedicated exit/approach for RCF buses
- Model 2 terminal roadway system
  - Mid-term improvements
  - Relocated southbound lanes of North Airport Expressway
  - 2nd terminal ingress/egress

Simulation modeling will test efficacy of improvements & strategies

Continuing Public Outreach

- Community open houses
  - 1st Series: SAMP process, goals, forecast (March 2015)
  - 2nd Series: Major Plan Elements (March 2016)
  - 3rd Series: Preferred Development Alternative (Q3 2016)
- King County survey Q1 2016
- Formal Environmental Review begins mid-2016
- Ongoing engagement with tenants, operators, FAA, & TSA
  - Series of meetings with FAA
    - Airfield modeling
    - Compliance with airfield design standards
    - Approach to alternatives development and environmental review
  - Series of meetings with airlines
    - Airfield modeling
    - Alternatives development

Gathering input and creating wide public understanding

Public Outreach

Complete or in Process

- ✓ Round One Open Houses (Des Moines, Seattle, Bellevue)
- ✓ Air Mail newsletter (ongoing)
- ✓ Interjurisdictional Transportation Advisory Group
- ✓ Airport Communities Business & Economic Development Roundtables
- ✓ Environmental community outreach
- ✓ SAMP brochure
- ✓ Social Justice outreach
- ✓ County-wide research
- ✓ Round Two Open Houses (SeaTac, Seattle, Bellevue)
- ✓ Commission-hosted round tables

Upcoming

- ❑ Translated documents
- ❑ Economic development follow-up
- ❑ Website update
- ❑ Video
- ❑ Social media emphasis
- ❑ Media outreach
- ❑ Focus groups
- ❑ SAMP notebook for Commissioners
- ❑ Environmental Review process
- ❑ Round Three Open Houses (Burien, Seattle, Eastside)

Next steps

- Airfield
  - Continue assessing impacts of runway/taxiway separation
  - Complete simulation modeling and post processing of modeling results
- Gates
  - Phasing plan
- Terminal
  - Continued analysis of one vs two terminal concepts
- Landside
  - On going capacity analysis through modeling
  - Develop roadway layouts and assess challenges
  - Support Airport Ops to further develop mid-term strategy & spin-off projects
- Support facilities
  - Incorporate support facilities into overall development plan
  - Determine land uses for South Aviation Support Area & timing of development
- Continued robust community engagement
- Commission-hosted roundtable discussions

SAMP Planning Schedule

- Activity forecast *(completed Q1 2015)*
- Alternatives analysis & development alternatives(s) for major elements *(Q4 2014 – Q4 2015)*
  - Iterative process, finalizing facility requirements and defining development alternatives
  - Commission engagement at key decision points
- Development of integrated preferred alternative(s) *(Q1 2016 – Q3 2016)*
  - Constructability assessment
  - Phased implementation plan
  - Planning level cost estimates
- Capital program & plan of finance *(Q1 2016 – Q3 2016)*
- FAA ALP review *(Q4 2016 – Q3 2017)*
- Environmental review *(Q1 2016 – Q2 2017)*