



**COMMISSION
AGENDA MEMORANDUM**

Item No. 6b

ACTION ITEM

Date of Meeting March 14, 2017

DATE: March 14, 2017

TO: Dave Soike, Interim Chief Executive Officer

FROM: Michael Ehl, Director Airport Operations
Wayne Grotheer, Director, Aviation Project Management Group

SUBJECT: Taxiways A/B Reconfiguration; Taxiway L Relocation; Taxiway Q Mitigation
(CIP #C800914)

Amount of this request: \$ 1,600,000

Total estimated project cost: \$23,500,000

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to:

- (1) Design and prepare construction documents for the relocation of Taxiway L and mitigation of safety concerns at Taxiway Q at Seattle-Tacoma International Airport;
- (2) Transfer \$3,045,000 previously authorized budget from the NorthSTAR program (North Satellite Taxiway A/B Reconfiguration) to combined Taxiway A/B/L/Q capital improvement project; and
- (3) execute a project labor agreement (PLA) for these projects.

EXECUTIVE SUMMARY

This project relocates or modifies four taxiways for safety and continued operational access by aircraft. Staff proposes to combine these three projects together to provide some economies of scale, anticipated lower bid prices and better construction phasing and coordination. The project is driven by the expansion of the North Satellite triggering the need to reconfigure the adjoining Taxiway A/B. Due to the proximity of Taxiway L to Taxiway A/B, the FAA is requiring that Taxiway L be brought into compliance with the current FAA design standards and be relocated in 2018 so as to minimize the potential for aircraft runway incursions. The relocation of Taxiway L requires a closure of Runway 16L/34R. This closure provides the opportunity to proceed with another identified taxiway safety concern at the intersection of Taxiway Q and Runway 16L/34R that can utilize the same runway closure to be completed.

The cost of Taxiway A/B reconfiguration is now estimated at approximately \$9 million more than the original estimate due to later identified determination of in-pavement lighting relocation and newly identified FAA requirements of taxiway reconfiguration and aircraft

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separation. The work on Taxiways L and Q was not included in the 2017 -2021 capital budget. Partially offsetting the cost increase is an anticipated FAA grant of approximately \$9 million.

JUSTIFICATION

A new capital improvement project (CIP) has been established for the relocation of Taxiway L and modification of Taxiway Q. Because of their close proximity, similar work and both requiring runway closure for construction, the two CIPs for Taxiway A/B reconfiguration and the Taxiway L/Q are being combined into a single major construction contract.

A PLA is recommended for this project. Labor disruptions would affect the construction schedule and directly impact airport and airline operations. These projects are time sensitive and must be completed prior to the opening of the North Satellite Phase 1 Expansion, scheduled for January 2019. There are several trades that are critical to this project. The airfield work areas are unique and require specific familiarity and training in order to be safe and efficient.

DETAILS

Taxiway A/B Reconfiguration is an enabling project to the NorthSTAR North Satellite renovation and expansion (NSAT) program. Because the NSAT expansion pushes the existing terminal to the west, the related parked aircraft will protrude out into the existing, adjacent taxilane. This requires that the adjacent taxilane and taxiways be reconfigured to accommodate the expansion, maintain airport operational efficiency and maintain required aircraft separation distances. The design for the Taxiway A/B reconfiguration has undergone several design iterations from the original concept based upon input from FAA. The current design includes modification based upon FAA's input that occurred during the Preliminary Hazard Safety Assessment. These modifications will provide a safer transition for all aircraft, particularly wide-bodied aircraft between the taxiways and taxilane.

Taxiway L was constructed prior to the current FAA guidance regarding direct access from a ramp area to a runway. To bring Taxiway L up to current design standards it is being relocated approximately 300 feet to the south and will provide a definitive turning movement for aircraft prior to entering the adjacent runway. As part of this relocation project the runway and taxiway pavement markings will also be modified to further improve situational awareness and minimize safety risk.

The FAA has designated the intersection of Taxiway Q and Taxiway B as a safety 'Hot Spot,' as a result of numerous runway incursions in this location. The 'Hot Spot' designation alerts pilots that the location is potentially problematic. After review of the runway incursions, the primary issue was found to be aircraft taxiing west on Taxiway Q and failing to hold short of Runway 16L/34R. As a step toward 'Hot Spot' mitigation, the centerline alignment will be modified.

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This work requires closure of Runway 16L/34R and phasing closures of Taxiways A and B adjacent to the North Satellite and Taxiway B at the intersection of Taxiway Q. The phasing coordination is being closely managed together with FAA Air Traffic Control Tower and SeaTac Ramp Tower. Additional coordination will occur with the airlines and other affected entities.

As a result of the ensuing design work, the future memo for construction authorization will include considerations and alternatives for sustainable construction practices and products, and considered alternatives for inclusion of appropriate small, woman, and minority business in alignment with Federal DBE required goals.

Scope of Work

- (1) Relocate Taxiway L
- (2) Adjust Taxiway B centerline radii at Taxiway’s L and Q leading onto Runway 16L/34R; to include adjustment of in-pavement taxiway centerline lights and pavement markings
- (3) Modify and realign Surface Movement Guidance Control lights and connection centerlines between Taxiway A, Taxiway B and entrance to North Satellite Taxilane

Schedule

Commission design authorization	2017 Quarter 1
Design start	2017 Quarter 1
Commission construction authorization	2017 Quarter 4
Construction start	2018 Quarter 3
In-use date	2018 Quarter 4

Cost Breakdown Taxiway’s L & Q

	This Request	Total Project
Design	\$1,600,000	\$2,380,000
Construction	\$0	\$9,122,000
Total	\$1,600,000	\$11,500,000

Cost Breakdown Taxiway’s A & B

	This Request	Total Project
Design	\$0	\$2,250,000
Construction	\$0	\$9,750,000
Total	\$0	\$12,000,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

The number of available alternatives is limited by the operational demands to move aircraft safely and efficiently within FAA requirements. The following explanation provides context for the alternatives that follow.

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If Taxiway A/B Reconfiguration and Taxiway L Relocation are not completed prior to the opening of the North Satellite expansion there will be significant operational impacts.

- (1) Each aircraft gate position is vital, and a number of the expanded terminal aircraft gate positions would be unusable due to the aircraft tail intrusions into the existing taxilanes and taxiways.
- (2) Two-way directional aircraft movement around the renovated North Satellite is necessary for efficiency, and without this work, significant disruption of aircraft movement and positioning would cause possible Air Traffic Control delays along with passenger delays.
- (3) FAA is requiring Taxiway L be relocated or it must be closed.

This is not an option that supports safe and efficient aircraft operations.

Alternative 1 – Separate Construction Contracts

Cost Implications: \$26,500,000 plus previously estimated \$50,000 per large aircraft per day for weight penalty of not being able to use Runway 16L/34R for departures.

Pros:

- (1) Separation of funding
- (2) Single design consultant
- (3) Taxiway A/B does not require FAA tracking and reporting

Cons:

- (1) Additional Runway 16L/34R closures
- (2) Significant operational and cost increases to airlines
- (3) Will not meet FAA deadlines for Taxiway L relocation

This is not the recommended alternative.

Alternative 2 – Single Construction Contract Taxiway A/B Reconfiguration; Taxiway L Relocation and Taxiway Q Hot-Spot Mitigation

Cost Implications: \$23,500,000

Pros:

- (1) Meet construction deadlines for NorthSTAR program
- (2) Single Runway 16L/34R closure of the shortest duration to minimize cost and operational impacts to airlines
- (3) Best facilitates construction coordination between FAA, airlines, the Port, and others

Cons:

- (1) Runway closure required for construction

This is the recommended alternative.

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FINANCIAL IMPLICATIONS

<i>Total Cost Estimate/Authorization Summary</i>	Txwy A&B	Txwy L&Q	Total
COST ESTIMATE			
Original estimate	\$3,045,000	\$9,700,000	\$12,745,000
Current cost increase	\$8,955,000	\$1,800,000	\$10,755,000
Revised estimate	\$12,000,000	\$11,500,000	\$23,500,000
AUTHORIZATION			
Previous authorizations	\$3,045,000	\$150,000	\$3,195,000
Current request for authorization	\$0	\$1,600,000	\$1,600,000
Total authorizations, including this request	\$3,045,000	\$1,750,000	\$4,795,000
Remaining amount to be authorized	\$8,955,000	\$9,750,000	\$18,705,000
Total Program	\$12,000,000	\$11,500,000	\$23,500,000

Annual Budget Status and Source of Funds

The initial Taxiway A/B Design authorization and project construction estimate were approved in the overall NorthSTAR NSAT Renovation project C800556. The initial Taxiway A/B Reconfiguration project estimate was \$3.2M. The original scope and estimate was based on only needing to make small adjustments to the centerline with removal of and realigning with paint. Secondly, the scope and estimate increased with the determination that in-pavement lighting needed to be relocated including concrete panel removal and replacement. Finally the addition of the FAA requirement for additional taxiway separation and reconfiguration now requires a new design package, additional excavation, and additional pavement; all together increasing the project estimate to \$12M.

The authorized and budget amounts of \$3,045,000 has been transferred from the NSAT program CIP C800556 to the Airfield program CIP C800914 to be combined into a single major airfield construction project. Request for authorization of the remaining budget amount will be at the time of request for construction advertisement, bid and construction contract award of the project. The funding sources for C800914 would be Airport Improvement Program (AIP) grants (estimated at \$9 million) and future revenue bonds, to be issued in 2017.

Financial Analysis and Summary

Project cost for analysis	\$23,500,000
Business Unit (BU)	Airfield Movement
Effect on business performance (NOI after depreciation)	NOI after depreciation will decrease
IRR/NPV (if relevant)	N/A
CPE Impact	\$.05 in 2019

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ATTACHMENTS TO THIS REQUEST

PowerPoint Presentation

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

May 24, 2016 – The Commission authorized the North Satellite Renovation (NSAT) increase of project scope and budget that included Taxiway Lighting and Panel Replacement of \$3.2 million.