Item No. 8b_ supp
Meeting Date: January 28, 2020

Corrected January 29, 2020

Baggage Optimization
Results of Phase 2 Bids

January 28, 2019

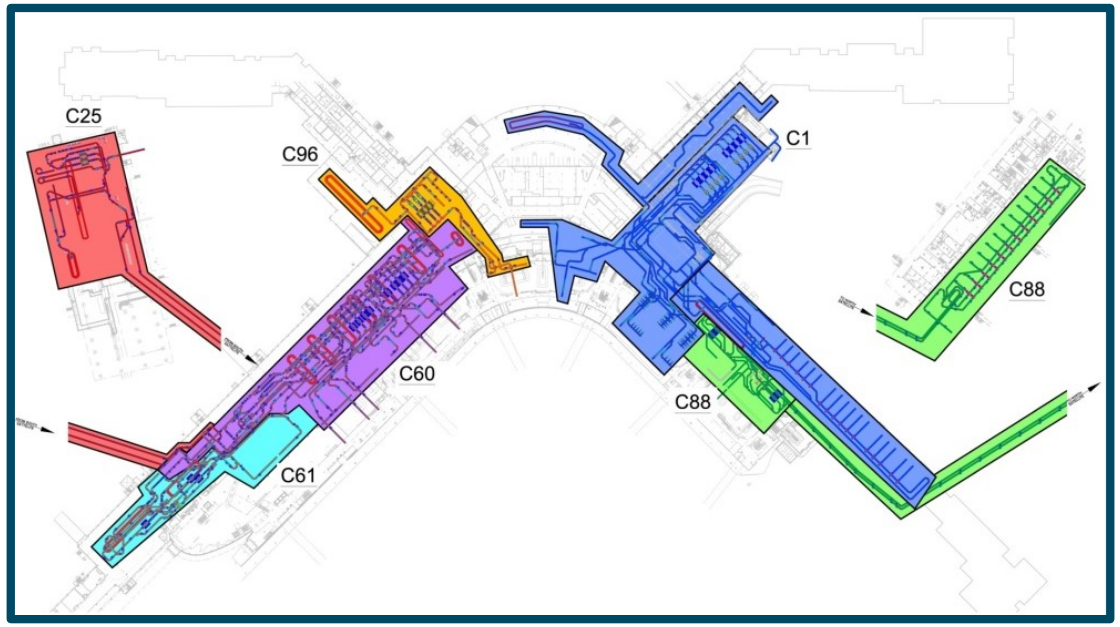
Port of Seattle®

Agenda

- Overall Program Purpose & Scope
- Airport Growth
- Phase 2 Chronology
- Phase 2 Bid Results
- Phase 2 Budget Increase and Request
- Phase 2 Bid Evaluation
- Phase 2 Alternatives
- Lessons Learned
- Commission Request

Overall Program Purpose

- Working with TSA – Safety and Security for travelling public
- Optimize outbound baggage system for Airlines and public
- Replace aging systems that won't last much longer
- Meeting the demands of growing Airlines



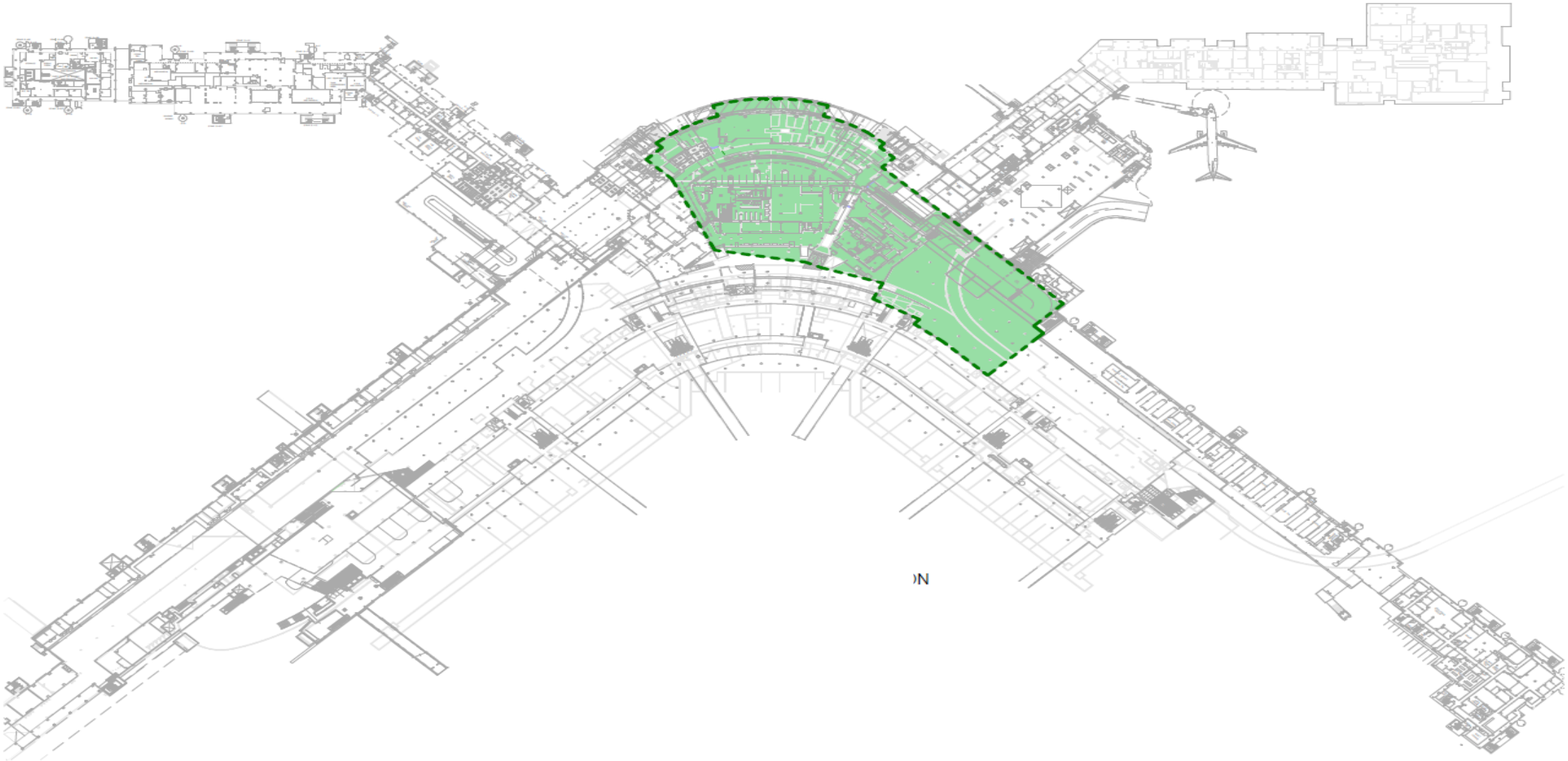
Existing 6 separate systems

Future connected system

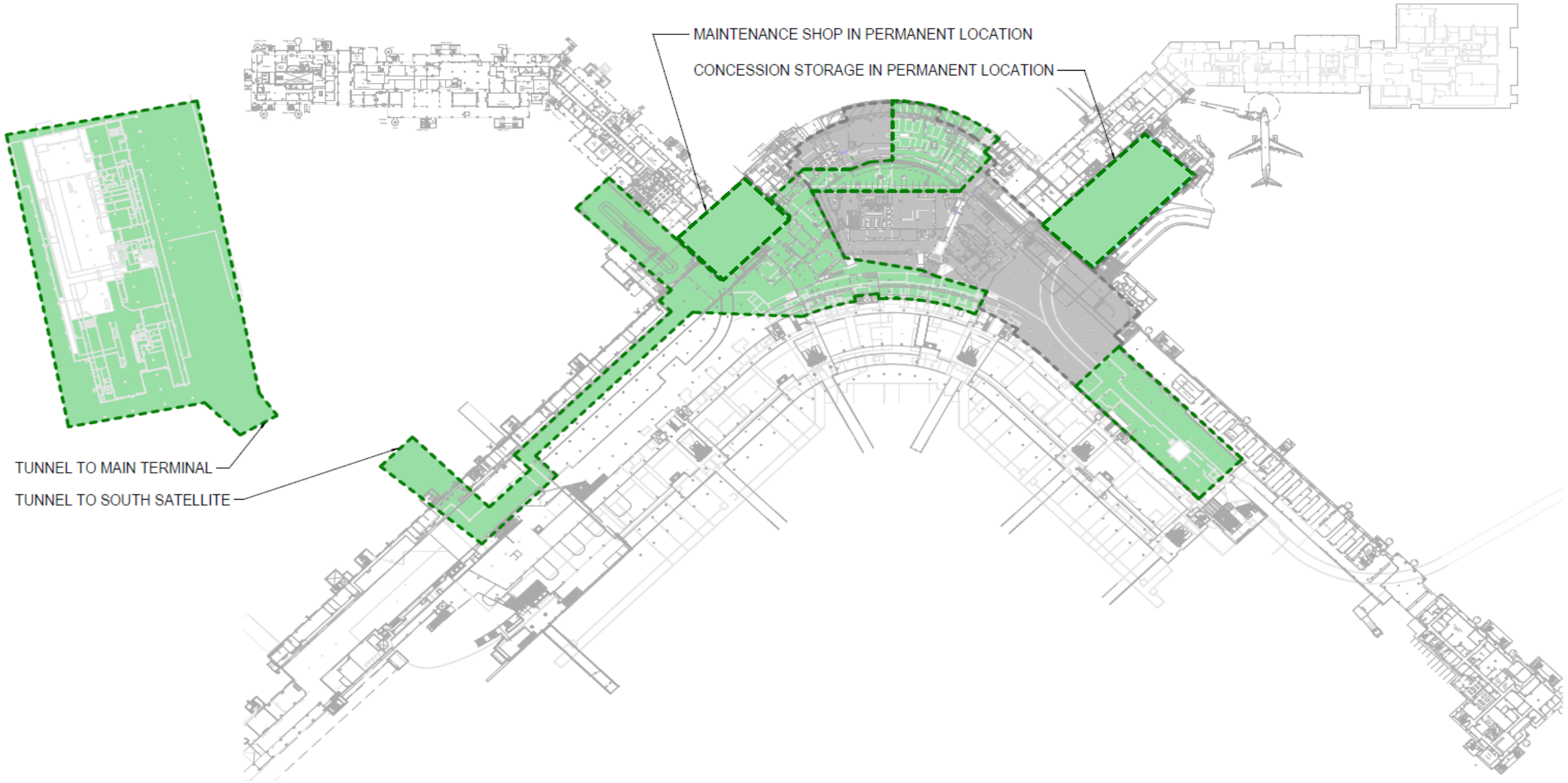
Airport Growth Facts

- In the last five years, 10 new airlines added service to SEA.
- In 2013, when the project started, the airport served 33 million passengers.
- In 2018, the airport served 49.8 million passengers and processed over 43,000 outbound bags on the busiest day.
- Passenger volume has stretched the existing baggage handling system to capacity.
- The current system has 10 miles of conveyor belt, 3,000 motors, and 28 CTX screening machines.
- New system must be built within the same space as existing system but will increase capacity.

Phase 1



Phase 2


MAINTENANCE SHOP IN PERMANENT LOCATION
CONCESSION STORAGE IN PERMANENT LOCATION
TUNNEL TO MAIN TERMINAL
TUNNEL TO SOUTH SATELLITE

Final Configuration

Phase 2 Chronology – Activities Completed

- **Commission Briefings regarding potential budget Phase 2 & 3 increases**
  - October 23, 2018 – Baggage Optimization Quarter 3 Project Briefing
  - February 26, 2019 – Baggage Optimization Quarter 4 Project Briefing
  - April 2, 2019 – Aviation Committee
  - April 23, 2019 – Baggage Optimization Phase 2 Construction Authorization
- **Marketed project to bidders**
- **Conducted peer reviews of Phase 2 scope of work and estimates with other airports**
  - June 2019 - Raleigh Durham
  - June 2019 - San Francisco
- **November 19, 2019 - Bid opening for low bid**
- **December 3, 2019 - Meeting with Low Bidder and subcontractors**
- **December 5, 2019 - Airline Update**

Phase 2 Bid Results Table

Bid Item	Engineer's Estimate	Hensel Phelps	Siemens Logistics
Main Terminal Scope	$134,331,000	$266,937,000	$282,407,076
South Satellite Scope	$ 44,826,000	$ 27,000,000	$ 39,809,375
Total Bid	$179,157,000	$293,937,000	$322,216,451
Variance		$114,780,000	$143,059,451

Market Results: The two bids were only 9% apart from each other

Phase 2 Budget Increase

	Estimate at Time of Bid (November 2019)	Estimate with Low Bidder Cost (December 2019)	Necessary Budget Increase
Bid Amount	$179,157,000	$293,937,000	$114,780,000
Tax, Construction Contingency, Other	$37,935,200	$67,727,000	$30,791,800
Port Oversight Cost	$ 26,160,000	$ 45,588,000	$ 19,428,000
Project Contingency & Executive Director Reserve	$ 4,781,000	$ 18,423,000	$ 13,642,000
Total Estimated Phase 2 Project Cost	**$248,033,200**	**$425,675,000**	**$177,641,800**

This Budget Request

Phase	Current Budget	Estimate at Completion	Requested Budget
Phase 1	$101,375,000	$101,375,000	$101,375,000
Phase 2	$248,033,200	$425,675,000	$425,675,000
Phase 3	$ 95,641,800	Construction TBD	$13,000,000 (Design Only)
Total	**$445,050,000**	**$527,050,000**	**$540,050,000**

Original Budget for Phase 1 was $135M;
Phase 2 Requested Budget includes a request for $10M of Executive Director Reserve.

Bid Evaluation

Construction Market:	Competitive automated material handling market. Five possible bidders – Only two bids.
Schedule:	All bidders requested an additional year. Bids received required two shifts over the 4 years. Our estimate assumed one shift.
Risk and Complexity:	Did not adequately predict operating risks, work complexities, and inefficiencies that bidders foresaw in the 24/7 operations of a growing airport.
Logistic Inefficiencies:	Contractors knew the productivity impact upon their work. Everything must be brought in at start of work shift and taken out at the end of work shift.
Shutdown Requirements:	Contractor must ensure Airline baggage operations never stops.

Bid Evaluation

South Satellite vs Main Terminal

The difference between the final estimate and bids is in the risk, inefficiencies, and working within a live Airport operation

Engineer's Estimate vs Bid:	South Satellite line item came in below Engineer's Estimate
Scope of Work:	24/7 site access with limited operational impacts
Risk:	Significantly less operational risk than the rest of the project

Alternatives

- **Alternative 1** – Repackage the design to include Phase 3 and use General Contractor/Construction Manager (GC/CM).
  - No guarantee of any bidders, huge bonding requirement, Costs may be higher, 2+ year delay, impacts major capital projects to improve passenger service, aging systems need upgrades.
- **Alternative 2** – Significantly change the Phase 2 scope of work and/or contract terms to re-advertise the project.
  - No guarantee of any bidders, bids may be higher, 1-1.5 year delay, impacts major capital projects to improve passenger service, aging systems need upgrades.
- **Alternative 3 Recommended** – Proceed with constructing Phase 2 as bid
  - Bid prices are within 9% of each other and are market prices, airlines and travelers need baggage service, Airlines support this alternative.
  - Provides opportunity to seek additional TSA funding.

Lessons Learned

- Require a second independent estimate for large or more complex projects (one already underway for the C1 building project)
- Improved communication to the Commission about project risk (similar to Checkpoint 1 Relocation Authorization last quarter)
- Review more projects with other airports / airlines (this baggage project was reviewed with SFO and RDU)
- Periodic review/evaluation of contracting method for phased projects, considering use of outside advisors
- Evaluate potential cost estimate increase factors for large or more complex projects

Today's Meeting Request

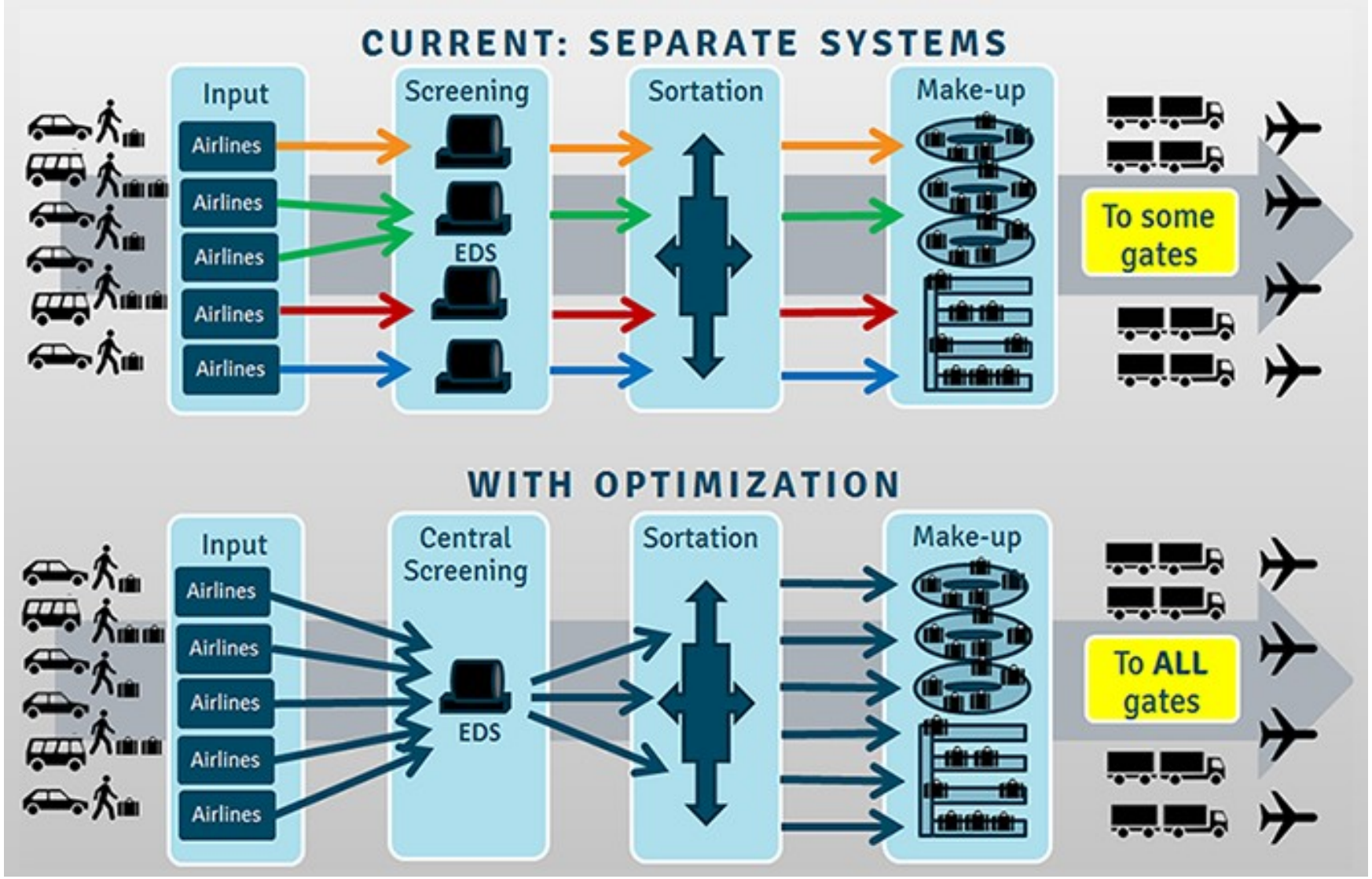
Request authorization to:

1. Execute a construction contract with the low responsive and responsible bidder for $293,937,000;

2. Authorize an increased budget totaling $190,737,800 for a total project authorization of $540,050,000 for Phase 2 construction and Phase 3 design.

Appendix

Outbound Baggage System Flow



Alternative 1

Repackage the design to include Phase 3 and pursue an alternative delivery method for construction GC/CM.

Cost Implications:

Phase 3 estimate would need to be updated to match the contract method and verified.

This is not the recommended alternative.

Alternative 1 - Pros

- No risk of loss in continuity of Contractors between Phases 2 and 3;
- There will be an opportunity to optimize risk allocation with the GC/CM in developing a construction sequencing plan;
- A GC/CM delivery method allows for prequalification of the general and electrical contractor; and
- GC/CM delivery method leverages innovations/ideas/expertise in design and constructability.

Alternative 1 - Cons

- Major capital projects to improve passenger service and provide needed upgrades are dependent on work being completed by Phase 2. For example, Main Terminal Optimization, Airline Realignment, Main Terminal Low Voltage, Main Terminal Smoke Control, and C1 Building. In addition, Airlines have requested South Satellite makeups to be accelerated to meet demand, and a delay would affect their operations;
- Potential TSA OTA funding expires in 2023 unless TSA grants extension, and the project could lose the funds
- TSA would oppose this due to risk of system failure due to further delays in replacement of outdated screening equipment. Increased cost in TSA staffing and equipment maintenance.
- Construction will be even more inefficient and therefore more costly if the construction is delayed due to continued growth in passenger and baggage volume;
- Due to the aging systems, lack of sortation capacity and flexibility to keep up with Airport growth, the existing baggage system will experience increased operational demand and stress that will likely cause impacts to airlines and passengers. The Port would still need to invest in upgrading the aging existing system to keep the airport operational;
- Design will require repackaging and redesign
- Phase 2 design cost beyond 70% would be lost;
- Schedule impact of 1.5-2 years;
- New design will create unknown schedule impacts to develop construction sequencing plan with contractor and stakeholder buy-in;
- No guarantee of an improved construction sequencing plan; and
- No guarantee of any cost savings.
- Contractors including small businesses have invested four months and significant expense in preparing a bid. Rebidding this project may not result in low bids and/or sufficient bidder interest. The Port may also be perceived as a less preferred owner if bids are rejected.

Alternative 2

Significantly change the Phase 2 scope of work and/or contract terms to re-advertise the project.

Cost Implications:

Taking the design back to 70% plus cost for redesign equals approximately $4M.

This is not the recommended alternative.

Alternative 2 - Pros

- Bid amount could potentially come in lower.

Alternative 2 - Cons

- Major capital projects to improve passenger service and provide needed upgrades are dependent on work being completed by Phase 2. For example, Main Terminal Optimization, Airline Realignment, Main Terminal Low Voltage, Main Terminal Smoke Control, and C1 Building. In addition, Airlines have requested South Satellite makeups to be accelerated to meet demand, and a delay would affect their operations;
- Potential TSA OTA funding expires in 2023 unless TSA grants extension, and the project could lose the funds
- TSA would oppose this due to risk of system failure due to further delays in replacement of outdated screening equipment. Increased cost in TSA staffing and equipment maintenance.
- Construction will be even more inefficient and therefore more costly if the construction is delayed due to continued growth in passenger and baggage volume;
- Due to the aging systems, lack of sortation capacity and flexibility to keep up with Airport growth, the existing baggage system will experience increased operational demand and stress that will likely cause impacts to airlines and passengers. The Port would still need to invest in upgrading the aging existing system to keep the airport operational;
- There are limited opportunities to modify the scope of work to deliver a valuable project at the end of Phase 2
- Holiday moratoriums could be reduced and relaxed to reduce Contractor risk. This could cause operational impacts to airlines during busy holiday seasons;
- Add Port contracts for portering services for system shutdown and Contractor system impacts;
- Schedule impact of 1-1.5 years;
- Redesign will create unknown schedule impacts to develop construction sequencing plan with contractor and stakeholder buy-in;
- Contractors including small businesses have invested four months and significant expense in preparing a bid. Rebidding this project may not result in low bids and/or sufficient bidder interest.

Alternative 3

Proceed with constructing Phase 2 as originally planned and evaluate GC/CM contracting for Phase 3.

Cost Implications:

Requested amount of $190,737,800 additional Phase 2 budget, including $10M for management reserves to be managed by the Executive Director.

This is the recommended alternative.

Alternative 3 - Pros

- Lowest risk of operational impacts due to aging equipment and growing demands on the existing systems;
- Fastest alternative in terms of delivery of the new system elements, providing increased capacity, flexibility, redundancy, and higher reliability;
- Lowest impact to Major capital projects that are dependent on work being completed by Phase 2;
- Construction sequencing plans have been coordinated with Airlines and Port of Seattle stakeholders to minimize impacts during construction; and
- Port can begin to prepare for Phase 3 including evaluation of GC/CM contracting to complete the intended design and meet growing Airport demands.

Alternative 3 - Cons

- Increase in overall program budget

Engineer's Estimate vs Bid Results

Aviation Only (2017-2019)

Total Contracts bid out	33
Total Awards Below EE	25
% of Awards Below EE	**76%**
Total Awards Within 110% of EE	27
% of Awards Within 110% of EE	**82%**