



COMMISSION SPECIAL MEETING AGENDA

April 16, 2024

To be held virtually via MS Teams and in person at the Port of Seattle Headquarters Building – Commission Chambers, Pier 69, 2711 Alaskan Way, Seattle WA. You may view the full meeting live at meetings.portseattle.org. To listen live, call in at +1 (425) 660-9954 or (833) 209-2690 and Conference ID 466 831 772#

ORDER OF BUSINESS

10:30 a.m.

1. CALL TO ORDER

2. **EXECUTIVE SESSION** – *if necessary, pursuant to RCW 42.30.110 (executive sessions are not open to the public)*

► 12:00 noon – PUBLIC SESSION

Reconvene or Call to Order and Pledge of Allegiance

3. **APPROVAL OF THE AGENDA** (*at this time, commissioners may reorder, add, or remove items from the agenda*)

4. SPECIAL ORDERS OF THE DAY

5. EXECUTIVE DIRECTOR'S REPORT

6. COMMITTEE REPORTS

7. **PUBLIC COMMENT** – *procedures available online at <https://www.portseattle.org/page/public-comment-port-commission-meetings>*

During the regular order of business, those wishing to provide public comment (in accordance with the Commission's bylaws) on Commission agenda items or on topics related to the conduct of Port business will have the opportunity to:

1) Deliver public comment via email: All written comments received by email to commission-public-records@portseattle.org will be distributed to commissioners and attached to the approved minutes.

2) Deliver public comment via phone or Microsoft Teams conference: To take advantage of this option, please email commission-public-records@portseattle.org with your name and agenda item or topic related to the conduct of Port business you wish to speak to by 9:00 a.m. PT on Tuesday, April 16, 2024. ***(Please be advised that public comment is limited to agenda items and topics related to the conduct of Port business only.)*** You will then be provided with instructions and a link to join the Teams meeting.

3) Deliver public comment in person by signing up to speak on your arrival to the physical meeting location: To take advantage of this option, please arrive at least 15 minutes prior to the start of any regular meeting to sign-up on the public comment sheet available at the entrance to the meeting room to speak on agenda items and topics related to the conduct of Port business.

For additional information, please contact commission-public-records@portseattle.org.

8. **CONSENT AGENDA** (*consent agenda items are adopted by one motion without discussion*)

8a. Approval of Minutes of the Special and Regular Meetings of March 26, 2024. **(no enclosure)** (p. 4)

- 8b. Approval of the Claims and Obligations for the Period March 1, 2024, through March 31, 2024, Including Accounts Payable Check Nos. 952591 through 952971 in the Amount of \$11,119,079.97; Accounts Payable ACH Nos. 064432 through 065244 in the Amount of \$56,369,853.99; Accounts Payable Wire Transfer Nos. 016268 through 016288 in the Amount of \$13,183,485.71; Payroll Check Nos. 211567 through 212007 in the Amount of \$139,832.99; and Payroll ACH Nos. 1184518 through 1191686 in the Amount of \$25,530,129.35 for a Fund Total of \$106,342,382.01. ([memo enclosed](#)) (p.13)
- 8c. Monthly Notification of Prior Executive Director Delegation Actions March 2024. ([memo enclosed – No action, for information only](#)) (p.16)
- 8d. Authorization for the Executive Director to Increase the Project Scope and Associated Budget for the Airport Terminal Solid Waste Project in the Amount of \$4,500,000; to Advertise, Bid, and Execute a Major Works Construction Contract, Execute Related Project Change Orders, Amendments, Work Authorizations, Purchases, Contracts, and Take Other Actions Necessary to Support and Deliver the Airport Terminal Solid Waste Project; and to Authorize the Use of Port of Seattle Crews to Support the Design and Construction Activities, for a Total Estimated Project Cost of \$19,180,000. (CIP# C800945) ([memo and presentation enclosed](#)) (p.18)
- 8e. Commission Approval of International Travel Authorization for 2nd Quarter 2024. ([memo enclosed](#)) (p.28)
- 8f. Authorization for the Executive Director to Advertise, Award, and Execute a Major Works Construction Contract to Rehabilitate and Provide Improvements to the Two Million Gallon Water Reservoir at the Port of Seattle; to Execute Related Project Change Orders, Amendments, Work Authorizations, Purchases, Contracts, and Take Other Actions Necessary to Support and Deliver the Water Reservoir Rehabilitation Project; to Authorize Use of Port of Seattle Crews to Support the Design and Construction Activities, in the Amount Requested of \$2,019,000 and a Total Estimated Project Cost of \$3,169,000. (CIP# C801172). ([memo and presentation enclosed](#)) (p.31)
- 8g. Authorization for the Executive Director to Approve Additional Funding in the Amount of \$1,100,000 and to Advertise and Execute a Major Public Works Construction Contract for the Completion of the U00721 Fishermen’s Terminal ADA Compliance Phase 2 Project, for a Total Estimated Project Cost of \$2,890,000. (CIP# C801198). ([memo and presentation enclosed](#)) (p.43)
- 8h. Adoption of Order No. 2024-06: Providing for a 2023 Performance Rating for the Executive Director, a 2024 Cost-of-Living Base Salary Increase, and a One Percent Lump Sum Increase. ([order enclosed](#)) (p.57)
- 8i. Authorization for the Executive Director to Authorize the Agreement with the Seattle Tacoma Airline Consortium (STAC) for Exit Lane Staffing Reimbursement for a Total Amount of \$2,600,000 through January 15, 2025. ([memo and agreement enclosed](#)) (p.58)

- 8j. Adoption of Resolution No. 3821: A Resolution Adopting SEA Tree Replacement Standards for Airport Activities Area and the SEA Land Stewardship Plan for Seattle-Tacoma International Airport. ([memo](#), [draft resolution w/ Exhibit A, Exhibit B \(available online\)](#) and [presentation enclosed](#)) (p.70)

10. NEW BUSINESS

- 10a. Introduction of Resolution No. 3822: A Resolution Authorizing the Issuance and Sale of General Obligation and Refunding Bonds, 2024 in the Aggregate Principal Amount of Not-to-Exceed \$325,000,000, for the Purpose of Financing or Refinancing Capital Improvements to Port Facilities and Refunding Certain Outstanding Obligations of the Port; and Authorizing a Designated Port Representative to Approve Certain Matters Relating to the Sale of the 2024 LTGO Bonds. ([memo](#), [draft resolution](#), and [presentation enclosed](#)) (p.360)
- 10b. Authorization for the Executive Director to Execute a Tenant Reimbursement Agreement with the Selected Duty-Free Operator and to Authorize \$10,100,000 for Design and Pre-Construction Services for the Concourse A Duty-Free Project, for an Estimated Total Project Cost Between \$46,000,000 and \$60,000,000. ([memo](#) and [presentation enclosed](#)) (p.406)

11. PRESENTATIONS AND STAFF REPORTS

- 11a. Diversity in Contracting 2023 Annual Report and Five-Year Review. ([memo](#) and [presentation enclosed](#)) (p.427)

12. QUESTIONS on REFERRAL to COMMITTEE and CLOSING COMMENTS

13. ADJOURNMENT



P.O. Box 1209
Seattle, Washington 98111
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206.787.3000

**APPROVED MINUTES
COMMISSION SPECIAL MEETING**

MARCH 26, 2024

The Port of Seattle Commission met in a special meeting Tuesday, March 26, 2024. The meeting was held at the Port of Seattle Headquarters Building, 2DEast Conference Room, located at 2711 Alaskan Way, Seattle, Washington. Commissioners Calkins, Cho, Felleman, Hasegawa, and Mohamed were present. The meeting was held on location only and no action was taken.

CALL to ORDER

Pursuant to RCW 42.30 and Article IV, Section 8, of the commission bylaws, the meeting convened at 9:00 a.m. for the purpose of conducting a retreat planning session.

DISCUSSION

Members of the Commission met to prepare as a home port for the upcoming Northwest Seaport Alliance retreat.

ADJOURNMENT

There being no further business, the meeting adjourned at 10:25 a.m.

Prepared:

Attest:

Michelle M. Hart, Commission Clerk

Ryan Calkins, Commission Secretary

Minutes approved: April 16, 2024.



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Seattle, Washington 98111
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APPROVED MINUTES COMMISSION REGULAR MEETING

March 26, 2024

The Port of Seattle Commission met in a regular meeting Tuesday, March 26, 2024. The meeting was held at the Seattle-Tacoma International Airport Conference Center located at: 17801 International Blvd, Mezzanine Level, Seattle, Washington, and virtually on Microsoft Teams. Commissioners Calkins, Cho, Felleman, Hasegawa and Mohamed were present.

1. CALL to ORDER

The meeting was convened at 10:34 a.m. by Commission President Hamdi Mohamed.

2. EXECUTIVE SESSION pursuant to RCW 42.30.110

The public meeting recessed into executive session to discuss one items regarding the performance of a public employee per RCW 42.30.110(1)(g) for approximately 90 minutes, with the intention of reconvening the public session at 12:00 p.m. Following the executive session, the public meeting reconvened at 12:05 p.m. Commission President Mohamed led the flag salute.

3. APPROVAL of the AGENDA

The agenda was approved, as presented, without objection.

In favor: Calkins, Cho, Felleman, Hasegawa, and Mohamed (5)
Opposed: (0)

4. SPECIAL ORDERS OF THE DAY

There were no Special Orders of the Day scheduled.

5. EXECUTIVE DIRECTOR'S REPORT

Executive Director Metruck previewed items on the day's agenda and made general and meeting-related announcements.

6. COMMITTEE REPORTS

There were no committee reports to present.

7. PUBLIC COMMENT

- The following people spoke regarding the Seafarer's Center and the support that they provide to welcome and care for seafarers who visit Puget Sound, including ship visits and transportation, connecting crews with vaccine providers in Puget Sound, and offering communication tools and other basic necessities: Rich Shively and Dave Stockert (*written comments submitted*).
- The following person spoke regarding cold ironing: Matt Ventoza, ILWU.
- The following people spoke regarding healthcare for airport workers: Karyna Babaiants (*written comments submitted*), Matt Haney, and Rigo Valdez.
- In lieu of spoken comment, the following people submitted written comments regarding the Port's Land Stewardship Plan, requesting the Port to protect forests and those near airport communities, including Riverton Heights and North Seatac Park: Cristin Mattione and Lindsey Walker.

[Clerk's Note: All written comments are combined and attached here as Exhibit A.]

8. CONSENT AGENDA

[Clerk's Note: Items on the Consent Agenda are not individually discussed. Commissioners may remove items for separate discussion and vote when approving the agenda.]

8a. Approval of Minutes of the Regular Meeting of March 12, 2024.

8b. Authorization for the Executive Director or Designee to Sign and Execute the Next 5-Year Interlocal Agreement for Waterfowl (Canada Goose) Management Program and the First Year's Cooperative Service Field Agreement Between the Port of Seattle and the United States Department of Agriculture Wildlife Services in the Requested Amount of \$12,500 for Five Years.

Request document(s) included an agenda memorandum, agreement 1, agreement 2, and report.

8c. Authorization for the Executive Director to Authorize Design and Preparation of Construction Bid Documents for the Public Safety Distributed Antenna System Upgrade Project, to Advertise, Bid, and Execute a Major Works Construction Contract, Execute Related Project Change Orders, Amendments, Work Authorizations, Purchases, Contracts, and Take Other Actions Necessary to Support and Deliver the Distributed Antenna System Project within the Approved Budget, to Authorize Use of Port of Seattle Crews to Support the Design and Construction Activities, and to Increase the Project Authorization by \$10,976,000, for a Total Estimated Project Cost of \$11,226,000. (CIP# C801238)

Request document(s) included an agenda memorandum and presentation.

8d. Authorization for the Executive Director to Authorize an Early Work Construction Contract for Baggage Optimization Phase 3 Including Construction of D1 and C94 Transfer Lines; to Procure Long Lead Items; and to Increase the Project Authorization by \$7,500,000, for a Total Estimated Project Cost of \$955,000,000. (CIP# C800612)

Request document(s) included an agenda memorandum and presentation.

- 8e. Authorization for the Executive Director to Approve Construction Funding for a Design-Build Construction Contract for the Maritime Industrial Center Electrical Infrastructure Replacement Project in the Amount of \$7,948,000, and a Total Estimated Project Cost of \$12,408,000. (CIP# C801241)**

Request document(s) included an agenda memorandum and presentation.

- 8f. Authorization for the Executive Director to Execute a New Collective Bargaining Agreement Between the Port of Seattle and the International Association of Firefighters, Local 1257, Representing Fire Alarm Technicians at the Port Fire Department Covering the Period from March 26, 2024, through December 31, 2024.**

Request document(s) included an agenda memorandum and attachment.

- 8g. Authorization for the Executive Director to Advertise and Execute a Public Works Building Engineering Systems Contract in the Amount of \$4,553,000 to Replace the Bell Street Garage Guardrail System in the Central Parking Garage, for a Total Requested Project Cost of \$4,853,000. (CIP# C801406).**

Request document(s) included an agenda memorandum and presentation.

The motion for approval of consent agenda items 8a, 8b, 8c, 8d, 8e, 8f, and 8g carried by the following vote:

Executive Director Metruck spoke regarding Item 8f, advising the agreement only covers work historically performed by the IAFF Alarm Technicians at SEA and the agreement is not intended to infringe on the work jurisdiction of any other bargaining units.

**In favor: Calkins, Cho, Felleman, Hasegawa, and Mohamed (5)
Opposed: (0)**

10. NEW BUSINESS

- 10a¹. Industrial Development Corporation Annual Meeting – Approval of Minutes, Designation of Officers, and Annual Report for 2023.**

Requested document(s) included a packet and minutes for approval.

Presenter(s):

Ian Burke, Senior Financial Analyst Corporate, Finance and Budget

¹ This is a separate annual special meeting of the Industrial Development Corporation.

Clerk Hart read Item 10a into the record.

Commission President Mohamed noted that the IDC is a separate financing entity and the Commission acts as Directors when holding the Annual Meeting of the IDC.

[Clerk's Note: At this time, the Commission meeting recessed, and the Industrial Development Corporation convened its annual meeting of 2024. Director Mohamed called the meeting to order at 12:46 p.m.]

Executive Director Metruck introduced the item and presenters.

APPROVAL OF MINUTES

The minutes of the March 28, 2023, Annual IDC Meeting were approved as presented, without objection.

DESIGNATION OF OFFICERS

Director Mohamed read the slate of 2024 Directors into the record.

A motion, made by Director Calkins, for approval of the slate of 2024 Industrial Development Corporation Directors, carried by the following vote:

In favor: Calkins, Cho, Felleman, Hasegawa, and Mohamed (5)

Opposed: (0)

The designated Directors for the IDC are as follows: Director Calkins, Director Cho, Director Felleman, Director Hasegawa, and Director Mohamed.

Ian Burke, Senior Financial Analyst, provided the annual report of the Industrial Development Corporation (IDC). The report addressed activity and status of the IDC in 2023.

[Clerk's Note: Director Mohamed adjourned the annual meeting of the IDC without objection and the regular business meeting of the Port of Seattle Commission reconvened at 12:53 p.m.]

10b. Authorization for the Executive Director to Authorize Final Design and Preparation of Construction Bid Documents; to Advertise, Award, and Execute a Major Public Works Construction Contract; to Procure Long Lead Material Items; to Include a Project Labor Agreement for the Contract; to Authorize Use of Port Crews for Abatement Work for the Taxiway A Circuit Replacement Project at Seattle-Tacoma International Airport in the Amount Requested of \$39,205,000 and a Total Estimated Project cost of \$39,500,000. (CIP# C801303).

Requested document(s) included an agenda memorandum and presentation.

Presenter(s):

Hien Mac, AV F&I Manager Engineer, AV Facilities and Infrastructure
Jacob Hamilton, Capital Project Manager III, AV Project Management Group

Clerk Hart read Item 10b into the record.

Executive Director Metruck introduced the item and presenters.

The presentation addressed:

- scope of the request;
- project background and details;
- project diagram; and
- schedule and budget.

Discussion ensued regarding showing enumerated savings with the lighting conversion and work performed against the requested budget.

The motion, made by Commissioner Cho, carried by the following vote:

In favor: Calkins, Cho, Felleman, Hasegawa, and Mohamed (5)

Opposed: (0)

10c. Authorization for the Executive Director to Authorize the Preparation of Construction Bid Documents; to Advertise, Award, and Execute a Major Public Works Construction Contract for the Food and Beverage Introductory Kiosk Project in the Amount of \$5,850,000, and a Total Estimated Project Cost of \$7,050,000. (CIP# C801111)

Requested document(s) included an agenda memorandum and presentation.

Presenter(s):

Erin Gora, Capital Project Manager V, AV Project Management Group
Khalia Moore, Senior Manager ADR, Airport Dining and Retail

Clerk Hart read Item 10c into the record.

Executive Director Metruck introduced the item and presenters.

The presentation addressed:

- history of the kiosk program;
- program successes;
- what a food and beverage introductory kiosk is;
- project scope;
- kiosk locations;
- financial implications;
- schedule; and
- the request to authorize preparation of construction bid documents and to advertise, award, and execute a major works construction contract for the kiosk project.

Discussion ensued regarding:

- timing on the opening of the request for proposals to tenants – 4th quarter 2024;
- lease terms of three years;

- transitioning people up from incubator businesses;
- benefits for the public in hearing about small business opportunities at SEA; and
- average cost of renting kiosks.

The motion, made by Commissioner Cho, carried by the following vote:

In favor: Calkins, Cho, Felleman, Hasegawa, and Mohamed (5)

Opposed: (0)

10d. Order No. 2024-05: An Order Establishing the Responsible Tourism Committee as a Port of Seattle Commission Special Committee.

Requested document(s) included an order.

Presenter(s):

Evan Ashe, Commission Strategic Advisor, Commission Office

Clerk Hart read Item 10d into the record.

Evan Ashe introduced the item and overviewed the scope of the Order.

Discussion ensued regarding providing an opportunity to be proactive with a pilot committee regarding tourism and possible establishing a permanent committee in the future.

Commissioners serving on the special committee will be Commissioner Felleman and Commissioner Mohamed. The special committee will create the opportunity for Commissioners to collaborate in the development of strategies, policies, and initiatives that prioritize environmental conservation, community engagement, and the promotion of responsible travel practices that will help ensure the Port of Seattle addresses its Century Agenda goals and commitments to local communities and environment.

The motion, made by Commissioner Felleman, carried by the following vote:

In favor: Calkins, Cho, Felleman, Hasegawa, and Mohamed (5)

Opposed: (0)

11. PRESENTATIONS AND STAFF REPORTS

11a. 2023 Financial Performance Briefing.

Presentation document(s) included an agenda memorandum, report and presentation.

Presenter(s):

Dan Thomas, Chief Financial Officer, Finance and Budget
Michael Tong, Director Corporate Budget, Finance and Budget
Kelly Zupan, Director SP Finance & Budget, Seaport Finance
Hiedi Popochock, Director, Aviation Finance and Budget

Clerk Hart read Item 11a into the record.

Executive Director Metruck introduced the item and presenters.

The presentation addressed:

- key highlights of the 2023 financial report;
- passenger growth rebounding in 2023;
- 2023 Aviation Division financial summary – operating expenses, aeronautical revenue, concession grant impact, non-aeronautical revenues, federal relief grant summary, debt service ratio better than budget, airport development fund balance, 2023 capital spending, and aviation 2024 capital spending forecast;
- 2023 Seaport key metrics;
- Seaport performance summary;
- Maritime Division and Economic Development Division 2024 capital spending forecast;
- Maritime Division financial highlights;
- Stormwater utility summary;
- Northwest Seaport Alliance summary;
- joint venture fourth quarter 2023 financials;
- Economic Development Division financial highlights;
- Central Services financial summary and business highlights and operating expenses;
- Portwide financial summary;
- 2019 – 2023 equity spending summary; and
- Portwide capital spending summary.

Discussion ensued regarding:

- how categories are named in the budget and in summary;
- reasons for increase in parking revenue;
- joint ventures not funded by the Northwest Seaport Alliance;
- showing real estate breakdown data more inclusively in the reporting;
- inflationary costs; and
- any changes anticipated to the 2024 projected budget.

11b. 2023 Annual Report for the Office of Equity, Diversity and Inclusion.

Presentation document(s) included an agenda memorandum, annual report, progress report and presentation.

Presenter(s):

Bookda Gheisar, Senior Director, Office of Equity, Diversity, and Inclusion
Tania Park, EDI System Change Program Manager, Office of Equity, Diversity, and Inclusion
Jay Doran, EDI Policy and Communications Manager, Office of Equity, Diversity, and Inclusion

Clerk Hart read Item 11b into the record.

Executive Director Metruck introduced the item and presenters.

The presentation addressed:

- theory of organizational change;

- recent milestones;
- 2023 progress and challenges;
- change team mission, structure, and impact;
- survey and assessment priorities;
- measuring transformation;
- belonging and inclusion survey;
- 'Women of Color' feedback;
- embedding equity;
- EDI goals and assessment progress;
- equity in budgeting;
- EDI trainings offered in 2023;
- required training completion data;
- external engagement; and
- 2024 priorities.

Discussion ensued regarding experiencing setbacks in the larger national context with respect to this body of work and leading the way as an organization nationally and regionally.

12. QUESTIONS on REFERRAL to COMMITTEE and CLOSING COMMENTS

Commissioner Calkins spoke regarding the framework for Port long-term planning for energy nodes and asked that the information be placed into the Friday memos to Commissioners and that the Commission is thinking about transforming the economy to a true clean and green economy.

Executive Director Metruck spoke regarding the recent bridge tragedy in Baltimore, stating that transportation gateways work to prevent hazards. He spoke regarding the events leading up to the bridge collision and the tragic loss of life.

Commissioner Mohamed recognized Wendy Reiter, Director of Aviation Security, for her efforts above and beyond the call of normal duty to recently assist families in crisis situations.

13. ADJOURNMENT

There was no further business and the meeting adjourned at 2:54 p.m.

Prepared:

Attest:

Michelle M. Hart, Commission Clerk

Ryan Calkins, Commission Secretary

Minutes approved: April 16, 2024

RETURN TO AGENDA



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8b

ACTION ITEM

Date of Meeting April 16, 2024

DATE: April 2, 2024
TO: Steve Metruck, Executive Director
FROM: Eloise Olivar, AFR Senior Manager Disbursements
SUBJECT: **Claims and Obligations – March 2024**

ACTION REQUESTED

Request Port Commission approval of the Port Auditor’s payment of the salaries and claims of the Port pursuant to RCW 42.24.180 for payments issued during the period March 01 through 31, 2024 as follows:

Payment Type	Payment Reference Start Number	Payment Reference End Number	Amount
Accounts Payable Checks	952591	952971	\$11,119,079.97
Accounts Payable ACH	064432	065244	\$56,369,853.99
Accounts Payable Wire Transfers	016268	016288	\$13,183,485.71
Payroll Checks	211567	212007	\$139,832.99
Payroll ACH	1184518	1191686	\$25,530,129.35
Total Payments			\$106,342,382.01

Pursuant to RCW 42.24.180, “the Port’s legislative body” (the Commission) is required to approve in a public meeting all payments of claims within one month of issuance.

OVERSIGHT

All these payments have been previously authorized either through direct Commission action or delegation of authority to the Executive Director and through his or her staff. Detailed information on Port expenditures is provided to the Commission through comprehensive budget presentations as well as the publicly released Budget Document, which provides an even greater level of detail. The Port’s operating and capital budget is approved by resolution in December for the coming fiscal year, and the Commission also approves the Salary and Benefit Resolution around the same time to authorize pay and benefit programs. Notwithstanding the Port’s budget approval, individual capital projects and contracts exceeding certain dollar thresholds are also subsequently brought before the Commission for specific authorization prior to commencement of the project or contract—if they are below the thresholds the Executive Director is delegated authority to approve them. Expenditures are monitored against budgets monthly by management and reported comprehensively to the Commission quarterly.

Meeting Date: April 16, 2024

Effective internal controls over all Port procurement, contracting and disbursements are also in place to ensure proper central oversight, delegation of authority, separation of duties, payment approval and documentation, and signed perjury statement certifications for all payments. Port disbursements are also regularly monitored against spending authorizations. All payment transactions and internal controls are subject to periodic Port internal audits and annual external audits conducted by both the State Auditor’s Office and the Port’s independent auditors.

For the month of March 2024, over \$80,672,419.67 in payments were made to nearly 618 vendors, comprised of 1,981 invoices and over 7,424 accounting expense transactions. About 91 percent of the accounts payable payments made in the month fall into the Construction, Employee Benefits, Payroll Taxes, Contracted Services, Janitorial Services, Utility Expenses, Trade Business & Community, Environmental Remediation, Election Expenses and Sales Taxes. Net payroll expense for the month of March was \$25,669,962.34.

Top 10 Payment Category Summary:

Category	Payment Amount
Construction	35,198,398.76
Employee Benefits	10,813,875.78
Payroll Taxes	6,576,054.32
Contracted Services	5,902,973.85
Janitorial Services	4,131,506.78
Utility Expenses	3,071,019.49
Trade Business & Community	2,629,576.19
Environmental Remediation	1,809,586.19
Election Expenses	1,608,797.27
Sales Taxes	1,600,401.55
Other Categories Total:	7,330,229.49
Net Payroll	25,669,962.34
Total Payments	106,342,382.01

Meeting Date: April 16, 2024

Appropriate and effective internal controls are in place to ensure that the above obligations were processed in accordance with Port of Seattle procurement/payment policies and delegation of authority.



Lisa Lam/Port Auditor

At a meeting of the Port Commission held on April 16, 2024, it is hereby moved that, pursuant to RCW 42.24.180, the Port Commission approves the Port Auditor’s payment of the above salaries and claims of the Port:

Port Commission

RETURN TO AGENDA



**COMMISSION
AGENDA MEMORANDUM
FOR INFORMATION ONLY**

Item No. 8c
Date of Meeting April 16, 2024

DATE: April 16, 2024
TO: Stephen P. Metruck, Executive Director
FROM: Karen R. Goon, Deputy Executive Director

SUBJECT: Monthly Notification of Prior Executive Director Delegation Actions March 2024

APPROVAL SUMMARY

Notification of the following Executive Director delegated approvals that occurred in March, 2024

Category of Approval	Request#	Description of Approvals March 2024	Category Amount
Projects & Associated Contracts		No Approvals in March	
Non-Project Procurement of Goods & Purchased Service Contracts, Other Contracts, & Tenant Reimbursement	1127-2024	Adobe Software Three Year Contract	\$600,000.00
Real Property Agreements		No Approvals in March	
Utilization of Port Crews		No Approvals in March	
Sale of Surplus Port Property	N/A	No Approvals in March	
Total Value of Executive Director Approvals			\$600,000.00

TRANSPARENCY:

In approving the delegations for the Executive Director, the Commission requested that staff ensure transparency is built into the process. As a result, staff will make approvals visible to the public in two ways. First, these types of approvals will be made visible in public Commission meetings via monthly reporting like this one. Approvals are both timed and designed to be visible

Meeting Date: April 16, 2024

in a similar manner to the monthly Claims and Obligations reporting. Second, staff will publish these delegations in a PeopleSoft formatted report on the Port website in the same manner that all procurements, contracts, and other opportunities are made available to public communities.

BACKGROUND:

On January 24, 2023, the Commission approved and adopted Resolution No. 3810 that repealed related prior resolutions and increased the previously delegated Commission authority to the Executive Director and provided clarity in process directives to port staff. The approval made the Delegation of Responsibility and Authority to the Executive Director (DORA) effective on April 3, 2023.

The foundation for Resolution No. 3810 included significant data analysis, employee surveys, and internal audit recommendation. Resolution No. 3810 also aligns with the Port Century Agenda in that it helps make the Port a more effective public agency. Considerations and checks and balances have been built into the associated processes of Executive Director approvals including a high bar of transparency.

Following significant analysis and multiple Commission reviews, the Commission approved the DORA on January 24, 2023. That reporting memo is available for review on the Port website under the January 24, 2023, Commission public meeting, and it provides detailed reasoning and explanation of Resolution No. 3810.

RETURN TO AGENDA



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8d

ACTION ITEM

Date of Meeting April 16, 2024

DATE: April 2, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Keri Stephens, Director, Aviation Facilities and Capital Programs
Eileen Francisco, Director, Aviation Project Management

SUBJECT: Airport Terminal Solid Waste Project (CIP #800945)

Amount of this request: \$4,500,000
Total estimated project cost: \$19,180,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to: (1) increase the project scope and associated budget for the Airport Terminal Solid Waste project in the amount of \$4,500,000; (2) advertise, bid, and execute a major works construction contract, execute related project change orders, amendments, work authorizations, purchases, contracts, and take other actions necessary to support and deliver the Airport Terminal Solid Waste Project; and (3) authorize the use of Port of Seattle crews to support the design and construction activities. Total authorization is \$19,180,000.

EXECUTIVE SUMMARY

Solid Waste throughput and capacity are essential for Airport operations, passenger comfort, worker safety, and overall sanitation. The Airport’s Terminal Solid Waste project addresses current shortfalls and expands capacity to meet future demands of trash, recycling, and composting waste streams. In addition, the project installs sanitation stations at waste collection areas across the Airport to address regulatory findings. This project directly supports the Airport’s Environmental Landfill Diversion Strategy. The project is currently in construction.

This request is for additional funding to lower the roofline of the North Solid Waste Building which will enhance the Central Terminal experience and strengthen tenant relationships. The Central Terminal Window Wall is the gathering space where passengers eat, relax, and enjoy the views of the airfield and the Olympic Mountains. The Terminal Solid Waste North Building conflicts with the view from our northern Airport Dining and Retail tenants. Though vetted in design, communication of this new building was not thoroughly presented to the tenants. This request rectifies that situation by lowering the height of the North Solid Waste addition and provides the Airport the opportunity to install and test a green roof system. The green roof system provides multiple advantages to the airport including reducing solar gain through to the iconic window wall and provides a secondary stormwater benefit.

Meeting Date: April 16, 2024

The current project budget is \$14,680,000. The new budget estimate is \$19,180,000, an increase of \$4,500,000. This budget increase includes design changes, change order costs, unforeseen cost additions and associated soft costs necessary to accommodate the project.

JUSTIFICATION

The Central Terminal core solid waste refuse collection and processing areas were constructed in 2003. The space provided two-stream operations for garbage and recycling only. Composting operations began in 2006 and are handled by movable bins. The limited space in the current facility limits the ability for operational solutions to manage solid waste levels, which results in overflow of solid waste and unsanitary conditions. Overflowing waste is often blown onto the ramp creating foreign object debris, a serious safety hazard to aircraft engines. Additionally, when solid waste compactors are full, tenants are more likely to incorrectly throw waste in other containers, contaminating them and eliminating their ability to be properly recycled. This project will build the required additional space and infrastructure to meet future demands for solid waste, including recycling and composting, while remaining compliant with federal code and sanitation guidelines.

The reduction in height of the terminal solid waste roof ensures the airfield views from the public area and restaurants in the Central Terminal remain clear but will introduce the view of a nondescript roof membrane. The relatively small footprint of exposed roof provides a great opportunity to pilot an extensive green roof system at SEA. Multiple airports around the world have introduced green roofs both for their building performance and aesthetic features. Extensive green roofs are shallow and require minimal maintenance, extend the lifecycle of the roof membrane, provide secondary stormwater benefits, and add a biophilic element that ties back to the Northwest Sense of Place. The roof will be easy to access from the Central Terminal for maintenance and cameras will be installed to allow Wildlife department to track and remove any potential gull nests.

This project directly supports the Port's Century Agenda goal to be the greenest and most energy efficient Port in North America by expanding compost and recycling capacity, which enables the airport to meet its solid waste diversion goals. The Airport's composting and food donation programs help fight climate change by reducing greenhouse gas emissions associated with food waste. Project improvements will help ensure the Airport can properly manage increasing amounts of food waste and compostable packaging sorted by our passengers and tenants so it can be sent to local composting facilities. In addition to supporting the Port's 60% waste diversion goal, upgrading the Airport's compost capacity helps our facilities support Washington State and National Environmental Protection Agency food waste reduction goals (50% reduction by 2030). New, high-capacity compactors and access-control and monitoring systems in this project will improve operational efficiency while reducing cross-contamination of waste streams and improving measuring and monitoring of waste data.

Meeting Date: April 16, 2024

Diversity in Contracting

For the design phase, the consultant committed to a 20% Woman and Minority Business Enterprise (WMBE) utilization and is currently achieving 34.6%. The construction phase of the project has a WMBE aspirational goal of 12%, the construction contractor committed to a 13% WMBE utilization rate and is currently achieving 14%.

DETAILS

The Terminal Solid Waste project is essential work to right-size the facility infrastructure to accommodate the growth in the Airport and subsequent increase in solid waste volumes. The project accommodates passenger and terminal growth through 2036, aligns with Century Agenda and Environmental diversion goals and satisfies numerous regulatory requirements.

Scope of Work

This request lowers the roof line of the North Solid Waste Central Terminal Addition to improve views within the terminal. In addition, it takes advantage of the new roof to install a pilot green roof system.

Schedule

Activity

Design	2024 Quarter 2
Construction Re-Start	2024 Quarter 4
In-use date	2025 Quarter 2

Cost Breakdown

	This Request	Total Project
Total	\$4,500,000	\$19,180,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Leave the project scope as is and fund an additional \$450,000 to cover unforeseen conditions found during construction.

Cost Implications: \$15,130,000

Pros:

- (1) Completes construction.

Cons:

- (1) Customer experience in Central Terminal Window Wall area degraded.

This is not the recommended alternative.

Meeting Date: April 16, 2024

Alternative 2 – Enhance the Central Terminal Window Wall views to include lowering the North building roof and inclusion of a pilot green roof. \$450,000 is included for previously encountered unforeseen conditions.

Cost Implications: \$19,180,000

Pros:

- (1) Improved Customer experience
- (2) Green Roof Pilot opportunity with secondary storm water benefits
- (3) Tenant / Airport Dining and Retail Relationship

Cons:

- (1) Cost increase

This is the recommended alternative.

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$6,200,000	\$200,000	\$6,400,000
Previous changes – net	\$8,280,000	\$0	\$8,280,000
Current change	\$4,500,000	\$0	\$0
Revised estimate	\$18,980,000	\$200,000	\$19,180,000
AUTHORIZATION			
Previous authorizations	\$14,480,000	\$200,000	\$14,680,000
Current request for authorization	\$4,500,000	\$0	\$4,500,000
Total authorizations, including this request	\$18,980,000	\$200,000	\$19,180,000
Remaining amount to be authorized	\$0	\$0	\$0

Annual Budget Status and Source of Funds

This project, CIP C800945, was included in the 2023-2028 capital budget and plan of finance with a budget of \$14,480,000. A budget increase of \$4,500,000 was transferred from the Aeronautical Reserve CIP (C800753) resulting in zero net change to the Aviation capital budget. The funding source will be the Airport Development Fund (ADF), existing revenue bonds and future revenue bonds. The project received Majority in Interest (MII) approval on January 9, 2023. The budget increase will trigger the MII provision. Port Management elected the use of Signatory Lease Agreement (SLOA) MII Management Reserve. This provision with SLOA allows the Port to proceed with previously approved projects when there are budget increases without another MII vote.

Meeting Date: April 16, 2024

Financial Analysis and Summary

Project cost for analysis	
Business Unit (BU)	Terminal Building
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase due to inclusion of capital (and operating) costs in airline rate base
IRR/NPV (if relevant)	N/A
CPE Impact	\$0.05 in 2026

Future Revenues and Expenses (Total cost of ownership)

The recommended solution is expected to yield a 10-year cost avoidance of \$9,600,000 to the solid waste program. Avoidance is based on reduced tipping fees and costs to mitigate waste overages. Additional green roof and compactor equipment operations and maintenance costs will be \$90,000 annually.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

January 10, 2023 – The Commission authorized the award of an irregular bid. At that time the total Cost of the project was \$14,680,000.

April 12, 2022 – The Commission authorized the Executive Director advertise and award a major public works contract. At that time the total estimated project Cost was \$12,576,000.

April 14, 2020 – The Commission authorized the Executive Director to advertise and execute a project specific design contract. Staff anticipated a project cost increase.

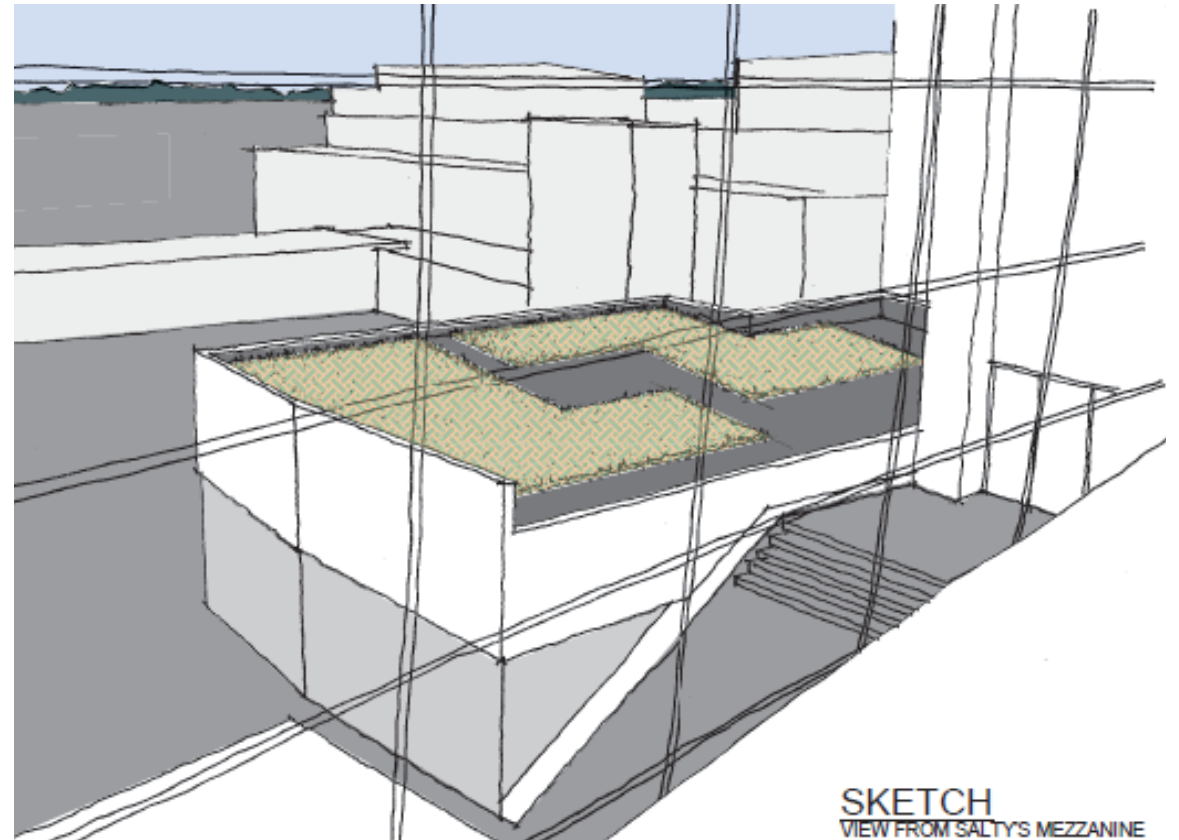
October 8, 2019 – The Commission authorized the Executive Director to design and prepare construction documents for Terminals Solid Waste Project. At that time the total estimated project cost was \$6,400,000.

Airport Terminal Solid Waste Project

Commission Meeting
April 16, 2024

Central Terminal North Building

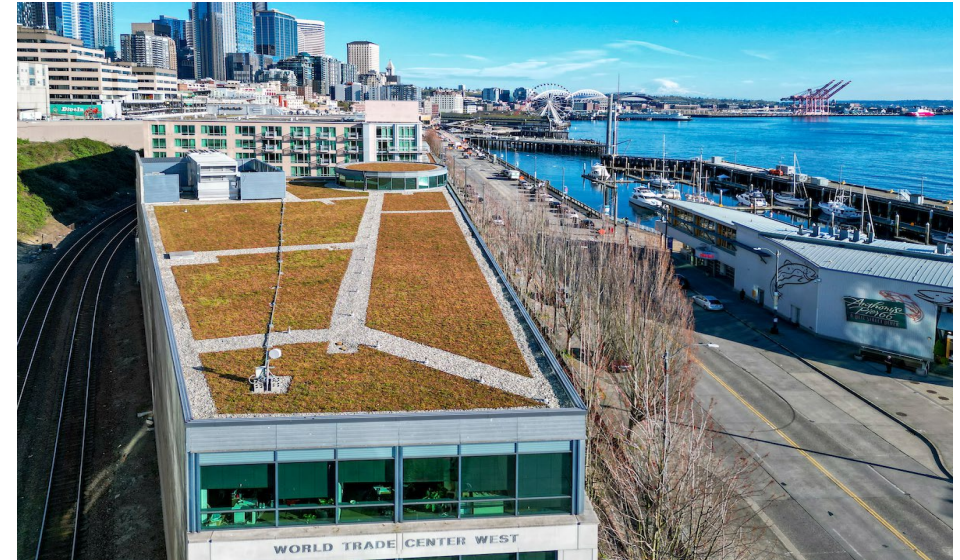
- Request addresses tenant view conflicts at the Central Terminal Wall.
- Scope includes lowering the North building by over 7 feet and the addition of a Green Roof.



Advantages of Green Roofs in this Application

- Added sense of nature to hardscape
- Reduced solar gain at Window Wall
- Secondary stormwater benefits

Green Roof Installed at the Port-owned World Trade Center on Alaskan Way



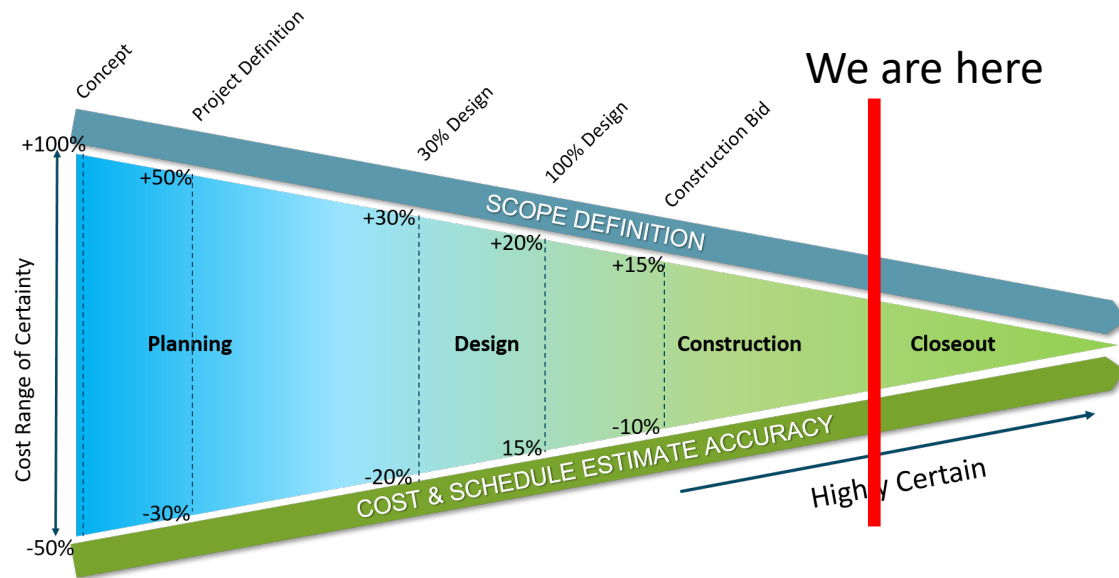
Project Cost and Schedule

Cost Breakdown

This Request

Total Project

Total	\$4,500,000	\$19,180,000
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Schedule

Construction Re-Start: Q4 2024

Project in Use: Q2 2025

Action Requested

- (1) Increase the project scope and associated budget for the Terminal Solid Waste project in the amount of \$4,500,000.
- (2) Advertise, bid, and execute a major works construction contract, execute related project change orders, amendments, work authorizations, purchases, contracts, and take other actions necessary to support and deliver the Airport Terminal Solid Waste Project.
- (3) Use Port crews for construction support.

Total project authorization of \$19,180,000.

[RETURN TO AGENDA](#)



COMMISSION

AGENDA MEMORANDUM

Item No.

8e

ACTION ITEM

Date of Meeting

April 16, 2024

DATE: April 8, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Karin Zaugg Black, International Business Protocol Liaison
LeeAnne Schirato, Commission Deputy Chief of Staff
Aaron Pritchard, Commission Chief of Staff

SUBJECT: Approval of Commission International Travel – Second Quarter 2024 Requests.

ACTION REQUESTED

Commission approval of international travel requests for known travel in the second quarter of 2024.

EXECUTIVE SUMMARY

Article III(5)(h) of the Commission’s Bylaws and Rules of Procedure requires approval of Commissioner international travel requests by Commission authorization. The authorization shall include: the number of commissioners traveling (if applicable), the port-related reason for travel, and the dates and destination of travel. International travel requests shall be submitted to the Commission Office 21 days in advance of each calendar quarter. Travel change requests for previously approved international travel shall again be put before the full Commission for review and action. Commissioners not receiving advanced travel authorization for international travel shall report to the Commission regarding the purpose of their travel, dates of travel, location of travel, benefit received by the Port through the travel, and shall seek majority approval of the post-travel authorization in order to submit claims for travel expense reimbursement. Travel requests of Commissioners should be equitable to all members and consistent with the interests of the Port. Domestic travel requests are approved by the Commission President consistent with the requirements of Article III(5)(h).

The following are known travel requests for approval as of this authorization date:

Meeting Date: April 16, 2024

Travel Dates	No. of Attendees	Reason for Travel	Destination	Other Information
April 13 - 20	1	Seattle Metro Chamber and Greater Seattle Partners’ Regional International Leadership Mission to South Korea	Seoul, Daejeon, and Busan, South Korea	This International Leadership Mission of regional leaders from Snohomish, King, and Pierce counties will study insights and best practices from Seoul, Busan, and Daejeon, focusing on key sectors such as Aerospace, Bio/Life Sciences, Clean Tech, Education, and Maritime. The trip includes a visit to Port of Seattle’s sister port of Busan, South Korea, with a chance for Commissioner Sam Cho to showcase our sister port’s activities to this regional group of leaders, and further engage our port partners.
April 20 - 24	1	Coast Salish Story Pole Dedication in Kobe, Japan	Port of Kobe, Japan	Port of Seattle, City of Seattle, Lummi Nation, Puyallup Tribe, and Seattle-Kobe Sister City Association mission to Kobe to dedicate a new Coast Salish Story Pole gift to the City/Port of Kobe. The original Story Pole carved by Lummi Nation carver Joseph Hillaire stood by Kobe City Hall from 1961-2015, and this new Story Pole carved by Puyallup Tribe carver Shaun Peterson will stand in the park near Kobe City Hall, marking 67 years of sister city, 57 years of sister port relations with Kobe. Commissioner Cho will also meet with Port of Kobe leaders during the visit.
April 20 - 26	1	Global Sustainable Tourism Council	Stockholm, Sweden	The Global Sustainable Tourism Council Conference aims to unite global and local tourism professionals engaged in advancing and advocating for sustainable travel and tourism. This includes participants from the public sector, hotels, tour operators, corporates, online travel agencies,

Meeting Date: April 16, 2024

				academic institutions, development organizations, non-governmental organizations, consultants, and a variety of other stakeholders. Commissioner Felleman will attend the conference to network and gather best practices that will help enhance the Port’s tourism work, related to our cruise business, airport, and overall sustainable tourism.
May 21-24	1	United Nations Conference for Trade and Development (UNCTAD) Global Supply Chain Forum	Barbados	United Nations Conference for Trade & Development (UNCTAD) and Government of Barbados’ Global Supply Chain Forum focusing on transportation, logistics, resilient supply chains, and trade facilitation for sustainable development. Commissioner Cho has been invited to speak on a panel hosted by the International Association of Ports & Harbors (IAPH) focused on energy transition.

ATTACHMENTS TO THIS REQUEST

None.

RETURN TO AGENDA



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8f

ACTION ITEM

Date of Meeting April 16, 2024

DATE: April 9, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Eileen Francisco, Director, Aviation Project Management
Keri Stephens, Director, Aviation Facilities and Capital Programs

SUBJECT: Water Reservoir Rehabilitation (C801172)

Amount of this request: \$2,019,000

Total estimated project cost: \$3,169,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to 1) advertise, award, and execute a major works construction contract to rehabilitate and provide improvements to the 2-million-gallon water reservoir at the Port of Seattle, and 2) execute related project change orders, amendments, work authorizations, purchases, contracts, and take other actions necessary to support and deliver the Water Reservoir Rehabilitation project within the approved budget, (3) authorize use of Port of Seattle crews to support the design and construction activities. The amount of this request is \$2,019,000 for a total estimated project cost of \$3,169,000.

EXECUTIVE SUMMARY

The 2-million-gallon water reservoir at Seattle-Tacoma International Airport is an above ground steel tank that provides water storage for domestic use and fire suppression to the entire airport. The September 2021 inspection indicated that severe corrosion has appeared in many areas on the reservoir and, if not addressed, could result in deformation of the structure. Additionally, the presence of rust also puts the water quality into jeopardy. This project will rehabilitate the structure to extend its useful life.

JUSTIFICATION

The Department of Health requires that water reservoirs be kept in good operating condition. The reservoir was built in the year 2000 as a requirement under the National Fire Protection Association 24 code, ensuring the airport has reliable water on hand (in a tank) to fight any fire on the airport. Without the rehabilitation efforts the reservoir is at risk of potential structural failure and water quality degradation.

Diversity in Contracting

Meeting Date: April 16, 2024

This project has established a WMBE aspirational goal of 7%.

DETAILS

The water reservoir is located north of the airport off Host Road. The reservoir has a 2 million gallon capacity for fire suppression and domestic water. It is generally recommended that water reservoirs of this type be inspected and cleaned every 3 to 5 years. Previous inspections include a 2013 dive inspection, 2017 cathodic protection survey, and 2018 dive inspection. The most recent inspections include a 2021 dive inspection, cathodic protection inspection, and 2022 exterior coating test.

The Department of Health requires that water reservoirs be kept in good, operating condition.

During construction, the airport’s water source will be switched over from the reservoir to Seattle Public Utilities. Coordination and planning efforts with Aviation Maintenance, Boiler, and the Fire Department are underway for this event, as well as giving contractors access to the tank during construction.

The project scope requires that the water reservoir be drained completely. Due to environmental restrictions, the water cannot be drained directly into the sewer. Therefore, storage tanks will be brought onto the site to hold the water during construction.

Scope of Work

The project scope seeks to rehabilitate the structure and extend the asset’s useful life by 20 years by implementing the following improvements:

- (1) Complete replacement of interior coatings
- (2) Partial replacement of exterior coatings
- (3) Column base plate modifications
- (4) Cathodic protection system improvements
- (5) Rebuild interior and exterior access ladders to meet safety codes
- (6) Installation of davit post sleeve on tank roof
- (7) Replace weathered tank hardware including nuts, bolts, cables, and pulleys
- (8) Install tank sampling ports
- (9) Valve vault improvements and repairs
- (10) Installation of sump pump in valve vault

Meeting Date: April 16, 2024

Schedule

Activity

Construction start	2024 Quarter 3
In-use date	2025 Quarter 2

Cost Breakdown

	This Request	Total Project
Design	\$0	\$1,150,000
Construction	\$2,019,000	\$2,019,000
Total	\$2,019,000	\$3,169,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Do not proceed with construction.

Cost Implications: Project team would need to expense \$531,472 cost to date.

Pros:

- (1) Don't need to switch water sources
- (2) No further cost incurred.

Cons:

- (1) Will not be in compliance with Washington State Department of Health
- (2) Reduced usable life of the structure
- (3) Presents health and safety hazard to the public

This is not the recommended alternative.

Alternative 2 – Proceed with the full scope of the Water Reservoir Rehabilitation project.

Cost Implications: \$3,169,000

Pros:

- (1) Eliminates risk of the tank's structural integrity becoming compromised.
- (2) Eliminates risk of jeopardizing water quality.
- (3) Some of the additional scope items require the tank be empty. Including them in this project eliminates the need to drain the tank a second time, saving both time and money.
- (4) Including the additional scope items will fulfill requirements set by the Washington Administrative Code regarding storage requirements and sampling ports for water quality monitoring.

Cons:

- (1) Incur additional capital cost.

This is the recommended alternative.

Meeting Date: April 16, 2024

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate – Status 2 Budget	\$1,572,000	\$0	\$1,572,000
Previous changes – 5/24/22 Design Auth	\$1,571,000	\$26,000	\$1,597,000
Current change	\$0	\$0	\$0
Current estimate	\$3,143,000	\$26,000	\$3,169,000
AUTHORIZATION			
Previous authorizations	\$1,124,000	\$26,000	\$1,150,000
Current request for authorization	\$2,019,000	\$0	\$2,019,000
Total authorization, including this request	\$3,143,000	\$26,000	\$3,169,000
Remaining amount to be authorized	\$0	\$0	\$0

Annual Budget Status and Source of Funds

The Water Reservoir Rehabilitation (C801172) is included in the 2024-2028 capital budget and plan of finance with a budget of \$3,143,000. The funding source would be Airport Development Fund.

Financial Analysis and Summary

Project cost for analysis	\$3,169,000
Business Unit (BU)	AV Division wide
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase due to inclusion of capital (and operating) costs in airline rate base.
IRR/NPV (if relevant)	N/A
CPE Impact	\$0.01 in 2026

Future Revenues and Expenses (Total cost of ownership)

Not applicable.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

May 24, 2022 – The Commission authorized the Executive Director to design and prepare construction documents for the Water Reservoir Rehabilitation project in the amount of \$1,000,000.

Water Reservoir Rehabilitation

Commission Presentation

April 16, 2024

Project Location & Justification



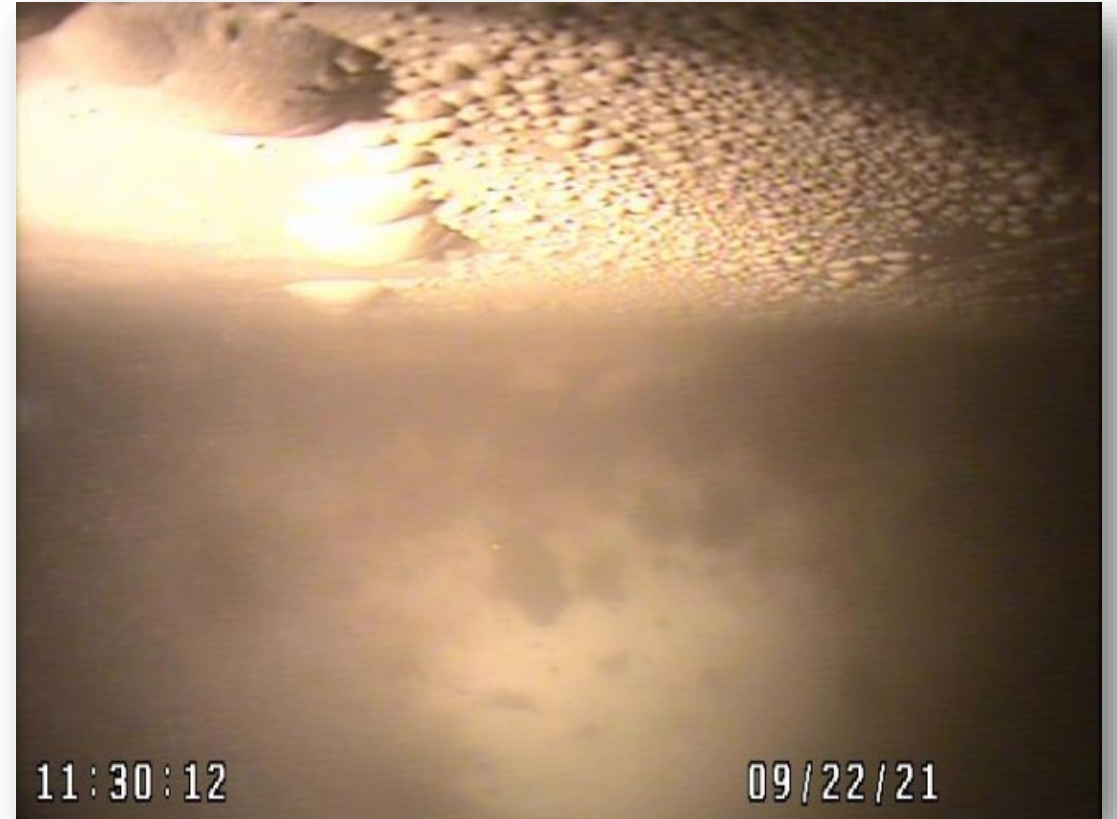
Project Scope

- Complete replacement of interior coatings
- Partial replacement of exterior coatings
- Column base plate modifications
- Cathodic protection system improvements
- Rebuild interior and exterior access ladders to meet safety codes
- Installation of davit post sleeve on tank roof
- Replace weathered tank hardware including nuts, bolts, cables, and pulleys
- Install tank sampling ports
- Valve vault improvements and repairs
- Installation of sump pump in valve vault

Existing Conditions



Significant rust on interior tank surfaces



Bubbling/failing of interior coating

Existing Conditions



Significant rust on interior tank surfaces

Existing Conditions



Cap Vent
Moderate rust needs removal



Telemetry boxes
Deteriorated coating

Existing Conditions



Access Manway

Rusted nuts & bolts need replacement



Outlet Pipe

Deteriorating coating, rusted nuts & bolts

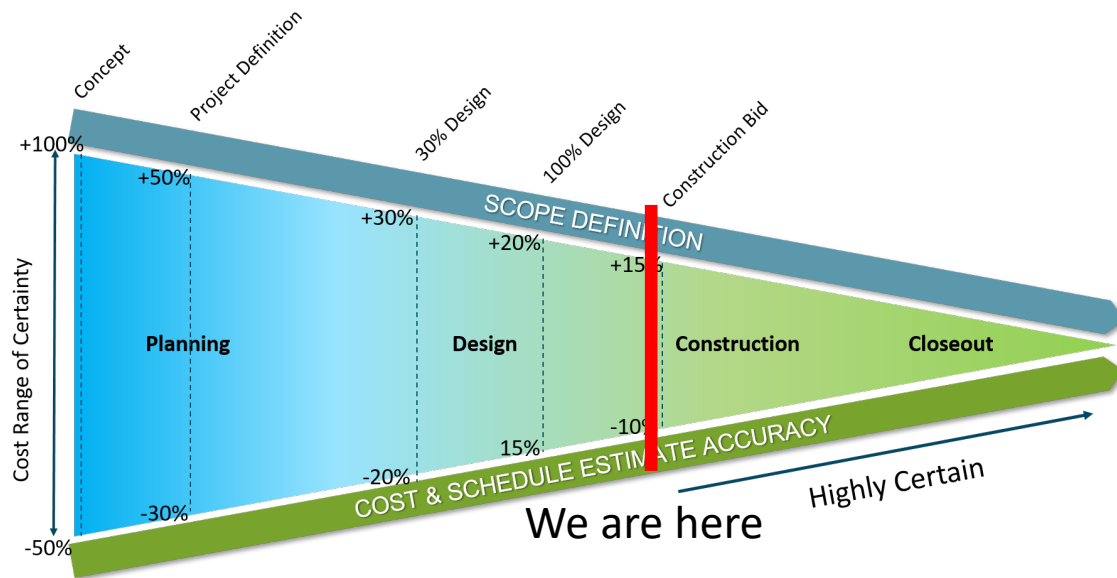
Project Cost and Schedule

Cost Breakdown

This Request

Total Project

Design Phase	\$0	\$1,150,000
Construction Phase	\$2,019,000	\$2,019,000
Total Project	\$2,019,000	\$3,169,000



Schedule

Construction Start: Q3, 2024

Project in Use: Q3 2025

[RETURN TO AGENDA](#)



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8g

ACTION ITEM

Date of Meeting April 16, 2024

DATE: April 9, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Jennifer Maietta, Director of Real Estate Asset Management
Julie Yun, Capital Project Manager

SUBJECT: Fishermen’s Terminal ADA Compliance Phase 2 – Additional Funding and Construction Authorization (C801198)

Amount of this request: \$1,100,000
Total estimated project cost: \$2,890,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to: 1. Approve additional funding, and 2. Advertise and execute a major public works construction contract for the completion of the U00721 Fishermen’s Terminal ADA Compliance Phase 2 project (CIP# C801198). This request is in the amount of \$1,100,000 for a total project authorization of \$2,890,000.

EXECUTIVE SUMMARY

The Port of Seattle entered into a settlement agreement on October 5, 2020, to address alleged Americans with Disabilities Act (ADA) related deficiencies at the Fishermen’s Terminal (FT) parking lot area south of the Fishermen’s Center Building. The required non-structural alteration improvements (relating to the number of accessible spaces and routes, and the height and visibility of signage) were completed within 120-days of the effective agreement date by Marine Maintenance through 2020 expense funds.

The additional required structural alterations such as regrading, filling, demolition, reconstruction, and other significant remediation to address remaining ADA-related issues were completed in January 2023 by Port Construction Services (PCS). The post-construction survey performed by University of Washington Accessible Design and Innovative Inclusion (ADII) revealed areas that remain out of compliance with 2010 ADA Standards for accessible design that will require re-work (Phase 2).

This request will allow staff to complete this re-work scope through the Phase 2 FT ADA Compliance project and fully deliver on Port commitments per the litigation settlement agreement.

Meeting Date: April 16, 2024

JUSTIFICATION

This project is driven by the litigation settlement agreement that commits the Port of Seattle to deliver improvements at Fishermen’s Terminal to comply with 2010 ADA design standards. Port Construction Services (PCS) executed construction of these improvements in the original Phase 1 FT ADA Compliance project in 2023. To demonstrate ADA compliance of the Phase 1 work, a post-construction survey was performed by University of Washington ADII. This survey showed the cross slopes and running slopes for some ramps, sidewalks, and parking areas to be out of compliance with the 2010 ADA design standards. Phase 2 of the FT ADA Compliance project will address the re-work of these areas that remain out of compliance from the original (Phase 1) project scope.

Forward progress with Phase 2 re-work is currently paused until additional funds are available and construction authorization is approved. Reason(s) for this request are as follows:

1. **Tenant Impact:** Minimize tenant impact through outreach and construction phasing.
2. **Funding:** Construction and post-construction survey of Phase 1 was completed in 2023. As such, current funding authorization for the original project scope has been exhausted.
3. **Compliance:** Phase 1 construction performed by Port Construction Services did not meet full ADA compliance requirements per the project design. Phase 2 re-work will be required to meet full ADA compliance.
4. **Litigation:** The conditions of the Litigation Settlement Agreement have not been met, as Phase 1 construction did not meet full ADA compliance per project design.

To mitigate risk and ensure successful Phase 2 execution, the project team will incorporate changes to the original Phase 1 construction as follows:

1. **Cost Controls:** The construction resource will be procured via Major Public Works Construction contract, thereby establishing contractual accountability and cost control mitigation against potential re-work needs.
2. **ADA Assistance:** Engagement of the new Port Facilities Access Program Manager for review and guidance through the duration of the project.
3. **Tenant Impact Mitigation:**
 - a. External relations outreach and coordination.
 - b. Additional tenant-specific communication by on-site Real Estate and Maritime Operations staff.
 - c. Construction contract terms to include access and phasing accommodation.
 - d. Timing of work to commence October 2024 after busy season.
 - e. Internal coordination to limit conflict with other projects occurring at Fishermen’s Terminal.

Meeting Date: April 16, 2024

Diversity in Contracting

Design development was performed through the Port’s Infrastructure Indefinite Delivery Indefinite Quantity (IDIQ) consultant contract. The WMBE goal for this contract was set at 18% and the current diversity in contracting utilization for the Service Directive is at 86%.

The project team will be in collaboration with the Diversity in Contracting Department to establish a Women and Minority-owned Business Enterprise (WMBE) aspirational goal for the Major Construction contract.

DETAILS

Scope of Work

Scope of work under this project are:

- (1) Conduct project outreach and develop construction phasing to minimize tenant impact.
- (2) Develop bid documentation to advertise and execute a major public works construction contract.
- (3) Construction execution. Planned work includes sidewalk and roadway demolition, reconstruction, pavement overlays, pavement markings, signage installation, and landscaping.

Schedule

Activity

Commission design authorization	2021 Quarter 2 (complete)
Commission construction authorization	2022 Quarter 1 (complete)
Commission authorization for additional funds #1	2022 Quarter 4 (complete)
Phase 1 Substantial Completion	2023 Quarter 1 (complete)
Commission request for additional funding and construction authorization	2024 Quarter 2
Construction start	2024 Quarter 3
In-use date	2024 Quarter 4

Cost Breakdown

	This Request	Total Project
Design	\$50,000	\$350,000
Construction	\$1,050,000	\$2,540,000
Total	\$1,100,000	\$2,890,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Delayed/No Action.

Cost Implications: Potential reduced costs for avoided work but potential for increased costs related to enforcement of Settlement Agreement.

Meeting Date: April 16, 2024

Pros:

- (1) Preserve Port capital funding and resources for other priority projects and financial initiatives.

Cons:

- (1) Would not comply with the Port’s settlement agreement to address ADA concerns.
- (2) Could potentially increase safety risk to customers and visitors.

This is not the recommended alternative.

Alternative 2 – Release additional funding and proceed with construction utilizing Port Construction Services.

Cost Implications: Requires allocation of \$1,550,000 in the Capital Plan

Pros:

- (1) Complete Phase 2 construction and comply with the Port’s agreement to address ADA concerns.

Cons:

- (1) Limited temporary construction impacts.
- (2) Potential resource constraint to meet target timeframe.
- (3) Potential for escalating project cost in the case of future re-work.

This is not the recommended alternative.

Alternative 3 – Release additional funding and proceed with construction utilizing major public works construction contract.

Cost Implications: Requires allocation of \$1,100,000 in the Capital Plan

Pros:

- (1) Complete Phase 2 construction and comply with the Port’s agreement to address ADA concerns.
- (2) Contractual accountability for full execution of design at fixed lump sum cost.

Cons:

- (1) Limited temporary construction impacts.

This is the recommended alternative.

Meeting Date: April 16, 2024

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$1,500,000	\$30,000	\$1,530,000
Previous changes – net	\$250,000	\$10,000	\$260,000
Current change	\$1,100,000	0	\$1,100,000
Revised estimate	\$2,850,000	\$40,000	\$2,890,000
AUTHORIZATION			
Previous authorizations	\$1,750,000	\$40,000	\$1,790,000
Current request for authorization	\$1,100,000	0	\$1,100,000
Total authorizations, including this request	\$2,850,000	\$40,000	\$2,890,000
Remaining amount to be authorized	\$0	\$0	\$0

Annual Budget Status and Source of Funds

This project has been included in the 2024 Plan of Finance under C801198 FT ADA Compliance with a total cost of \$1,750,000. The additional cost will be covered by C80002 Maritime Division Reserve.

This project is funded by the Tax Levy.

Financial Analysis and Summary

Project cost for analysis	\$2,890,000
Business Unit (BU)	Maritime Portfolio Management
Effect on business performance (NOI after depreciation)	Annual depreciation will increase by approximately \$114K based on an estimated 25-year service life, thereby reducing the NOI by the same amount.
IRR/NPV (if relevant)	No incremental revenue. The NPV is the present value of the project cost.

Future Revenues and Expenses (Total cost of ownership)

N/A

ADDITIONAL BACKGROUND

None.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

Meeting Date: April 16, 2024

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

November 29, 2022 - The Commission authorized for the Executive Director to acquire additional funding for the construction of the Fishermen’s Terminal ADA Compliance project in the amount of \$600,000.

March 22, 2022 – The Commission authorized for the Executive Director to proceed with the Construction of the Fishermen’s Terminal ADA Compliance Project in the amount of \$850,000.

April 13, 2021 - The Commission authorized for the Executive Director to proceed with the design development and permitting phase of the Fishermen’s Terminal ADA Compliance in the amount of \$215,000.

September 22, 2020 – The Commission authorized Settlement Agreement for Accessibility Improvements at Fishermen’s Terminal in the amount of \$1,530,000.

Fishermen's Terminal ADA Compliance Phase 2: Additional Funding and Construction Authorization Request

Commission Meeting | April 16, 2024

Jennifer Maietta – Director, Real Estate Asset Management

Julie Yun – Waterfront Capital Project Manager

Action Requested

Request Commission Authorization from the Executive Director to:

- ➔ Request Commission authorization for the Executive Director to 1. Approve additional funding, and 2. Advertise and execute a major public works construction contract for the completion of the U00721 Fishermen's Terminal ADA Compliance Phase 2 Project (CIP# C801198). This request is in the amount of \$1,100,000 for a total estimated project cost of \$2,890,000.

Project Background

- **Litigation Settlement Agreement (10/5/2020):**
 - Port committed to address alleged Americans with Disabilities Act (ADA) code violations within the Fishermen’s Terminal parking areas by 10/5/2022.
- **Phase 1 FT ADA Compliance (C801198/U00658)**
 - Construction completed by Port Construction Services (PCS): 1/8/2023
 - Third-party post-construction survey reported remaining areas out of compliance with 2010 ADA design standards (e.g., ramps were too short and steep).
- **Phase 2 FT ADA Compliance (C801198/U00721):**
 - Scope: Correct ramps, sidewalks and parking areas that are out of compliance (demolition, regrading, paving/pavement overlay, pavement marking, landscaping)
 - Construction will be performed by an external general contractor procured via major public works construction contract.

Risk Mitigation

- Construction resource will be procured via Major Public Works Construction contract to establish contractual accountability and not-to-exceed cost limit for full delivery of design.
- Engagement of the new Port Facilities Access Program Manager specializing in ADA requirements for review and guidance through duration of project.

Tenant Impact Mitigation

- Tenant impact will be minimized through the following coordination:
 - External relations outreach and coordination.
 - Additional tenant-specific communication by on-site Real Estate and Maritime Operations staff.
 - Construction contract terms to include access and phasing accommodation
 - Timing of work to commence October 2024 after busy season.
 - Internal coordination to limit conflict with other projects occurring at Fishermen's Terminal.

Funding Request

- Additional Funding Request: **\$1,100,000**
- Justification:
 - 1. Tenant Impact:** Minimize tenant impact through construction phasing and outreach.
 - 2. Compliance:** Phase 1 original construction did not meet ADA compliance requirements per project design. Phase 2 re-work will be required to meet full ADA compliance via external construction contract.
 - 3. Litigation:** The conditions of the Litigation Settlement Agreement have not been met, as Phase 1 construction did not meet ADA compliance requirements per project design.
 - 4. Funding:** Current project funding has been exhausted as of Phase 1 original project completion. Additional funding required to proceed with Phase 2 re-work scope.

Timeline

Milestone	Date
Commission – Additional Funding and Construction Authorization	Apr 2024
Advertisement	Jun 2024
Phase 2 Construction start	Oct 2024
Phase 2 Substantial Completion	Dec 2024

Questions

[RETURN TO AGENDA](#)

ORDER NO. 2024-06
AN ORDER OF THE PORT OF SEATTLE COMMISSION

... to provide the Executive Director a 2023 performance rating of 'Highly Effective' that includes a 3% base salary increase, the Order also provides a 5.7% cost-of-living base salary increase, and a 1% lump sum.

ADOPTED
APRIL 16, 2024

TEXT OF THE ORDER

The Port Commission hereby awards the Executive Director, Steve Metruck, a 2023 performance rating of 'Highly Effective' that includes a 3% salary increase, equal to a \$13,812.53 base salary increase, effective March 1, 2024. The Port Commission also provides the Executive Director the 5.7% cost of living increase provided to all non-represented Port employees in 2024, equal to \$24,828.58 base salary increase, effective February 1, 2024, and a 1% lump sum increase equal to \$4604.18, effective March 1, 2024.

RETURN TO AGENDA



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8i

ACTION ITEM

Date of Meeting April 16, 2024

DATE : April 2, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Darryl McKinney Sr Manager, AV Security Strategy, and Intelligence

SUBJECT: STAC, Exit Lane Funding for 2024

Amount of this request: \$2,600,000.00

ACTION REQUESTED

Authorization for the executive director to authorize the agreement with the Seattle Tacoma Airline Consortium (STAC) for exit lane staffing reimbursement for a total of \$2,600,000 through January 15, 2025.

EXECUTIVE SUMMARY

Due to personnel shortages and a projected record number of passengers, TSA has advised the Port and STAC that staffing the exit lanes with TSA personnel will require reduced staffing of security checkpoints at the airport, causing potential congestion and passenger processing delays at the security checkpoints. This request allows for TSA to focus on opening all available screening lanes needed for maximum passenger throughput while STAC provides personnel to staff exit lanes.

JUSTIFICATION

It is in the best interest of the Port, STAC, airlines and other users utilizing the airport, including the traveling public, to avoid congestion and delays at the security checkpoints.

Diversity in Contracting

Not applicable, the Port is not contracting services.

DETAILS

Scope of Work

The STAC agrees to provide the TSA with Personnel to staff, and shall staff, the A Concourse exit lane (adjacent to checkpoint 1) and the C Concourse Exit Lane (adjacent to checkpoint 3) at the

Meeting Date: April 16, 2024

Airport on a 24-7 basis through January 15, 2025. Port of Seattle agrees to reimburse the STAC for the cost per the terms of this agreement.

Schedule

Agreement shall commence on May 1, 2024 through January 15, 2025.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Discontinue staffing the passenger exit lanes at SEA. Ending this support will potentially negatively impact airport operations, including security and safety concerns and may disrupt air travel causing travel delays for our customers and airlines.

Cost Implications: This will save \$2,600,000

Pros:

- (1) None

Cons:

- (1) Potential Safety and Security concerns
- (2) Customer Service concerns for our tenants and traveling public

This is not the recommended alternative.

Alternative 2 – Starting on May 1st 2024 begin reimbursing the STAC for staffing the exit lanes at SEA utilizing approved sub-contractors according to the terms of the Memorandum of Agreement (MOU) between the Port and STAC.

Cost Implications: \$2,600,000

Pros:

- (1) This allows the TSA to ensure appropriate staffing at the checkpoints helping to minimize congestion.
- (2) Allows TSA to focus on the checkpoints and on the safety and security of traveling public.

Cons:

- (1) None

This is the recommended alternative.

Meeting Date: April 16, 2024

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$0	\$2,600,000	\$2,600,000
AUTHORIZATION			
Previous authorizations	0		
Current request for authorization	0	\$2,600,000	\$2,600,000
Total authorizations, including this request	0	0	0
Remaining amount to be authorized	\$0	\$0	\$0

Annual Budget Status and Source of Funds

Seattle Tacoma Airline Consortium (STAC) for exit lane staffing reimbursement was not included in the approved 2024 operating expense budget. The funding source would be the Airport Development Fund. The expenses would be recovered through airline rates and charges.

Future Revenues and Expenses (Total cost of ownership)

Not Applicable

ADDITIONAL BACKGROUND

The STAC (Seattle Tacoma Airline Consortium) use their combined resources to purchase or hire common needs, for example fuel or interline baggage (bags delivered from one airline to another for connections). They have determined that the exit lane staffing is a common need and have agreed to coordinate the staffing. Forecasted total spend through January 2025 is no more than \$2,600,000. If the full spend is realized the cost of reimbursement from May 1, 2024 through January 15, 2025 will be \$2,600,000.

ATTACHMENTS TO THIS REQUEST

- (1) Memorandum of Agreement

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- October 13, 2022 – The Commission authorized \$235,000
- June 8, 2023 – Executive Delegation Authorization Request for TSA Exit Lane Staffing Support \$1,300,000

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (“Agreement”), dated as of May 1, 2024 (“Effective Date”), is made by and between the Port of Seattle, a Washington municipal corporation (“Port”), that owns, and operates the Seattle-Tacoma International Airport (“Airport”) and Seattle-Tacoma Airline Consortium, LLC, a Washington limited liability company (“STAC”).

RECITALS

WHEREAS, the United States Transportation Security Administration (“TSA”) is responsible for the security of and staffing enforcement personnel at the Airport’s security checkpoints and exit lanes (“Exit Lanes”), including preventing access via the Exit Lanes into the sterile area of the Airport;

WHEREAS, due to unprecedented personnel shortages, TSA has advised the Port and STAC that staffing the Exit Lanes with TSA personnel will require reduced staffing of security checkpoints at the Airport, causing potential congestion and passenger processing delays at the security checkpoints;

WHEREAS, in connection with the above, particularly during the summer season when the Airport experiences its largest volume of passengers, TSA has requested that STAC provide personnel to staff certain of the Exit Lanes and to assist TSA in divesting and re-vesting passengers at certain security checkpoints, as further described below;

WHEREAS, it is in the best interests of the Port, STAC, and all airlines and other users utilizing the Airport, including the traveling public, to avoid congestion and delays at the security check points, while also allowing TSA to ensure appropriate staffing of the Exit Lanes and security checkpoints through the assistance of STAC;

WHEREAS, in connection with providing such personnel to TSA to staff the Exit Lanes and security checkpoints, STAC has requested reimbursement for the cost of providing such personnel from the Port; and

NOW, THEREFORE, in consideration of the promises, the terms and conditions set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Port and STAC, agree as follows:

1. General. STAC agrees to provide TSA with personnel to staff, and shall staff, (a) the Concourse A Exit Lane (adjacent to checkpoint 1) and the Concourse C Exit Lane (adjacent to checkpoint 3) at the Airport, as indicated on Exhibit A hereto (together, the “Covered Exit Lanes”) and (b) to assist TSA with divesting passengers (assist passengers with break-down of their items pre-security) and re-vesting passengers (assist passengers with collection and retaking possession of their items post-security) at designated security checkpoints (the “Designated Checkpoint Locations” and, together with the Covered Exit Lanes, the “Covered Locations”), through the duration of this Agreement. Minimum staffing levels for the coverage state in this Section 1 shall consist of:

a. Twelve (12) agents assigned to both AM (5:00am to 1:30pm) and PM (1:00pm to 9:30pm) shifts (Monday through Sunday) for divestiture operations at the Designated Checkpoint Locations; and

b. Two (2) agents assigned per Covered Exit Lanes from 5:00 am to 9:00 pm (Monday through Sunday)

The parties acknowledge and agree that STAC will provide the personnel to staff the Covered Locations as described in this Agreement through a subcontract with VIP Hospitality LLC (VIP) or another qualified subcontractor (each a “STAC Subcontractor” and, collectively, the “STAC Subcontractors”). STAC may appoint up to two different STAC Subcontractors for performance of this Agreement (which

may or may not include VIP). TSA shall approve in writing (with copy to the Port) each utilized STAC Subcontractor

2. Responsibilities of STAC. With respect to providing the staffing as described in Section 1 above (the "Personnel"), STAC shall perform in accordance with the following:

a. STAC, through STAC Subcontractor(s), shall provide TSA with properly vetted, badged and credentialed Personnel to staff the Covered Locations in accordance with this Agreement.

b. STAC shall at all times comply (and shall ensure that STAC Subcontractor(s) and all Personnel comply) with all requirements and directives of TSA in STAC's performance of the Exit Lane staffing and related obligations described herein, including all considerations for required staffing, placement, alarm response, special circumstances, breach protocols, and safety guidelines.

c. Without limitation to the provisions of Section 2.b above, STAC shall ensure during the duration of this Agreement during the time periods staffed by Personnel as required under Section 1 above (1) that Personnel are assigned and in place in full accordance with TSA's requirements and directives; (2) that the Covered Exit Lanes are never left unattended; and (3) that no one enters the sterile area of the Airport through the Covered Exit Lanes.

d. STAC will ensure Personnel will be assigned to and provide divesting / revesting assistance at Designated Checkpoint Locations, as designated by TSA with the Port's concurrence. While performing divesting and revesting duties, STAC shall ensure that such Personnel are always under the direct supervision of TSA transportation security officers.

e. STAC shall ensure that all Personnel are furnished with proper equipment (uniforms, radios, etc.) to perform their duties safely, efficiently and continuously as described herein.

f. STAC will be reimbursed for its costs in providing the Personnel for the duration of this Agreement, pursuant and subject to the provisions of Section 5 below.

3. Duration. This Agreement shall commence as of the Effective Date and shall continue through 12:00 pm, January 15, 2025, subject to the provisions of Section 9 below.

4. Security Protocols, Procedures and Training. STAC warrants and represents to the Port that TSA, using TSA certified trainers, has provided (or before assignment to Covered Locations, shall provide) STAC, STAC Subcontractor(s) and all Personnel with all mandatory and/or necessary training, assigned duties, standards, procedures and protocols for staffing the Exit Gates in full accordance with TSA's regulatory and operational requirements. The foregoing training shall include required procedures and standards for full compliance with Sensitive Security Information (SSI) regulatory requirements and, as applicable, full compliance with the Airport's TSA-approved security program, as from time to time updated. STAC further warrants and represents to the Port that any new or additional Personnel will also be trained and certified in accordance with the foregoing sentence prior to any Covered Location staffing assignments and that training and certification shall be updated regularly for all Exit Lane Personnel, in accordance with TSA requirements.

5. Cost Reimbursement; Maximum Port Obligation.

a. STAC shall invoice the Port for the actual costs charged by STAC Subcontractor(s) to STAC (without markup) for the Personnel provided by STAC Subcontractor(s) as described in this Agreement, plus any applicable sales tax on such charges. These invoices will be provided to the Port no later than twenty (20) calendar days after the end of the calendar month in which the Personnel staff the Covered Locations. The Port shall review the charges and discuss/resolve any discrepancies with STAC within ten (10) business days of receipt of such invoice. Once both parties agree on the charges, the Port will remit payment for the agreed charges under this Section 5 to STAC via automated clearing house (ACH) transfer within thirty (30) business days following the date of invoice.

b. Notwithstanding the provisions of Section 5.a above, in no case shall the Port's obligation to reimburse STAC for the costs of providing the Personnel as described herein exceed the amount of \$2,589,163.00. For avoidance of doubt, the maximum obligation of the Port to reimburse STAC for the Personnel to provide the services described in Section 1 above for the duration of this Agreement shall be \$2,589,163.00, regardless of the total costs incurred by STAC in providing Personnel through expiration of the term of this Agreement.

6. Compliance with Laws. Without limitation to any other provision herein, in providing the Personnel as described in Section 2 above, STAC agrees to comply, and shall cause each STAC Subcontractor to comply, with all applicable rules and regulations of the Port, whether now in existence or hereafter promulgated, pertaining to the Premises, including, without limitation, the Seattle-Tacoma International Airport Rules and Regulations and Sea-Tac Airport Tariff, as currently in effect and as from time to time updated, amended or modified in the Port's sole and absolute discretion. STAC further agrees to comply with all applicable federal, state, and municipal laws, ordinances, and regulations, including without limitation those relating to airport security. STAC also shall, at its sole cost and expense, obtain any and all certification, permits, licenses, and approvals that may be required in order to make lawful the activities by STAC and each STAC Subcontractor at the Airport in performing the operations described herein.

7. Indemnification. STAC shall indemnify, defend and hold harmless the Port and its officers, directors, and employees (the "Port Parties") from and against any and all claims, suits, demands, judgments, losses, costs, fines, penalties, damages and expenses which may be incurred by, charged to or recovered from any of the foregoing (a) arising in whole or part out of STAC's operations at the Airport and/or in connection with any of STAC's rights and obligations contained in this Agreement, including, but not limited to, any and all claims for damages as a result of the injury to or death of any person or persons, or damage to any property which arises as a result of any act or omission on the part of STAC or its officers, partners, employees, agents, contractors or subcontractors (including, without limitation, each STAC Subcontractor), regardless of where the damage, injury or death occurred, unless such claim, suit, demand, judgment, loss, cost, fine, penalty, damage, liability or expense was proximately caused solely by the negligence of the Port Parties; and/or (b) arising out of the failure of STAC to keep, observe or perform any of its obligations under this Agreement. All indemnities provided in this Agreement shall survive the expiration or any earlier termination of this Agreement. Any final judgment rendered against the Port for any cause for which STAC is liable hereunder shall be conclusive against STAC as to liability and amount upon the expiration of the time for appeal therefrom. STAC expressly agrees that its duty to defend and indemnify the Port includes negligent acts, which are concurrent, contributory, or both by the Port, resulting in said damage or injury. STAC also agrees that the foregoing indemnity specifically covers actions brought by its own employees and those of STAC Subcontractor(s), including without limitation, the Personnel, and thus STAC expressly waives its immunity under industrial insurance, Title 51 RCW, as necessary to effectuate this indemnity.

8. Insurance.

a. General Liability Insurance. STAC shall obtain and keep in force a commercial general liability policy of insurance, written on ISO Form CG 00 01 10 01 (or equivalent), that protects STAC and the Port Parties, as additional insureds using ISO Form 20 26 (either 11 85 or 07 04 revision) or equivalent, against claims for bodily injury, personal injury and property damage based upon, involving or arising out of STAC's activities and operations at the Airport, and specifically including the action/inaction of any STAC personnel, agent, licensee or invitee. Such insurance shall be on occurrence basis providing single limit coverage in an amount not less than \$5 Million per occurrence and \$5 Million in the annual aggregate. The policy shall contain a minimum \$100,000 sub-limit that covers damage to premises rented or licensed to STAC, including fire damage. The policy shall be endorsed to make the STAC's insurance primary and non-contributory to any insurance the Port may carry. The policy shall be endorsed with a waiver of subrogation or waiver of the transfer of the rights of recovery in favor of the Port Parties. On or before the Effective Date, STAC shall provide the Port with a copy of the additional insured endorsement and other endorsements that validates the coverage requirements of this section.

b. Automobile Liability Insurance. STAC shall obtain and keep in force a commercial automobile liability policy of insurance, written on ISO Form CA 00 01 07 97 (or equivalent), covering claims for bodily injury and property damage based upon, involving or arising out of motor vehicle operations on or about the Premises and all areas appurtenant thereto. Such insurance shall cover any "Auto" (i.e., owned, hired and non-owned) and shall be on an occurrence basis providing a combined single limit coverage in an amount not less than \$1 Million per occurrence. Note: This does not apply to employees of STAC who are parking at the STIA and then walking to their reporting station.

c. Insurance Companies. Insurance required hereunder shall be in companies duly licensed to transact business in the State of Washington and maintaining during the policy term a General Policyholders Rating of 'A-' or better and a financial rating of 'IX' or better, as set forth in the most current issue of "Best's Insurance Guide."

d. Deductibles. No insurance required herein shall contain a deductible or self-insured retention in excess of \$100,000 without the prior written consent of the Port. STAC shall be solely responsible for the payment of any deductible amount under any policies of insurance required to be carried by STAC pursuant to this Section 6.

e. Cancellation/Non-Renewal. The insurances STAC is required to maintain pursuant to this Agreement shall remain current and in good standing at all times this Agreement remains in effect, commencing as of the Effective Date. The Port shall receive documentation annually to include a certificate of insurance and any applicable endorsements to validate the insurance required herein has been purchased and is compliant with the requirements of this Agreement within 10 (ten) days of each insurance renewal. Should any insurance required herein be terminated, cancelled, or not renewed, the STAC will have five (5) days to obtain replacement insurance from the date of the termination, cancellation or non-renewal notice STAC receives from their insurer(s).

f. Evidence of Insurance. Within five (5) business days following the Effective Date, STAC shall deliver, or cause to be delivered, to the Port, certificates of insurance, additional insured endorsements, waivers of subrogation and any other documentation or endorsement that provides evidence of the existence and amounts of such insurance, the inclusion of the Port as an insured as required by this Agreement, and the amounts of all deductibles and/or self-insured retentions. Upon request by the Port, STAC shall deliver or cause to be delivered to the Port, certified copies of the policies of insurance that STAC has purchased in order for the Port to verify insurance coverage, limits, and endorsements or view any exclusions to the STAC's insurance policies.

g. Subcontractors. STAC shall cause each STAC Subcontractor to purchase and maintain insurance of the type specified under this Agreement and cause each subcontractor to include the Port Parties as additional insureds as described in this Section 8. When requested by the Port, STAC shall furnish copies of certificates of insurance coverage for each subcontract.

a. No Limitation of Liability. The limits of insurance required by this Agreement or as carried by STAC shall not limit the liability of STAC nor relieve STAC of any obligation hereunder.

b. Waiver of Subrogation. Without affecting any other rights or remedies, STAC (for itself and on behalf of anyone claiming through or under it by way of subrogation or otherwise) hereby waives any rights it may have against the Port Parties (whether in contract or in tort) on account of any loss or damage occasioned to STAC arising out of or incident to the perils required to be insured against under this Agreement. Accordingly, STAC shall cause each insurance policy required by this Agreement to further contain a waiver of subrogation clause. The effect of such release and waiver of the right to recover damages shall not be limited by the amount of insurance carried or required or by any deductibles applicable thereto.

9. Termination.

a. The Port may terminate this Agreement prior to its expiration by providing ten (10) days written notice to STAC.

b. The parties acknowledge that TSA may elect to resume staffing of any of the Covered Locations using TSA's own personnel in lieu of Personnel at any point during the duration of this Agreement, should staffing needs change or to comply with any security or other regulatory requirements or otherwise in the exercise of TSA's regulatory prerogative. If TSA elects to so resume staffing pursuant to the foregoing sentence, either the Port or STAC may terminate this Agreement upon forty-eight (48) hours written notice to the other party.

c. In the event this Agreement is terminated pursuant to the terms hereof, the Port will reimburse STAC for its costs in staffing the Covered Locations, as set forth in Section 5 above, through the last date STAC provides such staffing prior to the effective date of termination.

10. Assignment; Subcontracting. STAC shall not assign this Agreement or any of its rights and privileges hereunder, or subcontract (other than with the STAC Subcontractor(s)) for the performance of any of the work or personnel to be provided by it hereunder, without the Port's prior written approval, which approval may be granted or withheld by the Port in the Port's sole discretion.

11. Federal Nondiscrimination Regulations.

a. STAC agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from federal assistance. If STAC transfers its obligation to another, the transferee is obligated in the same manner as STAC. This provision obligates STAC for the period during which the property is owned, used or possessed by STAC and the Airport remains obligated to the FAA. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

b. During the performance of this Agreement and to the extent applicable, STAC, for itself, its assignees, and successors in interest agrees as follows.

(1) STAC will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this Agreement.

(2) STAC, with regard to the work performed by it during the Agreement, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and Agreements of equipment. STAC will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the agreement covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

(3) In all solicitations, either by competitive bidding, or negotiation made by STAC for work to be performed under a subcontract, including procurements of materials, or Agreements of equipment, each potential subcontractor or supplier will be notified by STAC of STAC's obligations under this Agreement and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.

(4) STAC will provide all reasonably requested information and reports required by applicable Laws and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Port or the FAA to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of STAC is in the exclusive possession of another who fails or refuses to furnish the information, STAC will so certify to the Port or the FAA, as appropriate, and will set forth what efforts it has made to obtain the information.

(5) In the event of STAC's noncompliance with the nondiscrimination provisions of this contract, the Port will impose such contract sanctions as it or the FAA may determine to be appropriate, including, but not limited to cancelling, terminating, or suspending the Agreement, in whole or in part.

(6) STAC will include the provisions of paragraphs 11.b(1) through 11.b(6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. STAC will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if STAC becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, STAC may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, STAC may request the United States to enter into the litigation to protect the interests of the United States.

(7) Title VI List of Pertinent Nondiscrimination Acts and Authorities.
During the performance of this Agreement, STAC, for itself, its assignees, and successors in interest agrees to comply with the following nondiscrimination statutes and authorities, including but not limited to:

(a) Title VI of the Civil Rights Act of 1964 (42 USC § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);

(b) 49 CFR part 21 (Non-discrimination in Federally-assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);

(c) The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

(d) Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 et seq.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27;

(e) The Age Discrimination Act of 1975, as amended (42 USC § 6101 et seq.) (prohibits discrimination on the basis of age);

(f) Airport and Airway Improvement Act of 1982 (49 USC § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);

(g) The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

(h) Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 USC §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;

(i) The FAA's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

(j) Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

(k) Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, STAC must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

(l) Title IX of the Education Amendments of 1972, as amended, which prohibits STAC from discriminating because of sex in education programs or activities (20 USC 1681 et seq).

c. Affirmative Action. STAC assures that it will undertake an affirmative action program if required by 14 CFR Part 152, Subpart E, to ensure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CFR Part 152, Subpart E. STAC assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this subpart. STAC assures that it will require that its covered sub organizations provide assurances to STAC that they will require assurances from their sub organizations, if required by 14 CFR Part 152, Subpart E, to the same effect.

12. Miscellaneous.

a. Governing Law. This Agreement shall be deemed to have been made in, and be construed in accordance with the laws of, the State of Washington.

b. No Waiver. No waiver of default of any of the terms, covenants and conditions of this Agreement to be performed, kept and observed by the other party shall be construed as, or operate as, a waiver of any subsequent default of any of the terms, covenants or conditions of this Agreement to be performed, kept and observed by the other party.

c. Time. Time is expressed to be the essence of this Agreement.

d. No Third-Party Beneficiaries. There are no third-party beneficiaries to this Agreement.

e. No Joint Venture. STAC is not authorized to act as the Port's agent hereunder and shall have no obligation to the Port, express or implied, to act for or bind Port hereunder and nothing contained in this Agreement shall be deemed or construed by the Port or STAC or by any third party to create the relationship of partnership or of joint venture. It is expressly agreed that the parties to this Agreement are not, in any way or for any purpose, partners and therefore do not assume any responsibilities for one another.

f. Agreements with the United States. The terms of this Agreement are subject and subordinate to (a) the provisions of any agreement between the Port and the United States, including without limitation the terms of any "Sponsor's Grant Assurances" or like agreement, required to obtain federal grant funds or other benefits for the airport and (b) any bond covenants of the Port. STAC shall consent to any modification to the terms of this Agreement that is required to comply with the Port's obligations under such agreements or bond covenants or if required as a condition of the Port's entry into such agreements or bond covenants.

g. Attorneys' Fees. In the event that either party shall be required to bring any action to enforce any of the provisions of this Agreement, or shall be required to defend any action brought by the other party with respect to this Agreement, and in the further event that one party shall substantially prevail in such action, the losing party shall pay all of the prevailing party's reasonable costs and reasonable attorneys' fees as determined by the court. In the event the Port or STAC is represented by in-house attorneys in such action, such attorneys' fees shall be computed at hourly rates charged by attorneys of comparable experience in private practice in Seattle; provided, however, that with respect to

the Port's use of in-house counsel, STAC shall only be required to pay to the Port the difference between the total attorneys' fees owed by STAC and the amount direct billed to the Port by its in-house counsel.

h. Successors and Assigns. All of the terms, provisions, covenants, stipulations, conditions and considerations in this Agreement shall extend to and bind the legal representatives, successors, and assigns of each party to this Agreement.

i. Entire Agreement; Modification. This Agreement sets forth all covenants, promises, agreements, conditions and understandings between the Port and STAC, and there are no covenants, promises, agreements, conditions or understandings, either oral or written, between the Port or STAC, concerning the subject matter hereof, other than as set forth in this Agreement. No subsequent amendment, change or addition to this Agreement shall be binding upon any party hereto unless in writing and signed by both the Port and STAC.

j. Counterparts; Electronic Signatures. This Agreement may be executed in counterparts, each of which will be deemed an original, and all of which, together, will constitute one and the same instrument. This Agreement may be accepted and signed in electronic form (e.g., by a physically signed document, scanned and transmitted via electronic mail) and each party's electronic acceptance and signature will be deemed binding between the parties. Each party acknowledges and agrees it will not contest the validity or enforceability of this Agreement, including under any applicable statute of frauds, because it was accepted and/or signed in electronic form. Further, each party shall, upon the request of the other party, promptly provide the requesting party, via United States mail or overnight courier, an originally executed copy of the executed document that it signed in electronic form.

SIGNATURE PAGE FOLLOWS

MEMORANDUM OF AGREEMENT – signature page

Seattle-Tacoma Airline Consortium, LLC

Signature
By:
Its:

Port of Seattle

Signature
By: Stephen P. Metruck
Its: Executive Director

RETURN TO AGENDA



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8j

ACTION ITEM

Date of Meeting April 16, 2024

DATE : March 21, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Sarah Cox, Director Aviation Environment & Sustainability
John Evered, Aviation Senior Environmental Compliance Manager

SUBJECT: Adoption of Resolution No 3821: SEA Land Stewardship Plan and Tree Replacement Standards

Amount of this request: \$0

Total estimated project cost: \$0

ACTION REQUESTED

Request Commission adoption of Resolution No. 3821: a resolution adopting the SEA Land Stewardship Plan and approval of proposed SEA tree replacement standards. No funding is requested for this action at this time.

EXECUTIVE SUMMARY

This Request seeks authorization to adopt the SEA Land Stewardship Plan (LSP) and SEA Tree Replacement Standards Policy Directive (STRS). Both the LSP and STRS are Strategies in the Environmental Land Stewardship Principles (Principles) Order ([Order 2023-10](#)) approved by Commission on July 11, 2023. The Principles offer a value statement and guidance for decision-making that balance stewardship to improve the livability, accessibility, and environmental health of the region with Port operations and development requirements. The Principles emphasize comprehensiveness; capital process integration; consideration of equity and community partnerships; and holistic ecology practices.

The LSP is specific to SEA and establishes programmatic Objectives supported by measurable Goals and Actions that integrate and balance environmental land stewardship with airport operations, planning, and development. LSP Objectives support comprehensive application of the Principles using an approach tailored to SEA operations and land use. The Objectives include maintaining a current natural resource inventory; restoring forest and other habitat; connecting and expanding contiguous habitat; offsetting development and operational impacts to trees and other habitat; applying an equity lens; providing benefits in support of community equity; and

Meeting Date: April 16, 2024

supporting community partnerships that extend benefits into neighborhoods in the vicinity of SEA.

The LSP also provides a baseline inventory of land use and land cover that is used to inform stewardship recommendations in partial achievement of the LSP Objectives. The LSP also assesses site resources and opportunities in site-specific plans that can be used to inform capital projects by identifying applicable regulatory, permitting and mitigation requirements; identify potential locations for wetland mitigation and tree replacement; and supporting capital project planning by informing preliminary scoping, design and cost estimates.

Pursuant to the Principles and the LSP, tree replacement standards are being adopted for SEA Airport Activity Area (AAA), as defined in the adopted (Resolution 3741) 2018 Port-SeaTac Interlocal Agreement and administered by the Airport Building Department. Port-owned property outside the AAA is subject to tree replacement standards established by the local jurisdictions in which the properties are located. Currently certain Port-owned property within the SEA AAA airport boundary is not subject to City of SeaTac tree replacement standards. The tree replacement standards (i) exceed the minimum regulatory requirements of our neighboring jurisdictions; (ii) ensure continued compliance with city, state, and federal development standards for all operations and development activities; and (iii) ensure development and other land use projects replace cleared trees and identify opportunities for additional types of beneficial habitat such as pollinator meadows and wetlands.

JUSTIFICATION

The Port operates essential transportation infrastructure to ensure the efficient movement of people and goods in the region and must utilize its land for development and operations, which can include tree removal. At the same time, the Port recognizes the importance of balancing its operations and development with responsible use of economic, community, and natural resources.

The Port understands that trees, forest and other habitat provide valuable benefits to the public and the environment. The Port continually strives to go beyond minimum regulatory requirements to address environmental justice, improve environmental health, increase climate resilience, and improve habitat for fish and wildlife.

The LSP and STRS, in line with the Port Equity Policy, will ensure in part that SEA responsibly stewards its economic, community, and environmental resources to further improve the livability, accessibility, and environmental health of the region.

DETAILS

To support implementation of actions to achieve objectives and goals, the LSP provides planning-level information to inform decision-making for both Land Stewardship Program activities and capital project development. Specifically, the LSP includes:

Meeting Date: April 16, 2024

- 1) *Baseline inventory.* Provides current landscape-scale and site-specific current information on operational restrictions, existing/planned development; equity attributes; and natural resources, including regulated stream, wetlands and buffers as wells as land (tree) cover.
- 2) *Stewardship recommendations.* Management Units demarcated based on common planning and resource attributes are categorized into management recommendations. Vegetation management in operational areas are highly restricted, and third-party entities are responsible for maintaining ground lease sites. Stewardship is not recommended for these areas. Stewardship at development sites focus on public safety, including cleaning up illegal dumping; pruning vegetation to mitigate hazards to infrastructure (buildings) and human safety (publicly accessible areas; roadways); security; and operational safety (flight corridor safety; wildlife hazard management).

Stewardship activities in ecological Management Units focus on improving forest health through long-term stewardship of existing mitigation; construction of new wetland mitigation to offset development impacts; and forest stewardship, including voluntary actions and meeting regulatory requirements for tree replacement.

- 3) *Site-specific stewardship potential.* Site-specific plans are created summarizing site condition and evaluating the extent and health of trees, forest, and other habitat within each Management Unit. That information is used to evaluate potential for stewardship and recommend specific actions for tree planting, tree protection, and restoration of invasive areas. Evaluations also provide planning level information for capital projects to identify applicable regulatory, permitting and mitigation requirements; identify potential locations for wetland mitigation and tree replacement; and inform preliminary scoping, design and cost estimates.
- 4) *Site Prioritization.* Prioritize ecological sites for stewardship based on relative potential for ecological lift and increased benefits to community equity. Prioritization is based on indexing for equity and ecological attributes. Equity criteria include the Port equity index; urban heat island effects; and improving aesthetic of areas that are physically and/or visually accessible to the public. Ecological factors include potential for expanding contiguous habitat, connecting existing isolated habitat, and restoring fish passage.

Because most of SEA's tree canopy is managed in large tracts of open space that is predominantly forested, the SEA Tree Replacement Standards apply a holistic ecological approach to tree replacement that emphasizes improving forest health by increasing canopy, protecting existing trees from invasive threats, and restoring invasive areas to native vegetation. The standards acknowledge the intensive land use the airport and requires retention of existing trees on developing site to the extent practicable.

Each tree removed will be replaced with four "stewardship credits". This credit-based approach include the following actions that can generate "replacement credits" by enhancing forest health:

Meeting Date: April 16, 2024

- 1) Plant new trees to increase canopy. (1 tree planted = 1 credit)
- 2) Protect one existing tree from invasive threats to its life and vigor. (1 tree protected = 1 credit)
- 3) Clear invasive species and restore native understory. (200 square feet restored = 1 credit)

These actions combined will increase overall canopy; ensure canopy is not lost due to invasive threats; and improve structural and species diversity of restored areas.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

The recommended alternative is required by Commission Order to adopt Environmental Land Stewardship Principles so is required to be implemented. A range of ancillary factors are considered for the alternatives analysis.

Alternative 1 – Do not adopt SEA Land Stewardship Plan and SEA Tree Replacement Standards

Pros:

- (1) Does not increase operational and capital effort and costs.

Cons:

- (1) Does not achieve conditions of the Commission Order to adopt Environmental Land Stewardship Principles.
- (2) Does not support Port Mission and Values to responsibly steward resources and improve regional quality of life.
- (3) Does not balance SEA operations and development with environmental stewardship to further improve the livability, accessibility, and environmental health of the region.
- (4) Does not enable a programmatic and comprehensive approach to SEA Land Stewardship.
- (5) Does not establish a repeatable standard for avoiding and offsetting tree clearing impacts, instead relying on *ad hoc* outcomes that vary across projects and activities, which increases uncertainty and risk for projects and initiatives.

This is not the recommended alternative.

Alternative 2 – Adopt the SEA Land Stewardship Plan and adopt SEA Tree Replacement Standards

Pros:

- (1) Achieves conditions of the Commission Order to adopt Environmental Land Stewardship Principles.
- (2) Supports Port Mission and Values to responsibly steward resources and improve regional quality of life.
- (3) Does not balance SEA operations and development with environmental stewardship to further improve the livability, accessibility, and environmental health of the region.
- (4) Enables for a programmatic and comprehensive approach to SEA Land Stewardship.

Meeting Date: April 16, 2024

- (5) Establishes a repeatable standard for avoiding and offsetting tree clearing impacts, which increases certainty and reduces risk for projects and initiatives.

Cons:

- (1) May increase operational and capital costs.

This is the recommended alternative.

ATTACHMENTS TO THIS REQUEST

- (1) Resolution No. 3821
 - Exhibit A: SEA Tree Replacement Standards
 - Exhibit B: SEA Land Stewardship Plan (available online)
- (2) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

February 20, 2024 – Briefed the Sustainability, Environment, and Climate Committee (SEAC) Committee on SEA Tree Replacement Standards and SEA Land Stewardship Plan.

February 16, 2024 – Briefed Commissioner Hasegawa on SEA Tree Replacement Standards and SEA Land Stewardship Plan.

November 6, 2023 – The Commission Sustainability, Environment, and Climate Committee (SEAC) Committee received a briefing on SEA Tree Replacement Standards and SEA Land Stewardship Plan.

July 27, 2023 – The Commission authorized an Order to implement the Port-wide Environmental Land Stewardship Principles and Strategies.

February 21, 2023 – The Commission Sustainability, Environment, and Climate Committee (SEAC) received a briefing on the Port-wide Environmental Land Stewardship Principles and Strategies.

1
2
3 **PORT OF SEATTLE**
4 **RESOLUTION NO. 3821**
5

6 **A RESOLUTION** of the Port of Seattle Commission adopting SEA Tree
7 Replacement Standards for Airport Activities Area and SEA
8 Land Stewardship Plan for Seattle-Tacoma International
9 Airport.
10

11 **WHEREAS**, the Port of Seattle is a special purpose government with a mission to
12 promote economic opportunities and quality of life in the region by advancing trade, travel,
13 commerce and job creation in an equitable, accountable and environmentally responsible
14 manner; and
15

16 **WHEREAS**, the Port operates essential transportation infrastructure at Seattle-Tacoma
17 International Airport (SEA), to ensure the efficient movement of people and goods in the
18 region, and must utilize land for development and operations; and
19

20 **WHEREAS**, the Port is committed to responsible management of its natural resources
21 because trees, forests, and other habitat are incredibly important to the environment and
22 provide tremendous benefits to our neighboring communities and the public; and
23

24 **WHEREAS**, the Port continues to ensure that all its operations and development
25 activities are in compliance with city, state, and federal development standards; and
26

27 **WHEREAS**, the Port continually strives to go beyond the minimum regulatory
28 requirements to address environmental justice, improve environmental health, increase
29 climate resilience, and improve habitat for fish and wildlife; and
30

31 **WHEREAS**, the Port Commission, through Resolution No. 3741, adopted the Interlocal
32 Agreement with the City of SeaTac defining the "Airport Activity Area" inside which Port
33 capital development activities are subject to compliance with the Airport Building Department
34 development standards; and
35

36 **WHEREAS**, Burien, Des Moines, and SeaTac municipal code all include tree
37 replacement standards for development, while no tree replacement standards are currently in
38 effect for the Airport Activity Area; and
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WHEREAS, the Port Commission, through Order No. 2023-10, adopted Environmental Land Stewardship Principles and Strategies to guide development of Port environmental land stewardship efforts around trees, forest, and other habitat to further improve the livability, accessibility, and environmental health of the region; and

WHEREAS, the Environmental Land Stewardship Principles recommend a holistic ecological approach, ensuring development and other land use projects replace the ecological function and community benefits of any cleared trees; and

WHEREAS, the SEA Tree Replacement Standards for Airport Activity Area and SEA Land Stewardship Plan emphasize healthy and self-sustaining forests in harmony with the Commission values recommended in the Environmental Land Stewardship Principles; and

WHEREAS, the Land Stewardship Plan is a living, operational document used as a framework to steward trees, forests, and other habitats that will be updated administratively on a periodic basis to reflect new and changing conditions.

NOW, THEREFORE, BE IT RESOLVED by the Port of Seattle Commission as follows:

SECTION 1. Port of Seattle Commission adopts the Tree Replacement Standards policy directive, attached as Exhibit A to this resolution in alignment with the Commission Order No. 2023-10: Port-wide Environmental Land Stewardship Principles and Strategies.

SECTION 2. Port of Seattle Commission adopts the SEA Land Stewardship Plan, attached as Exhibit B to this resolution, in alignment with the Commission Order No. 2023-10: Port-wide Environmental Land Stewardship Principles and Strategies. The Plan will be updated administratively, as needed.

ADOPTED by the Port of Seattle Commission at a duly noticed public meeting thereof, held this 16 day of April, 2024, and duly authenticated in open session by the signatures of the commissioners voting in favor thereof and the seal of the commission.

Port of Seattle Commission

84
85 **EXHIBIT A to Resolution 3821**
86

87 **SEA Tree Replacement Standards For Airport Activity Area**
88

89 **SECTION 1. Purpose.**
90

91 Port-owned properties are subject to tree replacement standards established by the local
92 jurisdictions in which the properties are located. Certain Port-owned properties within the SEA
93 airport boundary, the “Airport Activity Area” as defined in the 2018 Port-SeaTac Interlocal
94 Agreement, attachment to Resolution 3741, are not subject to City of SeaTac tree replacement
95 standards.
96

97 The purpose of this policy directive is to offer tree replacement standards for the “Airport
98 Activity Area”, that may be impacted by Port operational and development purposes,
99 consistent with the Port-wide Environmental Land Stewardship Principles.
100

101 Tree replacement standards include components for retention of existing trees on the
102 development site and replacing trees permitted to be cleared. The retention requirement
103 recognizes the intensive industrial and commercial land use that typifies Port development.
104 The replacement standard relies on a holistic ecological approach that gives credit for planting
105 trees and for taking actions to improve forest health at off-site locations, including protecting
106 the life of existing high-value trees and restoring areas infested with invasive plants to native
107 vegetation.
108

109 This approach is consistent with the Environmental Land Stewardship Principles, which
110 recommends using holistic ecological methods and practices, as well as the SEA Land
111 Stewardship Plan (Exhibit B), which includes site resource documentation that informs project
112 planning and design, including tree replacement.
113

114 **SECTION 2. Definitions**
115

116 When used in this policy directive, the following words and phrases shall have the meanings
117 given below unless the context in which they are included clearly indicates otherwise:
118

- 119 A. Adjacent location. Port-owned property contiguous to and easily and directly accessible
120 from the development footprint.
121
- 122 B. Airport Activity Area (AAA). The area defined in the 2018 Port-SeaTac Interlocal
123 Agreement, attachment to Resolution No. 3741, as being within Airport Building
124 Department jurisdiction and subject to the tree replacement standards herein.
125
- 126 C. Forest. An area with predominant tree canopy cover.
127
128
129

- 130 D. Forest cover. The proportion of tree canopy in a given area. Includes trees in forested
131 areas and tree groves as well as individual trees.
132
- 133 E. High-value tree. A tree providing significant ecological function due to size, maturity,
134 species, or location in a tree grove. In general, trees greater than 30 inches diameter at
135 breast height (30 inches DBH) are considered high-value due to their size. All regulated
136 native conifers occurring within a tree grove that contains at least three trees greater
137 than 30" DBH are considered to be high-value trees.
138
- 139 F. Invasive species. Non-native plant species that aggressively colonize areas, threatening
140 native plants and habitat as well as infrastructure. Invasive species cause environmental
141 and economic harm. Invasive species prioritized for management are listed on King
142 County's Noxious Weeds List.
143
- 144 G. Off-site location. Distant from and not directly associated with a proposed development
145 footprint.
146
- 147 H. On-site location. Within the development footprint, which includes the building and
148 supporting infrastructure (e.g., parking areas, landscaping; exterior fencing and
149 lighting).
150
- 151 I. Portwide Environmental Land Stewardship Principles. Refers to Order 2023-10,
152 approved by the Commission on July 11, 2023.
153
- 154 J. Regulated Tree. A tree that is subject to replacement according to the development
155 standards herein.
156
- 157 K. Tree. A woody perennial plant with a single stem growing to more than 30 feet at
158 maturity and bearing lateral branches beginning some distance above the ground.
159
- 160 L. Tree Grove. A group of trees that grow close together, generally without many bushes
161 or other plants underneath, and anchored by at least three high-value trees.
162

163 **SECTION 3. Scope and Applicability.**

164
165 These standards pertains to the "Airport Activity Area", as defined in the 2018 Port-SeaTac
166 Interlocal Agreement, attachment to Resolution No. 3741.
167

168 **SECTION 4. Responsibilities.**

169
170 The Port's Executive Director, or a delegate, shall ensure the Tree Replacement Standards
171 Policy Directive is implemented and adequately funded, and that the Policy Directive is
172 integrated into capital project plans and key operational decisions in the Airport Activity Area,
173 as defined in the 2018 Port-SeaTac Interlocal Agreement, attachment to Resolution 3741. The
174 Executive Director shall also ensure that outcomes associated with the application of the Tree
175 Replacement Standard Policy Directive are transparently documented and publicly exhibited so

176 that the Port of Seattle Commission can review, in public, how projects are meeting its Tree
177 Replacement Standards. The Executive Director shall also ensure that the program evaluation
178 meets the purpose and timeliness identified in Section 6 of this policy.

179 **SECTION 5. Policy.**

180
181
182 A. Tree Replacement Standards.

183
184 (1) Regulated Tree. A regulated tree must be replaced according to the
185 standards herein. Regulated trees meet one of the following criteria:

- 186
187 a. equal to or greater than six inches diameter at breast height (6" DBH); or
188
189 b. any tree planted by design as part of landscaping for existing development.

190
191 (2) Tree Retention. The intensive industrial/commercial land use supporting
192 airport operations provides limited opportunity for retaining existing trees on
193 development sites. Therefore, projects with clearing impacts will not be
194 subject to a minimum retention requirement but shall retain existing trees to
195 the extent practicable.

196
197 (3) Tree Replacement. If a Regulated Tree is to be cleared:

- 198
199 a. It must be replaced at a 4:1 ratio.
200
201 b. Replacement uses a "stewardship credit" approach for which a replacement
202 credit can be generated the following ways:
203
204 i. Tree Planting. Plant one tree in an on-site or off-site location, or
205
206 ii. Invasive removal. Remove 200 square feet of invasive vegetation
207 from an off-site location and replanting the area with native
208 understory vegetation, or
209
210 iii. Tree Protection. Protect the life of one tree using one of the following
211 means:
212 a. Retain one regulated tree within the development footprint
213 through project design and construction methods, or
214 b. Protect the life of one high-value tree in an off-site location from
215 invasive threats (e.g., removing English ivy from the tree trunk
216 and vicinity).
217

218 B. The tree replacement standards shall be supplemented by specific design criteria, to be
219 applied as part of capital project planning and design. The criteria ensure that tree
220 replacement concepts and designs are consistent with Environmental Land
221 Stewardship Principles, operational requirements, and equity policy.

222
223 (1) Tree replacement requirements are to be evaluated using site inventories for
224 the development site and potential adjacent and off-site planting areas. Site
225 inventories are required to be completed as part of the project planning and
226 design.

227
228 (2) Stewardship credits generated by tree planting shall account for greater than
229 50% of the replacement requirement.

230
231 (3) Tree replacement shall be prioritized and maximized first on-site, then adjacent
232 to the development footprint before utilizing off-site locations.

233
234 (4) For tree replacement that occurs on-site or at adjacent locations, projects shall
235 consider the potential for employee access to tree replacement areas to
236 improve project equity and employee wellness benefits.

237
238 (5) Designed tree replacement shall be consistent with rules for safe aviation,
239 including the Wildlife Hazard Management Plan; Flight Corridor Safety Program
240 vegetation height limits and regulatory requirements; and all applicable
241 environmental laws and regulations.

242
243 **SECTION 6. Program Evaluation.**

244
245 The Executive Director, or a delegate, shall monitor and evaluate progress towards achieving
246 the policy directive. This monitoring and evaluation shall include but not be limited to the
247 following:

248
249 A. Documentation. In alignment with the Airport Building Department permitting, capital
250 projects are required to inventory and documents all trees in the development
251 footprint and trees that are planned for clearing. Projects that clear trees must create
252 a tree replacement plan documenting how trees will be replaced and complete an
253 accounting worksheet demonstrating tree replacement requirements are achieved.

254
255 A comprehensive database will be developed and maintained documenting the
256 location and extent of all tree clearing impacts and replacement actions (tree
257 planting, tree protection, invasive restoration).

258
259 B. Reporting. Documented tree replacement pursuant to the SEA Tree Replacement
260 Policy Directive will be reported annually in the Environment and Sustainability Center
261 of Expertise’s Key Performance Indicators. Staff will present a summary of Key

262 Performance Indicators annually to the Sustainability, Environment, and Climate
263 Committee.

264

265

266 C. When substantive administrative updates to the SEA Land Stewardship Plan are made,
267 Commissioners will be notified through the Sustainability, Environment, and Climate
268 Committee.



Item No: 8j attach 1

Meeting Date: April 16, 2024



Final Land Stewardship Plan

Prepared for the Port of Seattle
P.O. Box 68727
Seattle, Washington 98168

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TABLE OF CONTENTS

- Executive Summary..... 1**
- 1 Introduction 1**
 - 1.1 What is Land Stewardship? 1
 - 1.2 SEA Land Stewardship Planning Context..... 2
 - 1.3 Regional Tree Policy Initiatives 6
 - 1.4 Creating the Land Stewardship Plan..... 9
- 2 Methodology 15**
 - Step 1. Define Geographic Extent..... 16
 - Step 2. Define Baseline Conditions 16
 - Step 3. Evaluate and Assign LSP Recommendations 20
 - Step 4. Evaluate and Recommend Site-Based Stewardship Actions..... 24
 - Step 5. Prioritize Sites for Stewardship..... 26
- 3 LSP Baseline..... 28**
 - 3.1 Geographic Extent..... 28
 - 3.2 Land Use 30
 - 3.3 Ecological Inventory 32
 - 3.4 Equity and Community Access..... 39
- 4 Stewardship Recommendations by Management Unit 45**
 - 4.1 LSP Recommendations 45
 - 4.2 Ecological Assessment Results..... 50
 - 4.3 Site-Based Stewardship Actions 51
- 5 Management Unit Prioritization 55**
- 6 Implementation..... 58**
 - 6.1 LSP Implementation 58
 - 6.2 Conclusion 65
- 7 References 67**

TABLES

Table 1	LSP Objectives, Goals, and Supporting Actions.....	12
Table 2	Baseline Data Components Used in the Land Stewardship Plan.....	18
Table 3	LSP Recommendations and Site-Based Stewardship Actions.....	25
Table 4	LSP Recommendations For Each MU.....	49
Table 5	Ecological Assessment Results.....	50
Table 6	High-Value Tree Counts by Type and Location.....	51
Table 7	Potential Site-Based Ecological Stewardship Actions.....	52
Table 8	Potential Site-Based Community Benefit Actions on MUs.....	53
Table 9	Ecological Site Priority Using Equity and Ecological Indicators.....	57
Table 10	LSP Objectives, Goals, Supporting Actions, and Implementation Timeline.....	62

FIGURES

Figure 1	LSP Recommendations Ecological Use Decision Tree.....	22
Figure 2	Green Seattle Partnership Tree-iage Matrix.....	23
Figure 3	LSP Geographic Extent.....	29
Figure 4	2023 Land Use and Restrictive Areas.....	31
Figure 5	2021 Land Cover.....	33
Figure 6	2021 Land Cover Summary.....	34
Figure 7	2021 Land Cover Within Ecological Areas.....	35
Figure 8	Mapped Critical Areas.....	37
Figure 9	Habitat Corridors.....	38
Figure 10	SEA Equity Index Scores for Each Equity Category.....	40
Figure 11	SEA Equity Index.....	41
Figure 12	Heat Island Effect.....	43
Figure 13	Community Benefit Areas.....	44
Figure 14	LSP Management Units.....	46
Figure 15	Stewardship Recommendations.....	47
Figure 16	Stewardship Recommendations by Management Unit.....	48
Figure 17	Management Units Priority for Stewardship Actions.....	56

APPENDICES

Appendix A	Mitigation Site Opportunity Assessment
Appendix B	FLAT Sample Field Form
Appendix C	Land Stewardship Plan Mapfolio
Appendix D	Long-Term Mitigation Stewardship Plan

ABBREVIATIONS

ACE	Airport Community Ecology
AOA	Airport Operations Area
DBH	diameter at breast height
EI	Equity and Environment Initiative
FAA	Federal Aviation Administration
FCSP	Flight Corridor Safety Program
FLAT	Forest Landscape Assessment Tool
IRA	Inflation Reduction Act
LiDAR	Light Detection and Ranging
LSP	Land Stewardship Plan
MU	Management Unit
Port	Port of Seattle
Principles	Environmental Land Stewardship Principles
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RSJI	Race and Social Justice Initiative
SCAP	Strategic Climate Action Plan
SEA	Seattle-Tacoma International Airport
SEF	Sustainability Evaluation Framework
SMART	specific, measurable, achievable, relevant, and time-bound



Credit: Port of Seattle

Executive Summary

The Port of Seattle's Mission is to "promote economic opportunities and *quality of life* in the region by advancing trade, travel, commerce, and job creation in an equitable, accountable and *environmentally responsible manner*."

In June 2023, the Port of Seattle (Port) Commission adopted an Order to apply Environmental Land Stewardship Principles (Principles) to decision-making processes for planning, operations, and capital development. The Order directs staff to apply the Principles Port-wide for all land use groups, with a focus on ensuring that stewardship of trees, forest, and other habitat provides maximum ecological and community benefit in balance with development and operational needs.

The Order also identifies key Strategies intended to improve comprehensive application of the Principles to Port programs and processes. The Strategies recommend developing and adopting a Land Stewardship Plan (LSP) for the Seattle-Tacoma International Airport (SEA). The LSP is guided by stewardship objectives and goals that will improve the sustainability of SEA land use and operations by increasing the ecological and community benefits provided by trees, forest, and other habitat. The LSP objectives and goals comprehensively apply the Principles to existing SEA projects and programs. Specific actions are identified to achieve the programmatic objectives and goals, supported by site planning information identifying the location and extent of potential stewardship activities.

Objective 1. Establish and maintain an inventory of land stewardship resources

Goal: Establish benchmark conditions

Goal: Maintain a living land stewardship geodatabase

Goal: Track achievements

Objective 2. Protect and restore healthy and self-sustaining trees, forest, and other habitat

Goal: Use forest health assessment results to identify, prioritize, and implement tree planting

Goal: Use forest health assessment results to identify, prioritize, and implement invasive species removal to protect mature trees and restore native understory

Goal: Prioritize stewardship actions at sites with the greatest ecological and community equity benefits

Objective 3. Connect and expand existing habitat

Goal: Connect and expand contiguous habitat along stream riparian corridors

Goal: Enhance stream longitudinal connectivity to allow salmon migration

Objective 4. Offset operational and development impacts to trees, forest, and other habitat

Goal: Integrate environmental stewardship into capital development processes

Goal: Programmatically plan and implement compensatory stream and wetland mitigation

Goal: Identify actions with the greatest community equity benefit

Goal: Implement land stewardship practices in the existing built environment

Objective 5. Support community partnerships

Goal: Provide community engagement opportunities through the Land Stewardship program

Goal: Support Port community equity initiatives

Goal: Leverage interagency partnerships

Select actions to achieve Objective 1:

- Conduct inventory and establish benchmarks for ecological resources and equity (complete)
- Track annual tree planting and protection
- Conduct a new inventory every five years to track progress
- Report achievements annually via a publicly available environment and sustainability scorecard

Select actions to achieve Objectives 2 and 3:

- Plant 500 trees annually
- Implement invasive species maintenance on 20 acres of property annually
- Restore one acre of native understory shrubs and ground cover annually
- Create an index of prioritized sites using ecological and equity metrics
- Remove fish passage barriers

Select actions to achieve Objectives 4 and 5:

- Implement tree replacement standards for SEA jurisdiction
- Prioritize stewardship at sites providing the most community benefit
- Identify opportunities for future wetland mitigation
- Conduct at least two community stewardship events per year
- Actively seek interagency collaboration to coordinate planning and projects

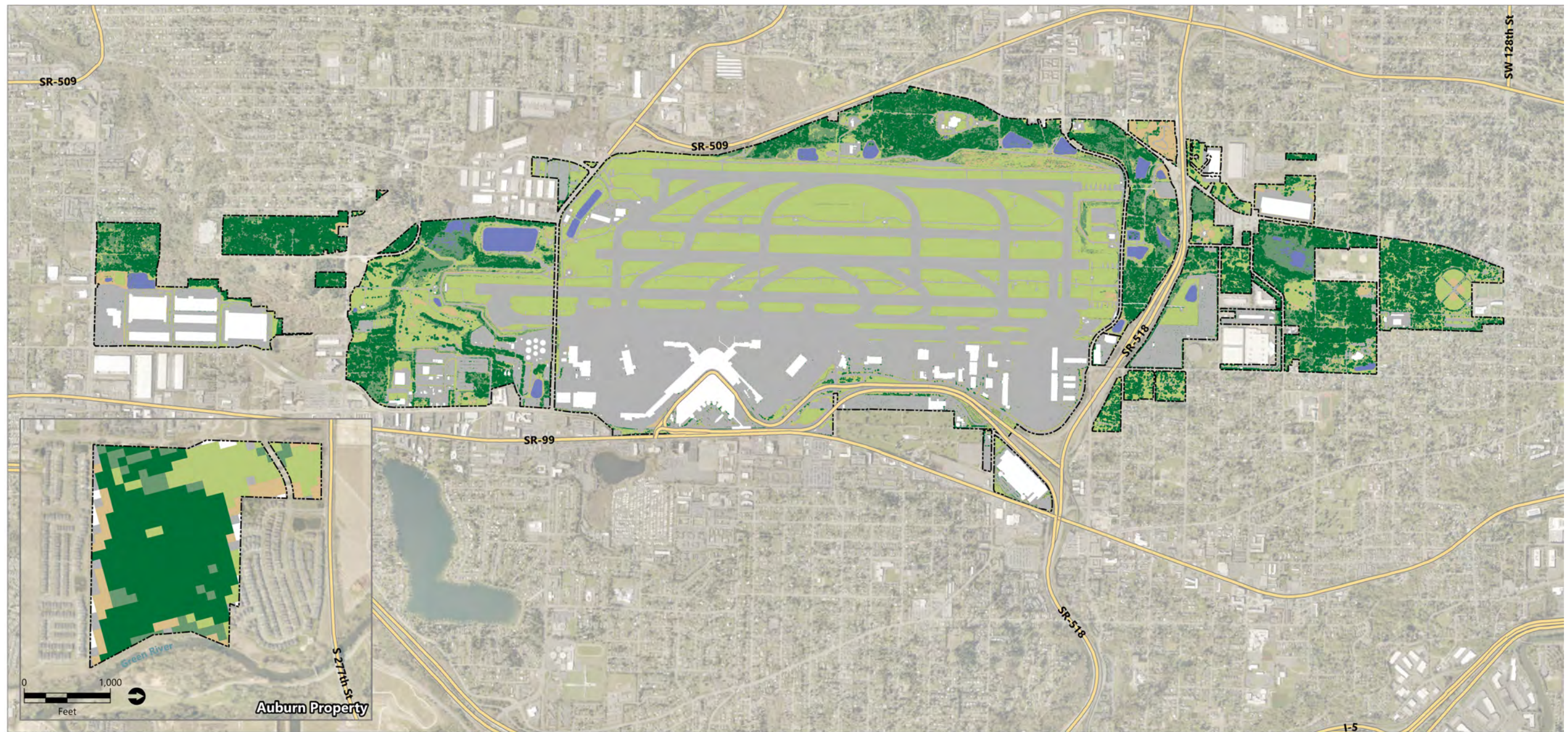
In achieving Objective 1: *Establish and maintain an inventory of land stewardship resources*, the LSP requires completing a comprehensive ecological inventory. The inventory supports the evaluation and analysis of stewardship sites and actions and informs and complements programmatic and project-specific planning and decision-making for operations and capital projects. This inventory includes attributes related to ecology, land use, and community equity.

Inventory of Land Stewardship Resources		
Ecological	Land Use	Community Equity
<ul style="list-style-type: none"> Land cover (e.g., forest, built) Streams and wetlands Other regulated areas (slopes; wells) Site-specific inventory: <ul style="list-style-type: none"> Invasive cover Tree cover High-value individual trees 	<ul style="list-style-type: none"> Existing land use Future land use Operational areas Ground leases 	<ul style="list-style-type: none"> Port Equity Index Urban heat island index Physical accessibility Visual accessibility Adjacency

As of the current LSP inventory¹, SEA owns 2,768 acres of land, 1,234 acres (44%) of which is impervious land cover (e.g., buildings, roads, airfield) (Figure E-1). Tree cover account for 466 acres (17%; Figure E-2), while shrubs, bare ground, and surface water account for 332 acres (12%) of land cover. There is a large amount of grass cover (736 acres; 27%), the majority of which comprises the vegetated strips between the runways on the airfield. Approximately half of SEA property lies within the Airport Operating Area (AOA) and has limited to no land stewardship potential.

¹ LSP inventory data based on 2021 land cover analysis and current 2023 Port ownership and AOA boundary.

Figure E-1
2021 Land Cover



- LEGEND:**
- Port-Owned Aviation Properties at SEA
 - Building
 - Developed/Impervious
 - Dry Grass/Bare Soil
 - Forest
 - Grass
 - Shrub
 - Water

- NOTES:**
1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021
 3. Land cover data were updated by the Port of Seattle using the 2021 King County aerial imagery
 4. Land cover analysis (Auburn Property): USGS National Land Cover Database 2019

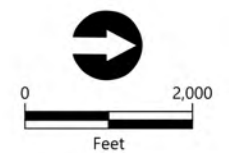
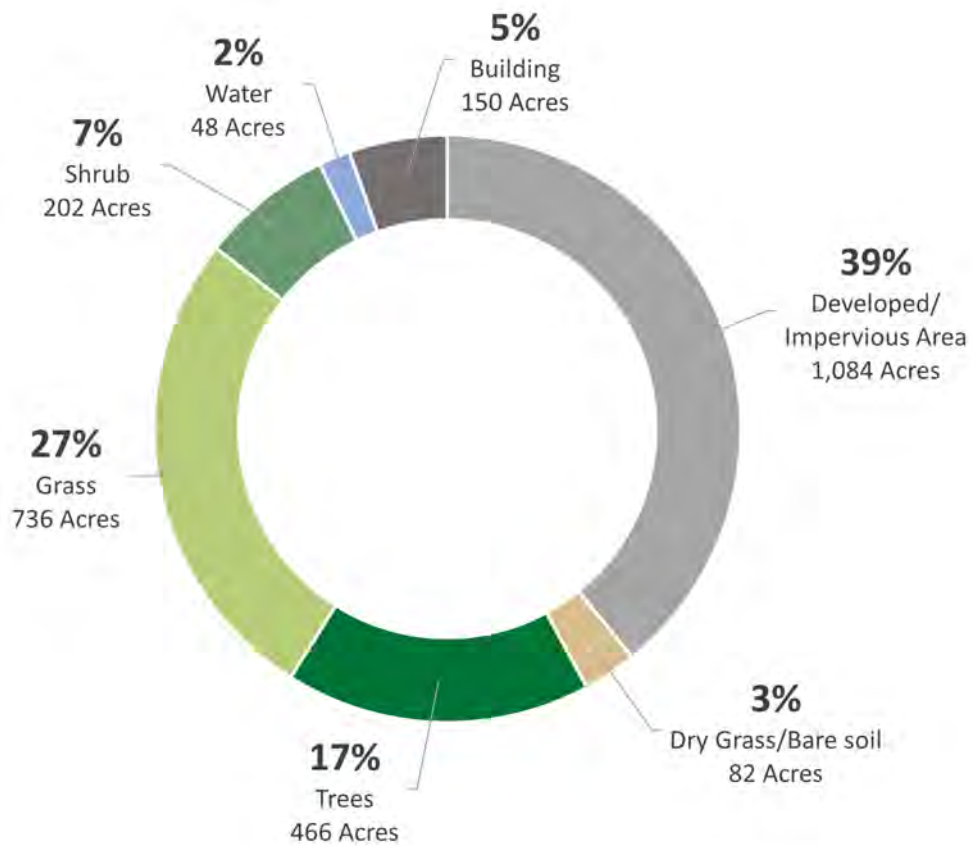


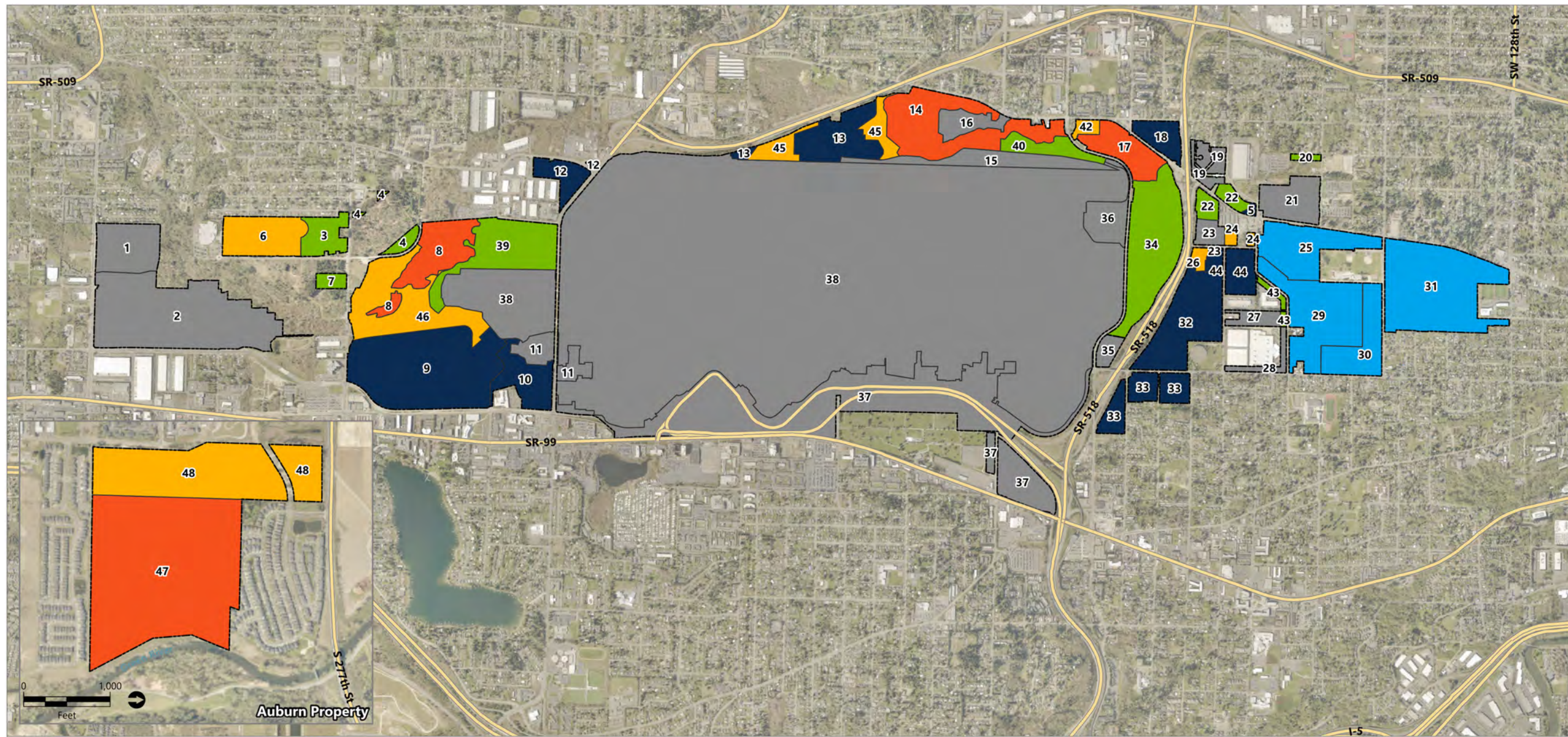
Figure E-2
2021 Land Cover Summary



Note: Total land coverage equals 2,768 acres.

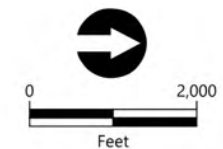
The land use and land cover information is subsequently used to delineate 48 sites, called Management Units (MUs). Each MU is categorized by stewardship potential (Ecological Use, Public Safety and Maintenance, No Action). North SeaTac Park (214 acres) receives a special designation due to its unique status as a lease to the City of SeaTac, who operates and maintains the Park under the conditions of the lease (Figure E-3). Areas of ecological use comprise approximately 507 acres. Remaining operational and development sites account for the remaining 2,047 acres. While operational areas have limited to no stewardship potential, active maintenance and property management can maximize stewardship potential on development sites.

Figure E-3
Stewardship Recommendations by Management Unit



- LEGEND:**
- Port-Owned Aviation Properties at SEA
 - Land Stewardship Plan Management Unit
 - Ecological Use: Habitat Enhancement
 - Ecological Use: Existing Mitigation
 - Ecological Use: Potential Mitigation
 - North SeaTac Park
 - Public Safety and Maintenance
 - No Action

NOTES:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021



MUs with Ecological Use stewardship potential are further evaluated to identify specific actions (e.g., wetland mitigation, mitigate invasive threats, increase tree canopy) appropriate for each MU's existing condition (e.g., intact forest, disturbed forest, stream/wetland presence). Recommendations are provided as site plans that also include site maps and descriptions of existing conditions, including ecological, economic, and equity-based attributes.

The site plans will also be used to inform decision-making for future operations and capital projects, including through the Sustainability Evaluation Framework environmental mitigation (trees, streams/wetlands), which, importantly, includes site selection. Sites with stream and wetland mitigation potential are evaluated in more detail in the Mitigation Opportunities Assessment, including providing concepts and estimating mitigation quantities and construction costs. The assessment is being used for multiple current capital projects and will provide a foundation to develop the mitigation strategy for upcoming Sustainable Airport Master Plan projects.

In addition to identifying what opportunities for stewardship are available at each MU, sites are prioritized (ranked) according to the relative ecological and community benefits. Ecological criteria are based on potential for connection and expansion of contiguous habitat along regulated stream corridors (Figure E-4), while community equity criteria include the Port's Equity Index (Figure E-5), heat island indexing, and original analyses for accessibility by the local community. Sites with greater potential ecological and/or community benefits receive greater priority for stewardship than sites that are less accessible or are isolated from other intact, contiguous habitat.

While multiple operational activities and future development plans constrain ecological opportunities on Port-owned aviation lands, there are over 500 acres of land with existing or potential for ecological use, and land stewardship potential can be maximized in developed areas as well through active maintenance and property management. The LSP sets clear objectives and goals and creates a roadmap of actions for achieving them on a defined schedule. Many of the actions have already been completed or have already been integrated into SEA Environment and Sustainability programs. Ongoing LSP tracking and reporting will ensure accountability and progress toward the LSP objectives and ultimately towards the Port's Environmental Land Stewardship Principles.

**Figure E-4
Habitat Corridors**



LEGEND:

- | | |
|---------------------------------------|----------------------|
| Port-Owned Aviation Properties at SEA | Culverts |
| Stream | Fish Passable |
| Des Moines Creek Habitat Corridor | Partial Fish Barrier |
| Miller Creek Habitat Corridor | Full Fish Barrier |
| Walker Creek Habitat Corridor | N/A |
| | Unknown |

NOTE:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021

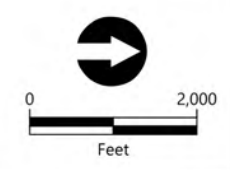
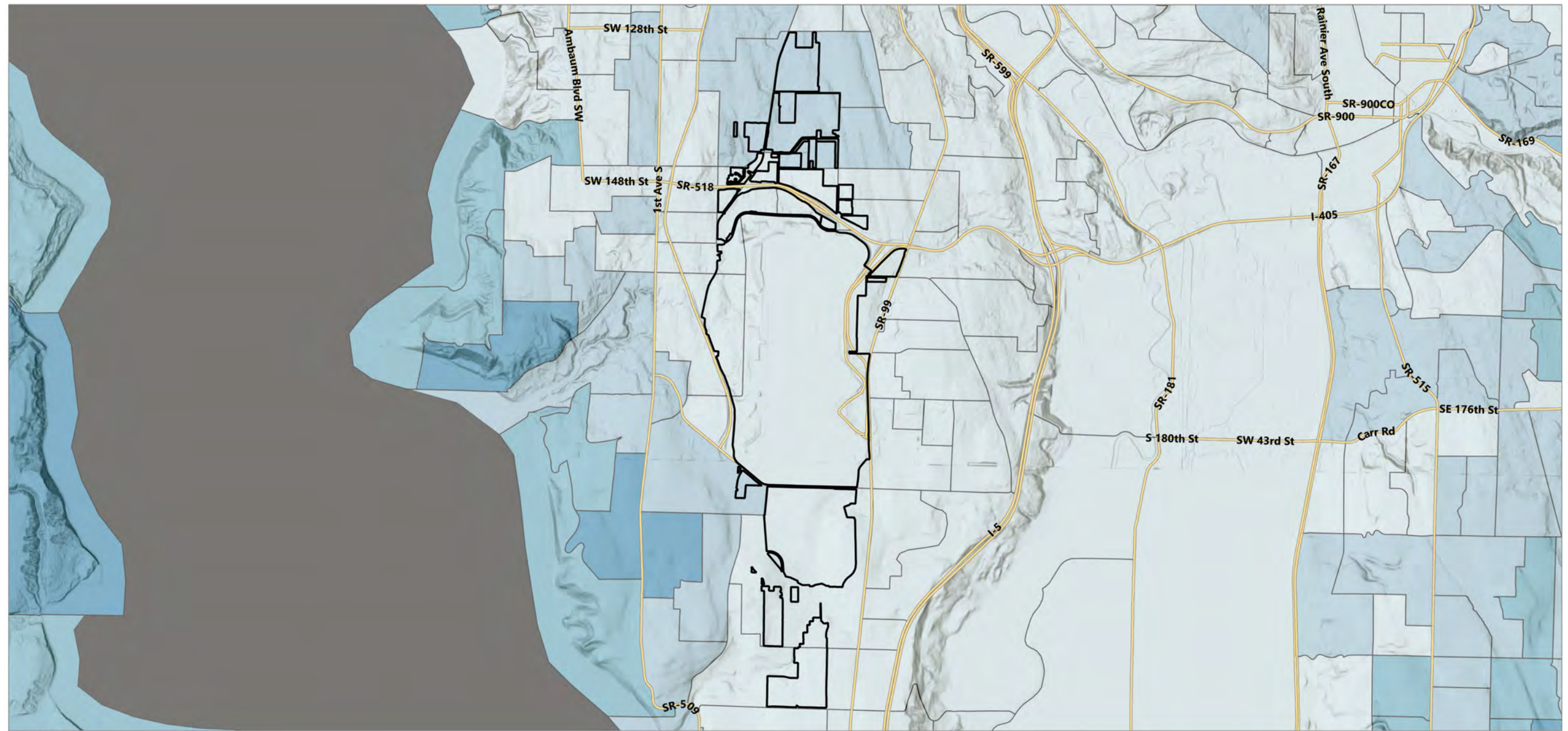


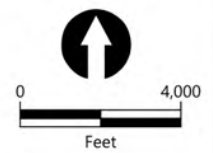
Figure E-5
SEA Equity Index



LEGEND:

 Port-Owned Aviation Properties at SEA	Equity Index
	 High
	 Moderate
	 Low
	 Very Low
	 No Data

NOTES:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Equity Index: Port of Seattle





Auburn Mitigation Area, 2006 (Credit: Port of Seattle)

1 Introduction

Seattle-Tacoma International Airport demonstrates its core environmental principles and strategies through this Land Stewardship Plan, which is built upon the Port's successful history of environmental stewardship.

The Seattle-Tacoma International Airport (SEA) has a strong record of environmental land stewardship and consistently ranks high among United States airports for overall environmental performance. For example, SEA is the first major transportation facility in the United States to achieve Salmon-Safe certification (Port of Seattle 2016), which recognizes the Port's ongoing operations and water resources and habitat management programs that protect aquatic habitat in the vicinity of SEA and by extension the region's salmon populations. SEA implements low-impact development techniques to reduce stormwater runoff, furthering water conservation through multiple operational programs, and supports habitat restoration programs such as its Bee Pollinator Habitat and Queen Bee Breeding programs. To further its environmental and sustainability goals, the Port of Seattle (Port) seeks to formalize and improve land stewardship to balance the benefits to the environment and communities with the airport operations and associated development that provides jobs and drives the regional economy. Land Stewardship Principles and Objectives/Goals/Actions presented herein intend in great part to achieve such a balance.

1.1 What is Land Stewardship?

For the purposes of this document, land stewardship is defined as the responsible use and protection of the natural environment through conservation and sustainable practices to enhance ecosystem resilience and human well-being (Chapin et al. 2010). Other site attributes associated with land use,

community, and economic resources are considered in the context of strategic alignment with Port policy, guidelines, and processes for planning, operations, and development. The Land Stewardship Plan (LSP) proposes to manage trees, forest, and other habitat, including streams, wetlands, and their protective buffers.

By recognizing the value of land stewardship, the Port is proactively committing to comprehensively manage its natural resources in alignment with SEA planning, operations, and development. Land stewardship at SEA focuses on innovative site management solutions that protect natural resources while enabling SEA to continue to efficiently plan and operate its facilities.

1.2 SEA Land Stewardship Planning Context

Land Stewardship at SEA applies the sustainable use and protection of natural resources in the context of the agency Mission, Values, and policies. The Port seeks to enable economic development while improving overall quality of life in the communities the Port serves. Consequently, the Port's LSP objectives and actions seek to offer a path for sustainable planning, operations, and development by identifying opportunities to preserve and enhance resources while benefiting communities.

1.2.1 Port Mission, Vision, and Values

The Port's Mission, Vision, and Values provide the rationale and justification for developing the Land Stewardship Plan. The Port's Mission is to "promote economic opportunities and *quality of life* in the region by advancing trade, travel, commerce and job creation in an equitable, accountable and *environmentally responsible manner*."

The Port's Vision is to be "committed to creating opportunity for all, *stewarding our environment responsibly*, partnering with surrounding communities, promoting social responsibility, conducting ourselves transparently and holding ourselves accountable" (Port of Seattle 2017).

The Port's Values are as follows:

1. Respect: We uphold the dignity and value of every person.
2. Anti-Racism and Equity: We commit to dismantling institutional racism and ensuring equitable opportunities for all.
3. Integrity: We are honest, accountable, and ethical.
4. Stewardship: We *honor and care for the resources entrusted to us* for the benefit of future generations.
5. Excellence: We promote excellence through continuous improvement and innovation.

The LSP is intended to implement the environmental policy for programs related to habitat management while also integrating the policy into planning and operations. This includes balancing environmental considerations with economic and social policy as well as operational requirements.

For example, the LSP supports and enables economic development required to support SEA operations, uses equity as a tool for prioritizing actions, recognizes the impact of SEA operations on surrounding communities, provides a transparent view of SEA natural resources extent and condition, and seeks to inform and improve on the substantial land stewardship work already being accomplished through existing programs.

1.2.2 Port Century Agenda

The Port Commission adopted a Century Agenda in 2012 to establish the Port's vision for the next 25 years (Port of Seattle 2023a). Last updated in 2020, the Century Agenda identifies six overarching goals, each with a series of objectives designed to put the Port on course to achieving its long-term vision. The goals "set the course for the organization and a sound structural framework that helps operating divisions set tactical objectives to keep the Port on track to its destination" (Port of Seattle 2023a). Related to land stewardship, Goal 4 states the Port will "be the greenest, and most energy efficient port in North America." Specific objectives for Goal 4 include the following:

- Meet all increased energy needs through conservation and renewable sources.
- Meet or exceed agency requirements for stormwater leaving Port-owned or -operated facilities.
- Reduce air pollutants and carbon emissions.
- Restore, create, and enhance 40 additional acres of habitat in the Green/Duwamish watershed.

The Land Stewardship Plan is aligned with and will assist the Port with the implementation of Goal 4. The Plan is a mechanism to support operations and development while exceeding minimum regulatory requirements and can inform master planning and real estate development planning to prioritize locations for development and land stewardship. Trees and forest provide hydrologic services that augment direct stormwater management practices and reduce air pollutants and sequester carbon and greenhouse gases.

1.2.3 Port Equity Policy

The Port adopted an Equity Policy Directive on April 11, 2023, that institutionalizes equity into its organization for years to come, ensuring that the Port prioritizes just, inclusive policies and programs, both internally and externally.

In 2019, the Port became the first port authority in the country to establish an office of equity. In doing so, the Port committed time and resources to embed equity, diversity, and inclusion into the fabric of the organization. Also, by creating the Office of Equity, Diversity, and Inclusion, the Port acknowledged that for too long it had comfortably operated in an unjust, racist society that works to the benefit of a few at the expense of many. By failing to acknowledge and actively address these inequities, the Port realized that it was playing a role in perpetuating them. While the Port

still has a lot of work ahead, the Port has made incredible progress—in just four short years—in advancing equity, diversity, and inclusion in our programs, policies, and culture.

The adoption of the Equity Policy Directive moves the Port beyond simple compliance and mandates toward long-term commitment and sustainable transformation, embedding equity into the fabric of the Port so that the practice and value of equity live beyond current staff, leadership, and Commissioners. The Directive also means that the Office of Equity will develop an environmental justice framework and/or principles to guide future Port operations and process. This framework will be developed collaboratively with internal Port departments and external stakeholders and partners.

The Port also created a tool called the Equity Index to map inequities that exist within the region and use that information to direct resources towards the areas of greatest need. Port staff use the Equity Index to equitably guide funding decisions and broadly inform policy decisions across the Port. The Equity Index is an interactive map that displays a visual representation of social and environmental disparities in King County. Using 21 indicators within four categories, the Equity Index illustrates the degree to which different communities experience pollution burdens and social inequities. Across the region, there are significant variations in pollution exposure, access to economic opportunities, and the overall standard of living and quality of life.

1.2.4 Port Commission Environmental Land Stewardship Principles

In July 2023, the Port of Seattle Commission adopted an Order to apply Environmental Land Stewardship Principles (Principles) to decision-making processes for planning, operations, and capital development. The Order directs staff to apply the Principles Port-wide for all land use groups (operating areas, development sites, parks and open space, and restoration sites), with a focus on ensuring that tree, forest, and other habitat stewardship provides maximum ecological and community benefit in balance with development and operational needs. The Principles are as follows:

- 1. Use a comprehensive approach to environmental land stewardship, including trees, forest, and other habitat.**
 - a. Utilize landscape-scale inventory and assessment as the foundation for decision-making, to establish benchmarks of existing conditions and natural resources, and to tailor stewardship approaches to existing and/or planned land uses.
 - b. Implement stewardship measures across all land use types (restoration sites, parks and open space, development sites, and operating areas), so the Port is consistent in our approaches while reflecting site-specific needs.
 - c. Recognize the benefit of trees, forest, and other habitat at locations that are publicly accessible or near Port communities, because those areas provide environmental health and other benefits to impacted communities.

- 2. Maximize opportunities to increase trees, forest, and other habitat as part of infrastructure planning and design.**
 - a. Seek opportunities to expand and connect trees, forest, and other habitat to achieve greater benefits to the community and fish and wildlife. The Port will prioritize opportunities in or adjacent to existing contiguous trees, forest, and other habitat.
 - b. If the Port is not able to add trees, forest, and other habitat to development sites because of operational or land use standards, then opportunities on alternative Port properties that further contribute to the environmental and community benefits will be prioritized.
- 3. Apply an equity and environmental justice lens to environmental land stewardship.**
 - a. Prioritize areas identified by the Equity Index as having the greatest need for tree and forest stewardship opportunities to improve and increase community health benefits, including air quality, heat island effect, community resilience, recreation, and mental health.
 - b. In applying an equity lens, consider the historical and cultural value of the site and its assets.
 - c. In applying an equity lens, consider the impact to the community and consider community consultation or engagement.
- 4. Support Community Partnerships and leverage inter-governmental coordination and Port funds to catalyze stewardship processes and outcomes.**
 - a. Prioritize expanding and supporting community-led environmental stewardship opportunities through grants and Port-sponsored stewardship events.
 - b. Actively participate and support regional efforts and methodologies for stewardship of trees, forest, and other habitat.
 - c. Coordinate with local governments to have Port's stewardship activities supportive of regional planning, including city and regional tree canopy goals and initiatives.
 - d. Identify opportunities to connect and expand contiguous trees, forest, and other habitat across jurisdictions and property owners.
- 5. Use a holistic approach to stewardship to ensure trees, forest, and other habitat are healthy and self-sustaining.**
 - a. Use a landscape-based approach to stewardship. The Port will use landscape-scale inventory to broadly assess the extent and health of trees, forest, and other habitat and conduct site-based assessment as appropriate. This approach supports informed decision-making for comprehensively stewarding trees, forest, and other habitat across all land uses.
 - b. Protect existing high-value resources and enhance impaired resources to support current and future environmental and community benefits. Port operations and development may disrupt trees; however, the Port will explore and prioritize protection over removal and replacement, whenever possible.

- c. Actively steward trees, forest, and other habitat to ensure long-term viability to preserve resources.
- d. Emphasize replacing invasive species with diverse, native species to ensure healthy and self-sustaining trees, forest, and other habitat.

The Port Order identifies three strategies to support the Principles: The first strategy is to adopt a Land Stewardship Plan in 2023, the second strategy is to adopt tree replacement standards at SEA, and the third strategy focuses on advancing shoreline restoration at Port maritime facilities and waterfront properties.

1.3 Regional Tree Policy Initiatives

In addition to the Port’s mission and stewardship Principles, there are multiple environmental programs occurring throughout the region that have influenced the LSP development. The LSP aligns these regional plans, goals, and methodologies tailored to the context of SEA planning, operations, and development.

1.3.1 Salmon Safe

SEA is the first airport to have been certified as Salmon Safe. Salmon Safe is a certification process that aims to transform land management practices throughout the Pacific Northwest so salmon can thrive. The certification program promotes management practices for both farming and urban ecosystems to the benefit of salmon as well as other fish and wildlife. The initiative significantly advances restoration efforts in urbanized watersheds by developing urban aquatic protection guidelines and a citizen education campaign. SEA was the first airport in the United States to achieve Salmon-Safe certification in 2016. The ecological components of the Certification require SEA to inventory and map its natural resources and implement a management plan to protect and enhance stream riparian corridors. Additional components of the certification protect aquatic resources through water conservation measures, implementing best management practices for sediment control on construction sites, and ensuring limited use of herbicides and pesticides.

1.3.2 King County Strategic Climate Action Plan

With the same environmental stewardship focus, King County initiated the Strategic Climate Action Plan (SCAP) in 2015, a five-year plan for climate action. The plan recognizes the significance of trees in greenhouse gas emissions and preparing for climate change through its ambitious goal to plant 1 million trees by 2020, stating that “[t]rees store carbon and contribute to clean air and water, healthy habitat for salmon and other wildlife, and more livable communities” (King County 2015). King County achieved its goal in 2020 and updated the SCAP, setting a new goal to plant 3 million trees by 2025 (King County 2021a).

In 2020, parallel to the SCAP update, the County also developed a 30-year forest stewardship plan. The plan seeks to accomplish the following:

- Develop a shared county-wide vision, including priorities and goals associated with rural and urban forest cover and health, and strategies for achieving that vision over the next 30 years.
- Ensure that county-wide forests continue to play a role in mitigating impacts of climate change, while also guiding King County and partners toward strategies that allow us to meet multiple goals as we expand and enhance forest cover (King County 2021b).

1.3.3 *Green Cities Partnerships*

In recognition of airport impacts to the neighboring community, the Port set up the SEA Airport Community Ecology (ACE) Fund to fund benefits offsetting the impacts. Through ACE, the Port provided funding to the local SEA cities of SeaTac, Burien, and Des Moines to develop comprehensive stewardship plans that evaluate each city's existing forest health and conditions and identify opportunities to improve sustainability and health using the Green Cities Network model. The Green Cities Network includes more than ten cities through the Puget Sound region's King, Pierce, and Snohomish counties and has collectively served over 3 million people, with its aim to restore and steward more than 13,000 acres of land. In SeaTac, Burien, and Des Moines, each Green Cities stewardship plan has unique attributes but is organized around three core goals:

1. Improve city residents' quality of life and connection to nature and provide increased ecosystem benefits by restoring our forested parks and natural areas and enhancing urban forests.
2. Galvanize an informed and active community.
3. Ensure long-term sustainable funding and community support.

Strategies for how to increase canopy cover in each of these cities include planning for adaptive management; enrolling forested parkland and natural areas in active restoration and maintenance (including invasive species removal); planting and caring for trees throughout the cities; implementing a volunteer program; and securing stable, sustainable funding. The ACE-Funded Green Cities Partnership Plans do not include compliance as a strategy to achieve urban forest stewardship goals.

To date, the Airport Community Ecology Fund and associated Green Cities Partnership, in association with numerous invasive management actions, have planted approximately 2,250 trees and provided almost 1,000 tree saplings to citizens for backyard planting. This work is being extended through the current South King County Community Benefits Fund, which continues to provide grant money to support citizen-based Land Stewardship projects.

1.3.4 *Federal, State, and Local Tree Equity Initiatives*

There is broad recognition across agencies and stakeholders that trees, forests, and other habitats provide substantial ecosystem services to communities and that underserved communities are correlated with a lack of tree and forest canopy and the associated benefits they provide. A variety of programs at all levels of government include the following:

- **Federal Inflation Reduction Act.** The federal government has invested \$1 billion in grants through the Inflation Reduction Act (IRA) to increase equitable access to trees and green spaces in urban and community forests. The IRA for Urban and Community Forestry grant program invests in projects that expand equitable access to urban tree canopy and its associated human and environmental health benefits; engage the local community in urban forest planning; and increase urban and community forest resilience to threats such as pests, climate changes, and storm events. The grant program will deliver “nature-based solutions to ensure a resilient and equitable tree canopy where more than 84 percent of Americans live.”
- **Washington Tree Equity Collaborative.** The Washington Tree Equity Collaborative is a statewide partnership between American Forests and the Washington State Department of Natural Resources. The Tree Equity Collaborative will engage cities, community organizations, and stakeholders over the next three years to create rigorous and inclusive urban forestry programs throughout the state that increase tree equity by expanding neighborhood tree canopy coverage and health (DNR 2023).
- **King County Equity and Social Justice Strategic Plan.** The County’s Equity Policy was adopted in 2010, and the Strategic Plan provides a comprehensive framework to be applied across all departments and programs (King County 2023). The plan implements a Vision that applies strategies to invest upstream and where needs are greatest in partnership with affected communities.
- **City Policies.** City equity policies are broadly applied and in principle include equal access to investment in natural and recreational resources. For example, the City of Burien’s equity policy is to “provide opportunity for all people in Burien to benefit equally from City services, processes, and investments, regardless of identity, community, or socioeconomic circumstances” (City of Burien 2022). The City of SeaTac integrates equity requirements in its Comprehensive Planning equity planning, community well-being, and community identity (SeaTac 2021).
- **Seattle’s Equity and Environment Initiative (EEI) and Race and Social Justice Initiative (RSJI).** Seattle’s EEI and RSJI are citywide equity initiatives with the goal of eliminating racial disparities and achieving racial equity in Seattle. EEI is focused on justice and equity in the city’s environmental programs and policies (Seattle 2023a). RSJI provides racial equity support to city departments to address inequities within the city government (Seattle 2023b).

1.4 Creating the Land Stewardship Plan

Consistent with the Port’s Environmental Land Stewardship Principles, the LSP is intended to provide information to inform and guide decision-making for SEA planning, operations, and development. The LSP accomplishes this by inventorying environmental resources and other relevant land use characteristics and establishing a baseline condition. It then defines, locates, and prioritizes stewardship recommendations and actions. Similar to the Port’s Century Agenda objective to “restore, create, and enhance 40 additional acres of habitat in the Green/Duwamish watershed and Elliott Bay” (Port of Seattle 2023a), the LSP also provides SEA the opportunity to develop specific, measurable, achievable, relevant, and time-bound (SMART) goals and objectives that align with overarching Port policy and the Environmental Land Stewardship Principles. The following objectives define the LSP.

LSP’s Importance to Habitat

The LSP is the mechanism for the Port to achieve its habitat goals at the Airport.

Objective 1. Establish and maintain an inventory of land stewardship resources.

The rationale for creating and maintaining a land stewardship inventory is to establish benchmarks and track change over time to document achievements and identify ongoing needs. The inventory will also be used to inform the implementation of the subsequent LSP objectives, which are geared toward implementing specific actions to steward resources.

Objective 2. Protect and restore healthy and self-sustaining trees, forest, and other habitat.

Objective 2 aims to utilize habitat assessments as the basis for making LSP stewardship recommendations to improve habitat quantity and quality. Much of the undeveloped areas surrounding the SEA operating area were purchased for the purposes of noise (e.g., North SeaTac Park) and environmental mitigation (e.g., 177 acres of habitat mitigating for the impacts of the Third Runway). Many of the areas outside mitigation sites have not been actively maintained, and disturbance typical of all urban areas has resulted in degradation primarily by the impacts of invasive vegetation species (e.g., Himalayan blackberry, English ivy) that outcompete native understory vegetation species, threaten existing trees, and prevent natural tree recruitment and forest regeneration. Protection and restoration, therefore, are intended to protect existing trees and forest and replace invasive vegetation species with native understory plantings.

Objective 3. Connect and expand existing habitat.

The majority of land stewardship resources on Port property at SEA occur within or in conjunction with regulated aquatic resources (streams, wetlands) and adjacent upland areas that buffer and protect resource functions. These areas also provide a buffer between SEA operational and development areas and nearby communities that receive the brunt of environmental impacts such as noise and air emissions. The areas also provide a greenspace that provides a visual aesthetic and, in publicly accessible areas, recreational opportunities that benefit community health and wellness.

Objective 4. Offset operational and development impacts to trees, forest, and other habitat.

The Environmental Land Stewardship Principles recognize the impacts of SEA operations and airport-dependent development on the environment and the impacts to the communities served by SEA. Consequently, the Principles state that operational and capital development processes need to integrate criteria for offsetting impacts to trees, forest, and other habitat. The LSP proposes to implement mitigation of these impacts through the existing Sustainability Evaluation Framework (SEF), mitigating tree-clearing impacts, and identifying in-basin opportunities to implement compensatory stream and wetland mitigation opportunities that ensure that the mitigation benefits are realized in the adjacent communities that are most impacted. The SEF will identify opportunities for material salvage and re-use (e.g., re-using cleared trees in concurrent or future habitat projects) and incorporate alternative habitats (e.g., bee pollinator meadows, shrub habitat) in areas where trees and forest are not feasible due to flight safety or local planning requirements.

Moreover, most cities in the region, including Seattle and the airport communities (SeaTac, Burien, Des Moines), require trees cleared for development projects to be retained and/or replaced either on the development site or on City property such as schools and parks. The SEA development jurisdiction defined by the Inter-local agreement with the City of SeaTac does not currently administer tree replacement requirements. Therefore, the Principles require SEA to develop and adopt tree stewardship standards. The standards will be incorporated into existing Landscape Design Standards with which all capital projects are required to comply and will also apply to operations and maintenance activities (e.g., clearing around infrastructure in compliance with operational safety requirements).

Objective 5. Support community partnerships.

There is general recognition that ecological boundaries are disparate from and extend beyond localized geopolitical and real estate boundaries. This recognition is made apparent when considering watershed boundaries, stream riparian corridors, and fish and wildlife habitats and ranges. For example, regulated resources such as wetlands often span SEA and adjacent property boundaries, and mapped contiguous habitat comprise both SEA and its neighboring cities. In addition, it is apparent that the highest-value opportunities for stewardship lie not only in publicly accessible Port property at SEA but inside impacted communities. For these reasons, the LSP considers integration of SEA Land Stewardship with regional planning initiatives (e.g., King County 3 Million Tree Initiative; Green Cities Partnership methodology) and supports Port community benefits programs (e.g., South King County Fund). Specifically, SEA Environment and Sustainability staff will participate in implementing community programs by providing technical and planning support and perspective to internal and community stakeholders. Importantly, SEA will also identify and accommodate interagency coordination opportunities to enable Land Stewardship projects. For example, SEA has coordinated with the City of Burien to implement land use planning and environmental review in the West Miller Creek watershed. One of the leveraged outcomes is restoration of a piped segment of the stream under Des Moines Memorial Boulevard to 450 linear feet

of restored stream channel. The project constructed the stream restoration primarily on Port property, and SEA contributed \$800,000 to the approximately \$4M construction cost. These types of beneficial outcomes can be accomplished only through close cooperation among local and regional governments and agencies.

1.4.1 LSP Goals and Actions

Specific goals and actions are identified to help achieve each LSP objective. Goals and actions range in type, scale, and duration. Table 1 summarizes each objective and provides the supporting goals and actions.

1.4.2 Internal Outreach and Coordination

To identify LSP objectives and actions, the SEA Environment and Sustainability team coordinated with several other SEA departments to ensure the LSP aligns with internal Port policies and programs. Initial outreach occurred in March 2018, with subsequent meetings throughout subsequent months. Internal coordination supported the following:

- Developing LSP guidelines and objectives
- Documenting baseline site attributes at each Management Unit
- Developing the list of potential site-based management actions

The following departments provided feedback on developing management actions described in this LSP:

- Environment and Sustainability
- Aviation Operations
- Aviation Maintenance
- Aviation Properties
- Real Estate
- SEA Building Department
- Facilities and Infrastructure
- Planning

Table 1
LSP Objectives, Goals, and Supporting Actions

Goal	Action
LSP Objective 1. Establish and maintain an inventory of land stewardship resources.	
Establish benchmark conditions	<ul style="list-style-type: none"> ● Inventory, map, and assess the condition of trees, forest, and other habitat attributes: <ul style="list-style-type: none"> - Landscape conditions (land cover; land use) - Site-specific conditions (forest health; high-value trees; trees on developed sites) <ul style="list-style-type: none"> ○ Regulated aquatic resources ○ Streams, wetlands, and their regulatory buffers ○ Other environmentally critical areas ○ Individual trees (high-value mature trees and trees on developed parcels) - Contiguous habitat (stream riparian corridors; stream culverts and fish passage) ● Inventory, map, and assess community equity attributes
Maintain a living land stewardship geodatabase	<ul style="list-style-type: none"> ● Conduct periodic land cover analysis, forest health assessments, and tree inventories to assess change in tree canopy and forest health ● Update resource database for tree inventories, aquatic resource delineations, and contiguous habitat as it becomes available
Track achievements	<ul style="list-style-type: none"> ● Document tree protection, tree planting, and invasive removal on SEA property ● Document tree planting and invasive removal projects sponsored by the Port community equity initiatives in surrounding communities ● Inventory and document SEA tree canopy and forest health ● Report achievements for tree protection, tree planting, and invasive removal/understory planting in the annual environment and sustainability scorecard
LSP Objective 2. Protect and restore healthy and self-sustaining trees, forest, and other habitat.	
Implement tree planting to increase canopy and habitat function	<ul style="list-style-type: none"> ● Plant 500 trees (two acres) annually to augment canopy and diversity
Restore invasive areas to a native forested condition	<ul style="list-style-type: none"> ● Implement invasive species maintenance for 20 acres of property annually ● Plant one acre of native understory shrubs and ground cover annually to increase forest structure and diversity ● Protect 50 mature trees from invasive threats annually to maintain their function and value
Prioritize stewardship actions at sites with the greatest ecological and community equity benefits	<ul style="list-style-type: none"> ● Create an index of prioritized sites using ecological and equity metrics

Table 1 (cont'd)

LSP Objectives, Goals, and Supporting Actions

Goal	Action
LSP Objective 3. Connect and expand existing habitat.	
Connect and expand contiguous habitat along stream riparian corridors	<ul style="list-style-type: none"> ● Prioritize stewardship at sites in or contiguous to existing habitat corridors ● Coordinate and support community projects within mapped contiguous habitat corridors
Enhance stream longitudinal connectivity to allow salmon migration	<ul style="list-style-type: none"> ● Replace stream culverts and other artificial barriers with fish-passable structures
LSP Objective 4. Offset operational and development impacts to trees, forest, and other habitat.	
Integrate environmental stewardship into capital development processes	<ul style="list-style-type: none"> ● Establish SEA development standards for trees, including tree definition, on-site retention, and replacement requirements ● Develop and implement the Habitat and Restoration criteria of the Sustainable Evaluation Framework ● Provide resource inventory and assessment documentation early in the project planning process ● Identify opportunities to salvage native plant materials and woody debris before construction ● Identify opportunities for constructing alternative habitats (pollinator meadows, shrub communities) in areas where trees and forest are not feasible ● Assess feasibility of open-space credits for LEED and Envision projects
Programmatically plan and implement compensatory stream and wetland mitigation	<ul style="list-style-type: none"> ● Complete a mitigation opportunities assessment identifying sites with potential for future compensatory stream, wetland, and tree mitigation ● Include the Port's Equity Index scoring, public accessibility, and heat island information as part of Land Stewardship site management plans
Identify actions with the greatest community equity benefit	<ul style="list-style-type: none"> ● Prioritize in-basin projects for stream and wetland compensatory mitigation ● Prioritize sites that provide a buffer between airport operational and development and adjacent neighborhoods ● Prioritize sites according to urban heat island and the Port's Equity Index scores ● Conduct public engagement on projects with tree, forest, and other habitat mitigation requirements
Implement land stewardship practices in the existing built environment	<ul style="list-style-type: none"> ● Replace missing, dead, and unhealthy trees in landscaped areas at existing development sites in accordance with project as-built designs and current landscaping standards ● Mitigate public safety hazards ● Identify and map vegetated areas adjacent to public-private infrastructure ● Inventory and mitigate trees and other vegetation posing a hazard to life and infrastructure

Table 1 (cont'd)
LSP Objectives, Goals, and Supporting Actions

Goal	Action
LSP Objective 5. Support Community Partnerships.	
Provide community engagement opportunities through the Land Stewardship program	<ul style="list-style-type: none"> ● Establish community stewardship sites on airport property ● Conduct community events (planting and/or maintenance) ● Integrate job training and workforce development opportunities ● Maintain planted sites for a five-year period
Support Port community equity initiatives	<ul style="list-style-type: none"> ● Coordinate with South King County Development Fund grant program <ul style="list-style-type: none"> - Participate on Grant Review Committee - Provide supporting information and technical expertise to grant awardees ● Participate in Green Cities Partnership <ul style="list-style-type: none"> - Complete planting projects and community events through the Green Cities Partnership Urban Forest Management Plans for SeaTac, Burien and Des Moines - Provide public engagement opportunities to inform stewardship planning and activities ● Conduct public outreach for the Land Stewardship Plan prior to formal adoption ● Include Equity Index scores as part of site-specific resource assessments and management recommendations
Leverage interagency partnerships	<ul style="list-style-type: none"> ● Facilitate and enable to the extent feasible stewardship projects sponsored by the SEA public partners ● Utilize grant funding opportunities provided by federal and state equity and/or tree stewardship initiatives



2 Methodology

This section outlines the methodology to inventory ecological and community baseline conditions, identify landscape-scale LSP recommendations, and identify site-scale stewardship actions.

Methodology for the LSP combines baseline analysis of existing land use, existing land cover, and presence or absence of natural resources including streams, wetlands, and buffers to identify opportunities and constraints at SEA. It also documents existing community benefits and equity parameters such as heat island effects. The LSP then evaluates ecological opportunities to make LSP recommendations and identify specific site-based stewardship actions. The LSP evaluation assesses future land use, such as the Port's operation and future development constraints on LSP actions, and ecological improvement, such as future mitigation or habitat corridor expansion.

To track progress to achieving LSP goals, SEA will use the LSP methodology to update SEA baseline conditions and adapt LSP recommendations and site-based stewardship actions every five years, which aligns when there is a regional update to aerial imagery and land cover classifications.

The LSP methodology includes the following steps:

1. Define geographic extent
2. Define baseline conditions
 - a. Assess current SEA land use and operations
 - b. Assess ecological conditions
 - c. Assess equity and community access

3. Evaluate and assign LSP recommendations
 - a. Define Management Units
 - b. Assess SEA operational and land use constraints
 - c. Assess ecological values and threats
 - d. Assign LSP recommendations
4. Evaluate and recommend site-specific stewardship actions at the Management Unit scale
5. Prioritize sites for stewardship with the greatest ecological and community equity benefit

Step 1. Define Geographic Extent

The geographic extent encompasses Port of Seattle-owned aviation properties. Port ownership at SEA changes over time with land swaps, acquisition, and real estate sales. In Step 1, Port ownership and the LSP geographic extent are confirmed. Port ownership defines areas with specific LSP recommendations and actions. Habitat corridors extend beyond ownership, and the LSP goals seek to support habitat opportunities beyond SEA properties through community partnerships and support.

Step 2. Define Baseline Conditions

Baseline data components provide the foundation of the LSP development and include both ecological and community conditions including equity parameters.

Step 2a. Assess Current SEA Land Use and Operations

Many Port-owned properties at SEA support aviation use with operational requirements and/or existing site development. Other properties have future development plans to support aviation use. There are also mitigation restrictive covenants that constrain future uses. A land use baseline needs to be defined prior to initiating an analysis for future ecological use and stewardship actions. Land uses could include the following:

Airport Operations Area

The Airport Operations Area (AOA) is a heavily regulated and highly restricted area, surrounded by a security fence to prohibit unwarranted access. The AOA includes airplane movement areas including the runway safety area, as well as the secured area of the airport terminal. Vegetation within the AOA is highly maintained and consists of mostly mowed grass. The grass seed mix is specified by Aviation Operations and is intended to detract wildlife. LSP stewardship actions are not feasible in the AOA.

Runway Safety Area

The Runway Safety Area (RSA) is defined by a boundary surrounding the runway that reduces the risk of damage to incoming and outgoing aircraft in the event aircraft under/overshoot or deviate from the runway. Entirely within the AOA, the RSA is required to be completely clear except for grass.

People, vehicles, and temporary objects are never allowed in the RSA while runways are in operation (Cassam 2018). LSP stewardship actions are not feasible within the RSA.

Runway Protection Zone

The Runway Protection Zone (RPZ) is a distinct area at the ends of the runway that protects people and property on the ground from incoming and outgoing aircraft in the event of a crash or emergency landing. Within the RPZ, separate regulations (including Object Free Area, Obstacle Free Zone, and Federal Aviation Regulation Part 77 restrictions) are in place to protect aircraft from obstructions. The Federal Aviation Administration (FAA) sets standards and regulations for the RPZ. The RPZ should be clear of objects and should not be used for public assembly. Vegetation is allowed in the RPZ, provided that it does not attract wildlife or become an obstruction. SEA is responsible for maintaining its RPZ standards. The Port owns the majority of the land in the RPZ, aside from property owned by the Washington State Department of Transportation along SR 518 and SR 509 (including the future SR 509 extension route) and a parcel of private property east of Des Moines Memorial Drive at 192nd Street (Cassam 2018). LSP stewardship actions are feasible within the RPZ but are constrained due to RPZ restrictions and specific site-scale conditions.

Private Ground Leases

Much of the Port-owned aviation property is leased to tenants and provides a consistent income to the Port. Lease agreement conditions and timelines vary for each property. The tenant holding the lease is responsible for vegetation and habitat maintenance, if applicable, and the Port does not have the authority to maintain these areas. Most of these sites are highly developed for aviation and industrial uses and include buildings and pavement. LSP stewardship actions are not feasible within existing ground leased areas. The Port could negotiate the terms and conditions related to stewardship actions on future ground leases.

City of SeaTac Ground Leases

The City of SeaTac leases several properties from the Port, including North SeaTac Park and SeaTac Community Center. While LSP stewardship actions may be feasible in these areas, the LSP does not propose any action in these areas. Concurrent to the LSP development, Forterra is working with the City of SeaTac through its ACE-funded Green City Partnership to assess canopy cover and forest health and identify areas for canopy expansion. Through that effort, Forterra is identifying potential actions on sites the City of SeaTac leases from the Port, specifically North SeaTac Park and SeaTac Community Center. The actions completed could be integrated into future LSP recommendations or could be reflected in future LSP land cover analysis updates.

Future Development and Planning

The Port has identified several properties for future development and planning. This includes sites that are slated to be leased to a developer for aviation or industrial uses. This also includes sites

identified for Port aviation use development in the proposed Sustainable Airport Master Plan. Because the baseline condition is subject to change in these areas, LSP recommendations are constrained and focus on protecting infrastructure and public safety.

Mitigation Restrictive Covenant

The Port has constructed multiple wetland and stream mitigation sites within the LSP’s geographic extent. These sites include mitigation covenants that encumber future development. Existing mitigation restrictive covenant sites are not available for new regulatory mitigation activities. LSP stewardship actions on these sites focus on monitoring, maintenance, and potential expansion and/or connection to surrounding habitat corridors.

Flight Corridor Safety Program Mitigation

The FAA requires the Port to remove obstructions that pose a risk to aircraft, including tree obstructions. Following tree obstruction removal, the Port installs a native tree and shrub community on Port-owned sites, providing a tree replacement ratio of 4:1 to offset the tree obstruction removal. The LSP refers to these sites as Flight Corridor Safety Program (FCSP) mitigation sites. Future development or future planning proposals are encumbered in these revegetated areas because that could result in the loss of planted trees and shrubs. LSP stewardship actions could enhance these habitats and expand them to surrounding habitat corridors.

Step 2b. Assess Ecological Conditions

Ecological components that are summarized in Table 2. Data were gathered from multiple sources, which exemplifies how the LSP effort is strategically aligned with SEA operations, future SEA planning, and regional initiatives.

**Table 2
Baseline Data Components Used in the Land Stewardship Plan**

Component	Data Categories	Data Source	
Land use and operational overlays	<ul style="list-style-type: none"> • SEA property data • Runway Safety Area • Runway Protection Area • Wildlife Hazard Management Plan • Future development plans • Culverts/fish passage 	<ul style="list-style-type: none"> • Mitigation covenants • Flight Corridor Safety Program mitigation sites • Stormwater management and flood control 	Aviation properties portfolio; SEA and local agency planning documents; interlocal agreements and other legal agreements
Environmental areas	<ul style="list-style-type: none"> • Wetlands • Wetland buffers • Steep slope hazard areas • Aquifer recharge 	<ul style="list-style-type: none"> • Streams • Riparian buffers • Erosion hazard areas • Flood hazard areas • Seismic hazard areas 	SEA and local agency records; SEA natural resource geodatabase

Component	Data Categories	Data Source
Land cover	<ul style="list-style-type: none"> • Forest • Shrub • Grass • Water • Developed/impervious • Building • Dirt/bare ground 	Forterra Green City Partnerships land cover data set: analysis based on U.S. Department of Agriculture (USDA) National Agriculture Imagery Program 2017 imagery, 2016 King County Light Detection and Ranging (LiDAR) data, and 2015 King County impervious surface land cover classification
Community equity	<ul style="list-style-type: none"> • Heat island maps • Visually accessible areas • Publicly accessible areas • Port of Seattle Equity Index 	CAPA Strategies Heat Watch program; Port of Seattle Office of Equity, Diversity, and Inclusion

Habitat Corridors

Ecological baseline conditions also include habitat corridors within and adjacent to SEA. Habitat corridors are contiguous habitats, allowing fish and wildlife to move freely without human-caused barriers. Contiguous corridors mitigate the impacts of broader habitat fragmentation, especially in urban environments. The LSP delineates contiguous habitat corridors primarily along Des Moines Creek, Miller Creek, and Walker Creek riparian corridors, including associated floodplain, wetlands, and upland buffers. Isolated forest cover was not included in the contiguous habitat delineation because of the high habitat fragmentation caused by development.

Step 2c. Assess Equity and Community Access

Step 2c compiles existing equity data and maps existing sites providing existing community benefits such as community planting areas, Port-owned areas with community access, and areas that need to consider public safety.

Equity Index Data

The Port is committed to taking a leading role in regional and national efforts to identify and address the root causes of inequity and social injustice. As part of this commitment, the Port created an Equity Index (Port of Seattle 2021), which is a series of interactive maps that illustrates the degree to which communities are experiencing social inequities and pollution burdens, as described in Section 1. The Equity Index consists of 21 indicators that fall within four equity categories (Economy, Livability, Accessibility, and Environment). The four categories were selected to align with the Port’s Century Agenda Goals (see Section 1.2). Most of the data are collected at the U.S. Census block group resolution, which allows for an evaluation of the potential equity impacts of recommended site-based stewardship action.

Urban Heat Island Data

Heat islands are urbanized areas that experience higher temperatures due to loss of forest cover, extensive paving, and other factors. Cities and underserved communities in particular often have a high density of dark surfaces, like roads, parking lots, and buildings, which absorb and radiate the sun's heat energy. In areas with limited tree canopy coverage, these areas become "islands" of warmer air relative to the surrounding area. Increasing tree cover and vegetation cover lowers surface and air temperatures by providing shade and cooling through evapotranspiration (USEPA 2008). Tree planting is a cost-effective way to mitigate the heat island effect, especially when shading dark, heat-absorbing surfaces. Data from the King County Heat Watch study (CAPA Strategies 2020) were used to map heat islands in and around SEA.

Community Access Data

The SEA Environment and Sustainability team collects data related to community benefits, including the following:

- Port-owned property with existing community access including open space and parks
- Planting areas that have been installed through Port-led community planting events
- Highly visible undeveloped Port-owned land (defined as areas 50-foot offset from Port boundary)
- Undeveloped Port-owned land that could have tree hazard risks (defined as areas 100-foot offset from Port boundary)

Step 3. Evaluate and Assign LSP Recommendations

Step 3a. Define Management Units

The LSP identifies Management Units (MUs) to break down the full geographic extent into discrete units for analysis. MU boundaries reflect current operations and use and/or future development or planning constraints.

MUs are intended to reflect a landscape planning scale and are no smaller than five acres; however, due to SEA operations and development, several MUs are smaller than five acres. On Port-owned aviation properties, the MU reflects Port operations and development because these are critical to what can occur in the future on a site and constrain potential LSP recommendations. MU boundaries reflect the land use and current Port properties management (Port of Seattle 2014).

Management Unit

An MU is a planning area demarcated for the field assessment that, to some extent, has similar planning and operational objectives. The LSP uses MUs to align with ecological assessment methodologies used throughout the region, including the Forest Landscape Assessment Tool.

Step 3b. Assess SEA Operational and Land Use Constraints

Step 3b assesses LSP recommendations based on where SEA operations or SEA future development could occur. Tracking SEA future planning and development projects, such as the Sustainable Airport Master Plan, allows for the estimation of the potential impacts on MUs, including loss of forest habitat, and helps to plan for stewardship actions to mitigate those impacts.

In this step, MU boundary data are overlaid with the mapped land use/operational constraints. Each MU is then evaluated through the opportunities and constraints assessment decision tree (Figure 1).

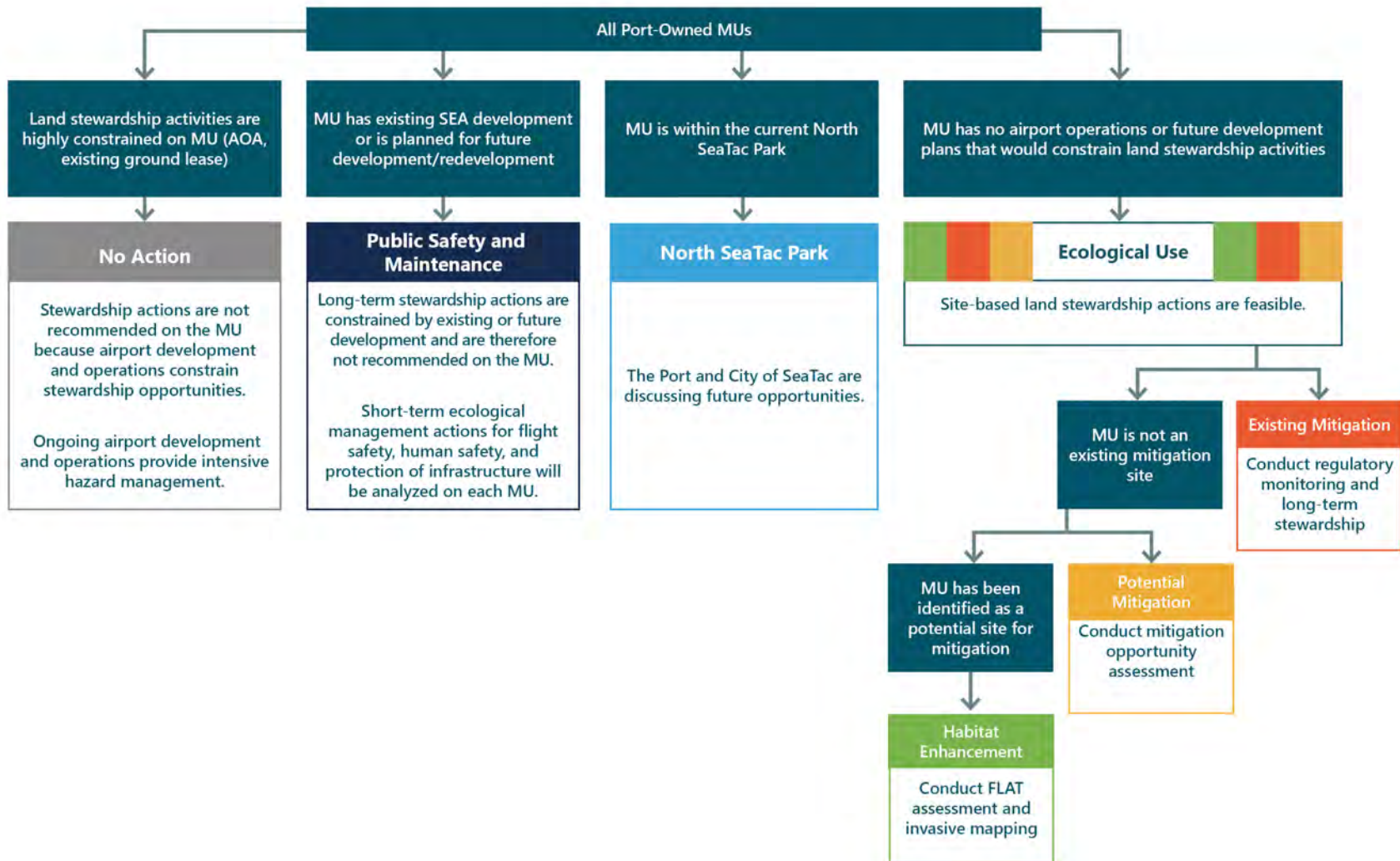
MUs that fall within operational areas that constrain land stewardship actions are identified with the LSP recommendation “No Action” and are removed from further analysis. MUs that are within existing or future development areas that constrain land stewardship actions are identified as “Public Safety and Maintenance.” All other MUs are identified with the LSP recommendation “Ecological Use” and are further analyzed in Step 3b.

Step 3c. Assess Ecological Values and Threats

Using the MUs recommended in Step 3b as “Ecological Use,” Step 3c provides an assessment for mitigation and habitat enhancement, restoration, and expansion potential. Each MU is evaluated through the ecological assessment decision tree (Figure 1). Sites with ecological use are sorted into four categories:

- MUs identified as “Ecological Use: Potential Mitigation” are further evaluated through the mitigation opportunities assessment. The detailed assessment identifies specific mitigation actions as described in the Mitigation Site Opportunity Assessment (Appendix A).
- MUs identified as “Ecological Use: Existing Mitigation” are existing regulatory mitigation sites with restrictive covenants and FCSP mitigation sites. Ongoing regulatory monitoring requirements define stewardship actions on these sites. Once the regulatory monitoring is complete, these sites will be managed based on the Long-Term Mitigation Stewardship Plan (Appendix D).
- MUs identified as “North SeaTac Park” are subject to ongoing discussions with the Port and the City of SeaTac. While these areas have stewardship opportunities, specific stewardship actions are not identified in the LSP.
- All remaining “Ecological Use” sites have the LSP recommendation “Ecological Use: Habitat Enhancement” and are assessed using the Forest Landscape Assessment Tool (FLAT; Green Cities Research Alliance 2013) and invasive vegetation is mapped using a desktop analysis and field verification, as described in the next sections.

Figure 1
LSP Recommendations Ecological Use Decision Tree



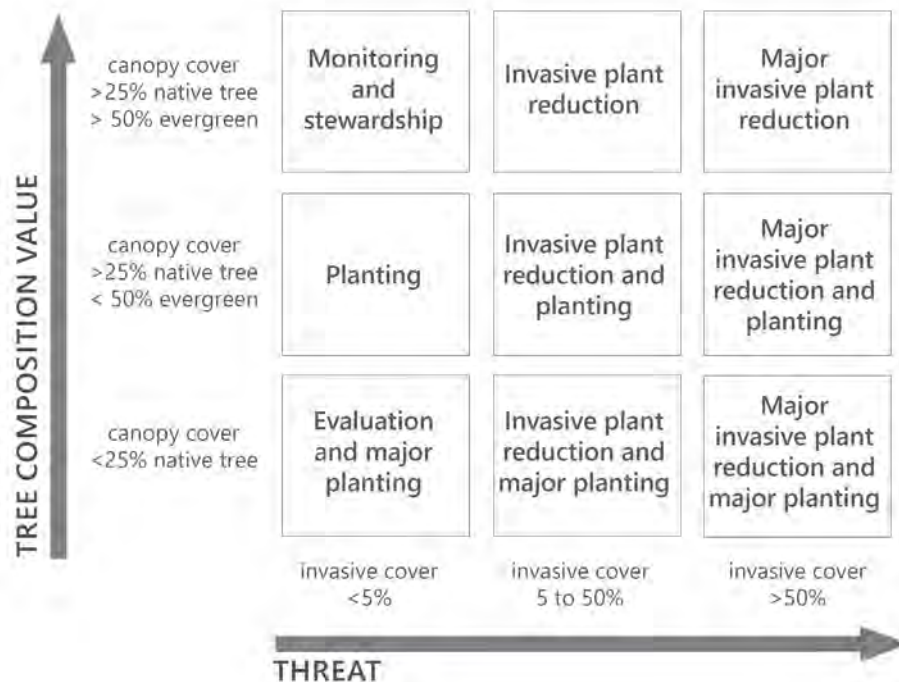
FLAT Assessment

The FLAT assesses ecological values and threats. Developed by Green Cities Research Alliance (in coordination with the U.S. Forest Service Pacific Northwest Research Station and in partnership with King County, Forterra, and the University of Washington), the FLAT provides a “rapid, systematic, flexible, and inexpensive environmental evaluation” (Ciecko et al. 2016). The FLAT is one part of the common methodology used by multiple cities in the region as part of the Green City Partnerships, as described in Section 1. The FLAT seeks to rapidly assess landscape conditions and then identify stewardship activities.

During the assessment, the FLAT step validates land cover, identifies ecological values and threats, and establishes site-based stewardship actions at each identified MU using the Green Seattle Partnership Tree-iage Matrix. As shown in Figure 2, the Tree-iage Matrix weighs the forest value and forest threats to inform site-based stewardship actions. Forest value is defined by tree composition including native canopy, conifer canopy, and opportunity for new canopy.

For the purposes of the Port’s FLAT analysis, forest threats are defined as the threat of invasive species, which is ranked by the percentage of invasive cover: high (more than 50%), medium (5% to 50%), and low (less than 5%). Table B-1 in Appendix B provides a summary of the field data collected during the FLAT assessment.

Figure 2
Green Seattle Partnership Tree-iage Matrix



Note: Original version was developed by Green Seattle Partnership showing City of Seattle acreages (Ciecko et al. 2016).

Invasive Species Mapping

Invasive species can outcompete and kill native species, inhibit understory regeneration, and alter plant community composition. These changes can impact habitat structure and function for wildlife and reduce biodiversity. A variety of invasive plant species are present in the Port's MUs, including Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), scotch broom (*Cytisus scoparius*), Japanese knotweed (*Reynoutria japonica*), and reed canary grass (*Phalaris arundinacea*).

As part of the FLAT methodology and to better identify specific invasive vegetation threats, aerial analyses of invasive species cover was performed for each MU, followed by a site visit to visually estimate the general level of invasive species cover for the MUs.

High-Value Tree Mapping

High-value trees are defined as trees that are large for their species (e.g., large-growing trees with a diameter at or above 30 inches) or trees with unique historical, ecological, or aesthetic significance. Designation as a high-value tree is somewhat subjective, and final determinations will be made by professional arborists or foresters. High-value trees are located through Port-owned lands and provide unique habitat, historical, and aesthetic value. Often invasive species threaten to impact the health and vigor of these high-value trees, potentially leading to mortality. The LSP will map high-value trees and collect tree data attributes including species, height, and diameter, as well as whether invasive species are present or absent on or directly adjacent to the tree. This work was started in 2023 and will continue as part of the LSP.

Step 3d. Assign LSP Recommendations

The result of Steps 3a and 3c is an LSP recommendation for each MU and sufficient information to determine site-based stewardship actions in Step 5. MUs are each assigned one of six LSP recommendations:

- No Action
- Public Safety and Maintenance
- North SeaTac Park
- Ecological Use: Existing Mitigation
- Ecological Use: Potential Mitigation
- Ecological Use: Habitat Enhancement

Step 4. Evaluate and Recommend Site-Based Stewardship Actions

Step 4 determines site-based stewardship actions within an MU. This step identifies specific actions consistent with the LSP recommendations in Table 3. This step also assesses community benefits. The result of Step 4 is a site plan for each MU that provides specific site-based stewardship actions based on the MU's unique constraints, ecological potential, and community benefits.

Community Benefit Evaluation

This step overlays the equity and community baseline data described above to evaluate potential site-based stewardship actions that offer community benefits within each MU, including the following:

- Promote community planting areas
- Allow community physical access
- Improve visual aesthetics
- Manage tree hazards that pose a public safety hazard (e.g., tree fall in residential areas, road rights-of-way, and publicly accessible areas)

Potential Site-Based Stewardship Actions

Table 3 summarizes the potential site-based stewardship actions that may occur on an MU recommended for ecological use or infrastructure and safety maintenance.

Table 3
LSP Recommendations and Site-Based Stewardship Actions

LSP Recommendation	Potential Site-Based Stewardship Actions
Ecological Use: Existing Mitigation	<ul style="list-style-type: none"> • Conduct regulatory monitoring as required • Conduct long-term mitigation correction actions for perpetuity • Maintain visual aesthetics along Port boundary for adjacent community
Ecological Use: Potential Mitigation	<ul style="list-style-type: none"> • Identify mitigation opportunities <ul style="list-style-type: none"> – Offset concurrent impacts – Establish mitigation bank – Establish advanced mitigation sites
Ecological Use: Habitat Enhancement	<ul style="list-style-type: none"> • Enhance habitat <ul style="list-style-type: none"> – Install forest and understory planting communities – Improve forest structural complexity – Remove invasive vegetation • Expand habitat <ul style="list-style-type: none"> – Plant trees to increase forest cover – Install shrubs in areas where forest cover is not feasible • Connect habitat <ul style="list-style-type: none"> – Expand habitat adjacent to habitat corridors – Remove culvert and daylight fish-passable channels • Provide opportunity for community outreach and engagement • Provide community access where appropriate
North SeaTac Park	<ul style="list-style-type: none"> • No action; subject to City of SeaTac long-term lease

LSP Recommendation	Potential Site-Based Stewardship Actions
Infrastructure and Safety Maintenance	<ul style="list-style-type: none"> • Manage lands to reduce hazards <ul style="list-style-type: none"> – Minimize operational hazards (e.g., wildlife, obstructions) – Address public safety hazards including hazard trees • Protect infrastructure
No Action	<ul style="list-style-type: none"> • No action due to existing operational and land uses that constrain LSP actions

Step 5. Prioritize Sites for Stewardship

To meet LSP goals and inform the Port’s decision-making on where to conduct LSP site-based stewardship actions, MUs identified for Ecological Use are prioritized based on the following attributes:

Community Benefits and Equity

1. Opportunity to mitigate heat island effects
2. Opportunity to enhance visually accessible areas
3. Opportunity to enhance publicly accessible areas
4. Opportunity to improve Port Equity Index

Ecological

1. Opportunity to improve and/or expand a habitat corridor
2. Opportunity to connect existing habitats
3. Opportunity to remove culvert and daylight fish passage

The MUs are scored based on how many prioritization attributes are met if LSP stewardship actions are completed. The MUs with the highest scores best meet Port LSP goals and are the top priority.

Type	Prioritization Attribute	Management Unit Score
Community Benefits and Equity	1. Reduce heat island effects	<ul style="list-style-type: none"> • If the MU has areas with a morning heat index over 62.6 degrees Fahrenheit, it scores 2 • If the MU has areas with a morning heat index between 60.4 and 62.6 degrees Fahrenheit, it scores 1 • If the MU only has areas with a morning heat index below 60.4 degrees Fahrenheit, the MU scores 0
	2. Enhance visually accessible areas	<ul style="list-style-type: none"> • If the MU is on a highly visible corridor, it scores 1 • If not, the MU scores 0
	3. Enhance publicly accessible areas	<ul style="list-style-type: none"> • If the MU has existing physical public access, it scores 2 • If not, the MU scores 0
	4. Improve Port Equity Index	<ul style="list-style-type: none"> • If the MU has a Port Equity Index score of Low, it scores 0 • If the MU has a Port Equity Index score of Very Low, it scores 1
Ecological	5. Improve and/or expand a habitat corridor	<ul style="list-style-type: none"> • If the MU is adjacent to habitat corridor and expands and improves that corridor, it scores 2 • If the MU is on a habitat corridor and improves that corridor, it scores 1 • If not on/adjacent to a habitat corridor, the MU scores 0
	6. Connect existing habitats	<ul style="list-style-type: none"> • If the MU can establish a connection between existing habitats, the MU scores a 2
	7. Remove culvert and daylight fish passage	<ul style="list-style-type: none"> • If the MU has a mapped culvert, it scores 1 point for each culvert that would be removed as part of a stewardship action • If not, the MU scores 0



3 LSP Baseline

This section inventories the SEA land use, ecological, and community access LSP baseline conditions.

3.1 Geographic Extent

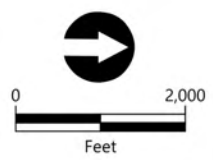
The LSP identifies stewardship recommendations for Port-owned properties at SEA and the surrounding area (Figure 3). The LSP area also includes an existing Port-owned mitigation site and adjacent undeveloped parcel in the city of Auburn, as shown in Figure 3.

Figure 3
LSP Geographic Extent



LEGEND:
 Port-Owned Aviation Properties at SEA

NOTES:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021
 3. Base Map: Esri Topographic Map



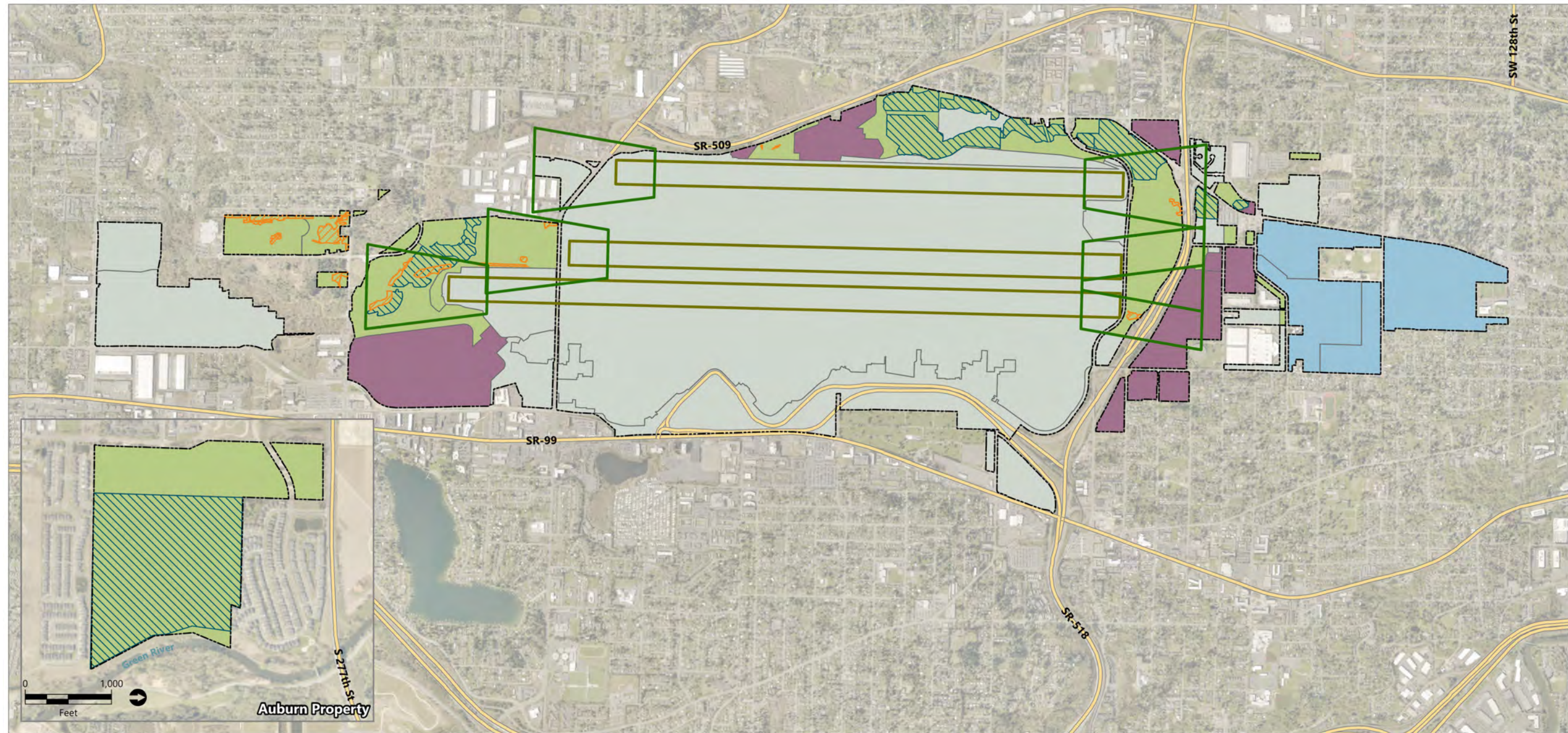
3.2 Land Use

Figure 4 summarizes existing SEA environmental, operational, and other development land uses that constitute opportunities and constraints informing LSP recommendations. The AOA and existing private ground leases are categorized as “Airport Operations and Existing Private Ground Lease Areas.” Locations with potential for future airport-dependent, operational development or similar redevelopment are identified as “Potential Development/Redevelopment Areas.” These areas are based on current SEA master planning and real estate planning and are subject to change as new information becomes available. Due to its special characteristics, North SeaTac Park is designated as a stand-alone planning area. All remaining areas are noted for “Ecological Use.”

- Airport Operations and Existing Private Ground Lease Areas: 1,756 acres
- Potential Development/Redevelopment Areas: 284 acres
- Ecological Use Areas (not including existing compensatory mitigation sites): 353 acres
- North SeaTac Park: 214 acres
- Compensatory Mitigation Sites: 187 acres
- FCSP Mitigation Sites (these sites are located within Ecological Use Area): 17 acres

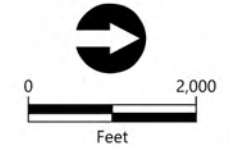
Figure 4 also maps the existing RPZ and RSA, which are restrictive flight operations areas intended to protect public and flight safety. Existing restoration areas are also indicated, including compensatory Third Runway stream and wetland mitigation and FCSP mitigation sites. Third Runway mitigation sites have land use covenants running with the land that, with certain exceptions, protect the sites from redevelopment or altered land use in perpetuity.

Figure 4
2023 Land Use and Restrictive Areas



- LEGEND:**
- | | |
|--|---|
| Port-Owned Aviation Properties at SEA | Airport Operations and Existing Private Ground Lease Area |
| Mitigation Restrictive Covenant | Potential Development/Redevelopment Area |
| Mitigation Site (Flight Corridor Safety Program) | Stewardship Opportunity Area |
| Runway Protection Zone | North SeaTac Park |
| Runway Safety Area | |

- NOTES:**
1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021



3.3 Ecological Inventory

The ecological inventory included information on land cover, critical areas, and habitat corridors:

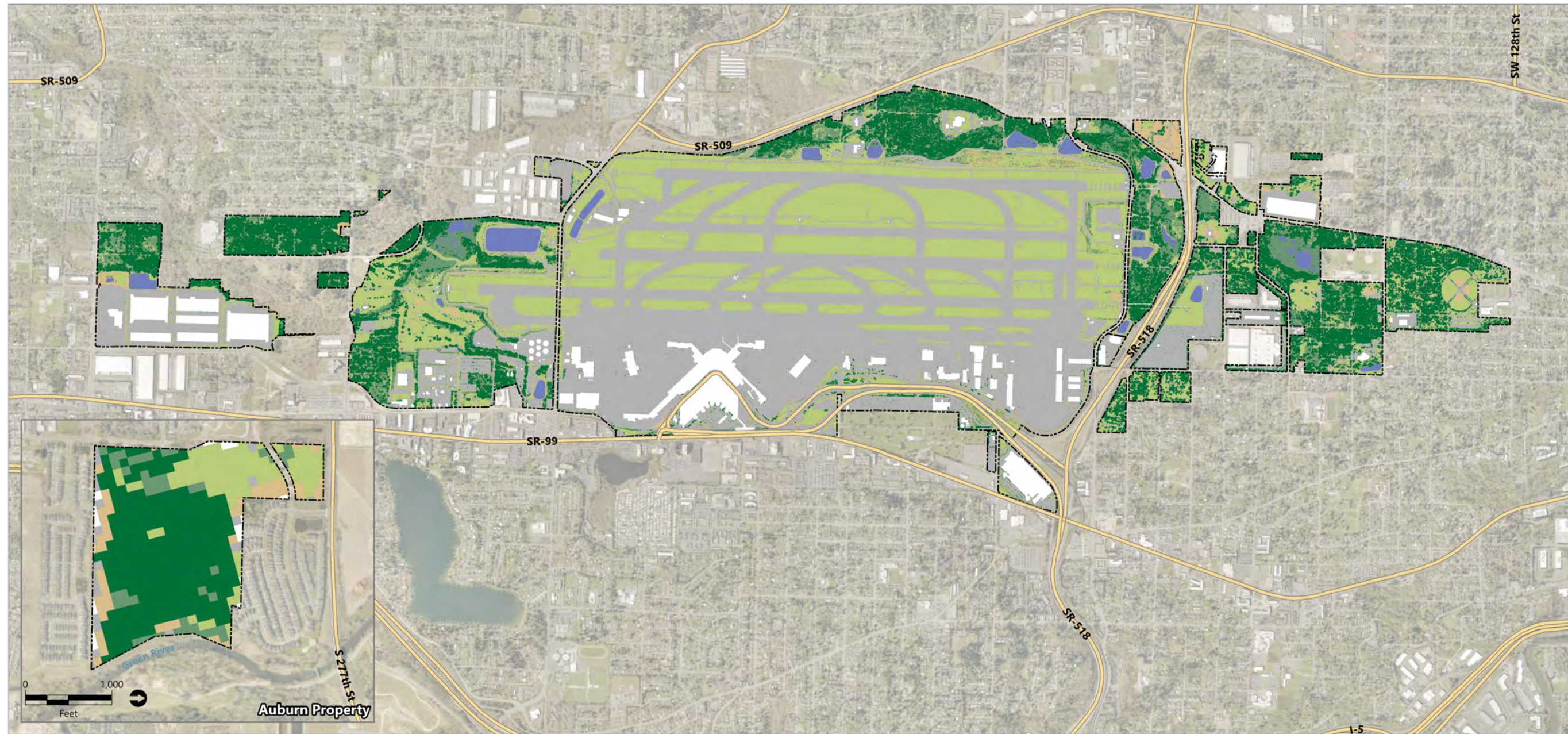
- **Land cover** denotes the physical land type, such as forest, agriculture, wetland, and open water.
- **Critical areas** in King County are lands that support certain unique, fragile, or valuable resources, as well as areas with natural hazards. These areas include land at high risk for erosion, landslides, earthquakes, or flooding; coal mines; and wetlands or lands adjoining streams, rivers, and other water bodies (King County 2018). The Port, along with the cities adjacent to SEA, SeaTac, Burien, and Des Moines, inventories critical areas. For the purposes of the LSP, this section focuses on wetland, wetland buffer, stream, and stream buffer critical areas because these areas directly influence site-based stewardship action recommendations and prioritization. Mapped steep slope critical areas also impact stewardship feasibility and are mapped on the specific stewardship management plans in Appendix C. Other critical areas are not typically seen on SEA properties, such as coal mines and seismic areas.
- **Habitat corridors** are contiguous habitats that allow fish and wildlife to move freely without encountering human-caused barriers.

3.3.1 Land Cover

Land cover analyses use high-resolution aerial imagery and Light Detection and Ranging (LiDAR) to classify and map land cover types. In 2023, the Port updated the land cover analysis with the best available data including the most current aerial imagery from 2021. The analysis included the SEA Auburn property in order to get a full understanding of all SEA land cover categories and acreages. Figure 5 presents the results. The 2023 data set is composed of the following:

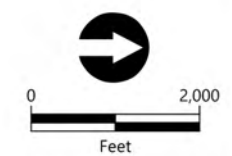
- 2021 King County aerial imagery provided the basis for updating land cover to reflect multiple SEA development projects.
- The 2019 U.S. Geological Survey (USGS) National Land Cover Database was used to distinguish land classifications at the SEA Auburn property.
- 2016 King County LiDAR data were used to distinguish shrubs from tree canopy at SEA. A height maximum of 15 feet was utilized to distinguish trees from shrubs in all areas except Port mitigation covenant areas, in which case 30 feet was utilized to distinguish trees from shrubs. A height of two feet was utilized to distinguish shrubs from grass.
- King County's 2015 land cover classification data set was used to refine building and impervious surfaces classifications at SEA.

Figure 5
2021 Land Cover



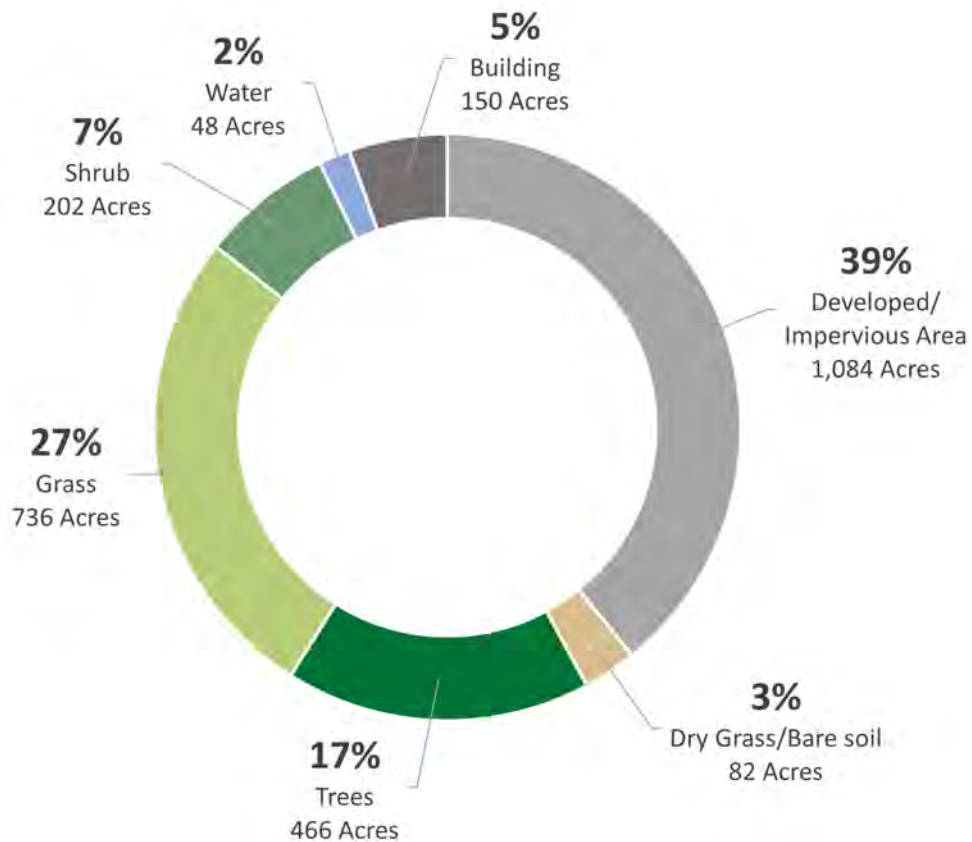
- LEGEND:**
- Port-Owned Aviation Properties at SEA
 - Building
 - Developed/Impervious
 - Dry grass/bare soil
 - Forest
 - Grass
 - Shrub
 - Water

- NOTES:**
1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021
 3. Land cover data was updated by the Port of Seattle using the 2021 King County aerial
 4. Land cover analysis (Auburn Property): USGS National Land Cover Database 2019



Port-owned aviation properties within the LSP area include nearly 2,768 acres of land within and adjacent to SEA and the SEA Auburn property. The land cover data analysis found that most of this land (1,084 acres) falls in the developed/impervious classification (Figure 6). The second-highest land cover classification is grass (736 acres). Tree cover is the third-highest land cover classification at 466 acres, followed by shrub (202 acres), buildings (150 acres), dry grass/bare soil (82 acres), and water (48 acres).

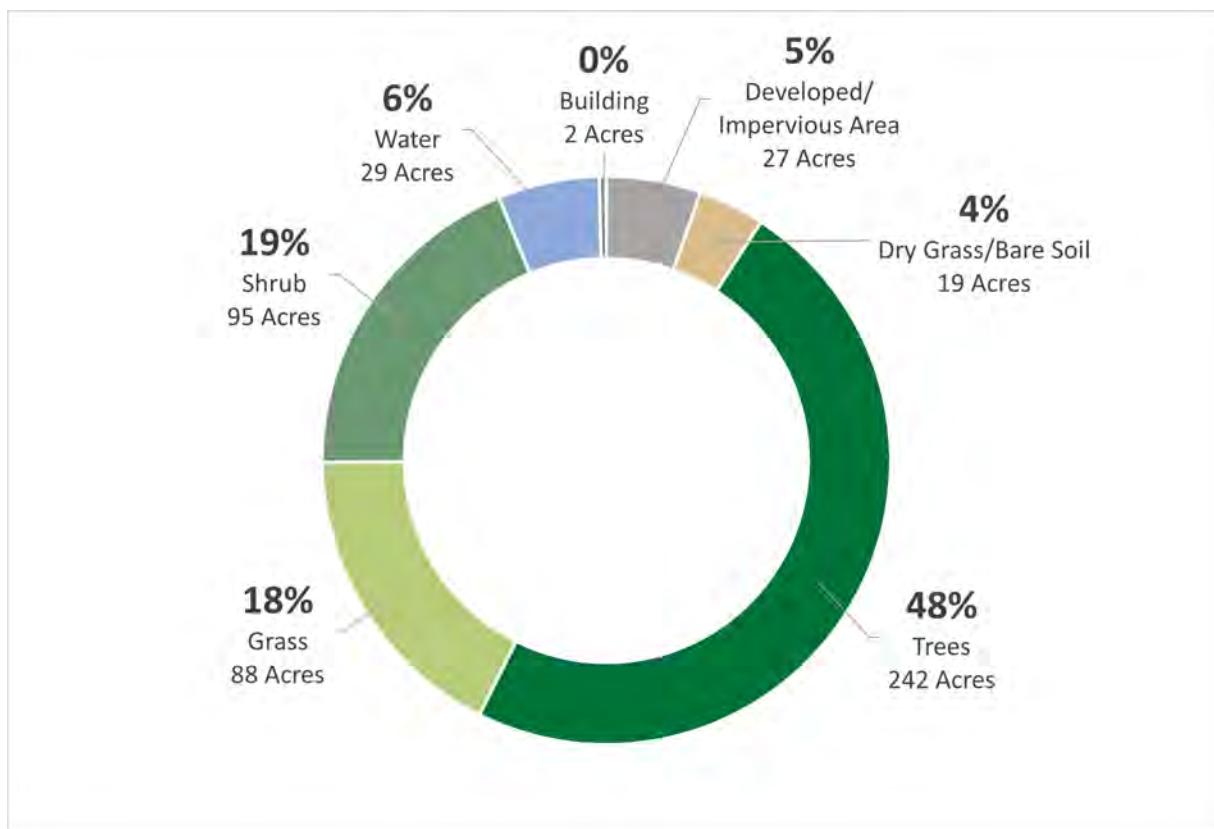
Figure 6
2021 Land Cover Summary



Note: Total land coverage equals 2,768 acres.

The Ecological areas identified in Section 3.2 (see Figure 4) represent nearly 500 acres of land (this includes the SEA Auburn property). Ecological areas have opportunities to plant trees through stewardship actions and increase tree and forest canopy cover. Land cover in this area is dominated by forest, which represents 242 acres or 48% of the area. The second highest land cover classification is shrub (95 acres). Figure 7 below summarizes the existing land cover classifications within Ecological areas.

Figure 7
2021 Land Cover Within Ecological Areas



Note: Total land coverage equals 502 acres.

In addition to land cover, the Port also tracks tree planting at SEA. This aligns with the King County 3 Million Trees initiative described in Section 1. The Port has planted nearly 31,000 trees. Of those, 8,000 trees were planted off Port property provided as in lieu fee funding to the Washington State Department of Transportation and the City of SeaTac to mitigate FCSP tree obstruction removal. The remaining 23,000 trees were planted on Port property through critical area mitigation actions and community planting events.

3.3.2 *Critical Areas*

Critical areas in and adjacent to SEA include land that is at high risk for erosion, landslides, earthquakes, or flooding; coal mines; and wetlands or lands adjoining streams, rivers, and other water bodies. This section identifies wetlands, streams, and their associated buffers. Located in the Green/Duwamish River watershed, there are multiple regulated critical areas within and adjacent to the Port's aviation properties. Four creeks and their tributaries run through multiple aviation properties. Des Moines Creek is south of SEA, Walker Creek is to the west, Gilliam Creek is to the east, and Miller Creek is to the north and west. There are also multiple wetlands on aviation properties. Much of the creeks' instream and riparian habitats, wetlands, and wetland buffers are heavily affected by airport operations and urban development. Figure 8 provides an overview of the mapped critical areas. The Port collects and maintains critical areas data through field delineations and assessments and coordination with the cities of SeaTac, Des Moines, and Burien.

3.3.3 *Habitat Corridors*

Contiguous habitat in the LSP area is primarily defined by the Miller Creek, Des Moines Creek, and Walker Creek sub-watersheds both on Port lands and extending to adjacent communities to the north, west, and south. The stream riparian corridors, wetlands, and upland buffers form contiguous habitat corridors. Contiguous habitat does not include forested land cover because of considerable habitat fragmentation due to development. Figure 9 shows contiguous habitat within the LSP area.

Figure 8
Mapped Critical Areas



LEGEND:

- Port-Owned Aviation Properties at SEA
- Mitigation Restrictive Covenant Site
- Stream
- Stream Buffer
- Wetland
- Wetland Buffer

NOTES:

1. Port-Owned Aviation Properties: Port of Seattle
2. Aerial Imagery: King County 2021
3. Airport natural resource data: Environmental Science Associates
4. Critical Areas: Des Moines, SeaTac, and Burien jurisdictions

Notes:

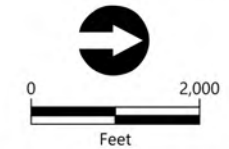
1. SEA property and lease data are provided by Port of Seattle.
2. Airport natural resources data are provided by Port of Seattle and managed by Anchor QEA. Jurisdictional critical areas are provided by each jurisdiction (Des Moines, SeaTac, and Burien).
3. Critical areas shown include streams, stream buffers, confirmed wetlands, wetland buffers, lakes, and ponds. Steep slopes, erosion hazards, landslide hazards, seismic hazards, liquefaction susceptibility, jurisdictional ditches, and other areas are not shown.

**Figure 9
Habitat Corridors**



- LEGEND:**
- Port-Owned Aviation Properties at SEA
 - Stream
 - Des Moines Creek Habitat Corridor
 - Miller Creek Habitat Corridor
 - Walker Creek Habitat Corridor
- Culverts**
- Fish Passable
 - Partial Fish Barrier
 - Full Fish Barrier
 - N/A
 - Unknown

NOTE:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021



3.4 Equity and Community Access

3.4.1 *Equity Index*

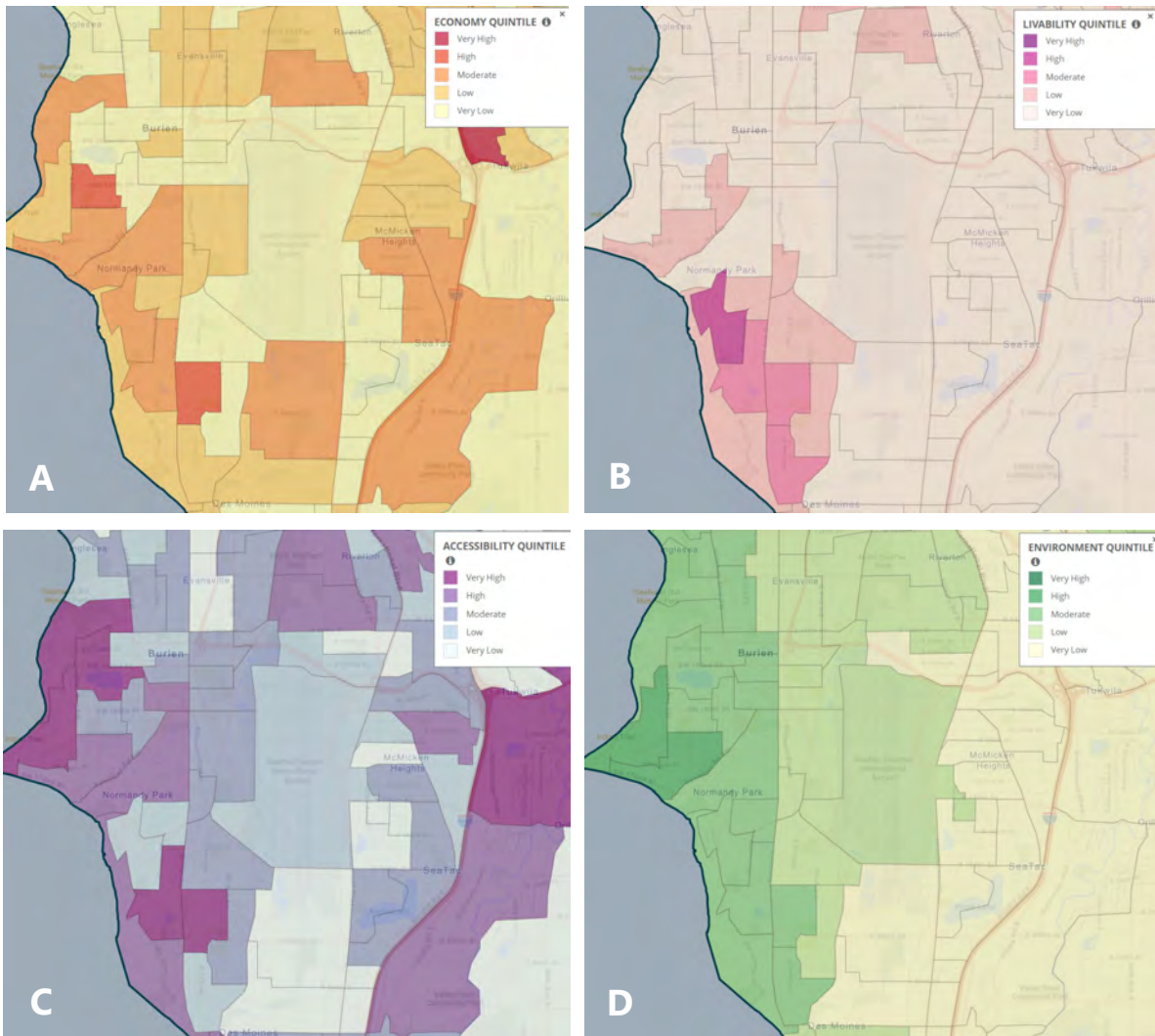
The Port developed an Equity Index as part of the Port's commitment to identify and address inequity and social injustice. The LSP utilizes this information to prioritize land stewardship actions that have the potential to provide equity benefits. The data used to create the Port's Equity Index are available at the census-block resolution, and scores for equity range from very low to very high. Figure 10 shows the equity scores at SEA for each of the four categories that comprise the Equity Index:

- Economy scores range from very low to moderate
- Livability scores are typically very low
- Accessibility scores range from low to high
- Environment scores are low

When combined to create the Equity Index, SEA is located in areas rated as having very low to low equity (Figure 11). Areas identified as having low equity indices are prioritized for stewardship action.

The Port intends to continue developing a more comprehensive Equity Index scoring matrix, of which Environment and Sustainability staff and leaders will be contributors, particularly for the Environment module.

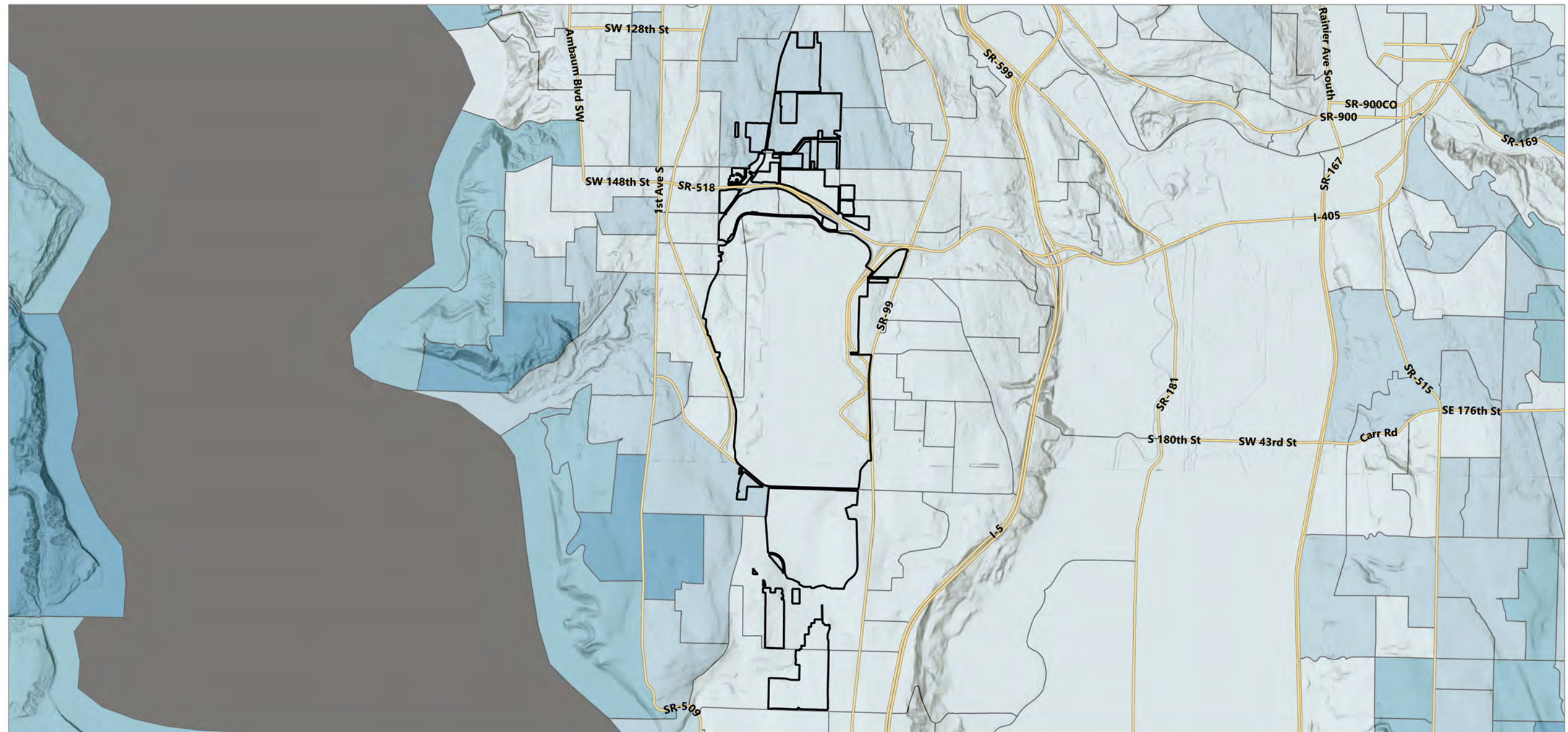
Figure 10
SEA Equity Index Scores for Each Equity Category



Equity Categories

- A: Economy
- B: Livability
- C: Accessibility
- D: Environment

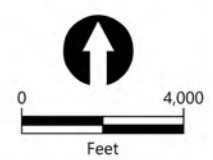
Figure 11
SEA Equity Index



LEGEND:

 Port-Owned Aviation Properties at SEA	Equity Index
	 High
	 Moderate
	 Low
	 Very Low
	 No Data

NOTES:
1. Port-Owned Aviation Properties: Port of Seattle
2. Equity Index: Port of Seattle



3.4.2 Urban Heat Islands

In 2021 King County and the City of Seattle conducted the King County Heat Watch mapping project, which provided snapshots in time of how urban heat varies across neighborhoods and how local landscape features affect temperature and humidity. The results showed that areas with more impervious surfaces, limited canopy, and industrial activities are hotter during summer heat waves than other, less urbanized areas (King County 2021c). The King County Heat Watch data were used to produce a heat island map in the SEA vicinity, as shown in Figure 12. The heat index accounts for relative humidity and air temperature, and the heat map represents the morning heat index. Areas with dark oranges and reds represent a higher heat index and areas with yellow and pale orange represent a lower heat index. Trees and other vegetative cover help cool the environment and reduce the urban heat island effect. Therefore, the LSP seeks to prioritize stewardship actions on lands with higher heat indices, particularly in areas that also have low equity scores.

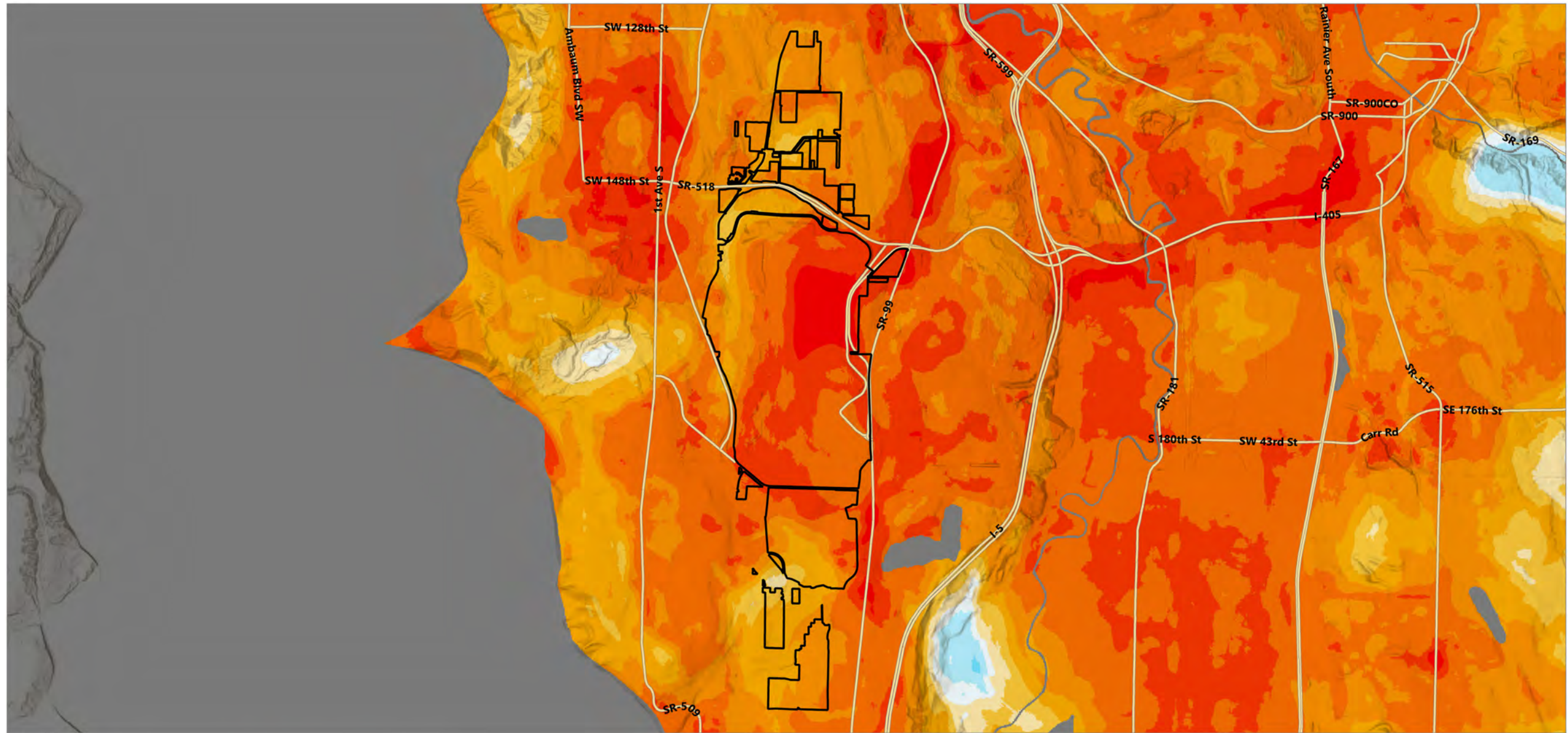
The harmful and inequitable impacts of climate change demand both immediate action and structural changes to create more resilient communities. The data from the heat mapping project will help us achieve both.

- Dow Constantine,
King County Executive












3.4.3 Community Access

Figure 13 maps the current community benefits areas at SEA including community planting areas, areas with existing physical community access including parks and open space, and Port-owned areas along the Port ownership boundary that are under consideration for LSP actions (sites that do not have operational constraints or private leases) and that necessitate consideration for public visual aesthetics and public safety.

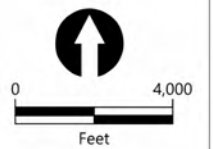
Figure 12
Heat Island Effect



LEGEND:

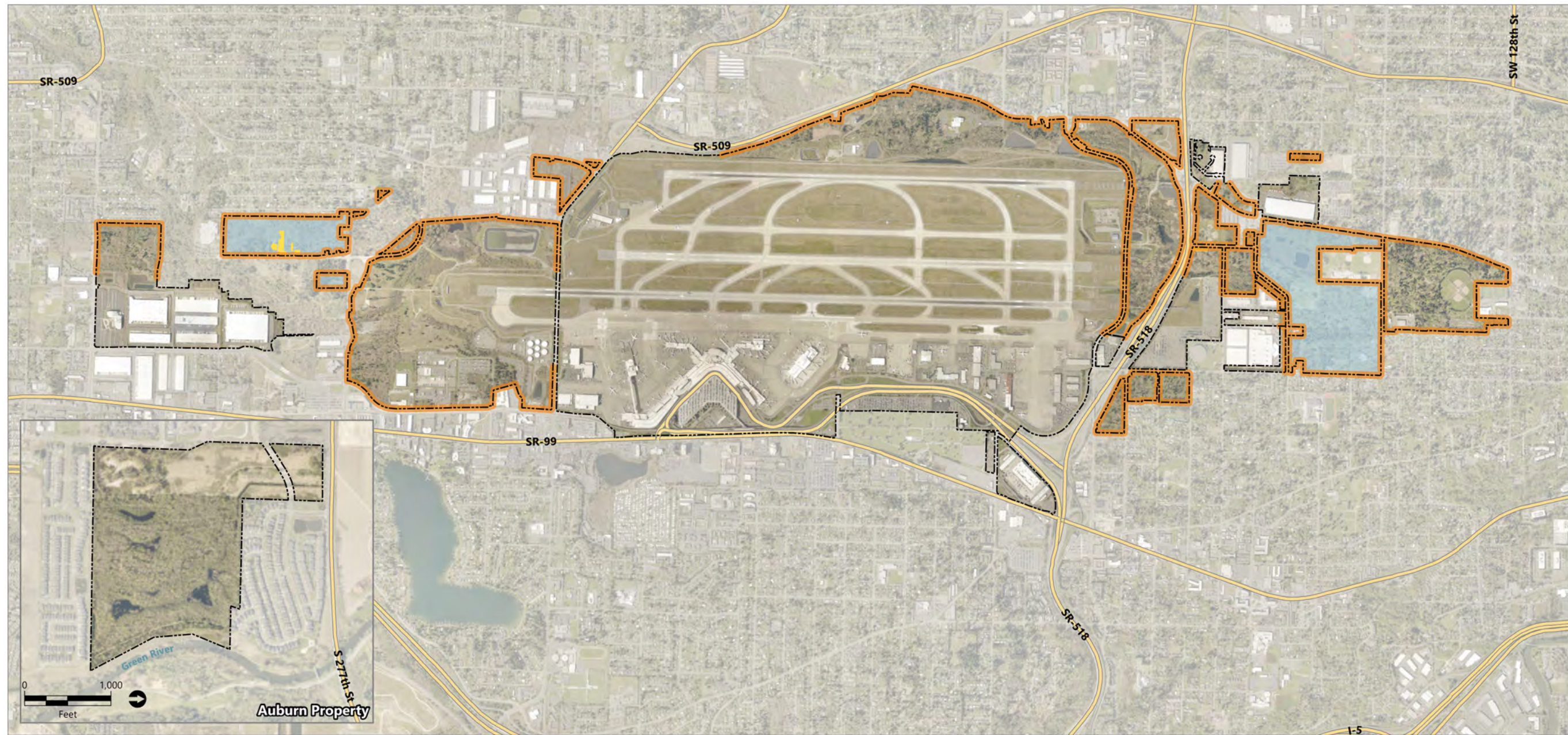
	Port-Owned Aviation Properties at SEA	Heat Index (°F)		60.4 to 61.6		55.2 to 56.2
				63.9 to 69.2		58.9 to 60.4
				62.6 to 63.9		57.5 to 58.9
				61.6 to 62.6		56.2 to 57.5
				No Data		<54.1

NOTES:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Heat Index: King County
 3. Heat index is morning conditions.



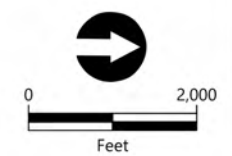
Notes:
 1. Data are provided by King County 2023.

Figure 13
Community Benefit Areas



- LEGEND:**
- Port-Owned Aviation Properties at SEA
 - Community Planting Area
 - Community Access
 - Port Edge with Public Visual Corridor and Safety Considerations Management Area

- NOTES:**
1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021





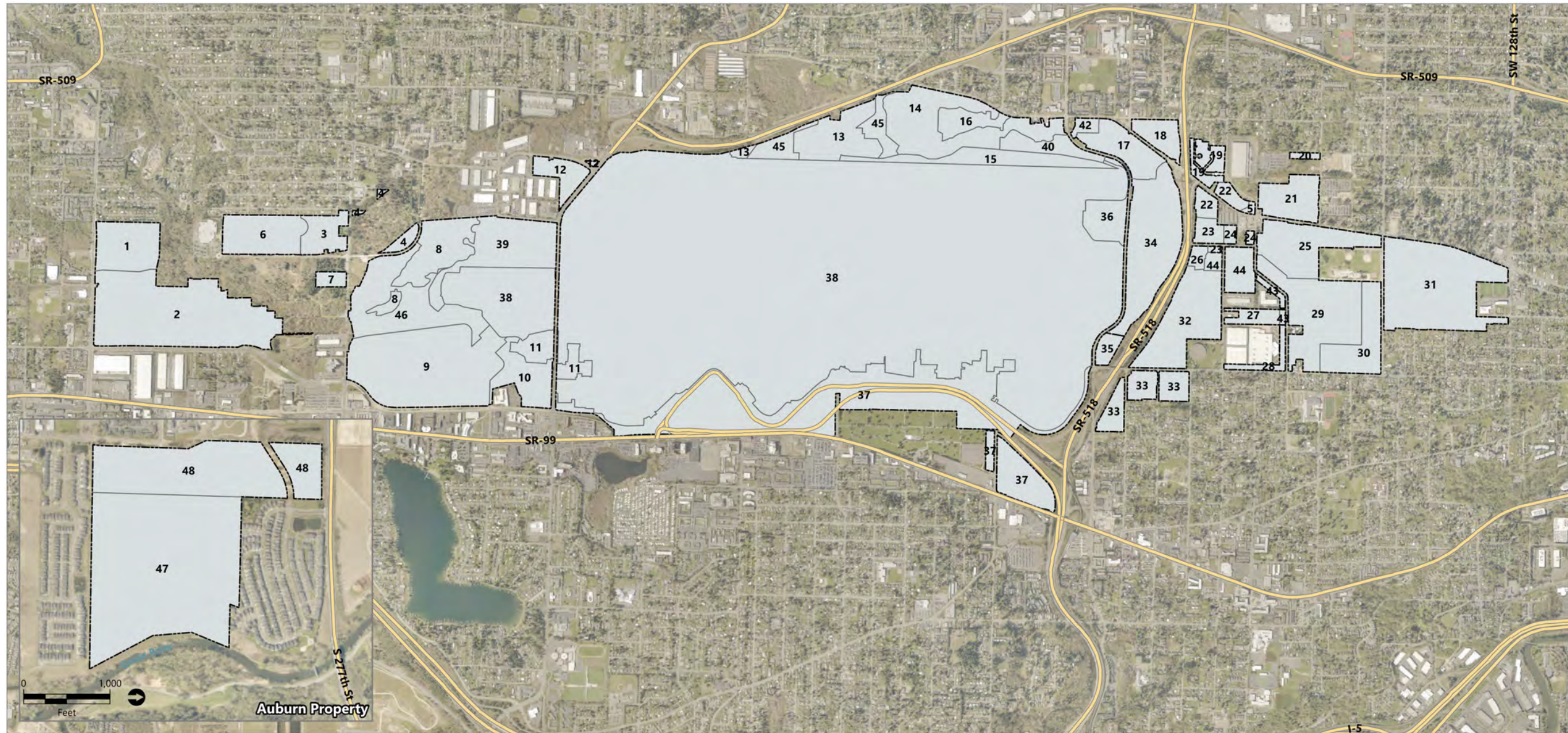
4 Stewardship Recommendations by Management Unit

This section overlays existing and future land use with existing resource conditions to categorically characterize stewardship for each MU. For MUs with high stewardship potential, a more detailed analysis is provided to identify specific stewardship actions, including the potential benefit to communities.

4.1 LSP Recommendations

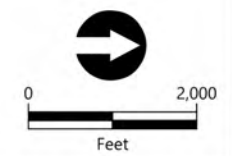
Figure 14 identifies 48 MUs with distinct resource and planning characteristics for which land stewardship potential was independently assessed, including the two off-site parcels in Auburn purchased by the airport for previous and future mitigation.

Figure 14
LSP Management Units



LEGEND:
 Port-Owned Aviation Properties at SEA
 Land Stewardship Plan Management Unit

NOTES:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Management Units: Port of Seattle
 3. Aerial Imagery: King County 2021



LSP recommendations for each MU are based on the feasibility of implementation and ecological assessments as described in the methodology section’s Figure 1. MUs that are highly constrained by current Port operations are recommended to have No Action taken. MUs that are constrained by current lease agreements or future lease/development are recommended to have Infrastructure and Safety Maintenance. MUs within the existing North SeaTac Park are identified as such, noting that the Port and City of SeaTac are discussing future opportunities in the park. MUs without the restrictions mentioned above may have the potential for Ecological Use. These MUs are then subdivided into three categories: Existing Mitigation, Potential Mitigation, and Habitat Enhancement (Figure 15).

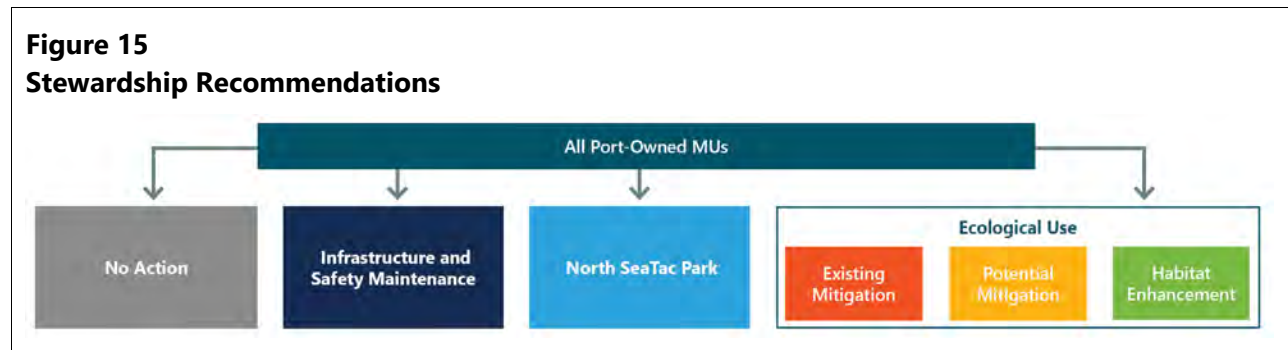
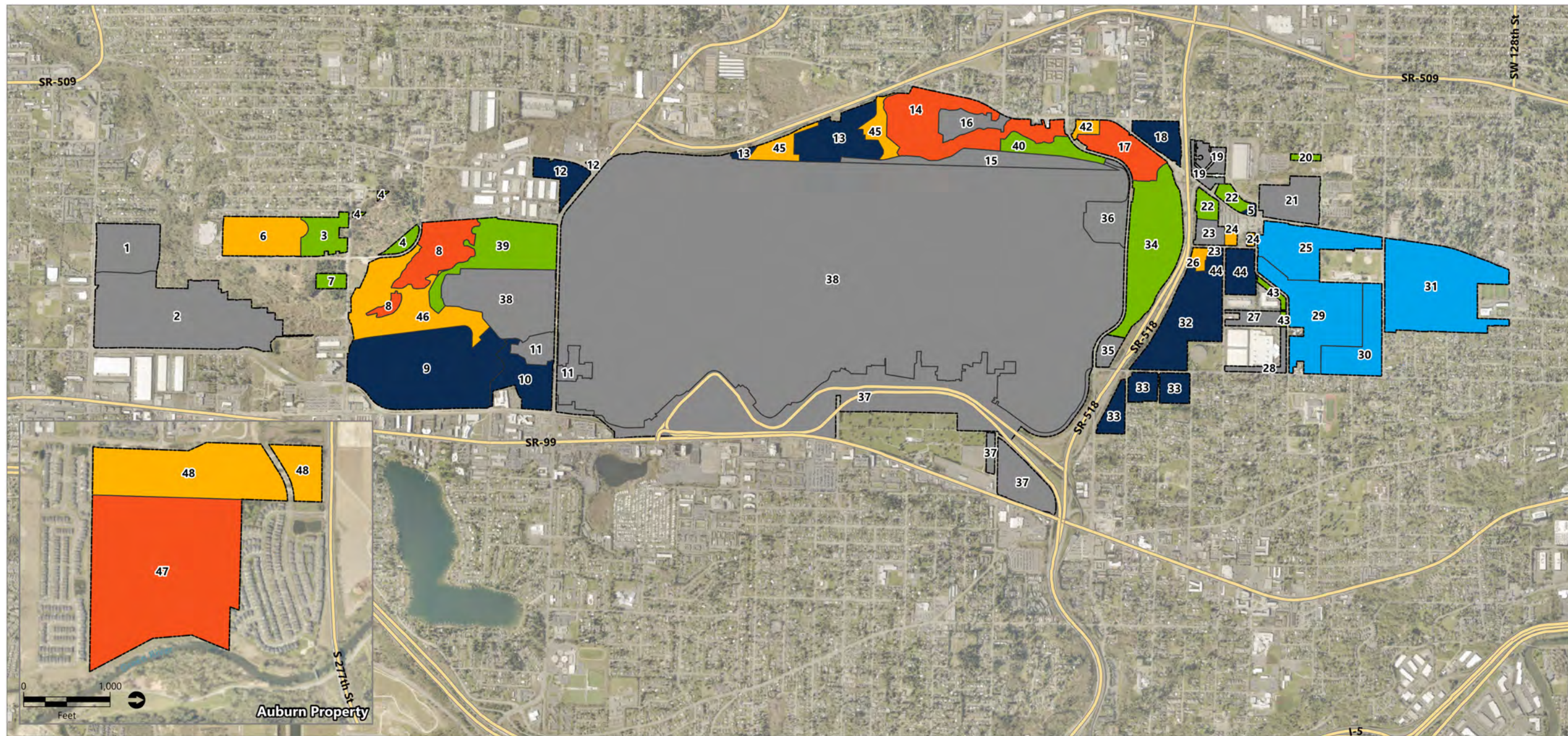


Figure 16 maps the LSP recommendations for each MU. Seventeen MUs are highly constrained by operations or leases and are identified as No Action. Nine MUs are constrained by future development and are identified as Infrastructure and Safety Maintenance. Four MUs are within North SeaTac Park. The remaining 20 MUs have potential for Ecological Use for consideration as part of land use planning and identification of site best uses. Table 4 provides a summary of the stewardship recommendations for each MU.

Figure 16
Stewardship Recommendations by Management Unit



- LEGEND:**
- Port-Owned Aviation Properties at SEA
 - Land Stewardship Plan Management Unit
 - Ecological Use: Habitat Enhancement
 - Ecological Use: Existing Mitigation
 - Ecological Use: Potential Mitigation
 - North SeaTac Park
 - Public Safety and Maintenance
 - No Action

- NOTES:**
1. Port-Owned Aviation Properties: Port of Seattle
 2. Aerial Imagery: King County 2021

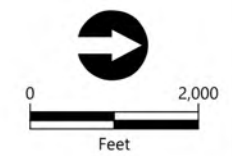


Table 4
LSP Recommendations For Each MU

LSP Recommendation	MU	Site Name
Ecological Use: Existing Mitigation	8	Tyee Golf Course
	14	Miller Creek Buffer Mitigation Area
	17	Vacca Farm/Lora Lake Mitigation Area
	47	Auburn Mitigation Area
Ecological Use: Potential Mitigation	6	Borrow Site Study Area
	24	Miller Creek East
	26	Wetland 2
	42	RST Property
	45	West Side Campus
	46	Tyee Golf Course East
Ecological Use: Habitat Enhancement	48	Future Mitigation Bank
	3	Borrow Site North and P-5
	4	Remnant Parcels
	7	P-4
	20	Zappala
	22	Des Moines Nursery/Williams Mitigation
	34	North of 156th
	39	Tyee and DMC Regional Detention Facility
North SeaTac Park	40	West of Airport
	43	Boeing Buffer
	25	North SeaTac Park
	29	55-acre Parcel
Public Safety and Maintenance	30	North SeaTac Park – South of S 136th Street
	31	North SeaTac Park – North of S 136th Street
	5	Williams Property Development
	9	SASA
	10	North of SASA
	12	34L RPZ
	13	West Side Campus
	18	NERA 1
No Action	32	North Employee Parking Lot
	33	L-Shape Parcel
	44	13-acre Parcel
	1	Future Des Moines Creek Business Park 3
	2	Des Moines Business Park
	11	SeaTac Fuel Facilities, LLC
	15	Third Runway Embankment
	16	FAA/TRACON
	19	NERA 2 and 3
	21	NERA 2
	23	PACWEST Little League
	27	Boeing Company
28	Boeing Buffer	
35	Flying Food Fare/Sky Chefs, Inc	
36	North of Airfield	
37	Terminal and Airport Entry	
38	Airfield	

4.2 Ecological Assessment Results

FLAT assessments and invasive mapping were conducted on MUs identified with the recommendation “Ecological Use: Habitat Enhancement.” Table 5 provides a summary of the results.

Table 5
Ecological Assessment Results

MU	Site Name	Acres of Invasive Vegetation	FLAT Category
3	Borrow Site North and P-5	8.2	9
4	Remnant Parcels	See note 1	
7	P-4	1.6	8
20	Zappala	See note 1	
22	Des Moines Nursery/Williams Mitigation	0.5	5
34	North of 156th	3.9	5
39	Tyee and DMC Regional Detention Facility	0.9	5
40	West of Airport	1.1	7
43	Boeing Buffer	3.2	3

Note:

1. Invasive mapping and FLAT assessments have not been conducted.

4.2.1 2023 High-Value Tree Survey

In early 2023, the Port completed its first high-value tree survey. The survey identified high-value trees on MUs 13, 14, 16, 17, 18, 40, 42, and 45. The survey identified and surveyed 408 high-value trees. Of those trees, 269 were identified as high-value trees because their diameter at breast height (DBH) was equal to or greater than 30 inches. The remaining trees were identified as high-value trees because they are a unique species with potential historical, ecological, or aesthetic significance. Of the total 408 surveyed high-value trees, 183 had the presence of invasive species, largely English ivy. Table 6 summarizes the data collected, and the surveyed high-value trees and attributes are maintained within the LSP baseline database.

Table 6
High-Value Tree Counts by Type and Location

High-Value Trees	Quantity
Designation	
Total high-value trees	405
Size	
Trees with DBH at or above 30 inches	271
Trees with DBH between 28 and 30 inches (likely to be at or above 30 inches in less than five years)	46
Other high-value trees (groves; special characteristics)	88
Type	
Native conifers	285
Native deciduous trees	52
Non-native/Ornamental/Other	68
Location	
High-value trees surveyed on Ecological Sites (MUs 14, 17, 40, 42, and 45)	362
High-value trees surveyed on Public Safety and Maintenance Sites (MU 13)	31
High-value trees surveyed on No Action Sites (MU 16)	12
Invasive Threat	
Not threatened	222
Threatened	183

4.3 Site-Based Stewardship Actions

Site maps identifying specific stewardship actions for all MUs, except for those identified as No Action and those within North SeaTac Park, are included in Appendix C. Table 7 provides a summary of the current potential ecological site-based management action on each MU. Table 8 provides a summary of the potential community benefit site-based management action on each MU. Appendix C provides site plans for all MUs.

**Table 7
Potential Site-Based Ecological Stewardship Actions**

MU	Site Name	Conduct Regulatory Mitigation	Long-Term Stewardship	Retain for Future Regulatory Mitigation	Remove Invasive Vegetation	Plant Trees and Forests	Protect High-Value Trees	Remove Culverts and Daylight Fish Passable Channels
3	Borrow Site North and P-5				•	•	•	
4	Remnant Parcels				•	•	•	
5	Williams Property Development				•		•	
6	Borrow Site			•	•	•	•	
7	P-4				•	•	•	
8	Tyee Golf Course	•		•	•	•	•	
9	SASA				•		•	
10	North of SASA				•		•	
12	34L RPZ				•		•	
13	West Side Campus				•		•	
14	Miller Creek Buffer Mitigation Area		•		•	•	•	•
17	Vacca Farm/Lora Lake Mitigation Area		•		•	•	•	
18	NERA 1				•		•	
20	Zappala				•	•	•	
22	Des Moines Nursery/ Williams Mitigation		•		•	•	•	
24	Miller Creek East			•	•	•	•	
26	Wetland 2 Study Area			•	•	•	•	
33	L-Shape Parcel						•	
34	North of 156th				•	•	•	
39	Tyee and DMC Regional Detention Facility				•	•	•	
40	West of Airport				•	•	•	
42	RST Property			•	•	•	•	
43	Boeing Buffer				•	•	•	
44	13-acre Parcel				•		•	
45	West Side Campus			•	•	•	•	
46	Tyee Golf East			•	•	•	•	•

MU	Site Name	Conduct Regulatory Mitigation	Long-Term Stewardship	Retain for Future Regulatory Mitigation	Remove Invasive Vegetation	Plant Trees and Forests	Protect High-Value Trees	Remove Culverts and Daylight Fish Passable Channels
47	Auburn Mitigation Area		●		●	●	●	
48	Future Mitigation Bank			●	●	●	●	

**Table 8
Potential Site-Based Community Benefit Actions on MUs**

MU	Site Name	Manage Tree Hazards	Improve Visual Corridors and Aesthetics	Provide Community Access	Maintain Community Planting Sites
3	Borrow Site North and P-5	●	●	●	
4	Remnant Parcels	●	●		
5	Williams Property Development	●	●		
6	Borrow Site	●	●	●	●
7	P-4	●	●	●	
8	Tyee Golf Course	●	●		
9	SASA	●	●		
10	North of SASA	●	●		
12	34L RPZ	●	●		
13	West Side Campus	●	●		
14	Miller Creek Buffer Mitigation Area	●	●		
17	Vacca Farm/Lora Lake Mitigation Area	●	●		
18	NERA 1	●	●		
20	Zappala	●	●		
22	Des Moines Nursery/Williams Mitigation	●	●	●	
24	Miller Creek East	●	●		

MU	Site Name	Manage Tree Hazards	Improve Visual Corridors and Aesthetics	Provide Community Access	Maintain Community Planting Sites
26	Wetland 2 Study Area	•	•		•
33	L-Shape Parcel	•	•		
34	North of 156th	•	•		
39	Tyee and DMC Regional Detention Facility	•	•		
40	West of Airport	•	•		
42	RST Property	•	•		
43	Boeing Buffer	•	•		
44	13-acre Parcel	•	•		
45	West Side Campus	•	•		
46	Tyee Golf East	•	•		
47	Auburn Mitigation Area	•	•		
48	Future Mitigation Bank	•	•		

4.3.1 Aggregate Stewardship Potential

Based on the LSP recommendations, ecological assessments, and site-based stewardship actions FLAT assessments, the following quantifies the amount of acreage available at SEA for active land stewardship:

- Long-term stewardship at mitigation sites: 140 acres
- Invasive vegetation removal and management: 57 acres
- Tree and forest planting stewardship: 45 acres
- High-value tree protection (surveyed high-value trees threatened by invasive vegetation): 183 trees

North SeaTac Park (214 acres) is not included for stewardship potential. As described in Sections 2 and 3, the park is subject to a City of SeaTac long-term lease.



Credit: Port of Seattle

5 Management Unit Prioritization

To meet LSP goals and inform the Port's decision-making on where to conduct LSP site-based stewardship actions, MUs identified for Ecological Use are prioritized based on the following attributes:

1. Potential to provide community and equity benefits
 - a. Mitigate areas with the worst heat island effects
 - b. Improve visual aesthetics by enhancing visually accessible areas
 - c. Improve public access by enhancing publicly accessible areas
 - d. Improve Port Equity Index
2. Potential to provide ecological benefits
 - a. Improve and/or expand existing contiguous habitat corridors
 - b. Connect existing contiguous habitats
 - c. Restore fish passage and stream connectivity by removing culvert and daylighting fish passage

The prioritization does not assess potential regulatory mitigation approaches and does not align potential development sites with potential mitigation sites that have commensurate amount of mitigation potential. The prioritization is a preliminary step in decision-making and would require Port stakeholder outreach and input before final stewardship action decisions are made.

The scoring approach is presented as Step 5 in the LSP methodology (see Section 2) and supported by the ecological and community equity inventory and mapping (Figures 9, 11, and 12 in Section 4). Based on the analysis, MUs 46, 24, 42, and 48 score the highest and best meet the defined attributes to improve both habitat and to benefit the community. Figure 17 maps the MUs by priority score, and Table 9 provides the results of the land stewardship prioritization.

Figure 17
Management Units Priority for Stewardship Actions



LEGEND:

Port-Owned Aviation Properties at SEA	Priority Score	6
	0	9
	1	
	3	
	4	
	5	

NOTES:
 1. Port-Owned Aviation Properties: Port of Seattle
 2. Management Units: Port of Seattle
 3. Aerial Imagery: King County 2021

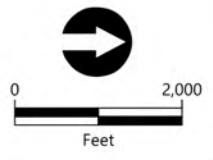


Table 9
Ecological Site Priority Using Equity and Ecological Indicators

MU	Site Name	Reduce Heat Island Effects	Enhance Visually Accessible Areas	Enhance Publicly Accessible Areas	Improve Port Equity Index	Improve and/or Expand a Habitat Corridor	Connect Existing Habitats	Remove Culvert and Daylight Fish Passage	SCORE (Highest to Lowest)
46	Tyee Golf Course East	1	1	0	1	2	2	2	9
24	Miller Creek East	0	1	0	1	2	2	0	6
42	RST Property	0	1	0	1	2	2	0	6
48	Auburn Mitigation Expansion	1	1	0	1	1	2	0	6
39	Tyee and DMC Regional Detention Facility	2	1	0	1	1	0	0	5
3	Borrow Site North and P-5	0	1	1	1	1	0	0	4
6	Borrow Site	0	1	1	1	1	0	0	4
7	P-4	0	1	1	1	1	0	0	4
8	Tyee Golf Course	1	1	0	1	1	0	0	4
14	Miller Creek Mitigation Area	1	1	0	1	1	0	0	4
17	Miller Creek/Vacca Farm/Lora Lake Mitigation Area	1	1	0	1	1	0	0	4
20	Zappala	1	1	0	0	2	0	0	4
22	Des Moines Nursery Mitigation Area	0	1	1	1	1	0	0	4
34	North of 156th	0	1	0	1	1	0	1	4
45	West Side Campus	1	1	0	1	1	0	0	4
47	Auburn Third Runway Mitigation Area	1	1	0	1	1	0	0	4
4	Remnant Parcels	1	1	0	1	0	0	0	3
26	Wetland 2 Study Area	0	1	1	1	0	0	0	3
40	West of Airport	0	1	0	1	1	0	0	3
43	Boeing Buffer	0	1	0	0	0	0	0	1



Credit: Port of Seattle

6 Implementation

In this section, the LSP concludes with a description of how SEA will implement the Land Stewardship Program to meet its stated objectives.

6.1 LSP Implementation

SEA will implement actions intended to achieve LSP objectives and goals according to the schedule for completion and recurrence indicated in Table 10. Many of the actions have already been completed to support and inform development of the LSP or have already been integrated into SEA Environment and Sustainability programs. The following sections describe specific programs and methods for implementing goals and actions.

Objective 1. Establish and maintain an inventory of land stewardship resources.

SEA Environment and Sustainability staff have maintained an inventory of natural resources since 2000, when data began to be collected as part of the 1997 Master Plan Update development activities. Initial inventory items focused primarily on regulated aquatic resources, including wetlands, streams, and their regulatory buffers, as well as other critical areas such as steep slopes and wellhead protection areas.

Staff have archived these spatial data and keep a current record of existing resources as information has become available. This allows timely information to be provided for project planning and permit compliance, and also supports the Port's overall efforts for stewardship as indicated, for example, through compliance with conditions for Salmon Safe Certification.

Recently, additional effort has been made to map existing restoration sites, including compensatory mitigation, voluntary planting, and community stewardship sites. To further support LSP planning and implementation, the Port has recently added land (forest) cover data and is working to add tree inventory data, including high-value trees and tree presence/absence on developed sites. This information will help ensure high-value trees are protected and high-visibility development is actively maintained with maximum canopy consistent with development standards and airport operational requirements.

Regional high-resolution aerial imagery is updated every five years, enabling land cover estimates to be updated on a five-year cycle. The Port will update the LSP land cover data and inventory attributes every five years.

The Port also collected inventory information related to community equity, including urban heat island mapping, mapping visual buffers and public access, and mapping the Port Equity Index. These indicators are used to inform prioritized site selection for stewardship activities.

The Port will release annual updates on LSP goals and progress through the publication of an environmental report and Dashboard. Continuation of active inventory to maintain a living land stewardship database will allow SEA to document change over time and assess achievement of LSP objectives and goals.

Objective 2. Protect and restore healthy and self-sustaining trees, forest, and other habitat.

Objective 2 identifies actions intended to promote overall forest health, including planting trees to increase canopy; replacing invasives with native understory plants to improve forest function, including natural recruitment of trees; and protecting existing high-value trees from invasives threats.

These actions are implemented primarily through annual work plans for site maintenance created by the SEA Environment and Sustainability group and implemented through a range of service providers, including SEA Maintenance crews, conservation crews, and community stewardship events, and Port community grant awardees implementing stewardship projects in partner communities. Stewardship activities are prioritized at sites with the greatest ecological and community equity benefits.

Objective 3. Connect and expand existing habitat.

Objective 3 is primarily a planning exercise to identify and prioritize actions implemented through Objective 2. Sites selected for annual maintenance and community stewardship are consistent with the prioritization evaluation presented in the LSP (see Section 5).

Removing fish passage barriers to connecting streams is achieved on an ad hoc basis through capital infrastructure projects, planning by the Miller Creek and Des Moines Creek Basin Committees (for both of which the Port is a stakeholder and funding contributor), and coordinated past projects such

as the West Fork Miller Creek daylighting and culvert replacement project being constructed in summer/fall 2023.

Objective 4. Offset operational and development impacts to trees, forest, and other habitat.

Offsetting tree-clearing impacts resulting from the impacts of SEA operations and development is accomplished through regulatory compliance and sustainability planning pathways, which are both strategies the Port Commission has directed SEA to implement as part of the Order to implement Environmental Land Stewardship Principles (Port of Seattle 2023b). SEA staff are currently working to develop tree definition, retention, and replacement standards for the Airport Activity Area designated as under Port (SEA) authority in the 2018 Interlocal Agreement with the City of SeaTac (Note: activities within jurisdictions of SeaTac, Des Moines, and Burien are subject to their existing development standards regulated tree clearing). The standards will require cleared trees to be functionally replaced through tree protection, invasive management, and planting to restore healthy forests. Standards and tree replacement projects will be consistent with the Environmental Land Stewardship Principles and planning information provided herein.

In addition, the LSP is supplemented by a Mitigation Opportunities Assessment technical document that identifies and evaluates sites with mitigation potential. This document provides mitigation quantities that can be aligned to project impacts to select sites appropriate for the required amount of mitigation and also provide high-level construction costs that can be used for preliminary project planning.

The Port Sustainability Evaluation Framework is a pseudo-voluntary program applied to Capital projects. The Habitat component of the SEF is intended to implement planning for tree replacement consistent with the Principles and identify additional stewardship activities not directly related to tree replacement, such as material salvage (native plants, woody debris) and alternative habitats for sites where tree planting would not comply with flight safety and other rules and regulations. The SEF Guidance Manual describing how to apply these considerations to project planning is due to be completed in the second quarter of 2024. Part of this planning will include providing LSP site plans specific to the sites on which projects occur.

Objective 5. Support community partnerships.

SEA Environment and Sustainability will work with Environmental Affairs and Environmental Justice staff to coordinate and implement community site stewardship events, other educational and engagement events, and community grant programs. These efforts are all ongoing work that is deeply integrated into existing SEA and Port environmental, public affairs, and equity programs.

SEA leaders will continue to advocate for and support interagency projects and agreements to achieve leveraged outcomes that provide greater or otherwise unachievable environmental outcomes that benefit airport ecological resources and community equity. These projects are

typically ad hoc and opportunistic but can be identified and supported through LSP inventory and mapping information as well as project-based work. Examples of current interagency partnerships include the North SeaTac Park lease agreement with the City of SeaTac and the 2023 City of Burien project to daylight the West Fork Miller Creek and improve fish passage under Des Moines Memorial Boulevard. This project was the outcome of the joint Port-Burien Northeast Redevelopment Area planning area agreements. The Port contributed the land for the stream daylighting and, along with the City of SeaTac, contributed funds, without which the project could not have been accomplished.

Table 10
LSP Objectives, Goals, Supporting Actions, and Implementation Timeline

Goal	Action	Implementation Timeline
LSP Objective 1. Establish and maintain an inventory of land stewardship resources.		
Establish benchmark conditions	<ul style="list-style-type: none"> • Inventory, map, and assess the condition of trees, forest, and other habitat attributes: <ul style="list-style-type: none"> - Landscape conditions (land cover; land use) - Site-specific conditions (forest health; high-value trees; trees on developed sites) <ul style="list-style-type: none"> o Regulated aquatic resources o Streams, wetlands, and their regulatory buffers o Other environmentally critical areas o Individual trees (high-value mature trees and trees on developed parcels) - Contiguous habitat (stream riparian corridors; stream culverts and fish passage) • Inventory, map, and assess community equity attributes of surrounding neighborhoods 	<p>Initial benchmarking complete</p> <p>Complete one-time inventory of individual trees by 2025.</p> <p>Establish new benchmarks every five years</p>
Maintain a living land stewardship geodatabase	<ul style="list-style-type: none"> • Conduct periodic land cover analysis, forest health assessments, and tree inventories to assess change in tree canopy and forest health • Update resource database for tree inventories, aquatic resource delineations, and contiguous habitat as it becomes available 	<p>Every five years</p> <p>Ongoing</p>
Track achievements	<ul style="list-style-type: none"> • Document tree protection, tree planting, and invasive removal on SEA property • Document tree planting and invasive removal projects sponsored by the Port community equity initiatives in surrounding communities • Inventory and document SEA tree canopy and forest health • Report achievements for tree protection, tree planting, and invasive removal/understory planting in the annual environment and sustainability scorecard • Document tree protection, tree planting, and invasive removal on SEA property 	<p>Annual</p> <p>Annual</p> <p>Annual</p> <p>Annual</p> <p>Every five years</p>
LSP Objective 2. Protect and restore healthy and self-sustaining trees, forest, and other habitat.		
Implement tree planting to increase canopy and habitat function	<ul style="list-style-type: none"> • Plant 500 trees (two acres) annually to augment canopy and diversity 	<p>Annual</p>
Restore invasive areas to a native forested condition	<ul style="list-style-type: none"> • Implement invasive species maintenance for 20 acres of property • Plant one acre of native understory shrubs and ground cover annually to increase forest structure and diversity • Protect 50 mature trees from invasive threats annually to maintain their function and value • Create an index of prioritized sites using ecological and equity metrics 	<p>Annual</p> <p>Annual</p> <p>Annual</p> <p>Complete</p>

Goal	Action	Implementation Timeline
LSP Objective 3. Connect and expand existing habitat.		
Connect and expand contiguous habitat	<ul style="list-style-type: none"> • Prioritize stewardship at sites in or contiguous to existing habitat corridors • Coordinate and support community projects within mapped contiguous habitat corridors 	Complete Ongoing
Enhance stream longitudinal connectivity to allow salmon migration	<ul style="list-style-type: none"> • Replace stream culverts and other artificial barriers with fish-passable structures 	As possible
LSP Objective 4. Offset operational and development impacts to trees, forest, and other habitat.		
Integrate environmental stewardship into capital development processes	<ul style="list-style-type: none"> • Establish SEA development standards for trees, including tree definition, on-site retention, and replacement requirements • Develop and implement the Habitat and Restoration criteria of the Sustainable Evaluation Framework 	End of 2023 Update SEF Guidance Manual by Quarter 2 of 2024; Project-based implementation
Programmatically plan and implement compensatory stream and wetland mitigation	<ul style="list-style-type: none"> • Complete a mitigation opportunities assessment identifying sites with potential for future compensatory stream, wetland, and tree mitigation • Include the Port's Equity Index scoring, public accessibility, and heat island information as part of Land Stewardship site management plans 	Complete Complete
Identify actions with the greatest community equity benefit	<ul style="list-style-type: none"> • Prioritize in-basin projects for stream and wetland compensatory mitigation • Prioritize sites that provide a buffer between airport operational and development and adjacent neighborhoods • Prioritize sites according to urban heat island and the Port's Equity Index scores • Conduct public engagement on projects with tree, forest, and other habitat mitigation requirements 	Complete Complete Complete Complete
Implement land stewardship practices in the existing built environment	<ul style="list-style-type: none"> • Replace missing, dead, and unhealthy trees in landscaped areas at existing development sites in accordance with project as-built designs and current landscaping standards • Mitigate public safety hazards 	End of 2025 Annual

Goal	Action	Implementation Timeline
LSP Objective 5. Support Community Partnerships.		
Provide community engagement opportunities through the Land Stewardship program	<ul style="list-style-type: none"> • Establish community stewardship sites on airport property • Conduct community events (planting and/or maintenance) • Integrate job training and workforce development opportunities • Maintain planted sites for a five-year period 	Annual Annual Annual Annual
Support Port community equity Initiatives	<ul style="list-style-type: none"> • Coordinate with South King County Development Fund grant program • Participate in Green Cities Partnership • Provide public engagement opportunities to inform stewardship planning and activities • Include Equity Index scores as part of site-specific resource assessments and management recommendations 	Annual Complete Ongoing Complete
Leverage interagency partnerships	<ul style="list-style-type: none"> • Facilitate and enable to the extent feasible stewardship projects sponsored by the SEA public partners • Utilize grant funding opportunities provided by federal and state equity and/or tree stewardship initiatives 	As possible As possible

6.2 Conclusion

While the results of the LSP analysis demonstrate that multiple operational activities and future development plans constrain ecological opportunities on Port-owned aviation lands, there are lands with ecological potential at SEA and the Port can achieve specific ecological goals at SEA. Of the 2,768 acres assessed (this includes the Port's Auburn property), 1,763 acres were identified as too heavily encumbered by current Port operations and development activities. A total of 284 acres are encumbered by potential future development, and 214 acres are located within North SeaTac Park, which is leased, operated, and maintained by the City of SeaTac. However, through the LSP feasibility and ecological assessment, appropriate actions have been identified on the remaining 507 acres at SEA located in ecological areas.

Stewardship activities both protect existing site infrastructure and promote opportunities to support the Port integrating the 2023 Environmental Land Stewardship Principles. The following provides snapshots on how this can unfold:

Manage mitigation sites beyond compliance timeline

Miller Creek Mitigation Area's (MU 14) mitigation restrictive covenant restricts any future development on the site and requires the Port to monitor and maintain the site until it meets its mitigation plan requirements. The Port has met those requirements and does not have a regulatory requirement to continue monitoring the site. However, the LSP identifies that the mitigation covenant, including its 48 acres of forested area, should be maintained beyond the regulatory mitigation monitoring requirements. In addition, the LSP MU 14 site plan has identified an opportunity to improve fish passage and connectivity by replacing an existing culvert and expanding the mitigation area. The LSP MU 14 site plan has also identified fringe areas adjacent to the mitigation covenant area that offer potential for habitat improvement and expansion. These LSP actions could convert lower-functioning grass and shrub habitat to forest, expanding forest cover by 12 acres.

Expand invasive species management

The West Side Campus (MU 13) is directly west of the AOA. This area is instrumental for SEA operations and has future development plans. While the MU does not provide great opportunities for LSP actions to enhance, expand, or connect habitat, there is an opportunity to reduce invasive



The port's Auburn mitigation site



Emergent marsh at third runway mitigation site

vegetation cover. As shown in the MU 13 site plan, 16 acres of the MU is dominated by Himalayan blackberry and Scot's broom. Invasive vegetation is spread through wind dispersion and wildlife to the adjacent AOA where it competes with the highly regulated and maintained grass vegetation planted along the runways. Managing the invasive vegetation on MU 13 would reduce maintenance requirements within the AOA.

Initiate restoration projects

MU 42 is surrounded by the SEA's Vacca Farm/Lora Lake Mitigation Area and offers potential for wetland enhancement and re-establishment. The MU is dominated by an impervious parking area and mowed grass. A narrow-forested area runs along Miller Creek. Restoring the MU could enhance and re-establish more than two acres of forested wetland and increase the MU's forest cover by more than three acres.

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Appendix A

Mitigation Site Opportunity Assessment



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May 2019
Land Stewardship Plan: Appendix A



Mitigation Site Opportunity Assessment

Prepared for the Port of Seattle
P.O. Box 68727
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May 2019
Land Stewardship Plan: Appendix A

Mitigation Site Opportunity Assessment

Prepared for
Port of Seattle

Prepared by
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TABLE OF CONTENTS

1	Introduction	1
2	Background and Overview	2
3	Watershed Context	4
3.1	Nearshore Subwatershed	4
3.1.1	Miller and Walker Creeks	4
3.1.2	Des Moines Creek	6
3.2	Lower Green River Subwatershed	6
4	Aviation Wetland and Buffer Mitigation Opportunities	8
4.1	Aviation Property Sites	11
4.1.1	MU 6: Borrow Site Study Area	11
4.1.2	MU 24: Miller Creek East Study Area	13
4.1.4	MU 26: Wetland 2 Study Area	15
4.1.5	MU 42: RST Property Study Area	17
4.1.7	MU 45: West Side Campus Study Area	19
4.1.8	MU 46: Tye Golf Course Study Area	21
4.2	MU 48: Auburn Site Study Area	23
5	Mitigation Bank Considerations	25
5.1	Mitigation Bank Site Selection Considerations	25
5.2	Preliminary Goals and Objectives	27
5.3	Proposed Service Area	27
5.4	Project Need Analysis	28
5.4.1	Existing Mitigation Banks and In-Lieu Fee Programs	28
5.4.2	Port of Seattle Mitigation Needs	29
5.4.3	Other Potential Mitigation Credit Purchasers	30
5.5	Process of Review and Approval	32
5.5.1	Calculation of Mitigation Credits	32
5.5.2	Calculation of Mitigation Debits	33
5.6	General Market Assessment for a Potential Umbrella Bank	34
5.6.1	Project Cost Factors	34
5.6.2	Price of Mitigation Credits	34
5.6.3	Auburn Site Study Area Opinion of Probable Costs	35
5.6.4	Mitigation Bank Credit Price Considerations	35

6	Summary	39
7	References.....	40

TABLES

Table 1	Summary of Mitigation Opportunities.....	10
Table 2	Wetland Credit Conversion Ratios.....	33
Table 3	Potential Range of Proposed Auburn Mitigation Site Bank Credits Using the Wetland Credit Conversion Ratios (WAC 173-700-313).....	36
Table 4	Estimated Credits by Function for the Proposed Auburn Mitigation Site.....	37

FIGURES

Figure 1	Vicinity Map.....	5
Figure 2	Potential Mitigation Sites Overview.....	9
Figure 3	MU 6: Borrow Site Study Area.....	12
Figure 4	MU 24: Miller Creek East Study Area.....	14
Figure 5	MU 26: Wetland 2 Study Area.....	16
Figure 6	MU 42: RST Property Study Area.....	18
Figure 7	MU 45: West Side Campus Study Area.....	20
Figure 8	MU 46: Tyee Golf Course Study Area.....	22
Figure 9	MU 48: Auburn Site Study Area.....	24

ATTACHMENTS

Attachment A	Opinion of Probable Costs
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ABBREVIATIONS

Airport	Seattle Tacoma International Airport
Ecology	Washington State Department of Ecology
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FAA	Federal Aviation Administration
HUC	Hydrologic Unit Code
ILF	in-lieu fee
IRT	Interagency Review Team
LSP	Land Stewardship Plan
MPU	Master Plan Update Improvement Projects
MU	Management Unit
PEM	palustrine emergent
PFO	palustrine forested
Port	Port of Seattle
PSS	palustrine scrub shrub
RM	River Mile
WAC	Washington Administrative Code
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

1 Introduction

The Port of Seattle (Port) owns approximately 2,700 acres of land that support the operation of the Seattle-Tacoma International Airport (Airport). Many of these properties will be developed in the future to accommodate increased demand for airport support facilities and other operations and commercial development. These lands also provide habitat for many of the region's valued fish and wildlife species, including wetlands, streams, floodplains, riparian areas, and associated buffers. The Port is developing the Land Stewardship Plan (LSP) for the Airport in a manner that considers plans for growth and development. The LSP will guide decision-making by describing the Airport's baseline condition, then defining, locating, and prioritizing stewardship actions.

The Port is reviewing existing aviation properties to evaluate mitigation potential, with the goal of maximizing wetland and habitat functions in the watersheds in and around the Airport and the larger Green/Duwamish River and nearshore watersheds (Water Resource Inventory Area [WRIA] 9), while supporting area development. This aligns with the Port's Century Agenda mission to advance commerce and promote industrial growth in an environmentally responsible way.

This appendix evaluates wetland and buffer mitigation opportunities on aviation Management Units (MUs) defined in the LSP that already contain wetlands and associated buffers. Each of the MUs assessed in this appendix has some potential to mitigate for unavoidable impacts through wetland and buffer restoration, establishment (creation), enhancement, and/or preservation. Many of the MUs provide opportunities to improve wetland functions, either as concurrent or advanced mitigation to offset aviation development impacts.

This appendix describes the background and rationale for this evaluation (Section 2), an overview of watershed-level functions in WRIA 9 that should be prioritized with any mitigation action (Section 3), and an evaluation of wetland and buffer mitigation opportunities for several aviation MUs (Section 4). Because of the potential for wetland establishment, size, and proximity to the Port's adjacent wetland mitigation site, MU 45 in Auburn has the potential to be included in an umbrella mitigation bank, which is being proposed in coordination with the Port's Maritime Division. Section 5 provides information to evaluate the Auburn Site Study Area for inclusion in the mitigation bank, such as background information regarding the goals of a mitigation bank, a project need analysis, an assessment of the market conditions for a bank, and the steps and schedule for establishing an umbrella mitigation bank.

2 Background and Overview

Development and operations of the Port and other businesses often directly or indirectly affect aquatic environments or sensitive areas. Pursuant to federal, state, and local regulations, these impacts are avoided and minimized to the extent possible but often require compensatory mitigation to replace wetland and/or fish and wildlife habitat functions when unavoidable impacts occur. However, finding space and funds to perform such mitigation is a challenge near the Airport and in the Green River valley. As a major landowner, the Port is in a unique position to select and dedicate sites for mitigation.

The Port has the option to conduct voluntary wetland and/or habitat restoration to improve wetland and/or fish and wildlife habitat functions on Port property. Voluntary actions would not be triggered by any specific development action, but would be identified by the Port as part of the LSP or other restoration initiative for properties that have the opportunity to improve important watershed or habitat functions.

The Port may also be required to conduct compensatory mitigation to offset unavoidable impacts to wetland and/or fish and wildlife habitat on Port property. Compensatory mitigation could be implemented as advance mitigation or concurrent mitigation. Advance mitigation would generate credits to provide future compensatory mitigation for permitted impacts that have yet to be identified. Most mitigation projects require at least 10 years to achieve performance standards and reach full function (Ecology 2012a). Therefore, advance mitigation usually generates more credits than concurrent mitigation by decreasing temporal loss (i.e., impacts to wetland or habitat will occur in the future). Concurrent mitigation is implemented within 1 year of impacts, but generates fewer credits than advance mitigation sites because temporal loss and the risk of failure at the site is higher (Ecology 2012b). Credits earned through advance mitigation can only be used by the permittee (i.e., Port), and cannot be sold to another applicant (Ecology 2012a).

As another option, in recent years, Ports and other public organizations have chosen to sponsor mitigation banks to maximize wetland and habitat functions in a more predictable manner, while also achieving a more efficient permit process for development projects. Several Washington ports have recently sponsored wetland mitigation banks (Port of Vancouver), habitat conservation banks (Port of Everett), or umbrella wetland and habitat conservation mitigation banks (Port of Tacoma). An umbrella mitigation bank may include multiple sites deemed appropriate and approved by the Interagency Review Team (IRT), which is an interagency group of federal, state, tribal, and local

The Port of Seattle's Mission

The Port is a special-purpose municipal corporation serving King County with a mission "to create good jobs here and across the state by advancing trade and commerce, promoting manufacturing and maritime growth, and stimulating economic development." The Port is committed to responsibly stewarding public resources and the environment and partnering with surrounding communities, while promoting social responsibility, transparency, and accountability. The Port owns and manages many properties and seeks to maximize public assets in the portfolio, with an eye toward best uses and environmental sustainability (Port of Seattle 2018a).

regulatory and resource agencies. Different sites often provide different functions under the umbrella bank. As such, credits from a Port-sponsored umbrella mitigation bank could potentially be used by the Port, Port tenants, business owners, and government agencies to mitigate for aquatic and wetland impacts as well as impacts to Endangered Species Act (ESA)-listed species, Essential Fish Habitat (EFH), and other state- and federally protected species and habitat.

3 Watershed Context

The Airport and the surrounding areas are within WRIA 9 (Figure 1). WRIA 9 includes the Nearshore subwatershed (Hydrologic Unit Code [HUC] 171100190204) of Miller Creek, Walker Creek, Des Moines Creek, and other small drainages that drain portions of the cities of SeaTac, Burien, Normandy Park, and Des Moines directly to Puget Sound. The Lower Green River subwatershed (HUC 1711001303) includes the portion of the Green River from Auburn at River Mile (RM) 30 through Kent, Renton, and Tukwila to RM 11, just upstream of the historical confluence with the Black River. Immediately downstream of the Lower Green River subwatershed is the Duwamish Estuary subwatershed, which extends to RM 0 at Elliott Bay.

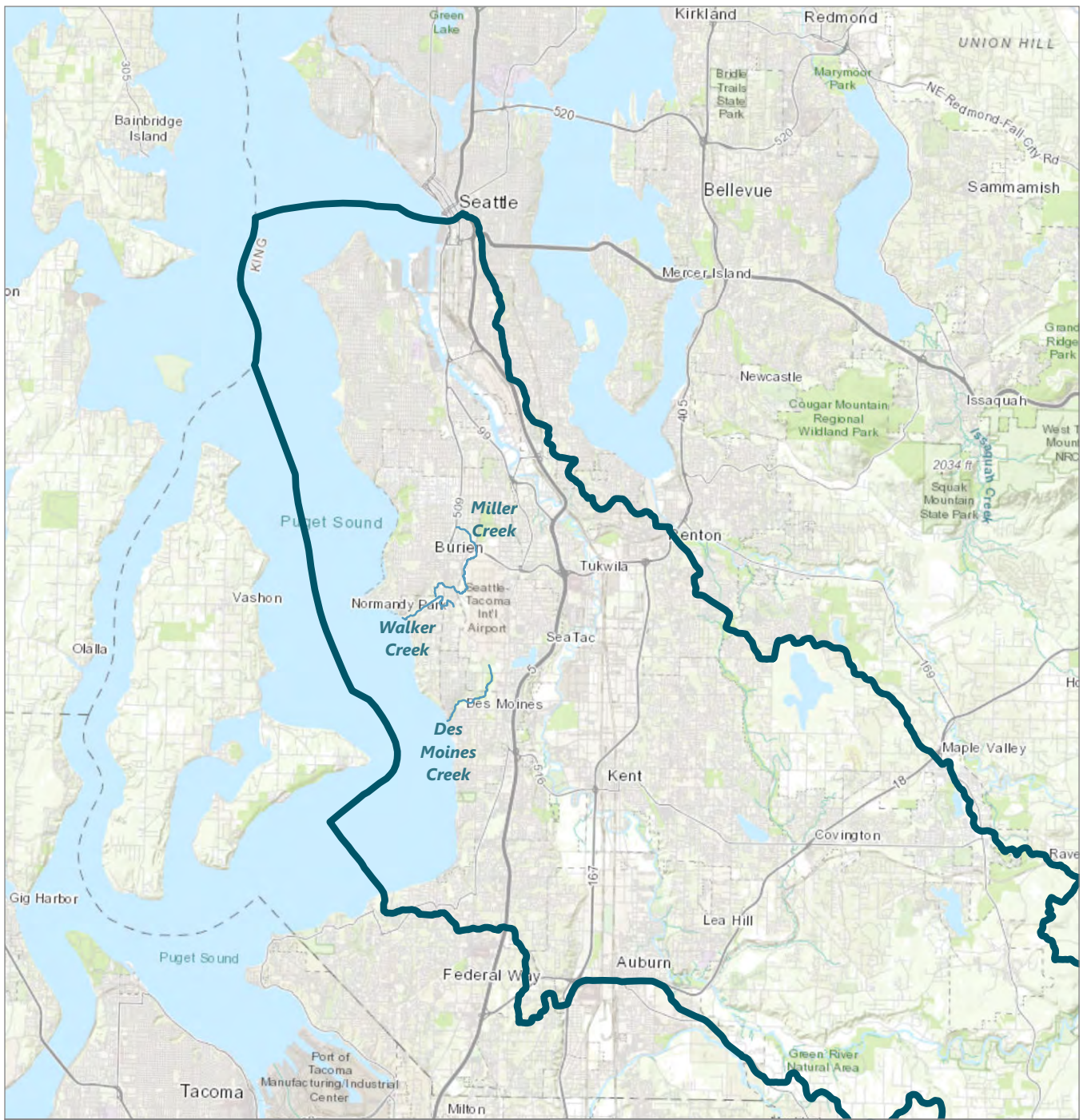
3.1 Nearshore Subwatershed

The Nearshore subwatershed in the vicinity of the Airport has been altered as a result of development over many decades. Land use in the subwatershed consists primarily of residential and industrial uses, which has resulted in changes in water quality, riparian vegetation, and sedimentation in nearshore habitat. Salmon populations in the region have decreased over time, as evidenced by the ESA listings of Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), and bull trout (*Salvelinus confluentus*), which were historically present, along with other salmon, in Miller, Walker, and Des Moines creeks.

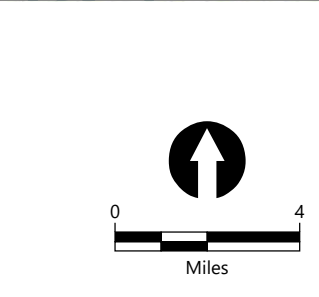
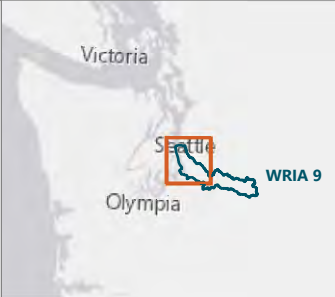
Published in 2001, the comprehensive State of the Nearshore Ecosystem Reconnaissance Assessment recognized the importance of restoration and protection of critical ecosystem functions in the nearshore environment, providing recommendations that included wetland enhancement and preservation, protection of undeveloped shoreline habitat, and restoration of modified land, starting in the Duwamish River estuary and subestuaries (Starkes 2001). Shoreline armoring in the nearshore subwatershed has also been a continuing issue for salmon habitat restoration, with more armoring built than removed through restoration between 2005 and 2014 (Higgins 2014).

3.1.1 Miller and Walker Creeks

Extensive flooding and erosion in the Miller and Walker Creeks Basin prompted an analysis of current and future conditions in the basin, presented in *The Miller and Walker Creeks Basin Plan* (Amoto and The Resource Group Consultants 2006). Development and impacts associated with human activities in the basin have increased impervious surface and reduced fish habitat in stream systems. Land cover in the basin is primarily residential or commercial, with the Airport at the eastern end. There is a lack of riparian habitat, leading to high flows which increases erosion and damages stream beds. In 1999, assessments of Miller and Walker Creeks found a high pre-spawn mortality of salmon (Amoto and The Resource Group Consultants 2006); stormwater discharge and low water quality in the streams may be the cause of low biological health. The basin plan identifies the goal of habitat protection and improvement to increase anadromous fish populations.



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 WRIA 9



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Figure 1
Vicinity Map
 Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

3.1.2 *Des Moines Creek*

In 1997, the Des Moines Creek Basin Committee developed the *Des Moines Creek Basin Plan* to address stream-related issues and make recommendations for infrastructure investments. High flows, erosion, fish passage barriers, and water quality limit fish productivity in this basin (Des Moines Creek Basin Committee 1997). Hydrologic management installed at key locations, like detention and bypass systems to reduce flow, was the primary outcome of this plan. The plan also recommended improving riparian and instream habitat, such as rehabilitating riparian zones by removing invasive plants and improving riparian buffers.

3.2 Lower Green River Subwatershed

The Green/Duwamish watershed provides important feeding, spawning, and migratory habitat to native fish and wildlife. Anadromous salmon found in the Green/Duwamish watershed include Chinook, coho (*Oncorhynchus kisutch*), chum (*O. keta*), sockeye (*O. nerka*), and pink (*O. gorbuscha*) salmon, as well as steelhead, cutthroat (*O. clarkia*), and bull trout (Northwest Indian Fisheries Commission and WDFW 2015). Among these species, federally threatened species include Puget Sound Chinook salmon (Federal Register, 2 August 1999 and 28 June 2005), Puget Sound steelhead (Federal Register, 11 May 2007), and Coastal-Puget bull trout (Federal Register, 1 November 1999). Critical habitat is designated and includes Puget Sound and the Green/Duwamish River for Chinook salmon (Federal Register, 2 September 2005) and bull trout (Federal Register, 18 October 2010). Critical habitat was proposed for steelhead, but has not yet been designated (Federal Register, 14 January 2013). EFH is designated under the Magnuson-Stevens Fisheries Conservation and Management Act for Pacific Coast salmon, which encompasses Chinook, coho, and pink salmon (Federal Register, 15 October 2008).

Fall-run Chinook, coho, fall-run chum, sockeye, and pink (odd year) salmon, along with coastal cutthroat, winter- and summer-run steelhead, and bull trout have been documented in the Lower Green River subwatershed. Pools in the upper portions of the Lower Green River may provide spatial separation from aquatic predators that reside in deeper waters, improved protection from predators through higher turbidity levels, and improved foraging capacity for juvenile salmonids (Anchor 2004). Adult salmon primarily spawn in the middle reaches of the Green River and its tributaries. The use of different habitats along the Green/Duwamish River varies with seasonal timing and life stage of Chinook salmon (Ruggerone et al. 2006); this suggests that a diversity of habitats along the estuarine gradient is important to support a diversity of juvenile life history strategies, which contributes to population resilience.

After the federal government listed Puget Sound Chinook salmon, steelhead, and bull trout as threatened, local governments in the Green/Duwamish watershed created the Salmon Habitat Plan (WRIA 9 Steering Committee 2005), which acts as a guide for protection and restoration actions to

enhance Chinook salmon and bull trout habitat. The Salmon Habitat Plan outlines factors that have led to population decline and habitat enhancement actions that could increase Chinook salmon and bull trout populations; it mentions reduced channel complexity, loss of riparian vegetation, disconnection with off-channel habitat, reduced sediment supply, and low water levels as widespread factors of species decline in this watershed. Many areas along the Lower Green River are affected by levees and revetments, which led to channelization and disconnection of off-channel habitat. Protecting and restoring off-channel habitat, increasing habitat complexity, reconnecting sediment sources to the river, and improving fish passage would have beneficial effects on this watershed.

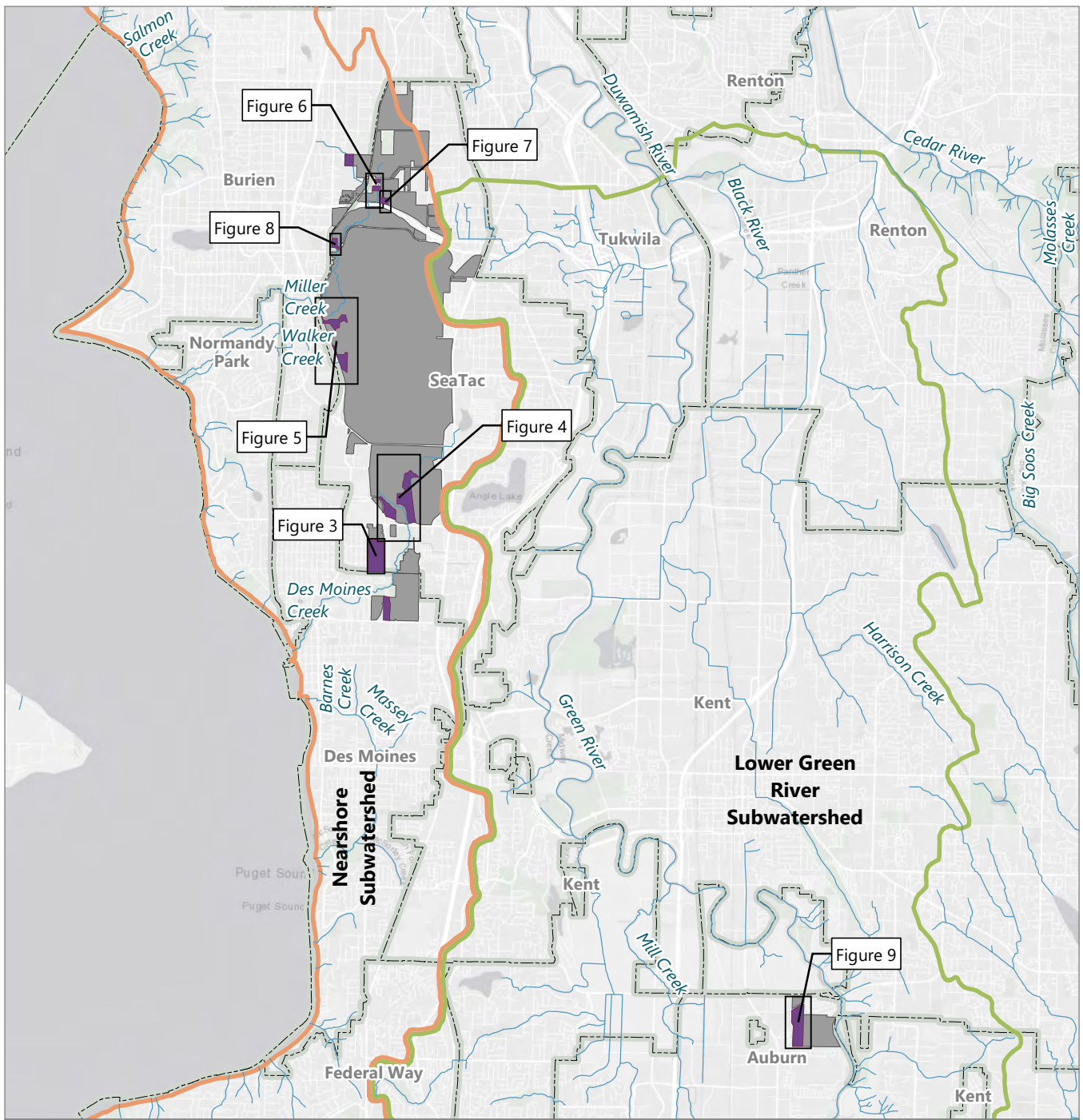
Restoring riparian habitat can improve impaired watershed processes in the Lower Green River subwatershed. Creating or restoring wetlands and associated buffers would improve water quality, improve habitat connectivity for other species dependent on riparian, marsh, and other aquatic environments; and, if adjacent to the Green River, could provide off-channel rearing and refuge for juvenile salmonids.

4 Aviation Wetland and Buffer Mitigation Opportunities

The Port has identified MUs within and adjacent to the Airport containing wetlands that may have the potential for wetland and buffer mitigation, considering their current operational and land use, location, and potential aviation development and expansion plans (Figure 2). Each MU was reviewed to evaluate the potential to restore key watershed functions as part of restoration activities. Some MUs evaluated in this section are large enough to support viable, self-sustaining habitat, but others provide site-scale habitat functions on a smaller scale, considering their position in the landscape.

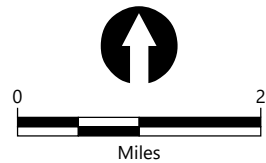
Section 4.1 evaluates restoration potential for each site, considering existing conditions and constraints. A conceptual restoration plan within each MU was developed, as summarized in Table 1. Section 4.2 provides additional details for the Auburn Site Study Area, which is being proposed for inclusion in the umbrella mitigation bank in coordination with the Maritime Division because of the potential for wetland establishment, size, and proximity to the Port's adjacent wetland mitigation site. Attachment A contains a conceptual-level opinion of probable costs for each MU.

Credits were calculated for each MU using the 2012 Washington State Department of Ecology (Ecology) *Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Western Washington* report (Ecology 2012b). Credit calculations are calculated using two methods: concurrent mitigation and advanced mitigation. To qualify for advanced mitigation, construction must be completed and demonstrate some level of success prior to the release of credits for a later project. For advanced mitigation, it is assumed that temporal losses will be reduced. Concurrent mitigation assumes the mitigation activity will be conducted at the same time as the project impact, and, therefore, the number of credits generated from an MU will be less because of temporal loss. Credits calculated through this method estimate the gains in functions and values resulting from mitigation, intended to compensate for impacts to losses of functions and values, known as debits or "acre-points."



LEGEND:

- Map Extent
- Lower Green River Subwatershed
- Potential Mitigation Sites
- Nearshore Subwatershed
- Port Ownership Boundary
- Rivers and Streams



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Figure 2
Potential Mitigation Sites Overview
 Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

Table 1
Summary of Mitigation Opportunities

Characteristic	MU 6 Borrow Site Study Area	MU 24 Miller Creek East Study Area	MU 26 Wetland 2 Study Area	MU 45 West Side Campus Study Area	MU 42 RST Property Study Area	MU 46 Tyee Golf Course Study Area	MU 48 Auburn Site Study Area
Size (acres)	31	10.2	3.5	20	3.8	56.9	34
Municipality	City of SeaTac	City of SeaTac	City of SeaTac	City of SeaTac	City of SeaTac	City of SeaTac	City of Auburn
Zoning	Aviation Commercial	Aviation Commercial; Industrial	Aviation Operations	Aviation Operations; Aviation Commercial	Community Business; Aviation Commercial	Aviation Operations	Open Space
Parcels	8962000060; 7687201115; 7687200585; 7687200505; 7687201035; 8962000055; 8962000005; 7687200955; 7687200425; 3822600050	2023049233; 2023049001; 2023049002; 2823049016	2823049016	2923049478; 2923049101; 3846600005	2023049110; 2023049234; 2023049229; 2023049125	2823049016	9360600260; 9360600258; 0004200006
Existing Land Use	Protected wetland and buffer; Flight Corridor Safety Program	Wetlands	Wetlands; access road	Protected wetland and buffer; Flight Corridor Safety Program	Gravel roadway; parking; wetlands	Voluntary protection/ enhancement/ restoration; mitigation	Protected wetland buffers; formerly agriculture
Potential Historical Fill Present	-	-	-	-	Fill associated with parking and road development	Historically a golf course	-
Size of Existing Wetlands (acres)	2.35	0.2	0.2	4.5	1	2	8.3
Size of Existing Buffers (acres)	19.5	2.7	2.8	15	1.7	29.5	8.3
Wetland Rating ¹	II-III	III	IV	III	II	II-III	III
Required Buffer Width (feet)	40 – 225	40 – 225	40 – 225	40 – 225	40 – 225	40 – 225	25 – 200
Wetland Re-Establishment (acres)	0	5.1	0	0	1.1	22	14.8
Wetland Enhancement (acres)	0	0.18	0.23	0	1	1.6	8.1
Wetland Preservation (acres)	2.35	0	0.47	4.55	0	0.4	0
Buffer Enhancement/Preservation (acres)	24.9	5.4	2.82	15	1.65	19.5	10.7
Opinion of Probable Costs ²	\$5M to \$6M	\$6M to \$7M	\$1M to \$2M	\$3M to \$4M	\$1M to \$2M	\$28M to \$29M	\$18M to \$19M
Improving Water Quality (acre-points)	1.0575	26.644	0.2849	1.365	7.3704	129.57	107.6
Hydrologic (acre-points)	1.0575	26.644	0.1175	1.365	7.2791	129.57	126.4
Habitat (acre-points)	13.684	28.669	6.0773	9.0925	6.9766	107.5525	118.28
Total Credits Created (advanced)	15.8	82.0	6.5	11.8	21.6	366.7	352.3
Improving Water Quality (acre-points)	1.0575	21.386	0.2	1.365	5.9	104.7	91.866
Hydrologic (acre-points)	1.0575	21.386	0.1	1.365	5.9	104.7	109.58
Habitat (acre-points)	13.684	23.561	6.0	9.0925	5.8	89.7	105.26
Total Credits Created (concurrent)	15.8	66.3	6.4	11.8	17.6	299.0	306.706

Notes:

1. Wetland rating per Ecology (Ecology 2014)

2. Opinion of probable costs reflect a rough order of magnitude cost based on a conceptual restoration plan without any detailed design evaluation.

4.1 Aviation Property Sites

4.1.1 MU 6: Borrow Site Study Area

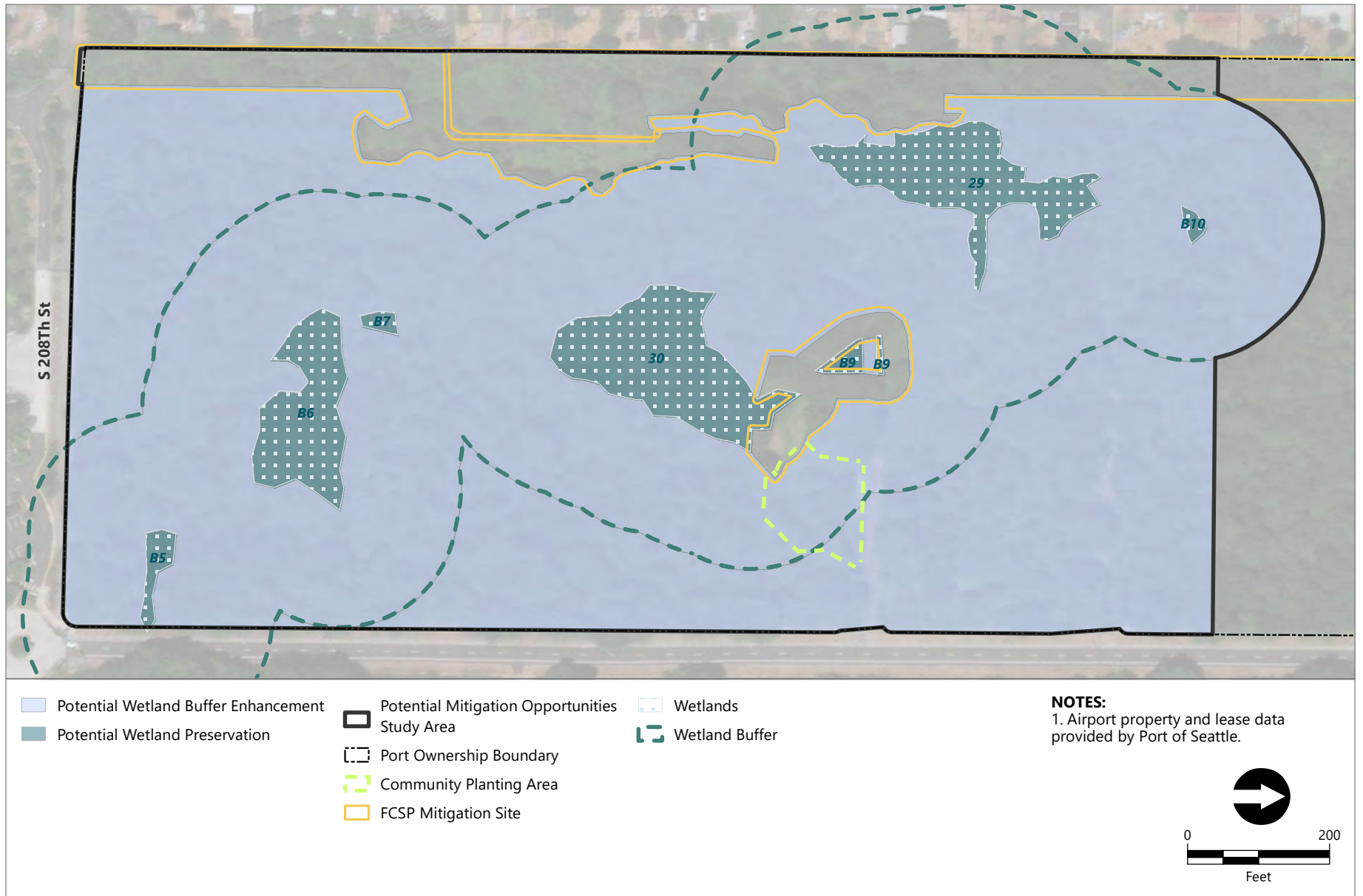
MU 6 (Figure 3) is in the city of SeaTac, northwest of the intersection of 18th Avenue South and South 208th Street. The MU is approximately 31 acres and is zoned as Aviation Commercial. More than 70% of the site is wetland or wetland buffer because of the seven existing wetlands on the site. The site is 1,000 feet north of Des Moines Creek in an area with significant vegetative cover and a high potential for groundwater recharge and infiltration.

A portion of the MU along the western edge and within a portion of the buffer for Wetland 29 has been designated as a Flight Corridor Safety Program (FCSP) mitigation site and is planted with native trees and shrubs. The small remaining area of the MU without encumbrances by wetlands, buffers, or FCSP mitigation site areas has limited development potential.

All the wetlands are Category II wetlands with a moderate habitat score and a 165-foot buffer, except for the 960-square-foot Wetland B10, a Category III wetland with a lower habitat score and shorter buffer. These palustrine forested (PFO) and palustrine scrub shrub (PSS) wetlands are already well functioning, densely vegetated habitats with a deciduous vegetation and limited invasive species cover.

Because of the high presence of functioning native mature forest, there is little opportunity for wetland mitigation. The wetland buffer and adjacent uplands is dominated by mature Douglas fir (*Pseudotsuga menziesii*). However, the uplands contain considerable invasive vegetation, including English ivy (*Hedera helix*) and Himalayan blackberry (*Rubus armeniacus*), which provides opportunity to improve and expand the habitat function of the wetland buffer by removing the invasive vegetation and replacing it with native vegetation.

The conceptual restoration design includes wetland preservation and forested buffer enhancement. The buffer enhancement would include invasive species removal and native vegetation establishment. The native tree canopy would remain intact to the maximum extent feasible. The MU would be protected as part of a conservation easement, and ongoing maintenance and monitoring of the buffer and wetland would be required. The total cost of this project is estimated between 5 and 6 million dollars for 16 mitigation credits that could be used to offset wetland impacts, likely from small-scale projects.



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Figure 3
MU 6: Borrow Site Study Area
 Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

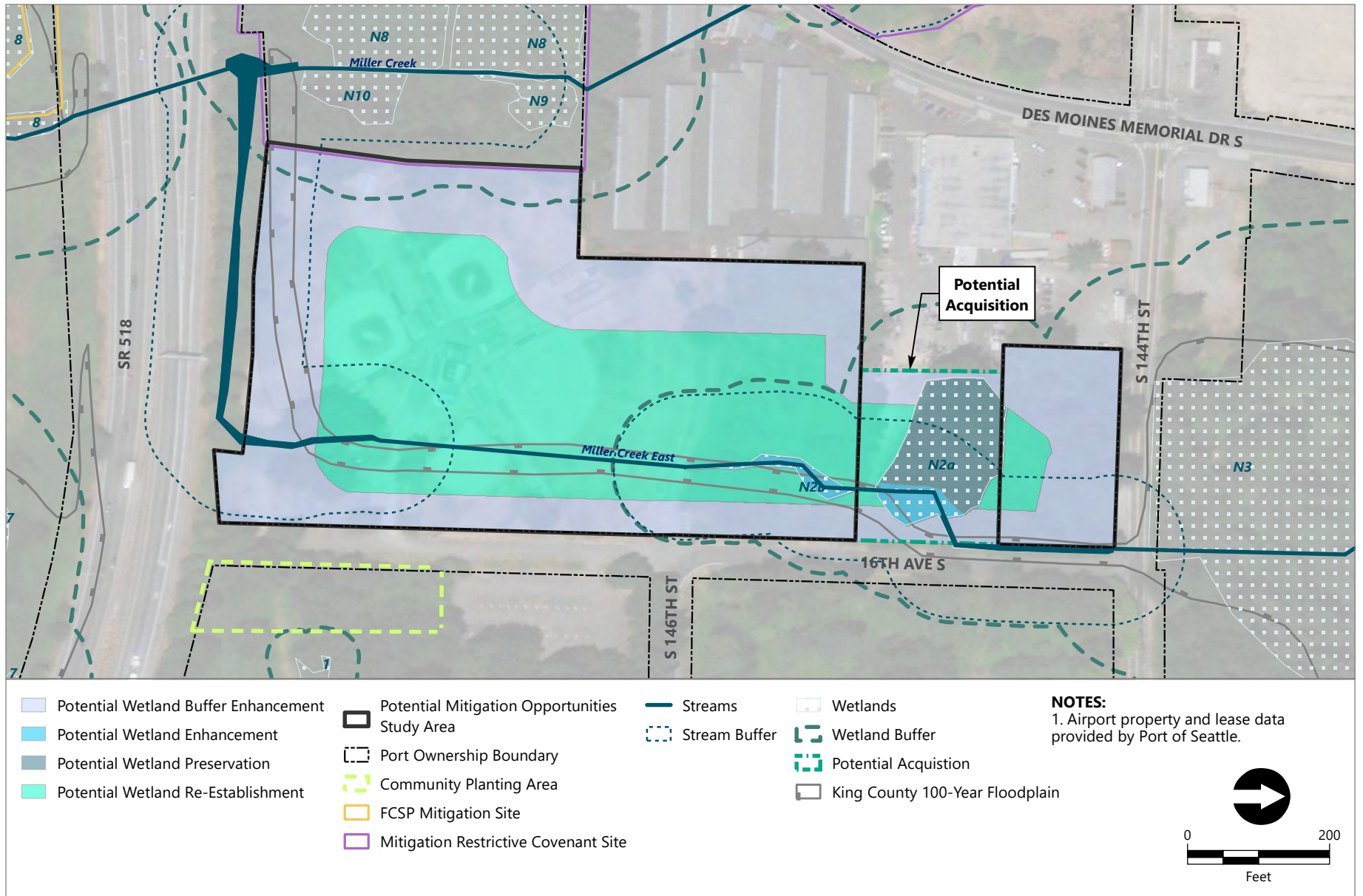
4.1.2 MU 24: Miller Creek East Study Area

MU 24 (Figure 4), the Miller Creek East Study Area, is in the city of SeaTac, west of 16th Avenue South and just south of its intersection with South 144th Street. This study area consists of two Port-owned parcels (MU 24) and includes the eastern portion of parcel 2023049001, currently owned by For Our Future LLC, which is shown as a potential acquisition in Figure 4. The portion of the non-Port-owned parcel that is proposed for mitigation is a delineated wetland with no current development, proposed for preservation. A parking area and warehouse associated with the Commercial Fence Corporation are present within that same parcel, but west of the proposed mitigation area. The northern section of the MU is zoned Aviation Commercial, and the southern portion is zoned Industrial. Four baseball fields are present on the southern section of the MU, which is currently used by PacWest Little League Baseball and Softball.

Miller Creek East flows through the eastern half of the MU, entering from the north and running along 16th Avenue South in a ditch until it enters the site's wetland. The creek then continues south where it enters a culvert under the baseball fields until it daylights and turns west just north of Highway 528.

Wetland N2a is within the non-Port owned parcel and Wetland N2b is within the southern Port-owned parcel. Both are associated with Miller Creek East and are Category III PFO and PSS wetlands with 105-foot buffers. The wetland buffers have considerable invasive cover, in particular the buffer area in the south portion of the MU. The area south of Wetland N2b presents a considerable opportunity to re-establish wetlands up to the baseball fields (across from the intersection of South 146th Street), and possibly, as part of a more substantial restoration scenario over the entire area of the baseball fields, which would eliminate the baseball fields.

Buffer enhancement would include invasive species removal and native vegetation establishment. Wetland re-establishment would involve excavation and installation of native vegetation. Wetland re-establishment north of the baseball fields may be the most likely restoration scenario, considering the importance of the baseball fields, which would provide substantial lift to existing habitat conditions and watershed function (and would not require elimination of the baseball fields). This scenario, consisting of wetland re-establishment, wetland enhancement, and buffer enhancement on the MU north of the baseball fields, would generate approximately 28 advanced mitigation credits, 24 concurrent mitigation credits, and cost between 2 and 3 million dollars. Enhancements to the entire MU, as shown on Figure 4 and presented in Table 1, would cost between 6 and 7 million dollars for approximately 82 advanced mitigation credits, or 66 concurrent mitigation credits. Costs for land acquisition are not included. This work would be protected as part of a conservation easement, and ongoing maintenance and monitoring of the buffer and wetland would be required.



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Figure 4
MU 24: Miller Creek East Study Area

4.1.4 MU 26: Wetland 2 Study Area

MU 26 (Figure 5), the Wetland 2 Study Area, is in the city of SeaTac, north of SR 518 and southeast of the intersection of South 146th Street and 16th Avenue South. The 3.5-acre MU consists of five parcels and is primarily zoned as Aviation Operations. MU 26 is in the Miller Creek drainage. Miller Creek East flows approximately 165 feet west of the MU.

Two wetlands have been delineated within the MU, and both are Category IV PFO and PSS wetlands with low habitat scores and 40-foot buffers. Just east of the MU is a gravel maintenance access road for the runway lift safety tower. A portion of the wetlands are impacted by invasive vegetation including Himalayan blackberry and have limited canopy and understory native vegetation. These areas have the opportunity for wetland enhancement through removal of invasive vegetation and installation of native plants (Figure 5), while other portions of the wetlands have potential for preservation. Wetland buffer enhancement in the form of invasive removal and installation of native plants also presents a large portion of this MU, up to and including the community planting area along the western portion of the site.

The total cost of this project is estimated between 1 and 2 million dollars for 6.5 advanced mitigation credits or 6.4 concurrent mitigation credits, which could be used to offset a small wetland impact.



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Figure 5
MU 26: Wetland 2 Study Area
 Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

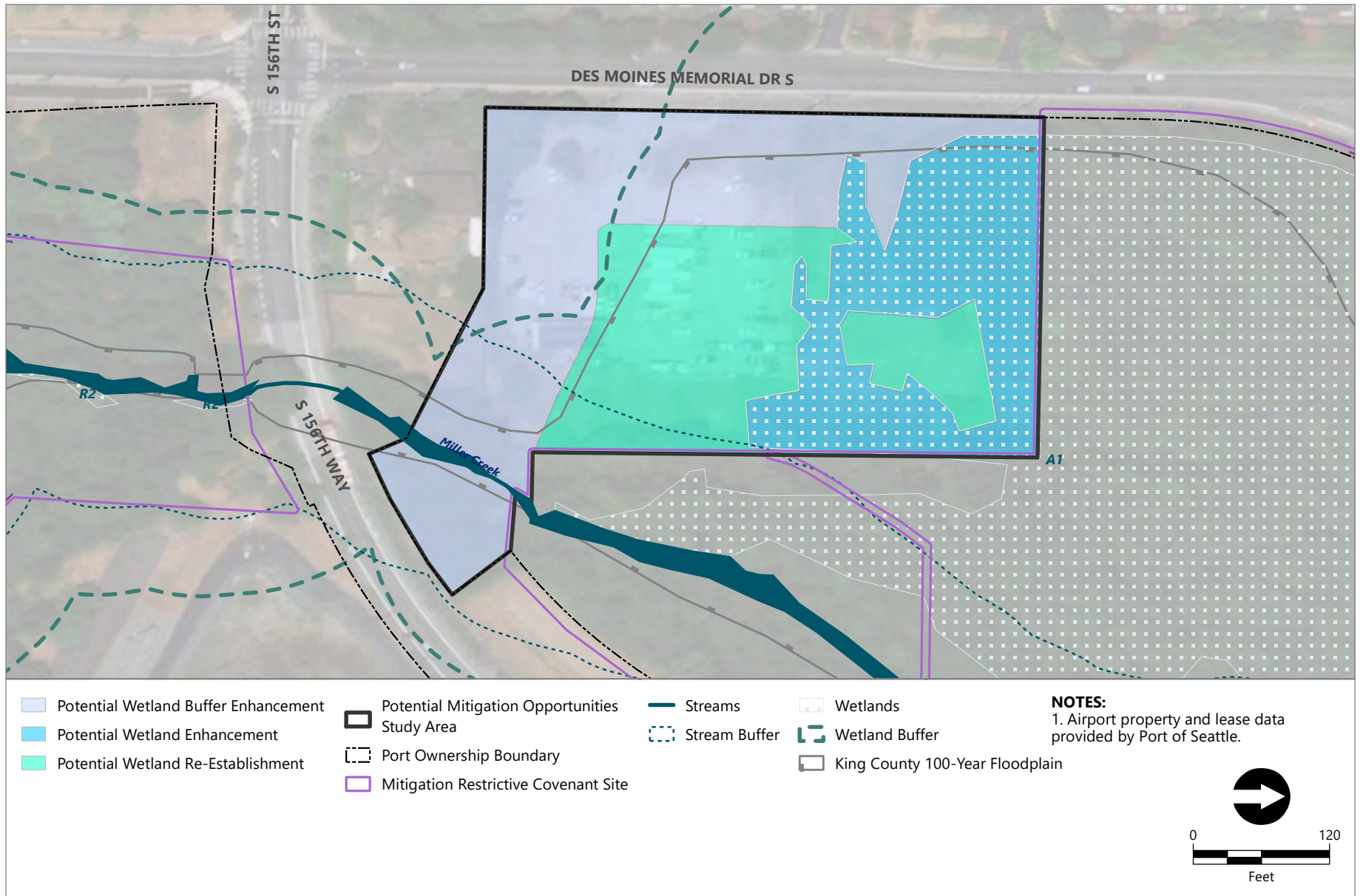
4.1.5 MU 42: RST Property Study Area

MU 42 (Figure 6), the RST Property Study Area, is northeast of the intersection of Des Moines Memorial Drive South and South 156th Way in the city of SeaTac. The MU consists of five parcels. It is 3.8 acres and is primarily zoned as Community Business, with a small portion zoned Aviation Commercial.

Miller Creek enters the southeastern portion of the MU from the adjacent parcel, runs through the site and enters a culvert beneath South 156th Way, and continues off site to the south and west.

The existing wetland (Wetland A1) within the MU is hydrologically connected to wetlands within a restrictive covenant that are part of the previously constructed Miller Creek Mitigation Area adjacent to MU 42 on the south and east boundaries (Figure 6). Miller Creek runs through the property at the southeast corner of the MU. The portion of Wetland A1 that is within the MU is in poor condition and heavily impacted by invasive vegetation, resulting in a moderate habitat score. The buffer is also heavily impacted by invasive vegetation and development. The gravel roadway and parking area substantially restrict vegetative cover, which are largely co-located in the 100-year floodplain. Wetland expansion and buffer enhancement is the primary opportunity on this MU, which would eliminate use of this property for parking.

The conceptual restoration design proposes to re-establish 1.11 acres of PFO, PSS, and palustrine emergent (PEM) wetland and enhance the existing 1 acre of PFO, PSS, and PEM wetland. Buffer enhancement would include invasive species removal and native vegetation establishment. The total cost of this project is estimated between 1 and 2 million dollars for approximately 22 advanced mitigation credits or 18 concurrent mitigation credits.



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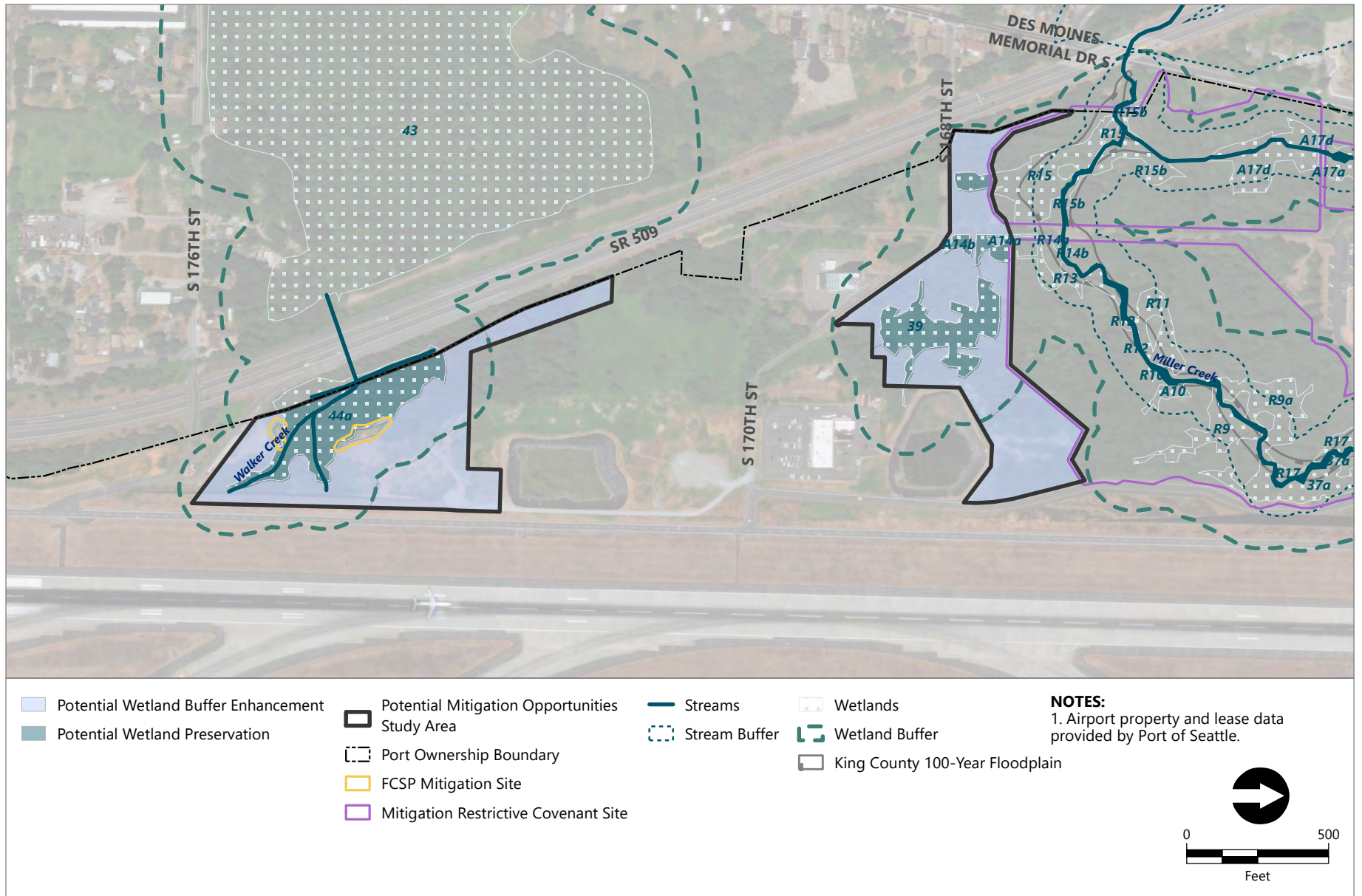
Figure 6
MU 42: RST Property Study Area
 Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

4.1.7 MU 45: West Side Campus Study Area

MU 45 (Figure 7) is the Port's 20-acre West Side Campus, west of the Airport, adjacent to WA-509. Future development is proposed in the central portion of the MU, mitigation is not considered for this area at this time. Outside of planned development areas, mitigation opportunities are present on the northernmost and southernmost portions of the MU (19.7 acres). This MU is zoned within the city of SeaTac as Aviation Operations (southern portion) and Avian Commercial (northern portion). Parts of Miller Creek flow through the wetlands at the north end of the MU.

The wetlands in the northern and southern portions are all PSS and PFO wetlands with a deciduous canopy and minimal invasive vegetation cover. These wetlands are all Category II or III wetlands with moderate habitat scores. Wetland preservation is recommended to minimize disturbance to existing mature native forested vegetation. Because the wetland buffer has limited canopy cover, much of which is dominated by invasive vegetation like Scot's broom (*Cytisus scoparius*) and Himalayan blackberry, removing invasive vegetation and replacing it with native vegetation will substantially improve function.

The conceptual restoration design includes preservation of the existing wetlands and buffer enhancement through the removal of invasive species. Proposed development is likely to require averaging to reduce the standard 150-foot buffer widths in some places, but this MU provides opportunities to widen and enhance buffers in other areas within the MU. The total cost of this project is estimated between 3 and 4 million dollars for approximately 12 mitigation credits.



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Figure 7
MU 45: West Side Campus Study Area

Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

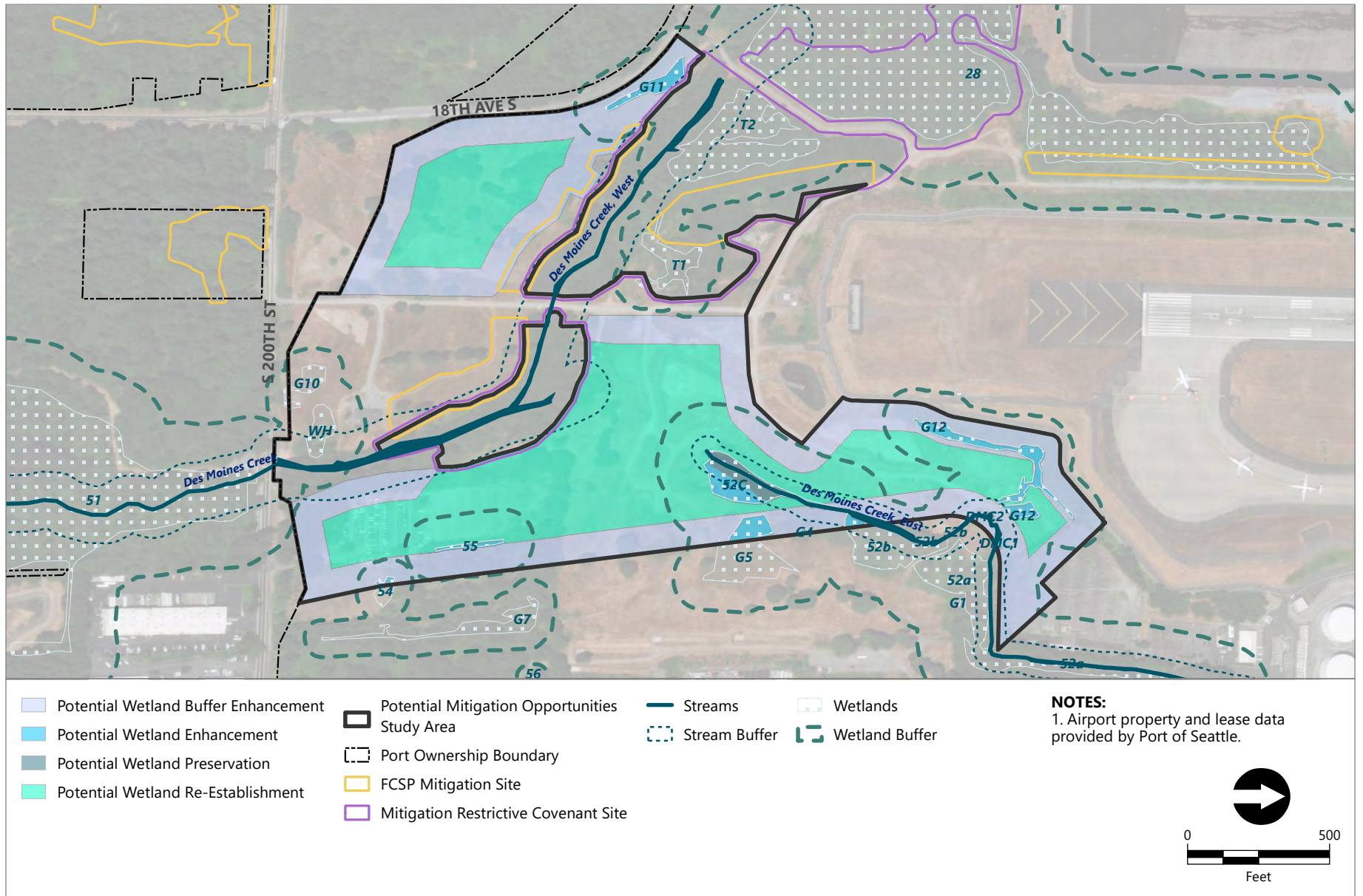
4.1.8 MU 46: Tyee Golf Course Study Area

MU 46 (Figure 8), part of the former Tyee Golf Course, is at the southern tip of the Airport, north of South 200th Street, and encompasses approximately 57 acres. The MU is zoned as Aviation Operations, and it is within the city of SeaTac. The site is within the Runway Safety Area, where development is restricted. Potential for restoration at the site is high because of the large area with limited existing constraints.

MU 8 contains 10 small wetlands with potential for expansion adjacent to Des Moines Creek's western and eastern tributaries. All the wetlands are rated as Category III with low to moderate habitat scores and a buffer width of 105 feet, with the exception of Wetlands 52c and G12, which are Category II wetlands. These PFO and PSS wetlands have varied amounts of functional vegetation cover.

Operations at a former golf course greatly altered the landscape and vegetation. Since the golf course was closed, invasive vegetation such as Himalayan blackberry and Scot's broom has become more prevalent. The area north of South 200th Street and east of the gravel access road is identified for habitat enhancement in the LSP due to the likely continued presence of the pump house.

The conceptual restoration plan includes substantial opportunity for wetland re-establishment, wetland preservation and enhancement, and buffer enhancement. To maximize wetland restoration area, a 100-foot buffer width was used for the conceptual plan. The total cost of this project is estimated between 28 and 29 million dollars for approximately 367 advanced mitigation credits, or 299 concurrent mitigation credits.



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Figure 8
MU 46: Tye Golf Course Study Area

Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

4.2 MU 48: Auburn Site Study Area

MU 48 (Figure 9), the Auburn Site Study Area, comprises 34 acres south of South 277th Street, just east of the intersection of 45th Street Northeast and I Street Northeast in the city of Auburn. Directly east of the MU is the existing 65-acre mitigation site that has a restrictive covenant and was constructed in 2006 to offset impacts due to the construction of the third runway at the Airport (MU 47). MU 48 is bordered on the north by a city right-of-way. The area is zoned as Open Space and has historically been used for agricultural purposes, but it is not in a designated Agricultural Production District.

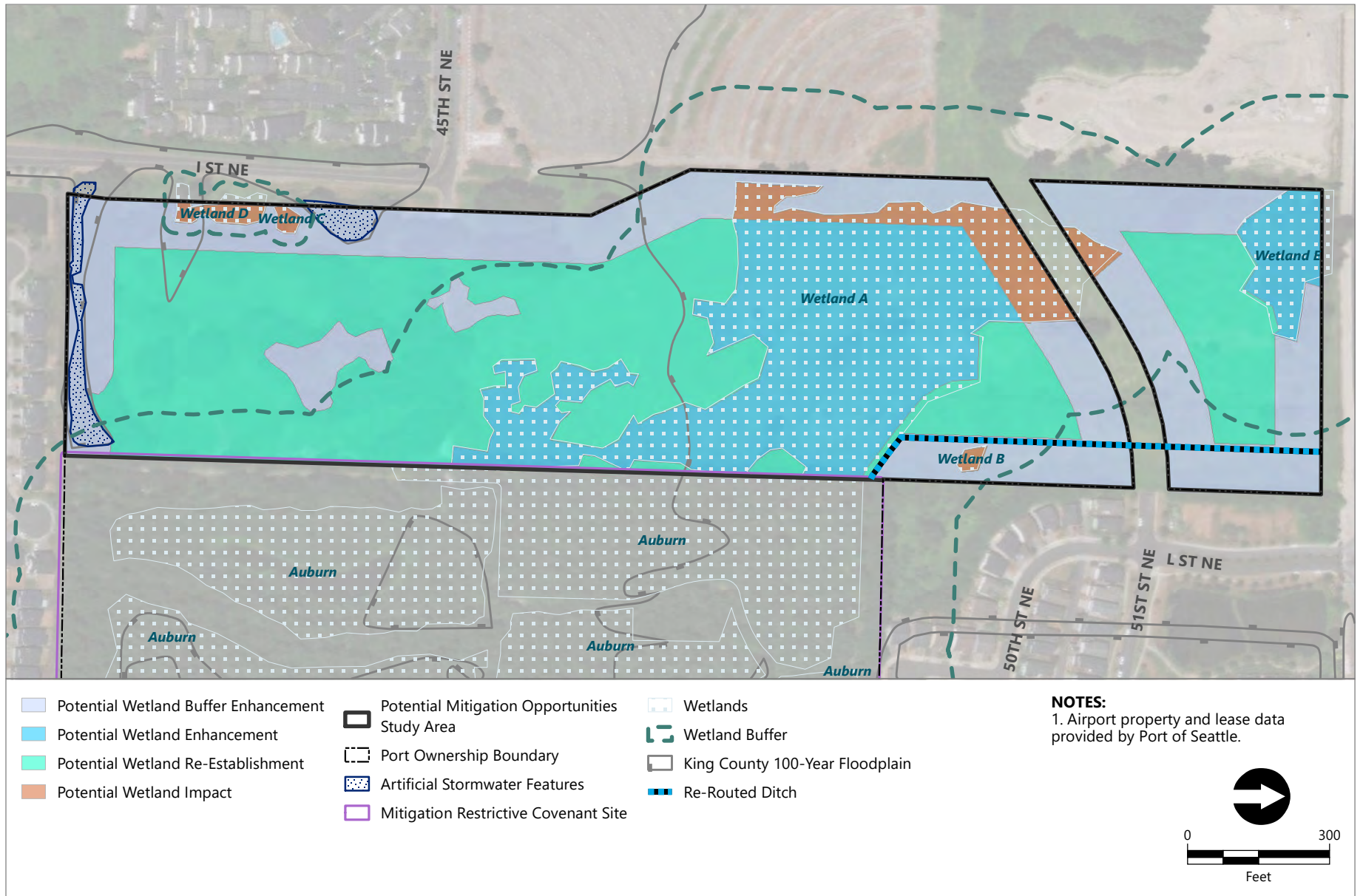
Multiple wetland areas have been delineated at the site. Wetland A intersects with the restored Third Runway Mitigation Covenant wetland complex. It is dominated by reed canary grass (*Phalaris arundinacea*) and is ponded much of the year. An artificial stormwater ditch runs along the MU's southern boundary, along with a stormwater pond and small wetlands that are primarily composed of reed canary grass and mature cottonwood. A remnant ditch runs south to north and appears to connect to the southern wetlands. These features are undergoing a jurisdictional determination with the U.S. Army Corps of Engineers.

Site hydrology runs from the south to the north where it enters a ditch and continues off site in a pipe under South 277 Street, then to the Green River. Groundwater is likely approximately 2 to 6 feet below ground and is seasonally variable.

The Auburn Site Study Area has been evaluated in the context of surrounding land uses. This MU is encumbered by wetlands and buffers and has little to no opportunity for commercial or residential uses. Use of this site for mitigation would not impede any future development of adjacent properties. The Port has prepared a separate memorandum describing development potential for this property.

The conceptual plan proposes to enhance existing PFO, PSS, and PEM wetlands, and expand wetland area by re-establishing 14.8 acres of wetland (Figure 9). The mitigation design enhances and preserves 10.7 acres of buffer habitat, assuming a 100-foot buffer around the wetland that is not adjacent to the Port's previously constructed mitigation site. If this project were constructed as concurrent mitigation for a specific development need, it would generate approximately 307 mitigation credits at an estimated cost of between 18 and 19 million dollars. If constructed as advanced mitigation, the project would generate approximately 352 mitigation credits.

The site is large and would restore high-quality wetland habitat adjacent to the Port's existing 65-acre Third Runway Mitigation Covenant, making the habitat enhancements even more desirable. This 65-acre site to the east is immediately adjacent to the Green River. The site is being considered for fish habitat restoration activities involving breaching the existing berm between the site and the Green River.



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Figure 9
MU 48: Auburn Site Study Area
 Mitigation Site Opportunity Assessment
 Land Stewardship Plan: Appendix A

5 Mitigation Bank Considerations

This section evaluates the key considerations for establishing an umbrella mitigation bank site in the Lower Green River and Nearshore subwatersheds. This includes mitigation bank site selection considerations, goals and objectives, the proposed service area, project need analysis, a general market assessment, and bank review and approval process.

5.1 Mitigation Bank Site Selection Considerations

The Port's umbrella mitigation bank will include several sites that are deemed appropriate to provide key functions within the watershed. Per joint regulatory agency guidance, the umbrella mitigation bank sites will be selected using a watershed approach, and each site will be designed using techniques suitable to its respective watershed position. The Port is planning to identify sites in the Duwamish Estuary, Nearshore, and Lower Green River subwatersheds of WRIA 9. The sites included in an umbrella mitigation bank should be large enough to support viable, self-sustaining habitat and designed to provide a suite of the highest-priority habitat elements.

As described earlier, development within WRIA 9 has degraded, fragmented, and converted floodplain and riparian habitat. This urbanization and loss of habitat is a primary limiting factor for Chinook salmon populations and loss of freshwater wetlands in the region. As part of the planned umbrella bank, sites would be located along both marine and estuarine areas within the Duwamish Estuary, and would ideally also include an additional freshwater site within the Lower Green River subwatershed. Together, these sites would restore wetland and riparian habitat functions and critical watershed processes that have been highly altered by urban development.

The aviation property sites listed in Section 4.1 were considered for possible inclusion in the umbrella bank prospectus as one or more freshwater site within WRIA 9. However, all of the sites in Section 4.1 would not be suitable for inclusion for one of several reasons. Though substantial mitigation credits could be generated within the Miller Creek East Study Area (MU 24; Section 4.1.2) and Tyee Golf Course Study Area (MU 46; Section 4.1.6), use of these MUs as mitigation bank sites would be limited by Federal Aviation Administration (FAA) rules due to their proximity to the Airport. Other aviation property sites discussed in Section 4.1 are too small or restricted by existing conditions and would not meet the following selection criteria. Only the Auburn Site Study Area would be a candidate for inclusion in an umbrella bank.

Sites to be selected for the bank should have the following factors, which were considered using the priorities and recommendations in watershed-based restoration plans for the Green/Duwamish

watershed; the Miller Creek, Walker Creek, and Des Moines subwatersheds; and the guidance provided in Washington Administrative Code (WAC) 173-700-303:

- **Size:** Watershed-based restoration plans value larger restoration projects over smaller ones, with the assumption that larger projects are more likely to support a diverse ecosystem and to be resilient and self-sustaining. Sites are identified as candidate mitigation bank sites with higher potential ecological value if they could accommodate more than 2 acres of combined created wetland habitat. The Auburn Site Study Area is an ideal candidate because it is a large site, providing nearly 15 acres of wetland re-establishment. The Tyee Golf Course Study Area and the Miller Creek East Study Area would both provide large wetland re-establishment areas, but are limited by FAA restrictions. Other airport MUs are not of adequate size.
- **Connectivity:** Watershed-based restoration plans recommend projects with high potential to connect to or complement existing wetlands or other habitat, create off-channel habitat, or establish a reconnection to a nearshore watershed drainage. The Auburn Site Study Area would be adjacent to and complement the Port's 65-acre wetland mitigation site immediately to the east. The Auburn Site Study Area would also provide approximately 10 acres of Green River flood storage, which is identified as a priority in the *Preliminary Background Report* (Our Green Duwamish Watershed Advisory Group 2016), serving to mitigate peak flows in the Green River and benefitting salmon. The Miller Creek East Study Area and Tyee Golf Course Study Area are each connected to creeks and connected to larger wetland areas, but are limited by FAA restrictions. Of the airport MUs considered, only the RST Property Study Area would have adequate connection to other wetland and habitat areas.
- **Distribution:** Watershed-based restoration plans value projects that contribute habitat in areas that lack it. The Auburn Site Study Area is ideal in that it is surrounded by residential and commercial development. This growth and development is becoming more and more common in the Lower Green River and Nearshore subwatersheds, resulting in high-quality wetland features becoming more and more scarce. Other sites are also located within developed areas, but are restricted for use as mitigation bank sites by the FAA due to their close proximity to the Airport.
- **Urgency:** Both WAC 173-700-303 and watershed-based restoration plans direct restoration efforts to projects that contribute to the improvement of identified management problems within the drainage basin or watershed. The Green-Duwamish River is considered the fourth most endangered river in the country, and providing floodplain habitat is critical for restoration of the system (American Rivers 2019). The Auburn Site Study Area has the opportunity to address flooding issues in the area by providing flood storage near the Green River. Of the airport MUs considered, the Miller Creek East, Tyee Golf Course, and RST Property study areas have opportunities to provide larger flood storage capacity, but each is restricted by the FAA.

The Auburn Site Study Area is the only site that is not restricted by the FAA for use as a bank site and meets the requirements for each of the previously identified factors. It should therefore be considered as a site within the Port's umbrella mitigation bank being proposed in coordination with the Maritime Division. Credits generated by the Auburn site would be calculated using procedures in WAC 173-700 (see Section 5.5.1) and may also be subject to the credit-debit method (Ecology 2012b).

5.2 Preliminary Goals and Objectives

Mitigation banks are the preferred alternative to permittee-responsible mitigation projects, because they are usually more likely to be successful than piecemeal mitigation afforded by traditional applicant-responsible sites. Banks also provide more ecological benefits at a watershed level, reduce permit processing times, and are more likely to be protected in perpetuity.

The goal of the umbrella mitigation bank is to provide a range of high-quality, long-term mitigation sites that can be used to offset unavoidable impacts to aquatic resources from new development in the Lower Green River, Duwamish Estuary, and Nearshore subwatersheds. To reach this goal, the umbrella mitigation bank must accomplish the following:

- Restore, create, or preserve wetland, riparian, and off channel habitat for fish and wildlife. Expanding rearing habitat for juvenile Chinook salmon will also provide more primary prey for Southern Resident killer whales.
- Assist in reaching the habitat restoration and species recovery goals for the Green-Duwamish and Central Puget Sound watersheds.
- Utilize economies of scale by combining required mitigation from individual smaller projects within the designated service area into collective mitigation at a larger site with greater ecological value.
- Use monitoring, long-term management, and commitments for repair, maintenance, and stewardship to ensure successful establishment and long-term viability.
- Employ a comprehensively designed system for restoration and enhancement actions that utilizes large sites to reduce the risk of mitigation failure.
- Provide institutional protections, including conservation easements, covenants, and long-term site management.
- Enable the Port and other businesses to meet regulatory mitigation requirements by providing a cost-effective, consistent, and predictable option for mitigation in the Lower Green River, Duwamish Estuary, and Nearshore subwatersheds, enabling economic development activity that may not otherwise be feasible without viable mitigation options.

5.3 Proposed Service Area

The proposed service area for the potential umbrella mitigation bank would serve the Lower Green River, Duwamish Estuary, and Nearshore subwatersheds within WRIA 9.

Proposed service area boundaries are based on alignment between the anticipated functions to be provided by the umbrella mitigation bank and the nature and likelihood of impacts requiring compensatory mitigation in the watershed surrounding the umbrella mitigation bank. Within the proposed service area, the Green River passes through industrial and commercial centers in Seattle, Tukwila, Renton, Auburn, and Kent. Future development in these areas, resulting in unavoidable impacts to aquatic habitat functions, would benefit from the use of the umbrella mitigation bank. At the same time, the proposed umbrella bank sites within the Lower Green River and Nearshore subwatersheds would have direct and indirect benefits to impacted habitats and their associated assemblages of fish and other species within the proposed service area.

5.4 Project Need Analysis

The Port umbrella mitigation bank will provide rare and valuable habitat for fish and wildlife in a highly urbanized, commercial, and industrial watershed. With federal, state, and local regulations developing stricter mitigation requirements and developable land becoming scarcer, demand for mitigation is high. Credits from the umbrella mitigation bank can be used for the Port's own future development projects, or development by other Port tenants, business owners, and government agencies to mitigate for freshwater wetland impacts and other freshwater and estuarine aquatic area impacts, as well as impacts to listed fish species and EFH. This section describes existing mitigation banks and in-lieu fee (ILF) programs and examines the Port's own mitigation needs that could be fulfilled by an umbrella mitigation bank in the Lower Green River, Duwamish Estuary, and Nearshore subwatersheds.

5.4.1 Existing Mitigation Banks and In-Lieu Fee Programs

Several mitigation credit purchase options have been developed in recent years. This section describes existing programs for purchasing credits for wetland and aquatic impacts.

5.4.1.1 King County In-Lieu Fee Mitigation Program

Only the King County ILF Mitigation Program has credits available for purchase for impacts in the Lower Green River and Nearshore watersheds. The Mitigation Reserves Program in King County operates the ILF program, which mitigates for impacts on wetlands, streams, or buffers in the same watershed as the impact. This ILF program differs from a mitigation bank in that fees are added for individual natural resource impacts that are pooled together to fund future mitigation projects. Mitigation banks develop pre-capitalized mitigation sites prior to release of credits. This program services all of King County, including the Central Puget Sound Service Area (which includes the Miller Creek, Walker Creek, and Des Moines Creek Nearshore subwatersheds and the Duwamish Estuary subwatershed) and Green River/Duwamish Service Area (which includes the Lower Green River and Upper Green River subwatersheds).

The Chinook Wind Mitigation Project, on the Duwamish River in Tukwila, is the mitigation site funded through the ILF program that services these areas. This project is in the design phase and will provide more than 4 acres of habitat, including intertidal, shallow water, and deep water refuge habitat. Mitigation fees vary based on costs of recent projects completed and the average cost of land at the time of mitigation fee purchase.

The cost per credit for the King County ILF Mitigation Program is \$50,000 for freshwater wetland impacts, plus a land fee, which is \$2.32 per square foot as of November 2018. Mitigation for estuarine or marine impacts is available on a case-by-case basis and would have a different cost per credit.

5.4.1.2 Springbrook Creek Wetland and Habitat Mitigation Bank

The Springbrook Creek Wetland and Habitat Mitigation Bank was created in 2006 for the sole purpose of providing mitigation credits for unavoidable impacts from Washington State Department of Transportation (WSDOT) projects and development by the City of Renton. The bank is on 127 acres in the Lower Green River watershed and provides approximately 45 mitigation credits through the re-establishment, rehabilitation, and enhancement of wetlands as well as the enhancement of upland and riparian areas. No credits from this mitigation bank are available to any parties besides WSDOT and the City of Renton.

5.4.1.3 Thom Mitigation Bank

The Thom Mitigation Bank is a proposed wetland mitigation bank that is in the review and approval process by the IRT. The Thom Mitigation Bank consists of 66-acres of land adjacent to the Green River in the city of Kent. The bank is in the Lower Green River watershed and will provide approximately 65 credits of wetland rehabilitation, creation, and enhancement, as well as the enhancement of upland native plant communities and riparian habitat. The service area for this bank includes the Lower and Middle Green River sub-basins in WRIA 9 but not the Duwamish Estuary subwatershed.

5.4.2 *Port of Seattle Mitigation Needs*

5.4.2.1 Maritime

Overall, the Port's Maritime Division has already created or enhanced more than 177 acres of wetlands and 30 acres of intertidal and saltwater habitat as mitigation, voluntary stewardship, or to offset injuries to natural resources from contamination. However, additional habitat restoration and conservation will be required to mitigate for impacts and to satisfy natural resource damage claims and other development activities.

In 2009, the Port adopted National Oceanic and Atmospheric Administration Fisheries' Lower Duwamish River Habitat Restoration Plan with the goal of enhancing fish and wildlife habitat to address injuries to natural resources that have been caused by the contamination of hazardous substance releases (the plan was finalized in June 2013; NOAA 2013). The Port is evaluating

opportunities to restore more than 70 acres on Port property in the Lower Green River watershed. The creation of a mitigation bank of large enough scale is one option to consolidate restoration activities that could both address natural resource damage obligations of the Port and other parties and provide additional credits for development needs.

The Maritime Division expects substantial demand for credits to satisfy natural resource damage claims along the Seattle waterfront and within the Lower Duwamish River in the next 5 years. The Port has also been approached by a handful of waterfront facility owners that are looking for mitigation options to offset expansion of waterfront structures. In addition, recent requirements for habitat mitigation associated with waterfront structure repair, maintenance, rehabilitation, and replacement has increased potential demand for mitigation credits associated with endangered salmon habitat impacts.

5.4.2.2 Aviation

At the Airport, the Port has a history of wetland mitigation for development activities. In 2009, the Port created several wetland mitigation sites to offset unavoidable impacts to wetlands and Miller Creek from the development of the third runway as part of the Airport's Master Plan Update Improvement Projects (MPU). On-site mitigation included construction of the Des Moines Nursery site, a 5.3-acre mitigation area on Miller Creek north of the Airport that was completed in November 2009. The other on-site project was the Miller Creek wetland and buffer restoration site that provided a total of 47.25 acres of mitigation for the MPU along Miller Creek, just west of the airport runways. Off-site mitigation for the MPU occurred approximately 9.5 miles south of the Airport in Auburn. The Auburn Wetland Development Project established a total of 65.38 acres of wetland re-establishment and wetland/buffer enhancement adjacent to the Green River. These projects were developed as project-specific mitigation, with no mitigation credits available for other Port or non-Port projects.

The Port will need to expand to match the rapid growth it will see in the next few years. According to the Sustainable Airport Master Plan, the Airport will require 35 new gates and 16 new wide-body gates to meet the demand of increased passengers and operations by 2034 (Port of Seattle 2018b). The airport expansion will come with expanded support services in the surrounding area, particularly in the South Aviation Support Area, which may result in unavoidable impacts to wetlands and other critical areas. Specific wetland mitigation needs have not been formally estimated, but will become more evident in the coming months and years.

5.4.3 Other Potential Mitigation Credit Purchasers

Informal outreach to commercial developers has suggested that developable land is becoming scarcer and demand for mitigation is high in the Green River area. Many properties remain encumbered by the presence of wetlands and wetland buffers, and most of these wetlands are low-quality Category III or IV wetlands dominated by reed canary grass with limited habitat function.

Cost-effective solutions for mitigation are not available for these wetlands and buffers, because concurrent mitigation requires land purchase and is expensive to design, permit, construct, and maintain individual wetland mitigation projects on a small scale. Costs for ILF credit purchases often make projects with wetland or buffer impacts economically infeasible due to the high price of credits, except for very small impacts.

Informal outreach was also conducted to planners from jurisdictions within the Lower Green River and Nearshore service area. These planners typically recommend mitigation to prospective developers either on site and in-kind or through the existing King County ILF program. Planners indicated they would support the creation of a mitigation bank with a service area that would cover their basin as another option for mitigation. They often respond to questions from multiple developers looking to discuss the same pieces of property within their jurisdiction that are undeveloped because of wetland and buffer encumbrances, which supports the notion that developable and unencumbered larger commercial properties are scarce in the area.

The City of Tukwila has no other marketable mitigation options besides the King County ILF program available and have had applicants discouraged from projects due to the high cost of the program (Cummins 2018). The City currently prioritizes on-site mitigation, but anticipates moving towards banking/ILF mitigation options with future code updates to be consistent with state and federal mitigation sequencing preferences (Cummins 2018).

The City of Auburn has had applicants use the King County ILF program for a few projects. The City prioritizes mitigation on city-owned properties but, for smaller projects, would benefit from a mitigation bank that is more cost-effective than the King County ILF program (Dixon 2018). The City has had inquiries about other potential mitigation options from public agencies, school districts, and private developers in the past (Dixon 2018).

The City of Des Moines prioritizes on-site or in-basin mitigation before deferring to off-site mitigation, but allows for use of the King County ILF program or mitigation banks within their service area (Lathrop 2018). They have seen larger development projects purchase credits from the King County ILF program for larger projects

Other public organizations may also require mitigation for transportation impacts in the Lower Green River watershed. This may include King County, local cities in the region, or WSDOT. The WA-509 extension or other WSDOT road projects have the potential for unavoidable impacts to wetlands, streams, or buffers. The preliminary alignment of the WA-509 extension may impact Des Moines Creek and its buffer and potentially other areas, including an existing WSDOT mitigation site.

5.5 Process of Review and Approval

Under both state and federal mitigation regulations, a mitigation bank for wetlands and/or other aquatic resources must be reviewed, evaluated, and negotiated with members of several agencies (the IRT). If the mitigation bank is intended to comply with both state and federal mitigation requirements, the IRT is typically chaired by Ecology and co-chaired by the U.S. Army Corps of Engineers.

To begin the process of mitigation bank review and approval, the project sponsor must create a prospectus that provides a conceptual plan for the mitigation bank. Creation of the prospectus initiates the coordination between the project sponsor and the IRT. Requirements for content of the prospectus are outlined in WAC 173-700-211. After submittal and public review of the prospectus, the IRT convenes to determine if the mitigation bank may proceed with creation of the mitigation bank instrument, which is the regulatory agreement that sets the terms and conditions of bank approval. The instrument includes determination of the number and type of credits that can be purchased, legal obligations, operational requirements, monitoring, and long-term maintenance. The sponsor and IRT may work in coordination on the instrument to identify potential issues before submittal. Once submitted, the instrument is reviewed and approved by the IRT and signatories from state and federal departments, local jurisdictions, and the sponsor.

An instrument can describe the following four types of credits:

- **Potential:** Anticipated to be generated by the bank at a future date but have not been released
- **Available:** Released and available for purchase to compensate for unavoidable wetland impacts
- **Reserved:** Purchased but not associated with a specific regulatory requirement (i.e., purchased to offset anticipated impacts from a future project)
- **Debited:** Purchased to meet regulatory requirements

Under an umbrella bank scenario, negotiations with the IRT may result in the use of universal mitigation credits that are released for impacts for a variety of habitat types and are not tied to a specific habitat credit at a specific bank site.

5.5.1 Calculation of Mitigation Credits

The number of credits available for purchase from the mitigation bank is calculated by using a credit conversion ratio and the acres of the implemented activity, or the credit-debit method described in Section 4.1. The credit conversion ratio is determined separately for each mitigation bank based on a range of factors. These factors include physical characteristics, anticipated gains in wetland function, anticipated success of restoration actions, the degree to which the bank incorporates the watershed approach, protection or enhancement of listed species, and the opportunity for public access and education (WAC 173-700-314). Washington State provides guidance for wetland credit conversion ratios

using the credit-debit method (Ecology 2012b); however, the Wetlands Mitigation Banking Act (90.84 Revised Code of Washington) requires standard credit conversion rates for wetland re-establishment, creation, rehabilitation, and enhancement, as established in WAC 173-700-314. Table 2 summarizes the ratios, which may vary between sites, but are expected to remain within the range described in WAC 173-700-313. Currently, there are no standard credit ratios required in state regulations for other aquatic resource restoration such as floodplains, riparian vegetation, or stream functions.

Table 2
Wetland Credit Conversion Ratios

Mitigation Activity	Range (Area of Activity: Credit)
Wetland re-establishment	1:1 to 2:1
Wetland creation (establishment)	1:1 to 2:1
Wetland rehabilitation of altered processes	2:1 to 3:1
Enhancement of wetland structure	3:1 to 5:1
Wetland preservation: In combination with re-establishment, creation, rehabilitation, or enhancement*	5:1 to 10:1
Wetland preservation: Alone	Case-by-case
Upland habitat enhancement	3:1 to 10:1
Preservation of high-quality upland habitat*	8:1 to 15:1

Note:

*More credit for the preservation of wetlands or high-quality upland habitat is likely in future guidance updates.

5.5.2 Calculation of Mitigation Debits

The credit-debit method (Ecology 2012b) is the most common method of determining the mitigation credit purchasing requirements for unavoidable impacts to aquatic resources, known as debits. This method is similar to the method of determining the number of mitigation bank credits, but focuses on the functions of the affected wetland and/or aquatic resource. Debit ratios used for mitigation banks are typically lower than those used for individual mitigation sites, due to the lower risk of mitigation failure and known ecological functions of the mitigation site. The ratio used to determine the number of credits required to satisfy regulatory mitigation requirements is determined on a site-by-site basis. For wetland impacts, it is most common to use the credit-debit method to determine the wetland functions that need to be replaced in the mitigation bank; however, some banks may calculate impacts based on wetland acreage, depending on the accounting procedure established in the wetland mitigation banking instrument. Currently, there are no standard state methods or guidelines to calculate debits for other aquatic resources such as floodplains, riparian vegetation, or stream functions.

5.6 General Market Assessment for a Potential Umbrella Bank

5.6.1 *Project Cost Factors*

Key mitigation bank cost factors include size, scale, type of construction, and the extent that efficiencies can be realized during construction and long-term maintenance and monitoring. Larger mitigation sites generate more credits, and larger construction projects usually are associated with lower costs per acre of construction or per credit generated. Smaller sites usually do not have the economy of scale to be cost-effective. Mitigation sites with more excavation and earth work also add cost, especially compared to projects that may only require minor earth work, such as dike breaching, filling ditches, and revegetation.

Maintenance and monitoring are also important considerations. In general, banks that involve complex hydraulic engineering features and/or questionable water sources (e.g., pumped) are most costly to develop, operate and maintain, and have a higher risk of failure than banks designed to function with little or no human intervention. Avoiding situations where wetlands must be actively managed to ensure their viability and sustainability will reduce project costs.

Other costs for bank development includes the cost of financing the construction effort, providing financial guarantees required as part of the mitigation bank instrument, and overseeing and administering a mitigation bank site. Efficient oversight and management of the bank with staff dedicated to this function will save money in the long term.

5.6.2 *Price of Mitigation Credits*

Establishing the price of mitigation credits for release to the bank sponsor or for sale to a third party is determined by the bank sponsor. Credit price is market driven, considering the cost for permittee-responsible mitigation in the area and what applicants are willing to pay for a credit. Competition in the area is also a factor, including whether there are other banks or ILF programs that share a similar service area (see Section 5.4.1), which can drive the price of credits down. The price should also be set at a level to recoup the investment cost in establishing the bank and managing and maintaining the site. Public organizations are often further held to a full cost accounting standard, which requires all costs invested in developing and operating the bank be considered in setting the price, such as land acquisition; project planning and design; construction; plant materials; labor; legal fees; monitoring; remediation, adaptive management, or contingency activities, including uncertainties in construction and real estate expenses; administration of the program; resources necessary for the long-term management and protection of the project; and financial assurances necessary to ensure successful project. Full cost accounting standards are required by law for ILF programs sponsored by public agencies in the wetland mitigation rule (40 Code of Federal Regulations 230). While full cost accounting of public organizations operating mitigation banks are

not specifically identified in the wetland mitigation rule, most public organizations in Washington tend to follow this procedure.

Under the umbrella mitigation bank scenario being planned in coordination with the Maritime Division, the price per credit may be set based on full costs of all mitigation sites in the umbrella bank. Umbrella mitigation banks usually have multiple sites within the bank, which could be used to calculate the umbrella bank credit price rather than calculating the price for a credit associated with a single site in the bank. This means that while the price per credit for one site may be substantially more expensive to construct, but one or two other sites are less expensive, the credit price for an umbrella bank credit could be calculated based on the average price of full costs for all sites. This appendix does not consider the cost of construction or the potential credit price for all sites that are being considered in the umbrella bank, but will be completed in subsequent steps following development of the umbrella bank prospectus.

5.6.3 Auburn Site Study Area Opinion of Probable Costs

Attachment A contains a detailed opinion of probable cost for the Auburn Site Study Area conceptual mitigation plan. The estimate is based on a 10% conceptual design. Unit cost data were generated using regional resources such as WSDOT bid tabs and RS Means. The estimate reflects the elements identified in the bid tabs from the 2006 mitigation project on the adjacent Port-owned Auburn property, but due to the time passed and construction escalation, the Attachment A costs do not use the same unit costs.

The opinion of probable costs includes 10 years of monitoring and maintenance and includes Port-specific management costs, consistent with percentages provided for the Port's recent Terminal 117 project. An assessed land value cost was not available on King County's GIS system and is not included with the opinion of probable cost; however, the assessed value may need to be considered in setting the credit price if this site is included as a bank site.

Key uncertainties that affect the opinion of probable costs include depth of excavation required to support wetland hydrology, presence of subsurface geology and potential confining layers, and changes in the conceptual design, such as the area of scrub-shrub, forested, emergent, and potential open water habitat.

5.6.4 Mitigation Bank Credit Price Considerations

This section estimates the number of credits potentially generated from the conceptual plan described in Section 4.2 for the Auburn Site Study Area. The ultimate method for deriving the number of credits and the "currency" used for accounting will be determined in the mitigation bank instrument. Two methods for calculating credits are presented in this section.

5.6.4.1 Mitigation Credits Generated from Auburn Site Study Area

Table 3 presents the range of mitigation bank credits using the wetland credit conversion ratios described in state code (WAC 173-700-313). This method establishes credits on an acreage basis, and may be better described as acre-credits. Between 9.7 and 19.09 credits would be generated at the Auburn Site Study Area using this method. Credit purchasers seeking to offset their wetland impacts through the use of bank credits could calculate their “debits” using the same acre-based currency described in Table 3. However, most banks and local regulations prefer to use the credit-debit method (Ecology 2012b) to calculate credits required to offset wetland impacts.

**Table 3
Potential Range of Proposed Auburn Mitigation Site Bank Credits Using the Wetland Credit Conversion Ratios (WAC 173-700-313)**

Mitigation	Acres	Ratio (Area of Activity: Number of Credits)					
		Allowed ratio in WAC	1:1	2:1	2:1	3:1	10:1
Total Mitigation Activity	28.76	Allowed ratio in WAC	1:1	2:1	2:1	3:1	10:1
PFO/PSS establishment	7.4	1:1 to 1:2	7.4	3.7			
PEM establishment	7.4	1:1 to 1:2	7.4	3.7			
PFO/PSS enhancement	4.0	2:1 to 3:1			2.0	1.33	
PEM enhancement	4.0	2:1 to 3:1			2.0	1.33	
Buffer enhancement	10.7	3:1 to 10:1				3.57	1.07
Total Credits (high)			22.37				
Total Credits (low)			11.13				

Using the credit-debit method, credits generated by the Auburn mitigation site would be calculated based on estimated functional improvement from existing conditions. This method uses acre-points, which is a measure of function and size. The estimated credits generated by enhancing existing wetlands is calculated by comparing current function of the wetland to the anticipated long-term function following construction and development of a mature vegetation community. This functional lift would be applied to each existing wetland separately. Similarly, wetlands generated from existing upland area have zero wetland function under the debit-credit method and get full credit for the wetland functions provided by the new wetland establishment (creation). Credits are generated for different Cowardin classifications of wetlands (PSS, PEM, PFO), with some limited credits for enhancement of upland buffers.

Table 4 presents the assumptions used for Wetland A to estimate the functional improvement following wetland enhancement. The same post-construction functions were applied to the newly established wetland expansion area. These ratings are preliminary and will be revisited following further evaluation and design of the conceptual mitigation design. Using these assumptions, the Auburn Site Study Area would generate approximately 352 credits using the acre-point currency.

Table 4
Estimated Credits by Function for the Proposed Auburn Mitigation Site

Rating Type	Improving Water Quality	Hydrologic	Habitat
Wetland A Rating Before Mitigation			
Site Potential	Moderate	Moderate	Low
Landscape Potential	Low	Moderate	Moderate
Value	High	Moderate	Low
Wetland A Rating After Mitigation for Enhancement and Establishment			
Site Potential	Moderate	Moderate	High
Landscape Potential	Moderate	High	High
Value	High	High	Low
Total Credits by Function for Project	107.6	126.4	118.28
Total Project Credits	352.3		

Source: Ecology 2012b

5.6.4.2 Price Comparison

The credits estimated using the credit-debit method are comparable to the currency used by the King County ILF program. As of November 2018, the price per credit from the King County ILF was \$50,000 for freshwater wetland impacts, plus a land fee, which is \$2.32 per square foot. The cost for 352.3 credits purchased from the King County ILF program would be \$17,615,000, plus the cost for the impact area (20 acres would be around \$2,000,000). Together, the price to purchase an equivalent number of credits from the ILF program is \$19,615,000. (The cost of land is not considered in this total.)

As presented in Attachment A, the conceptual-level cost for construction at the Auburn Site is approximately \$18,323,000. This suggests that the Port could set the price for a mitigation credit slightly lower than the cost for a mitigation credit purchased from the King County ILF program, or could set the price at the same level as the King County ILF, which would generate revenue for the Port from the project. The Port may also consider setting mitigation credit prices based on total construction costs of all umbrella mitigation bank sites, including the estuarine and marine sites in the Duwamish River. As a public agency, the Port may use full cost accounting and choose to limit the amount of profit generated by credit sales (Section 5.6.2). Over time, construction costs are anticipated to rise, which will affect both the Auburn Site Study Area construction cost and the price per credit for the King County ILF program.

5.6.4.3 Other Considerations

The Port may consider reserving all or some credits from the bank for their own use; however, this decision depends on forecasts for Port development and unavoidable wetland impacts. If development forecasts are uncertain, the Port may consider making all credits available to the public,

in which case credits for Port projects would be purchased as and when needed until exhausted. The amount of time for all credits to be sold at the bank depends on the market and the timeframes established in the instrument, which can stipulate that credits are not released for 10 years.

Using the Auburn Site Study Area as a mitigation bank would generate revenue for a property with very low revenue generation potential. The site would also reduce mitigation requirements because of the reduced temporal loss associated with advanced mitigation. Construction cost inflation would increase the cost for mitigation over time, particularly if it was constructed as concurrent mitigation alongside a Port development project. However, concurrent mitigation can result in delays of development projects. The Auburn Site Study Area could accommodate or reduce the potential for delays or missed opportunities for Port development activities by reducing the timeframe and cost associated with wetland mitigation. If developed as a mitigation bank, and depending on the Port's forecasted mitigation needs, credits could be: 1) kept wholly by the Port for future impacts; 2) all made available for sale to other parties, which may limit the Port's use if demand is extremely high; or 3) partly reserving credits for Port use while allowing the remaining to be available for sale to other parties.

6 Summary

This appendix describes the potential for a number of MUs to provide mitigation for unavoidable wetland and/or buffer impacts through wetland and buffer restoration, establishment (creation), enhancement, and/or preservation. Conceptual designs and costs associated with these scenarios are presented in Section 4. Several of these sites near the airport should be considered for concurrent or advanced mitigation, depending on future Port mitigation needs.

One of the MUs, the Auburn Site Study Area, has the potential to be included as a site in an umbrella mitigation bank, which is being proposed in coordination with the Maritime Division. Other aviation MUs are either restricted for use as a bank site by FAA regulations or do not meet one or more criteria required in establishing bank sites. The Auburn Site Study Area is nearly 29 acres, and preliminary estimates of construction and long-term costs and the number of credits generated suggest this site could be cost-competitive with the King County ILF program. The Auburn Site Study Area should be further considered for inclusion in the umbrella bank prospectus, which is planned for submission to the IRT in May 2019.

7 References

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Attachment A
Opinion of Probable Costs

MU 6 - Borrow Site Mitigation Construction Opinion of Probable Costs

Item	Quantity	Unit	Unit Cost	Subtotal
Site Preparation				
TESC measures	1	LS	\$ 24,650.00	\$ 24,650
Clear and grub invasive vegetation from buffer	325,215	SF	\$ 0.20	\$ 65,043
Planting and Irrigation				
Amend existing soils in plantings areas (4" depth)	5,348	CY	\$ 42.00	\$ 224,615
Procure and install coniferous tree (1 gallon, 10' O.C.)	2,003	EA	\$ 19.85	\$ 39,750
Procure and install deciduous trees (1 gallon, 10')	1,503	EA	\$ 19.85	\$ 29,827
Procure and install shrub (1 gallon, 6' O.C.)	4,173	EA	\$ 19.85	\$ 82,813
Haul and place mulch (4" depth)	5,348	CY	\$ 42.00	\$ 224,615
Install temporary irrigation (created/enhanced wetland and buffer)	433,620	SF	\$ 1.50	\$ 650,430
			Subtotal Construction	\$ 1,341,743
			Mobilization (10%)	\$ 134,174
			Subtotal Construction Direct Costs	\$ 1,475,917
			Design Development Allowance (5%)	\$ 73,796
			Escalation (Calc to mid-point of const 12/31/21, 5% per year)	
			GC's. Home Office, Bond and Profit (0%)	\$ -
			<u>Estimated Construction Bid Amount</u>	\$ 1,549,713
			Major Construction Contingency (10%)	\$ 154,971
			<u>Subtotal Construction Costs with ODCs & Contingency (for Soft Cost basis)</u>	<u>\$ 1,704,684</u>
			WA State Sales Tax: Major Construction (10.1%)	\$ 172,173
			WA State Sales Tax: PCS (9.5%)	\$ -
			Subtotal Construction + Mobilization + Contingencies + Tax	\$ 1,876,857

Design - POS Design Mgmt \$& Support (4.49%)	\$	84,270.88
Design - A/E Support (3.36%)	\$	63,062.39
PM (Design & Constr, 3.93%)	\$	73,760.48
PM Commissioning (0%)	\$	-
CM (4.57%)	\$	85,772.36
Eng Admin (1.12%)	\$	21,020.80
Health & Safety (0.28%)	\$	5,255.20
Safety (0.11%)	\$	2,064.54
Designer Const Support (0.60%)	\$	11,261.14
Envr Constr Support (2.44%)	\$	45,795.31
Construction Testing/Monitoring (CQA, 0.33%)	\$	6,193.63
Contract Admin (0.68%)	\$	1,276.26
Admin (5.61%)	\$	105,291.67
Env & Permitting - Support and Reviews (5.61%)	\$	105,291.67
Env & Permitting - Legal (1.12%)	\$	21,020.80
Env & Permitting - Agency Oversight/Permit (0.33%)	\$	6,193.63
Subtotal PMG and Other Soft Costs	\$	2,514,387.70
Art Program (0.66%)	\$	165.95
Annual Maintenance (10 years)	\$	134,570.58
Corrective Measure Contingency (10% construction subtotal)	\$	134,174.25
Annual Monitoring (10 years)	\$	2,431,352.61
TOTAL PROJECT ESTIMATED PROGRAM COST	\$	5,214,651.09

Costs are in 2018 dollars. Escalation for 2019/2020 construction is recommended at 5% per year.

In providing opinions of probable construction cost, the Client understands that the Consultant (Anchor QEA L.L.C.) has no control over the cost or availability of labor, equipment or materials, or over market condition or the Contractor's method of pricing, and the consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

MU 24 - Miller Creek Wetland Mitigation Construction Opinion of Probable Costs

Item	Quantity	Unit	Unit Cost	Subtotal
Site Preparation				
TESC measures	1	LS	\$ 89,960.00	\$ 89,960
Clear and grub invasive vegetation from buffer	142,180	SF	\$ 0.20	\$ 28,436
Earthwork				
Cut and stockpile existing topsoil (1-ft depth, outside of existing developed area and areas with RCG)	8,777	CY	\$ 10.50	\$ 92,154
Cut and fill for wetland creation (average 4.5-ft depth, remove volume of salvaged topsoil in wetland creation area; includes over-excavation). Place fill in buffer area	20,731	CY	\$ 10.50	\$ 217,679
Procure, place and compact wetland topsoil (12" depth, wetland creation area only)	8,293	CY	\$ 42.00	\$ 348,306
Place and compact on-site stockpiled topsoil in buffer (12" depth, buffer only)	8,777	CY	\$ 11.50	\$ 100,930
Planting and Irrigation				
Procure and install coniferous tree (1 gallon, 10' O.C.)	1,278	EA	\$ 19.85	\$ 25,362
Procure and install deciduous trees (1 gallon, 10')	1,059	EA	\$ 19.85	\$ 21,016
Procure and install shrub (1 gallon, 6' O.C.)	5,542	EA	\$ 19.85	\$ 109,981
Procure and install livestake (3' O.C.)	11,896	EA	\$ 3.00	\$ 35,688
Procure and install emergent (2' O.C.)	0	EA	\$ 6.00	\$ -
Haul and place mulch (4" depth)	5,787	CY	\$ 42.00	\$ 243,052
Install temporary irrigation (created/enhanced wetland and buffer)	468,743	SF	\$ 2.20	\$ 1,031,234
			Subtotal Construction	\$ 2,602,544
			Mobilization (10%)	\$ 260,254
			Subtotal Construction Direct Costs	\$ 2,862,798
			Design Development Allowance (5%)	\$ 143,140
			Escalation (Calc to mid-point of const 12/31/21, 5% per year)	
			GC's. Home Office, Bond and Profit (0%)	\$ -
			<u>Estimated Construction Bid Amount</u>	\$ 3,005,938
			Major Construction Contingency (10%)	\$ 300,594
			<u>Subtotal Construction Costs with ODCs & Contingency (for Soft Cost basis)</u>	\$ 3,306,532

WA State Sales Tax: Major Construction (10.1%)	\$	333,960
WA State Sales Tax: PCS (9.5%)	\$	-
Subtotal Construction + Mobilization + Contingencies + Tax	\$	3,640,492
Design - POS Design Mgmt \$& Support (4.49%)	\$	163,458.08
Design - A/E Support (3.36%)	\$	122,320.52
PM (Design & Constr, 3.93%)	\$	143,071.32
PM Commissioning (0%)	\$	-
CM (4.57%)	\$	166,370.47
Eng Admin (1.12%)	\$	40,773.51
Health & Safety (0.28%)	\$	10,193.38
Safety (0.11%)	\$	4,004.54
Designer Const Support (0.60%)	\$	21,842.95
Envr Constr Support (2.44%)	\$	88,828.00
Construction Testing/Monitoring (CQA, 0.33%)	\$	12,013.62
Contract Admin (0.68%)	\$	2,475.53
Admin (5.61%)	\$	204,231.58
Env & Permitting - Support and Reviews (5.61%)	\$	204,231.58
Env & Permitting - Legal (1.12%)	\$	40,773.51
Env & Permitting - Agency Oversight/Permit (0.33%)	\$	12,013.62
Subtotal PMG and Other Soft Costs	\$	4,877,093.89
Art Program (0.66%)	\$	321.89
Annual Maintenance (10 years)	\$	48,750.00
Corrective Measure Contingency (10% construction subtotal)	\$	260,254.38
Annual Monitoring (10 years)	\$	1,051,316.43
TOTAL PROJECT ESTIMATED PROGRAM COST	\$	6,237,736.59

Costs are in 2018 dollars. Escalation for 2019/2020 construction is recommended at 5% per year.

In providing opinions of probable construction cost, the Client understands that the Consultant (Anchor QEA L.L.C.) has no control over the cost or availability of labor, equipment or materials, or over market condition or the Contractor's method of pricing, and the consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

MU 26 - Wetland 2 Mitigation Construction Opinion of Probable Costs

Item	Quantity	Unit	Unit Cost	Subtotal
Site Preparation				
TESC measures	1	LS	\$ 17,000.00	\$ 17,000
Clear and grub invasive vegetation from wetland	10,165	SF	\$ 0.20	\$ 2,033
Clear and grub invasive vegetation from buffer	73,702	SF	\$ 0.20	\$ 14,740
Planting and Irrigation				
Amend existing soils in plantings areas (4" depth)	884	CY	\$ 42.00	\$ 37,114
Procure and install coniferous tree (1 gallon, 10' O.C.)	302	EA	\$ 19.85	\$ 5,993
Procure and install deciduous trees (1 gallon, 10')	231	EA	\$ 19.85	\$ 4,584
Procure and install shrub (1 gallon, 6' O.C.)	755	EA	\$ 19.85	\$ 14,983
Procure and install livestake (3' O.C.)	522	EA	\$ 3.00	\$ 1,566
Haul and place mulch (4" depth)	884	CY	\$ 42.00	\$ 37,114
Install temporary irrigation (created/enhanced wetland and buffer)	133,002	SF	\$ 2.20	\$ 292,604
			Subtotal Construction	\$ 427,732
			Mobilization (10%)	\$ 42,773
			Subtotal Construction Direct Costs	\$ 470,505
			Design Development Allowance (5%)	\$ 23,525
			Escalation (Calc to mid-point of const 12/31/21, 5% per year)	
			GC's. Home Office, Bond and Profit (0%)	\$ -
			<u>Estimated Construction Bid Amount</u>	\$ 494,030
			Major Construction Contingency (10%)	\$ 49,403
			<u>Subtotal Construction Costs with ODCs & Contingency (for Soft Cost basis)</u>	\$ 543,433

WA State Sales Tax: Major Construction (10.1%)	\$	54,887
WA State Sales Tax: PCS (9.5%)	\$	-
Subtotal Construction + Mobilization + Contingencies + Tax	\$	598,320
Design - POS Design Mgmt \$& Suipport (4.49%)	\$	26,864.55
Design - A/E Support (3.36%)	\$	20,103.54
PM (Design & Constr, 3.93%)	\$	23,513.96
PM Commissioning (0%)	\$	-
CM (4.57%)	\$	27,343.21
Eng Admin (1.12%)	\$	6,701.18
Health & Safety (0.28%)	\$	1,675.29
Safety (0.11%)	\$	658.15
Designer Const Support (0.60%)	\$	3,589.92
Envr Constr Support (2.44%)	\$	14,599.00
Construction Testing/Monitoring (CQA, 0.33%)	\$	1,974.45
Contract Admin (0.68%)	\$	406.86
Admin (5.61%)	\$	33,565.73
Env & Permitting - Support and Reviews (5.61%)	\$	33,565.73
Env & Permitting - Legal (1.12%)	\$	6,701.18
Env & Permitting - Agency Oversight/Permit (0.33%)	\$	1,974.45
Subtotal PMG and Other Soft Costs	\$	801,556.82
Art Program (0.66%)	\$	52.90
Annual Maintenance (10 years)	\$	15,271.42
Corrective Measure Contingency (10% construction subtotal)	\$	42,773.15
Annual Monitoring (10 years)	\$	298,302.58
TOTAL PROJECT ESTIMATED PROGRAM COST	\$	1,157,956.88

Costs are in 2018 dollars. Escalation for 2019/2020 construction is recommended at 5% per year.

In providing opinions of probable construction cost, the Client understands that the Consultant (Anchor QEA L.L.C.) has no control over the cost or availability of labor, equipment or materials, or over market condition or the Contractor's method of pricing, and the consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

MU 42 - RST Property Mitigation Construction Opinion of Probable Costs				
Item	Quantity	Unit	Unit Cost	Subtotal
Site Preparation				
TESC measures	1	LS	\$ 19,140.00	\$ 19,140
Demolish existing crushed gravel surfacing	37,500	SF	\$ 0.60	\$ 22,500
Clear and grub invasive vegetation from buffer	71,790	SF	\$ 0.20	\$ 14,358
Earthwork				
Cut and stockpile existing topsoil (1-ft depth, outside of existing developed area and areas with RCG)	2,659	CY	\$ 10.50	\$ 27,918
Cut and fill for wetland creation (average 2.5-ft depth, remove volume of salvaged topsoil in wetland creation area; includes over-excavation). Place fill in buffer area	4,480	CY	\$ 10.50	\$ 47,039
Procure, place and compact wetland topsoil (12" depth, wetland creation area only)	1,792	CY	\$ 42.00	\$ 75,264
Place and compact on-site stockpiled topsoil in buffer (12" depth, buffer only)	2,659	CY	\$ 11.50	\$ 30,577
Planting and Irrigation				
Procure and install coniferous tree (1 gallon, 10' O.C.)	436	EA	\$ 19.85	\$ 8,652
Procure and install deciduous trees (1 gallon, 10')	359	EA	\$ 19.85	\$ 7,124
Procure and install shrub (1 gallon, 6' O.C.)	1,654	EA	\$ 19.85	\$ 32,824
Procure and install livestake (3' O.C.)	3,104	EA	\$ 3.00	\$ 9,312
Procure and install emergent (2' O.C.)	9,669	EA	\$ 6.00	\$ 58,014
Haul and place mulch (4" depth)	2,035	CY	\$ 42.00	\$ 85,466
Install temporary irrigation (created/enhanced wetland and buffer)	164,827	SF	\$ 2.20	\$ 362,619
			Subtotal Construction	\$ 800,808
			Mobilization (10%)	\$ 80,081
			Subtotal Construction Direct Costs	\$ 880,889
			Design Development Allowance (5%)	\$ 44,044
			Escalation (Calc to mid-point of const 12/31/21, 5% per year)	
			GC's. Home Office, Bond and Profit (0%)	\$ -
			Estimated Construction Bid Amount	\$ 924,934
			Major Construction Contingency (10%)	\$ 92,493
			Subtotal Construction Costs with ODCs & Contingency (for Soft Cost basis)	\$ 1,017,427

WA State Sales Tax: Major Construction (10.1%)	\$	102,760
WA State Sales Tax: PCS (9.5%)	\$	-
Subtotal Construction + Mobilization + Contingencies + Tax	\$	1,120,187
Design - POS Design Mgmt \$& Suipport (4.49%)	\$	50,296.40
Design - A/E Support (3.36%)	\$	37,638.28
PM (Design & Constr, 3.93%)	\$	44,023.35
PM Commissioning (0%)	\$	-
CM (4.57%)	\$	51,192.55
Eng Admin (1.12%)	\$	12,546.09
Health & Safety (0.28%)	\$	3,136.52
Safety (0.11%)	\$	1,232.21
Designer Const Support (0.60%)	\$	6,721.12
Envr Constr Support (2.44%)	\$	27,332.56
Construction Testing/Monitoring (CQA, 0.33%)	\$	3,696.62
Contract Admin (0.68%)	\$	761.73
Admin (5.61%)	\$	62,842.49
Env & Permitting - Support and Reviews (5.61%)	\$	62,842.49
Env & Permitting - Legal (1.12%)	\$	12,546.09
Env & Permitting - Agency Oversight/Permit (0.33%)	\$	3,696.62
Subtotal PMG and Other Soft Costs	\$	1,500,692.10
Art Program (0.66%)	\$	99.05
Annual Maintenance (10 years)	\$	16,396.93
Corrective Measure Contingency (10% construction subtotal)	\$	80,080.82
Annual Monitoring (10 years)	\$	369,681.06
TOTAL PROJECT ESTIMATED PROGRAM COST	\$	1,966,949.95

Costs are in 2018 dollars. Escalation for 2019/2020 construction is recommended at 5% per year.

In providing opinions of probable construction cost, the Client understands that the Consultant (Anchor QEA L.L.C.) has no control over the cost or availability of labor, equipment or materials, or over market condition or the Contractor's method of pricing, and the consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

MU 45 - West Side Mitigation Construction Opinion of Probable Costs				
Item	Quantity	Unit	Unit Cost	Subtotal
Site Preparation				
TESC measures	1	LS	\$ 32,850.00	\$ 32,850
Clear and grub invasive vegetation from buffer	380,689	SF	\$ 0.20	\$ 76,138
Planting and Irrigation				
Amend existing soils in plantings areas (4" depth)	4,700	CY	\$ 42.00	\$ 197,394
Procure and install coniferous tree (1 gallon, 10' O.C.)	1,486	EA	\$ 19.85	\$ 29,490
Procure and install deciduous trees (1 gallon, 10')	1,115	EA	\$ 19.85	\$ 22,127
Procure and install shrub (1 gallon, 6' O.C.)	3,095	EA	\$ 19.85	\$ 61,420
Haul and place mulch (4" depth)	4,700	CY	\$ 42.00	\$ 197,394
Install temporary irrigation (created/enhanced wetland and buffer)	321,616	SF	\$ 1.50	\$ 482,424
			Subtotal Construction	\$ 1,099,238
			Mobilization (10%)	\$ 109,924
			Subtotal Construction Direct Costs	\$ 1,209,161
			Design Development Allowance (5%)	\$ 60,458
			Escalation (Calc to mid-point of const 12/31/21, 5% per year)	
			GC's. Home Office, Bond and Profit (0%)	\$ -
			<u>Estimated Construction Bid Amount</u>	\$ 1,269,619
			Major Construction Contingency (10%)	\$ 126,962
			<u>Subtotal Construction Costs with ODCs & Contingency (for Soft Cost basis)</u>	\$ 1,396,581

WA State Sales Tax: Major Construction (10.1%)	\$	141,055
WA State Sales Tax: PCS (9.5%)	\$	-
Subtotal Construction + Mobilization + Contingencies + Tax	\$	1,537,636
Design - POS Design Mgmt \$& Suiport (4.49%)	\$	69,039.86
Design - A/E Support (3.36%)	\$	51,664.57
PM (Design & Constr, 3.93%)	\$	60,429.10
PM Commissioning (0%)	\$	-
CM (4.57%)	\$	70,269.97
Eng Admin (1.12%)	\$	17,221.52
Health & Safety (0.28%)	\$	4,305.38
Safety (0.11%)	\$	1,691.40
Designer Const Support (0.60%)	\$	9,225.82
Envr Constr Support (2.44%)	\$	37,518.32
Construction Testing/Monitoring (CQA, 0.33%)	\$	5,074.20
Contract Admin (0.68%)	\$	1,045.59
Admin (5.61%)	\$	86,261.38
Env & Permitting - Support and Reviews (5.61%)	\$	86,261.38
Env & Permitting - Legal (1.12%)	\$	17,221.52
Env & Permitting - Agency Oversight/Permit (0.33%)	\$	5,074.20
Subtotal PMG and Other Soft Costs	\$	2,059,940.29
Art Program (0.66%)	\$	135.96
Annual Maintenance (10 years)	\$	85,495.49
Corrective Measure Contingency (10% construction subtotal)	\$	109,923.76
Annual Monitoring (10 years)	\$	1,472,111.89
TOTAL PROJECT ESTIMATED PROGRAM COST	\$	3,727,607.39

Costs are in 2018 dollars. Escalation for 2019/2020 construction is recommended at 5% per year.

In providing opinions of probable construction cost, the Client understands that the Consultant (Anchor QEA L.L.C.) has no control over the cost or availability of labor, equipment or materials, or over market condition or the Contractor's method of pricing, and the consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

MU 46 - Tye Golf Course Mitigation Construction Opinion of Probable Costs

Item	Quantity	Unit	Unit Cost	Subtotal
Site Preparation				
TESC measures	1	LS	\$ 113,400.00	\$ 113,400
Demolish existing concrete paving	164,103	LS		
Demolish existing crushed gravel surfacing	24,583	SF	\$ 0.60	\$ 14,750
Mow reed canary grass	21,479	SF	\$ 0.05	\$ 1,074
Clear and grub existing vegetated areas	1,799,163	SF	\$ 0.20	\$ 359,833
Earthwork				
Cut and stockpile existing topsoil (1-ft depth, outside of existing developed area and areas with RCG)	126,134	CY	\$ 10.50	\$ 1,324,406
Cut and fill for wetland creation (average 3.5-ft depth, remove volume of salvaged topsoil in wetland creation area; includes over-excavation). Place fill in buffer area	122,858	CY	\$ 10.50	\$ 1,290,005
Cut and stockpile wetland enhancement area to remove reed canary grass (12" depth)	796	CY	\$ 9.00	\$ 7,160
Haul and dispose of wetland enhancement area to remove reed canary grass	796	CY	\$ 33.00	\$ 26,252
Procure, place and compact wetland topsoil (12" depth, wetland creation area only)	35,102	CY	\$ 42.00	\$ 1,474,284
Procure, place and compact wetland topsoil (12" depth, wetland RCG enhancement area only)	796	CY	\$ 42.00	\$ 33,412
Place and compact on-site stockpiled topsoil in buffer (12" depth, buffer only)	126,134	CY	\$ 11.50	\$ 1,450,540
Planting and Irrigation				
Procure and install coniferous tree (1 gallon, 10' O.C.)	5,699	EA	\$ 19.85	\$ 113,097
Procure and install deciduous trees (1 gallon, 10')	4,716	EA	\$ 19.85	\$ 93,589
Procure and install shrub (1 gallon, 6' O.C.)	24,547	EA	\$ 19.85	\$ 487,135
Procure and install livestock (3' O.C.)	52,331	EA	\$ 3.00	\$ 156,993
Procure and install emergent (2' O.C.)	0	EA	\$ 6.00	\$ -
Haul and place mulch (4" depth)	23,099	CY	\$ 42.00	\$ 970,177
Install temporary irrigation (created/enhanced wetland and buffer)	1,871,057	SF	\$ 2.20	\$ 4,116,324
			Subtotal Construction	\$ 12,032,430
			Mobilization (10%)	\$ 1,203,243
			Subtotal Construction Direct Costs	\$ 13,235,673

			Design Development Allowance (5%)	\$ 661,784
			Escalation (Calc to mid-point of const 12/31/21, 5% per year)	
			GC's. Home Office, Bond and Profit (0%)	\$ -
			<u>Estimated Construction Bid Amount</u>	\$ 13,897,456
			Major Construction Contingency (10%)	\$ 1,389,746
			<u>Subtotal Construction Costs with ODCs & Contingency (for Soft Cost basis)</u>	\$ 15,287,202
			WA State Sales Tax: Major Construction (10.1%)	\$ 1,544,007
			WA State Sales Tax: PCS (9.5%)	\$ -
			Subtotal Construction + Mobilization + Contingencies + Tax	\$ 16,831,209
			Design - POS Design Mgmt \$& Suiupport (4.49%)	\$ 755,721.30
			Design - A/E Support (3.36%)	\$ 565,528.64
			PM (Design & Constr, 3.93%)	\$ 661,466.53
			PM Commissioning (0%)	\$ -
			CM (4.57%)	\$ 769,186.27
			Eng Admin (1.12%)	\$ 188,509.55
			Health & Safety (0.28%)	\$ 47,127.39
			Safety (0.11%)	\$ 18,514.33
			Designer Const Support (0.60%)	\$ 100,987.26
			Envr Constr Support (2.44%)	\$ 410,681.51
			Construction Testing/Monitoring (CQA, 0.33%)	\$ 55,542.99
			Contract Admin (0.68%)	\$ 11,445.22
			Admin (5.61%)	\$ 944,230.85
			Env & Permitting - Support and Reviews (5.61%)	\$ 944,230.85
			Env & Permitting - Legal (1.12%)	\$ 188,509.55
			Env & Permitting - Agency Oversight/Permit (0.33%)	\$ 55,542.99
			Subtotal PMG and Other Soft Costs	\$ 22,548,434.58
			Art Program (0.66%)	\$ 1,488.20
			Annual Maintenance (10 years)	\$ 187,951.57
			Corrective Measure Contingency (10% construction subtotal)	\$ 1,203,242.97
			Annual Monitoring (10 years)	\$ 4,196,485.67
			TOTAL PROJECT ESTIMATED PROGRAM COST	\$ 28,137,602.99

Costs are in 2018 dollars. Escalation for 2019/2020 construction is recommended at 5% per year.

In providing opinions of probable construction cost, the Client understands that the Consultant (Anchor QEA L.L.C.) has no control over the cost or availability of labor, equipment or materials, or over market condition or the Contractor's method of pricing, and the consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

MU 48 - Auburn Site Mitigation Construction Opinion of Probable Costs

Item	Quantity	Unit	Unit Cost	Subtotal
Site Preparation				
TESC measures	1	LS	\$ 43,000.00	\$ 43,000
Mow reed canary grass	351,529	SF	\$ 0.05	\$ 17,576
Clear and grub existing vegetated areas	200,000	SF	\$ 0.20	\$ 40,000
Earthwork				
Cut and haul existing topsoil from wetland enhancement and wetland creation areas to remove reed canary grass (6" depth)	24,966	CY	\$ 9.00	\$ 224,697
Haul and dispose of stockpiled topsoil to remove reed canary grass	24,966	CY	\$ 33.00	\$ 823,889
Cut and fill for wetland creation (average 2.5-ft depth, includes over-excavation). Place fill in buffer area	59,734	CY	\$ 10.50	\$ 627,204
Procure, place and compact wetland topsoil (12" depth, wetland creation area)	23,893	CY	\$ 42.00	\$ 1,003,506
Procure, place and compact wetland topsoil (12" depth, wetland RCG enhancement area)	13,020	CY	\$ 42.00	\$ 546,823
Procure, place and compact topsoil (12" depth, buffer enhancement area)	19,715	CY	\$ 42.00	\$ 828,027
Planting and Irrigation				
Procure and install coniferous tree (1 gallon, 10' O.C.)	3,718	EA	\$ 19.85	\$ 73,784
Procure and install deciduous trees (1 gallon, 10')	3,104	EA	\$ 19.85	\$ 61,599
Procure and install shrub (1 gallon, 6' O.C.)	11,215	EA	\$ 19.85	\$ 222,562
Procure and install livestock (3' O.C.)	24,371	EA	\$ 3.00	\$ 73,113
Procure and install emergent (2' O.C.)	115,087	EA	\$ 4.00	\$ 460,348
Haul and place mulch (3" depth)	14,157	CY	\$ 42.00	\$ 594,594
Install waterfowl exclusion system	398,661	SF	\$ 1.50	\$ 597,992
Install salvaged habitat logs	25	EA	\$ 350.00	\$ 8,750
Install temporary irrigation (created/enhanced wetland and buffer)	1,528,956	SF	\$ 1.00	\$ 1,528,956
Subtotal Construction				\$ 7,776,419
Mobilization (10%)				\$ 777,642
Subtotal Construction Direct Costs				\$ 8,554,061
Design Development Allowance (5%)				\$ 427,703
Escalation (Calc to mid-point of const 12/31/21, 5% per year)				
GC's. Home Office, Bond and Profit (0%)				\$ -
Estimated Construction Bid Amount				\$ 8,981,764

	Major Construction Contingency (10%)	\$		898,176
	<u>Subtotal Construction Costs with ODCs & Contingency (for Soft Cost basis)</u>	\$		9,879,941
	WA State Sales Tax: Major Construction (10.1%)	\$		997,874
	WA State Sales Tax: PCS (9.5%)	\$		-
	<u>Subtotal Construction + Mobilization + Contingencies + Tax</u>	\$		10,877,815
	Design - POS Design Mgmt \$& Support (4.49%)	\$		488,413.88
	Design - A/E Support (3.36%)	\$		365,494.58
	PM (Design & Constr, 3.93%)	\$		427,498.12
	PM Commissioning (0%)	\$		-
	CM (4.57%)	\$		497,116.13
	Eng Admin (1.12%)	\$		121,831.53
	Health & Safety (0.28%)	\$		30,457.88
	Safety (0.11%)	\$		11,965.60
	Designer Const Support (0.60%)	\$		65,266.89
	Envr Constr Support (2.44%)	\$		265,418.68
	Construction Testing/Monitoring (CQA, 0.33%)	\$		35,896.79
	Contract Admin (0.68%)	\$		7,396.91
	Admin (5.61%)	\$		610,245.41
	Env & Permitting - Support and Reviews (5.61%)	\$		610,245.41
	Env & Permitting - Legal (1.12%)	\$		121,831.53
	Env & Permitting - Agency Oversight/Permit (0.33%)	\$		35,896.79
	<u>Subtotal PMG and Other Soft Costs</u>	\$		14,572,790.85
	<u>Art Program (0.66%)</u>	\$		961.80
	Annual Maintenance (10 years)	\$		152,100.00
	Corrective Measure Contingency (10% construction subtotal)	\$		777,641.93
	Annual Monitoring (10 years)	\$		2,818,970.84
	TOTAL PROJECT ESTIMATED PROGRAM COST	\$		18,322,465.43

Costs are in 2018 dollars. Escalation for 2019/2020 construction is recommended at 5% per year.

In providing opinions of probable construction cost, the Client understands that the Consultant (Anchor QEA L.L.C.) has no control over the cost or availability of labor, equipment or materials, or over market condition or the Contractor's method of pricing, and the consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

Appendix B

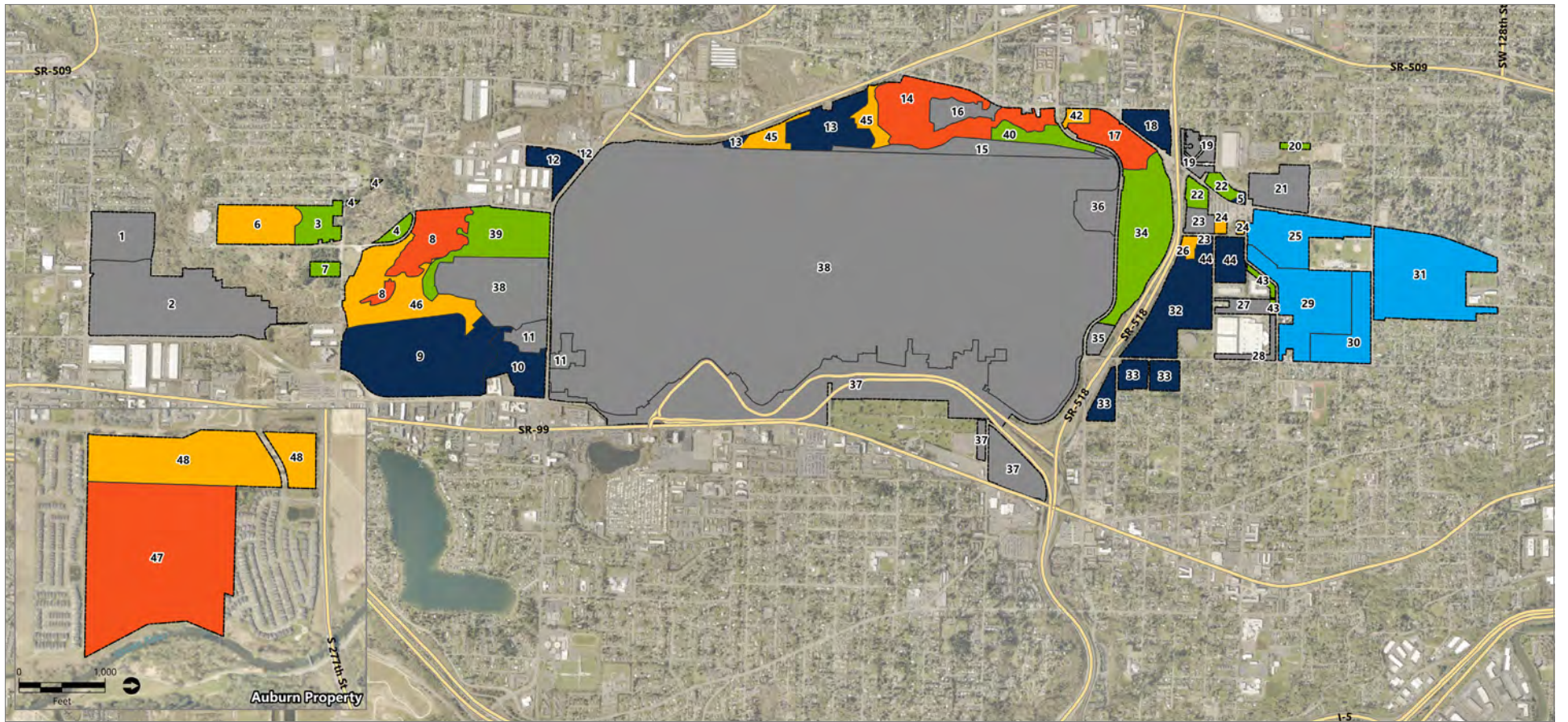
FLAT Sample Field Form

Table B-1
Data Attributes

Data Attributes	Yes/No	Estimate	Notes
Land Cover Designation			
Is the actual land cover consistent with land cover designation for MU?			
Is the actual land cover consistent with land cover designation?			
Forest Values			
Does the MU have >25% native tree canopy cover?			
Does the MU have <25% native tree canopy cover?			
Does the site have 0% conifer or madrone?			
Does the site have 1% to 50% conifer or madrone?			
Does the site have >50% conifer or madrone?			
Is the site able to support >50% conifer or madrone cover?			
Is the site able to support 1% to 50% conifer or madrone cover?			
Is the site unable to support conifer or madrone cover?			

Appendix C

Land Stewardship Plan Mapfolio



Recommended Site Action Key

Public Safety and Maintenance	Ecological Use: Habitat Enhancement	Ecological Use: Existing Mitigation	Ecological Use: Potential Mitigation
<ul style="list-style-type: none"> MU 5 - page 3 MU 9 - page 7 MU 10 - page 8 MU 12 - page 9 MU 13 - page 10 MU 18 - page 13 MU 33 - page 18 MU 44 - page 24 	<ul style="list-style-type: none"> MU 3 - page 1 MU 4 - page 2 MU 7 - page 5 MU 20 - page 14 MU 22 - page 15 MU 34 - page 19 MU 39 - page 20 MU 40 - page 21 MU 43 - page 23 	<ul style="list-style-type: none"> MU 8 - page 6 MU 14 - page 11 MU 17 - page 12 MU 47 - page 27 	<ul style="list-style-type: none"> MU 6 - page 4 MU 24 - page 16 MU 26 - page 17 MU 42 - page 22 MU 45 - page 25 MU 46 - page 26 MU 48 - page 28
<h4>North SeaTac Park</h4>	<h4>No Action</h4>		
<p>MUs categorized as North SeaTac Park are not included in this appendix but are listed here for reference</p>	<p>MUs categorized as No Action are not included in this appendix but are listed here for reference</p>		
<ul style="list-style-type: none"> MU 25 MU 29 MU 30 MU 31 	<ul style="list-style-type: none"> MU 1 MU 2 MU 11 MU 15 MU 16 MU 19 MU 21 MU 23 MU 27 MU 28 MU 32 MU 35 MU 36 MU 37 MU 38 		

Abbreviations

AOA	Airport Operations Area
FLAT	Forest Landscape Assessment Tool
FCSP	Flight Corridor Safety Program
LSP	Land Stewardship Plan
MU	Management Unit
ROW	right-of-way
RPZ	Runway Protection Zone
RDF	Regional Detention Facility
RSA	Runway Safety Area
SEA	Seattle-Tacoma International Airport

Notes

1. SEA property and lease data were provided by the Port of Seattle.
2. SEA natural resources data were provided by the Port of Seattle and managed by Anchor QEA. Jurisdictional critical areas were provided by each jurisdiction (Des Moines, SeaTac, and Burien).
3. Aerial imagery provided by King County 2021
4. Critical areas shown include streams, stream buffers, confirmed wetlands, wetland buffers, lakes and ponds, and steep slopes. Erosion hazards, landslide hazards, seismic hazards, liquefaction susceptibility, jurisdictional ditches, and other areas are not shown.
5. Culvert location data were provided by the Port of Seattle.
6. MUs are all within the SEA boundary. Recommendations and actions are only made for Port-owned aviation properties.

LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance Habitat

- Remove invasive vegetation
- Install forest and understory planting communities
- Improve forest structural complexity

Protect Infrastructure

- Prevent hazards, including treefall, along ROWs, along neighboring houses, and adjacent to cemetery
- Prevent establishment of future obstructions

Community Benefits

- Maintain community access
- Plant along visual corridors

Habitat Corridor

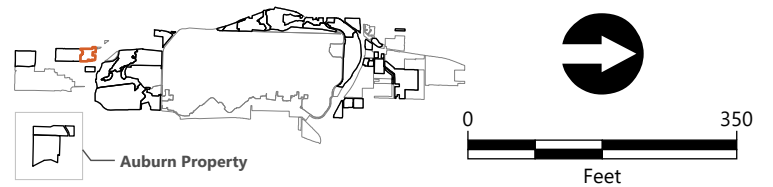
- Improve habitat within Des Moines Creek habitat corridor

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- FCSP Mitigation Site
- Community Planting Area
- Slope > 40%
- Wetland
- Wetland Buffer
- Stewardship Opportunity Area
 - Enhance Degraded Habitat
 - Protect Habitat
 - Conduct Long-Term Mitigation Action



Site Description

- MU 3 is the northern portion of the South 200th Street Development Area (Borrow Site). This MU is not currently planned for development, but future development is possible.
- This MU is a previous residential development with some roadway infrastructure and remnant foundation walls.
- The neighboring community uses trails within the site. This MU presents an opportunity to engage the community for social justice benefit.
- The MU has a mix of mature conifers and deciduous trees.
- Much of the MU's understory is dominated by Himalayan blackberry and English ivy. English ivy is threatening many of the mature trees.
- FCSP mitigation planting occurred on the site in 2014 and has ongoing management and prevention actions. The Port is monitoring replanting performance.
- The Port removed obstructions on this MU in 2018 (FCSP Site P-5). FCSP mitigation planting occurred in 2018/19.

Site Acreage

15.9 Acres

Land Cover Analysis

0%	Buildings
0%	Impervious
5.3%	Dry Grass/Bare
83.5%	Forest
2.2%	Grass
8.9%	Shrub
0%	Water

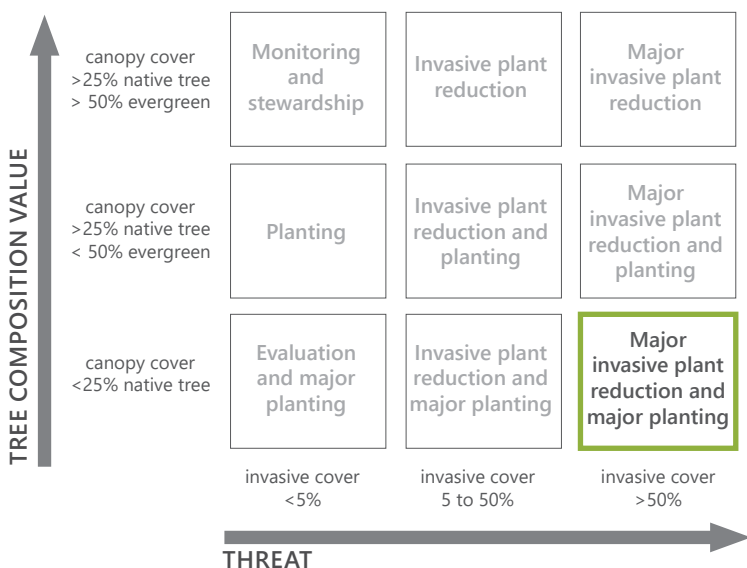
Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance Habitat

- Remove invasive vegetation
- Install forest and understory planting communities
- Improve forest structural complexity

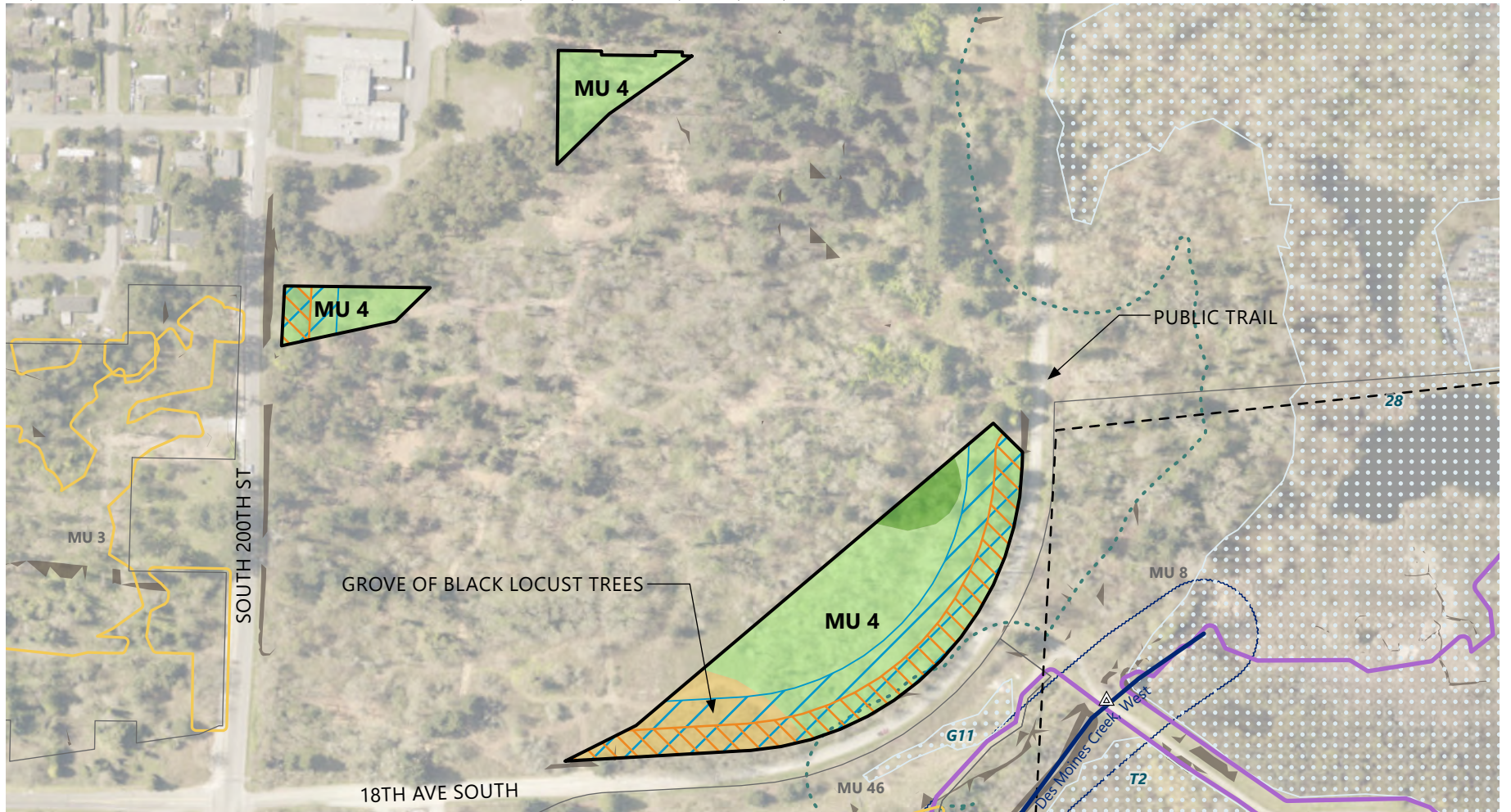
Protect Infrastructure

- Prevent hazards, including treefall, along ROWs
- Prevent establishment of future obstructions

Community Benefits

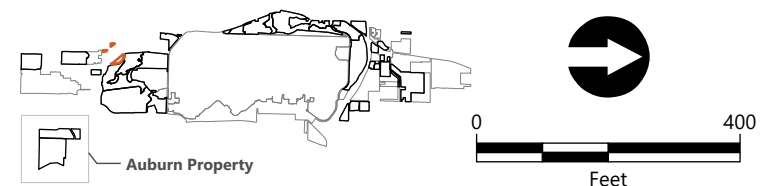
- Maintain community access
- Plant along visual corridors

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Mitigation Restrictive Covenant
- FCSP Mitigation Site
- Public Hazard Area
- Slope > 40%
- Stream
- Wetland
- Stream Buffer
- Wetland Buffer
- Stewardship Opportunity Area - Enhance Degraded Habitat
- Stewardship Opportunity Area - Protect Habitat
- Stewardship Opportunity Area - Manage Invasive Species
- Culverts - Unknown



Site Description

- MU 4 is comprised of three remnant sections of land at the south end of the SEA runway across from the former Tyee Golf Course. This MU is not currently planned for development.
- A trail borders the northeast section of the site. The neighboring community utilizes the trail as a scenic walking and cycling trail.
- The MU has a mix of mature native coniferous and deciduous trees, including bigleaf maples, douglas fir, Western red cedar, cottonwood, and several varieties of willow.
- The majority of the southeast corner of the site is vegetated with invasive mature black locust trees and Himalayan blackberry in areas with minimal shade.
- Throughout the remainder of the site, the understory is dominated by Himalayan blackberry and English ivy. English ivy is threatening many of the mature trees.
- Small portions of the site, away from the roadway, are mostly free of invasive species and are vegetated with a deciduous native understory made up of bracken and sword ferns, salmonberry, salal, snowberry, beaked hazelnut, dogwood, willow, and vine maple.

Site Acreage

4.4 Acres

Land Cover Analysis

0%	Buildings
0.1%	Impervious
0%	Dry Grass/Bare
87.7%	Forest
0.8%	Grass
11.4%	Shrub
0%	Water

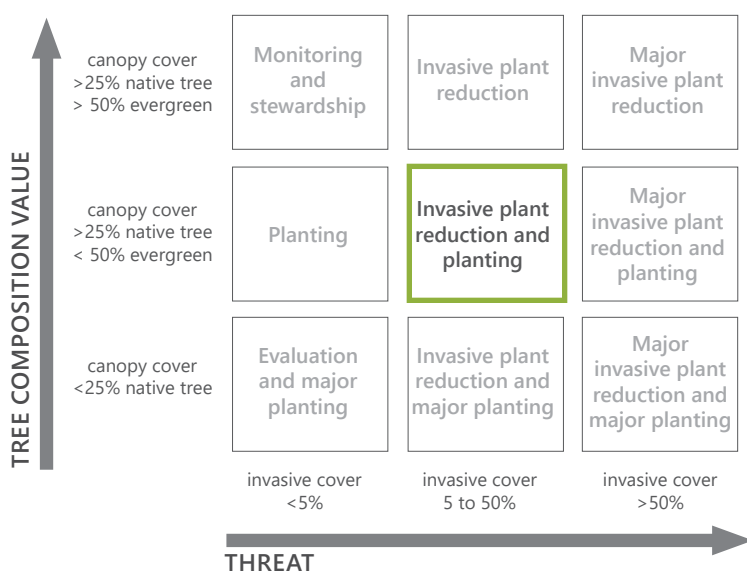
Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

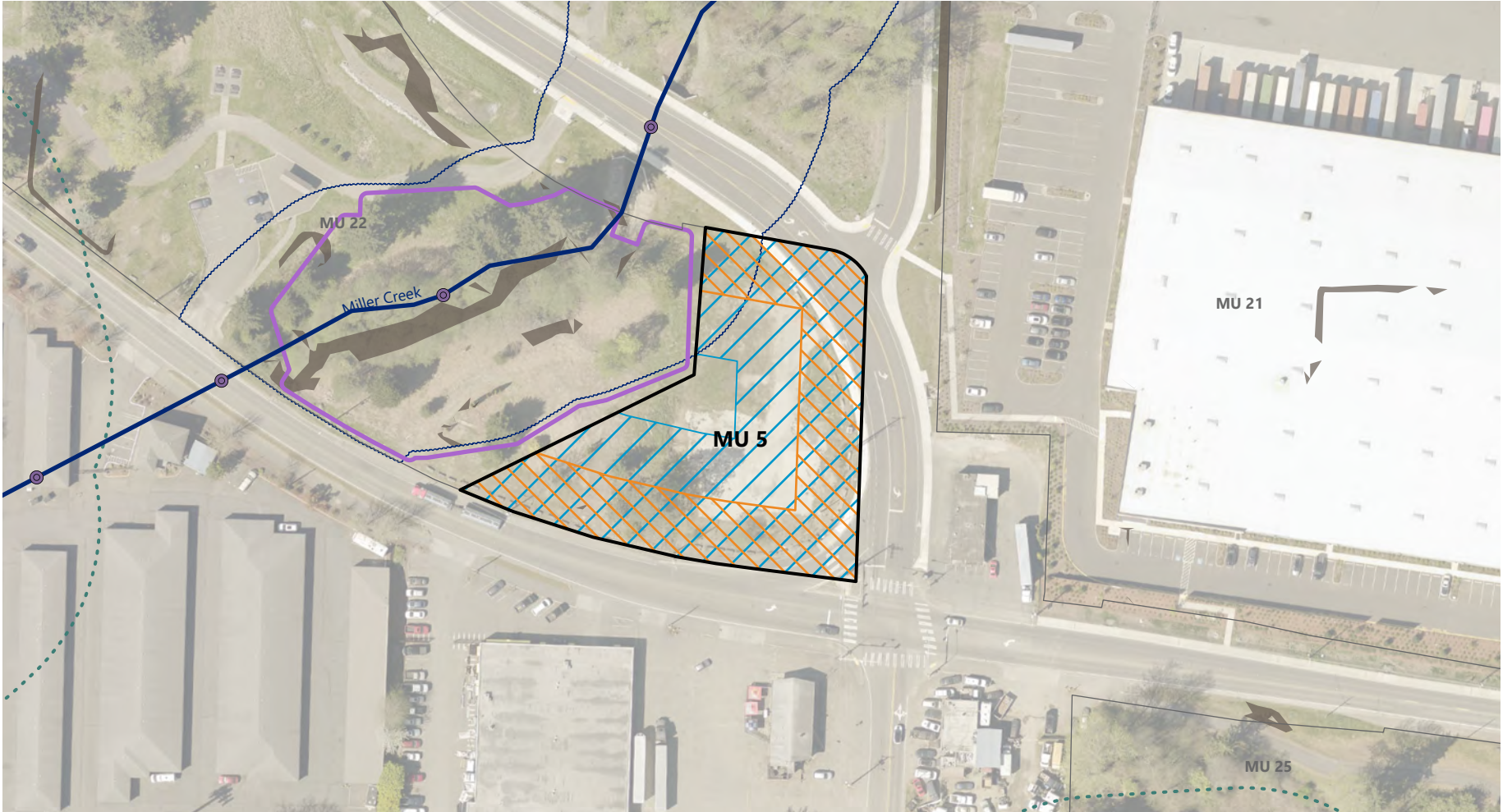
Public Safety and Maintenance

Recommended Site-Based Management Actions

Protect Infrastructure

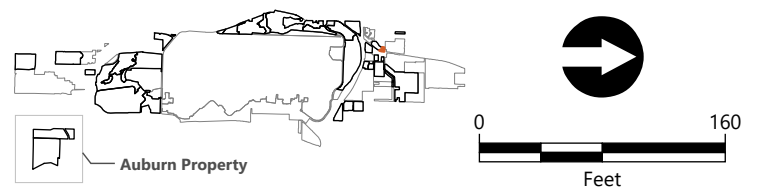
- Prevent hazards, including treefall, along ROWs

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Mitigation Restrictive Covenant
- Slope > 40%
- Stream
- Stream Buffer
- Wetland Buffer
- Culverts
- Fish Passable



Site Description

- MU 5 is a leased site located north of SEA Operational areas.
- Miller Creek runs south of the MU and a mitigation restrictive covenant borders the south portion of the site. The north, east, and west edges of the site are bounded by paved roadways.

FLAT Assessment: Landscape Management Strategy

MU 5 is identified as public safety and maintenance and therefore did not receive a FLAT assessment.

Site Acreage

1.2 Acres

Land Cover Analysis

0%	Buildings
14.7%	Impervious
7.8%	Dry Grass/Bare
9.9%	Forest
62.9%	Grass
4.7%	Shrub
0%	Water

Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

LSP Action

Ecological Use: Potential Mitigation

Recommended Site-Based Management Actions

Identify mitigation opportunities

- Establish advanced mitigation sites
- Potential tree stewardship mitigation (invasive removal, high-value tree protection and planting)

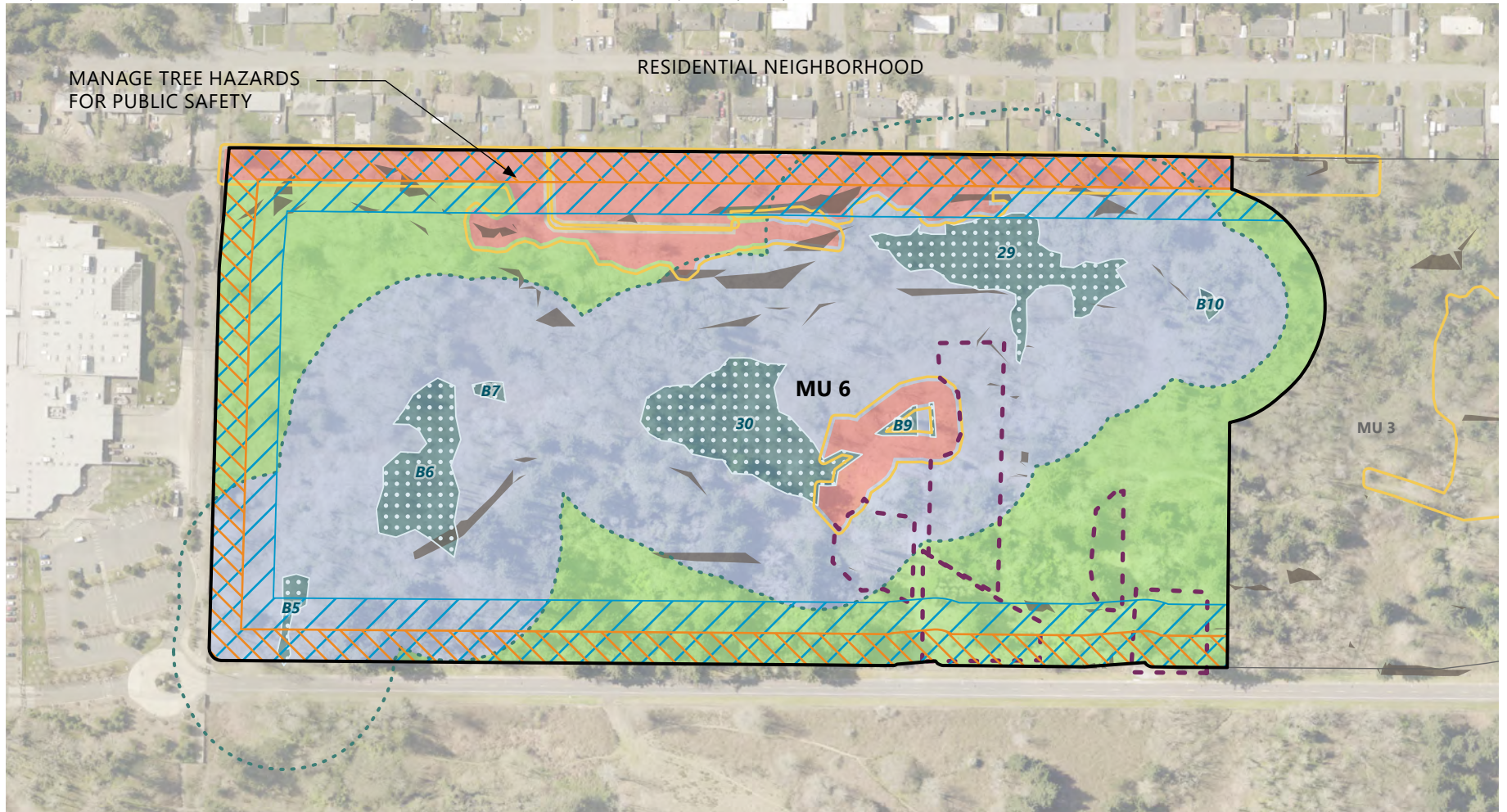
Provide Opportunity for Community Outreach

- Community planting area
- Maintain community planting area
- Establish new community planting areas with community events

Habitat Corridor

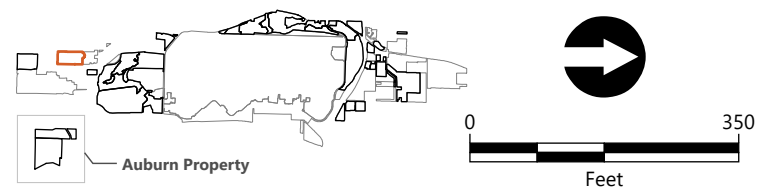
- Improve habitat within Des Moines Creek habitat corridor

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Base Map Legend

- | | | |
|---|----------------|-------------------------------------|
| LSP Management Unit | Slope > 40% | Stewardship Opportunity Area |
| Public Visual Corridor | Wetland | Enhance Degraded Habitat |
| Public Safety - Tree Hazard Management Area | Wetland Buffer | Enhance Wetland Buffer |
| FCSP Mitigation Site | | Preserve Wetland |
| Community Planting Area | | Conduct Long-Term Mitigation Action |



Site Description

- MU 6 is in the city of SeaTac. It is zoned Aviation Commercial.
- A portion of the site is designated for mitigation and is planted with native species. The rest of the unit outside of wetlands, buffers, or mitigation areas has limited development potential.
- There are seven wetlands and buffers within MU 6: B5, B6, B7, B9, B10, 29, and 30.
- Within Wetland 29 and its buffer, there is an FCSP mitigation planting area.
- The wetlands are vegetated with deciduous understory, native mature forest, and limited invasive species.
- Invasive species including English ivy and Himalayan blackberry are pervasive throughout the MU, threatening mature trees and impairing forest health.
- MU 6 has community access with informal entrances along the MU's perimeter and a network of trails.

Site Acreage

31 Acres

Land Cover Analysis

0%	Buildings
0.9%	Impervious
0.2%	Dry Grass/Bare
81.8%	Forest
2.7%	Grass
14.4%	Shrub
0%	Water

Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 6 is addressed in further detail in the *Mitigation Site Opportunity Assessment* and therefore did not receive a FLAT assessment.

LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance Habitat

- Remove invasive vegetation
- Install forest and understory planting communities consistent with Airport operations
- Improve forest structural complexity
- Maintain existing mitigation site

Manage and Prevent Hazards

- Prevent hazards, including treefall, along ROWs and public trails
- Prevent future obstructions from establishing

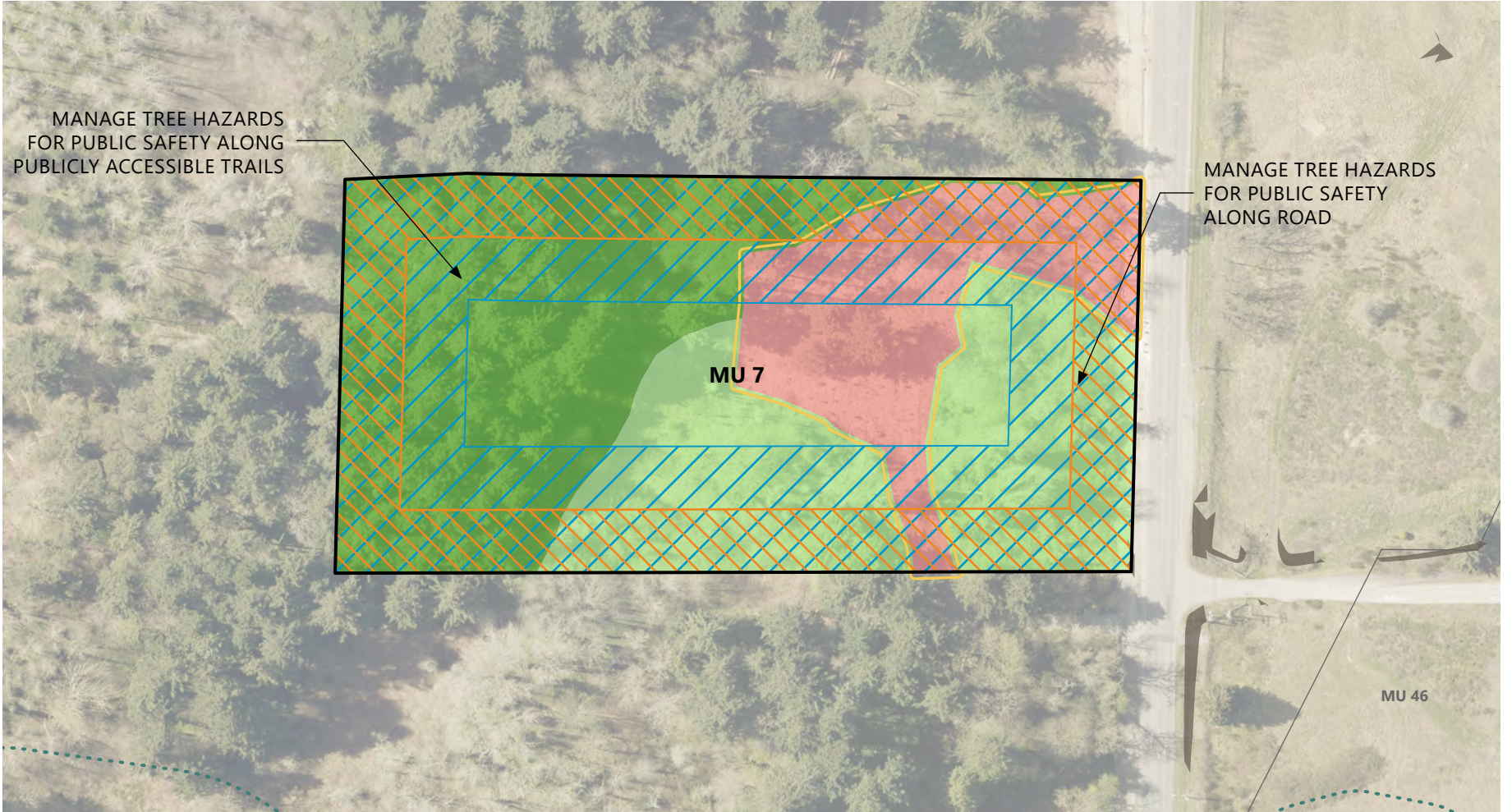
Community Benefits

- Maintain community access
- Plant along visual corridors

Habitat Corridor

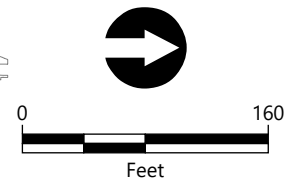
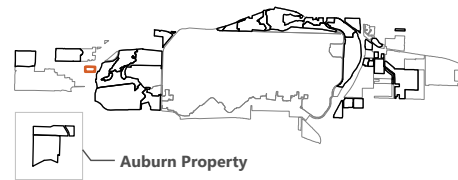
- Improve habitat within Des Moines Creek habitat corridor

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- FCSP Mitigation Site
- Slope > 40%
- Wetland Buffer
- Stewardship Opportunity Area - Enhance Degraded Habitat
- Stewardship Opportunity Area - Protect Habitat
- Stewardship Opportunity Area - Conduct Long-Term Mitigation Action



Site Description

- SEA Properties identify MU 7 as South 5-acre parcel.
- This MU is adjacent to the Des Moines Creek Trail and much of it is open to community access.
- The Port identified obstructions on this MU and removed them in 2018 (FCSP Site P-4). FCSP mitigation

planting is scheduled to occur on the site in 2018/2019.

- The northern portion of the MU adjacent to South 200 Street is heavily disturbed by Himalayan blackberry and has limited forest cover. The southern half is dominated by a mature conifer forest with an

understory dominated by native shrubs and ground covers.

Site Acreage

4.5 Acres

Land Cover Analysis

0%	Buildings
0%	Impervious
0%	Dry Grass/Bare
87.1%	Forest
1.9%	Grass
11%	Shrub
0%	Water

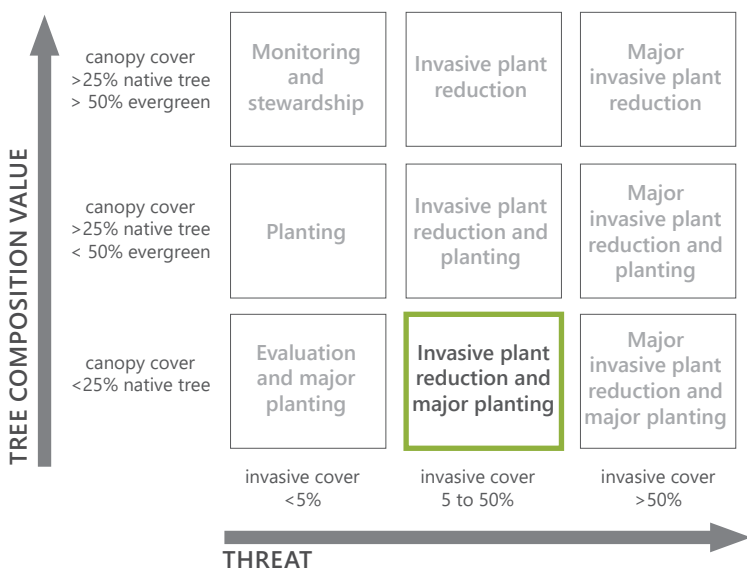
Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Identify Mitigation Opportunities

- Wetland and wetland buffer mitigation along Des Moines Creek
- Install forest and understory planting communities
- Potential tree stewardship mitigation (invasive removal, high-value tree protection and planting)

Connect Habitat

- Connect habitat to adjacent habitat corridors

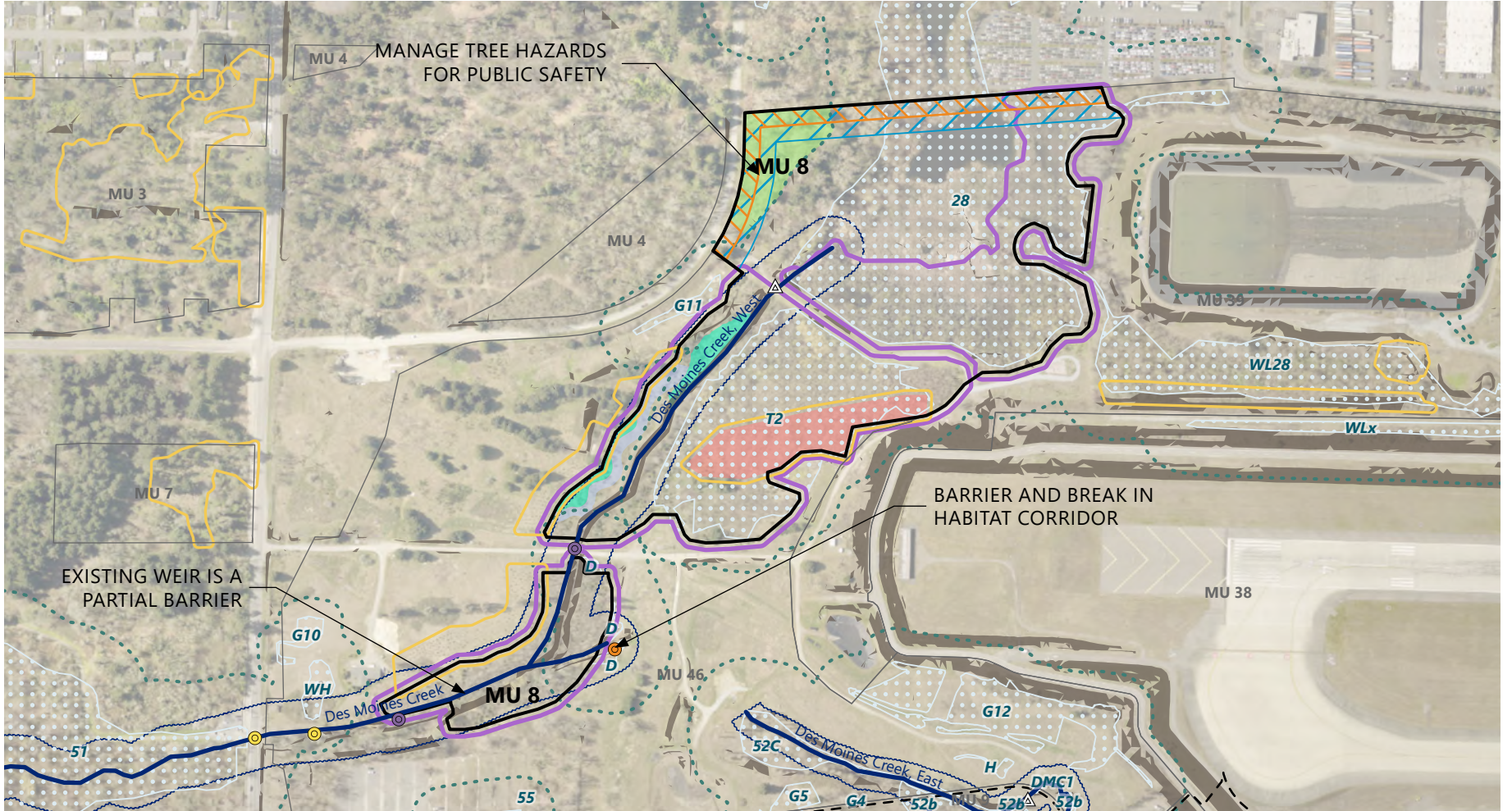
Manage and Prevent Hazards

- Manage and prevent obstructions or hazards within FCSP areas
- Prevent hazards, including treefall, along ROWs

Habitat Corridor

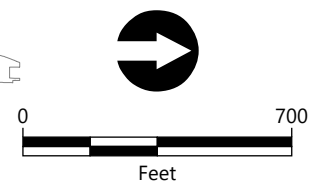
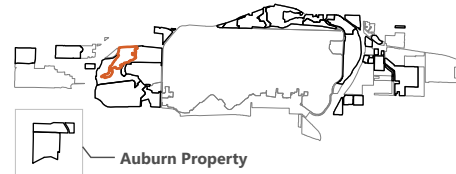
- Improve habitat within Des Moines Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Stewardship Opportunity Area	Culverts
Public Visual Corridor	Stream	Enhance Degraded Habitat	Fish Passable
Public Safety - Tree Hazard Management Area	Wetland	Enhance Wetland Buffer	Partial Fish Barrier
Mitigation Restrictive Covenant	Stream Buffer	Re-Establish Wetland	Full Fish Barrier
FCSP Mitigation Site	Wetland Buffer	Conduct Long-Term Mitigation Action	Unknown
Public Hazard Area			



Site Description

- MU 8 is the former Tye Golf Course. It is immediately south and adjacent to the AOA.
- This MU is inside the RSA and is not available for development, but the MU boundary is set by adjacent planned development.
- The east and west forks of Des Moines Creek are within this MU. Barriers include a weir passage and the Tye Pond outlet/diversion.
- There are multiple existing wetlands within MU 8.
- Two mitigation areas (Tye Golf Course and Des Moines RDF) are in the central portion of the MU.
- An FCSP mitigation planting area is located along the southern boundary of the mitigation area.
- The Port is considering mitigation opportunities on this MU including expanding and creating new wetlands along Des Moines Creek.
- The MU includes SEA operational areas such as light towers, stormwater ponds, and utility infrastructure. There are multiple access roads and a large parking area. As a former golf course, much of the MU is mowed grass.

Site Acreage

35 Acres

Land Cover Analysis

0%	Buildings
1%	Impervious
0.4%	Dry Grass/Bare
29.5%	Forest
9.9%	Grass
50.8%	Shrub
8.5%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 8 is identified for Mitigation Opportunity and did not undergo a FLAT assessment

LSP Action

Public Safety and Maintenance

Recommended Site-Based Management Actions

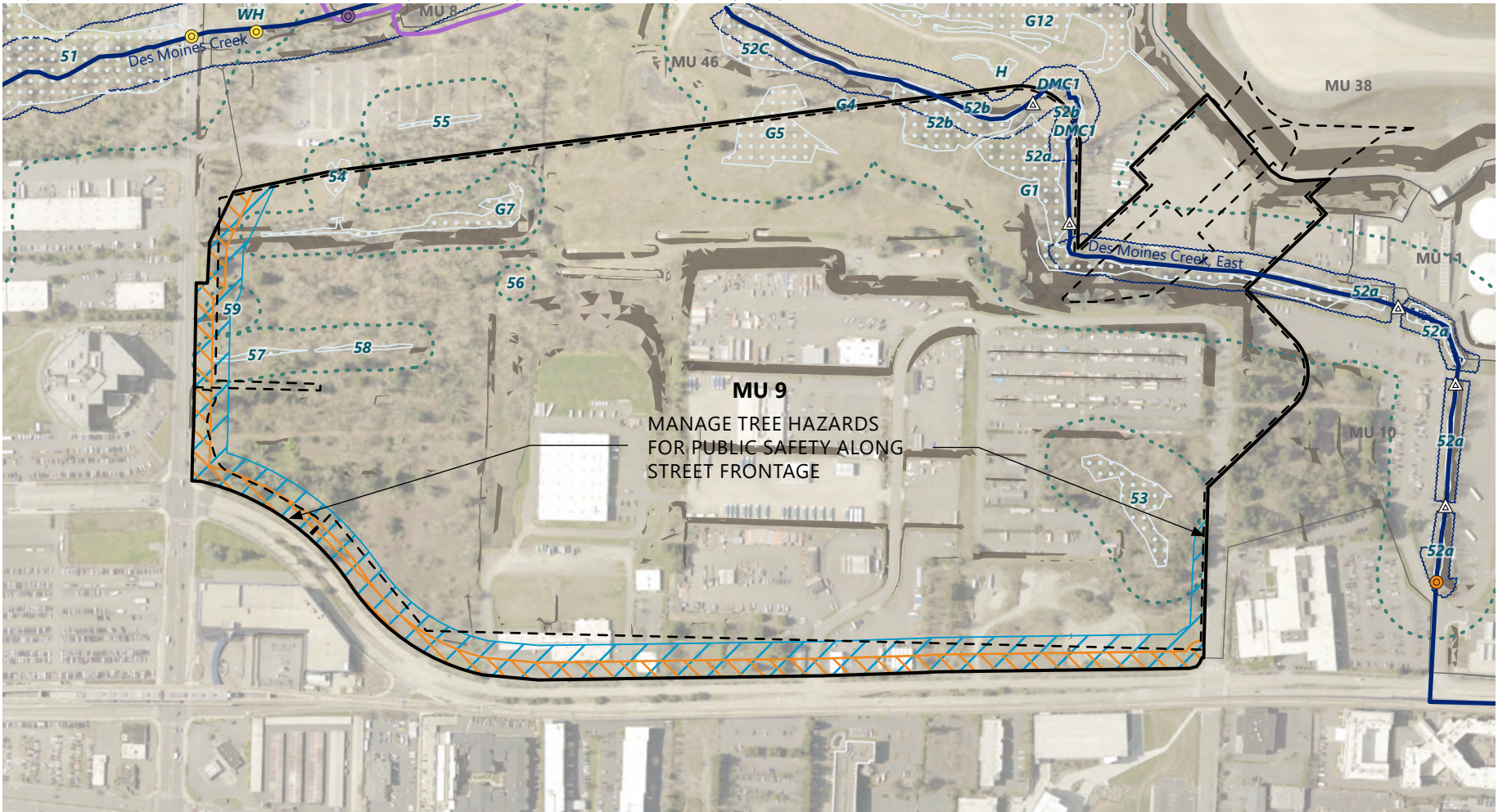
Manage and Prevent Hazards

- Prevent operational hazards (e.g., wildlife, obstructions)

Protect Infrastructure

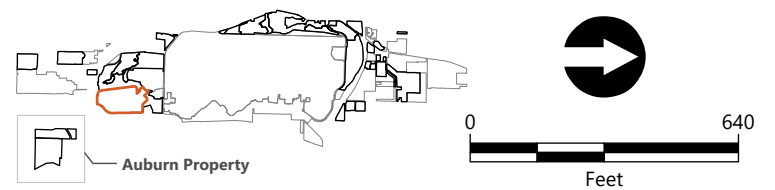
- Prevent hazards, including treefall, along ROWs

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Base Map Legend

- | | | |
|---|----------------|----------------------|
| LSP Management Unit | Slope > 40% | Culverts |
| Public Visual Corridor | Stream | Fish Passable |
| Public Safety - Tree Hazard Management Area | Wetland | Partial Fish Barrier |
| Mitigation Restrictive Covenant | Stream Buffer | Full Fish Barrier |
| Public Hazard Area | Wetland Buffer | Unknown |



Site Description

- MU 9 is developed with multiple Port operational areas, including construction parking and the Neighborhood Field Office.
- Two areas are leased by Clean Energy Fuels Corporation and Elcon Corporation. Future development will affect MU 9.
- A tributary of Des Moines Creek runs in a linear ditch with a narrow riparian corridor through a portion of MU 9.
- Wetlands 52a and 53 are located within MU 10. Wetland 52a is associated with the tributary of Des Moines Creek.
- MU 9 is not a FCSP area.

Site Acreage

104.8 Acres

Land Cover Analysis

- 3.5% Buildings
- 30.6% Impervious
- 3.2% Dry Grass/Bare
- 28% Forest
- 20.2% Grass
- 14.5% Shrub
- 0% Water

Morning Heat Index Results:

High Heat Index (average exceeds 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 9 is identified as public safety and maintenance and therefore did not undergo a FLAT assessment.

LSP Action

Public Safety and Maintenance

Recommended Site-Based Management Actions

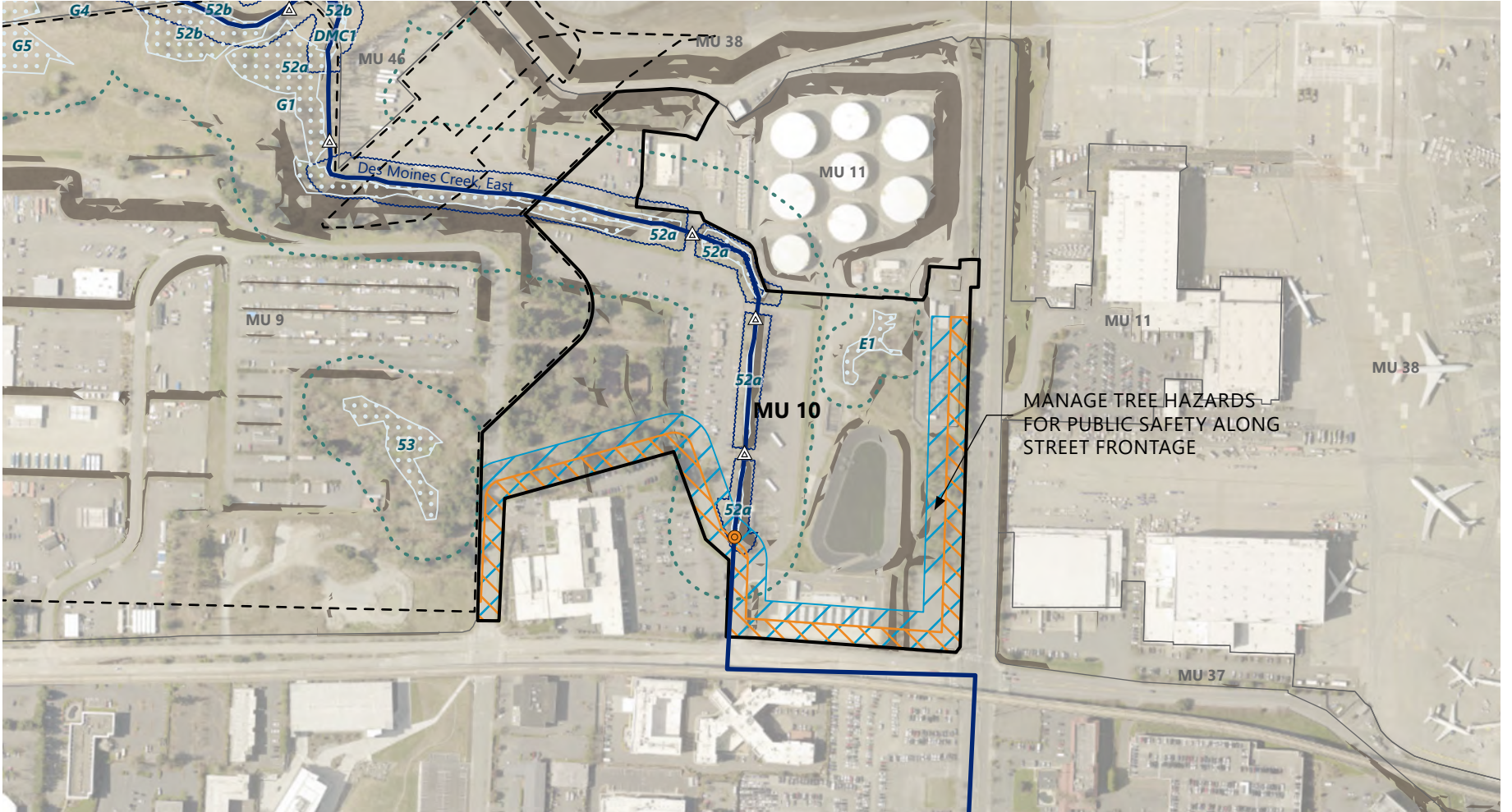
Manage and Prevent Hazards

- Prevent operational hazards (e.g., wildlife, obstructions)

Protect Infrastructure

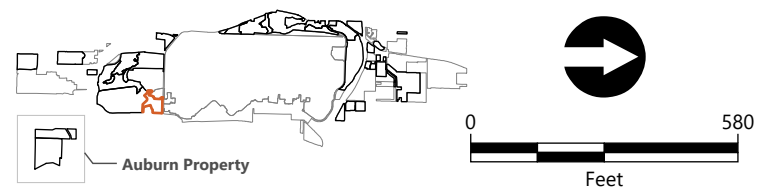
- Prevent hazards, including treefall, along ROWs

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Base Map Legend

- | | | |
|---|----------------|---------------------------------|
| LSP Management Unit | Slope > 40% | Culverts
● Full Fish Barrier |
| Public Visual Corridor | Stream | Unknown |
| Public Safety - Tree Hazard Management Area | Wetland | |
| Public Hazard Area | Stream Buffer | |
| | Wetland Buffer | |



Site Description

- MU 10 supports SEA operations, including a fuel farm and an alternate utility facility. MU 10 will be affected by future airport development.
- Wetland E1 is within MU 10. This small wetland is surrounded by development and will likely be affected by future airport development. There may be an opportunity to protect/enhance the wetland.
- A small tributary of Des Moines Creek runs through MU 10, within a narrow vegetated corridor and flanked on both sides by asphalt pavement. There are 4 culverts along the creek within the MU.
- There may be opportunities for riparian corridor enhancement and Wetland E1 protection/enhancement; however due to future development potential, opportunities are not identified.

Site Acreage

24.1 Acres

Land Cover Analysis

- 1.2% Buildings
- 42.5% Impervious
- 3.5% Dry Grass/Bare
- 30.3% Forest
- 7.8% Grass
- 7.6% Shrub
- 7.1% Water

Morning Heat Index Results:

High Heat Index (average exceeds 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 10 is identified as public safety and maintenance and therefore did not undergo a FLAT assessment.

LSP Action

Public Safety and Maintenance

Recommended Site-Based Management Actions

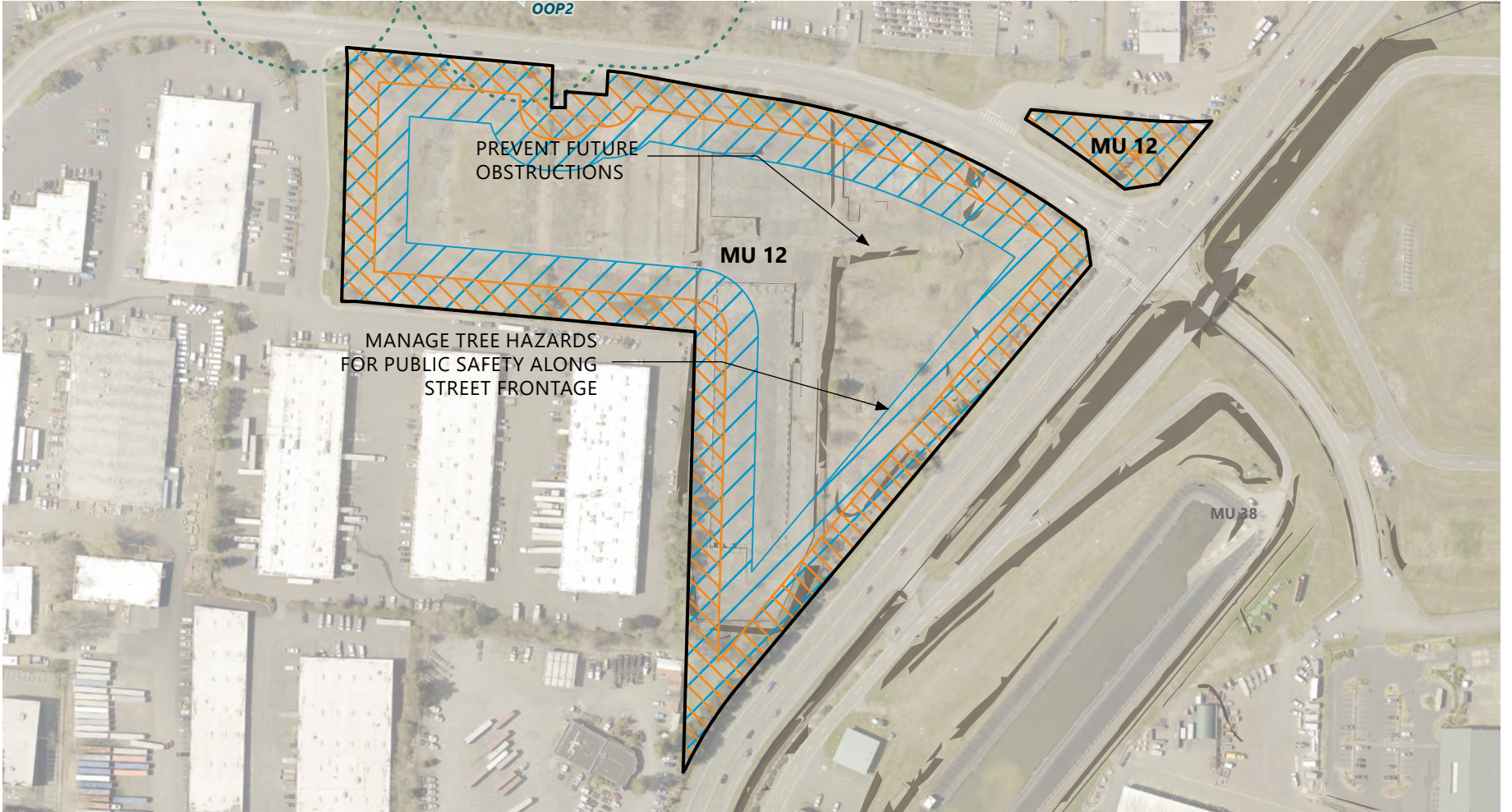
Manage and Prevent Hazards

- Prevent operational hazards (e.g., wildlife, obstructions)
- Reduce invasive colonization through mowing

Protect Infrastructure

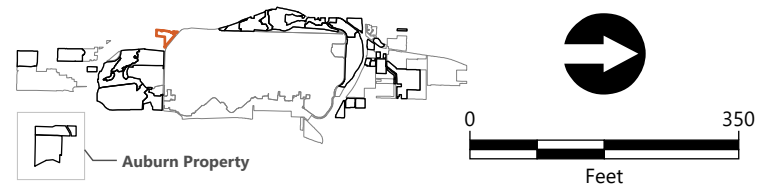
- Prevent future obstructions

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Slope > 40%
- Wetland
- Wetland Buffer



Site Description

- MU 12 is within the RPZ, and limited to no development can occur in this location. It is slated for future infiltration stormwater ponds.
- The MU is currently covered in pavement with limited vegetation.

Site Acreage

13.9 Acres

Land Cover Analysis

0%	Buildings
58.6%	Impervious
1.1%	Dry Grass/Bare
5.5%	Forest
28.6%	Grass
6.4%	Shrub
0%	Water

Morning Heat Index Results:

High Heat Index (average exceeds 62.6 degrees F)

Equity Score: Low

FLAT Assessment: Landscape Management Strategy

MU 12 is identified as public safety and maintenance and therefore did not undergo a FLAT assessment.

LSP Action

Public Safety and Maintenance

Recommended Site-Based Management Actions

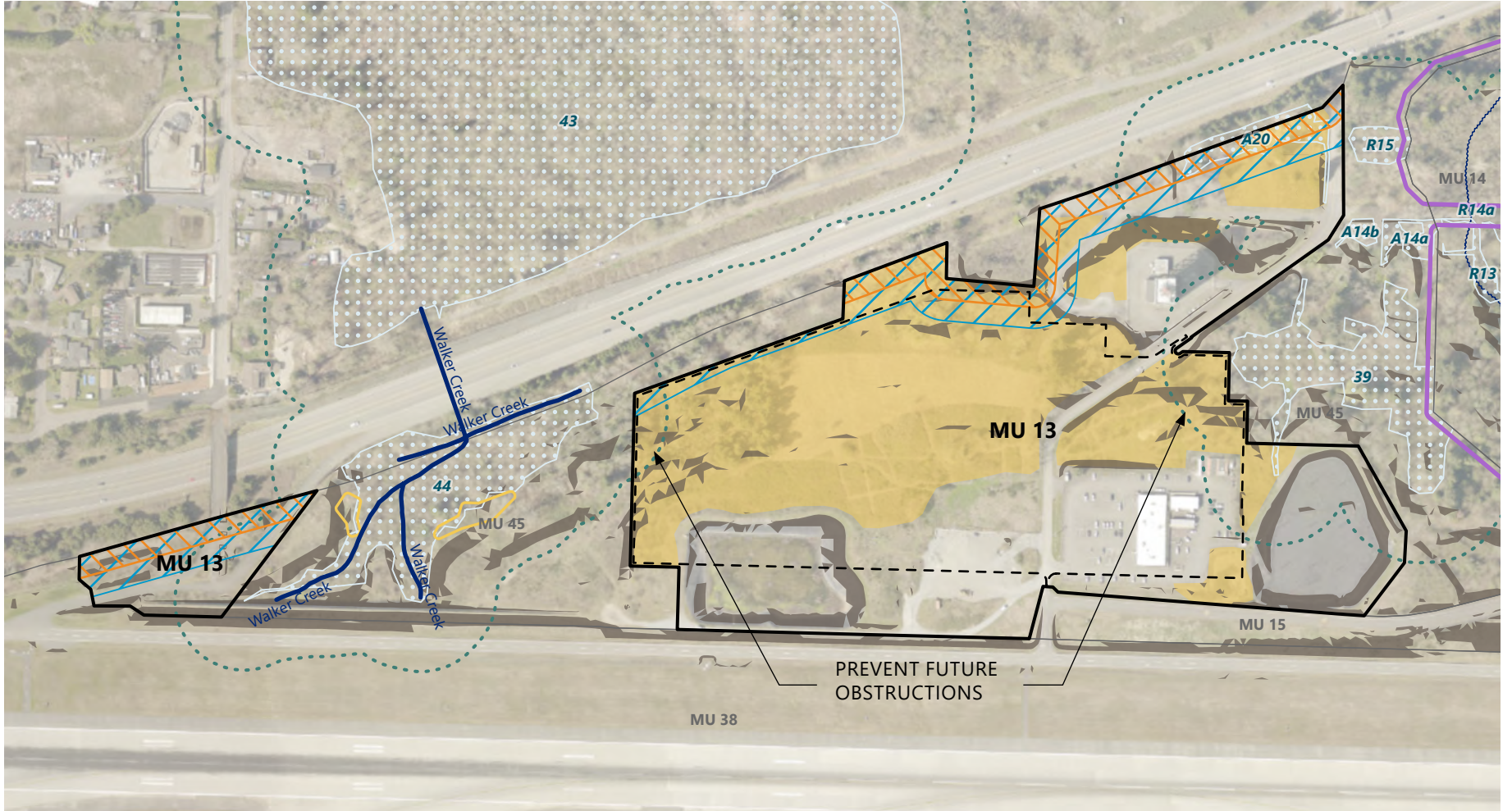
Manage and Prevent Hazards

- Monitor trees and prevent future obstructions

Protect Infrastructure

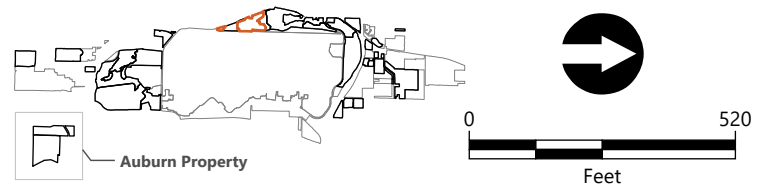
- Remove invasive species
- Minimally replant with hydroseed

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Base Map Legend

- | | | |
|---|----------------|------------------------------|
| LSP Management Unit | Slope > 40% | Stewardship Opportunity Area |
| Public Visual Corridor | Stream | Manage Invasive Species |
| Public Safety - Tree Hazard Management Area | Wetland | |
| Mitigation Restrictive Covenant | Stream Buffer | |
| FCSP Mitigation Site | Wetland Buffer | |
| Public Hazard Area | | |



Site Description

- MU 13 includes the West Side Field Office and surrounding development, including stormwater ponds. Future development will affect this MU.
- MU 13 also includes forested buffers for existing Wetlands 44a and 39.
- A small tributary of Walker Creek flows from the south side of MU 13 into a culvert below SR-509.

FLAT Assessment: Landscape Management Strategy

MU 13 is identified as public safety and maintenance and therefore did not undergo a FLAT assessment.

Site Acreage

34.5 Acres

Land Cover Analysis

- 1.6% Buildings
- 16.8% Impervious
- 2% Dry Grass/Bare
- 21% Forest
- 22.9% Grass
- 24.3% Shrub
- 11.5% Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

LSP Action

Ecological Use: Existing Mitigation

Recommended Site-Based Management Actions

Maintain Existing Mitigation Sites (long term)

- Remove invasive vegetation
- Monitor forest and provide maintenance as needed
- Remove culverts and daylight fish-passable channels
- Protect high-value trees
- Maintain invasive species at maximum 10% cover

Manage and prevent hazards

- Remove ivy from trees to prevent hazards where adjacent to street frontage and residential areas

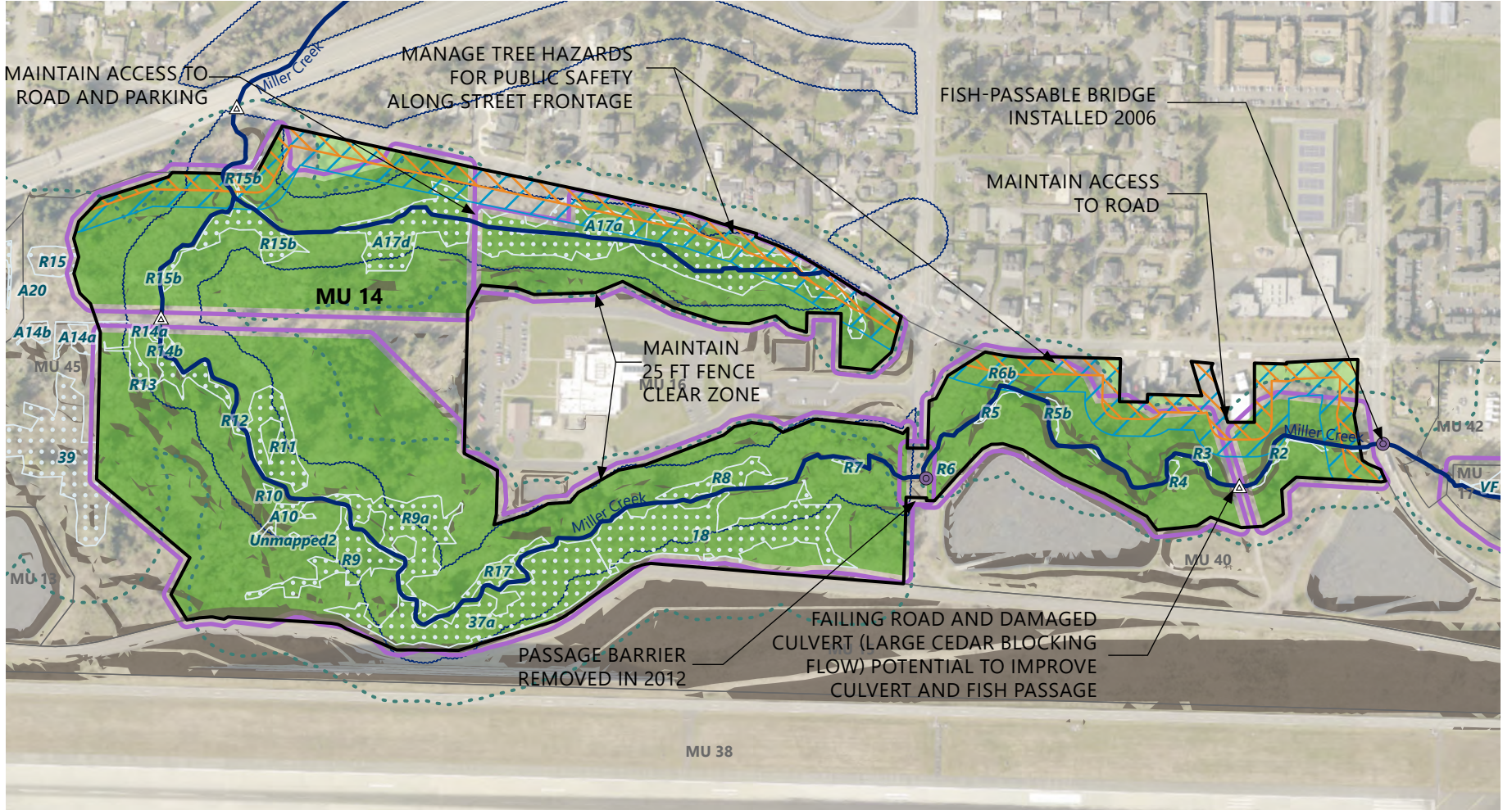
Enhance Habitat

- Install forest and understory planting communities

Habitat Corridor

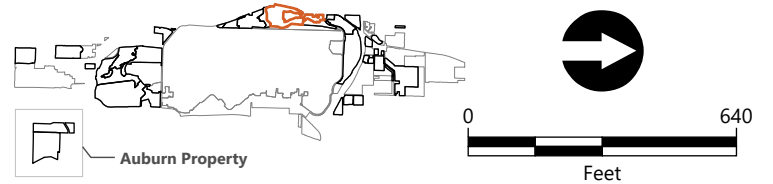
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

- | | | | |
|---|----------------|---|--------------------------|
| LSP Management Unit | Slope > 40% | Stewardship Opportunity Area - Enhance Degraded Habitat | Culverts - Fish Passable |
| Public Visual Corridor | Stream | Stewardship Opportunity Area - Protect Habitat | Culverts - Unknown |
| Public Safety - Tree Hazard Management Area | Wetland | | |
| Mitigation Restrictive Covenant | Stream Buffer | | |
| | Wetland Buffer | | |



Site Description

- The Miller Creek Mitigation Area covers most of the MU. The MU is consequently within a mitigation covenant and not available for development.
- There are areas along Des Moines Memorial Drive that are not within the covenant, including roads and bridges. These areas have less tree canopy cover and more invasive vegetation.
- A fish passage barrier was removed in 2012. Another fish passage culvert in this MU is damaged and a repair has the opportunity to improve habitat connectivity.
- The TRACON campus is not within the MU.
- This site's mitigation permit-required performance monitoring end in 2023. The Port will continue monitoring and maintaining the site to maintain invasive vegetation at maximum 10% cover and to protect high-value trees.
- A high-value tree survey was completed for this MU in 2023 identifying high-value trees and presence/absence of invasive species.

Site Acreage

61.4 Acres

Land Cover Analysis

0%	Buildings
1.3%	Impervious
0.3%	Dry Grass/Bare
77.7%	Forest
2.3%	Grass
18.3%	Shrub
0%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 14 is identified as a mitigation site and therefore did not undergo a FLAT assessment.

LSP Action

Ecological Use: Existing Mitigation

Recommended Site-Based Management Actions

Maintain Existing Mitigation Sites (long term)

- Remove invasive vegetation
- Improve mitigation area performance through focused planting efforts
- Monitor forest and provide maintenance as needed

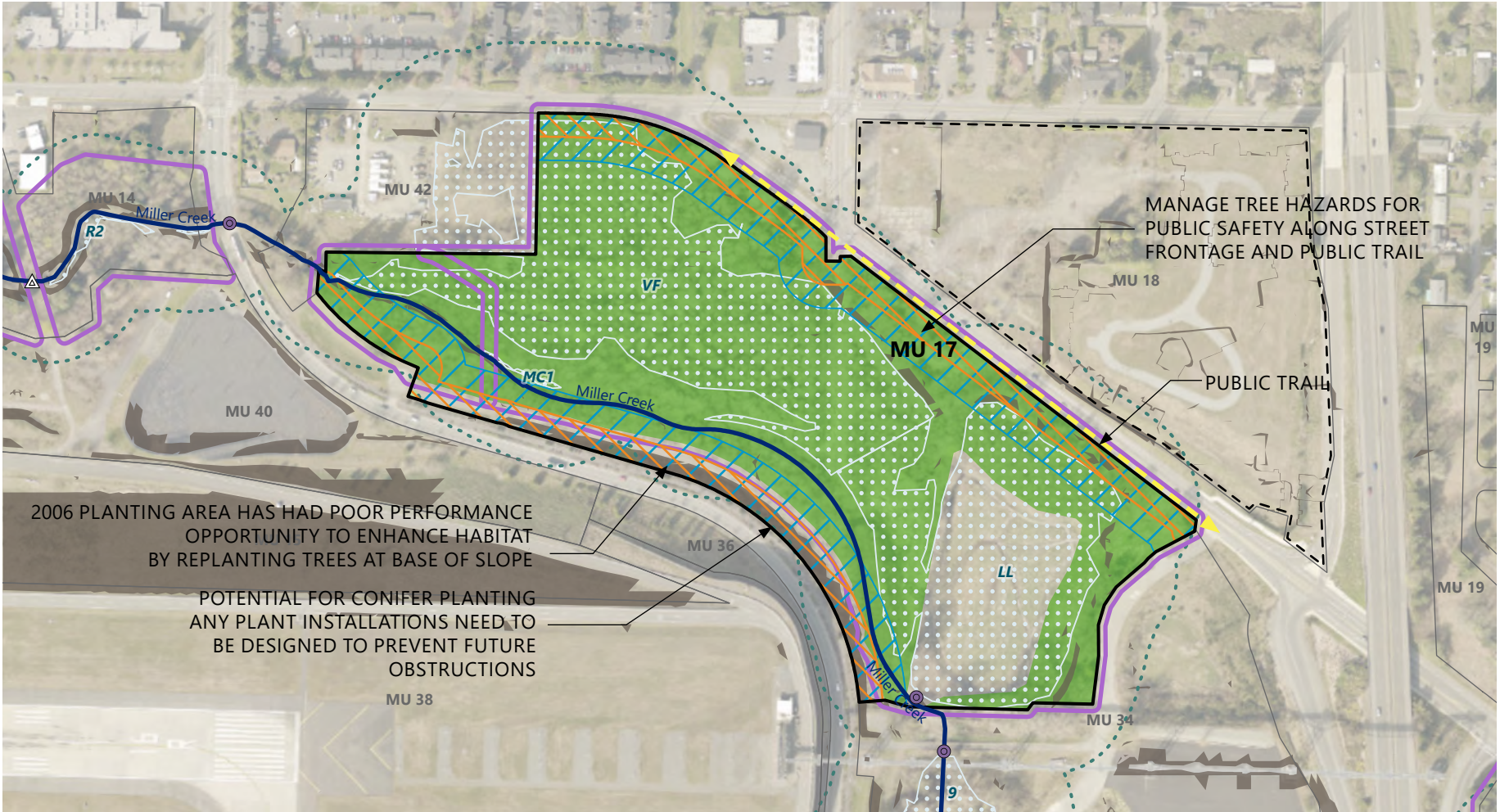
Manage and Prevent Hazards

- Remove ivy from trees to prevent hazards where adjacent to street frontage and public trail

Habitat Corridor

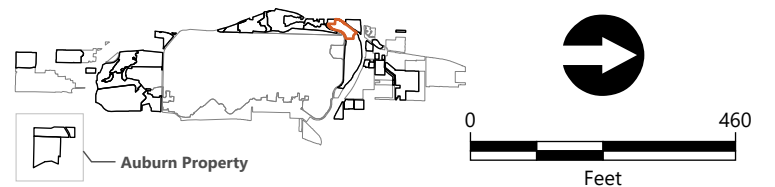
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Stewardship Opportunity Area - Enhance Degraded Habitat	Culverts - Fish Passable
Public Visual Corridor	Stream	Stewardship Opportunity Area - Protect Habitat	Culverts - Unknown
Public Safety - Tree Hazard Management Area	Wetland		
Mitigation Restrictive Covenant	Wetland Buffer		
Public Hazard Area			



Site Description

- The Miller Creek/Vacca Farm/Lora Lake Mitigation Area (Wetland A1) covers most of this MU. The MU is consequently within a mitigation covenant and not available for development.
- There is an access road and fence along the eastern edge of the mitigation area. The access road runs along a berm with limited vegetation.
- MU 17 has opportunities for vegetation enhancement along the east edge.
- There is a public trail that follows South 156th Street and another on Des Moines Memorial Drive (outside of Port Property). The vegetation cover along the public trails and roadway is limited with few trees. Dead trees are present.
- This site's mitigation permit-required performance monitoring end in 2023. The Port will continue monitoring and maintaining the site to maintain invasive vegetation at maximum 10% cover and to protect high-value trees.
- A high-value tree survey was completed for this MU in 2023 identifying high-value trees and presence/absence of invasive species.

Site Acreage

23.7 Acres

Land Cover Analysis

0%	Buildings
2.2%	Impervious
1.6%	Dry Grass/Bare
49%	Forest
6.4%	Grass
31.6%	Shrub
9.2%	Water

Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 17 is identified as a mitigation site and therefore did not undergo a FLAT assessment.

LSP Action

Public Safety and Maintenance

Recommended Site-Based Management Actions

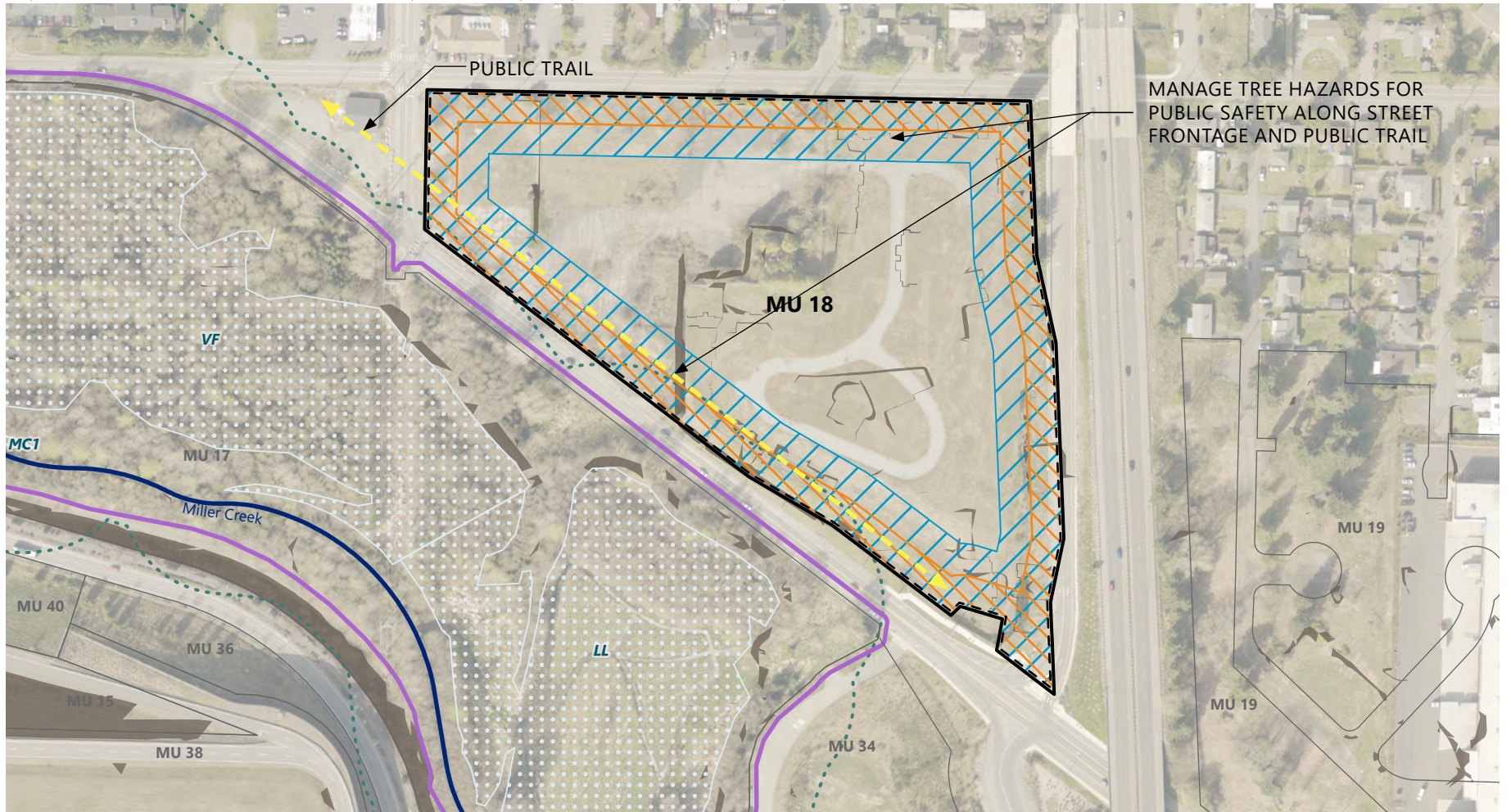
Manage and Prevent Hazards

- Prevent obstructions from establishing
- Prevent hazards, including treefall, along ROWs

Protect Infrastructure

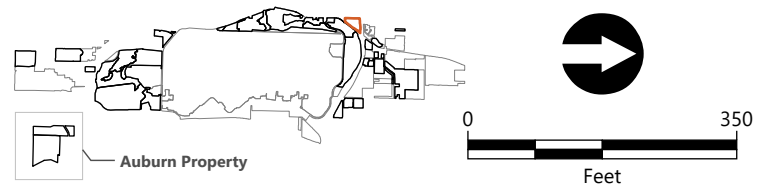
- Remove invasive vegetation
- Minimally replant with hydroseed

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Mitigation Restrictive Covenant
- Public Hazard Area
- Slope > 40%
- Stream
- Wetland
- Wetland Buffer



Site Description

- Airport Properties identify MU 18 as NERA 1, and the MU is a remediation site with special soil disturbance stipulations.
- The MU was formerly developed and has remnant roadway, infrastructure, and foundations.
- Invasive Himalayan blackberry is present on much of the open grass within the MU.

Site Acreage

13.2 Acres

Land Cover Analysis

0%	Buildings
7%	Impervious
71.7%	Dry Grass/Bare
6.2%	Forest
8.4%	Grass
6.8%	Shrub
0%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 18 is identified as public safety and maintenance and therefore did not undergo a FLAT assessment.

LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance Habitat

- Remove invasive vegetation
- Install forest and understory planting communities
- Improve wetland complexity

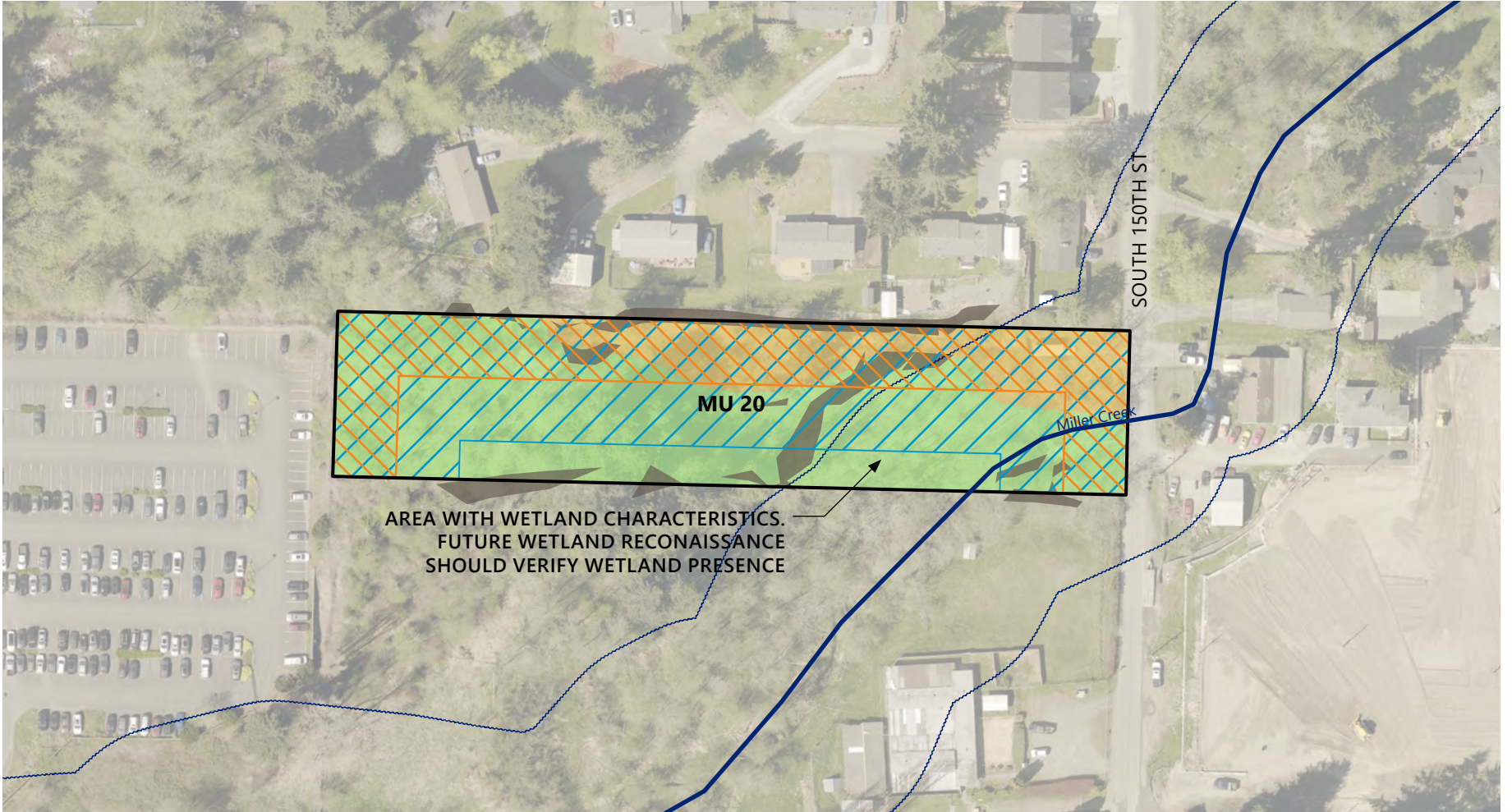
Protect Infrastructure

- Prevent hazards, including treefall, along ROWs, along neighboring houses, and adjacent to cemetery
- Prevent establishment of future obstructions

Habitat Corridor

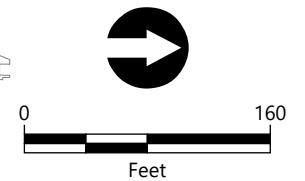
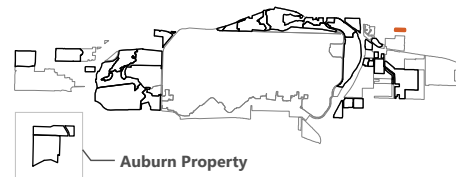
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Slope > 40%
- Stream
- Stream Buffer
- Stewardship Opportunity Area
- Enhance Degraded Habitat
- Manage Invasive Species



Site Description

- MU 20 is located northwest of SEA. It is adjacent to residential properties on the west edge and a pet boarding facility on the east edge of the site.
- The main channel of Miller Creek flows through the northeast corner of MU 20 and its open channel continues southeast of the site.
- There is an area with wetland characteristics located within the Miller Creek stream buffer as indicated on the site plan map.
- Much of this MU is forested with mature native deciduous species including red alder, black cottonwood, bigleaf maples, willows, and sumac. A stand of conifers dominates the center of the site.
- Nonnative tree and shrub species are also present in smaller quantities,

including cherry laurel, cherries, and holly.

- The majority of the understory is comprised of invasive species, primarily Himalayan blackberry, making the site difficult to access.
- Dozens of snags, dead trees, and fallen branches are present through the interior of the site.

Site Acreage

1.9 Acres

Land Cover Analysis

0%	Buildings
0.2%	Impervious
0%	Dry Grass/Bare
82.3%	Forest
3.3%	Grass
14.2%	Shrub
0%	Water

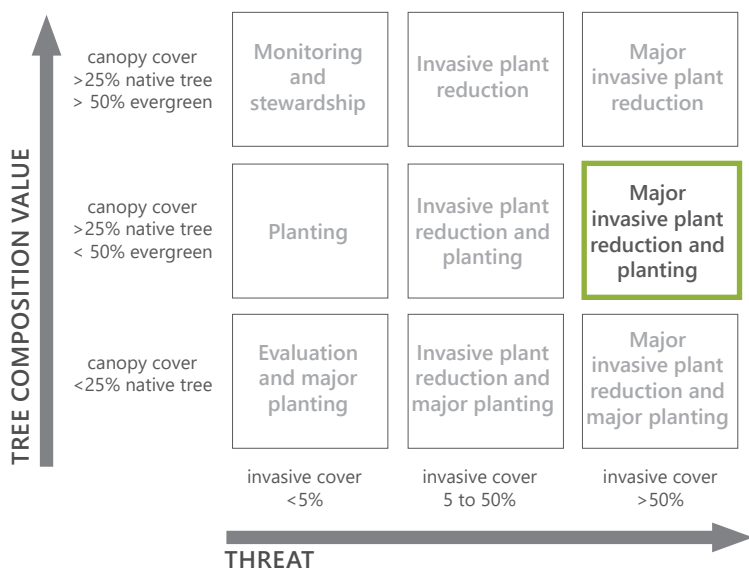
Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance/Expand Habitat

- Install forest and understory planting communities
- Remove invasive vegetation
- Monitor forest and provide maintenance as needed

Connect Habitat

- Connect habitat to adjacent habitat corridors
- Restore stream channel

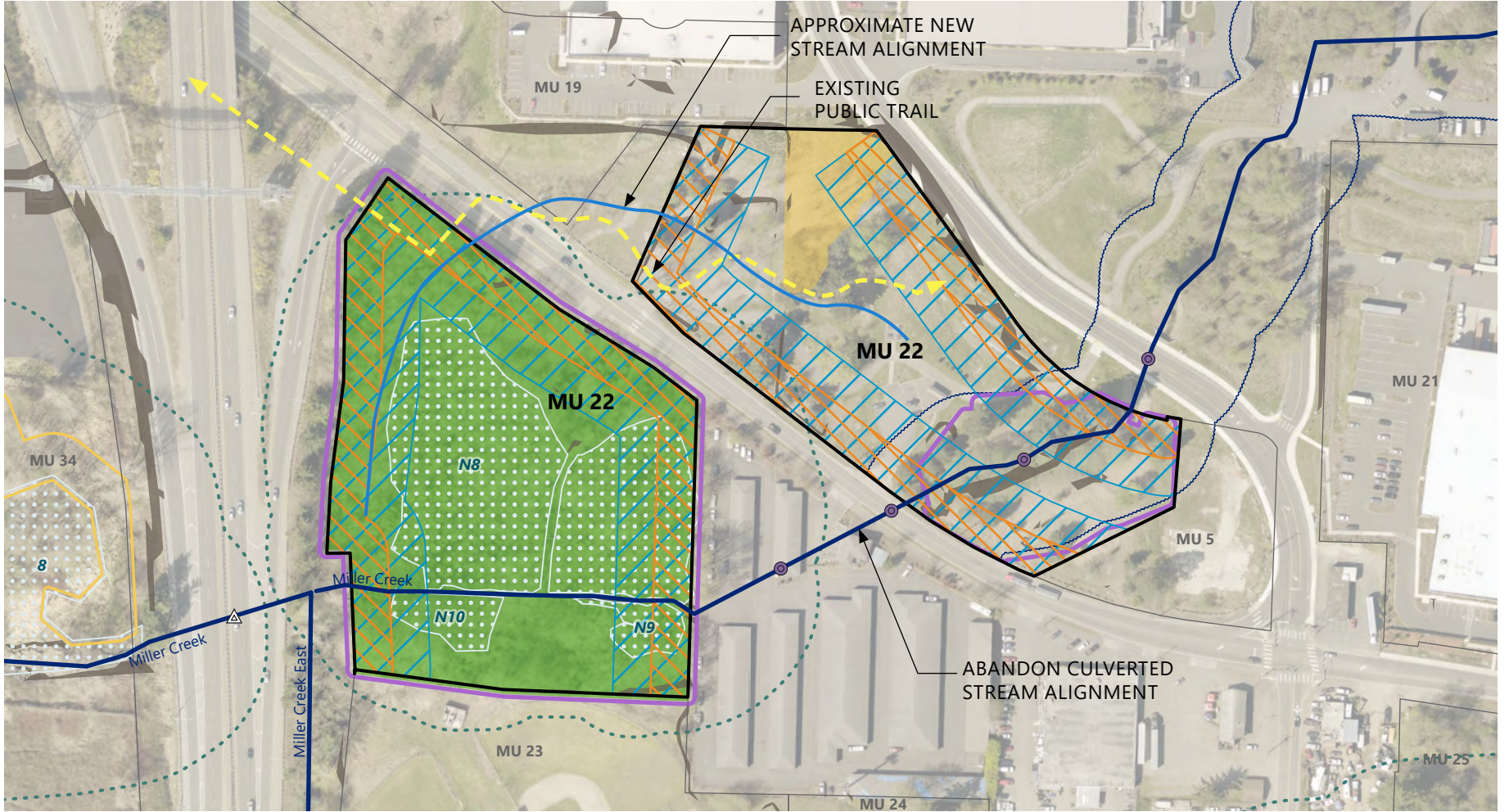
Community Benefits

- Maintain community access along public trail
- Plant along visual corridors

Habitat Corridor

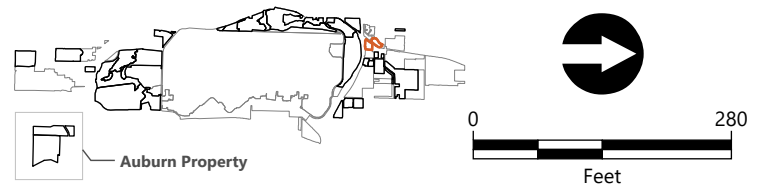
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Stewardship Opportunity Area - Protect Habitat	Culverts - Fish Passable
Public Visual Corridor	Stream	Stewardship Opportunity Area - Manage Invasive Species	Culverts - Unknown
Public Safety - Tree Hazard Management Area	Wetland		
Mitigation Restrictive Covenant	Stream Buffer		
FCSP Mitigation Site	Wetland Buffer		



Site Description

- The Des Moines Nursery Mitigation Area (Wetland N8) covers much of this MU. The MU is consequently within a mitigation covenant and not available for development.
- The MU is entirely forested with exception of a portion along its western edge and along Des Moines Memorial Drive South, where there is an open area dominated by invasive Himalayan blackberry and Scot's broom.
- A tributary of Miller Creek flows through MU 22 in culverts. The culverted portion of the stream has been abandoned and a new channel has been established in a recent stream restoration project.

Site Acreage

10.7 Acres

Land Cover Analysis

0%	Buildings
4.3%	Impervious
1.6%	Dry Grass/Bare
31.3%	Forest
20.8%	Grass
42.1%	Shrub
0%	Water

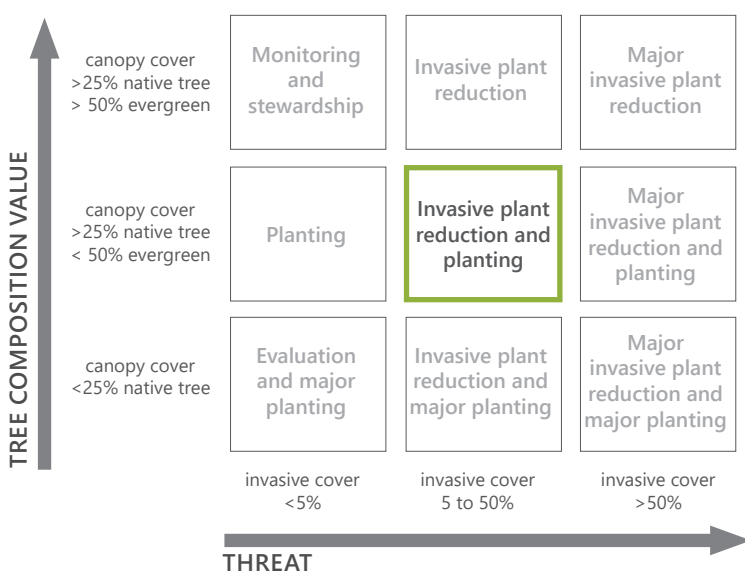
Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Ecological Use: Potential Mitigation

Recommended Site-Based Management Actions

Identify Mitigation Opportunities

- Establish advanced mitigation sites

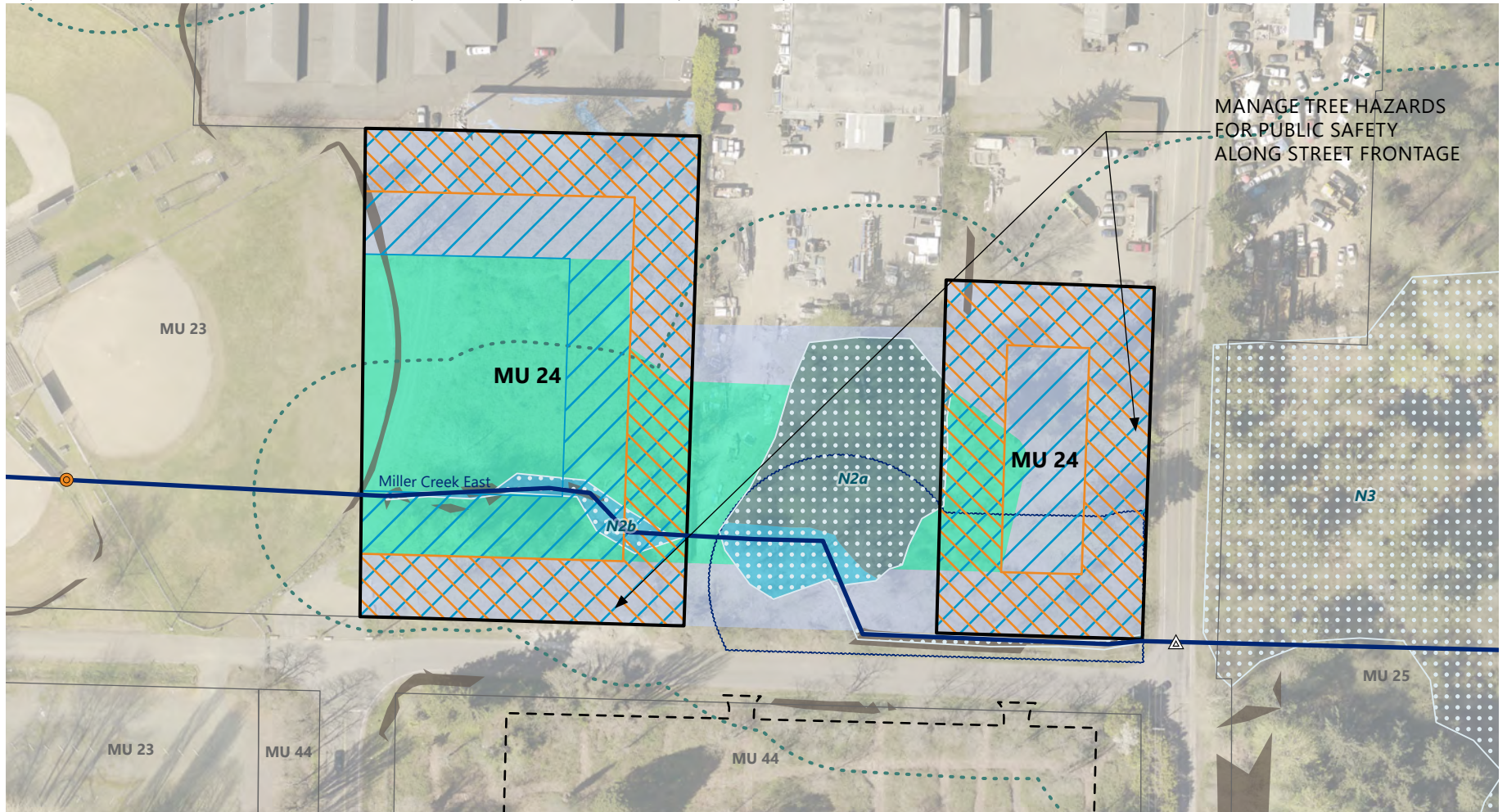
Manage and Prevent Hazards

- Prevent hazards, including treefall, along ROWs

Habitat Corridor

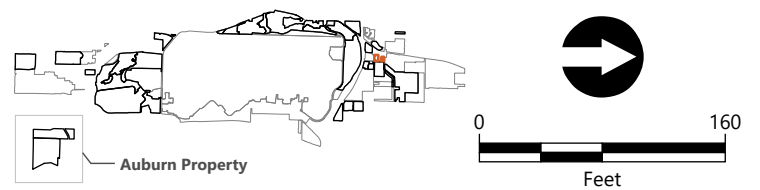
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Enhance Wetland Buffer	Full Fish Barrier
Public Visual Corridor	Stream	Enhance Wetland	Unknown
Public Safety - Tree Hazard Management Area	Wetland	Preserve Wetland	
Public Hazard Area	Stream Buffer	Re-Establish Wetland	
	Wetland Buffer		



Site Description

- MU 24 is in the city of SeaTac and consists of two Port-owned parcels, a portions of which are proposed for mitigation. Mitigation would require property acquisition.
- Miller Creek flows through MU 24 until it enters a wetland on site.
- Wetlands N2a and Wetland N2b are located in the MU.
- Invasive species exist in the wetland buffers.

FLAT Assessment: Landscape Management Strategy

MU 24 is addressed in further detail in the *Mitigation Site Opportunity Assessment* and therefore did not receive a FLAT assessment.

Site Acreage

3.4 Acres

Land Cover Analysis

0.1%	Buildings
1.2%	Impervious
1.6%	Dry Grass/Bare
50.2%	Forest
17.4%	Grass
29.6%	Shrub
0%	Water

Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

LSP Action

Ecological Use: Potential Mitigation

Recommended Site-Based Management Actions

Identify Mitigation Opportunities

- Establish advanced mitigation sites

Enhance Habitat

- Remove invasive vegetation
- Install forest and understory planting

Community Benefits

- Maintain community planting area
- Plant along visual corridors

Habitat Corridor

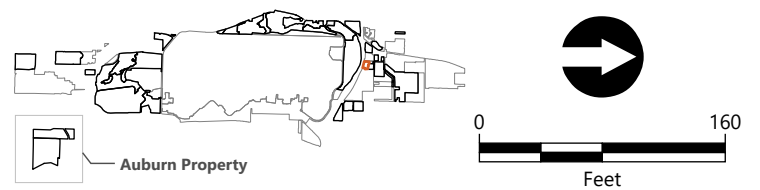
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

- | | | |
|---|----------------|------------------------------|
| LSP Management Unit | Slope > 40% | Stewardship Opportunity Area |
| Public Visual Corridor | Wetland | Enhance Degraded Habitat |
| Public Safety - Tree Hazard Management Area | Wetland Buffer | Enhance Wetland Buffer |
| Community Planting Area | | Enhance Wetland |
| Public Hazard Area | | Preserve Wetland |



Site Description

- MU 26 is primarily zoned as Aviation Operations.
- Wetlands 1 and 2 are within the site and have limited native vegetation.
- Invasive species in the wetlands include Himalayan blackberry.
- Miller Creek East and a gravel maintenance road for the runway lift safety tower run adjacent to the MU.
- A community planting event occurred on this MU.

Site Acreage

3.5 Acres

Land Cover Analysis

0%	Buildings
0%	Impervious
0.2%	Dry Grass/Bare
65%	Forest
7.6%	Grass
27.2%	Shrub
0%	Water

Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 26 is addressed in further detail in the *Mitigation Site Opportunity Assessment* and therefore did not receive a FLAT assessment.

LSP Action

Public Safety and Maintenance

Recommended Site-Based Management Actions

Manage and Prevent Hazards

- Prevent future obstructions

Protect Infrastructure

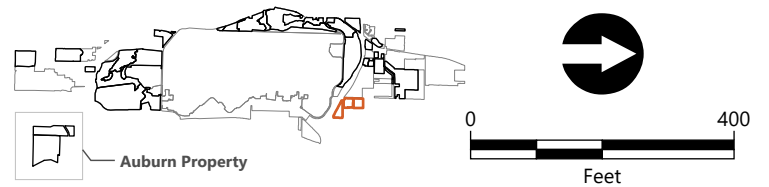
- Manage invasive vegetation
- Minimally replant with hydroseed

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Base Map Legend

- LSP Management Unit
- ▨ Public Visual Corridor
- ▨ Public Safety - Tree Hazard Management Area
- ▨ Public Hazard Area
- Slope > 40%



Site Description

- Airport Properties identify MU 33 as the L-Shape Parcel, and it is currently available for development.
- MU 33 contains a mix of forest, shrub, and grass land cover. Invasive species including Himalayan blackberry and Scot's broom are found throughout the site, but are partially managed through mowing.

FLAT Assessment: Landscape Management Strategy

MU 33 is identified as public safety and maintenance and therefore did not undergo a FLAT assessment.

Site Acreage

26.2 Acres

Land Cover Analysis

0%	Buildings
3.2%	Impervious
3%	Dry Grass/Bare
46.8%	Forest
35.4%	Grass
11.5%	Shrub
0%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance/Expand Habitat

- Remove invasive vegetation
- Install forest and understory planting communities
- Actively maintain non-stream and stream culverts. Remove culvert and daylight fish-passable channels.

Connect Habitat

- Connect habitat to adjacent habitat corridors
- Increase understory planting along roadways

Maintain Existing Mitigation Sites (long term)

- Manage FCSP enhanced sites

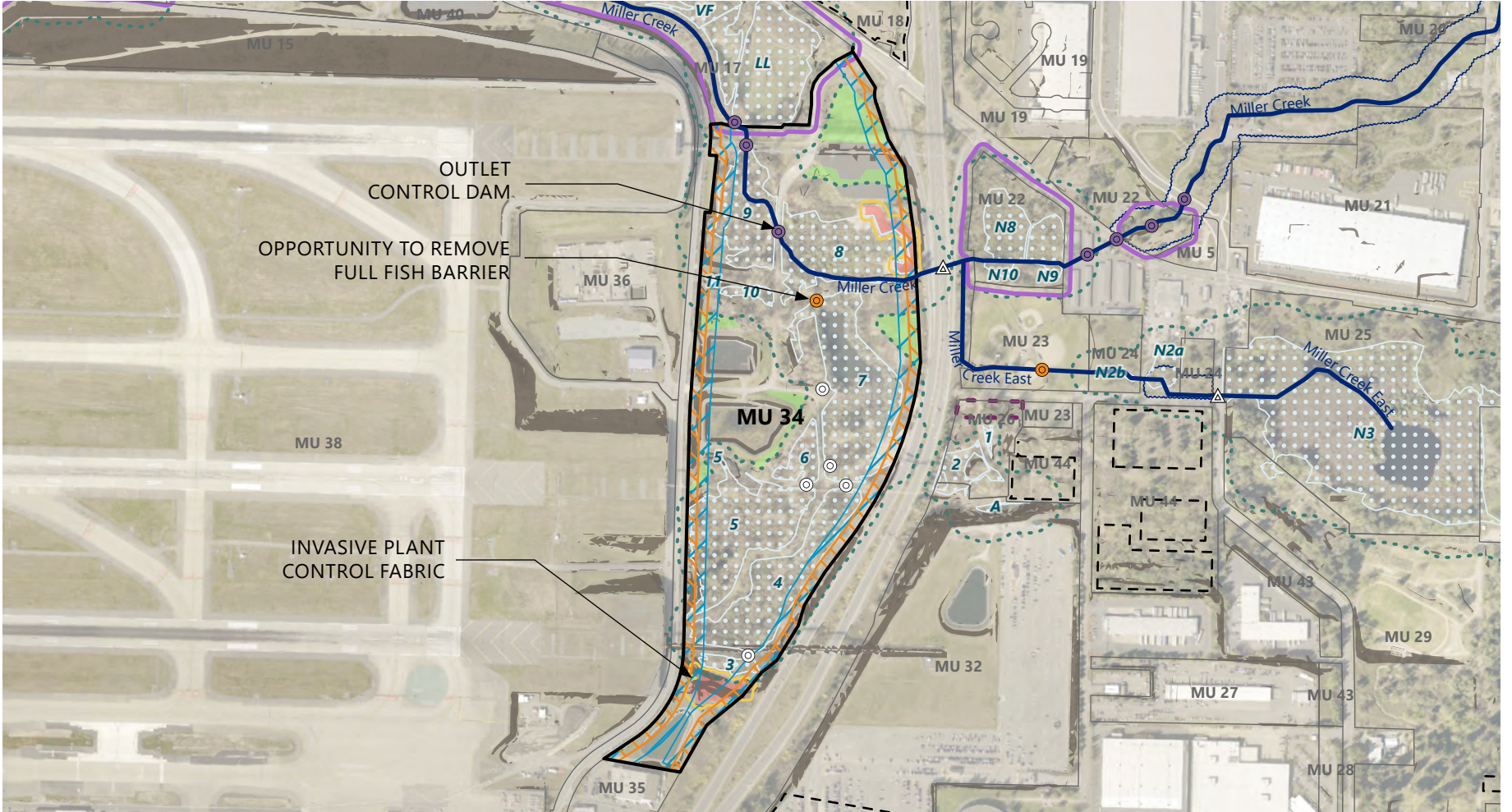
Community Benefits

- Plant along visual corridors

Habitat Corridor

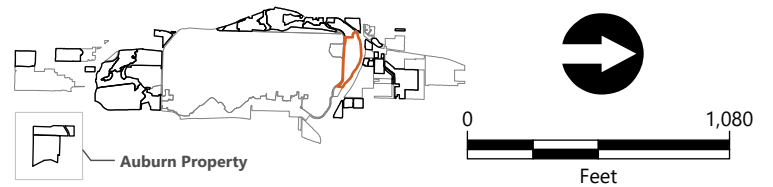
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Mitigation Restrictive Covenant
- FCSP Mitigation Site
- Community Planting Area
- Public Hazard Area
- Slope > 40%
- Stream
- Wetland
- Stream Buffer
- Wetland Buffer
- Stewardship Opportunity Area
 - Enhance Degraded Habitat
 - Conduct Long-Term Mitigation Action
- Culverts
 - Fish Passable
 - Full Fish Barrier
 - N/A
 - Unknown



Site Description

- MU 34 is immediately north of the AOA and the third runway embankment.
- Miller Creek runs through the western portion of MU 34, and most of the MU is covered with wetlands (Wetlands 3, 4, 5, 6, 7, 8, 9, and 10) and their associated buffers. Much of the area outside of wetlands and wetland buffers is utilized as stormwater infiltration ponds.
- There are areas within the wetland buffers and adjacent to stormwater infiltration ponds that are dominated by invasive species, such as Himalayan blackberry and Scot's broom.
- Invasive species are present along roadways.
- An FCSP mitigation planting area (Site P-1) is within the Wetland 8 buffer.
- MU managed as King County RDF.

Site Acreage

64.7 Acres

Land Cover Analysis

0.5%	Buildings
10.2%	Impervious
3.8%	Dry Grass/Bare
38.7%	Forest
12.6%	Grass
25.9%	Shrub
8.3%	Water

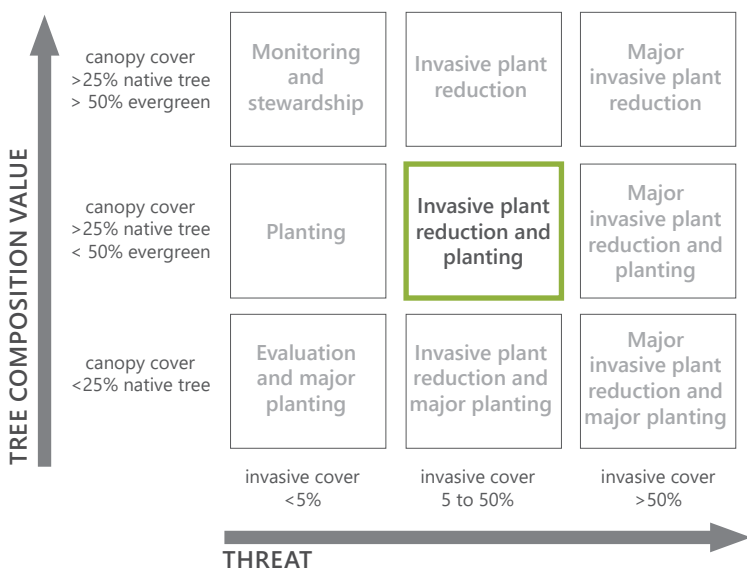
Morning Heat Index Results:

High Heat Index (average exceeds 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance/Expand Habitat

- Remove invasive vegetation
- Increase forest cover through planting; when forest cover is not feasible, increase shrub cover
- Improve forest structural complexity

Connect Habitat

- Connect habitat to adjacent corridors

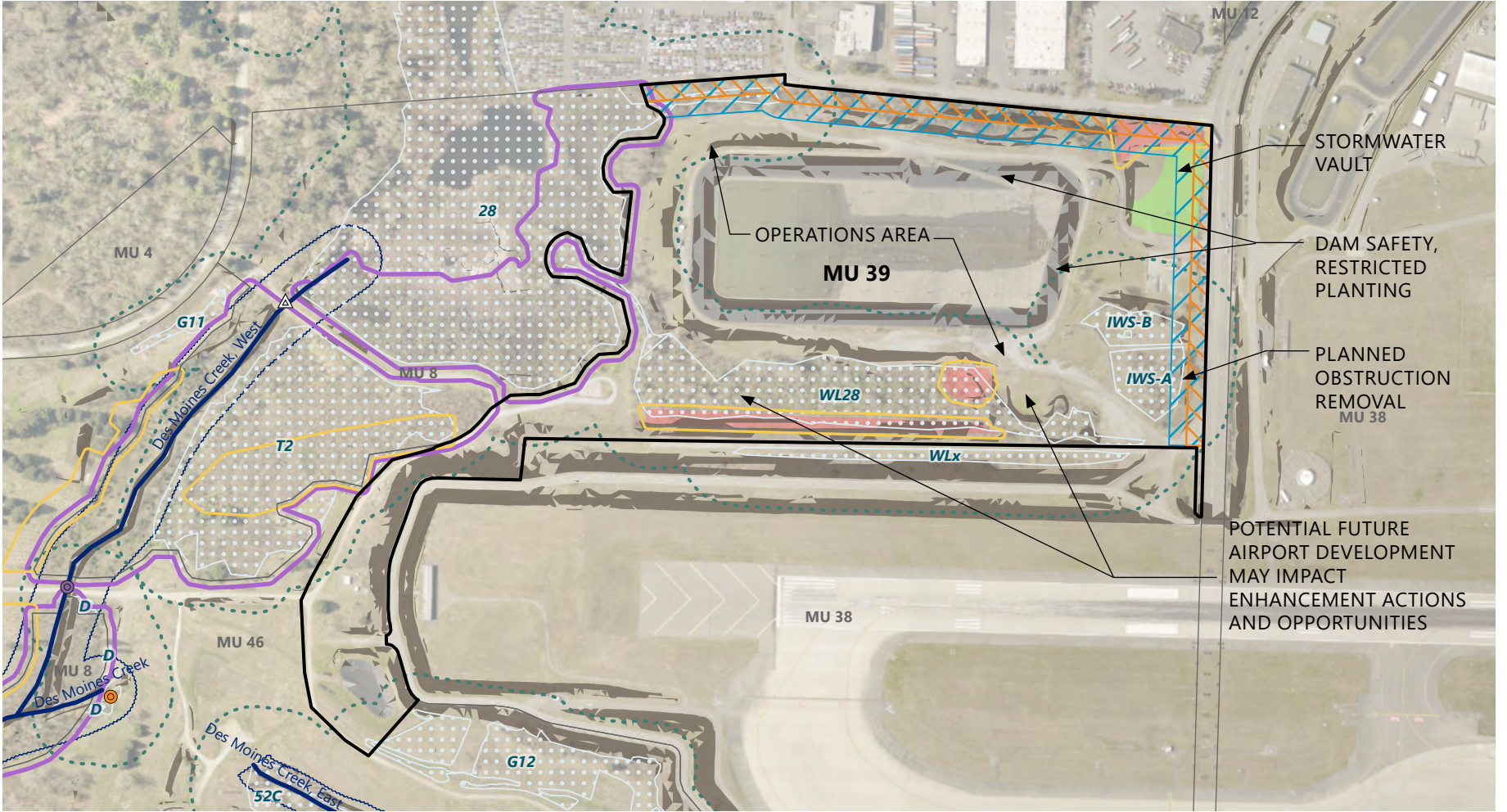
Protect Infrastructure

- Protect operational areas
- Remove obstructions
- Prevent future obstructions
- Maintain FCSP plantings

Habitat Corridor

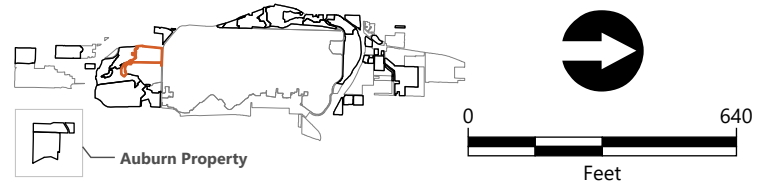
- Improve habitat within Des Moines Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Stewardship Opportunity Area	Culverts
Public Visual Corridor	Stream	Enhance Degraded Habitat	Fish Passable
Public Safety - Tree Hazard Management Area	Wetland	Conduct Long-Term Mitigation Action	Full Fish Barrier
Mitigation Restrictive Covenant	Stream Buffer		Unknown
FCSP Mitigation Site	Wetland Buffer		



Site Description

- MU 39 includes IWS Lagoon 3, a large stormwater pond. Wetland 28 surrounds much of the pond, adjacent to a tributary of Des Moines Creek. The north end is slated for operational support infrastructure.
- An FCSP mitigation planting area is located along South 188th Street, on the northwestern corner of the MU and east of the pond near the AOA boundary.
- MU 39 is subject to vegetation height restrictions within the RSA and RPZ.
- Much of the land cover adjacent to the pond is grass, with some limited shrub and forest land cover. Invasive vegetation including Himalayan blackberry and Scot's broom is prevalent.
- No planting can occur near the lagoon due to dam safety requirements.

Site Acreage

46.3 Acres

Land Cover Analysis

0.2%	Buildings
11.6%	Impervious
3.1%	Dry Grass/Bare
23.7%	Forest
21.7%	Grass
12.9%	Shrub
26.8%	Water

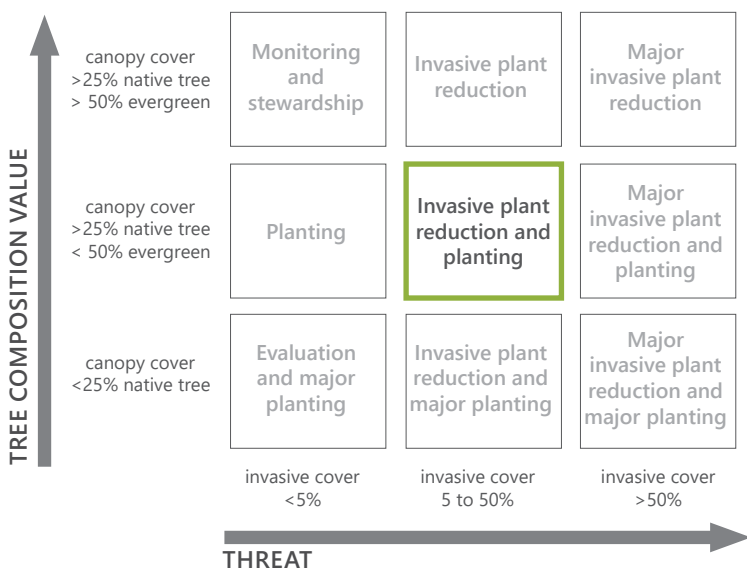
Morning Heat Index Results:

High Heat Index (average exceeds 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance/Expand Habitat

- Remove invasive vegetation
- Increase forest cover through planting; when forest cover is not feasible, increase shrub cover

Connect Habitat

- Connect habitat to adjacent habitat corridors

Protect Infrastructure

- Repair culverts and maintain roads

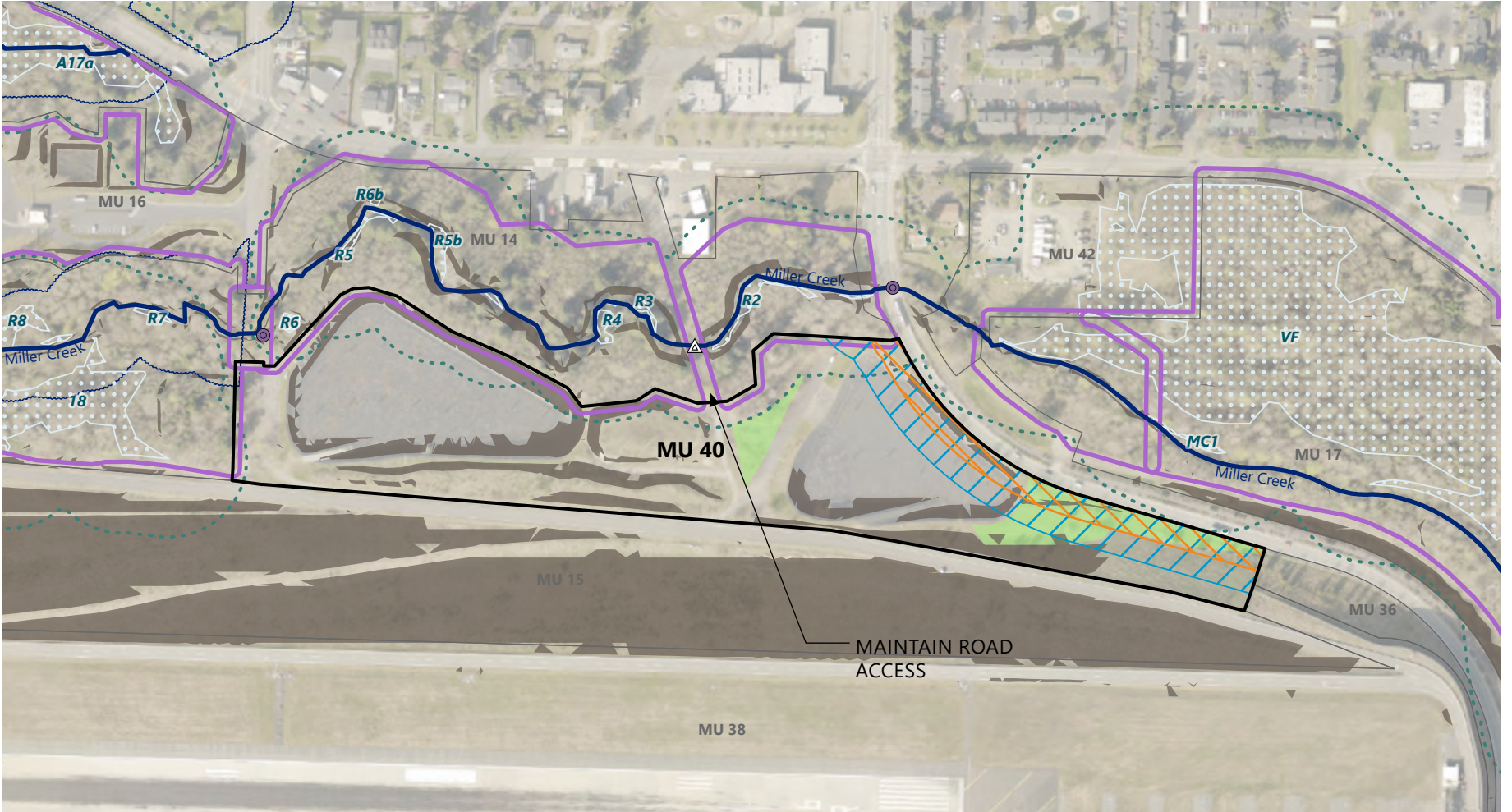
Community Benefits

- Plant along visual corridors

Habitat Corridor

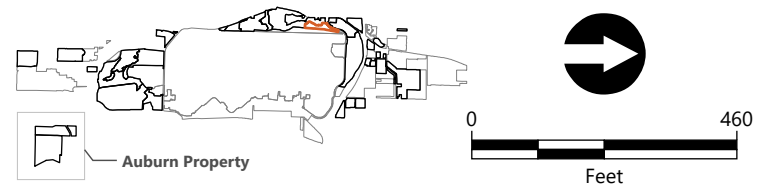
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Mitigation Restrictive Covenant
- Slope > 40%
- Stream
- Wetland
- Stream Buffer
- Wetland Buffer
- Stewardship Opportunity Area
- Enhance Degraded Habitat
- Culverts
- Fish Passable
- Unknown



Site Description

- MU 40 is at the base of the third runway embankment, and most of it is a stormwater pond. There are no plans for development in this MU.
- North of the pond and between the embankment and South 156th Way, there is a area dominated by grass and invasive vegetation including Scot's broom.
- The western edge of MU 40 is within the habitat corridor for Miller Creek.

Site Acreage

14.1 Acres

Land Cover Analysis

0%	Buildings
11%	Impervious
4.3%	Dry Grass/Bare
6.5%	Forest
25.3%	Grass
14%	Shrub
38.9%	Water

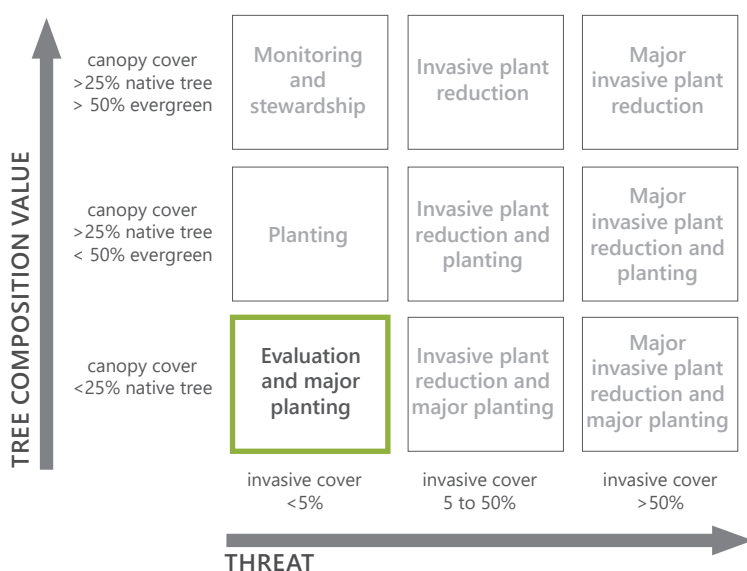
Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Ecological Use: Potential Mitigation

Recommended Site-Based Management Actions

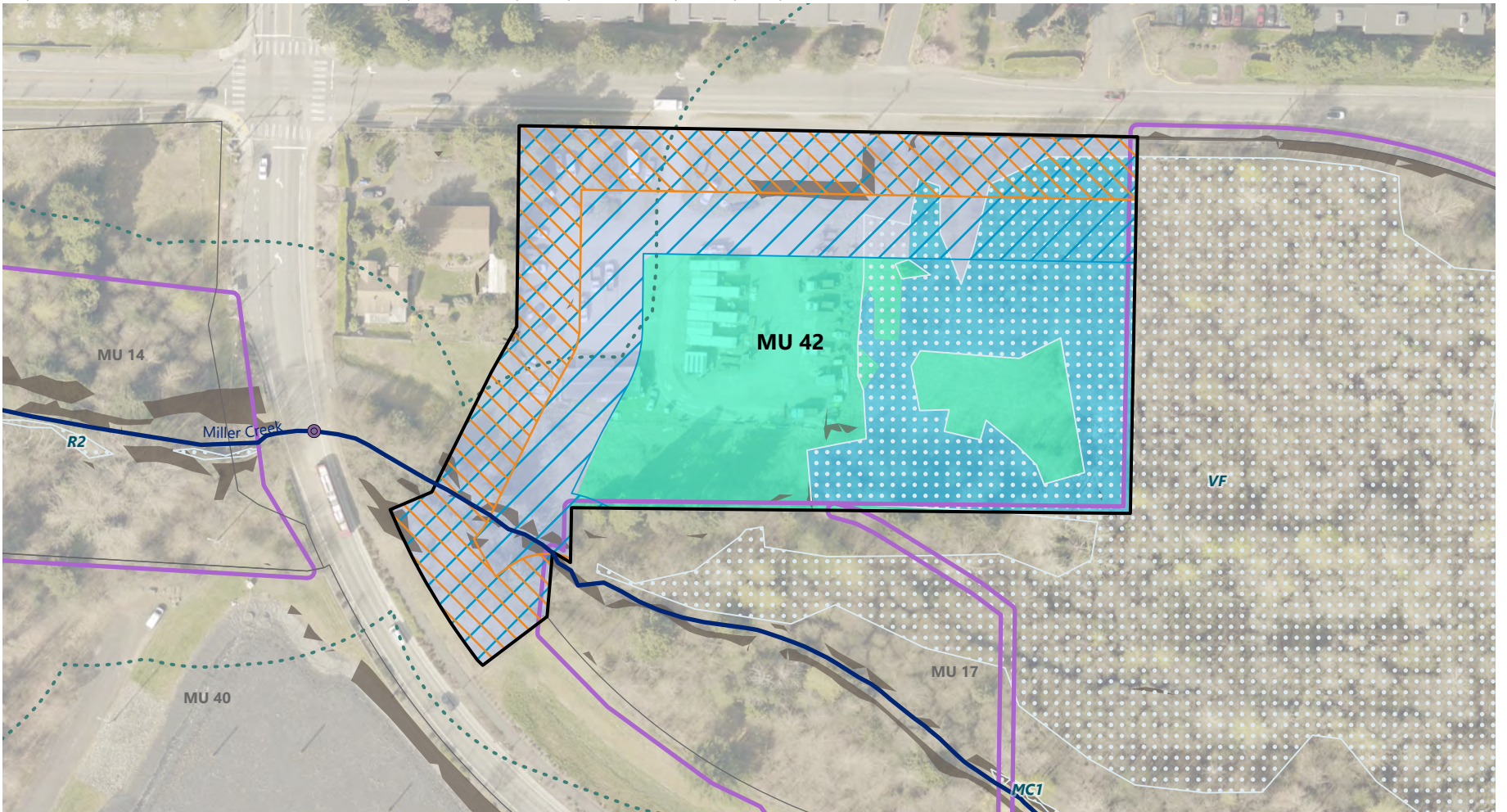
Identify Mitigation Opportunities

- Establish advanced mitigation sites

Habitat Corridor

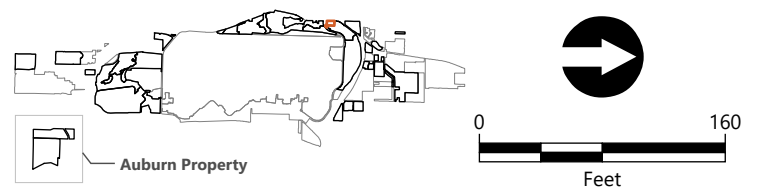
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Stewardship Opportunity Area: Enhance Wetland Buffer	Culverts: Fish Passable
Public Visual Corridor	Stream	Stewardship Opportunity Area: Enhance Wetland	
Public Safety - Tree Hazard Management Area	Wetland	Stewardship Opportunity Area: Re-Establish Wetland	
Mitigation Restrictive Covenant	Wetland Buffer		



Site Description

- MU 42 is primarily zoned as Community Business, with a portion as Aviation Commercial.
- Miller Creek flows through the site.
- The Miller Creek Mitigation Area, which includes Wetland A1 with an associated restrictive covenant, is adjacent to and likely shares a surface water connection with the MU.
- A portion of the wetland and its buffer is heavily impacted by invasive species. The buffer is also impacted by development.

FLAT Assessment: Landscape Management Strategy

MU 42 is addressed in further detail in the *Mitigation Site Opportunity Assessment* and therefore did not receive a FLAT assessment.

Site Acreage

3.8 Acres

Land Cover Analysis

5.8%	Buildings
19.7%	Impervious
5.2%	Dry Grass/Bare
16.8%	Forest
33.2%	Grass
19.5%	Shrub
0%	Water

Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Very Low

LSP Action

Ecological Use: Habitat Enhancement

Recommended Site-Based Management Actions

Enhance Habitat

- Remove invasive vegetation
- Install forest and understory planting communities
- Improve forest structural complexity

Protect Infrastructure

- Prevent hazards, including treefall, along ROWs

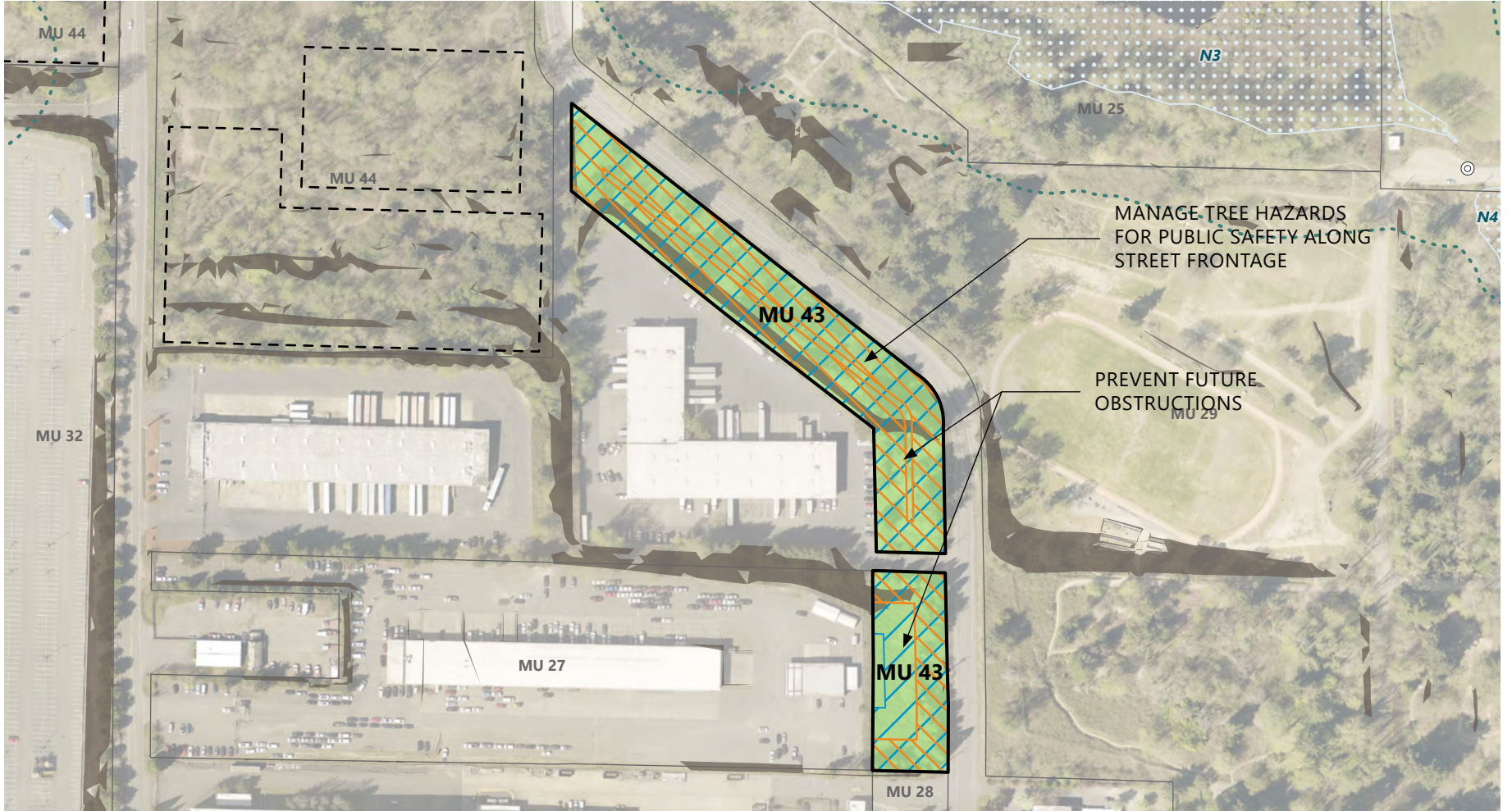
Community Benefits

- Plant along visual corridors

Habitat Corridor

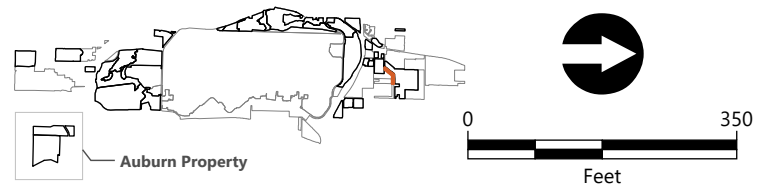
- Improve habitat within Miller Creek habitat corridor

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Base Map Legend

- LSP Management Unit
- Public Visual Corridor
- Public Safety - Tree Hazard Management Area
- Public Hazard Area
- Slope > 40%
- Wetland
- Wetland Buffer
- Stewardship Opportunity Area
- Enhance Degraded Habitat
- Culverts
- N/A



Site Description

- Airport Properties identify MU 43 as Port-owned property that is not leased and not available for development. The eastern section of MU 43 is adjacent to the Boeing Company lease area.
- The forest canopy is mixed with mature deciduous and coniferous trees, predominantly Douglas fir.
- Much of MU 43 understory, in particular the areas adjacent to South 142nd Street, are dominated by invasive Himalayan blackberry.
- Existing trees have not been currently identified for FCSP action, but this site should be monitored and managed for future obstructions. A maximum vegetation height analysis is needed to better understand planting potential.

Site Acreage

3.2 Acres

Land Cover Analysis

0%	Buildings
2.2%	Impervious
0.6%	Dry Grass/Bare
57.8%	Forest
7.4%	Grass
32%	Shrub
0%	Water

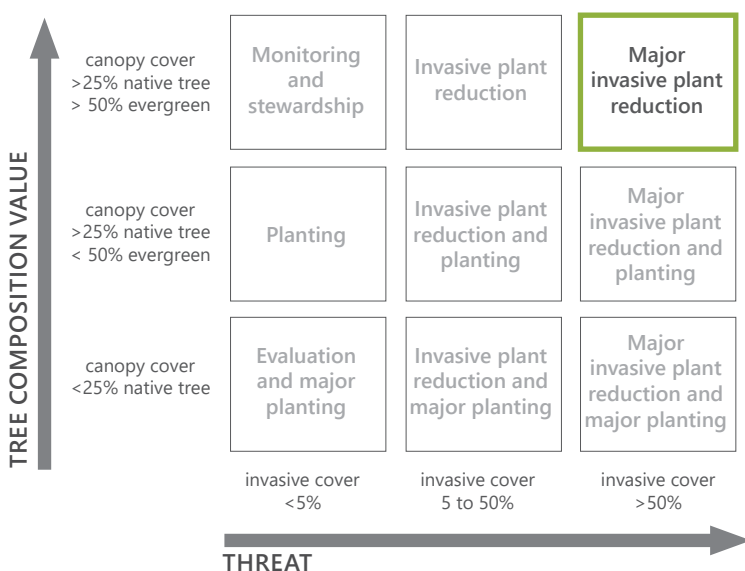
Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Low

FLAT Assessment: Landscape Management Strategy

Adapted from Green Seattle Partnership (Ciecko et al. 2016)



LSP Action

Public Safety and Maintenance

Recommended Site-Based Management Actions

Manage and Prevent Hazards

- Manage tree hazards
- Prevent future obstructions

Protect Infrastructure

- Remove invasive vegetation
- Minimally replant with hydroseed

Community Benefits

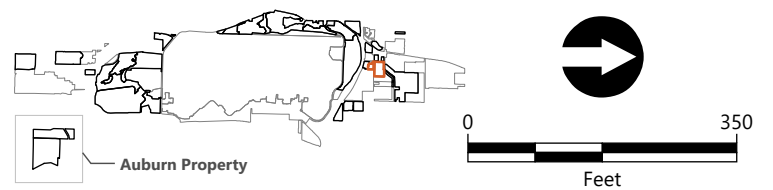
- This MU is adjacent to public open space and is highly visible. Plant along visual corridors

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Base Map Legend

- | | | | |
|---|----------------|------------------------------|----------|
| LSP Management Unit | Slope > 40% | Stewardship Opportunity Area | Culverts |
| Public Visual Corridor | Stream | Manage Invasive Species | Unknown |
| Public Safety - Tree Hazard Management Area | Wetland | | |
| Community Planting Area | Stream Buffer | | |
| Public Hazard Area | Wetland Buffer | | |



Site Description

- Airport Properties identify MU as the 13-Acre Parcel. MU 44 also includes the property just south of the 13-Acre Parcel.
- This MU will be affected by future development.
- Much of the MU is forest and shrub land cover, most of which is dominated by invasive species including Himalayan blackberry.

FLAT Assessment: Landscape Management Strategy

MU 44 is identified as public safety and maintenance and therefore did not undergo a FLAT assessment.

Site Acreage

16.5 Acres

Land Cover Analysis

- | | |
|-------|----------------|
| 0% | Buildings |
| 1.2% | Impervious |
| 0.2% | Dry Grass/Bare |
| 61.3% | Forest |
| 23.7% | Grass |
| 13.6% | Shrub |
| 0% | Water |

Morning Heat Index Results:

Low Heat Index (average is below 60.4 degrees F)

Equity Score: Low

LSP Action

Ecological Use: Potential Mitigation

Recommended Site-Based Management Actions

Identify Mitigation Opportunities

- Establish mitigation sites

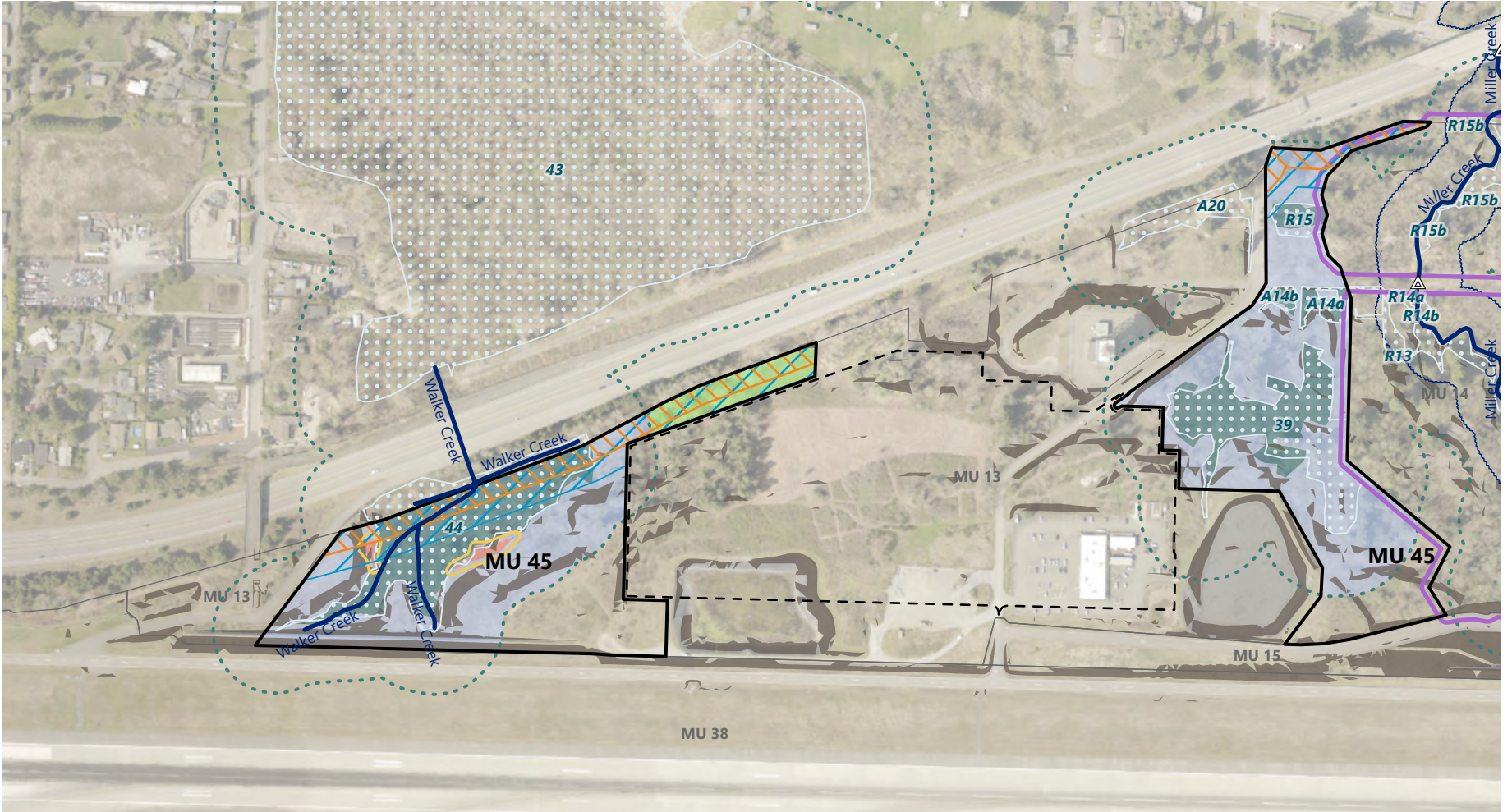
Conduct Long-Term Mitigation Action

- Manage FCSP mitigation sites

Habitat Corridor

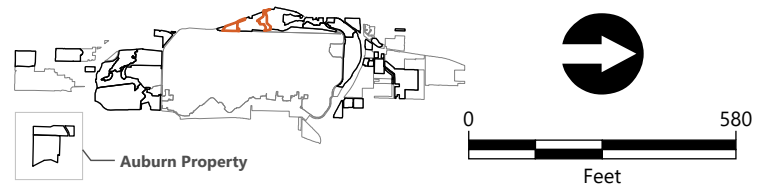
- Improve habitat within Walker Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Stewardship Opportunity Area	Culverts
Public Visual Corridor	Stream	Enhance Degraded Habitat	Unknown
Public Safety - Tree Hazard Management Area	Wetland	Enhance Wetland Buffer	
Mitigation Restrictive Covenant	Stream Buffer	Preserve Wetland	
FCSP Mitigation Site	Wetland Buffer	Conduct Long-Term Mitigation Action	
Public Hazard Area			



Site Description

- North of this MU is a large mitigation site with a restrictive covenant offsetting impacts from the third runway and a city ROW.
- The MU is zoned as Open Space and has historically been used for agricultural purposes.
- The site is large and has three wetland areas. Wetland A is dominated by reed canary grass and seasonally ponded. Wetlands B and C are undergoing jurisdictional determination as wetlands.
- Wetland B is an artificial stormwater ditch dominated by mature cottonwood and Wetland C is a three-wetland complex dominated by reed canary grass with some cottonwood. A ditch likely connects Wetlands B and C and there is groundwater below the site.
- Wetlands and their buffers restrict development, and therefore this MU has limited opportunity for development.

Site Acreage

19.7 Acres

Land Cover Analysis

0%	Buildings
2.5%	Impervious
1.3%	Dry Grass/Bare
61.2%	Forest
9.9%	Grass
25.1%	Shrub
0%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 45 is addressed in further detail in the *Mitigation Site Opportunity Assessment* and therefore did not receive a FLAT assessment.

LSP Action

Ecological Use: Potential Mitigation

Recommended Site-Based Management Actions

Identify Mitigation Opportunities

- Establish mitigation sites

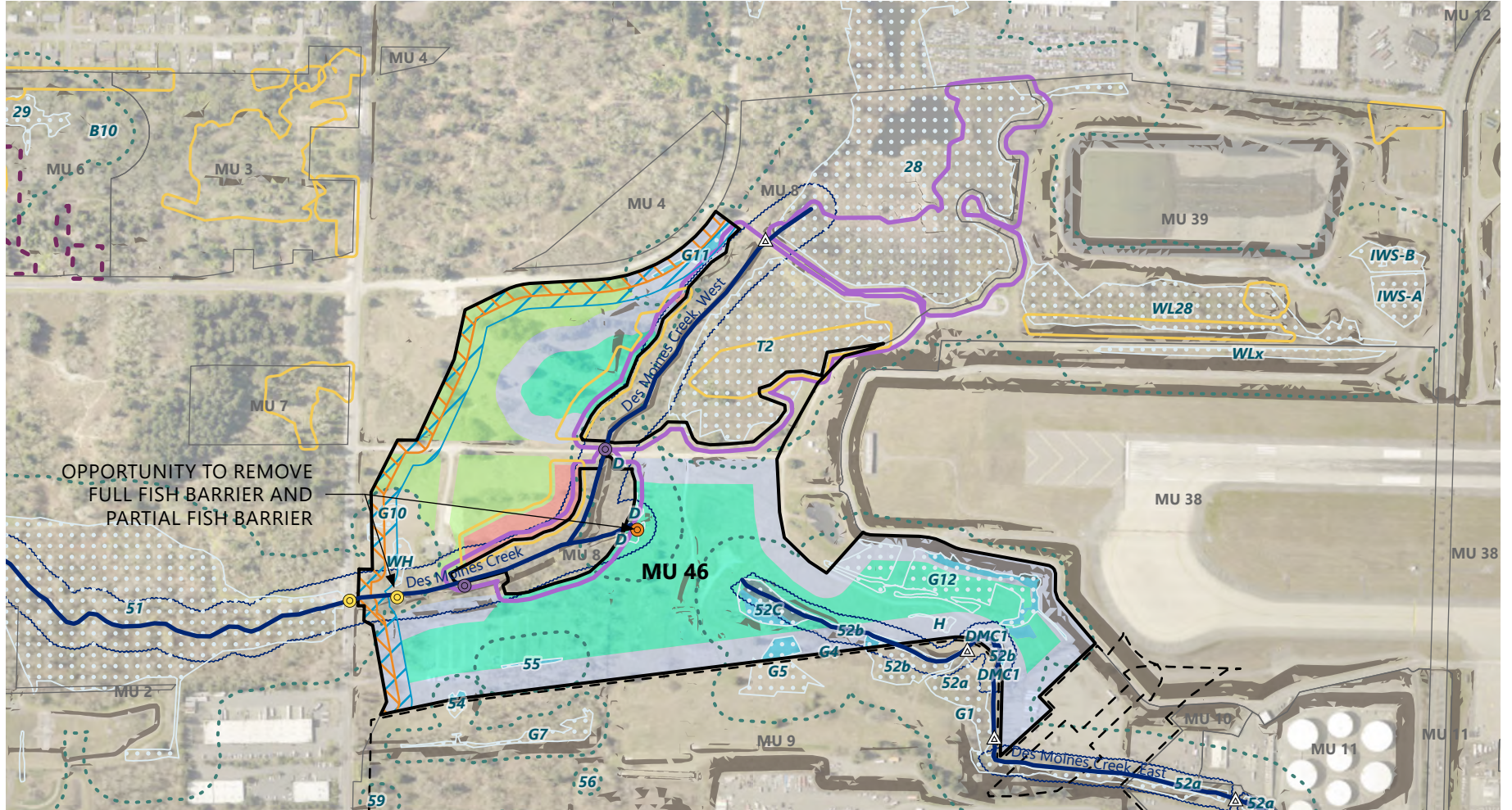
Conduct Long-Term Mitigation Action

- Manage FCSP plantings

Habitat Corridor

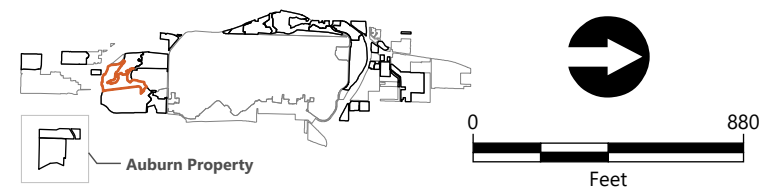
- Improve habitat within Des Moines Creek habitat corridor

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Base Map Legend

LSP Management Unit	Slope > 40%	Stewardship Opportunity Area	Fish Passable
Public Visual Corridor	Stream	Enhance Wetland Buffer	Partial Fish Barrier
Public Safety - Tree Hazard Management Area	Wetland	Enhance Wetland	Full Fish Barrier
Mitigation Restrictive Covenant	Stream Buffer	Preserve Wetland	Unknown
FCSP Mitigation Site	Wetland Buffer	Re-Establish Wetland	
Community Planting Area		Conduct Long-Term Mitigation Action	
Public Hazard Area			



Site Description

- MU 46 is at the south and of the SEA runway and includes portions of the former Tye Golf Course that has been closed since 2014.
- The west fork of Des Moines Creek flows through this MU that is partially culverted under 20th Avenue South.
- This MU also contains a segment of the east fork of Des Moines Creek and multiple associated wetlands.
- This MU contains two FCSP mitigation planting areas.
- Within the former golf course, vegetation is characterized by non-native and invasive grasses, with clusters of trees and shrubs.
- Stream corridors are more densely vegetated with canopy and understory but also contain invasive species.

Site Acreage

56.9 Acres

Land Cover Analysis

0.2%	Buildings
10.3%	Impervious
5.6%	Dry Grass/Bare
18.9%	Forest
56.4%	Grass
8.3%	Shrub
0.3%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 46 is addressed in further detail in the *Mitigation Site Opportunity Assessment* and therefore did not receive a FLAT assessment.

LSP Action

Ecological Use: Existing Mitigation

Recommended Site-Based Management Actions

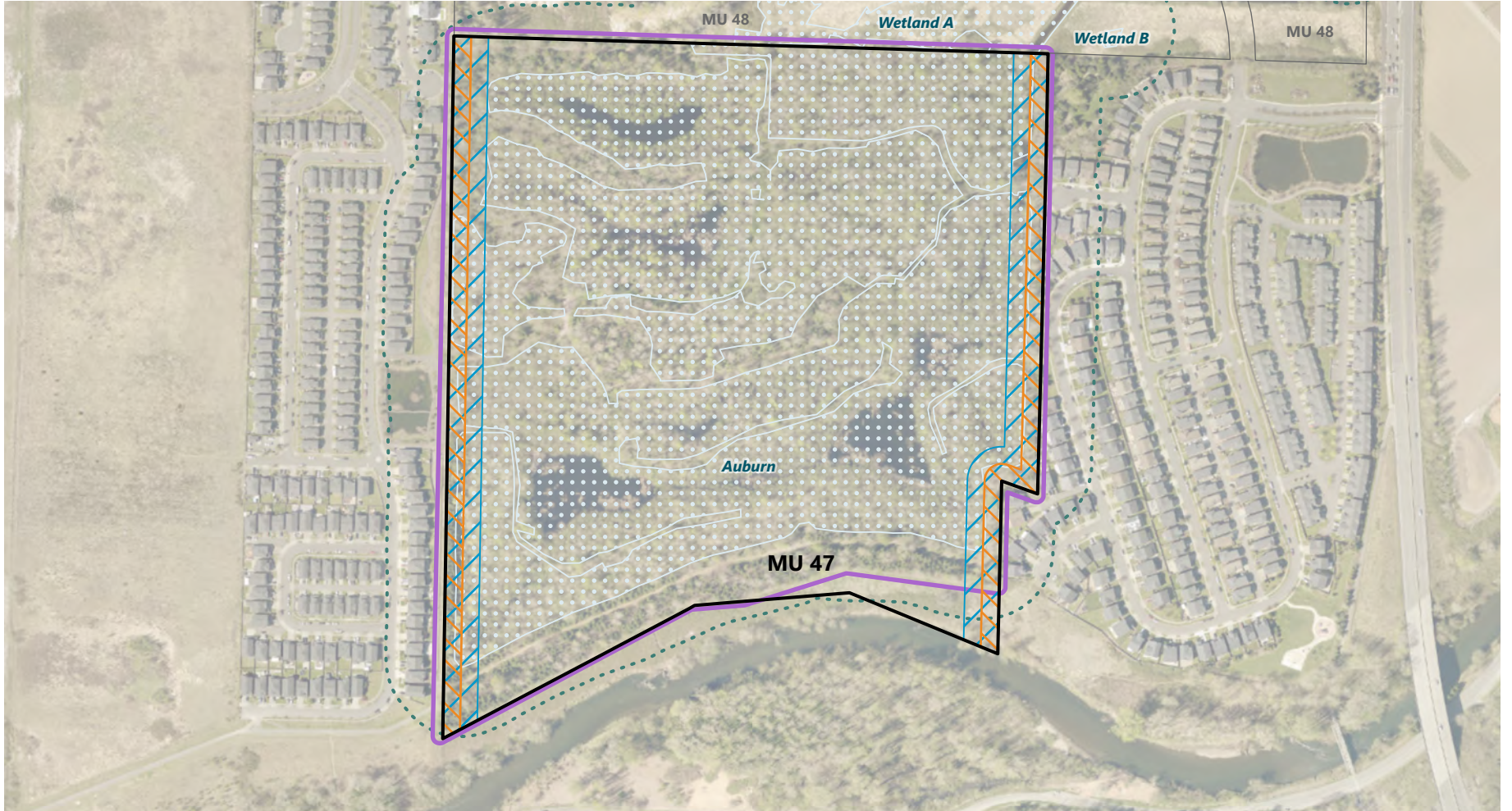
Conduct Long-Term Mitigation Action

- Manage and maintain lands under mitigation restrictive covenant

Manage and Prevent Hazards

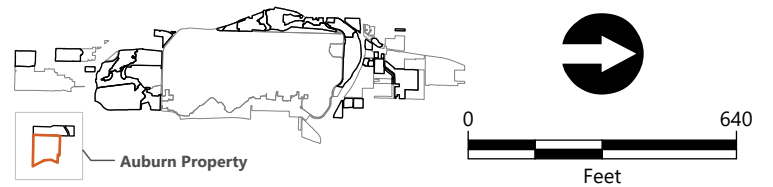
- Prevent hazards, including treefall, along ROWs

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Base Map Legend

- LSP Management Unit
- ▨ Public Visual Corridor
- ▨ Public Safety - Tree Hazard Management Area
- ▭ Mitigation Restrictive Covenant
- ▨ Wetland
- ▨ Wetland Buffer



Site Description

- MU 47 is an undeveloped parcel in Auburn where South 277th Street crosses over the Green River, between two recent residential developments.
- The MU is dominated by series of 8 wetlands that are protected from development by a mitigation restrictive covenant.
- The MU is dominated by scrub shrub vegetation, including non-native species.
- This site's mitigation permit-required performance monitoring end in 2023. The Port will continue monitoring and maintaining the site to maintain invasive vegetation at maximum 10% cover and to protect high-value trees.

Site Acreage

67.3 Acres

Land Cover Analysis

2.3%	Buildings
4%	Impervious
9.6%	Dry Grass/Bare
74%	Forest
4.1%	Grass
6%	Shrub
0%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

FLAT Assessment: Landscape Management Strategy

MU 47 is identified as a mitigation site and therefore did not undergo a FLAT assessment.

LSP Action

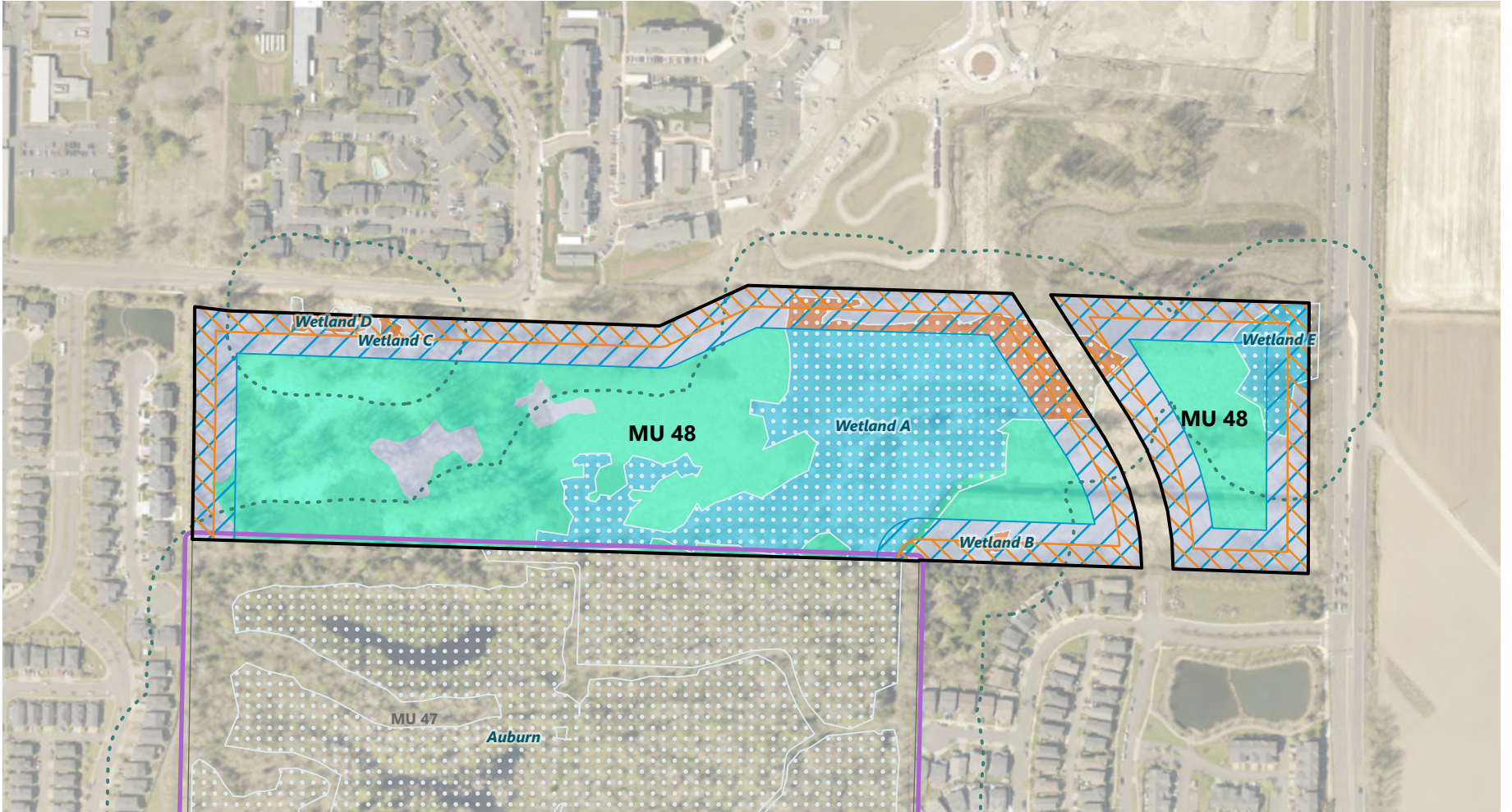
Ecological Use: Potential Mitigation

Recommended Site-Based Management Actions

Identify Mitigation Opportunities

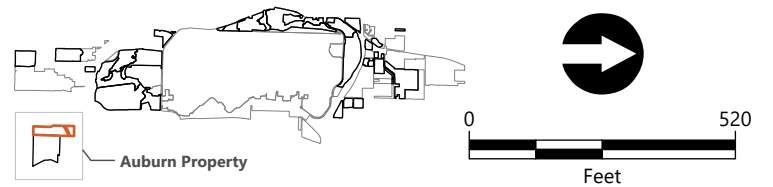
- Establish mitigation bank

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Base Map Legend

- | | | |
|---|----------------|-------------------------------------|
| LSP Management Unit | Wetland | Stewardship Opportunity Area |
| Public Visual Corridor | Wetland Buffer | Enhance Wetland Buffer |
| Public Safety - Tree Hazard Management Area | | Enhance Wetland |
| Mitigation Restrictive Covenant | | Re-Establish Wetland |
| | | Potential Wetland Impact |



Site Description

- MU 48 is in Auburn, at South 277th Street and I Street NE, between agricultural lands, new residential developments, and the Green River.
- This MU includes wetlands within a former agricultural site.
- Vegetation is predominantly grasses and shrubs with clusters of trees at the north and south ends of the MU.
- Invasive vegetation is present.

FLAT Assessment: Landscape Management Strategy

MU 48 is addressed in further detail in the *Mitigation Site Opportunity Assessment* and therefore did not receive a FLAT assessment.

Site Acreage

35.1 Acres

Land Cover Analysis

1.8%	Buildings
3.5%	Impervious
9.7%	Dry Grass/Bare
20%	Forest
50.6%	Grass
14.5%	Shrub
0%	Water

Morning Heat Index Results:

Moderate Heat Index (average is between 60.4 and 62.6 degrees F)

Equity Score: Very Low

Appendix D

Long-Term Mitigation Stewardship Plan

Long-Term Mitigation Stewardship Plan



Prepared for
Port of Seattle

By
Clearway Environmental LLC
and
Anchor QEA

Seattle, WA
December 2023



Table of Contents

1. INTRODUCTION	1
1.1 Mitigation Sites Status.....	1
2. APPROACH	2
2.1 Visual Surveys	2
2.2 Identify Maintenance Actions	2
2.3 Track Maintenance Actions.....	2
2.4 Survey High-Value Trees	3
2.5 Scope and Complete Maintenance Actions	3
3. MENU OF MAINTENANCE ACTIONS	3
4. MONITORING SCHEDULE	13
5. FUTURE CONSIDERATIONS AND APPROACH	15
5.1 Restoration and Invasive Considerations.....	15
6. 2023 MITIGATION SITES MONITORING RESULTS AND MAINTENANCE RECOMMENDATIONS	17
6.1 Results	17
6.2 Invasive Species Coverage.....	17
6.3 Vacca Farm.....	18
6.4 Miller Creek Buffer	19
6.5 Auburn	20
References	23

List of Tables

Table 1: Third Runway Mitigation Sites Monitoring Schedule and Program Status	2
Table 2: Menu of Maintenance Actions.....	4
Table 3: Monitoring Schedule with ROM Costs for Planning	14
Table 4: Invasive Species Coverage.....	17
Table 5: Maintenance Actions Identified at Vacca Farm	19
Table 6: Maintenance Actions Identified at Miller Creek Buffer	20
Table 7: Maintenance Actions Identified at Auburn	21

Figures

Figure 1: Vicinity Map

Figure 2: Vacca Farm

Figure 3: Miller Creek Buffer

Figure 4: Auburn Off-Site Mitigation Area

Appendices

Appendix A: Selected Photos

Appendix B: 2023 High-Value Tree Survey Memorandum

List of Abbreviations

Forest Landscape Assessment ToolFLAT
Geographic Information SystemsGIS
Land Stewardship ProgramLSP
Model Toxics Control Act.....MTCA
management unitsMUs
Monitoring YearMY
Port of Seattle.....Port
Port Construction Services..... PCS
Rough order of magnitude..... ROM
Third Runway Mitigation Long-Term Stewardship.....Mitigation Stewardship
Third Runway Mitigation Long-Term Stewardship Plan.....Plan
Third Runway Mitigation SitesMitigation Sites
Washington Conservation Corps..... WCC

1. INTRODUCTION

The Port of Seattle (Port) has instituted a Land Stewardship Program (LSP) at Seattle-Tacoma International Airport with the intent to comprehensively improve stewardship practices across programs and processes. One component of the program is to implement long-term stewardship of permitted mitigation sites after the permitted performance monitoring period is complete.

Several of the Port of Seattle's Third Runway Mitigation Sites (Mitigation Sites) concluded their permit-required performance monitoring periods in 2022 and have transitioned out of the Port regulatory compliance program into Long-Term Mitigation Stewardship (Mitigation Stewardship). This Long-Term Mitigation Stewardship Plan (Plan) has been developed to provide a framework for long-term stewardship and includes:

- **Approach** to monitoring and maintaining Mitigation Sites for the next 10 years as part of Mitigation Stewardship
- **Menu of Maintenance Actions** for Mitigation Sites in Mitigation Stewardship with estimated rough order of magnitude costs
- **Monitoring Schedule** for Mitigation Stewardship for the next 10 years
- **Future Considerations and Approach** to updating the Plan in 10 years
- **2023 Mitigation Sites Monitoring Results** reviewing the 2023 monitoring completed at each Mitigation Site in Mitigation Stewardship including a review of the high-value tree inventory for each Mitigation Site.

1.1 Mitigation Sites Status

An overview of the Mitigation Sites' regulatory compliance monitoring schedule and the dates each Mitigation Site will transition to Mitigation Stewardship is shown in Table 1. Those Mitigation Sites listed as 'Complete' in the 2023 Monitoring Year (MY) are the Mitigation Sites that have transitioned into Mitigation Stewardship. Boxes shaded grey represent the last year of Regulatory Compliance Monitoring and the Sites' transition into Mitigation Stewardship. Location of the Mitigation Sites are shown in Figure 1.

Table 1: Third Runway Mitigation Sites Monitoring Schedule and Program Status

Site Name	Monitoring Year 0	2023 Monitoring Year (MY)	Regulatory Compliance Monitoring Schedule ^a									Notes	
			2022	2023	2024	2025	2026	2027	2028	2029	2030		
Vacca Farm/Miller Creek Relocation	2007	Complete	●										Subject to Indirect Impacts
Miller Creek Buffer	2007	Complete	●										
Auburn ^b	2007	Complete	●										
Des Moines Nursery	2010	MY 13	●		●				●				Subject to 5-year monitoring for Indirect Impacts (including redelineation at Year 5) from stream restoration project.
Williams Property	2012	MY 10	●										
Tyee	2012	MY 10	●		●				●				Scheduled for Completion in 2027
Lora Lake	2020	MY 3	●	●	●	●	●	●	●	●	●	●	Scheduled for Completion in 2030

a Boxes shaded grey indicate the last year of Regulatory Compliance Monitoring.

b Monitoring in 2018 and 2020 was deferred 1 year (2017; 2019) to align with 2017 road removal action.

2. APPROACH

The following describes the approach to monitor and maintain Mitigation Sites in the next 10 years of Mitigation Stewardship.

2.1 Visual Surveys

The Port will have a trained ecologist conduct visual surveys at each Mitigation Site. Ecologists will physically walk each Mitigation Site to perform broad-scale, low-intensity monitoring. Visual observations will include mapping and recording maintenance needs, locations of invasive species, as well as conducting inspections for illegal use/dumping, hazard trees, and fence maintenance and repair.

2.2 Identify Maintenance Actions

Based on the visual survey monitoring work, the Port will use the menu of maintenance actions (see Section 3.0) to scope appropriate corrective maintenance actions for each Mitigation Site. The rough order of magnitude (ROM) planning costs will be used to develop a level of effort based on extent and severity of issues identified during the visual surveys.

2.3 Track Maintenance Actions

Identified maintenance actions for each Mitigation Site will be tracked in the Land Stewardship Geographic Information Systems (GIS) geodatabase that the Port manages. The tracking will include mapping areas where maintenance actions occurred and develop detailed metadata to capture key data attributes including:

- Date maintenance action was identified with description of issues
- Date maintenance action was completed

- Scope of completed maintenance action
- Cost of completed maintenance action

Georeferenced photos can also be included in the LSP GIS geodatabase to document issues and completed maintenance actions.

2.4 Survey High-Value Trees

A high-value tree survey will be conducted for each Mitigation Site (excluding Auburn and much of Vacca Farm and Lora Lake where the majority of the area is created wetland) within two years of the adoption of the LSP. The total planned inventory area includes existing mitigation areas where there is potential for high-value trees, including the Miller Creek Buffer site and the southern portion of the Vacca Farm and Lora Lake mitigation sites, and adjacent upland areas. The inventory area is divided into seven LSP management units (MUs). For the purposes of this report, high-value trees are defined as coniferous and big-leaf maples trees with a diameter at breast height of greater than 28” or trees with unique characteristics, scientific, or cultural value. The tree survey data will be tracked as part of the LSP GIS geodatabase.

2.5 Scope and Complete Maintenance Actions

Based on visual surveys and the menu maintenance actions described in Section 3, a maintenance scope will be defined for each Mitigation Site. The scope and associated cost of the maintenance will be determined by the site condition and effort needed to resolve site issues.

3. MENU OF MAINTENANCE ACTIONS

A menu of recommended maintenance actions for issues found at the Mitigation Sites has been developed for use by the Port and are shown in Table 2, below. Multiple maintenance actions are identified to resolve potential Mitigation Site issues. The Port will decide which maintenance action is appropriate based on-site condition and severity of issue. ROM costs are provided as a planning tool. The costs assume the Port procures contractor services through Port Construction Services (PCS) or other means. The cost data is based on recent competitive bids from comparable project work. Labor and material costs were determined using current RSMeans Construction Cost data for the Seattle region. ROM costs assume manual labor to selectively remove invasive and provide site maintenance. Large equipment could damage existing native vegetation. ROM costs do not include construction contingencies or sales tax. If the Port used the Washington Conservation Corps (WCC) or Port maintenance staff, the costs would need to be analyzed based on current labor wages for those entities.

Table 2: Menu of Maintenance Actions

Issue	Maintenance Action	ROM Cost
<p>Presence of Scotch broom (<i>Cytisus scoparius</i>) - King County Class B³ noxious weed.</p>	<ul style="list-style-type: none"> Seedlings and young plants may be hand-pulled, before going to seed if possible. Larger plants may be pulled using a weed wrench-type tool. Pulling disturbs the soil and creates ideal conditions for broom seed germination, so sites will need to be carefully monitored for new growth. Cutting can also be an effective control method for older plants that are greater than 2" in diameter and no longer green at the base. Cut stems as close to the ground as possible during the summer drought in late July to August, but ideally before plants go to seed. Monitor for re- growth and cut again. If in seed, remove and disposed of in trash. Expect the level of control work to be intensive for the first several years due to seed banks, soil disturbance that occurs when pulling or digging, and regrowth of cut plants. 	<ul style="list-style-type: none"> Manual removal for seedlings: \$11,000/acre Manual removal for mature plants: \$21,800/acre Cutting stems: \$10/each
<p>Presence of Tansy ragwort (<i>Jacobaea vulgaris</i>) – King County Class B¹ noxious weed.</p>	<ul style="list-style-type: none"> For small infestations, tansy ragwort can be controlled through hand pulling and/or digging. Plants are easiest to pull after plants have bolted, but before flowering and when the soil is moist. When pulling, try to remove as much of the root as possible to prevent regrowth. Control efforts are most effective before the plants flower. If budding or flowering, the flowering parts must be removed from site and disposed of in trash. If the buds/flowers are left on the plants, the plants will still produce seed, despite being uprooted or sprayed. 	<ul style="list-style-type: none"> Manual removal: \$11,000/acre
<p>vacPresence of Policeman’s helmet (<i>Impatiens glandulifera</i>) – King County Class B¹ noxious weed.</p>	<ul style="list-style-type: none"> Policeman’s helmet has shallow roots that should be pulled or dug up in the spring or early summer when the soil is still moist and before the plant develops seed capsules. 	<ul style="list-style-type: none"> Manual removal: \$11,000/acre

Issue	Maintenance Action	ROM Cost
	<ul style="list-style-type: none"> If the plants are in flower, carefully place a bag around the entire flower head cluster to prevent the seeds from escaping, then remove the flower/seed head. Vegetative parts may be left on site to compost. Flowers/seedheads should be disposed of in trash. 	
<p>Presence of Yellow archange (<i>Lamiasium galeobdolon</i>) – King County Class B² noxious weed.</p>	<ul style="list-style-type: none"> Roots are not deep, so it can be hand-pulled, but this is very labor intensive. Any root fragment left behind can start a new plant. Herbicides can be effective, especially if combined with manual control and monitoring for surviving plants. Take care to avoid native vegetation by selectively spot-spraying. Using 3% Auquamaster and 2% AgriDex may be an effective herbicide solution. 	<ul style="list-style-type: none"> Manual removal: \$21,800/acre Herbicide application: \$3/square foot
<p>Presence of Knotweed (<i>Polygonum spp.</i>) – King County Class B³ noxious weed.</p>	<ul style="list-style-type: none"> Knotweed should be controlled chemically. The best time to chemically control knotweed in Washington State is August through early October (when the plant is in the flower bud stage). However, for foliar treatment, the plants may be over 10 feet tall at the time of treatment and hard to spray without significant chemical drift. If this is a concern, plants can be bent or cut in June or July and will regrow to approximately 4 feet in about 6-8 weeks. 	<ul style="list-style-type: none"> Cutting stems: \$10/each Herbicide application: \$3/square foot
<p>Presence of Spotted jewelweed (<i>Impatiens capensis</i>) – King County Class C² noxious weed.</p>	<ul style="list-style-type: none"> There is limited information available on control methods for spotted jewelweed. Spotted jewelweed has shallow roots that can be pulled or dug up in the spring or early summer when the soil is still moist and before the plant develops seed capsules. If the plants are in flower, carefully place a bag around the entire flower head cluster to prevent the seeds from escaping, then remove the 	<ul style="list-style-type: none"> Manual removal: \$11,000/acre

Issue	Maintenance Action	ROM Cost
	<p>flower/seed head. Vegetative parts may be left on site to compost. Flowers/seedheads should be disposed of in trash.</p> <ul style="list-style-type: none"> Plants may have some seeds that remain in the seedbank after the first year, so it is important to manage and monitor sites for regrowth. 	
<p>Presence of Reed canary grass (<i>Phalaris arundinacea</i>) – King County Class C² noxious weed.</p>	<ul style="list-style-type: none"> Reed canary grass can be controlled with shade, so planting shrubs/trees in areas with RCG can help keep it at a manageable level. Manual control is not usually a viable option, as it is difficult to remove all the rhizome fragments. Herbicide applications can be effective, but large areas may require several years of treatment to exhaust the seed bank. Spot spray small infestations, taking care to avoid damaging surrounding vegetation. 	<ul style="list-style-type: none"> Plant shrubs/trees (1-gallon) at 6 foot on center: \$30/each (\$X6.63for labor and \$23.37 for plant material) Plant grasses/forbs (bare root) at 4 foot on center: \$4/each (\$0.30 for labor and \$3.70 for plant material) Herbicide application: \$3/square foot
<p>Presence of Teasel (<i>Dipsacus fullonum</i>) – King County Class C² noxious weed.</p>	<ul style="list-style-type: none"> Small infestations, when the soil is moist and possibly with the aid of a weed wrench, dig up rosettes and pull flowering stalks. If flowers are or were present, or the head appears beige or brown in color, those flower heads should be cut and bagged for disposal, since they can have seeds. A dense planting of shrubs or grasses and forbs can inhibit future teasel establishment 	<ul style="list-style-type: none"> Clear and grub: \$11,000/acre Plant shrubs/trees (1-gallon) at 6 foot on center: \$30/each (\$6.63 for labor and \$23.37 for plant material) Plant grasses/forbs (bare root) at 4 foot on center: \$4/each (\$0.30 for labor and \$3.70 for plant material)
<p>Presence of Italian arum (<i>Arum italicum</i>) – King County Class C² noxious weed.</p>	<ul style="list-style-type: none"> There is little known about an effective control method for this plant. Herbicide information is limited. Carefully digging around the stem, all the way down to the tuber, removing the tuber and daughter tubers, and disposing the tubers in a sealed bag in the garbage, can provide some control after many years. 	<ul style="list-style-type: none"> Manual removal: \$21,800/acre

Issue	Maintenance Action	ROM Cost
	<ul style="list-style-type: none"> Do not move soil with Italian arum to new locations or to compost piles as tubers may be spread and start new infestations. Not noted in sites monitored but noted in adjacent sites. Only detectable in spring and early summer. 	
<p>Presence of European hawthorn (<i>Crataegus monogyna</i>) – King County Class C² noxious weed.</p>	<ul style="list-style-type: none"> Seedlings can be hand-pulled. For larger trees, herbicide is the most effective control. Tree injection: EZ-ject bullets can be injected into the tree’s trunk Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. 	<ul style="list-style-type: none"> Manual removal of seedlings: \$11,000/acre Herbicide application: \$3/square foot Cutting stems: \$10/each
<p>Presence of English ivy (<i>Hedera helix</i>) on tree trunks and within understory – King County Class C² noxious weed.</p>	<ul style="list-style-type: none"> Hand-pulling is the most effective method of control for ivy. Dig and pull all roots, however older stems do not re-sprout well, so leaving some root behind is likely not a problem. Ivy growing up tree trunks can be controlled by removing all the vines from the lower trunk of the tree (only as high as you can comfortably reach). Vines can be composted on site, but piles should be elevated so they do not have ground contact to re-root. This is an easy plant for volunteers to remove. 	<ul style="list-style-type: none"> Manual ground removal: \$21,800/acre Ivy removal from trees: \$8,000/acre
<p>Presence of Himalayan blackberry (<i>Rubus armeniacus</i>) and Evergreen blackberry (<i>Rubus laciniatus</i>) – King County Class C² noxious weeds.</p>	<ul style="list-style-type: none"> The most effective control method is manual removal of root balls and major side roots, followed by herbicide applications of regrowth. Infestations that are inter-mixed with desirable plants can be spot sprayed with herbicide – while avoiding spraying adjacent desirable plants. Glyphosate is most effective on blackberry in September to October, when 	<ul style="list-style-type: none"> Manual removal: \$21,800/acre Herbicide application: \$3/square foot

Issue	Maintenance Action	ROM Cost
	canes are actively growing and after berries have formed. Fall treatments should be conducted before the first frost.	
Presence of Horsechestnut (<i>Aesculus hippocastanum</i>) – King County Weed of Concern.	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk • Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Cutting stems: \$10/each
Presence of Field/hedge bindweed (<i>Convolvulus arvensis</i> and <i>Convolvulus sepium</i>) – King County Weed of Concern.	<ul style="list-style-type: none"> • Apply glyphosate to the bindweed in fall when the bindweed is actively growing; however, spring treatment has the additional benefit of reducing seed production, vigor, and spread of the plant. • Generally, additional applications need to be made when the bindweed regrows. 	<ul style="list-style-type: none"> • Herbicide application: \$3/square foot
Presence of Norway maple (<i>Acer plantanoides</i>) – King County Weed of Concern	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk • Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Cutting stems: \$10/each

Issue	Maintenance Action	ROM Cost
Presence of English holly (<i>Ilex aquifolium</i>) – King County Weed of Concern.	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk • Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Frilling (assume labor requires 5 cuts): \$50/each
Presence of Bird cherry (<i>Prunus avium</i>) – King County Weed of Concern.	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk • Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Frilling (assume labor requires 5 cuts): \$50/each •
Presence of Cherry laurel (<i>Prunus laurocerasus</i>) – King County Weed of Concern.	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk <ul style="list-style-type: none"> ○ Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Frilling (assume labor requires 5 cuts): \$50/each •

Issue	Maintenance Action	ROM Cost
	<ul style="list-style-type: none"> • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. • Branches and stems may re-root if left in ground contact. 	
<p>Presence of European mountain ash (<i>Sorbus aucuparia</i>) – King County Weed of Concern.</p>	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk • Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Cutting stems: \$10/each • Frilling (assume labor requires 5 cuts): \$50/each •
<p>Presence of Black locust (<i>Robinia pseudoacacia</i>) – King County Weed of Concern.</p>	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk • Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Cutting stems: \$10/each • Frilling (assume labor requires 5 cuts): \$50/each •
<p>Presence of Bittersweet nightshade (<i>Solanum dulcamara</i>) – King County Weed of Concern.</p>	<ul style="list-style-type: none"> • For young plants and small infestations, hand-pull the stem closest to the ground and pull or dig up the roots, taking care not to break the slender roots. Manual control can cause considerable sediment disturbance in and near creek beds, so measures should be taken to minimize impacts during work, and all applicable “fish windows” should be followed to avoid damaging fish habitat during spawning seasons. 	<ul style="list-style-type: none"> • Manual removal: \$21,800/acre

Issue	Maintenance Action	ROM Cost
Presence of Portuguese laurel (<i>Prunus lusitana</i>) – King County Weed of Concern.	<ul style="list-style-type: none"> • Seedlings can be hand-pulled. • For larger trees, herbicide is the most effective control. • Tree injection: EZ-ject bullets can be injected into the tree’s trunk • Cut-stump treatment: Using Glyphosate (RoundUp or other brands) or triclopyr (found in many brush control herbicides). The stem should be cut close to the ground and the herbicide should be applied directly on the stump, immediately after cutting. • Frilling: Make deep, 45-degree angle cuts into the bark, around the stem. Herbicide should be immediately put into the cuts. • Branches and stems may re-root if left in ground contact. 	<ul style="list-style-type: none"> • Manual removal of seedlings: \$11,000/acre • Herbicide application: \$3/square foot • Cutting stems: \$10/each • Frilling (assume labor requires 5 cuts): \$50/each •
Presence of Common periwinkle (<i>Vinca minor</i>) – King County Weed of Concern	<ul style="list-style-type: none"> • Plants can be pulled from moist soil. • Cutting or mowing, followed by raking up the vines can help keep periwinkle vines from spreading. • 1 to 2 percent solution of triclopyr or glyphosate can be applied to new growth, or to fresh growth after being cut. 	<ul style="list-style-type: none"> • Manual removal: \$11,000/acre • Mowing: \$1,640/acre • Herbicide application: \$3/square foot
Hazard trees/limbs	<ul style="list-style-type: none"> • Prune/remove any hazard limbs at the borders of Mitigation Sites to eliminate possible damage to neighboring private properties. 	<ul style="list-style-type: none"> • Prune limbs/tree thinning: \$10/each
Fence line repair	<ul style="list-style-type: none"> • Repair holes in fences and add padlocks to fence openings that do not have secure access. • Replace any sections of fencing that is no longer functional 	<ul style="list-style-type: none"> • Repair hole: \$36/each • Add padlock: \$30/each • Repair sections of fence: \$36/linear foot
Illegal use/dumping	<ul style="list-style-type: none"> • Areas of dumping/trash need to be removed. Instances of illegal use/encampments will be addressed by Port staff. 	<ul style="list-style-type: none"> • Trash removal: cost will depend on extent and type of trash removal and will need to be estimated on a site issue by site issue basis

Issue	Maintenance Action	ROM Cost
Limited organic layer	<ul style="list-style-type: none"> • Install mulch to a depth of 3 inches 	<ul style="list-style-type: none"> • Install mulch (3 inches): \$6.34/square yard (\$2.77 for labor and \$3.57 for material)
Limited native understory	<ul style="list-style-type: none"> • Plant 1-gallon shrubs and groundcovers spaced 6' O.C. • Install fertilizer at planting location • Install mulch to a depth of 3 inches 	<ul style="list-style-type: none"> • Plant shrub/groundcover (1-gallon): \$30/each (\$6.63 for labor and \$23.37 for plant material) • Install fertilizer: \$164.53/acre (assuming mechanical spread; \$158.70 for labor and \$5.83 for material) • Install mulch (3 inches): \$6.34/square yard (\$2.77 for labor and \$3.57 for material)
Limited tree canopy	<ul style="list-style-type: none"> • Plant 1-gallon conifer tree • Plant 1-gallon deciduous tree • Install fertilizer at planting location • Install mulch to a depth of 3 inches 	<ul style="list-style-type: none"> • Plant deciduous or conifer tree (1-gallon): \$30/each (\$6.63 for labor and \$23.37 for plant material) • Install fertilizer: \$164.53/acre (assuming mechanical spread; \$158.70 for labor and \$5.83 for material) • Install mulch (3 inches): \$6.34/square yard (\$2.77 for labor and \$3.57 for material)

1 Regulated Noxious weeds: control is required for these species in King County.

2 Non-Regulated Noxious weeds: not designated for control in King County, but recommended.

3 Selective: Requires control in specific parameters. (King County DNRP 2023)

4. MONITORING SCHEDULE

This Plan identifies a 10-year monitoring schedule for Mitigation Stewardship starting in 2023. 2023 monitoring has been completed for the Mitigation Sites that transitioned from the Regulatory Compliance Program to Mitigation Stewardship and findings are summarized in Section 6. During the 10-year schedule, monitoring of each Mitigation Site will occur to ensure new invasive plant species and infestations are not establishing, as well as to monitor for beaver activity, illegal activities, hazard trees, and infrastructure repair. Monitoring will inform necessary maintenance actions.

Table 3 provides a breakdown of recommended monitoring tasks with ROM planning costs through 2032. The breakdown assumes a monitoring frequency based on current conditions at the sites that have transitioned to Mitigation Stewardship, specifically:

- Vacca Farm/Miller Creek Relocation: monitor site every 2 years
- Miller Creek Buffer: monitor site every 2 years
- Auburn: monitor site every 5 years

For sites still within the Regulatory Compliance Program, the monitoring frequency is assumed to be every 5 years. At the time these sites transition to Mitigation Stewardship, that assumption will be confirmed.

ROM costs are based on acreage and expected level of effort to conduct visual survey, tracking and tree inventory survey. Monitoring costs presented in the table are based on previous 2023 monitoring efforts at Auburn, Vacca Farm, and the Miller Creek Area escalated at 4% each year. Tree inventory survey cost is based on the completed 2023 tree survey for Miller Creek and Vacca Farm sites extrapolated for the 2024/2025 tree inventory survey area.

Table 3: Monitoring Schedule with ROM Costs for Planning

Monitoring Site and Task	ROM Annual Cost										Notes
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Vacca Farm/Miller Creek Relocation	-	\$2,300	-	\$2,500	-	\$2,700	-	\$2,900	-	\$3,200	Transitioned to Mitigation Stewardship in 2023
Miller Creek Buffer	-	\$5,800	-	\$6,200	-	\$6,700	-	\$7,300	-	\$7,900	
Auburn	-	-	-	-	\$2,600	-	-	-	-	\$3,200	
Des Moines Nursery	-	-	-	-	-	\$2,000	-	-	-	-	Will transition to Mitigation Stewardship in 2029 ^{1,4}
Williams Property	-	-	-	-	-	\$1,400	-	-	-	-	Will transition to Mitigation Stewardship in 2029 ¹
Tyee	-	-	-	\$2,500	-	-	-	-	\$3,000	-	Will transition to Mitigation Stewardship in 2027 ¹
Lora Lake	-	-	-	-	-	-	-	-	-	\$3,200	Will transition to Mitigation Stewardship in 2030 ^{1, 2}
Tree Inventory survey	\$20,000	-	-	-	-	-	-	-	-	-	A high-value tree inventory for all Mitigation Sites will be completed by 2025 as described in Section 2.4. ³

1 These sites are still within the Regulatory Compliance Program. The ROM annual cost assumes that once released to Mitigation Stewardship, the monitoring frequency will be every 5 years. However, at the time these sites transition to Mitigation Stewardship, that assumption will be confirmed.

2 At the time Lora Lake transitions to Mitigation Stewardship, it will have completed annual monitoring for the last 10 years. Consequently, Mitigation Stewardship monitoring will occur 3 years following its transition date and the be monitored every 5 years going forward.

3 The current estimate assumes all tree inventory work can occur in 2024. However, based on staff workload, this work may also occur in 2025.

4 Des Moines Nursery is transitioning to Mitigation Stewardship in 2027. However, the City of Burien is constructing a stream project that will impact this mitigation area. That construction will be completed in 2024, and related monitoring for that stream project will be completed in 2029. Consequently, the first year of stewardship monitoring is 2029.

5. FUTURE CONSIDERATIONS AND APPROACH

After year 2033, an updated Plan will be necessary to continue Mitigation Stewardship. The scope and frequency of monitoring will be considered based on existing site conditions. Many of the Mitigation Sites are in highly urban areas and may continue to be prone to invasive species infestation and illegal use. In this case, two-year monitoring events may still be needed. If the sites are self-sustaining habitat conditions in line with stewardship goals, less frequent monitoring may be appropriate.

In addition to **reduced frequency**, other methods could be considered. For example, the Forest Landscape Assessment Tool (FLAT) rapid assessment is a method to quickly define forest ecological health and potential threats (Cieko 2016). FLAT gathers site data through a land cover desktop analysis and confirms conditions with windshield site visits. The data then informs the appropriate maintenance and restoration recommendations. Applying the FLAT methodology to the Mitigation Sites would be consistent with the LSP approach for ecological areas at SEA.

5.1 Restoration and Invasive Considerations

As the Mitigation Sites transition from the permit-required monitoring period into Long-term Stewardship, the management effort will depend on the Sites' conditions and ideally will decrease over time. A restoration best management practice is the four-phase approach to restoration fieldwork (GSP, 2022), which breaks restoration efforts down into four phases. Of the four phases below, most Sites are now at Phase 3 and 4 with the focus placed on maintaining invasive species presence and ensuring success of native planted species. Some phases may need to be revisited if presence of invasive species continues to be an issue.

Phase 1: Invasive plant removal

This phase aims to clear the site of invasive plants, focusing on one small area at a time, in order to ensure thoroughness and minimize regrowth.

Phase 2: Secondary invasive removal and planting

Before planting, a second round of invasive removal is done to target any regrowth before it spreads, and to prepare the site for young native plants to be installed.

Phase 3: Plant establishment and follow-up maintenance

This phase repeats invasive plant removal, or weeding, along with mulching and watering newly planted native plants until they are established. Although native plants have adapted to the area's dry summer climate, recently installed plants may experience transplant shock, which affects root and shoot health. Therefore, most plants require at least 3-5 years of establishment care to help ensure their survival.

Phase 4: Long-term stewardship and monitoring

The final phase is long-term site stewardship, including monitoring to provide information for ongoing maintenance. Maintenance typically will consist of spot removal of invasive regrowth and occasional planting where survivorship of existing plants is low.

This four-phase approach should be utilized in undertaking the stewardship of these sites. The Auburn site seems to fit within Phase 4, with long-term stewardship and monitoring, whereas the sections of Miller Creek Buffer and Vacca Farm that have large patches of invasives might benefit from a Phase 2 approach.

Other Restoration and Management Considerations

- Removing invasive species can create an opening for re-invasion if follow-up management does not occur. For any area where an invasive monoculture is being removed, the area should be re-planted with appropriate native plants, so invasive plants will not re-establish. Planting a variety of appropriate native plant species will help create competition with weed seedlings trying to establish. Areas in Miller Creek Buffer that have large swaths of jewelweed are an example of appropriate areas to replant once the jewelweed is removed.
- When controlling large, invasive trees like black locust, it is important to have an understory that is relatively devoid of sun-loving invasives, like blackberry. When removing invasive trees, make sure to remove and control blackberries before removal of tree canopy. Also, under-planting invasive trees with native trees and allowing them to establish before removing invasive trees can help mitigate the canopy loss when removing invasive trees.
- One prioritization approach to restoration is to prioritize the removal of small infestations before they spread and become more difficult and expensive to control, as opposed to starting restoration efforts by tackling larger infestations, which often take longer.
- Herbicide spraying within 60 feet of a water body requires the use of an herbicide formulated for aquatic settings. Herbicides used in an aquatic setting and not formulated or labeled for use there (like RoundUp™) are likely toxic to fish and other non-target species and is considered an illegal application.
- When possible, try not to remove trees and brushy plants from April to July to avoid disturbing nesting birds and do not spray herbicides when pollinators are active on plants.
- Make sure to clean shoes, clothing, and equipment when leaving infested areas to prevent spreading seeds to new locations.

6. 2023 MITIGATION SITES MONITORING RESULTS AND MAINTENANCE RECOMMENDATIONS

6.1 Results

Following the approach defined in Section 2, the 2023 field effort included low-intensity, broad scale visual surveys of Vacca Farm, Miller Creek Buffer, and Auburn Sites. 2023 is the first year any Mitigation Sites are entering Mitigation Stewardship.

Two ecologists from Clearway Environmental LLC and a representative from the Port conducted site visits to each site in July of 2023. The team physically walked each site to perform broad-scale, low-intensity monitoring. Visual observations included maintenance needs, locations of invasive species, as well as conducting inspections for illegal use/dumping, hazard trees, and fence maintenance and repair.

To track conditions at the sites, handheld, sub-meter GPS units were used for GIS mapping. GIS data collected in the field will be integrated into the LSP GDB that the Port maintains. Locations of significant areas (larger than approximately 5x5 feet) of invasive species were mapped. Acreage of coverage was calculated by species and site, which can be used for future monitoring and tracking of maintenance progress. Areas that lacked native plant cover were mapped and marked as potential areas for replanting. Instances of fence line repair, hazard tree locations, illegal use, and other maintenance issues were recorded, and GIS locations collected. Several photos were taken at each site, showing general conditions or a specific issue, and are shown in Appendix A. Georeferenced photo locations are shown on the figures of each site (Figures 2, 3, and 4).

High-value trees located in the Miller Creek Buffer site (MU 14) and the Lora Lake site (part of MU 17) were surveyed in early 2023. The high-value tree inventory memorandum from this survey is included in Appendix B.

6.2 Invasive Species Cover

Amount of cover of the dominant invasives species, by acre and by site, is shown in Table 4, below, and will be used to estimate costs and effort.

Table 4: Invasive Species Percent Cover

	Vacca Farm	Miller Creek Buffer	Auburn	Total
Blackberry	0.26	2.81	0.42	3.50
Ivy	0.18	10.4	0.04	10.66
Reed Canary Grass	0.28	--	trace	0.28
Jewelweed	2.0	0.01	0.17	2.21

A summary of current conditions at each Mitigation Site visited is included in the sections below and include general site conditions, presence of invasive species, and tree survey data collected, where applicable.

6.3 Vacca Farm

Vacca Farm has large monocultures of jewelweed, which was the most prevalent invasive plant on site. Its area totals approximately 2 acres (see Figure 2). Small patches of ivy, reed canary grass, and blackberry were also present. Blackberry and reed canary grass are not shade tolerant, so their inability to successfully invade this site is likely due to the site's dense tree canopy. Ivy was also not a significant issue here, likely due to higher soil moisture, which it does not tolerate well. Other invasives noted on site include – European hawthorn, Portuguese laurel, cherry laurel, English holly, European ash, and common periwinkle.

The large swaths of jewelweed growing on the banks of Miller Creek need to be controlled. Since jewelweed is so widespread within the site, manual removal would be a significant undertaking. There is limited information available on control methods for spotted jewelweed, however aquatic versions of products containing glyphosate or triclopyr may be effective if applied to actively growing plants. Removing invasive species can open a habitat up to re-invasion if follow up management does not occur. Native planting should follow any removal of jewelweed infestation. See Table 2 for additional information about jewelweed control.

Due to a fairly contiguous canopy, only 4 small areas were noted as having planting potential (see Figure 2).

There was beaver activity noted at the northeast corner of the Vacca Farm site, dividing Vacca Farm from the Lora Lake site. The beaver dam is approximately 50 feet across and is causing some flooding and altering hydrology. There is significant ponding occurring on the northern side of the dam, on the Lora Lake side. Its location is shown on Figure 2 and Port staff has been notified of its presence, in order to move forward with removal plans by wildlife staff. In order to accommodate beaver use without impacting site restoration, the Port should develop a beaver management plan. The plan should identify actions to take, and those actions should be integrated into the Mitigation Stewardship menus of maintenance actions.

Vacca Farm is still being monitored for Indirect Impacts from the Lora Lake Model Toxics Control Act Mitigation (MTCA). The high-value tree inventory performed at MU 17 shows 6 high value trees (see Appendix B). Note that the boundary of MU 17 includes Lora Lake and Vacca Farm sites; Lora Lake is not a Mitigation Site included in the 2023 Plan.

Table 5 provides a summary of the issues, maintenance actions, and ROM costs identified for Vacca Farm based on the 2023 monitoring. The summary applies the Port-wide maintenance actions identified in Table 2 to the field collected data, specifically the delineated areas of invasive species and location of fence repair.

Table 5: Maintenance Actions Identified at Vacca Farm

Issue	Maintenance Action	ROM Cost
<ul style="list-style-type: none"> • Presence of Himalayan blackberry, English ivy, Spotted jewelweed, Reed canary grass, and Common periwinkle 	<ul style="list-style-type: none"> • Manual removal/hand pulling of all roots, root balls, and major side roots of blackberry, English ivy, and spotted jewelweed. • Herbicide application for blackberry, reed canarygrass, and periwinkle – while avoiding spraying adjacent desirable plants. • Removal of all the vines from the lower trunk of the tree and composting on site. • If jewelweed is in flower, carefully place a bag around the entire flower head cluster to prevent the seeds from escaping, then remove the flower/seed head. Vegetative parts may be left on site to compost. Flowers/seedheads should be disposed of in trash. • Plant shrubs/trees in areas with RCG. • Cutting or mowing of periwinkle. 	<p>\$123,000</p>
<ul style="list-style-type: none"> • Fence line repair 	<ul style="list-style-type: none"> • Repair holes in fences and add padlocks to fence openings that do not have secure access. 	<ul style="list-style-type: none"> • Repair hole: \$36/each • Add padlock: \$30/each

6.4 Miller Creek Buffer

The Miller Creek Buffer site has dense shrubs cover and a canopy of immature trees but has approximately 10 combined acres of English ivy cover (see Figure 3). Ivy was generally found growing at ground level on the upland banks of Miller Creek, at slightly higher elevations, as well as growing up numerous tree trunks. Occasional small patches of blackberry monocultures occurred throughout the site, with some large patches occurring at the southern end of the site for a combined total of 2 acres. Other invasives noted on site include – Portuguese laurel, cherry laurel, and tansy ragwort.

Ivy and blackberry, as well as the other invasives noted on site, should be controlled using the methods described in Table 2.

The large patches of blackberry, once removed, would offer some sites where additional tree planting could occur, but follow up maintenance/treatment would be needed to ensure that blackberry does not recolonize the area.

Volunteer crews could be helpful in areas where ivy patches are easily accessible since ivy is thornless and relatively easy to manually remove. This could offer an opportunity for community engagement. Steep sections with ivy should be handled by crews experienced with steep slopes and may not be suitable for volunteers.

The high-value tree inventory performed at MU 14 shows 303 high value trees (see Appendix B).

Table 6 provides a summary of the issues, maintenance actions, and ROM costs identified for Miller Creek Buffer based on the 2023 monitoring. The summary applies the Port-wide maintenance actions identified in Table 2 to the field collected data, specifically the delineated areas of invasive species and location of fence repair.

Table 6: Maintenance Actions Identified at Miller Creek Buffer

Issue	Maintenance Action	ROM Cost
<ul style="list-style-type: none"> • Presence of Himalayan blackberry, English ivy, Spotted jewelweed, Cherry laurel, Scotch broom, and Tansy ragwort 	<ul style="list-style-type: none"> • Manual removal/hand pulling of all roots, root balls, and major side roots of blackberry, English ivy, spotted jewelweed, scotch broom, and tansy ragwort. • Larger plants may be pulled using a weed wrench-type tool. • Herbicide application for blackberry and cherry laurel – while avoiding spraying adjacent desirable plants. • Removal of all the vines from the lower trunk of the tree and composting on site. • If jewelweed or tansy ragwort is in flower, carefully place a bag around the entire flower head cluster to prevent the seeds from escaping, then remove the flower/seed head. Vegetative parts may be left on site to compost. Flowers/seedheads should be disposed of in trash. • Cherry laurel EZ-ject tree injection • Cherry laurel cut-stump and frilling treatment. • Cutting for older scotch broom plants that are greater than 2” in diameter and no longer green at the base. If in seed, remove and disposed of in trash. 	\$615,000
<ul style="list-style-type: none"> • Fence line repair 	<ul style="list-style-type: none"> • Replace any sections of fencing that is no longer functional 	<ul style="list-style-type: none"> • \$36/linear foot

6.5 Auburn

Overall, the Auburn site was doing well, with high native cover and limited invasive cover. Invasives typically occurred in edge areas with more sun exposure.

The southern border had limbs from Black Cottonwood trees hanging over the fence and members of the public expressed concern about the tree limbs along this section (see Figure 4). This is the border of most concern for this issue, as there is a bike path and homes south of the site.

The pond located in the northeast corner of the site had a 50/50 mix of bulrush (*Schoenoplectus tabernaemontani*) and cattail (*Typha latifolia*) around edge of pond and was

surrounded by native willow trees. There was not a monoculture of cattail, but presence of cattail should be monitored each site visit and maintained if areal cover increases. Preferred method of removal is to cut and drown the cattail. Duckweed covered about 10% of the pond surface.

The pond located in the southeast corner of the site had a small amount of cattail, a large amount of bulrush, and was surrounded by native willow trees. Duckweed covered approximately 50% of the pond surface.

The pond located in the southwest corner of the site was muddier than the other ponds, had no cattail or bullrush, and was surrounded by native willow trees. No duckweed was present on the surface of this pond.

Bullfrogs were noted on site, which may inhibit the abundance of native amphibians.

Aside from jewelweed control within the site and blackberry control along the edges, this site mostly needs ongoing, routine maintenance to ensure that current invasive populations are controlled and additional invasives don't establish.

There were five fence issues observed at the site, either holes in the fence or other maintenance/access issues. See Figure 4 for Fence Line Repair locations.

Table 7 provides a summary of the issues, maintenance actions, and ROM costs identified for Auburn based on the 2023 monitoring. The summary applies the Port-wide maintenance actions identified in Table 2 to the field collected data, specifically the delineated areas of invasive species and location of fence repair.

Table 7: Maintenance Actions Identified at Auburn

Issue	Maintenance Action	ROM Cost
<ul style="list-style-type: none"> Presence of Himalayan blackberry, Canada Thistle, English ivy, Spotted jewelweed, and Reed canary grass 	<ul style="list-style-type: none"> Manual removal/hand pulling of all roots, root balls, and major side roots of blackberry, Canada thistle, English ivy, and spotted jewelweed. Herbicide application for blackberry and Canada thistle – while avoiding spraying adjacent desirable plants. Removal of all the vines from the lower trunk of the tree and composting on site. If jewelweed is in flower, carefully place a bag around the entire flower head cluster to prevent the seeds from escaping, then remove the flower/seed head. Vegetative parts may be left on site to compost. Flowers/seedheads should be disposed of in trash. Plant shrubs/trees in areas with RCG. 	\$68,000
<ul style="list-style-type: none"> Fence line repair 	<ul style="list-style-type: none"> Repair holes in fences and add padlocks to fence openings that do not have secure access. 	<ul style="list-style-type: none"> Repair hole: \$36/each

Issue	Maintenance Action	ROM Cost
	<ul style="list-style-type: none"> Replace any sections of fencing that is no longer functional 	<ul style="list-style-type: none"> Add padlock: \$30/each \$36/linear foot

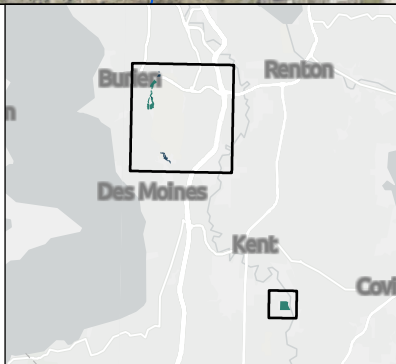
References

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- Washington State Noxious Weed Board. 2023. Noxious Weeds Index. URL: <https://www.nwcb.wa.gov/classes-of-noxious-weeds>

Figures



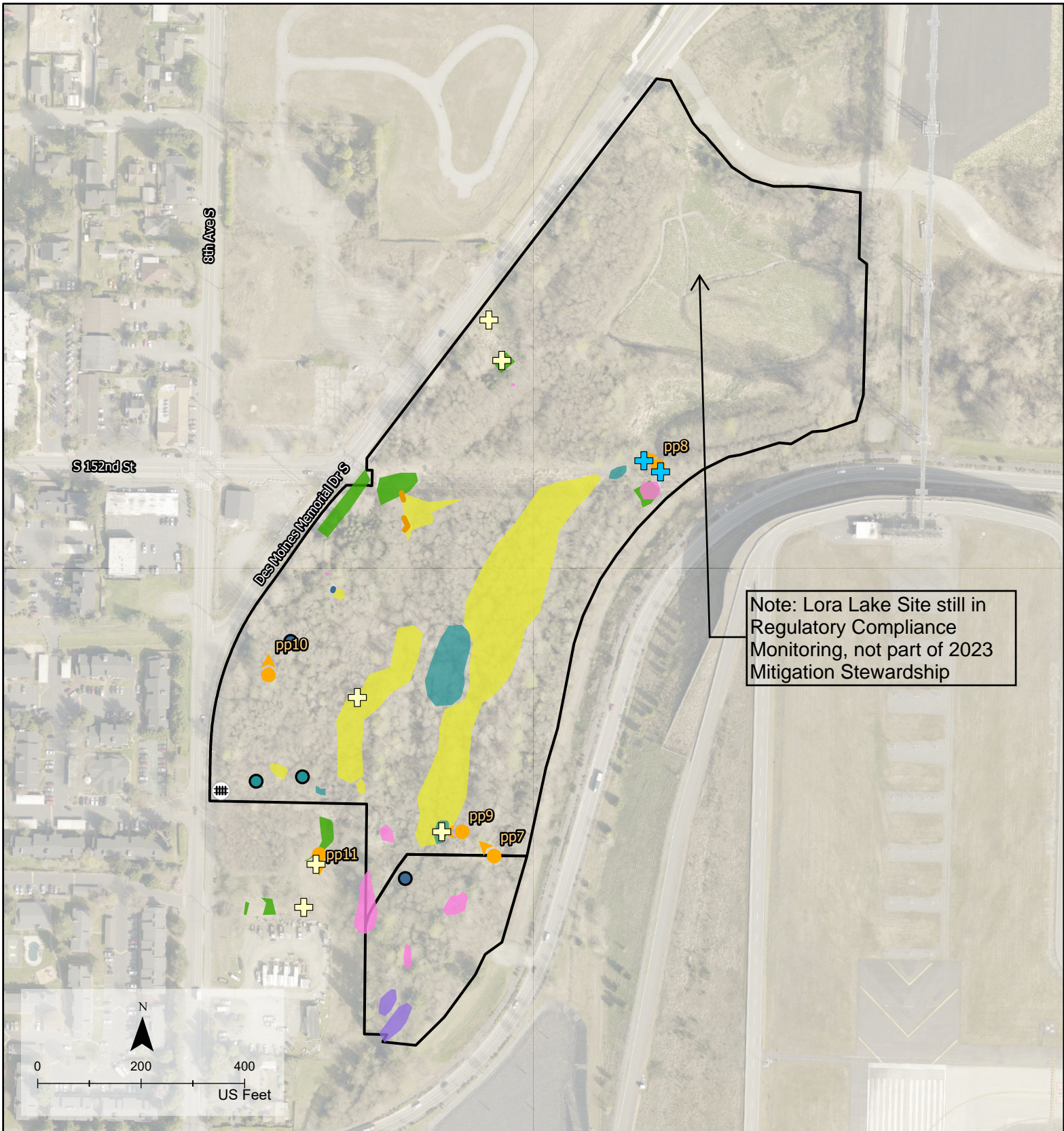
- Streams
- 2023 Mitigation Sites in LSP Mitigation Stewardship
- Mitigation Sites in Regulatory Compliance Program



**3rd Runway Mitigation Sites:
Land Stewardship Program
Vicinity Map**



Figure 1



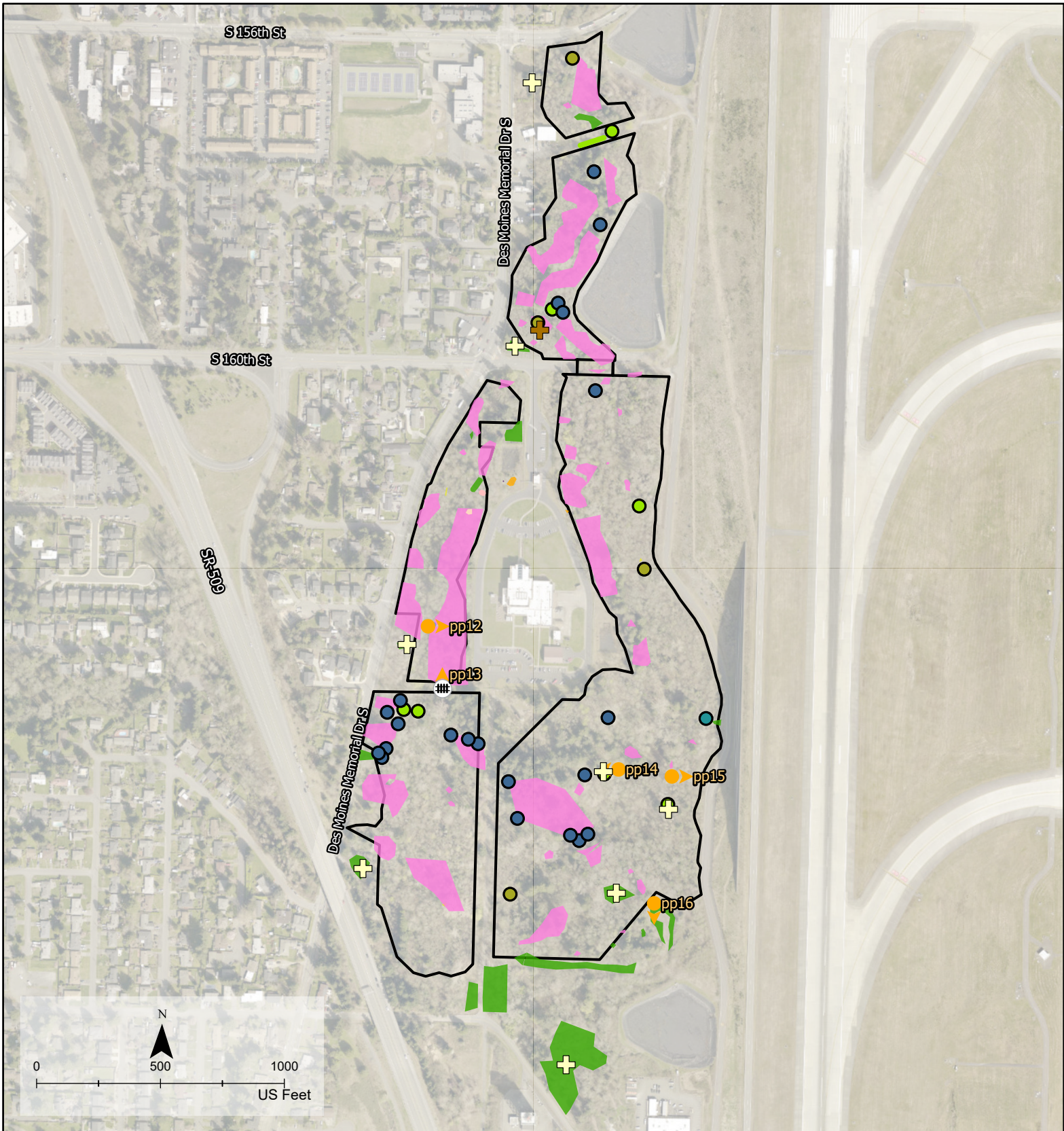
Note: Lora Lake Site still in Regulatory Compliance Monitoring, not part of 2023 Mitigation Stewardship

- Photo point with direction taken
- Fence Line Repair
- BeaverDam
- Possible Replanting Area
- Ivy
- Reed Canary Grass
- Ivy
- Jewelweed
- Blackberry
- Ivy
- Jewelweed
- Reed Canary Grass
- Vinca
- Mitigation Restrictive Covenant Boundary

3rd Runway Mitigation Sites: Land Stewardship Program Vacca Farm/Miller Creek Relocation



Figure 2

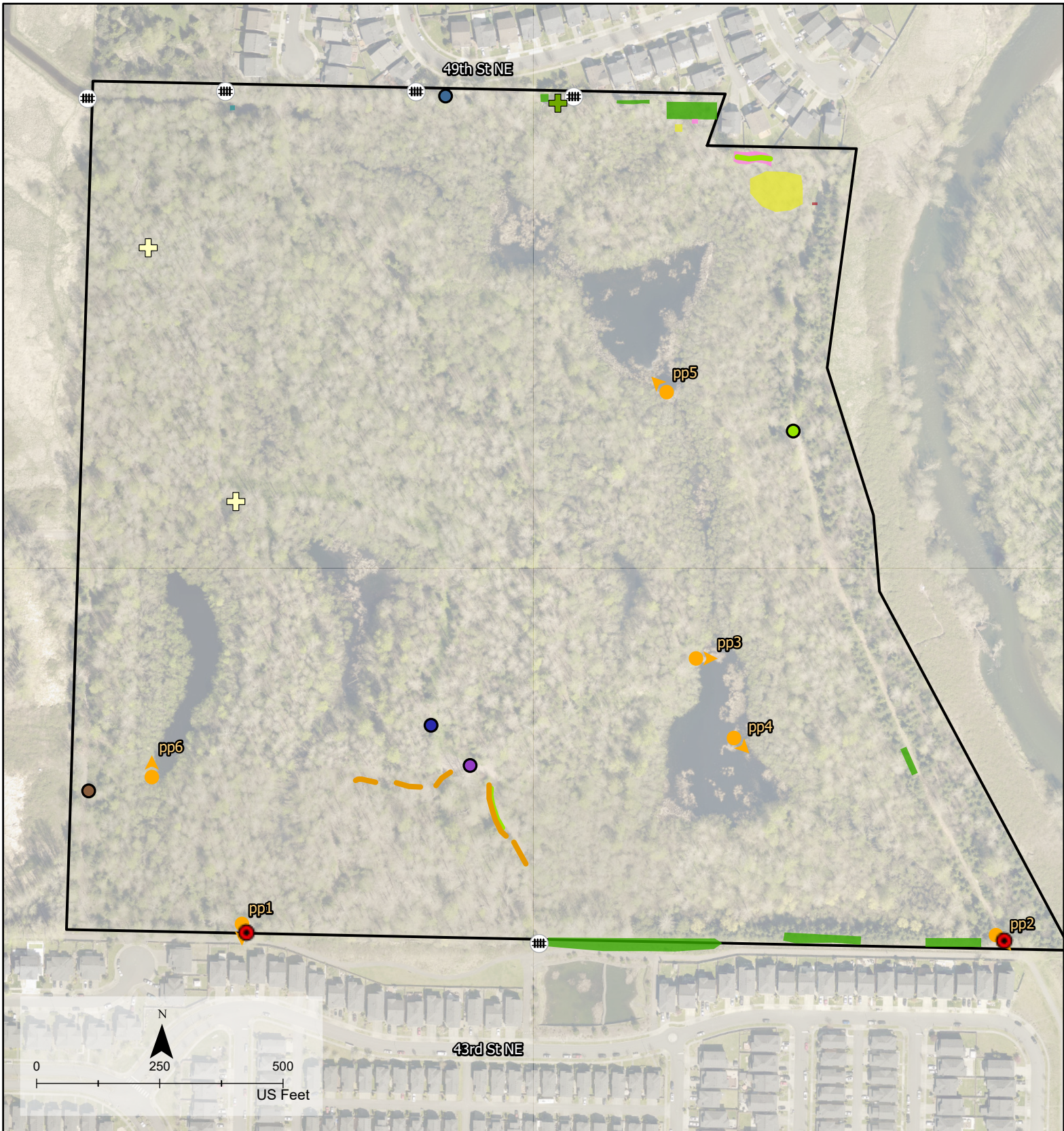


- Photo point with direction taken
- Fence Line Repair
- Large hole
- Possible Replanting Area
- Blackberry
- Ivy
- Jewelweed
- Reed Canary Grass
- Blackberry
- Laurel
- Locus
- Blackberry
- Ivy
- Jewelweed
- Tansy Ragwort
- Laurel
- Scotch Broom
- Mitigation Restrictive Covenant Boundary

3rd Runway Mitigation Sites: Land Stewardship Program Miller Creek Buffer



Figure 3



- | | | |
|------------------------------------|------------------|--|
| ▲ Photo point with direction taken | ● Butterfly Bush | ■ Canada Thistle |
| ⦶ Fence Line Repair | ● Ivy | ■ Ivy |
| ⊕ Possible Replanting Area | ● Poison Hemlock | ■ Jewelweed |
| ⊕ Yard waste | ● Tansy Ragwort | ■ Reed Canary Grass |
| ● Hazard Tree | — Blackberry | ▭ Mitigation Restrictive Covenant Boundary |
| ● Blackberry | — Jewelweed | |
| | ■ Blackberry | |

3rd Runway Mitigation Sites:
Land Stewardship Program
Auburn Off-Site Mitigation Area



Figure 4

Appendix A:
Selected Photos



Photo 1: Auburn Site - trees leaning south over fence, towards private homes.

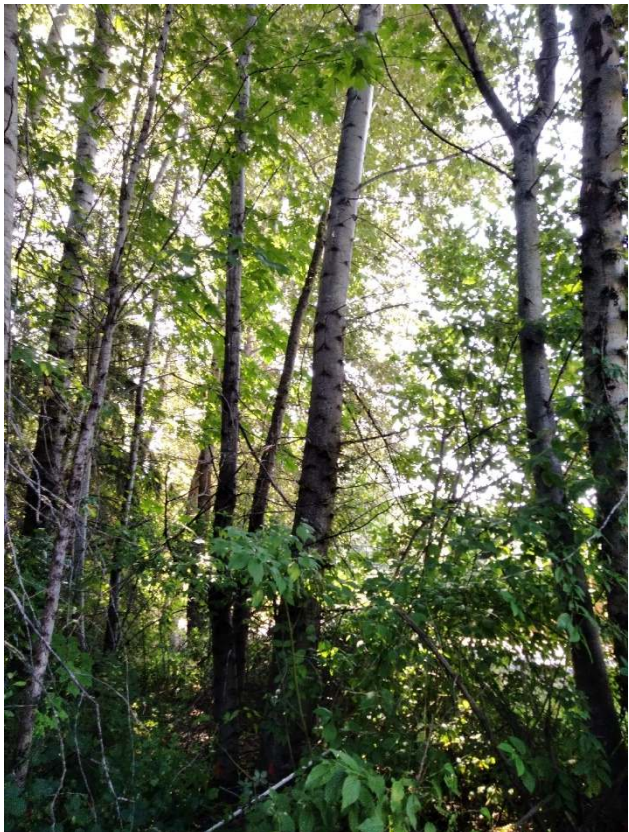


Photo 2: Auburn Site - trees leaning southeast over fence, towards private homes.



Photo 3: Auburn Site – southeast pond, shown from its northern end, mix of bullrush and cattail.



Photo 4: Auburn Site – northeast pond, shown from eastern bank looking south, mix of bullrush and cattail.



Photo 5: Auburn Site – northeast pond, shown from its southern end, mix of bullrush and cattail.



Photo 6: Auburn Site – southwest pond, shown from southern end, no bullrush or cattail, dominated by willow species.



Photo 7: Vacca Farm – Old beaver dam at southeast end of site. Water still flowing through.



Photos 8a & 8b: Vacca Farm – Large beaver dam on Miller Creek, at northern end of site. Water ponding on north side of dam (Lora Lake site).



Photo 9: Vacca Farm – Area of jewelweed growth, possible area for replanting once jewelweed is removed.



Photo 10: Vacca Farm – Example of ivy growth on tree trunks.



Photo 11: Vacca Farm – Area for possible replanting at southern end of site.



Photo 12: Vacca Farm – Example of ivy grown on upper banks of Miller Creek Buffer, on west side of site.



Photo 13: Miller Creek Buffer – Fence line maintenance noted, large tree laying on fence.



Photo 14: Miller Creek Buffer – Presence of yellow flag iris, recommend removal.



Photo 15: Miller Creek Buffer – Presence of yellow arch angel, recommend removal.



Photo 16: Miller Creek Buffer – Bare ground visible in aerial in background of photo, surrounded by blackberry in foreground.

Appendix B:
2023 High-Value Tree Inventory Memorandum

Memorandum

October 13, 2023

To: Chipper Maney and Risa Askerooth, Port of Seattle
From: Anna Spooner, Anchor QEA, LLC
cc: Ann Costanza and Rachel Andersen, Anchor QEA, LLC

Re: High-Value Tree Inventory: Management Units 13, 14, 16, 17, 40, 42, and 45

Introduction

In February 2023, Treelines Forestry (Treelines) conducted a tree inventory on Port of Seattle (Port)-owned land on the west side of Seattle Tacoma International Airport (SEA). The tree inventory area includes existing mitigation areas and adjacent upland areas. The total acreage of the planned inventory is approximately 176 acres and the survey covered seven Land Stewardship Plan (LSP) management units (MUs). Table 1 lists the MUs and Figure 1 provides a map of the tree survey area

Table 1
Management Units where Trees were Surveyed

Management Unit #	Management Unit Name
13	West Side Campus
14	Miller Creek Mitigation Area
16	FAA/TRACON
17	Miller Creek/Vacca Farm/Lora Lake Mitigation Area
40	West of Airport
42	RST Property
45	West Side Campus

The survey captured high-value trees. A high-value tree is defined as a tree that is large for its species (e.g., native deciduous or coniferous trees with a diameter at breast height [DBH] at or above 30 inches) or a tree with unique historical, ecological, or aesthetic significance. Designation as a high-value tree is somewhat subjective, and final determinations shall be made by professional arborists or foresters.

The GPS surveyed location of each high-value tree was recorded (see Attachment 1), and the high-value trees were flagged. Each tree was identified as high-value because it met one or more of the following criteria:

- Coniferous trees and big leaf maples more than 28 inches DBH.
- Trees with unique characteristics, scientific or cultural value, such as yew, madrone, oaks, black walnut, Pacific dogwood, and older apple trees. Species could also include Sequoia, redwood, other cedars, Colorado blue spruce, and other ornamental spruce.

- High-value trees do not include weeping willow or other willows, black cottonwood, cherry, plum, hazelnut, poplar, alder, birch, hawthorne, Japanese maple, or photina.

Figure 1
Tree Inventory Site Map



Treelines recorded the following information for each tree, along with any other notable features:

- Species
- Height
- DBH
- Dead/alive status
- Presence/absence of invasive species such as ivy
- Other notable features, forking, leaning, wounds, presence of disease/debris, etc.

This memorandum summarizes the data collected and provides a species description of all high-value tree species identified. The species information was researched with multiple sources; all are listed in the references section.

Summary of Collected Data

During the fieldwork, 408 high-value trees were surveyed. Nearly 270 of the surveyed trees have a DBH of 30 inches or greater. 80% of the surveyed trees are coniferous and deciduous tree species native to the Pacific Northwest. Table 2 provides an overview of the collected data. Refer to Attachment 2 for full data results. Note that in some instances, the details of a tree could not be clearly measured or recorded due to excessive invasive blackberry brush, and an estimate was made (see Attachment 2).

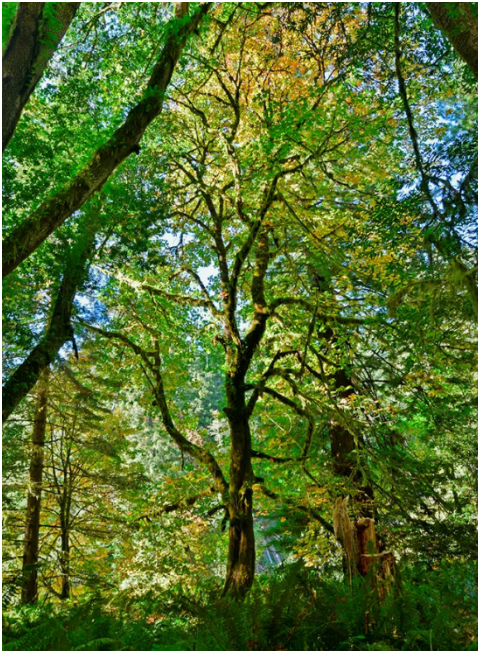
Table 2
High-Value Trees Data Summary

Data	Quantity
Total high-value trees surveyed	408
High-value trees with DBH at or above 30 inches	269
High-value trees with unique historical, ecological, or aesthetic significance	139
Native coniferous high-value trees	288
Native deciduous high-value trees	45
Non-native/ornamental high-value trees	75
High-value trees on MU 13	31
High-value trees on MU 14	303
High-value trees on MU 16	12
High-value trees on MU 17	6
High-value trees on MU 40	5
High-value trees on MU 42	1
High-value trees on MU 45	45
High-value trees outside of MUs	5
High-value trees with invasive species present	183

High-Value Trees: Species Descriptions

Native Species

The following native tree species were found on the site:



<https://www.nps.gov/articles/000/bigleaf-maple.htm>



<http://nativeplantspnw.com/big-leaf-maple-acer-macrophyllum/>

Bigleaf Maple

Acer macrophyllum, also known as bigleaf maple, is a large, upright, deciduous tree native to western North America, mainly along the Pacific coast from the southernmost part of Alaska to southern California. It is known to be a fast-growing, long-lived tree that can reach up to 100 feet tall but is most often 50 to 60 feet tall and 65 feet wide. The trunk can grow up to 40 inches in diameter. Bigleaf maples are deciduous trees that lose their leaves in the winter but provide vibrant fall color in cold regions. The leaves are palmate, typical of maples, but much larger than the leaves of other maple species, reaching up to a foot across. The flowers of bigleaf maples are abundant in early spring, hanging in bunches of greenish yellow before the leaves begin to emerge. These trees are most abundant along streambanks and canyons, where an abundance of moisture can be found, or adjacent to grassland, woodland, or pine forests. In addition, a wide variety of other species of plants, mosses, ferns, and lichens grow from the trunk and branches of this maple, contributing to the organic matter that litters the forest floor and provides nutrients and moisture for other species.

Treelines recorded approximately 50 bigleaf maple trees within the survey area. Many had invasive English ivy (*Hedera helix*) growing up the trunk to heights of 40 feet and old tags from a previous survey. The bigleaf maples surveyed ranged in size from 28 to 49 inches DBH and heights of 49 to 113 feet tall.



<https://conifersociety.org/conifers/pseudotsuga/>



<https://treesandshrubsonline.org/articles/pseudotsuga/pseudotsuga-menziesii/>



<https://www.wnps.org/native-plant-directory/208:pseudotsuga-menziesii>

Douglas Fir

Pseudotsuga menziesii, or Douglas fir, is a long-lived evergreen conifer species in the pine family. Their native range is from Southwestern British Columbia to central Mexico. As the largest and tallest member of the pine family, they can grow up to 295 feet tall and 12 to 20 feet wide with a DBH of up to 6 feet in old-growth forests. These trees grow on both sides of the Cascade Mountains and along the coast and are known for their rugged, thick bark, which is good at withstanding forest fires. The Douglas fir needles are tiny, yellow- or blue-green, with white stripes, while the cones are small and yellow-reddish for the males and larger (2 to 4 inches) reddish-brown and hanging for females.

Douglas fir is one of the most widespread of all western trees, growing anywhere but in the wettest of conditions. Because of their resilience and strength, they can regenerate quickly after significant major disturbances, making them essential economically as a timber product. This species also has great cultural significance to many local tribes because it has been used for medicinal purposes, as fuel for fires, and for tools such as fishing hooks, spears, and handles.

Treelines recorded approximately 108 Douglas fir trees in the survey area. Many had English ivy (*Hedera helix*) growing up the trunk to heights of 10 to 60 feet and old tags from a previous survey. The trees recorded ranged in size from 28 to 44 inches DBH and heights of 61 to 158 feet tall.



<https://treesandshrubsonline.org/articles/abies/abies-grandis/>

Grand Fir

Abies grandis, also known as grand fir, is a fast-growing and hardy fir native to the Pacific Northwest and northern California and grows at altitudes between sea level and 5,600 feet. As one of the world's tallest trees, and the largest of the *Abies* genus, they can grow up to 270 feet with widths of 25 feet and DBH of up to 62 inches. They have soft, dark green, fragrant needles with silver undersides and surprisingly small cones that sit upright on the branches.

Grand firs grow best in floodplains, where they are successful at competing against other trees such as Douglas firs, western red cedar, and western hemlock. Foresters dislike this species because it is so successful at multiplying and quickly crowding out more valuable pine and larch species. These thin-barked trees are also known for being susceptible to low-intensity fires, soft, weak, and prone to decay and infestation by beetles.

Grand firs, along with Douglas firs and noble firs, are a favorite for Christmas trees because of their shiny needles, symmetry, and desirable scent. For this reason, they are often used in urban plantings and recreation areas as well. They also have historical significance because early settlers depended upon them as tie-offs to control the rate of descent as covered wagons conversed particularly steep slopes.

Treelines recorded just one grand fir on the surveyed land, measuring 36 inches DBH and 90 feet tall.



<https://treesandshrubsonline.org/articles/abies/abies-procera/>

Noble Fir

Abies procera or noble fir is one of the largest firs in the *Abies* genus. It can be found in the Cascade Range and Coast Ranges of the Pacific Northwest at elevations between 300 and 5,000 feet. Noble firs can grow to 230 feet tall and 30 feet wide with a DBH of 45 to 60 inches. They are long-lived, up to 600 to 700 years, but more typically around 400 years, and fast-growing. This species is tall and narrow, with a columnar trunk, rounded crown, and short, almost horizontal branches; the bluish-green striped needles are stiff and grow upward, exposing the underside of the branches. The cones are large and erect on the branches and ripen from purple to green to brown. The pollen cones are small and magenta-colored.

The stiff branches, symmetry, and ability to hold onto its needles after being cut make the noble fir a favorite for Christmas trees. Historically, this species was also used for building airplanes and ladders because of its slight weight. It is also considered one of the best firs for lumber because of its clear, light grain and strength.

Treelines recorded just one noble fir in the survey area, measuring 36 inches DBH and 57 feet tall.



<https://xeraplants.com/plants/arbutus-menziesii/>



<https://nativefoodsnursery.com/pacific-madrone/>



<https://www.portlandnursery.com/natives/arbutus>

Pacific Madrone

Arbutus menziesii, also known as the Pacific madrone, is a broadleaf evergreen tree in the Ericaceae family and the largest blooming tree in this family. It is native to the western coast of North America, from British Columbia to California. It is most often found along coastal cliffs and hillsides. The Pacific madrone grows up to 80 to 125 feet tall with a DBH of 24 to 48 inches and a spread of up to 50 feet. They are long-lived, up to 400 years, but slow growing.

The Pacific madrone is known for its elegant, wide-branching, twisting structure and striking red bark, which peels to expose a smooth, green underside. It produces fragrant white flowers in clusters and edible red fruits, which can be used for cider, fishing bait, or medicinal tea.

The significance of this species is due to its cultural and ecological value. Historically, Indigenous communities gathered and dried the berries for steelhead fishing while using the bark and leaves for medicinal tea to treat colds and stomach issues. It is also a vital food source for many bird species because its berries mature late in the summer and last long into the winter. In addition, its salt tolerance allows it to grow where many other species of trees cannot.

Treelines recorded approximately 55 Pacific madrone trees in the survey area. Many were multi-trunked with heavy ivy growth up to 10 to 30 feet, leaning or plagued with an undetermined disease. In addition, old tags from a previous survey were found on several trees. The trees recorded ranged in size from 8 to 30 inches DBH and heights of 25 to 78 feet tall.



<https://www.laspillitas.com/nature-of-california/plants/513--pinus-ponderosa>



<https://www.gardenia.net/plant/pinus-ponderosa>

Ponderosa Pine

Pinus ponderosa, or the ponderosa pine, is found throughout much of the western United States, from British Columbia and Alberta in Canada to Mexico. It typically grows in dry, open forests and can be found from sea level to over 9,000 feet but usually between 3,300 to 7,000 feet above sea level.

The ponderosa pine is characterized by a tall, straight trunk and 5- to 10-inch long, yellow-green needles arranged in clusters of three. The tree bark is thick and deeply furrowed and reddish-brown to black-colored. The cones of ponderosa pine are 3 to 6 inches long and egg-shaped.

Ponderosa pine is important culturally and ecologically. Some Indigenous people consider it a sacred tree, which has been used in traditional medicine and ceremonies. It is also an important timber species and has significant value as wildlife habitat, erosion control, and in recreational settings.

Treelines recorded four ponderosa pine trees in the survey area, all with diameters of approximately 30 inches and heights of around 60 to 112 feet, with half of the trees forking at 12 feet above the ground.



https://www.conifers.org/ta/Taxus_brevifolia.php



https://www.conifers.org/ta/Taxus_brevifolia.php

Pacific Yew

Taxus brevifolia, also known as the Pacific yew, is a slow-growing evergreen tree that typically grows to a height of 30 to 50 feet tall with a DBH of 12 to 24 inches. It grows in the Pacific Northwest, including the coastal areas of Washington, Oregon, and northern California, in moist, shady environments. Pacific yews are often found in the understory of old-growth forests at elevations ranging from sea level to 6,000 feet.

The Pacific yew's distinctive appearance makes it stand out against other species. It has short, flat, dark green needles arranged in a spiral pattern around the stem and small, bright red fruit that is not edible. The bark is reddish-brown and covered with stringy fibers.

Pacific yew is historically significant and has been used by Indigenous people in the Pacific Northwest for centuries for medicinal purposes, including the treatment of cancer, arthritis, and other ailments. In addition, in some tribes, it is considered a symbol of strength and resilience.

Treelines recorded one Pacific yew tree in the survey area, with a DBH of 15 inches and approximately 30 feet tall.



<https://treesandshrubsonline.org/articles/thuja/thuja-plicata/>



<https://davisla.wordpress.com/2011/10/08/plant-of-the-week-thuja-plicata/>

Western Red Cedar

Thuja plicata, or western red cedar, is an evergreen coniferous tree that can grow up to 200 feet tall, with a DBH of up to 13 feet. It is native to the Pacific Northwest, along the coast, from Oregon to British Columbia. It grows in moist forests at elevations from sea level to 6,500 feet.

The western red cedar is known for its fragrance and reddish-brown bark that peels off in long, thin strips. It has scaly, flat leaves that are bright green and shaped like a fan. The cones are surprisingly small, at only about 1/2 inch long, and oblong.

Western red cedar has been used by both settlers and Indigenous people as a building material for homes, canoes, totem poles, and medicinal and ceremonial purposes. It is also significant for its use as a habitat for various wildlife species and its ability to stabilize soils and prevent slope erosion.

Treelines recorded approximately 145 western red cedar trees in the survey area. Each had a DBH of 28 to 54 inches and heights of 71 to 140 feet. Several had English ivy growing up the trunk to varying heights, splits, dead tops, forking, and old tags from a previous survey. Pileated woodpecker excavations were visible on two trees, while wire, chains, and debris were found embedded in several trunks.



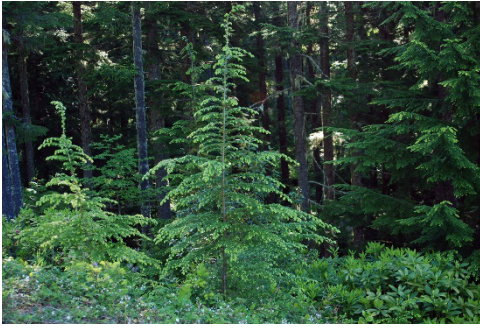
https://florafinder.org/Species/Picea_sitchensis.php

Sitka Spruce

Picea sitchensis, also known as the Sitka spruce, is a large, evergreen coniferous tree growing up to 300 feet tall, with a DBH of up to 8 feet. It is native to the Pacific Northwest and found along the coasts of Alaska and British Columbia down to California. It grows at elevations ranging from sea level to 3,500 feet.

The Sitka spruce has horizontal branches that droop slightly at the tips and an overall conical shape. The needles are blue-green, and the bark is thin and grayish brown, with small, flaky scales. The tree also produces small, cylindrical-shaped cones that are about 3 to 4 inches long. The Sitka spruce has significance culturally and ecologically in the Pacific Northwest. Local Indigenous people have used it for building materials and canoe construction. It also provides habitat for a number of species.

Treelines recorded one Sitka spruce tree in the survey area. It had a DBH of 29 inches and a height of 135 feet.



<https://landscapeplants.oregonstate.edu/plants/tsuga-heterophylla>



Photo © 2004 Ben Legler

<https://www.wnps.org/native-plant-directory/327:tsuga-heterophylla>

Western Hemlock

Tsuga heterophylla, or western hemlock, is the largest species of hemlock and the official state tree of Washington because of its role in our forest industry. It is a large, shade-loving conifer that grows to between 90 and 200 feet tall, with a DBH of up to 9 feet. It can be found at elevations up to 6,500 feet along the Pacific Northwest, from Alaska to California, in moist forests, often under the canopy of other larger trees.

The western hemlock tree has a narrow, conical shape with a straight trunk and a dense crown of branches. The bark is thin, scaly, and gray-brown, and the needles are short and flat, with two white stripes on the underside. The cones are about an inch long and light brown in color.

Western hemlock has significance in the Pacific Northwest due to its ecological value to deer and elk, which use it as a food source. It also provides habitat for many other species, has aesthetic value to many national parks in the United States, and prevents erosion on hillsides and streambanks.

Treelines recorded seven western hemlock trees in the survey area. All had a DBH between 29 and 38 inches and heights of 73 to 136 feet. Most were plagued with heavy English ivy growing up their trunks, broken trunks or leaning, snags, and old tags from a previous survey.



https://www.inaturalist.org/guide_taxa/577817



<http://nativeplantspnw.com/western-white-pine-pinus-monticola/>



<http://nwconifers.com/nwhi/wwwhitepine.htm>

Western White Pine

Pinus monticola, also known as the western white pine, is a fast-growing, large conifer native to the Pacific Northwest and the Rocky Mountains between 3,000 and 5,000 feet above sea level. It can grow to 200 feet tall, with a DBH of up to 78 inches. It is considered “near threatened” because of its decreasing numbers.

The western white pine has a straight trunk, sparse crown of branches, and an overall conical shape. The bluish-green needles are long, slender, and arranged in bundles of five, and the gray-brown bark is smooth and breaks into large rectangular plates. The cones are large, sticky, and banana-shaped.

Western white pine has not been used as much as other pines for timber, but it is light, attractive, and often used to make wooden matches. It is also easy to work with, making it an ideal wood for carving and building materials. Because of its tolerance for poor site conditions, and lack of pests and diseases, it is valuable economically and for restoration programs. Indigenous people would historically use the resin to seal canoes and eat the inner bark when other food sources were scarce.

Treelines recorded two western white pine trees in the survey area, both with a DBH of 30 inches and heights of 85 feet tall.

Non-Native Species

The following non-native species were also found and recorded:



<https://organicplantcarellc.com/chinese-chestnut-castanea-mollissima/>



<https://kbjniplants.com/american-chestnut-castanea-dentata/>

Common Chestnut

Castanea dentata, or common chestnut, is a large deciduous tree that can grow up to 100 feet tall. It has a straight trunk and a rounded crown with deeply furrowed bark. The leaves are long and slender with serrated edges and a glossy dark green color, turning yellow or brown in the fall. The tree produces large, spiny burs that contain two to three edible nuts.

The chestnut tree is not native to the Pacific Northwest. Still, it has cultural significance as a symbol of the lost chestnut forests of the eastern United States, which almost died off in the early 20th century due to a fungal disease that killed over 4 billion trees. The tree was an important part of the culture and economy of the eastern United States, significantly impacting the landscape and communities that relied on it. The nuts are a staple food for wildlife and were once an important food source for humans. The wood of the American chestnut was also highly valued for its strength and durability, making it a popular choice for furniture and construction.

Treelines recorded approximately six chestnut trees in the survey area. All had a DBH of 15 to 20 inches and heights of 61 to 82 feet.



https://wnmu.edu/academic/nspages/gilaflo/malus_domestica.html



<https://plantsam.com/malus-domestica/>

Apple

Malus domestica, also known as the domestic apple, is a small deciduous fruit tree that belongs to the Rosaceae family. It can grow up to 30 feet tall and has a broad, spreading crown with an equally large spread of up to 25 to 30 feet. The leaves of the apple tree are oval-shaped and have a serrated edge. They are usually dark green in color and turn yellow in the fall. The flowers are white or pink in the spring and attract pollinators, leading to fruit in the late summer or fall. The fruit can vary in color from green to yellow to red, depending on the variety.

Humans have farmed apple trees for thousands of years. Washington is the country's top apple-producing state, and the region's apple-growing heritage is celebrated yearly in the form of festivals and other events. Apples are often included in favorite local dishes and beverages, such as apple pie, apple cider, and hard cider. The apple tree plays a significant role in shaping the cultural identity of many people from the Pacific Northwest. Heritage apples are the trees grown by our great, great grandparents. These varieties were used to make Halloween treats; dried; used in baking; made into brandy, cider, and vinegar; and fed to livestock. Unfortunately, few of these trees remain today.

Treelines recorded approximately eight apple trees in the survey area. All had a DBH in the range of 8 to 19 inches and heights of 20 to 42 feet. Two trees forked at the ground and apples were scattered around the trees.



<https://sactree.org/trees/deodar-cedar/>



https://treespnw.forestry.oregonstate.edu/conifer_genera/true_cedar.html

True Cedar

Cedrus, or true cedar, is an evergreen coniferous tree native to the Pacific Northwest region of North America, including Seattle. It is a tall tree that can grow up to 225 feet and has a DBH of up to 78 inches. It has a round crown, and the bark is thin, reddish-brown, and fibrous, with a distinctive, strong scent. The leaves are scale-like and overlap in four rows, forming flattened sprays. The cones are small, brown, and oblong.

True cedar has significant cultural and ecological significance in the Pacific Northwest. It has been traditionally used by Native American tribes for a variety of purposes, giving them much of what they needed for life, including canoes, totem poles, baskets, clothing, and other items of cultural and practical significance. It was also used to build shelters and tools. The tree is also an important part of the local ecosystem, providing habitat and food for various wildlife.

The true cedar is also used for aesthetic purposes and landscaping because of its ease of care and ability to thrive in many soils and site conditions. Its attractive foliage, form, and pleasant scent make it a popular choice for hedges, windbreaks, and privacy screens. It is also often used for outdoor furniture and decking because of its durability and resistance to decay. Efforts are being made in the Pacific Northwest to preserve this tree even while commercial logging threatens it.

Treelines recorded three true cedar trees in the survey area. They all had a DBH of 28 to 47 inches and heights ranging from 76 to 80 feet.



<https://plants.ces.ncsu.edu/plants/robinia-pseudoacacia/>



<https://www.inaturalist.org/taxa/56088-Robinia-pseudoacacia>

Black Locust

Robinia pseudoacacia, commonly known as black locust, is a fast-growing deciduous tree reaching 80 feet and a DBH of 3 feet. Black locust is considered an invasive species in the Pacific Northwest, where it rapidly spreads and suppresses the growth of native vegetation, especially in disturbed areas.

The bark is dark gray and deeply furrowed, while the leaves are pinnately compound with five to seven oval leaflets and are dark green. The tree produces fragrant, white flowers in late spring or early summer, which are a source of nectar for bees and other pollinators. They turn into flat, brown seed pods in late summer.

Despite its invasive status, the wood of the black locust is strong, durable, and resistant to decay, making it a valuable resource for fence posts, railroad ties, and other construction uses. The tree is also often used as an ornamental species in urban and suburban landscapes because of its attractive foliage and showy flowers. Medicinally, the flowers of the black locust have been used in traditional medicine to treat various ailments, including bronchitis, asthma, and rheumatism. However, the tree is also known to be toxic to livestock and harmful to humans.

Treelines recorded approximately 24 black locust trees in the survey area. They all had a DBH between 8 and 24 inches and heights of 42 to 71 feet. Most had ivy growing up the trunk to heights of 10 to 25 feet.



<https://the-natural-web.org/tag/fagus-grandifolia/>



https://www.missouriplants.com/Fagus_grandifolia_page.html

Beech

Fagus, also known as the beech tree, is a large, deciduous tree with a broad oval crown and smooth, gray bark. It can grow up to 80 feet tall and has a spread of about 50 feet. The leaves are elliptical, with pointed tips and slightly serrated edges, and turn a bright yellow in the fall before dropping off. Beech trees produce nuts in spiny husks that ripen in the fall and are a valuable food source for many animals, including squirrels and deer.

Beech trees are not native to the Pacific Northwest. Still, due to their aesthetic value, they are often planted as ornamental trees in parks and gardens and used in urban settings, including the Washington Park Arboretum. In addition, they can provide significant shade and shelter for humans and other species. They are also valued for their wood, which is used for flooring, veneers, and furniture.

Treelines recorded two beech trees in the survey area. They had a DBH of 14 and 24 inches and heights of 40 and 58 feet, respectively.



<https://www.vdberk.com/trees/catalpa-speciosa/>



<https://gobotany.nativeplanttrust.org/species/catalpa/speciosa/>

Western Catalpa

Catalpa speciosa, or western catalpa, is a large, deciduous tree native to the central and eastern United States. It can grow up to 50 to 100 feet tall, has a broad, spreading crown as wide as it is tall, and has a DBH of up to 40 inches. The tree is easily recognizable due to its exceptionally large, heart-shaped leaves and showy, bell-shaped flowers that bloom in late spring or early summer. The flowers are white with purple or yellow markings and are known to have a sweet fragrance.

Catalpa speciosa is not native to the Pacific Northwest and not often found in urban areas, but it can occasionally be found in parks and gardens.

The tree is significant in Native American cultures, but not local tribes specifically. For example, the Cherokee people used this tree to make bows and used the bark to make tea to treat coughs and snake bites. The tree has also been used throughout history to treat fevers, asthma, and malaria and is known to be a mild narcotic.

Treelines recorded one western catalpa tree in the survey area. It had a DBH of 21 inches and a height of 25 feet. It was mostly dead, with broken forks and seedpods still attached.



http://midwestnaturalist.com/acer_saccharinum.html

Silver Maple

Acer saccharinum, or silver maple, is a deciduous tree that can grow up to 50 to 115 feet tall with a spread of 35 to 50 feet and a DBH of 24 to 48 inches. It has a rounded, broad crown and branches that curve upward. Its bark is gray and smooth. The leaves have five deep lobes, with green tops and silvery undersides, which gives the silver maple its name. In the fall, the leaves turn shades of golden and pale yellow, making this species stand out against the landscape. In addition, the tree produces flowers that are small and red and clusters of winged seeds called samaras.

Silver maples are found throughout the eastern United States and Canada but are not native to the Pacific Northwest. However, they grow well in various soil types, including wet and poorly drained soil, making the Pacific Northwest coast a welcome home for them.

Locally, silver maples are popular and often planted as ornamental shade trees in urban areas and parks because of their fast growth rate and adaptability to poor soil and site conditions. They are also used for basket weaving and furniture-making. Historically, Indigenous people have also used the tree for medicinal purposes, such as treating coughs and colds.

Treelines recorded approximately ten silver maple trees in the survey area. All had a DBH of between 13 and 51 inches and a height of 53 to 90 feet. Several were multi-forked with ivy growing up the trunk.



<https://plants.ces.ncsu.edu/plants/abies-nordmanniana/>

Nordmann Fir

Abies nordmanniana, or Nordmann fir, is a tall and narrow coniferous tree that can reach heights up to 230 feet. They have straight trunks with a narrow, rounded crown. The needles are dark green on top and white on the bottom, and the cones are cylindrical and 4 to 6 inches long.

The Nordmann fir has cultural significance for native people in the eastern United States and has been part of folklore and history, but not specifically in the Pacific Northwest. However, it is an extremely popular ornamental tree often planted in gardens and parks for its attractive shape and color. It is also commonly used as a Christmas tree due to its ability to retain its needles after being cut and its symmetrical shape. In addition, the wood of the tree is strong and durable, making it a smart choice for furniture making and construction.

Treelines recorded one Nordmann fir tree in the survey area. It had a DBH of 30 inches and a height of 82 feet, with ivy climbing up the trunk.



<https://idfg.idaho.gov/species/taxa/60675>



<https://idfg.idaho.gov/species/taxa/60675>

Dogwood

Cornus or dogwood covers a large and diverse group of shrubs and small trees known for their colorful bark and interesting flowers. They grow in various habitats, usually in the shady understory, and prefer moist soils. They are often found along streambanks or in mixed forests. The species of dogwood commonly found in the Pacific Northwest is the Pacific dogwood (*Cornus nuttallii*). Dogwoods can grow up to 20 to 30 feet but occasionally as tall as 90 feet. Their leaves are simple and turn a deep reddish-purple in the fall. The showy bracts surrounding the small, inconspicuous flowers are striking and distinctive, usually pink or white. Dogwood bark is smooth and attractive, but in some species, it peels away to show a colorful inner bark.

Dogwoods have significant cultural and ecological importance in the Pacific Northwest. The Pacific dogwood is celebrated in many Native American legends for its beauty and is also the official state flower of British Columbia. The bark has been used for medicinal purposes, and the wood is ideal for making tools. In addition, many species of birds and animals use dogwood as a habitat and food source.

Treelines recorded one dogwood tree in the survey area. It had a DBH of 12 inches and a height of 40 feet. It was multi-forked and partially uprooted.



<https://www.nps.gov/seki/planyourvisit/sequoiagroves.htm>



<https://davisla.wordpress.com/2011/09/03/plant-of-the-week-sequoiadendron-giganteum/>

Giant Sequoia

Sequoiadendron giganteum is known as the giant sequoia or Sierra redwood. They are native to the western slopes of the Sierra Nevada mountain range in California, at elevations between 4,500 and 8,000 feet. The sequoia is a massive, columnar, medium-growing tree species that can reach heights of 60 to 275 feet, with a spread of 25 to 35 feet, and can live for thousands of years. They are known for their enormous trunk size, with a DBH of 12 to 20 feet, but occasionally up to 40 feet in diameter. The bark of the giant sequoia is rich and reddish-brown, thick and fibrous, and stands out against the landscape. The short needles are evergreen, bluish-green, and arranged in spirals around the branches. The cones of the giant sequoia are also large, reaching up to 3 inches in length, and are covered in a waxy coating to protect the seeds from fire.

In the Pacific Northwest, sequoias are not native but are often used in landscaping to make a statement with their unique appearance and enormous size. They are hugely significant to Native American communities in California and are used as a cultural symbol in many traditional stories and practices. Environmentally, they are highly valued as habitat for various wildlife and help regulate the local climate.

Treelines recorded four sequoia trees in the survey area. They all had a DBH of between 62 and 64 inches and heights of 111 to 138 feet. Two had heavy ivy growing up the trunks.



<https://plantingjustice.org/shop/natives-tree-seedlings/native-trees-shrubs-natives-tree-seedlings/port-orford-cedar-chamaecyparis-lawsoniana-organic/>

Port Orford Cedar

Chamaecyparis lawsoniana, or Port Orford cedar, is a tree native to southwest Oregon and northwest California. It grows in cool, moist environments and is often found in mixed conifer forests, usually at elevations between sea level and 4,900 feet. It is a large evergreen tree that can grow up to 150 to 200 feet tall, with a DBH of 4 to 6 feet, and has a narrow, conical shape. The foliage is blue-green, and the bark is thin, scaly, and reddish-brown. It is known for its strong, pleasant smell that comes from its wood and leaves. Unfortunately, the Port Orford cedar has become popular in the timber industry, which has led to over-harvesting and loss of habitat in some areas. For this reason, it is listed as near threatened, and conservation efforts have been undertaken to protect the species and ensure its continued success.

Though the Port Orford cedar is not native to the Seattle area, it grows well here and is commonly used in ornamental landscaping. In addition, it has cultural significance to many tribes, who have long used its wood to build canoes, houses, and art, such as masks, carvings, and baskets.

Treelines recorded one Port Orford cedar tree in the survey area. It had a DBH of 34 inches and a height of 77 feet, with multiple forks at 6 feet and an old tag from a previous survey.



<https://treesandshrubsonline.org/articles/taxus/taxus-canadensis/>



<https://trees.umn.edu/canada-yew-taxus-canadensis>

Canada Yew

Taxus canadensis, or Canada yew, is a slow-growing, small evergreen tree or shrub that grows up to 4 feet tall with a spread of 7 feet, often found in swampy woods, ravines, and other shady, wet areas around much of North America. Its dark green, needle-like leaves grow in a spiral pattern around the stem. The female Canada yews produce bright, visually striking, but toxic red berries.

The Canada yew is significant to many Native American tribes for its medicinal purposes. The bark, needles, and leaves contain taxol, a chemical compound that can be used to treat certain types of cancer, fevers, and influenza. It was also used to craft bows, canoe paddles, weapons, and tools. In gardens and landscaping, it is also used as an ornamental plant because of its dark-leaved and brightly colored berries. It is also valuable as an understory species and provides a habitat for many species of birds and other animals.

Treelines recorded one Canada yew tree in the survey area. It had a DBH of 5 inches and a height of 14 feet.



<https://futureforests.ie/products/picea-abies>



<https://www.gardenersworld.com/plants/picea-abies/>

Norway Spruce

Picea abies, or Norway spruce, is a large, coniferous tree native to Europe and western Asia. It can be found in cool and moist climates, where it typically grows up to 40 to 60 feet tall with a spread of 25 to 30 feet and a DBH of 40 to 60 inches. It has a rounded crown with dark green needles and gray-brown bark that is scaly with deep furrows. The cones are long and curved and have a reddish-brown color.

In the Pacific Northwest, Norway spruce is often used as an ornamental tree in parks and gardens. It is also well-loved as a Christmas tree for its conical shape and dense foliage. In addition, Norway spruce is suitable for construction, furniture-making, and paper production. It is also significant ecologically as a habitat for various species of birds and other animals. However, because this species is not native to North America, it has little historical significance locally. Still, it has played a considerable role in the cultural history of Scandinavia and Northern Europe, where it has been used in traditional medicine, folk art, woodcarvings, and to make stringed instruments.

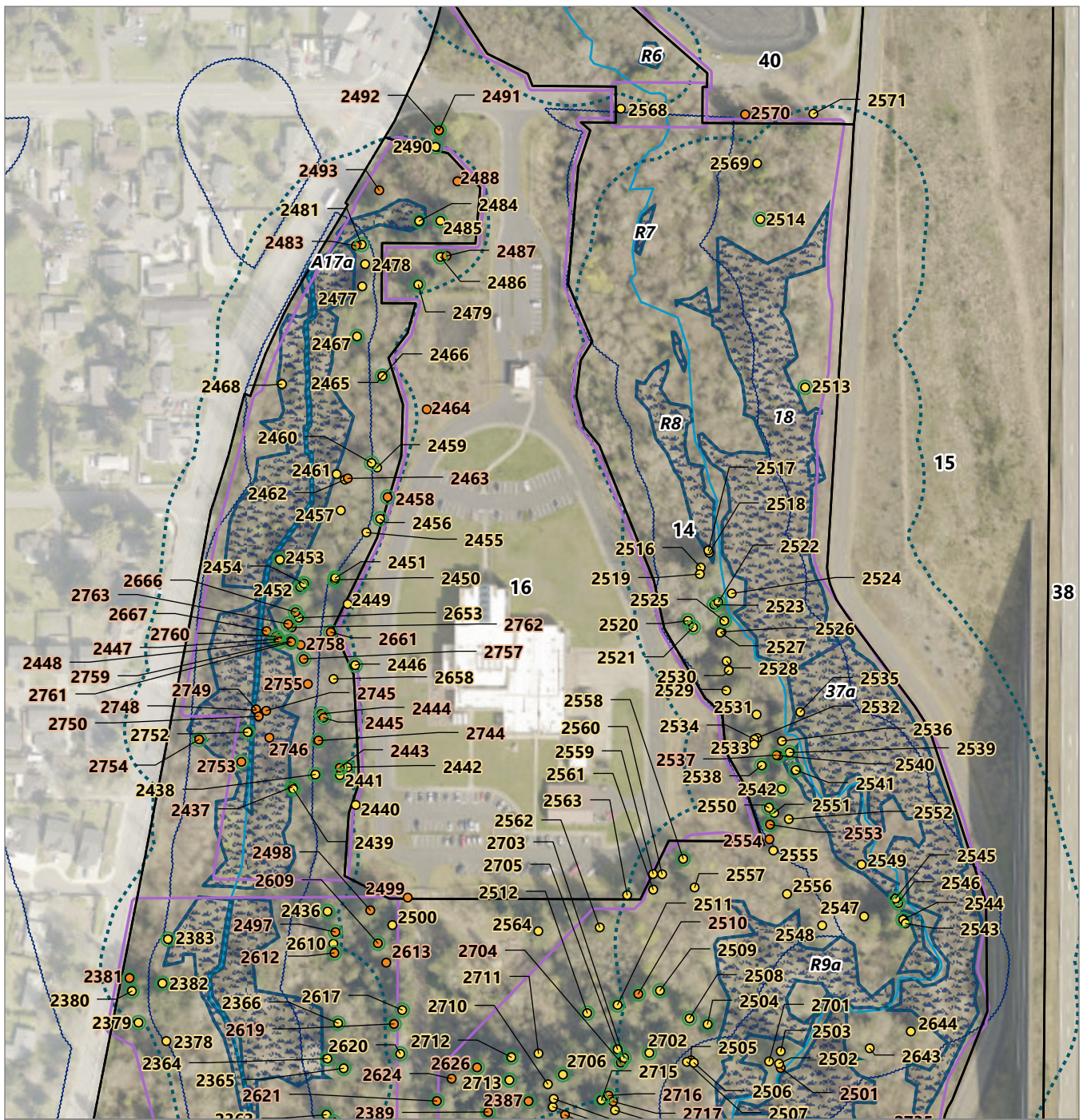
Treelines recorded one Norway spruce tree in the survey area. It had a DBH of 30 inches and a height of 78 feet, with a broken top.

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Attachment 1

High-Value Tree Surveyed Locations



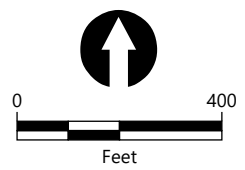
LEGEND:

- Port-Owned Aviation Properties at Sea-Tac Airport
- Land Stewardship Plan Management Units
- Mitigation Restrictive Covenant
- FCSP Mitigation Site
- Stream
- Stream Buffer

- Wetland Buffer
- Wetland
- Tree Inventory**
- >30" DBH
- <30" DBH
- Ivy Presence

NOTES:

1. Port-Owned Aviation Properties: Port of Seattle
2. Aerial Imagery: King County (2021)
3. Airport natural resource data: Environmental Science Associates
4. Critical Areas: Des Moines, SeaTac, and Burien jurisdictions
5. Tree inventory: Treelines Forestry (2023)

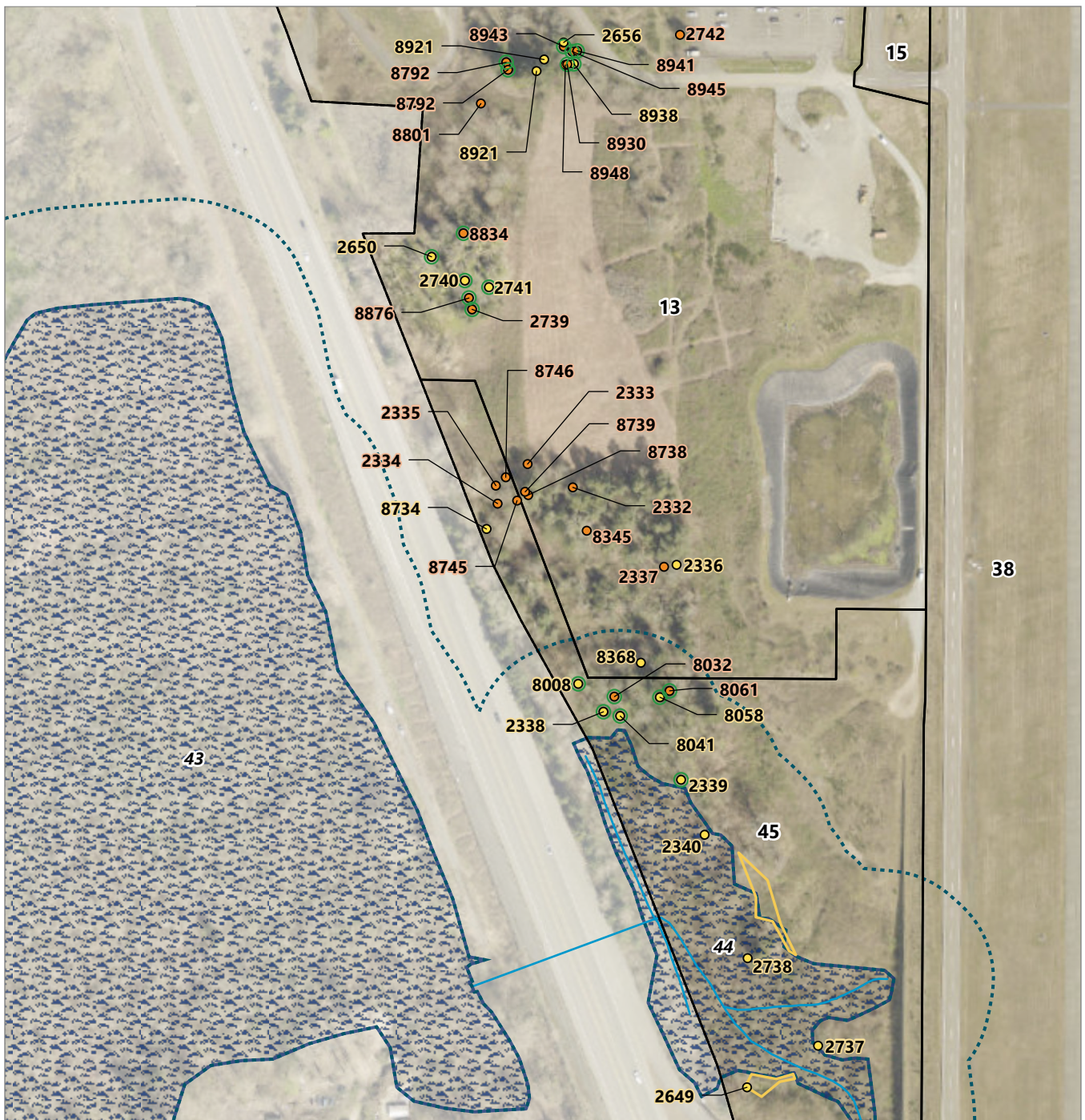


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Figure 2
High-Value Tree Surveyed Location

High-Value Tree Survey Memorandum
 Port of Seattle



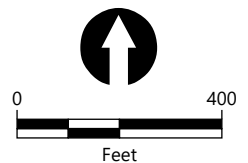
LEGEND:

- Port-Owned Aviation Properties at Sea-Tac Airport
- Land Stewardship Plan Management Units
- Mitigation Restrictive Covenant
- FCSP Mitigation Site
- Stream
- Stream Buffer

- Wetland Buffer
- Wetland
- Tree Inventory**
- >30" DBH
- <30" DBH
- Ivy Presence

NOTES:

1. Port-Owned Aviation Properties: Port of Seattle
2. Aerial Imagery: King County (2021)
3. Airport natural resource data: Environmental Science Associates
4. Critical Areas: Des Moines, SeaTac, and Burien jurisdictions
5. Tree inventory: Treelines Forestry (2023)



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Figure 4
High-Value Tree Surveyed Location

High-Value Tree Survey Memorandum
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Attachment 2

High-Value Tree Survey Results

Attachment 2

High-Value Tree Survey Results: Management Units 13, 14, 16, 17, 40, 42, 45

GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
2144	47.462462	-122.322146	2766	Canada Yew	Canada Yew	5	14	80	No	multi-stemmed; needles 1.5" long, much longer than Pacific yew	AJ	14
1937	47.44872699	-122.322058	8739	Black Locust	Black Locust	8	54	35	No	old tag from previous survey	AJ	13
2116	47.45066699	-122.321789	8948	PM	Pacific Madrone	8	30	65	No	heavy horizontal lean	AJ	13
2125	47.45676499	-122.324485	2746	Undetermined Oak	Undetermined Oak	8	52	30	No	likely red oak	AJ	14
2120	47.45080403	-122.32102	2742	PM	Pacific Madrone	9	36	90	No	4 stems; trunk w/in 10" of power pole	AJ	13
2127	47.45688996	-122.324576	2748	Undetermined Oak	Undetermined Oak	9	71	25	No	likely red oak	AJ	14
2129	47.45686197	-122.324557	2750	Undetermined Oak	Undetermined Oak	9	70	25	No	likely red oak	AJ	14
48	47.45952901	-122.323346	2491	PM	Pacific Madrone	9	44	55	Yes	ivy up to 30'	KS	16
45	47.45895702	-122.323297	2487	PM	Pacific Madrone	9	32	60	No		KS	16
2126	47.45688703	-122.324507	2745	Undetermined Oak	Undetermined Oak	10	75	30	No	likely red oak	AJ	14
2128	47.45689399	-122.324575	2749	Undetermined Oak	Undetermined Oak	10	72	25	No	likely red oak	AJ	14
2133	47.45700899	-122.324227	2755	Black locust	Black locust	10	71	25	No	2 stems	AJ	14
41	47.45900396	-122.323905	2483	Apple	Apple	10	42	80	No		KS	14
50	47.45925601	-122.323748	2493	Apple	Apple	10	24	60	No		KS	14
2137	47.45722499	-122.324441	2760	Black locust	Black locust	10	75	20	Yes	ivy up to 15'	AJ	14
2141	47.45728198	-122.324359	2763	Black locust	Black locust	10	72	35	Yes	ivy up to 8'	AJ	14
1958	47.44879296	-122.322187	8746	PM	Pacific Madrone	11	49	60	No	old tag from previous survey	AJ	45
1966	47.44838602	-122.321127	2337	PM	Pacific Madrone	11	52	80	No	clump of 3 stems: 10"dbh, 11"dbh, and 12"dbh	AJ	13
1983	47.452827	-122.324915	2347	Undetermined Hwd	Undetermined Hwd	11	40	65	No	2' inside fence; basal scar/wound; dead forks	AJ	45
2029	47.45483698	-122.323002	2393	PM	Pacific Madrone	11	35	40	No	2 stems; heavy lean	AJ	14
181	47.45724502	-122.324074	2661	Black locust	Black locust	11	48	25	Yes	ivy up to 25'	KS	14
186	47.46107798	-122.321904	2671	Black locust	Black locust	11	52	45	No		KS	14
2009	47.45480102	-122.32537	2374	PM	Pacific Madrone	12	59	35	Yes	heavy ivy up to 20'	AJ	14
1959	47.44875499	-122.322254	2335	Black Locust	Black Locust	12	62	70	No		AJ	45
1962	47.44867302	-122.322242	2334	Black Locust	Black Locust	12	65	45	No		AJ	45
2019	47.45404196	-122.323228	2384	Dogwood	Dogwood	12	40	70	No	multi-forked; partially uprooted	AJ	14
2053	47.45320603	-122.321028	899	Undetermined Oak	Undetermined Oak	12	60	50	No	old tag from previous survey	AJ	45
2134	47.45712298	-122.324255	2757	Black locust	Black locust	12	70	30	Yes	ivy up to 15'	AJ	14
2119	47.45073102	-122.321709	8941	PM	Pacific Madrone	12	46	35	Yes	heavy ivy up to 30'	AJ	13
2011	47.45489004	-122.325451	2376	PM	Pacific Madrone	13	38	60	Yes	heavy ivy up to 25'	AJ	14
1960	47.44868701	-122.322111	8745	PM	Pacific Madrone	13	50	80	No	old tag from previous survey	AJ	45
9	47.45662803	-122.324012	2443	PM	Pacific Madrone	13	50	35	Yes	ivy up to 4'; tree leaning	KS	14
2135	47.45718702	-122.324276	2758	Black locust	Black locust	13	72	45	No		AJ	14
2139	47.45726698	-122.324335	2762	Black locust	Black locust	13	74	45	No		AJ	14
2136	47.45720403	-122.324348	2759	Black locust	Black locust	13	75	40	Yes	ivy up to 15'	AJ	14
85	47.45241604	-122.322111	2647	Silver Maple	Silver Maple	13	53	50	No	estimated dbh due to brush on bole	KS	45
86	47.45239098	-122.321883	2648	Undetermined Oak	Undetermined Oak	13	40	50	No	leaning	KS	45
1956	47.44871199	-122.322037	8738	Black Locust	Black Locust	14	65	45	No	old tag from previous survey	AJ	13
124	47.45254604	-122.322683	2429	Beech	Beech	14	40	80	Yes		JM	45
2033	47.45341801	-122.323115	2397	Silver Maple	Silver Maple	14	86	35	No		AJ	14
172	47.45067	-122.321775	8930	PM	Pacific Madrone	14	52	40	Yes	clump of 5 stems; old tags 8929, 8932, and 8939	KS	13
019	47.462777	-122.32187	2599	PY	Pacific Yew	15	30	40	No		WD	40
2024	47.45499901	-122.322945	2388	PM	Pacific Madrone	15	50	20	Yes	heavy lean; ivy up to 8'	AJ	14

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GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
2025	47.45506103	-122.323017	2389	PM	Pacific Madrone	15	64	10	Yes	basal wound with decay; ivy up to 20'	AJ	14
1949	47.46395901	-122.322013	2330	Apple	Apple	15	35	90	No	observed apples on the ground	AJ	17
136	47.455142	-122.322224	2716	PM	Pacific Madrone	15	65	35	Yes		WD	14
46	47.45929699	-122.323223	2488	Apple	Apple	15	30	60	No		KS	14
53	47.45603702	-122.323557	2499	PM	Pacific Madrone	15	49	25	No	unhealthy tree, basal scar	KS	16
2138	47.45720001	-122.324338	2761	Black locust	Black locust	15	74	30	Yes	ivy up to 60'	AJ	14
2023	47.45510998	-122.322746	2387	PM	Pacific Madrone	16	62	20	Yes	fork @ 7'; ivy up to 20'	AJ	14
1947	47.46403503	-122.321736	2327	Chestnut	Chestnut	16	67	70	No	one of a clump of 2	AJ	17
1955	47.44885297	-122.322041	2333	PM	Pacific Madrone	16	47	70	No		AJ	13
10	47.45687303	-122.324137	2444	PM	Pacific Madrone	16	54	25	Yes	ivy up to 30'	KS	14
2020	47.45424204	-122.32338	2385	Undetermined Hwd	Undetermined Hwd	16	49	65	No	multi-forked	AJ	14
2115	47.45049197	-122.322354	8801	Undetermined Fruit Tree	Undetermined Fruit Tree	17	35	60	No	2 stems, one with heavy basal rot	AJ	13
11	47.45685602	-122.324121	2445	PM	Pacific Madrone	17	58	35	Yes	ivy up to 30'	KS	14
2110	47.44955597	-122.322413	2739	PM	Pacific Madrone	17		40	Yes	clump of 4 stems: 17", 17", 9", 12"; heavy ivy up to 35'	AJ	13
2143	47.46204701	-122.322092	2765	Chestnut	Chestnut	17	68	80	Yes	growing on streambank; ivy up to 15'	AJ	14
2118	47.45072801	-122.321743	8945	PM	Pacific Madrone	17	60	50	Yes	ivy up to 15'	AJ	13
2022	47.45497604	-122.322941	2386	PM	Pacific Madrone	18	56	30	Yes	fork @ 4'; 60% dead; ivy up to 20'	AJ	14
1964	47.44854997	-122.321645	8345	Black Locust	Black Locust	18	62	55	No	old tag from previous survey	AJ	13
178	47.45206436	-122.3225362	2657	PM	Pacific Madrone	18	53	30	Yes	heavy ivy up to 30'	AJ	45
2124	47.456752	-122.324156	2744	Chestnut	Chestnut	18	82	75	Yes	leaning; ivy up to 10'	AJ	14
2131	47.45665502	-122.324673	2753	Undetermined Oak	Undetermined Oak	18	85	65	Yes	ivy up to 20'; bark different from oak #s 7420-7426	AJ	14
2145	47.46245404	-122.322364	5	Undetermined Hwd	Undetermined Hwd	19	72	40	No	creekside; tree was not tagged	KS	14
1995	47.45424396	-122.323801	2360	Apple	Apple	19	38	65	No	forks at 3'	AJ	14
2030	47.45481997	-122.323136	2394	PM	Pacific Madrone	19	40	55	No	fork @ 6'	AJ	14
63	47.455213	-122.323262	2624	PM	Pacific Madrone	19	44	65	No		KS	14
173	47.45075097	-122.321799	8943	PM	Pacific Madrone	19	60	50	Yes	ivy up to 20'	KS	13
1984	47.45288299	-122.324922	2348	Undetermined Hwd	Undetermined Hwd	20	46	75	Yes	2' inside fence, ivy 15'	AJ	45
2027	47.45490002	-122.322981	2391	PM	Pacific Madrone	20	64	30	No	fork @ 3'; ivy up to 6'	AJ	14
188	47.46252101	-122.322272	2673	Chestnut	Chestnut	20	68	65	No		KS	14
1994	47.45305298	-122.324469	2359	Undetermined Hwd	Undetermined Hwd	21	70	70	Yes	ivy up to 20'	AJ	14
1986	47.45305298	-122.324909	2350	Western Catalpa	Western Catalpa	21	25	30	No	broken forks, mostly dead; seed pods	AJ	45
62	47.45511099	-122.323361	2621	PM	Pacific Madrone	21	55	50	Yes	ivy up to 10'	KS	14
187	47.46254297	-122.321962	2672	Chestnut	Chestnut	21	61	80	No		KS	14
58	47.45574097	-122.323701	2613	PM	Pacific Madrone	22	56	10	No	ivy up to 30'; undetermined disease present	KS	14
2113	47.44960802	-122.322434	8876	PM	Pacific Madrone	22		30	Yes	also 8877 and 8878; clump of 7 stems: 10"-22"; heavy ivy up to 30'	AJ	13
1985	47.45294502	-122.324911	2349	Undetermined Hwd	Undetermined Hwd	23	46	80	No	6' inside fence, dead forks	AJ	45
55	47.45582898	-122.323757	2609	PM	Pacific Madrone	23	60	35	Yes	ivy up to 20'	KS	14
1945	47.46433997	-122.321967	2325	Undetermined Hwd	Undetermined Hwd	24	91	50	No		AJ	17
1952	47.44874703	-122.321738	2332	PM	Pacific Madrone	24	68	70	No		AJ	13
1977	47.45287201	-122.323642	2341	Beech	Beech	24	58	90	No		AJ	45
2132	47.45675703	-122.324957	2754	Black locust	Black locust	24	58	70	Yes	forks at 5'; ivy up to 8'	AJ	14
127	47.455054	-122.322516	2707	PM	Pacific Madrone	25	95	50	No		WD	14
137	47.455115	-122.322193	2717	PM	Pacific Madrone	26	70	40	No		WD	14

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GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
57	47.45578498	-122.324049	2612	PM	Pacific Madrone	26	55	30	Yes	fork @ 6'; undetermined disease present	KS	14
2123	47.45654102	-122.324332	2437	PM	Pacific Madrone	27	67	30	Yes	significant basal rot; tree unhealthy; ivy up to 30'	AJ	14
67	47.45360099	-122.322541	548	DF	Douglas Fir	28	105	60	Yes	old tag from previous survey; ivy up to 40'	KS	14
1997	47.45501501	-122.324053	2362	DF	Douglas Fir	28	106	70	Yes	ivy up to 30'	AJ	14
142	47.454697	-122.32202	2722	DF	Douglas Fir	28	118	70	No	broken top	WD	14
2016	47.45567098	-122.325424	2381	DF	Douglas Fir	28	107	50	Yes	ivy up to 25'	AJ	14
084	47.456691	-122.321098	2537	RC	Western Red Cedar	28	128	90	No		WD	14
127	47.45210197	-122.322485	2432	DF	Douglas Fir	28	106	70	Yes		JM	45
130	47.452035	-122.322692	2435	DF	Douglas Fir	28	61	70	Yes		JM	45
2046	47.45410399	-122.320575	819	BM	Bigleaf Maple	28	90	15	No	old tag from previous survey	AJ	14
13	47.457213	-122.324425	2447	DF	Douglas Fir	28	111	60	Yes	ivy up to 24'; forked top	KS	14
24	47.45786	-122.323692	2458	BM	Bigleaf Maple	28	78	60	Yes	ivy up to 30'	KS	14
2142	47.461052	-122.322366	2669	BM	Bigleaf Maple	28	80	60	No	heavy lean	AJ	14
49	47.459529	-122.323347	2492	DF	Douglas Fir	28	97	65	Yes	ivy up to 6'	KS	16
038	47.460679	-122.322482	2580	True Cedar	True Cedar	28	80	80	Yes		WD	14
2031	47.45526404	-122.323091	2626	DF	Douglas Fir	28	130	55	Yes	ivy up to 30'	AJ	14
66	47.45352396	-122.32284	2629	BM	Bigleaf Maple	28	74	30	Yes	ivy up to 40'	KS	14
52	47.45597902	-122.323808	2498	RC	Western Red Cedar	28	82	90	No		KS	14
1968	47.447822	-122.32109	8061	DF	Douglas Fir	28	100	40	Yes	old tag from previous survey; ivy up to 20'	AJ	45
183	47.45724997	-122.324504	2667	Silver Maple	Silver Maple	28	70	50	No	3 stems; creekside	KS	14
021	47.462527	-122.321787	2597	RC	Western Red Cedar	28.2	80	90	No		WD	14
048	47.459607	-122.321307	2570	DF	Douglas Fir	28.5	92	90	No		WD	40
120	47.455267	-122.321068	2501	DF	Douglas Fir	28.5	144	60	No		WD	14
068	47.456375	-122.32114	2553	RC	Western Red Cedar	28.7	100	75	Yes	ivy up to 10'	WD	14
144	47.45454	-122.321898	2724	SS	Sitka Spruce	29	135	70	No		WD	14
2047	47.45398899	-122.320751	805	BM	Bigleaf Maple	29	68	35	No	old tag from previous survey; fork @ 8'	AJ	14
2051	47.45498199	-122.320333	2735	BM	Bigleaf Maple	29	79	50	No	forks @ 5'	AJ	14
14	47.45720202	-122.324421	2448	DF	Douglas Fir	29	130	60	Yes	ivy up to 35'	KS	14
51	47.45588003	-122.324042	2497	DF	Douglas Fir	29	132	65	Yes	ivy up to 6'	KS	14
1992	47.45367098	-122.324873	2356	RC	Western Red Cedar	29	76	85	No	forks @ 8'; forks out	AJ	14
2003	47.45421496	-122.325267	2368	Undetermined Hwd	Undetermined Hwd	29	86	40	No	same hwd species as tree #s 2367 and 2369	AJ	14
051	47.460211	-122.322794	2567	RC	Western Red Cedar	29	92	80	Yes		WD	14
2012	47.45474403	-122.325434	2375	RC	Western Red Cedar	29	67	90	No	multi-forked @ 8'	AJ	14
60	47.45546202	-122.323649	2619	RC	Western Red Cedar	29	83	85	Yes	can crusher and nail embedded in tree; ivy up to 20'	KS	14
182	47.45733596	-122.32431	2666	WH	Western Hemlock	29	95	0	Yes	snag; ivy up to 20'	KS	14
124	47.455292	-122.322141	2704	DF	Douglas Fir	29	145	80	Yes		WD	14
146	47.454618	-122.322155	2726	Undetermined Conifer	Undetermined Conifer	29	100	90	Yes	in the Cupressaceae family	WD	14
29	47.45794499	-122.323959	2463	BM	Bigleaf Maple	29	87	40	No		KS	14
30	47.45825898	-122.323429	2464	BM	Bigleaf Maple	29	59	50	No	part of clump	KS	16
2121	47.45151096	-122.321742	2743	BM	Bigleaf Maple	29	55	45	Yes	basal rot; severe ivy up to 40'	AJ	13
1971	47.44779602	-122.32146	8032	BM	Bigleaf Maple	29	80	45	Yes	old tag from previous survey; ivy up to 25'	AJ	45
055	47.450685	-122.322199	8792	DF	Douglas Fir	29	97	70	Yes		KS	13
170	47.45064503	-122.322172	8792	DF	Douglas Fir	29	97	70	Yes		KS	13

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83	47.45322003	-122.322115	1684	DF	Douglas Fir	29	119	60	No	old tag from previous survey	KS	14
84	47.45246096	-122.322284	2646	Undetermined Hwd	Undetermined Hwd	29	56	25	No	estimated dbh due to brush on bole	KS	45
169	47.44990197	-122.322471	8834	BM	Bigleaf Maple	29	70	45	Yes		KS	13
111	47.455604	-122.322024	2510	RC	Western Red Cedar	29.5	96	90	Yes		WD	14
067	47.456308	-122.321144	2554	RC	Western Red Cedar	29.8	102	90	No	Pileated woodpecker excavations in bole	WD	14
2042	47.45422896	-122.321228	847	DF	Douglas Fir	30	95	20	Yes	old tag from previous survey; ivy up to 6'	AJ	14
1979	47.45269398	-122.324793	2343	DF	Douglas Fir	30	108	70	Yes	ivy up to 4'	AJ	45
064	47.456089	-122.321646	2557	PP	Ponderosa Pine	30	112	50	No		WD	14
152	47.454672	-122.323396	2732	Norway Spruce	Norway Spruce	30	78	90	No	broken top	WD	14
129	47.455127	-122.322592	2709	DF	Douglas Fir	30	160	85	No		WD	14
131	47.455333	-122.322694	2711	DF	Douglas Fir	30	150	70	No		WD	14
121	47.455297	-122.321146	2701	DF	Douglas Fir	30	150	50	No		WD	14
2010	47.45490898	-122.325398	2377	Nordmann fir	Nordmann fir	30	82	95	Yes	ivy up to 15'; two rows of white stomata on needle underside only	AJ	14
115	47.455291	-122.321651	2506	DF	Douglas Fir	30	130	60	No		WD	14
96	47.46296299	-122.322449	2401	WH	Western Hemlock	30	85	70	Yes	ivy up to 4'	JM	14
1965	47.44839499	-122.321043	2336	BM	Bigleaf Maple	30	69	40	No	top dying	AJ	13
118	47.46042796	-122.323195	2423	DF	Douglas Fir	30	112	75	Yes		JM	14
167	47.44601998	-122.320571	2649	BM	Bigleaf Maple	30	63	65	No	20' inside of fence	KS	45
122	47.45245996	-122.322682	2427	WP	Western White Pine	30	85	50	Yes		JM	45
2048	47.45465199	-122.320388	983	RC	Western Red Cedar	30	87	95	No	old tag from previous survey	AJ	14
12	47.45709498	-122.323909	2446	PM	Pacific Madrone	30	78	35	Yes	estimated dbh due to brush; forks @ 6'; heavy ivy	KS	16
126	47.45234102	-122.322377	2431	PP	Ponderosa Pine	30	60	70	No	fork at 12'	JM	45
1991	47.45344601	-122.324852	2355	RC	Western Red Cedar	30	78	95	No	forks @ 8'	AJ	14
1993	47.45308701	-122.324397	2357	RC	Western Red Cedar	30	87	90	No	part of clump	AJ	14
053	47.452343	-122.323924	2565	PP	Ponderosa Pine	30	75	70	Yes		WD	13
6	47.45645897	-122.323906	2440	DF	Douglas Fir	30	117	65	No	50' inside fence	KS	16
2114	47.45731099	-122.324288	2653	BM	Bigleaf Maple	30	90	40	Yes		KS	14
126	47.455237	-122.32253	2706	DF	Douglas Fir	30	150	50	Yes		WD	14
54	47.45591196	-122.32366	2500	RC	Western Red Cedar	30	89	85	No		KS	14
2117	47.45067202	-122.321731	8938	BM	Bigleaf Maple	30	70	50	Yes	forks at 20'; ivy up to 40'	AJ	13
042	47.460547	-122.322693	2576	DF	Douglas Fir	30.2	130	70	Yes		WD	14
1982	47.45273799	-122.324797	2346	DF	Douglas Fir	31	112	65	Yes	ivy up to 8'	AJ	45
058	47.456054	-122.322099	2563	RC	Western Red Cedar	31	96	85	No		WD	16
153	47.45488	-122.322688	2733	DF	Douglas Fir	31	135	80	No		WD	14
139	47.454669	-122.321602	2719	Undetermined Conifer	Undetermined Conifer	31	90	90	No	in the Cupressaceae family	WD	14
119	47.455287	-122.321079	2502	DF	Douglas Fir	31	150	70	No		WD	14
2017	47.45564701	-122.325203	2382	DF	Douglas Fir	31	120	45	Yes	ivy up to 50'	AJ	14
101	47.46144704	-122.322035	2406	DF	Douglas Fir	31	120	80	Yes	ivy up to 10'	JM	14
1967	47.44794999	-122.321282	8368	DF	Douglas Fir	31	95	65	No	old tag from previous survey; forks at 10'	AJ	13
129	47.45205897	-122.322651	2434	DF	Douglas Fir	31	106	70	Yes		JM	45
2049	47.45484897	-122.320266	8227	RC	Western Red Cedar	31	91	80	No	old tag from previous survey	AJ	14
17	47.45749203	-122.324043	2451	RC	Western Red Cedar	31	91	80	Yes		KS	14
99	47.46150797	-122.32285	2404	DF	Douglas Fir	31	118	70	No		JM	14

Attachment 2

High-Value Tree Survey Results: Management Units 13, 14, 16, 17, 40, 42, 45

GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
32	47.45841002	-122.323727	2466	RC	Western Red Cedar	31	83	50	Yes	dead top	KS	14
40	47.45900899	-122.323866	2481	BM	Bigleaf Maple	31	80	30	Yes		KS	14
44	47.458953	-122.323337	2486	DF	Douglas Fir	31	121	75	Yes		KS	16
1978	47.45260103	-122.324734	2342	RC	Western Red Cedar	31	84	90	No	ivy at base but not on tree	AJ	45
098	47.457376	-122.321514	2523	RC	Western Red Cedar	31	116	90	Yes		WD	14
083	47.456644	-122.321196	2538	RC	Western Red Cedar	31	118	90	Yes	ivy up to 8'	WD	14
079	47.456537	-122.321061	2542	RC	Western Red Cedar	31	104	100	Yes	ivy up to 20'	WD	14
59	47.45552497	-122.323594	2617	DF	Douglas Fir	31	122	60	Yes	ivy up to 16'	KS	14
2028	47.45482198	-122.323068	2392	DF	Douglas Fir	31	133	70	No		AJ	14
74	47.454422	-122.321236	2637	BM	Bigleaf Maple	31	64	25	Yes	ivy up to 30'	KS	14
73	47.454308	-122.321769	578	WH	Western Hemlock	31	136	60	No	old tag from previous survey; est dbh due to English holly brush	KS	14
066	47.456257	-122.321118	2555	RC	Western Red Cedar	31.5	110	85	No		WD	14
116	47.455302	-122.32167	2505	DF	Douglas Fir	31.5	135	60	No		WD	14
065	47.456059	-122.321026	2556	RC	Western Red Cedar	31.7	83	30	No	Pileated woodpecker excavations in bole	WD	14
1975	47.44741799	-122.321013	2339	BM	Bigleaf Maple	32	73	45	Yes	ivy up to 30'	AJ	45
054	47.450645	-122.321996	8921	DF	Douglas Fir	32	93	70	No		KS	13
060	47.456079	-122.321924	2561	RC	Western Red Cedar	32	114	80	No		WD	14
1999	47.45530402	-122.324096	2364	DF	Douglas Fir	32	120	60	Yes	heavy ivy up to 60'	AJ	14
130	47.455193	-122.322631	2710	DF	Douglas Fir	32	158	50	No		WD	14
1948	47.46385599	-122.321906	2329	RC	Western Red Cedar	32	70	90	No		AJ	42
117	47.46040097	-122.323116	2422	DF	Douglas Fir	32	112	80	Yes		JM	14
123	47.45254001	-122.322769	2428	RC	Western Red Cedar	32	85	70	Yes		JM	45
2043	47.454366	-122.321254	2734	BM	Bigleaf Maple	32	88	20	No		AJ	14
7	47.456594	-122.324012	2441	RC	Western Red Cedar	32	77	85	Yes	broken top at 60'; ivy up to 30'; forked top	KS	14
16	47.45748298	-122.324047	2450	RC	Western Red Cedar	32	83	80	Yes	30' inside fence	KS	14
19	47.45757502	-122.324415	2453	DF	Douglas Fir	32	114	55	Yes	ivy up to 40'	KS	14
100	47.46155701	-122.322179	2405	RC	Western Red Cedar	32	95	90	No		JM	14
128	47.45205997	-122.32244	2433	DF	Douglas Fir	32	130	75	No		JM	45
080	47.456623	-122.320967	2541	RC	Western Red Cedar	32	108	90	Yes		WD	14
27	47.45796402	-122.324034	2461	RC	Western Red Cedar	32	84	0	No	snag; wildlife tree	KS	14
2114	47.44965697	-122.3223	2741	BM	Bigleaf Maple	32	85	35	Yes	severe ivy up to 70'; dead fork at 12'	AJ	13
171	47.45069196	-122.32193	8921	DF	Douglas Fir	32	93	70	No		KS	13
030	47.461644	-122.321726	2588	RC	Western Red Cedar	32.2	102	80	No		WD	14
089	47.456769	-122.321226	2532	RC	Western Red Cedar	32.2	115	90	No		WD	14
020	47.462671	-122.321778	2598	RC	Western Red Cedar	32.2	94		Yes	dead; no LCR	WD	40
039	47.460662	-122.322555	2579	RC	Western Red Cedar	32.4	82	80	No		WD	14
044	47.46053	-122.322704	2574	RC	Western Red Cedar	32.5	103	80	Yes		WD	14
037	47.461042	-122.322055	2581	RC	Western Red Cedar	32.5	118	70	Yes		WD	14
035	47.461087	-122.322058	2583	RC	Western Red Cedar	32.6	103	90	No		WD	14
040	47.460662	-122.322616	2578	RC	Western Red Cedar	32.7	95	85	No		WD	14
043	47.460504	-122.322723	2575	RC	Western Red Cedar	32.7	91	80	No		WD	14
057	47.45589	-122.322695	2564	DF	Douglas Fir	32.8	120	90	No		WD	14
069	47.4564	-122.321014	2552	RC	Western Red Cedar	33	114	90	No		WD	14

Attachment 2

High-Value Tree Survey Results: Management Units 13, 14, 16, 17, 40, 42, 45

GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
1998	47.45504896	-122.324102	2363	DF	Douglas Fir	33	108	70	Yes	ivy up to 35'	AJ	14
150	47.454548	-122.323038	2730	DF	Douglas Fir	33	130	50	No		WD	14
138	47.455075	-122.322181	2718	DF	Douglas Fir	33	140	85	No		WD	14
2026	47.45499599	-122.323117	2390	DF	Douglas Fir	33	115	55	Yes	ivy up to 10'	AJ	14
2037	47.45360501	-122.32225	2399	DF	Douglas Fir	33	120	45	Yes	heavy ivy up to 45'	AJ	14
1976	47.44716796	-122.320855	2340	BM	Bigleaf Maple	33	83	65	No	forks at 8'	AJ	45
113	47.455493	-122.32168	2508	RC	Western Red Cedar	33	119	90	Yes		WD	14
107	47.45913	-122.321205	2514	Undetermined Hwd	Undetermined Hwd	33	75	90	Yes		WD	14
100	47.457273	-122.321656	2521	RC	Western Red Cedar	33	80	90	Yes		WD	14
21	47.45769898	-122.323834	2455	BM	Bigleaf Maple	33	100	50	No	fork @ 8'; multiple tops	KS	14
25	47.45799403	-122.323762	2459	BM	Bigleaf Maple	33	113	50	No		KS	14
28	47.45793904	-122.323978	2462	RC	Western Red Cedar	33	102	70	No	dead top	KS	14
36	47.45881897	-122.323862	2477	RC	Western Red Cedar	33	78	80	No	dead top	KS	14
70	47.45408697	-122.322258	2635	RC	Western Red Cedar	33	106	90	No		KS	14
032	47.46142	-122.321563	2586	RC	Western Red Cedar	33.2	114	90	No		WD	14
049	47.459384	-122.321227	2569	RC	Western Red Cedar	33.3	80	85	No	split	WD	14
135	47.455121	-122.322271	2715	DF	Douglas Fir	33.5	135	85	Yes		WD	14
026	47.461918	-122.322054	2592	RC	Western Red Cedar	34	93	80	No		WD	14
1981	47.45274704	-122.324629	2345	DF	Douglas Fir	34	115	80	Yes	ivy up to 25'	AJ	45
090	47.456876	-122.32123	2531	BM	Bigleaf Maple	34	112	70	No		WD	14
092	47.456985	-122.321433	2529	RC	Western Red Cedar	34	115	85	No		WD	14
108	47.46136196	-122.322637	2413	RC	Western Red Cedar	34	104	90	Yes		JM	14
2109	47.44660696	-122.320567	2738	WH	Western Hemlock	34	73	0	No	snag; top out	AJ	45
2041	47.45411597	-122.321464	8243	BM	Bigleaf Maple	34	97	30	No	old tag from previous survey; basal wound	AJ	14
2044	47.45396904	-122.321044	874	BM	Bigleaf Maple	34	94	45	No	old tag from previous survey	AJ	14
110	47.455554	-122.322163	2511	RC	Western Red Cedar	34	110	90	Yes		WD	14
1980	47.45269197	-122.324623	2344	DF	Douglas Fir	34	110	80	No		AJ	45
2052	47.45351298	-122.321223	8591	Port Orford Cedar	Port Orford Cedar	34	77	95	No	old tag from previous survey; multi-forks @ 6'	AJ	14
168	47.44979502	-122.322684	2650	BM	Bigleaf Maple	34	92	35	Yes		KS	13
132	47.455316	-122.322876	2712	DF	Douglas Fir	34	150	80	Yes		WD	14
133	47.455212	-122.322889	2713	DF	Douglas Fir	34	158	70	Yes		WD	14
047	47.45961	-122.320849	2571	DF	Douglas Fir	34.5	90	70	No		WD	40
041	47.460634	-122.32272	2577	RC	Western Red Cedar	34.7	102	85	No		WD	14
031	47.461536	-122.32177	2587	RC	Western Red Cedar	35	105	85	No		WD	14
134	47.454982	-122.322516	2714	RC	Western Red Cedar	35	93	95	No		WD	14
2006	47.45459399	-122.325263	2371	Silver Maple	Silver Maple	35	65	70	Yes	ivy up to 10'	AJ	14
102	47.46150504	-122.321964	2407	DF	Douglas Fir	35	118	70	Yes	fork at 50' with ivy	JM	14
104	47.46141099	-122.32191	2409	RC	Western Red Cedar	35	105	95	Yes		JM	14
105	47.46131703	-122.321946	2410	RC	Western Red Cedar	35	95	85	Yes	fork at 30'; rotten center seam	JM	14
1961	47.44855802	-122.322316	8734	BM	Bigleaf Maple	35	71	50	No	old tag from previous survey	AJ	45
4	47.45659702	-122.324177	2438	DF	Douglas Fir	35	138	50	Yes	ivy up to 50'	KS	14
036	47.461061	-122.322063	2582	RC	Western Red Cedar	35	115	80	Yes		WD	14
2050	47.45476297	-122.320298	8970	RC	Western Red Cedar	35	94	60	Yes	old tag from previous survey; ivy up to 10'; dead top	AJ	14

Attachment 2

High-Value Tree Survey Results: Management Units 13, 14, 16, 17, 40, 42, 45

GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
128	47.45509	-122.322598	2708	DF	Douglas Fir	35.5	160	80	No		WD	14
074	47.455957	-122.320508	2547	RC	Western Red Cedar	35.7	128	90	No		WD	14
087	47.456763	-122.321245	2534	RC	Western Red Cedar	35.7	106	85	No		WD	14
045	47.460455	-122.322718	2573	RC	Western Red Cedar	35.7	92	80	Yes		WD	14
028	47.461795	-122.322059	2590	RC	Western Red Cedar	36	90	85	No		WD	14
052	47.4523	-122.323889	2566	RC	Western Red Cedar	36	60	100	No		WD	13
072	47.456193	-122.320526	2549	RC	Western Red Cedar	36	97	90	No		WD	14
1996	47.45427196	-122.323617	2361	NF	Noble Fir	36	57	70	Yes	ivy up to 15'	AJ	14
151	47.454486	-122.323314	2731	DF	Douglas Fir	36	138	85	No		WD	14
143	47.454516	-122.3219	2723	DF	Douglas Fir	36	136	75	No		WD	14
2000	47.45526002	-122.323987	2365	DF	Douglas Fir	36	101	60	Yes	heavy ivy up to 60'	AJ	14
095	47.457252	-122.321466	2526	DF	Douglas Fir	36	150	60	No		WD	14
088	47.45674	-122.321247	2533	RC	Western Red Cedar	36	116	90	No		WD	14
1940	47.46471003	-122.32146	2323	RC	Western Red Cedar	36	71	90	No	ivy on forest floor but not on tree	AJ	17
119	47.46028597	-122.322884	2424	DF	Douglas Fir	36	90	60	Yes	broken top	JM	14
42	47.45911603	-122.32348	2484	DF	Douglas Fir	36	128	50	Yes	ivy up to 50'	KS	14
081	47.456689	-122.321085	2540	RC	Western Red Cedar	36	110	90	Yes		WD	14
071	47.456452	-122.321147	2550	RC	Western Red Cedar	36	111	85	Yes	ivy up to 15'	WD	14
2008	47.454754	-122.325758	2373	Unknown conifer	Unknown conifer	36	78	90	No	forks @ 10'; in Cryptomeria family	AJ	14
2055	47.45244102	-122.321541	2736	BM	Bigleaf Maple	36	82	80	No		AJ	45
122	47.455336	-122.32195	2702	RC	Western Red Cedar	36	113	80	Yes		WD	14
37	47.45891998	-122.323843	2478	RC	Western Red Cedar	36	95	85	No		KS	14
174	47.45076899	-122.3218	2656	BM	Bigleaf Maple	36	69	30	No	dead tops; next to 8th Place S; old tag #8961	KS	13
018	47.46283233	-122.321894	2600	GF	Grand Fir	36.4	90	70	No		WD	40
062	47.45615	-122.321925	2559	RC	Western Red Cedar	36.5	110	75	No		WD	14
114	47.455295	-122.321698	2507	RC	Western Red Cedar	36.8	131	90	No		WD	14
149	47.4547	-122.322623	2729	DF	Douglas Fir	37	130	85	No		WD	14
140	47.45467	-122.321954	2720	DF	Douglas Fir	37	128	75	No		WD	14
2007	47.45448402	-122.325715	2372	DF	Douglas Fir	37	102	85	Yes	heavy ivy up to 20'	AJ	14
106	47.46122198	-122.322066	2411	RC	Western Red Cedar	37	99	90	Yes		JM	14
18	47.45745096	-122.324278	2452	RC	Western Red Cedar	37	95	80	Yes	ivy up to 15'	KS	14
103	47.46147201	-122.321809	2408	RC	Western Red Cedar	37	90	95	No	30% lean	JM	14
26	47.45801498	-122.3238	2460	RC	Western Red Cedar	37	92	75	Yes	dead top; ivy into mid-canopy	KS	14
33	47.45859099	-122.323897	2467	RC	Western Red Cedar	37	100	90	Yes		KS	14
110	47.46101503	-122.322335	2415	RC	Western Red Cedar	37	97	95	No		JM	14
113	47.460923	-122.322798	2418	RC	Western Red Cedar	37	20	15	No	90% dead, broken at 20', 18" limb at 16'	JM	14
101	47.457303	-122.321691	2520	RC	Western Red Cedar	37	80	90	Yes		WD	14
096	47.457302	-122.321447	2525	RC	Western Red Cedar	37	108	90	Yes		WD	14
082	47.456703	-122.321009	2539	RC	Western Red Cedar	37	120	90	Yes		WD	14
2038	47.45369897	-122.322184	560	BM	Bigleaf Maple	37	93	55	No	old tag from previous survey	AJ	14
2039	47.45378103	-122.321876	8250	RC	Western Red Cedar	37	86	85	No	old tag from previous survey	AJ	14
125	47.455352	-122.322163	2705	DF	Douglas Fir	37	148	70	Yes		WD	14
147	47.45453	-122.322338	2727	RC	Western Red Cedar	37	105	95	Yes		WD	14

Attachment 2

High-Value Tree Survey Results: Management Units 13, 14, 16, 17, 40, 42, 45

GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
046	47.460485	-122.322813	2572	RC	Western Red Cedar	37.5	102	85	Yes		WD	14
1990	47.45336403	-122.324898	2354	WH	Western Hemlock	38	104	65	Yes	heavy ivy up to 70'	AJ	14
145	47.454506	-122.32216	2725	RC	Western Red Cedar	38	128	90	No		WD	14
141	47.454688	-122.322033	2721	DF	Douglas Fir	38	140	80	No	severe blackberry	WD	14
085	47.456755	-122.32106	2536	RC	Western Red Cedar	38	119	90	No		WD	14
47	47.45945399	-122.32337	2490	DF	Douglas Fir	38	112	65	Yes		KS	16
109	47.455517	-122.322367	2512	DF	Douglas Fir	38	150	75	Yes		WD	14
2004	47.45434497	-122.325282	2369	Undetermined Hwd	Undetermined Hwd	38	87	40	No	same hwd species as tree #s 2367 and 2368	AJ	14
177	47.45132899	-122.321876	2655	DF	Douglas Fir	38	96	70	Yes	ivy up to 60'	KS	13
23	47.45779898	-122.324006	2457	BM	Bigleaf Maple	38	100	40	No		KS	14
1969	47.447793	-122.321155	8058	BM	Bigleaf Maple	38	86	55	Yes	old tag from previous survey; forks at 10'; ivy up to 25'	AJ	45
71	47.45434203	-122.322115	2636	RC	Western Red Cedar	38	115	90	No	forked top	KS	14
81	47.45542799	-122.32018	2644	RC	Western Red Cedar	38	92	90	No		KS	14
075	47.456018	-122.320279	2546	RC	Western Red Cedar	38.4	122	85	Yes		WD	14
099	47.457388	-122.321487	2522	RC	Western Red Cedar	38.5	120	90	Yes	forked; ivy up to 20'	WD	14
2034	47.45336403	-122.322722	671	RC	Western Red Cedar	39	93	85	Yes	old tag from previous survey; ivy up to 10'; fork @ 15'	AJ	14
118	47.455343	-122.321068	2503	DF	Douglas Fir	39	150	80	No		WD	14
2014	47.45546797	-122.325364	2379	Silver Maple	Silver Maple	39	94	55	Yes	ivy up to 25'	AJ	14
2015	47.45561197	-122.325408	2380	DF	Douglas Fir	39	126	65	Yes	ivy up to 35'	AJ	14
102	47.457515	-122.321611	2519	RC	Western Red Cedar	39	130	90	No	galvanized metal at base of tree	WD	14
8	47.45663004	-122.323961	2442	DF	Douglas Fir	39	123	75	Yes	30' inside fence; ivy up to 6'	KS	14
22	47.45776101	-122.323742	2456	BM	Bigleaf Maple	39	76	40	Yes	heavy ivy; 20' inside fence	KS	14
43	47.45911703	-122.323338	2485	DF	Douglas Fir	39	126	75	Yes	ivy up to 50'	KS	14
112	47.455619	-122.321879	2509	RC	Western Red Cedar	39	103	90	Yes		WD	14
61	47.45532598	-122.323607	2620	True Cedar	True Cedar	39	79	75	Yes	multiple tops	KS	14
56	47.45582697	-122.324056	2610	DF	Douglas Fir	39	120	55	No		KS	14
025	47.461927	-122.321877	2593	RC	Western Red Cedar	39.5	112	85	No		WD	14
2001	47.45546504	-122.324024	2366	DF	Douglas Fir	40	132	65	Yes	heavy ivy up to 40'	AJ	14
105	47.457545	-122.321605	2516	RC	Western Red Cedar	40	122	90	No		WD	14
2108	47.44620899	-122.320095	2737	BM	Bigleaf Maple	40	98	60	No	conks; rotten seam to 14'; forks at 16'	AJ	45
2045	47.45403903	-122.320724	2400	BM	Bigleaf Maple	40	90	25	No	fork in crown; conk on bole	AJ	14
97	47.46174803	-122.322228	2402	DF	Douglas Fir	40	118	70	No	fork at 22'	JM	14
114	47.46081999	-122.322902	2419	RC	Western Red Cedar	40	85	90	No	fork at 30'	JM	14
115	47.46061798	-122.322929	2420	RC	Western Red Cedar	40	85	90	No	ivy at base but not on tree	JM	14
2040	47.45415101	-122.321876	503	RC	Western Red Cedar	40	98	100	No	old tag from previous survey	AJ	14
15	47.45737301	-122.32396	2449	RC	Western Red Cedar	40	80	80	No	estimated dbh; ground level forks	KS	16
68	47.45377097	-122.322768	2630	RC	Western Red Cedar	40	100	70	No	metal chain inbedded in tree	KS	14
023	47.462151	-122.321572	2595	RC	Western Red Cedar	40.5	83	85	No		WD	14
093	47.457119	-122.321431	2528	RC	Western Red Cedar	40.7	105	85	No		WD	14
2018	47.45584801	-122.325166	2383	Undetermined Hwd	Undetermined Hwd	41	76	80	Yes	ivy up to 5'; multi-stemmed	AJ	14
097	47.457427	-122.321397	2524	RC	Western Red Cedar	41	115	85	No	creekside	WD	14
076	47.456038	-122.320297	2545	RC	Western Red Cedar	41	126	95	Yes		WD	14
123	47.455313	-122.322119	2703	DF	Douglas Fir	41	154	80	Yes		WD	14

Attachment 2

High-Value Tree Survey Results: Management Units 13, 14, 16, 17, 40, 42, 45

GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
31	47.45841203	-122.323726	2465	RC	Western Red Cedar	41	83	50	No	dead top	KS	14
34	47.45837398	-122.324401	2468	RC	Western Red Cedar	41	90	90	No	chicken wire on bole	KS	14
091	47.457077	-122.321417	2530	RC	Western Red Cedar	41.6	120	85	No		WD	14
050	47.459633	-122.322141	2568	RC	Western Red Cedar	42	80	90	No	split	WD	14
1989	47.45328298	-122.3249	2353	DF	Douglas Fir	42	114	75	Yes	heavy ivy up to 35'	AJ	14
061	47.456149	-122.321864	2560	RC	Western Red Cedar	42	112	90	No		WD	14
104	47.457623	-122.321554	2517	RC	Western Red Cedar	42	126	90	No		WD	14
116	47.46047599	-122.322904	2421	RC	Western Red Cedar	42	100	95	Yes		JM	14
108	47.458365	-122.320904	2513	DF	Douglas Fir	42	122	85	Yes		WD	14
063	47.456219	-122.321723	2558	RC	Western Red Cedar	42	114	90	Yes	ivy up to 15'	WD	14
2013	47.45538399	-122.325177	2378	DF	Douglas Fir	42	112	60	No	minor fork @ 15'	AJ	14
2032	47.45331801	-122.323387	2396	Silver Maple	Silver Maple	42	85	65	No	multi-fork @ 6'	AJ	14
65	47.45354701	-122.323141	2628	BM	Bigleaf Maple	42	93	50	Yes	ivy up to 40'	KS	14
034	47.461106	-122.321868	2584	RC	Western Red Cedar	42.6	115	90	No		WD	14
2005	47.45438998	-122.325534	2370	DF	Douglas Fir	43	114	50	Yes	heavy ivy up to 60'	AJ	14
1946	47.464115	-122.321719	2326	RC	Western Red Cedar	43	80	85	No	ivy at base	AJ	17
69	47.45390198	-122.322632	2633	RC	Western Red Cedar	43	98	75	No		KS	14
80	47.45535096	-122.320456	2643	BM	Bigleaf Maple	43	98	35	No		KS	14
029	47.46172	-122.321947	2589	RC	Western Red Cedar	43.2	120	80	No		WD	14
112	47.46097698	-122.323008	2417	RC	Western Red Cedar	44	96	85	Yes	some ivy	JM	14
120	47.45244202	-122.322583	2425	DF	Douglas Fir	44	130	70	Yes		JM	45
2	47.45597399	-122.324095	2436	DF	Douglas Fir	44	133	70	Yes	ivy up to 20'	KS	14
5	47.45653097	-122.324325	2439	RC	Western Red Cedar	44	103	85	Yes	ivy up to 50'	KS	14
111	47.46107999	-122.322889	2416	RC	Western Red Cedar	44	75	85	No	fork at 30'	JM	14
1987	47.45306396	-122.32489	2351	DF	Douglas Fir	44	116	60	No		AJ	45
75	47.45443499	-122.320715	2638	BM	Bigleaf Maple	44	98	30	Yes	ivy up to 30'	KS	14
64	47.45346604	-122.323321	2627	Silver Maple	Silver Maple	44	90	50	No	forks at dbh	KS	14
180	47.45703204	-122.324055	2658	BM	Bigleaf Maple	44	49	50	No	dead tops	KS	14
027	47.461848	-122.322042	2591	DF	Douglas Fir	44.3	138	80	No		WD	14
1974	47.44772703	-122.321533	2338	BM	Bigleaf Maple	45	75	35	Yes	multi-forked; ivy up to 20'; severe basal decay	AJ	45
078	47.455925	-122.32023	2543	RC	Western Red Cedar	45	118	90	No		WD	14
094	47.457249	-122.321473	2527	RC	Western Red Cedar	45	140	90	No		WD	14
107	47.461197	-122.322188	2412	RC	Western Red Cedar	45	77	90	Yes	fork at 18'	JM	14
109	47.46112903	-122.322313	2414	RC	Western Red Cedar	45	97	90	Yes		JM	14
125	47.45243004	-122.322457	2430	DF	Douglas Fir	45	130	75	Yes		JM	45
077	47.455942	-122.320247	2544	RC	Western Red Cedar	45	126	90	Yes		WD	14
78	47.45487797	-122.320916	8965	RC	Western Red Cedar	45	110	90	No		KS	14
1988	47.45319497	-122.324845	2352	DF	Douglas Fir	46	110	75	Yes	ivy up to 45'	AJ	14
70	47.456428	-122.321112	2551	RC	Western Red Cedar	46	104	85	No	metal on tree	WD	14
073	47.455916	-122.32079	2548	RC	Western Red Cedar	46	128	85	No		WD	14
2111	47.44968697	-122.322461	2740	BM	Bigleaf Maple	46	89	25	Yes	old tag 8875 on tree; severe ivy up to 75'; forks at 8'	AJ	13
033	47.46126	-122.321795	2585	RC	Western Red Cedar	46.2	45	85	No	broken top	WD	14
022	47.462436	-122.321649	2596	RC	Western Red Cedar	47	105	85	No	split	WD	14

Attachment 2

High-Value Tree Survey Results: Management Units 13, 14, 16, 17, 40, 42, 45

GPS ID	Latitude	Longitude	Tree Tag	Species Code	Species Name	DBH	Total Hight	LCR	Ivy Presence	Notes	Cruiser	MU #
1950	47.46427098	-122.321339	2331	True Cedar	True Cedar	47	76	75	No	4' inside fence	AJ	17
086	47.456887	-122.320937	2535	RC	Western Red Cedar	48	118	95	No	creekside	WD	14
117	47.455466	-122.321559	2504	RC	Western Red Cedar	48	120	90	Yes		WD	14
1972	47.44785402	-122.321702	8008	BM	Bigleaf Maple	49	84	45	Yes	old tag from previous survey; ivy up to 15'	AJ	45
20	47.45746597	-122.324253	2454	RC	Western Red Cedar	51	115	90	Yes	ivy up to 8'	KS	14
2002	47.45415201	-122.325183	2367	Undetermined Hwd	Undetermined Hwd	51	84	55	No	same hwd species as tree #s 2368 and 2369	AJ	14
2130	47.45678997	-122.324631	2752	Silver Maple	Silver Maple	51	86	40	Yes	multi-forked at 6'; ivy up to 25'	AJ	14
103	47.457612	-122.321548	2518	RC	Western Red Cedar	52	120	90	No		WD	14
98	47.46171501	-122.322312	2403	RC	Western Red Cedar	52	97	90	Yes	multi-fork at 16' with ivy	JM	14
148	47.454822	-122.322424	2728	DF	Douglas Fir	53	140	85	No		WD	14
1970	47.44770801	-122.321421	8041	BM	Bigleaf Maple	53	80	70	Yes	old tag from previous survey; multi-forked; ivy up to 30'	AJ	45
059	47.455907	-122.322283	2562	RC	Western Red Cedar	54	98	95	No		WD	14
024	47.462031	-122.321706	2594	RC	Western Red Cedar	56	110	90	No		WD	14
2035	47.45352203	-122.322248	2398	Sequoia	Sequoia	62	138	50	Yes	heavy ivy up to 45'	AJ	14
2036	47.45349102	-122.322422	673	Sequoia	Sequoia	64	113	65	Yes	old tag from previous survey; heavy ivy up to 55'	AJ	14
38	47.45882702	-122.323486	2479	Sequoia	Sequoia	64	120	75	Yes		KS	16
106	47.45888	-122.322294	2515	NA	NA				NA	outside project scope	NA	14
2054	47.45281996	-122.321414	2	NA	NA				NA			45
2056	47.45234697	-122.321571	3	NA	NA				NA			45
77	47.45497302	-122.321019	2639	Apple	Apple		36	25	No	forks at ground level; no dbh measure	KS	14
79	47.455012	-122.320828	2642	Apple	Apple		34	20	No	forks @ ground level; no dbh measure	KS	14



SEA Land Stewardship Plan and Tree Replacement Policy

Aviation Environment & Sustainability Programs

PORT-WIDE ENVIRONMENTAL LAND STEWARDSHIP PRINCIPLES

- Comprehensive application
- Capital program integration
- Equity lens
- Community partnerships
- Holistic ecology



SEA LAND STEWARDSHIP PLAN

Guidelines

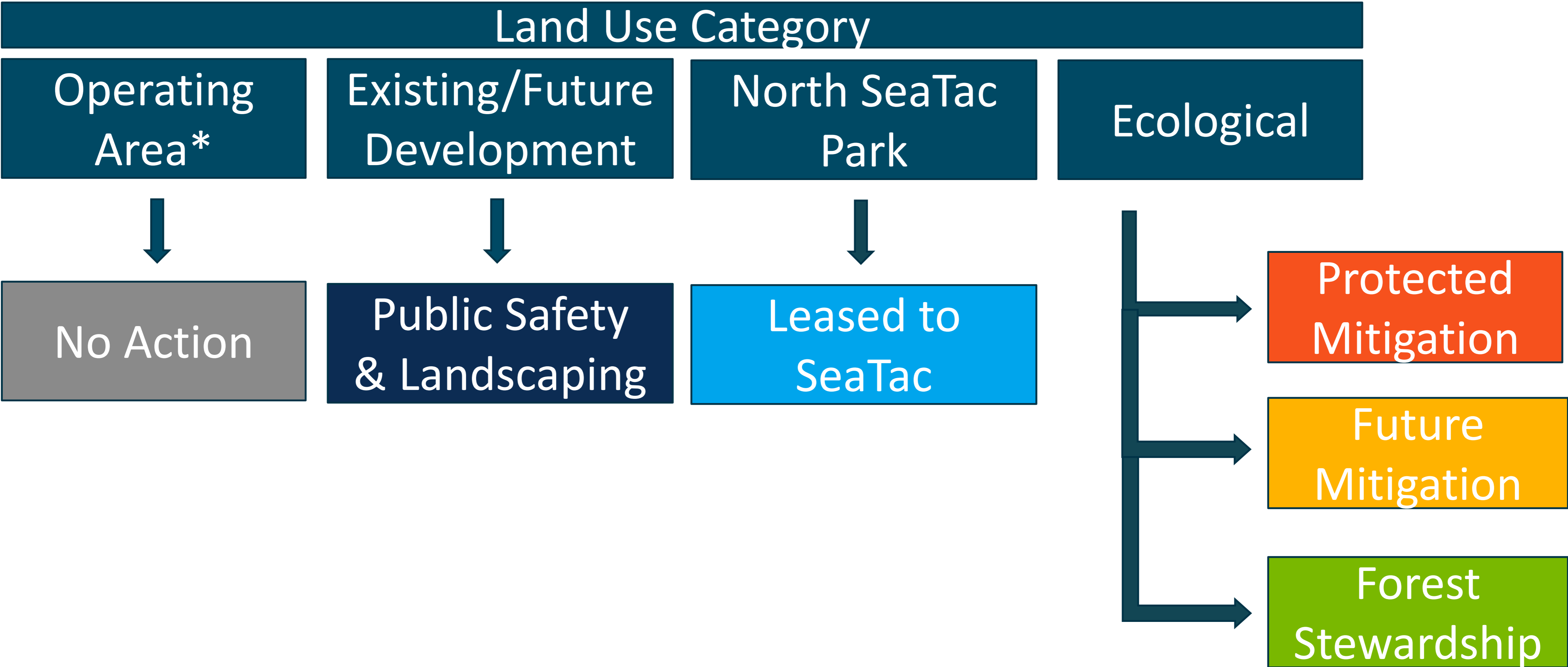
- Support application of Principles
- Identify and prioritize stewardship actions
- Provide resource documentation to support strategic land use planning and development

Objectives

- Inventory, track and report
- Protect and restore habitat
- Connect and expand habitat
- Establish community partnerships
- Offset tree clearing impacts



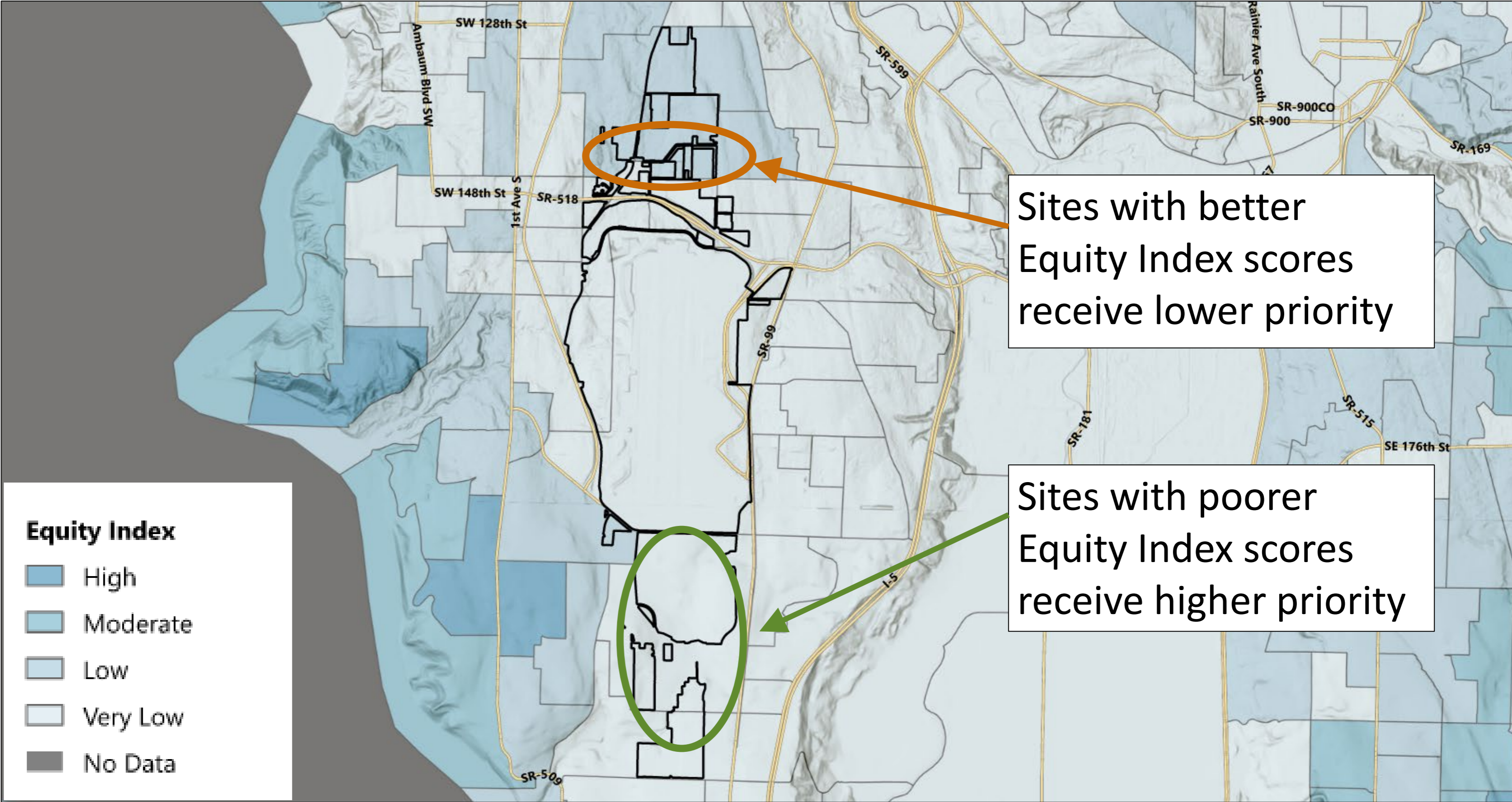
MANAGEMENT APPROACH



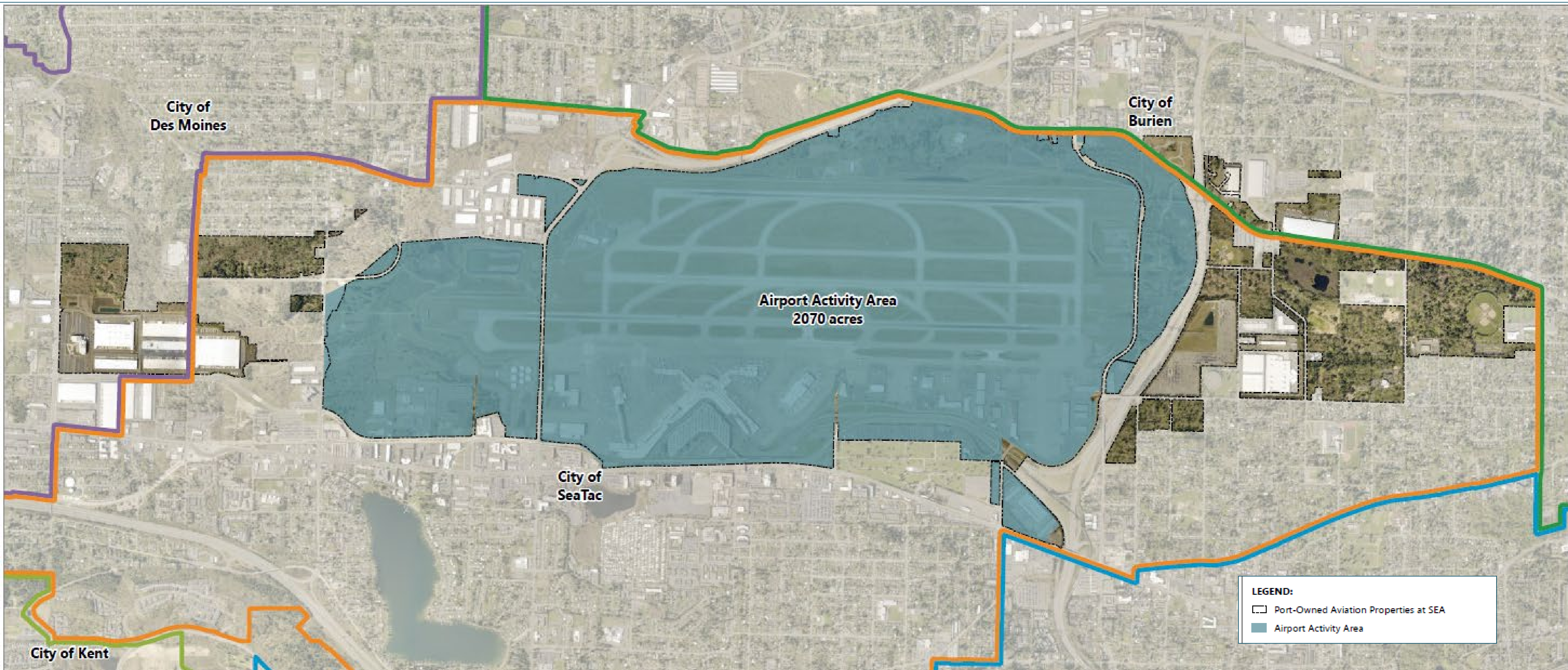
* Includes Real Estate Ground Lease sites

EQUITY IN THE LAND STEWARDSHIP PLAN

- Inventory
 - Port Equity Index
 - Heat island effects
 - Public access
 - Visual buffers
- Sites with greatest equity potential prioritized



SEA TREE REPLACEMENT STANDARDS



4:1 APPROACH CREDITS

Every tree removed will be replaced with four “stewardship credits”

Stewardship credit options:

- **Plant new trees** to increase canopy **(1 tree planted = 1 credit)**
- **Protect the life of existing trees** by removing ivy **(1 tree protected = 1 credit)**
- **Clear invasive species** and restore a native understory **(200 sq feet restored = 1 credit)**

Public Engagement Process

- Public Webinar

Presented Plan and Standards and received comment

- Public Comment Period

Webinar presentation, Land Stewardship Plan and Tree Replacement policy available for review and comment

- Response to comments

Blog published in late February



PUBLIC COMMENT RESPONSES

Comment Theme	Response	Action
Public Review Process - Extend review period - Publish comments	<ul style="list-style-type: none"> Webinar and associated comments, the Plan, and the tree replacement standards have all been published. The Port will publish comments and publish a blog addressing comments 	<ul style="list-style-type: none"> Extended public comment period from two to six weeks. Published webinar chat for review on website. Publish blog addressing popular themes and questions
Increase the role of equity in the Land Stewardship Plan	Equity is deeply integrated into Land Stewardship. The Port mission and Land Stewardship Principles recognize the need to balance equity with operational requirements and development needs as well as financial and ecological sustainability.	<ul style="list-style-type: none"> Revised Objective 1 (Inventory) to include Equity attributes Revised Objective 2 (Site Restoration) to include Equity criteria for site prioritization Revised Methodology language to include and emphasize equity criteria
Report and document the impact of the Land Stewardship Plan?	Annual achievements are summarized in the Port's first ever Annual Environment and Sustainability Report. All environmental mitigation and tree replacement requirements are reviewed and approved by independent regulatory agencies.	Clarify language in the LSP that the Port will track, monitor, and report tree planting, invasive restoration, and tree protection metrics.



QUESTIONS

End of Presentation

[RETURN TO AGENDA](#)



**COMMISSION
AGENDA MEMORANDUM**

Item No. 10a

ACTION ITEM

Date of Meeting April 16, 2024

DATE: March 22, 2024

TO: Stephen Metruck, Executive Director

FROM: Elizabeth Morrison, Director, Corporate Finance
Scott Bertram, Manager, Corporate Financial Analysis

SUBJECT: Resolution No. 3822 authorizing the issuance and sale of limited tax general obligation and refunding bonds of the Port in the aggregate principal amount of not to exceed \$325,000,000

ACTION REQUESTED

Introduction of Resolution No. 3822: A Resolution of the Port of Seattle authorizing the issuance and sale of General Obligation and Refunding Bonds, 2024 in the aggregate principal amount of not to exceed \$325,000,000 (the “2024 LTGO Bonds”), for the purpose of financing or refinancing capital improvements to Port facilities and refunding certain outstanding obligations of the Port; and authorizing a Designated Port Representative to approve certain matters relating to the sale of the 2024 LTGO Bonds.

EXECUTIVE SUMMARY

The 2024 LTGO Bonds will be used to provide an estimated \$200 million for capital improvements in the Seattle Harbor and in support of maritime industries (“new money bonds”). The Bonds will also refund an estimated \$103.8 million of outstanding 2015 LTGO bonds and generate debt service savings. General obligation bond (LTGO) debt service is paid from the Port’s tax levy.

JUSTIFICATION

As part of the Port’s debt management program, the Port monitors opportunities to reduce debt service. In 2015, the Port issued the 2015 LTGO bonds to fund a portion of its contribution for the Alaskan Way viaduct replacement program and to refund certain outstanding obligations of the Port. These bonds will be callable on June 1, 2024, and the current estimated present value savings of refunding these 2015 GO Bonds is approximately \$3.6 million.

In addition, the 2024 LTGO Bonds will include funding for an estimated \$200 million in Port project costs. The 2024-2028 Plan of Finance estimated future LTGO bond needs of \$351 million to pay for capital costs for Maritime, Economic Development and Northwest Seaport Alliance (NWSA) North Harbor investments over the next five years. The 2024 LTGO Bonds will be used

Meeting Date: April 16, 2024

to fund all or a portion of projects in the Seattle harbor including redevelopment of Terminal 91 berths 6 and 8, and the development of the Maritime Innovation Center at Fishermen’s Terminal. These projects are ready for construction and are currently funded with tax levy cash. Other projects that might use a portion of the bond proceeds include, but are not limited to, Terminal 91 Uplands Development Phase I and various container terminal projects for the NWSA in the North Harbor, including those at Terminals 5, 18, 30 and 46. Exhibit A provides a list of potential projects.

If project spending is delayed, the 2024 LTGO Bond proceeds may be redirected to other projects identified in the Plan of Finance for tax levy or LTGO bond funding. No 2024 LTGO Bond proceeds or other funds can be spent on any project without the appropriate project authorization, and use of 2024 LTGO Bond proceeds is to be identified in Port project authorization requests. The total 2024 LTGO Bond amount will also include proceeds sufficient to pay cost of issuance.

DETAILS

The 2024 LTGO Bonds are being issued pursuant to Resolution No. 3822 which is similar in all material respects to other LTGO Bond Resolutions. The 2024 LTGO Bonds are backed by the full faith and credit of the Port and require that the Port levy taxes sufficient, along with other funds, to pay scheduled principal of and interest on the Port’s outstanding LTGO Bond obligations.

The 2024 LTGO Bonds will be issued in multiple series based on the tax status of the projects to be funded or refunded. One series will be issued as **tax-exempt, governmental purpose** and will be used to refund the 2015 LTGO Bonds that are also governmental purpose. Investors in these governmental purpose 2024 LTGO Bonds are exempt from all federal income taxes on the 2024 LTGO Bonds. For project funding needs, the resolution provides for both a **tax-exempt, private activity series** (exempt from regular income tax, but subject to the alternative minimum tax – AMT) and a **taxable series**, which is subject to federal income tax. Certain projects like the Maritime Innovation Center and the Terminal 91 Uplands development do not qualify for tax-exempt bond funding. In addition, although taxable bonds typically come with a higher rate of interest compared to tax-exempt bonds, they do provide the Port with flexibility to use the proceeds for any project and to use the associated bond funded facilities for a variety of purposes that might or might not qualify for tax-exemption during the life of the bonds. The Port will evaluate individual projects to determine qualification and appropriateness of tax-exempt bonds.

The 2024 LTGO Bond Resolution delegates to the Designated Port Representative (the Port’s Executive Director, the Deputy Executive Director or the Port’s Chief Financial Officer or their respective delegates) the authority to approve the manner and date of the sale of the 2024 LTGO Bonds within parameters established by the Commission in the 2024 LTGO Bond Resolution. Commission parameters that limit the delegation are a maximum principal amount, maximum interest rate, minimum savings rate on refunded bonds and expiration date for the delegated authority. If the 2024 LTGO Bonds cannot be sold within these parameters, further Commission action would be required.

Meeting Date: April 16, 2024

The recommended delegation parameters are:

Maximum size (par):	\$325,000,000
Maximum interest rate on new money bonds:	6.0%
Minimum savings on refunded bonds	3.5%
Expiration of Delegation of Authority:	April 23, 2025

The savings target is a weighted average based on the Port’s debt management policy. The 2015 LTGO Bonds being refunded included longer-term bonds for the SR99 project with a refunding target of 4% and shorter-term bonds that refunded 2006 LTGO Bonds and have a savings target of 2%.

Upon adoption, Resolution No. 3822 (the 2024 LTGO Bond Resolution) will authorize a Designated Port Representative to select the manner and date of the sale, approve the final sale terms, pay the cost of issuance, execute all documents, prepare, and disseminate a preliminary official statement and final official statement, provide for continuing disclosure and take other action appropriate for the prompt execution and delivery of the 2024 LTGO Bonds.

Unlike Port revenue bonds that are sold through a negotiated process with the Port’s underwriting team, the G.O. Bonds are expected to be sold through a competitive sale in which any banking firm can bid on the 2024 LTGO Bonds of each series. The Port’s debt management procedures allow for competitive sales for appropriate transactions where, in consultation with the Port’s Financial Advisor, a competitive sale is likely to provide better financial results than a negotiated sale. Competitive sales are well suited to transactions that have a relatively simple, high-quality credit like the Port’s LTGO Bonds and are sold in relatively stable market environments. Should market conditions change, in consultation with the Port’s Financial Advisor, a Designated Port Representative may determine that a negotiated sale is a more effective approach. A negotiated sale would also need to be executed within the Commission established parameters.

Piper Sandler is serving as Financial Advisor, K&L Gates LLP is serving as bond counsel and Pacifica Law Group, LLP is serving as disclosure counsel on the transaction.

ATTACHMENTS TO THIS REQUEST

- (1) Draft Resolution No. 3822

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

October 24, 2023 – The Commission was briefed on the draft plan of finance and tax levy including the 2024 LTGO Bonds.

Meeting Date: April 16, 2024

EXHIBIT A

Terminal 91 Berths 6 and 8 Redevelopment
Terminal 91 Uplands Development Phase I
Fishermen’s Terminal Maritime Innovation Center
Terminal 5 Modernization
T5 Phase 2 Paving
T5 Transtainer runs
T5 Reefer demarcation
T5 Container Yard Expansion
T18 Shorepower Design
T18 Full Dock Rehab Design
Jack Block Park Pier & Plaza Replacement
T46 N. Substation #1 Replacement

PORT OF SEATTLE

RESOLUTION NO. 3822

A RESOLUTION of the Port Commission of the Port of Seattle, authorizing the sale and issuance and sale of limited tax general obligation and refunding bonds in one or more series in the aggregate principal amount of not to exceed \$325,000,000, for the purpose of financing or refinancing capital improvements to Port facilities and refunding of certain outstanding obligations of the Port; and authorizing a Designated Port Representative to approve certain matters relating to the bonds including date or dates of the sale of the bonds.

ADOPTED: April 23, 2024

Prepared by:

K&L GATES LLP
Seattle, Washington

PORT OF SEATTLE
RESOLUTION NO. 3822
TABLE OF CONTENTS*

	<u>Page</u>
Section 1. Definitions.....	3
Section 2. Plan of Finance	9
Section 3. Authorization and Description of Bonds	10
Section 4. Redemption and Purchase.....	11
Section 5. Registration, Exchange and Payments.....	14
Section 6. Bond Fund.....	19
Section 7. Defeasance	20
Section 8. Tax Covenants	21
Section 9. Lost, Stolen or Destroyed Bonds	21
Section 10. Form of Bonds and Registration Certificate	21
Section 11. Execution	24
Section 12. Undertaking to Provide Ongoing Disclosure.....	25
Section 13. Sale of Bonds	25
Section 14. Application of Bond Proceeds	28
Section 15. Redemption of Refunded Bonds.....	31
Section 16. Resolution and Laws a Contract with the Bond Owners	32
Section 17. Severability	32
Section 18. Effective Date	33

* This Table of Contents and the Cover Page are for convenience of reference and are not intended to be a part of this resolution.

RESOLUTION NO. 3822

A RESOLUTION of the Port Commission of the Port of Seattle, authorizing the sale and issuance and sale of limited tax general obligation and refunding bonds in one or more series in the aggregate principal amount of not to exceed \$325,000,000, for the purpose of financing or refinancing capital improvements to Port facilities and refunding of certain outstanding obligations of the Port; and authorizing a Designated Port Representative to approve certain matters relating to the bonds including date or dates of the sale of the bonds.

WHEREAS, the Port of Seattle (the “Port”), a municipal corporation of the State of Washington, owns and operates a system of marine terminals and properties and Seattle-Tacoma International Airport; and

WHEREAS, in 2015, the Port and the Port of Tacoma jointly formed the Northwest Seaport Alliance (the “Seaport Alliance”) to manage all of the two ports’ container terminals as well as certain industrial properties and other cargo terminals; and

WHEREAS, the facilities of the Port, including certain of those properties that are managed by the Seaport Alliance, are in need of expansion and improvement within the terms of the Port’s Capital Improvement Plan; and

WHEREAS, the Port is authorized by RCW 53.36.030 and ch. 39.46 to issue general obligation bonds payable from, *inter alia*, regular tax levies of the Port; and

WHEREAS, the Port has issued its Limited Tax General Obligation Refunding Bonds, 2015 under date of April 28, 2015, pursuant to Resolution No. 3703 (the “2015 Bond Resolution”) in the original principal amount of \$156,990,000 which remain outstanding, as follows:

Maturity Years (June 1)	Principal Amounts	Interest Rates
2024	\$ 7,150,000	5.00%
2025	7,510,000	5.00
2026	7,990,000	5.00
2027	8,400,000	5.00
2028	8,645,000	5.00
2029	9,035,000	4.00
2030	4,600,000	4.00
2031	4,785,000	4.00
2032	4,985,000	4.00
2033	5,185,000	4.00
2034	5,400,000	4.00
2035	5,620,000	4.00
2036	5,850,000	4.00
2037	6,085,000	4.00
2038	6,335,000	4.00
2039	6,595,000	4.00
2040	6,860,000	4.00

(the “2015 Bonds”); and

WHEREAS, the 2015 Bonds are subject to redemption at the option of the Port on and after June 1, 2024, as a whole or in part on any date, and if in part, with maturities to be selected by the Port at the price of par, plus accrued interest to the date fixed for redemption; and

WHEREAS, after due consideration it appears to the Port that a portion of the 2015 Bonds (the “Refunding Candidates”) may be defeased and/or refunded, through the issuance of a series of limited tax general obligation refunding bonds authorized herein; and

WHEREAS, the Port has determined that a public hearing on the issuance of one of the series of bonds herein authorized as required by Section 147(f) of the Internal Revenue Code, as amended, is required, and if so, has provided notice and conducted the required public hearing; and

WHEREAS, the Port has determined that in order to finance or refinance certain capital improvements to Port facilities (hereinafter defined as the “Projects”) and to refund part or all of

the Refunding Candidates, the Port shall issue its limited tax general obligation and refunding bonds in one or more series as provided herein; and

WHEREAS, the Commission wishes to delegate authority to approve the manner of sale, the number of series, the sale date or dates, the final principal amounts of the bonds, interest rates, designations of the bonds, principal maturities, redemption provisions, and the true interest cost of such bonds to be fixed under such terms and conditions as are approved by this resolution; and

WHEREAS, the bonds authorized herein shall be sold as herein provided;

NOW, THEREFORE, BE IT RESOLVED BY THE PORT COMMISSION OF THE PORT OF SEATTLE, as follows:

Section 1. Definitions. Unless otherwise defined herein, the terms used in this resolution shall have the following meanings:

Acquired Obligations means the Government Obligations acquired by the Port under the terms of this resolution and the Escrow Agreement, if any, to effect the defeasance and refunding of the Refunded Bonds.

AMT Bonds mean the Port of Seattle Limited Tax General Obligation Bonds, 2024 [] (AMT) issued to finance the AMT Projects.

AMT Projects means the projects authorized in Section 2(a) of this resolution.

Approved Bid means the winning bid submitted for a series of the Bonds if the Bonds are sold by Competitive Sale.

Bond Fund means the Port of Seattle Limited Tax General Obligation Bond Redemption Fund, 2024, or similar fund or account created in the office of the Treasurer of the Port by Section 6 of this resolution.

Bond Purchase Contract means, if the Bonds of a series shall be sold by Negotiated Sale, the purchase contract relating to the Bonds between the Port and the Underwriter.

Bond Register means the registration books maintained by the Registrar containing the name and mailing address of the owner of each Bond or nominee of such owner and the principal amount and number of Bonds held by each owner or nominee.

Bonds mean, collectively, the Refunding Bonds and the Project Bonds, authorized to be issued in Section 3 of this resolution with appropriate series designations as provided for by the Designated Port Representative.

Code means the Internal Revenue Code of 1986, as amended, together with corresponding and applicable final, temporary or proposed regulations or revenue rulings issued or amended with respect thereto by the U.S. Treasury Department or the Internal Revenue Service, to the extent applicable to a series of the Bonds.

Commission means the Commission of the Port as the general legislative body of the Port, or any successor thereto as provided by law.

Competitive Sale means the process by which the Bonds of a series are sold through the public solicitation of bids from underwriting firms.

Continuing Disclosure Undertaking means the undertaking for ongoing disclosure executed by the Port pursuant to Section 12 of this resolution.

Costs of Issuance Agreement means the agreement of that name, if any, to be entered into by the Port and the Escrow Agent, providing for the payment of certain costs of issuance with respect to the issuance of the Refunding Bonds.

Designated Port Representative means the Executive Director of the Port, the Deputy Executive Director of the Port or the Chief Financial Officer of the Port (or the successor in

function to such person(s)) or such other person as may be appointed by the Executive Director of the Port, the Deputy Executive Director of the Port or the Chief Financial Officer of the Port, respectively.

DTC means The Depository Trust Company, New York, New York, a limited purpose trust company organized under the laws of the State of New York, as depository for the Bonds pursuant to Section 5 hereof.

Escrow Agent means U.S. Bank Trust Company, National Association or such other Escrow Agent for the Refunded Bonds appointed by a Designated Port Representative pursuant to this resolution if a Designated Port Representative determines that an escrow will be necessary or required to carry out the plan of refunding.

Escrow Agreement means the Escrow Deposit Agreement, if any, dated as of the date of the closing and delivery of the Refunding Bonds between the Port and the Escrow Agent to be executed in connection with the refunding of the Refunded Bonds.

Executive Director means the Executive Director of the Port, or any successor to the functions of his office.

Federal Tax Certificate means the certificate(s) of that name executed and delivered by the Designated Port Representative at the time of issuance and delivery of the Bonds of a series that are issued on a federally tax-exempt basis.

First Interest Payment Date means the first interest payment date for the Bonds of a series as identified in the Approved Bid or Bond Purchase Contract or Official Statement for the Bonds of that series.

First Principal Payment Date means the first principal payment date for the Bonds of a series as identified in the Approved Bid or Bond Purchase Contract or Official Statement for the Bonds of that series.

Government Obligations has the meaning given such term in RCW Ch. 39.53, as now or hereafter amended.

Letter of Representations means the blanket issuer letter of representations from the Port to DTC, dated August 28, 1995.

MSRB means the Municipal Securities Rulemaking Board or any successors to its functions. Until otherwise designated by the MSRB or the United States Securities and Exchange Commission, any information, reports or notices submitted to the MSRB in compliance with the Rule are to be submitted through the MSRB's Electronic Municipal Market Access system, currently located at www.emma.msrb.org.

Negotiated Sale means the process by which the Bonds of a series are sold by negotiation to one or more underwriting firms selected by a Designated Port Representative.

Official Notice of Sale means, if the Bonds of a series shall be sold by Competitive Sale, a notice of bond sale authorized to be given in Section 13 of this resolution.

Official Statement means a final Official Statement delivered to the initial purchasers of the Bonds.

Port means the Port of Seattle, a municipal corporation of the State of Washington, as now or hereafter constituted, or the corporation, authority, board, body, commission, department or officer succeeding to the principal functions of the Port or to whom the powers vested in the Port shall be given by law.

Project Bonds mean the series or portion thereof of the Bonds issued for the purpose of funding all or part of the Projects and paying all or a portion of allocable costs of issuance.

Projects mean, collectively the AMT Projects and the Taxable Projects.

Record Date means the close of business on the 15th day prior to each day on which a payment of interest and/or principal of on the Bonds of a series is due and payable.

Refunded Bonds mean the Refunding Candidates designated by a Designated Port Representative pursuant to Section 13 of this resolution.

Refunding Bonds means the Port of Seattle Limited Tax General Obligation and Refunding Bonds, 2024 -NonAMT, authorized in Section 3(a) of this resolution.

Refunding Candidates mean the outstanding 2015 Bonds maturing on and after June 1, 2025.

Registered Owner means the person named as the registered owner of a Bond in the Bond Register.

Registrar means, the fiscal agent of the State of Washington appointed by the Treasurer for the purposes of registering and authenticating the Bonds, maintaining the Bond Register and effecting transfer of ownership of the Bonds. The term **Registrar** shall include any successor to the fiscal agency, if any, hereafter appointed by the Treasurer.

Rule means the SEC's Rule 15c2-12 under the Securities Exchange Act of 1934, as the same may be amended from time to time.

Savings Target means a dollar amount equal to at least three and one-half percent (3.5%) of the outstanding principal of the Refunded Bonds.

SEC means the United States Securities and Exchange Commission.

Taxable Bonds means the Port of Seattle Limited Tax General Obligation Bonds, 2024 [] (Taxable) authorized in Section 3(c) of this resolution.

Taxable Projects means the projects authorized in Section 2(b) of this resolution.

Treasurer means the Chief Financial Officer of the Port, or any other public officer as may hereafter be designated pursuant to law to have the custody of Port funds.

2015 Bond Resolution means Resolution No. 3703, adopted by the Commission on March 10, 2015 and authorizing the issuance of the 2015 Bonds.

2015 Bonds mean the Port of Seattle Limited Tax General Obligation and Refunding Bonds, 2015 issued pursuant to the 2015 Bond Resolution, which remain outstanding in the amounts and on the dates as shown in the recitals to this resolution.

Underwriter means the underwriter(s) of the Bonds if the Bonds are sold by Negotiated Sale or successful bidder(s) submitting the Approved Bid for the Bonds of a series.

Rules of Interpretation. In this resolution, unless the context otherwise requires:

(a) The terms “hereby,” “hereof,” “hereto,” “herein,” “hereunder” and any similar terms, as used in this resolution, refer to this resolution as a whole and not to any particular article, section, subdivision or clause hereof, and the term “hereafter” shall mean after, and the term “heretofore” shall mean before, the date of this resolution;

(b) Words of the masculine gender shall mean and include correlative words of the feminine and neuter genders and words importing the singular number shall mean and include the plural number and vice versa;

(c) Words importing persons shall include firms, associations, partnerships (including limited partnerships), trusts, corporations and other legal entities, including public bodies, as well as natural persons;

(d) Any headings preceding the text of the several articles and Sections of this resolution, and any table of contents or marginal notes appended to copies hereof, shall be solely for convenience of reference and shall not constitute a part of this resolution, nor shall they affect its meaning, construction or effect; and

(e) All references herein to “articles,” “sections” and other subdivisions or clauses are to the corresponding articles, sections, subdivisions or clauses hereof.

Section 2. Plan of Finance.

(a) The Port intends to undertake capital projects within the Port’s Capital Improvement Plan and pay a portion of the costs of capital improvements to Terminal 91, Berths 6 and 8 (the “AMT Projects”) to be financed by the AMT Bonds.

(b) The Port intends to undertake additional capital projects within the Port’s Capital Improvement Plan and pay a portion of the costs of improvements permitted to be financed by the Port (the “Taxable Projects”) to be financed by the Taxable Bonds.

The AMT Projects and the Taxable Projects are referred to collectively as the “Projects.”

Any costs of the Projects not paid from Project Bond proceeds will be paid from other Port funds.

(c) The Refunding Candidates are callable in whole or in part on and after June 1, 2024 and may be selected for refunding depending upon market conditions. The final selection of the Refunding Candidates to be designated as Refunded Bonds and to be refunded by the Refunding Bonds shall be made by a Designated Port Representative pursuant to the authority granted in Section 13 of this resolution.

Section 3. Authorization and Description of Bonds.

(a) *Refunding Bonds.* For the purpose of refunding all or a portion of the Refunding Candidates and pay allocable costs of issuance, the Port is hereby authorized to issue its limited tax general obligation refunding bonds. The Refunding Bonds shall be designated as the “Port of Seattle, Limited Tax General Obligation Bonds, 2024 [] (NonAMT), with such additional designation for identification purposes as may be approved by a Designated Port Representative at the time of marketing and sale of the Refunding Bonds.

(b) *AMT Bonds.* The Port is hereby authorized to issue its limited tax general obligation bonds in one or more series in order (1) to finance or refinance the costs of capital improvements to Port facilities (above described as “AMT Projects”); and (2) pay all or a portion of costs of issuance. The AMT Bonds shall be designated as the “Port of Seattle, Limited Tax General Obligation Bonds, 2024-[] (AMT)” with such additional designations for identification purposes as may be approved by a Designated Port Representative at the time of marketing and sale of the AMT Bonds.

(c) *Taxable Bonds.* The Port is hereby authorized to issue its limited tax general obligation bonds in one or more series in order to (1) finance or refinance the costs of capital improvements to Port facilities (above described as “Taxable Projects”) and (2) pay all or a portion of costs of issuance. The Taxable Bonds shall be designated as the “Port of Seattle, Limited Tax General Obligation Bonds, 2024 [] (Taxable)” with such additional designations for identification purposes as may be approved by a Designated Port Representative at the time of marketing and sale of the Taxable Bonds.

(d) *Bond Terms.* The Refunding Bonds, the AMT Bonds and the Taxable Bonds shall be referred to collectively as the “Bonds”. The Bonds shall be issued in the aggregate principal

amount of not to exceed \$325,000,000; shall be dated as of the date of their respective delivery; shall be fully registered as to both principal and interest; shall be in the denomination of \$5,000 or any integral multiple thereof within a series, provided that no Bond shall represent more than one series and maturity within a series; shall be numbered separately and in the manner and with any additional designation as the Registrar deems necessary for purposes of identification and control; and shall bear interest from their date of delivery until the Bonds bearing such interest have been paid or their payment is duly provided for. The Bonds of each series shall be issued in the aggregate principal amount, shall bear interest at the per annum rates, payable semiannually on June 1 and December 1, commencing on the First Interest Payment Date and First Principal Payment Date, respectively, and shall mature in the principal amounts set forth in the Official Notice of Sale and Approved Bid (or a certificate of award executed by a Designated Port Representative) or the Bond Purchase Contract all as approved by a Designated Port Representative pursuant to Section 13 of this resolution. The Bonds of any of the maturities may be combined and issued as term bonds, subject to mandatory redemption as provided in the Official Notice of Sale and Approved Bid or the Bond Purchase Contract applicable to that series.

Section 4. Redemption and Purchase.

(a) *Optional Redemption.* The Bonds of each series may be subject to optional redemption on the dates, and under the terms set forth in the Official Notice of Sale and Approved Bid (or a certificate of award executed by a Designated Port Representative) or the Bond Purchase Contract, relating to such series and as approved by a Designated Port Representative pursuant to Section 13 of this resolution.

(b) *Mandatory Redemption.* The Bonds of each series may be subject to mandatory redemption if and to the extent, if any, set forth in the Official Notice of Sale and Approved Bid

or the Bond Purchase Contract, relating to such series and as approved by a Designated Port Representative pursuant to Section 13 of this resolution.

(c) *Selection of Bonds for Redemption.* The manner of selection of Bonds of each series for redemption shall be set forth in the Official Statement relating to the issuance and sale of the Bonds and as approved by a Designated Port Representative pursuant to Section 13 of this resolution.

(d) *Notice of Redemption.* Written notice of any redemption of Bonds prior to maturity (which notice, in the case of an optional redemption, may be conditional) shall be given by the Registrar on behalf of the Port by first class mail, postage prepaid, not less than 20 days nor more than 60 days before the date fixed for redemption to the Registered Owners of Bonds that are to be redeemed at their last addresses shown on the Bond Register. This requirement shall be deemed complied with when notice is mailed to the Registered Owners at their last addresses shown on the Bond Register, whether or not such notice is actually received by the Registered Owner.

So long as the Bonds are in book-entry only form, notice of redemption shall be given to beneficial owners of bonds to be redeemed in accordance with the operational arrangements then in effect at DTC, and neither the Port nor the Registrar shall be obligated or responsible to confirm that any notice of redemption is, in fact, provided to beneficial owners.

Each notice of redemption prepared and given by the Registrar to Registered Owners of Bonds of the series being redeemed shall contain the following information: (1) the date fixed for redemption, (2) the redemption price, (3) if fewer than all outstanding Bonds of a series are to be redeemed, the identification by maturity and series (and, in the case of partial redemption, the principal amounts) of the Bonds to be redeemed, (4) that (unless the notice of redemption is a conditional notice, in which case the notice shall state that such Bond will become due and payable

and interest shall cease to accrue on the date fixed for redemption if and to the extent that funds have been provided to the Registrar for the redemption of Bonds) on the date fixed for redemption the redemption price will become due and payable upon each Bond or portion called for redemption, and that interest shall cease to accrue from the date fixed for redemption, (5) that the Bonds are to be surrendered for payment at the principal office of the Registrar, (6) the CUSIP numbers of all Bonds being redeemed, (7) the dated date of the Bonds being redeemed, (8) the rate of interest for each Bond being redeemed, (9) the date of the notice, and (10) any other information deemed necessary by the Registrar to identify the Bonds being redeemed.

Upon the payment of the redemption price of Bonds being redeemed, each check or other transfer of funds issued for such purpose shall bear the CUSIP number identifying, by issue and maturity, the Bonds being redeemed with the proceeds of such check or other transfer.

(e) *Effect of Redemption.* Unless the Port has rescinded a notice of optional redemption prior to the date fixed for redemption (or unless the Port provided a conditional notice and the conditions for redemption set forth therein are not satisfied prior to the date fixed for redemption), the Port shall transfer to the Registrar amounts that, in addition to other money, if any, held by the Registrar, will be sufficient to redeem, on the date fixed for redemption, all the Bonds to be redeemed. If and to the extent that funds have been provided to the Registrar for the redemption of Bonds then from and after the date fixed for redemption for such Bond, interest on each such Bond shall cease to accrue.

(f) *Amendment of Notice Provisions.* The foregoing notice provisions of this section, including but not limited to the information to be included in redemption notices and the persons designated to receive notices, may be amended by additions, deletions and changes in order to

maintain compliance with duly promulgated regulations and recommendations regarding notices of redemption of municipal securities.

(g) *Purchase.* The Port reserves the right to purchase any of the Bonds offered to the Port at any price deemed reasonable by a Designated Port Representative at any time. To the extent the Port purchases for cancellation or optionally redeems any Bonds that are term Bonds, the Port may reduce the mandatory sinking fund requirements of such Bonds of the same series and maturity, in like aggregate principal amount for the year or years as specified in the final Official Statement.

Section 5. Registration, Exchange and Payments.

(a) *Registrar/Bond Register.* The Port hereby specifies and adopts the system of registration and transfer for the Bonds of each series approved by the Washington State Finance Committee, which utilizes the fiscal agent of the State of Washington, for the purposes of registering and authenticating the Bonds, maintaining the Bond Register and effecting transfer of ownership of the Bonds (the “Registrar”). The Registrar shall keep, or cause to be kept, at its principal corporate trust office, sufficient records for the registration and transfer of the Bonds (the “Bond Register”), which shall be open to inspection by the Port. The Registrar may be removed at any time and a successor Registrar appointed by a Designated Port Representative upon prior notice to the Registrar, DTC (or its successor or alternate depository), and each party entitled to receive notice pursuant to the Continuing Disclosure Undertaking. No resignation or removal of the Registrar shall be effective until a successor shall have been appointed and until the successor Registrar shall have accepted the duties of the Registrar hereunder. The Registrar is authorized, on behalf of the Port, to authenticate and deliver Bonds transferred or exchanged in accordance with the provisions of such Bonds and this resolution and to carry out all of the Registrar’s powers

and duties under this resolution. The Registrar shall be responsible for its representations contained in the Certificate of Authentication on the Bonds.

(b) *Registered Ownership.* Except as provided in the Continuing Disclosure Undertaking authorized pursuant to Section 12 of this resolution, the Port and the Registrar may deem and treat the Registered Owner of each Bond as the absolute owner for all purposes, and neither the Port nor the Registrar shall be affected by any notice to the contrary. Payment of any such Bond shall be made only as described in subsection (h) of this Section 4, but the transfer of such Bond may be registered as herein provided. All such payments made as described in subsection (h) of this Section 4 shall be valid and shall satisfy the liability of the Port upon such Bond to the extent of the amount or amounts so paid.

(c) *DTC Acceptance/Letter of Representations.* The Bonds of each series shall initially be held in fully immobilized form by DTC acting as depository. To induce DTC to accept the Bonds as eligible for deposit at DTC, the Port has heretofore executed and delivered to DTC the Letter of Representations.

Neither the Port nor the Registrar will have any responsibility or obligation to DTC participants or the persons for whom they act as nominees with respect to the Bonds for the accuracy of any records maintained by DTC (or any successor or alternate depository) or any DTC participant, the payment by DTC (or any successor or alternate depository) or any DTC participant of any amount in respect of the principal of or interest on Bonds of a series, any notice that is permitted or required to be given to Registered Owners under this resolution (except such notices as shall be required to be given by the Port to the Registrar or, by the Registrar, to DTC or any successor or alternate depository), the selection by DTC or by any DTC participant of any person to receive payment in the event of a partial redemption of the Bonds, or any consent given or other

action taken by DTC (or any successor or alternate depository) as the Registered Owner. So long as any Bonds are held in fully immobilized form, DTC or its successor depository shall be deemed to be the owner and Registered Owner for all purposes, and all references in this resolution to the Registered Owners shall mean DTC (or any successor or alternate depository) or its nominee and shall not mean the owners of any beneficial interest in any Bonds.

(d) *Use of Depository.*

(1) The Bonds of each series shall be registered initially in the name of CEDE & Co., as nominee of DTC, with a single Bond for each series and maturity having the same interest rate in a denomination equal to the total principal amount of such series and maturity. Registered ownership of such immobilized Bonds, or any portions thereof, may not thereafter be transferred except (A) to any successor of DTC or its nominee, or to any other nominee requested by an authorized representative of DTC, provided that any such successor shall be qualified under any applicable laws to provide the service proposed to be provided by it; (B) to any substitute depository appointed by the Port pursuant to subsection (2) below or such substitute depository's successor or nominee; or (C) to any person as provided in subsection (4) below.

(2) Upon the resignation of DTC or its successor (or any substitute depository or its successor) from its functions as depository or a determination by the Port to discontinue the system of book entry transfers through DTC or its successor (or any substitute depository or its successor), the Port may appoint a substitute depository for a series. Any such substitute depository shall be qualified under any applicable laws to provide the services proposed to be provided by it.

(3) In the case of any transfer pursuant to clause (A) or (B) of subsection (1) above, the Registrar shall, upon receipt of all outstanding Bonds, together with a written request

on behalf of the Port, issue a single new Bond for each series and maturity then outstanding, registered in the name of such successor or substitute depository, or its nominee, all as specified in such written request of the Port.

(4) In the event that (A) DTC or its successor (or substitute depository or its successor) resigns from its functions as depository, and no substitute depository can be obtained, or (B) the Port determines that it is in the best interest of the Beneficial Owners of the Bonds of any series that the Bonds of that series be provided in certificated form, the ownership of such Bonds may then be transferred to any person or entity as herein provided, and shall no longer be held in fully immobilized form. The Port shall deliver a written request to the Registrar, together with a supply of definitive Bonds (of the appropriate series and maturities) in certificated form, to issue Bonds in any authorized denominations. Upon receipt by the Registrar of all then outstanding Bonds (of the appropriate series), together with a written request on behalf of the Port to the Registrar, new Bonds of such series shall be issued in the appropriate denominations and registered in the names of such persons as are provided in such written request.

(e) *Registration of the Transfer of Ownership or the Exchange of Bonds; Change in Denominations.* The transfer of any Bond may be registered and any Bond may be exchanged, but no transfer of any Bond shall be valid unless the Bond is surrendered to the Registrar with the assignment form appearing on such Bond duly executed by the Registered Owner or such Registered Owner's duly authorized agent in a manner satisfactory to the Registrar. Upon such surrender, the Registrar shall cancel the surrendered Bond and shall authenticate and deliver, without charge to the Registered Owner or transferee, a new Bond (or Bonds at the option of the Registered Owner) of the same date, series, maturity and interest rate and for the same aggregate principal amount in any authorized denomination, and naming as Registered Owner the person or

persons listed as the assignee on the assignment form appearing on the surrendered Bond, in exchange for such surrendered and canceled Bond. Any Bond may be surrendered to the Registrar, together with the assignment form appearing on such Bond duly executed, and exchanged, without charge, for an equal aggregate principal amount of Bonds of the same date, series, maturity and interest rate, in any authorized denomination. The Registrar shall not be obligated to register the transfer or exchange of any Bond during a period beginning at the opening of business on the Record Date with respect to an interest payment date and ending at the close of business on such interest payment date, or, in the case of any proposed redemption of the Bonds, after the mailing of notice of the call for redemption of such Bonds.

(f) *Registrar's Ownership of Bonds.* The Registrar may become the Registered Owner of any Bond with the same rights it would have if it were not the Registrar, and to the extent permitted by law, may act as depository for and permit any of its officers or directors to act as member of, or in any other capacity with respect to, any committee formed to protect the rights of the Registered Owners of the Bonds.

(g) *Registration Covenant.* The Port covenants that, until all Bonds issued on a federally tax-exempt basis have been surrendered and canceled, it will maintain a system for recording the ownership of each Bond that complies with the provisions of Section 149 of the Code.

(h) *Place and Medium of Payment.* The principal of, premium, if any, and interest on the Bonds shall be payable in lawful money of the United States of America. Interest on the Bonds shall be calculated on the basis of a 360-day year and twelve 30-day months. For so long as all Bonds are in fully immobilized form with DTC, payments of principal, premium, if any, and interest shall be made as provided to the parties entitled to receive payment as of each Record Date

in accordance with the operational arrangements of DTC described in the Letter of Representations. In the event that the Bonds are no longer in fully immobilized form with DTC (or its successor or alternate depository), interest on the Bonds shall be paid by check mailed to the Registered Owners at the addresses for such Registered Owners appearing on the Bond Register as of the Record Date, and principal and premium, if any, of the Bonds shall be payable by check upon presentation and surrender of such Bonds by the Registered Owners at the principal office of the Registrar; provided, however, that if so requested in writing prior to the opening of business on the Record Date by the Registered Owner of at least \$1,000,000 aggregate principal amount of Bonds of a series, interest on such Bonds will be paid thereafter by wire transfer on the date due to an account with a bank located within the United States.

Section 6. Bond Fund. A special fund of the Port designated the “Port of Seattle Limited Tax General Obligation Bond Redemption Fund, 2024” (the “Bond Fund”) is hereby authorized to be created in the office of the Treasurer of the Port for the purpose of paying and securing the payment of the Bonds. The Bond Fund may be maintained as a single account or multiple accounts at the option of the Port and may be re-designated in accordance with the accounting procedures then followed by the Port. The Bond Fund shall be held separate and apart from all other funds and accounts of the Port and shall be a trust fund for the owners, from time to time, of the Bonds. The taxes levied for the purpose of paying principal of and interest on the Bonds and other legally available funds to be used to pay the Bonds shall be deposited in the Bond Fund no later than the date such funds are required for the payment of principal of and interest on the Bonds.

The Port hereby further irrevocably covenants that it will budget and make annual levies of ad valorem taxes upon all of the taxable property within the boundaries of the Port subject to

taxation within and as a part of the tax levy permitted to be levied by the Port without a vote of the electors, in amounts sufficient (together with other legally available funds) to pay the principal of and interest on the Bonds as the same shall become due. The full faith, credit and resources of the Port are hereby irrevocably pledged for the annual levy and collection of such taxes and for the prompt payment of such principal and interest. The Bonds are general obligations of the Port.

Section 7. Defeasance. In the event that money and/or noncallable Government Obligations that are direct obligations of the United States or obligations unconditionally guaranteed by the United States maturing at such time or times and bearing interest to be earned thereon in amounts (together with such money, if necessary) sufficient to redeem and retire part or all of the Bonds authorized hereunder in accordance with their terms, are set aside in a special account of the Port to effect such redemption and retirement, and such moneys and the principal of and interest on such obligations are irrevocably set aside and pledged for such purpose, then no further payments need be made into the Bond Fund of the Port for the payment of the principal of and interest on the Bonds so provided for, and such Bonds shall cease to be entitled to any lien, benefit or security of this resolution except for the right to receive the moneys so set aside and pledged, and such Bonds shall be deemed not to be outstanding hereunder.

The Port shall provide notice of defeasance of any Bonds to the Registered Owners of the Bonds being defeased, and to each party entitled to receive notice under the Continuing Disclosure Undertaking pursuant to Section 12 of this resolution.

Section 8. Tax Covenants.

(a) *General.* The Port covenants that it will not take or permit to be taken on its behalf any action that would adversely affect the exclusion from gross income for federal income tax purposes of the interest on such Bonds originally issued on a federally tax-exempt basis, and will take or require to be taken such acts as may reasonably be within its ability and as may from time to time be required under applicable law to continue the exclusion from gross income for federal income tax purposes of the interest on such Bonds issued on a federally tax-exempt basis. The Port shall comply with its covenants set forth in the Federal Tax Certificate with respect to such Bonds of a series issued on a federally tax-exempt basis.

(b) *No Bank Qualification.* The Bonds shall not be qualified tax-exempt obligations pursuant to Section 265(b) of the Code for investment by financial institutions.

Section 9. Lost, Stolen or Destroyed Bonds. In case any Bond or Bonds shall be lost, stolen or destroyed, the Registrar may execute and deliver a new Bond or Bonds of like series, maturity, date, number and tenor to the Registered Owner thereof upon the owner's paying the expenses and charges of the Port in connection therewith and upon his/her filing with the Port evidence satisfactory to the Port that such Bond was actually lost, stolen or destroyed and of his/her ownership thereof, and upon furnishing the Port with indemnity satisfactory to the Port.

Section 10. Form of Bonds and Registration Certificate. The Bonds of each series shall be in substantially the following form:

[DTC HEADING]

UNITED STATES OF AMERICA

NO. _____ \$ _____

STATE OF WASHINGTON

PORT OF SEATTLE

LIMITED TAX GENERAL OBLIGATION [AND REFUNDING] BOND, 2024[][]
[NON-AMT][(AMT)][(TAXABLE)]

Maturity Date:

CUSIP No. _____

Interest Rate:

Registered Owner: CEDE & Co.

Principal Amount:

THE PORT OF SEATTLE, a municipal corporation organized and existing under and by virtue of the laws of the State of Washington (the “Port”), promises to pay to the Registered Owner identified above, or registered assigns, on the Maturity Date identified above the Principal Amount indicated above and to pay interest thereon from the Bond Fund from _____, 2024, or the most recent date to which interest has been paid or duly provided for or until payment of this bond at the Interest Rate set forth above, payable on _____, and semiannually thereafter on the first days of each June and December. The principal of, premium, if any, and interest on this bond are payable in lawful money of the United States of America. Principal and interest on this bond shall be paid as provided in the Blanket Issuer Letter of Representations (the “Letter of Representations”) from the Port to The Depository Trust Company (“DTC”). The Port has specified and adopted the registration system for the bonds of this issue specified by the State Finance Committee, and the fiscal agent of the State will act as the registrar, authenticating agent and paying agent (the “Registrar”). Capitalized terms used in this bond which are not specifically defined have the meanings given such terms in the Resolution No. ____ of the Port Commission (the “Bond Resolution”).

This bond is one of a series of bonds of the Port in the aggregate principal amount of \$ _____, of like date, tenor and effect, except as to number, amount, rate of interest and date of maturity and is issued pursuant to the Bond Resolution to [pay costs of capital improvement projects][and to refund certain outstanding Port obligations]. [Simultaneously herewith, the Port is issuing another series of limited tax general obligation bonds: its Limited Tax General; Obligation [and Refunding] Bonds, 2024[][] [NON-AMT][(AMT)] [(Taxable)] in the principal amount of \$ _____] and its Limited Tex General Obligation [and refunding] Bonds, 2024[][] [(NON-AMT)][(AMT)] [(Taxable)] in the principal amount of \$ _____ \$ _____].

The bonds of this issue maturing on and prior to _____ are not subject to redemption in advance of their scheduled maturity. [The bonds of this issue maturing on and after _____ are subject to redemption at the option of the Port on and after _____][in whole or in part on any date, and if in part, with maturities to be selected by the Port at the price of par plus accrued interest to the date fixed for redemption][as described in the Official Notice of Sale and Approved Bid][Bond Purchase Contract] for the bonds of this issue.

[Unless previously redeemed pursuant to the foregoing optional redemption provisions, the bonds of this issue maturing in the year ____ are subject to mandatory redemption on _____ of the following years at a price of par plus accrued interest to the date fixed for redemption:

Year	Amount
*	\$

* Final maturity]

[The bonds of this series are private activity bonds.] The bonds of this series are not “qualified tax-exempt obligations” eligible for investment by financial institutions within the meaning of Section 265(b) of the Internal Revenue Code of 1986, as amended. [The Port has taken no action to cause the interest on this bond to be exempt from general federal income taxation.]

The Port hereby covenants and agrees with the owner and holder of this bond that it will keep and perform all the covenants of this bond and the Bond Resolution.

The Port has irrevocably covenanted in the Bond Resolution that it will budget and make annual levies of ad valorem taxes upon all of the taxable property within the boundaries of the Port subject to taxation within and as a part of the tax levy permitted to be levied by the Port without a vote of the electors, in amounts sufficient (together with other legally available funds) to pay the principal of and interest on the bonds of this issue as the same shall become due. The full faith, credit and resources of the Port are irrevocably pledged for the annual levy and collection of such taxes and for the prompt payment of such principal and interest. The bonds of this issue are general obligations of the Port. The pledge of tax levies may be discharged prior to maturity of the bonds of this by making provision for the payment thereof on the terms and conditions set forth in the Bond Resolution.

This bond shall not be valid or become obligatory for any purpose or be entitled to any security or benefit under the Bond Resolution until the Certificate of Authentication hereon shall have been manually signed by or on behalf of the Registrar.

It is hereby certified and declared that this bond and the bonds of this issue are issued pursuant to and in strict compliance with the Constitution and laws of the State of Washington and resolutions of the Port and that all acts, conditions and things required to be done precedent to and in the issuance of this bond have happened, been done and performed.

IN WITNESS WHEREOF, the Port of Seattle has caused this bond to be executed by the manual or facsimile signatures of the President and Secretary of the Port Commission, and the corporate seal of the Port to be impressed, imprinted or otherwise reproduced hereon as of the ____ day of _____, 2024.

PORT OF SEATTLE

By _____ /s/
President, Port Commission

[SEAL]

ATTEST:

_____/s/
Secretary, Port Commission

The Certificate of Authentication printed on the Bonds shall be substantially in the following form:

CERTIFICATE OF AUTHENTICATION

Date of Authentication: _____

This bond is one of the bonds described in the within mentioned Bond Resolution and is one of the Limited Tax General Obligation [and Refunding] Bonds, 2024[][(NON-AMT)][(AMT)][(Taxable)] of the Port of Seattle, dated _____, 2024.

WASHINGTON STATE FISCAL AGENT,
Registrar

By _____
Authorized Signer

Section 11. Execution. The Bonds shall be executed on behalf of the Port with the manual or facsimile signature of the President of its Commission, shall be attested by the manual or facsimile signature of the Secretary thereof and shall have the seal of the Port impressed, imprinted or otherwise reproduced thereon.

Only such Bonds as shall bear thereon a Certificate of Authentication in the form hereinbefore recited, manually executed by the Registrar, shall be valid or obligatory for any purpose or entitled to the benefits of this resolution. Such Certificate of Authentication shall be conclusive evidence that the Bonds so authenticated have been duly executed, authenticated and delivered hereunder and are entitled to the benefits of this resolution.

In case either of the officers of the Port who shall have executed the Bonds shall cease to be such officer or officers of the Port before the Bonds so signed shall have been authenticated or delivered by the Registrar, or issued by the Port, such Bonds may nevertheless be authenticated, delivered and issued and upon such authentication, delivery and issuance, shall be as binding upon the Port as though those who signed the same had continued to be such officers of the Port. Any Bond may also be signed and attested on behalf of the Port by such persons as at the actual date of execution of such Bond shall be the proper officers of the Port although at the original date of such Bond any such person shall not have been such officer.

Section 12. Undertaking to Provide Ongoing Disclosure. Each Designated Port Representative is authorized to, in his or her discretion, execute and deliver a Continuing Disclosure Undertaking providing for undertaking by the Port to assist the Underwriter(s) in complying with the Rule.

Section 13. Sale of Bonds.

(a) *Designation of Refunded Bonds.* All or some of the Refunding Candidates, as approved by a Designated Port Representative pursuant to the authority delegated in Section 13(b), may be refunded with the proceeds of the Refunding Bonds authorized by this resolution.

(b) *Bond Sale.* Each Designated Port Representative is hereby authorized to determine whether the Bonds shall be sold by a Competitive Sale or by Negotiated Sale. If the Bonds are

sold by Competitive Sale, all bids submitted for the purchase of Bonds shall be as set forth in the applicable Official Notice of Sale or otherwise as established by a Designated Port Representative, which will be furnished upon request made to a Designated Port Representative. Such bids may be accompanied by a surety bond or by a wire transfer or a cashier's or certified check, as a good faith deposit, made payable to the order of the Port. The Port reserves the right to reject any and all bids and to waive any irregularity or informality in any bid. If the Bonds are sold by Negotiated Sale, a Designated Port Representative shall select one or more underwriting firms from the Port's current team to underwrite the Bonds. Upon the selection of one or more Underwriters, a Designated Port Representative shall negotiate the terms of sale for the Bonds, including the terms described in this section, which shall be set forth in the Bond Purchase Contract.

The Commission has been advised by the Port's financial advisor that market conditions are fluctuating and, as a result, the most favorable market conditions may occur on a day other than a regular meeting date of the Commission. The Commission has determined that it would be in the best interest of the Port to delegate to the Designated Port Representatives for a limited time the authority with respect to the Bonds of a series to select the Refunding Candidates for refunding, to combine the sale of certain Refunding Bonds and Project Bonds as a single series or to issue the Refunding Bonds and the Project Bonds in separate series, to approve the number of series and series designations, the manner of sale, date of sale, final interest rates, maturity dates, aggregate principal amount, principal amounts and prices of each maturity, redemption rights (provided that the Bonds of a series shall not be subject to optional redemption in less than five years from their respective dates of issue), and other terms and conditions of the Bonds. Each Designated Port Representative is hereby authorized to approve with respect to each series, the series designations, the manner of sale, the date of sale, the final interest rates, maturity dates, aggregate principal

amount, principal amounts of each maturity and redemption rights (provided that the Bonds of a series shall not be subject to optional redemption in less than five years from their respective dates of issue) for the Bonds in the manner provided hereafter (A) so long as the aggregate principal amount of the Bonds issued pursuant to this resolution does not exceed \$325,000,000, (B) so long as the true interest cost for the Bonds of a series does not exceed 6.00% per annum; and (C) so long as the Savings Target is met with respect to the Refunding Bonds.

Subject to the terms and conditions set forth in this section, each Designated Port Representative is hereby authorized to accept an Approved Bid or to execute a Bond Purchase Contract for each series. Following the execution of an Official Notice of Sale and Approved Bid or Bond Purchase Contract, the Designated Port Representative shall provide a report to the Commission, describing the final terms of the Bonds approved pursuant to the authority delegated in this section.

The authority granted to the Designated Port Representative(s) by this section shall expire on April 23, 2025. If an Official Notice of Sale and Approved Bid or Bond Purchase Contract for the Bonds of a series has not been approved and/or executed within such period, the authorization for the issuance of the Bonds of that series shall be rescinded, and the Bonds of that series shall not be issued nor their sale approved unless such Bonds shall have been re-authorized by resolution of the Commission. The resolution reauthorizing the issuance and sale of the Bonds may be in the form of a new resolution repealing this resolution in whole or in part (only with respect to the Bonds not issued) or may be in the form of an amendatory resolution approving a bond purchase contract or establishing terms and conditions for the authority delegated under this section.

(c) *Delivery; Documentation.* Upon the adoption of this resolution, the proper officials of the Port including the Designated Port Representative(s), are authorized and directed to

undertake all other actions necessary for the prompt execution and delivery of the Bonds to the Underwriter(s) thereof and further to execute all closing certificates and documents required to effect the closing and delivery of the Bonds in accordance with the terms of the Official Notice of Sale and Approved Bid or the Bond Purchase Contract.

Each Designated Port Representative is authorized to deem final and to approve for purposes of the Rule, on behalf of the Port, any Preliminary Official Statement and Official Statement and any supplement thereto relating to the issuance and sale of the Bonds and the distribution of the Bonds pursuant thereto with such changes, if any, as may be deemed by him/her to be appropriate.

Each Designated Port Representative and other Port officials, agents and representatives are hereby authorized and directed to do everything necessary for the prompt issuance, execution and delivery of the Bonds to the Underwriter(s) and for the proper application and use of the proceeds of sale of the Bonds. In furtherance of the foregoing, each Designated Port Representative is authorized to approve and enter into agreements for the payment of costs of issuance, including Underwriters' discount, the fees and expenses specified in the Official Notice of Sale and Approved Bid or the Bond Purchase Contract, including fees and expenses of Underwriters and other retained services, including bond counsel, disclosure counsel, rating agencies, fiscal agent, Escrow Agent, financial advisory services, escrow structuring services and other expenses customarily incurred in connection with issuance and sale of bonds.

Section 14. Application of Bond Proceeds.

(a) *Application of Project Bond Proceeds.* The proceeds of the Project Bonds of a series (exclusive of the Underwriter discount and any amounts that may be designated by a Designated Port Representative in a closing certificate to be allocated to pay costs of issuance)

shall be deposited into one or more capital project accounts, used to refinance commercial paper, and used to pay costs of issuance and, together with other available moneys, to pay costs of the Projects.

If interest on the Project Bonds is to be capitalized, the Treasurer of the Port is hereby authorized and directed to create one or more capitalized interest accounts for the purpose of holding certain Project Bond proceeds and interest earnings thereon to be used and disbursed to pay interest on the Bonds through the date or dates specified by the Designated Port Representative.

The Treasurer shall invest the net proceeds of the Project Bonds in such obligations as may now or hereafter be permitted to port districts of the State of Washington by law and that will mature prior to the date on which such money shall be needed. Earnings on such investments, except as may be required to pay rebatable arbitrage pursuant to the Federal Tax Certificate, if any, may be used for Port purposes or transferred to the Bond Fund for the uses and purposes therein provided.

The Port shall maintain books and records regarding the use and investment of proceeds of Bonds issued on a federally tax-exempt basis in order to maintain compliance with its obligations under its Federal Tax Certificate.

(b) *Application of Refunding Bond Proceeds.* The net proceeds of the Refunding Bonds (exclusive of the Underwriter discount and any amounts that may be designated by a Designated Port Representative in a closing certificate to be allocated to pay costs of issuance), together with other available funds of the Port in the amount specified by a Designated Port Representative, shall be utilized upon receipt thereof to pay and redeem the Refunded Bonds and/or shall be paid at the direction of the Treasurer to the Escrow Agent (if a Designated Port

Representative has determined that an escrow is necessary or desirable to effect the defeasance and/or redemption of all or a portion of the Refunded Bonds).

(c) *Defeasance of Refunded Bonds.* Subject to and in accordance with the resolution authorizing the issuance of the Refunded Bonds, the net proceeds of the Refunding Bonds so deposited shall be utilized upon receipt thereof to pay and redeem Refunded Bonds and/or to purchase the noncallable Government Obligations that are direct or indirect obligations of the United States or obligations unconditionally guaranteed by the United States specified by a Designated Port Representative (the “Acquired Obligations”) and to maintain such necessary beginning cash balance to defease the Refunded Bonds and to discharge the other obligations of the Port relating thereto under the resolution authorizing their issuance, thereby providing for the payment of the interest on the Refunded Bonds to the date fixed for redemption and the redemption price (the principal amount) on the date fixed for redemption of the Refunded Bonds. Subject to compliance with all conditions set forth in the resolution authorizing the issuance of the Refunded Bonds, when the final transfers have been made for the payment of such redemption price and interest on the Refunded Bonds, any balance then remaining shall be transferred to the account designated by the Port and used for the purposes specified by a Designated Port Representative.

(d) *Acquired Obligations.* The Acquired Obligations, if any, shall be payable in such amounts and at such times that, together with any necessary beginning cash balance, will be sufficient to provide for the payment of:

(1) the interest on the Refunded Bonds as such becomes due on and before the dates fixed for redemption of the Refunded Bonds; and

(2) the price of redemption of the Refunded Bonds on the date fixed for redemption of the Refunded Bonds.

(e) *Authorizing Appointment of Escrow Agent and Verification Agent.* The Commission hereby authorizes and directs a Designated Port Representative (if that Designated Port Representative determines that an escrow would be necessary or desirable to effect the defeasance of all or a portion of the Refunded Bonds) to select a financial institution to act as the escrow agent for all or a portion of the Refunded Bonds and also to select a verification agent for some or all of the Refunded Bonds.

Section 15. Redemption of Refunded Bonds. The Commission hereby calls the callable Refunded Bonds for redemption on the redemption date specified by a Designated Port Representative in accordance with the provisions of the resolution authorizing the issuance, redemption and retirement of the Refunded Bonds prior to their maturity dates.

A Designated Port Representative may cause to be disseminated a conditional notice of redemption prior to the closing and delivery of the Refunding Bonds and if a notice of redemption has been disseminated, such notice may be revoked at the option of a Designated Port Representative pursuant to the 2015 Bond Resolution.

Said defeasance and call for redemption of the Refunded Bonds shall be irrevocable after the closing and delivery of the Refunding Bonds.

If so appointed, the Escrow Agent shall be authorized and directed to provide for the giving of irrevocable notice of the redemption of those Refunded Bonds designated in the Escrow Agreement in accordance with the terms of the resolution authorizing the issuance of such Refunded Bonds and as described in the Escrow Agreement. The Treasurer is authorized and directed to provide whatever assistance is necessary to accomplish such redemption and the giving of irrevocable notice therefor. The costs of mailing of such notice shall be an expense of the Port.

The Port or the Escrow Agent, if any, on behalf of the Port, shall be authorized and directed to pay to the fiscal agent of the State of Washington, sums sufficient to pay, when due, the payments specified in Section 14(d) of this resolution. All such sums shall be paid from the moneys and the Acquired Obligations pursuant to the previous section of this resolution, and the income therefrom and proceeds thereof.

If an Escrow Agent is appointed, the Port will ensure that all necessary and proper fees, compensation and expenses of the Escrow Agent for the Refunded Bonds shall be paid when due. If an Escrow Agent is appointed, a Designated Port Representative is authorized and directed to execute and deliver the Escrow Agreement to the Escrow Agent when the provisions thereof have been fixed and determined for closing and delivery of the Refunding Bonds. The Escrow Agreement, if any, shall be in form and substance satisfactory to a Designated Port Representative and the Escrow Agent, and may include a separate Costs of Issuance Agreement.

Section 16. Resolution and Laws a Contract with the Bond Owners. This resolution is adopted under the authority of and in full compliance with the Constitution and laws of the State of Washington. In consideration of the purchase and ownership of the Bonds, the provisions of this resolution and of said laws shall constitute a contract with the owners of the Bonds, and the obligations of the Port and its Commission under said laws and under this resolution shall be enforceable by any court of competent jurisdiction; and the covenants and agreements herein and in the Bonds set forth shall be for the equal benefit of the owners of the Bonds.

Section 17. Severability. If any one or more of the covenants or agreements provided in this resolution to be performed on the part of the Port shall be declared by any court of competent jurisdiction to be contrary to law, then such covenant or covenants, agreement or agreements, shall be null and void and shall be deemed separable from the remaining covenants and agreements in

this resolution and shall in no way affect the validity of the other provisions of this resolution or of any Bonds.

Section 18. Effective Date. This resolution shall be effective immediately upon its adoption.

ADOPTED by the Port Commission of the Port of Seattle at a duly noticed meeting thereof, held this 23rd day of April, 2024, and duly authenticated in open session by the signatures of the Commissioners voting in favor thereof.

PORT OF SEATTLE

Commissioners

CERTIFICATE

I, the undersigned, Secretary of the Port Commission (the “Commission”) of the Port of Seattle (the “Port”), DO HEREBY CERTIFY:

1. That the attached resolution numbered 3822 (the “Resolution”) is a true and correct copy of a resolution of the Port, as finally adopted at a meeting of the Commission held on the 23rd day of April, 2024, and duly recorded in my office.

2. That said meeting was duly convened and held in all respects in accordance with law, and to the extent required by law, due and proper notice of such meeting was given; that a quorum of the Commission was present throughout the meeting and a legally sufficient number of members of the Commission voted in the proper manner for the adoption of said Resolution; that all other requirements and proceedings incident to the proper adoption of said Resolution have been duly fulfilled, carried out and otherwise observed, and that I am authorized to execute this certificate.

IN WITNESS WHEREOF, I have hereunto set my hand as of this 23rd day of April, 2024.

Secretary

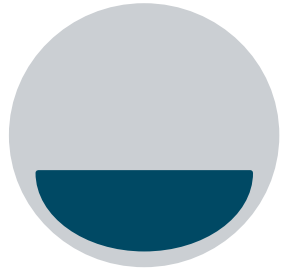
General Obligation & Refunding Bonds, Series 2024

April 16, 2024

Request Introduction of Resolution No. 3822

- Sale and Issuance of General Obligation (G.O.) & Refunding Bonds
- Draft Plan of Finance anticipates the use of G.O. bonds to fund \$351 million of Non-Airport capital investments:
 - Maritime
 - Economic Development
 - Northwest Seaport Alliance (NWSA) North Harbor
- 2024 G.O. bonds to provide partial funding

Purpose of the Bonds

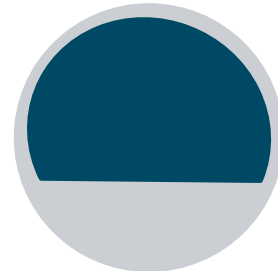


Refund for Savings
~\$100 million ⁽¹⁾

Refunding G.O. bonds issued in 2015 - estimated to provide \$3.6 million in (net present value) debt service savings

The refunding may or may not proceed depending on market conditions

(1) estimate



Funding for Capital Projects
~\$200 million ⁽¹⁾

Partial funding of Non-Airport CIP, as outlined in the Draft Plan of Finance

Fund Non-Airport Capital Investments



Under Construction:

- Terminal 91 Berths 6 & 8
- Fishermen's Terminal Maritime Innovation Center
- Completion of Terminal 5 Modernization
- Other NWSA (North Harbor) capital projects

In Design:

- Terminal 91 Uplands Development (Phase I)
- Other NWSA (North Harbor) capital projects

Flexibility to redirect bond proceeds to other tax levy and GO Bond funded projects identified in the Draft Plan of Finance

Actual spending on projects is subject to appropriate authorization

Resolution No. 3822

- Similar in all material respect to other G.O. Bond resolutions
 - Provides approval delegation to Executive Director, Deputy Executive Director or Chief Financial Officer
- Bonds may be issued in multiple series
 - Tax-exempt (governmental)
 - Tax-exempt (private-activity)
 - Taxable
- Delegation Limits:
 - Maximum Par Amount: \$325.0 million
 - Maximum Interest Rate: 6.0%
 - Minimum Savings Rate: 3.5%
 - Bond sale must occur within one year, by April 23, 2025

Exceeding limits requires further authorization
- Bonds to be sold competitively ⁽¹⁾
- Provides funding for bond issuance costs

(1) Option for negotiated sale

Next Steps

- Meetings with credit rating agencies April 18-19
- Adoption of Resolution No. 3822 scheduled for May 14
- Bond sale timing will depend on market conditions

[RETURN TO AGENDA](#)



**COMMISSION
AGENDA MEMORANDUM**

Item No. 10b

ACTION ITEM

Date of Meeting April 16, 2024

DATE: April 3, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Jeff Wolf, Director, Aviation Commercial Management
Eileen Francisco, Director, Aviation Project Management Group

SUBJECT: Concourse A Duty Free – Tenant Reimbursement Agreement (TRA) and Pre-construction Services

Amount of this request: \$10,100,000
Total estimated project cost: \$46,431,000 – \$60,000,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to 1) execute a TRA with the selected Duty-Free Operator and 2) authorize \$10.1M for design and pre-construction services for the Concourse A Duty-Free project. The estimated total project cost is between \$46M - \$60M.

EXECUTIVE SUMMARY

This project will renovate a portion of Concourse A and create approximately 12,000 square feet of new leasable space for Duty-Free operations. With the addition of the International Arrivals Facility (IAF), gates on Concourse A are now internationally capable, making it the ideal location to provide expanded Duty-Free services to the traveling public and increasing SEA’s non-aeronautical revenue.

With prior Commission approval, the project has completed a Project Definition Document (PDD), developed 15% designs, solicited for, and awarded a Duty-Free Operator.

JUSTIFICATION

Duty-Free at SEA has been an underperforming category within the Airport Dining & Retail (ADR) program due to a lack of required square footage necessary to attract and secure brand names to meet international passenger demands. SEA’s existing Duty-Free amenities currently ranks 13 out of 22 for Duty-Free operations within U.S. large hub airports. This project, combined with the South Concourse Evolution Project, will meet passenger and international airline partner demand

Meeting Date: April 16, 2024

for Duty-Free operations, increase passenger amenities, and aligns with the Port's Century Agenda goal to strengthen SEA's competitiveness in both the regional and global markets.

Today's request is to execute a TRA contract between the Port and the selected Duty-Free Operator such that the Duty-Free Operator may execute their respective design and General Contractor/Construction Management (GCCM) contracts to further project designs. Furthermore, under a TRA and GCCM project delivery method, the Port is requesting \$10.1M to support and reimburse design and pre-construction services for base building work.

Diversity in Contracting

This project has set a Women-and-Minority Owned Business Enterprise goal of 14% for design and 15% for construction services.

DETAILS

Under this TRA, the cost of design, construction, and associated soft costs of the Concourse A base building improvements and modifications will be reimbursable. The Duty-Free Operator will be responsible for the cost of design, construction, and associated soft costs of all individual tenant improvements within Concourse A and the forthcoming shell and core space in the south satellite, provided by the S Concourse Evolution Program.

On October 26, 2021, Commission authorized the completion of the PDD, preliminary design development, and continued exploration of using a TRA to complete the base-building work. Due to the substantial amount of base-building work needed to complete the renovation on Concourse A, the Port determined a TRA was the preferred option to deliver the project.

Commission authorization for design was originally anticipated in Q3 of 2022 but due to extended COVID impacts and a protracted rebound of international passenger traffic, the project was delayed by 18 months. ADR's solicitation for a Duty-Free Operator was advertised in July of 2023, concluded in October of 2023, and was awarded in March of 2024.

The selected respondent has provided preliminary TRA costs as part of the solicitation. Estimated TRA costs are currently under evaluation by the Port's Project Management/Project Controls teams and will not be fully validated until 100% designs to ensure greater cost accuracy.

This \$10.1M request will provide for design, pre-construction, ADR Owner's Rep, and Port project and construction management services.

In addition to the Port's capital investment for Concourse A, the Duty-Free Operator will also complete various tenant improvements throughout Concourse A, S and N. This expansion of

Meeting Date: April 16, 2024

Duty-Free Operations is anticipated to create over 150 jobs in design, construction, and operations.

Scope of Work

The project area is located on Concourse A adjacent to the exit from the IAF and Gina Marie Lindsey Hall (GML). It includes concourse circulation and multiple retail, food, and beverage concepts. This existing space will be converted into a Duty-Free area and the layout will be configured such that passengers can flow through both the Duty-Free and Duty-Paid concepts, maximizing revenue. The new Duty-Free space will be in the center of the concourse between Gates A1 through A6. This central location will include ADR space, a customer information hub, a music stage, and Flight Informational Displays throughout.

The new Duty-Free will require a “lid” or structural slab above the existing concourse for support and to maintain the required security separation from the GML arrivals. In doing so, it will create a new expanded, fully renovated mezzanine space for SEA’s Conference Center. This additional conference space will also generate new non-aeronautical revenue for the Port.

A new egress stair from the mezzanine level will exit into baggage claim. Directly behind the egress stair is a proposed storage room for lifts and/or a potential baggage claim office location. All existing exits from GML hall will be maintained throughout the project. The future design will be responsible for confirming that all exit egress pathways are maintained.

This project will require a focused, multi-phased construction sequencing plan to coordinate projects within the Concourse A footprint and across the larger airport campus. Additionally, extensive, and constant communication will be required to inform all required Port stakeholders throughout the project’s duration to ensure impacts to the Port and passenger experience are limited to the extent practicable.

Additionally, the selected Operator, under a normal tenant improvement, will also complete the design and construction of a new Duty-Free location within the South Concourse Expansion. Construction of the South Concourse Duty-Free location is anticipated to begin as early as 2027.

Schedule

Design Start	2024 Q3
Full Project Authorization	2025 Q4
NTP for Construction	2025 Q4
In-use date	2027 Q3

Meeting Date: April 16, 2024

Cost Breakdown	This Request	Total Project
Design	\$8,600,000	\$10,346,000
Preconstruction Services	\$1,500,000	\$1,500,000
Construction	0	\$34,585,000
Total	\$10,100,000	\$46,431,000 - \$60,000,000

The \$46.4M listed above represents the low range of the estimated total project value. Once all costs have been vetted against the 100% design package, the project team will seek Commission approval for the full project authorization, including the total TRA value.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Do not increase the total leasable square footage of Duty-Free operations. Under this alternative the Port would not move forward with any improvements/modifications to Concourse A.

Cost Implications: \$549,360 (actual costs to date)

Pros:

- (1) Remaining estimated capital budget of \$45,881,640 could be saved.
- (2) This is the lower cost alternative.

Cons:

- (1) Current project costs would be wasted.
- (2) Loss of opportunity to expanded Duty-Free square footage, maximize non-aeronautical revenue, and struggle to meet current and future international passenger demands.
- (3) Does not increase SEA’s competitiveness within regional and global markets or improve SEA’s current Duty-Free ranking among large-hub U.S. airports.

This is not the recommended alternative.

Alternative 2 – Re-evaluate the overall project to implement partial elements of the scope identified in the PDD and forgo the execution of a TRA to complete Concourse A improvements/modifications.

Cost Implications: \$549,360 (actual costs to date)

Pros:

- (1) The reevaluated scope could potentially alleviate project conflicts and construction phasing impacts with Checkpoint #1.
- (2) Potential to reduce impacts to operations at the airport.

Cons:

- (1) Significantly delays the overall project schedule to reevaluate critical scope and construction phasing.

Meeting Date: April 16, 2024

- (2) ADR will need to recompile the Duty-Free RFP as the business model and offering will have changed and the economics associated with the proposals are no longer justified without the full amount of square footage available to the operator. With reevaluation of options there will be additional cost implications for rework of PDD efforts to date.
- (3) Completing any necessary base building modifications in the future would likely be more costly.

This is not the recommended alternative.

Alternative 3 – Execute the TRA contract between the Port and Duty-Free Operator and Approve the necessary funds to support and reimburse for design development preconstruction services.

Cost Implications: \$10.1M

Pros:

- (1) Meets Port’s Century Agenda to strengthen the competitiveness of SEA in both the regional and global marketplaces.
- (2) Provides expanded Duty-Free footprint to meet current and future international passenger demands.
- (3) Maximizes Port’s non-aeronautical revenue.

Cons:

- (1) Impacts to the passenger experience during construction with a project this size and complexity.
- (2) Increased project-to-project coordination with adjacent Checkpoint #1 project and increased passenger impacts because of multiple project closures in the Concourse A vicinity.
- (3) Large capital investment. Current estimated total project value is \$46M - \$60M.

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Estimates included in the table below are represented as the low end of the current total project value of \$46M - \$60M. Completion of the 100% design will inform more accurate project costs and drive the forthcoming request to lock in both the TRA value and the total project costs.

Cost Estimate/Authorization Summary

	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$33,366,000	\$0	\$33,366,000
Current change	\$12,565,000	\$500,000	\$13,065,000
Revised estimate			\$46,431,000 - \$60,000,000
AUTHORIZATION			
Previous authorizations	\$1,746,071	0	\$1,746,071

Meeting Date: April 16, 2024

Current request for authorization	\$9,600,000	\$500,000	\$10,100,000
Total authorizations, including this request	\$11,346,071	\$500,000	\$11,846,071
Remaining amount to be authorized			\$35,100,000 - \$48,700,000

Annual Budget Status and Source of Funds

This project, CIP C801206, was included in the 2024-2028 capital budget and plan of finance with a budget of \$45,931,000. The funding sources will include the Airport Development Fund and revenue bonds.

Financial Analysis and Summary

Project cost for analysis	\$46 - \$60 million
Business Unit (BU)	Commercial Management
Effect on business performance (NOI)	Over the course of the term for Duty Free, NOI will range from \$90 million-\$110 million depending on project cost. New additional non-aeronautical revenue will ramp up from approximately \$5.6 million to \$10.1 million in year 20. Breakeven is expected from 9 to 11 years depending on project cost.
NPV	\$5.7 million-\$23.5 million (depending on project cost)
CPE Impact	N/A

Future Revenues and Expenses (Total cost of ownership)

Non-aeronautical revenues are estimated to be approximately \$5.6M (year 1) - \$10.1M (year 20) based on projected Duty-free sales per international enplaned passenger and long-term passenger traffic forecasts.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- October 24, 2023 – Lease and Concession Termination Agreements for Concessionaries Concourse A (Duty-Free Construction)
- October 26, 2021– Complete Project Definition Document and release the RFP to select a Duty-Free Operator

Concourse A Duty-Free

CIP: C801206

Purpose

Request Commission authorization for the Executive Director to:

- 1) Execute a Tenant Reimbursable Agreement (TRA) with the selected Duty-Free Operator,
- 2) Authorize \$10.1M for design and pre-construction services for the Concourse A Duty-Free project.

The estimated total project cost is between \$46M - \$60M.

Background and Justification

- Duty-Free at SEA has been an underperforming category within ADR program.
- This project provides expanded Duty-Free footprint to meet current and future international passenger demands.
- This project also aligns with the Port's Century Agenda goal to strengthen SEA's competitiveness in both the regional and global markets.
- Solicitation for a Duty-Free Operator was advertised in July-2023, concluded in Oct-2023, and awarded in March-2024.

Project Scope

- The Project is located on Concourse A and adjacent to the International Arrivals Facility exit into GML Hall.
- This space will be expanded into a new Duty-Free area.
- Layout is such that passengers will flow through both Duty-Free and Duty-Paid concepts.
- Structural work is required to renovate Concourse A and will also create a newly expanded, fully renovated SEA Conference Center.

Project Costs

Authorization Summary

	<u>Capital</u>	<u>Expense</u>	<u>Total</u>
Previous Authorization	\$1,746,071	\$0	\$1,746,071
Current Request for Authorization	\$9,600,000	\$500,000	\$10,100,000
Total Authorization	\$11,346,071	\$500,000	\$11,846,071
Remaining amount to be authorized			\$35,100,000 - \$48,700,000

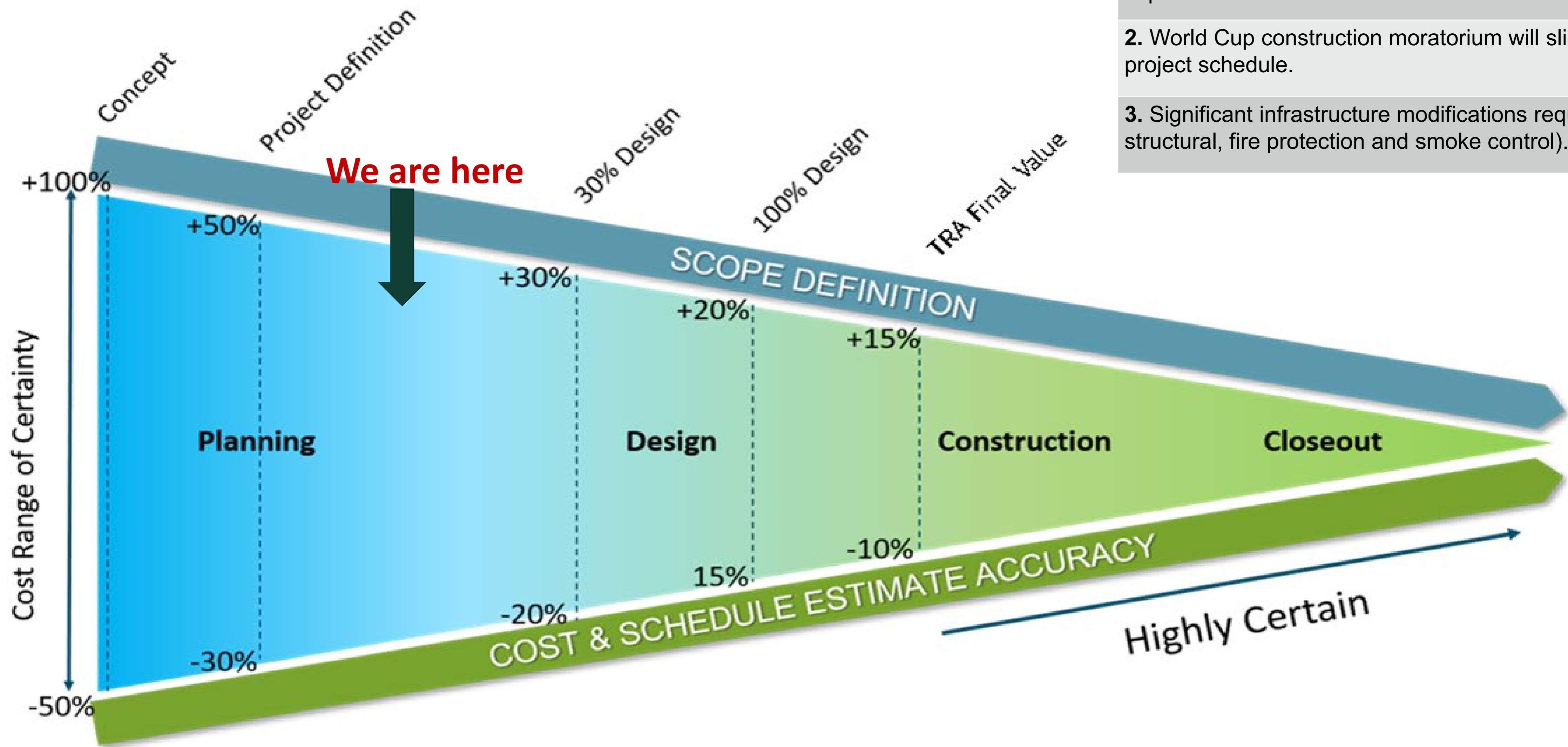
Financial Implications

Project cost for analysis	\$46 - \$60 million
Business Unit (BU)	Commercial Management
Effect on business performance	Over the course of the term for Duty Free, NOI will range from \$90 million-\$110 million depending on project cost. New additional non-aeronautical revenue will ramp up from approximately \$5.6 million to \$10.1 million in year 20. Breakeven is expected from 9 to 11 years depending on project cost.
NPV	\$5.7 million-\$23.5 million (depending on project cost)

Schedule

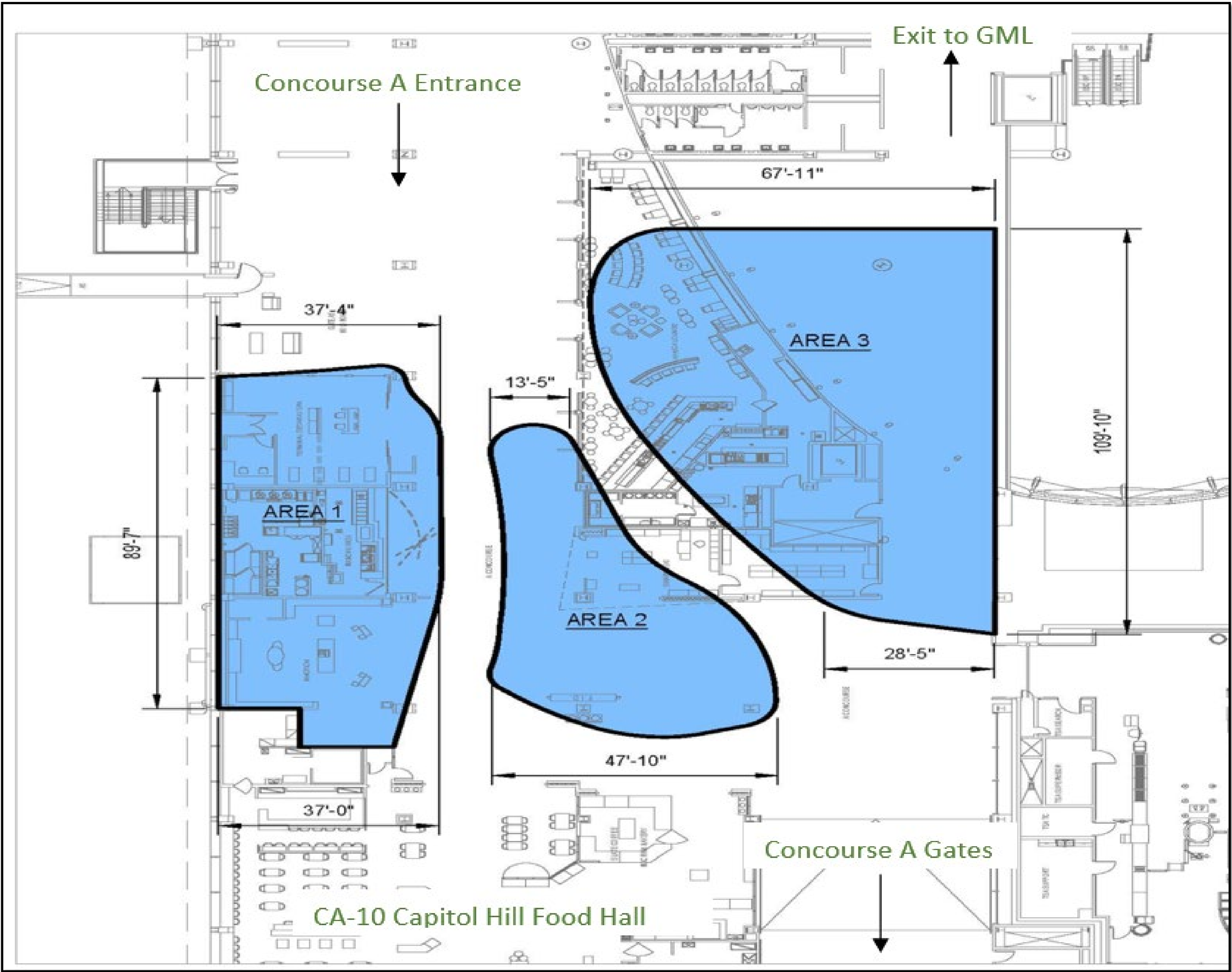
Design, Precon & TRA Authorization	2024 Q2
Design Start	2024 Q3
Full Project Authorization	2025 Q4
NTP Construction	2025 Q4
Open	2027 Q3

Cone of Certainty



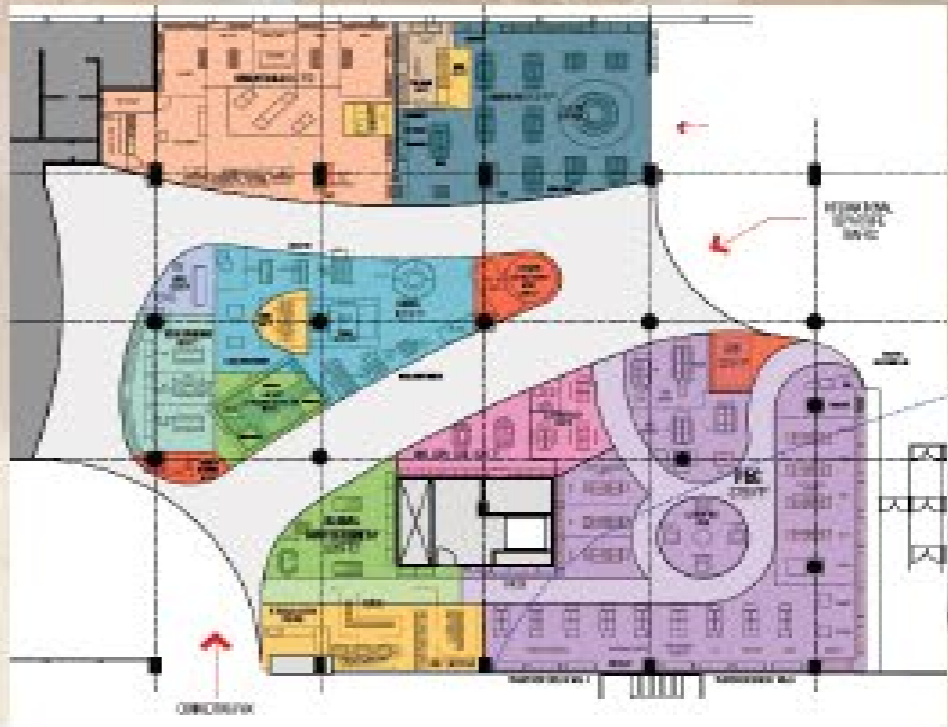
- ### Project Risks
1. Multi-phased construction sequencing and coordination with adjacent projects to limit impacts to passenger experience.
 2. World Cup construction moratorium will slightly impact project schedule.
 3. Significant infrastructure modifications required (HVAC, structural, fire protection and smoke control).

Project Location





SEATTLE TACOMA







URBAN ARMOUR

CATCHER

SUNCATCHER



bellroy



OUTERKNOW

bellroy



MATRE UNION

FELLEN

Rumpl

EXPERIENCE THE OUTDOOR

QUESTIONS?

Request

Commission authorization for the Executive Director to:

1. Execute a TRA with the selected Duty-Free Operator.
2. Authorize \$10.1M for design and pre-construction services for the Concourse A Duty-Free project.

[RETURN TO AGENDA](#)



**COMMISSION
AGENDA MEMORANDUM**

Item No. 11a

BRIEFING ITEM

Date of Meeting April 16, 2024

DATE: April 9, 2024

TO: Stephen P. Metruck, Executive Director

FROM: Dave McFadden, Managing Director, Economic Development Division
Mian Rice, Director, Diversity in Contracting

SUBJECT: Diversity in Contracting 2023 Annual Report and Five-Year (2019-2023) Review

EXECUTIVE SUMMARY

2023 Diversity in Contracting Annual Report

The Diversity in Contracting Annual Report to the Commission provides the Port’s division/department 2023 Women and Minority Business Enterprise (WMBE) results from administering affirmative efforts to assure equality of contracting opportunities.

2023 was the fifth full year of the Diversity in Contracting program operations in which Port divisions and departments established WMBE utilization goals. In total spend, which includes both construction and non-construction, 12.4% of the Port’s spend of \$627M went to WMBE firms (\$77.7M) – short of the 2023 goal of 15% utilization, and on par with the 12.6% WMBE utilization in 2022.

In construction, where utilizations goals are established on a project-by-project basis, 2023 was the second year the staff established a Port-wide goal. 9.2% of the Port’s construction spend of \$323.3M went to WMBE firms (\$29.9M) - short of its 13% WMBE construction goal but surpassing its 8.5% WMBE utilization in 2022. In non-construction, 15.7% of the Port’s spend of \$303.7M went to WMBE firms (\$47.8M) - meeting its 15% goal for 2023 and showing a slight decrease from the 16.4% WMBE utilization in 2022.

The Port did exceed its five-year goal of tripling the number of WMBE businesses working with the Port annually (354 WMBE firms by 2023) by having worked with 392 WMBE firms in 2023, a marked increase from 351 WMBE firms in 2022.

The Port’s Diversity in Contracting goals for 2024 is 15% spend with WMBE firms and 400 WMBE firms utilized annually. At the same time, over the course of this gap year in the Program, the Diversity in Contracting team is evaluating the program, drafting updates to the policy, and engaging the community throughout. The goal is to have a first reading of an updated Diversity in Contracting Resolution by the end of 2024 so that the Port can build on the progress achieved over these past five years to eliminate, even more effectively, specific disparities in utilization for certain ethnic groups and women.

Meeting Date: April 16, 2024

Diversity in Contracting Five-Year Review (2019-2023)

In 2016, the Port began focusing on the diversity of businesses it partners with. In that year, only 5.3% of the Port's spend was with WMBE firms, and the Port partnered with only 118 firms annually. In 2018, the Diversity in Contracting Policy Directive and Resolution was created, leveraging the findings from 2016 to set the Program's goals. The goals were to, within five years of the Diversity in Contracting Program implementation, increase to 15% the total Port spend with WMBE firms and triple the number of WMBE firms that the Port partners with to reach 354 firms annually. The first full year of the program was 2019, with the five-year benchmark concluding at the end of 2023.

This report provides the Port's division/department Woman and Minority Business Enterprise (WMBE) results over the five-year period.

Over the five years of its implementation, Diversity in Contracting (DC) Policy Directive & Resolution achieved its primary goal of increasing the utilization of WMBE firms on Port contracts due to the Program's internal and external affirmative efforts of establishing WMBE aspirational goals on contracts, requiring inclusion plans, and bolstering outreach and training efforts.

Port-wide (construction and non-construction) WMBE spend over the five-years was 12.4% (\$376M) of the \$3B total Port spend with outside vendors, short of the 15% goal. Well above, however, WMBE utilization before the program began, which in 2016 was 5.3%.

In construction, WMBE spend over the five-years was 9.5% (\$175.9M) of the \$1.8B total Port spend with outside vendors. In non-construction, WMBE spend over the five-years was 16.7% (\$200M) of the \$1.2B total Port spend with outside vendors.

On an annual basis, the Port starts from zero in its tracking of firms utilized and percent achieved. The Port partnered with a total of 392 WMBE businesses over the course of 2023, exceeding its policy goal of working with 354 firms annually which was triple the 2016 baseline of 118 firms annually. Over the five-years, the Port partnered with 791 unique WMBE firms.

BACKGROUND AND GOALS

On January 9, 2018, the Port Commissioners adopted a new Diversity in Contracting (DC) policy directive with a supporting Resolution, to advance equity in Port contracting. The policy was developed over the years of 2016-2017, using 2016 as the baseline for what was eventually passed. 2019 was the first full year the program and goals came into effect.

The purpose of this policy directive is to provide the maximum practicable opportunity for increased participation by minority and women owned and controlled businesses in Port contracting for public works, consulting services, supplies, materials, equipment, and other services to create the opportunity to leverage Port spending to increase WMBE utilization.

Meeting Date: April 16, 2024

As part of the Diversity in Contracting policy directive, the Port Commission established utilization goals for both the amount of contracting dollars paid to WMBE firms as well as the number of WMBE firms under contract to the Port using 2016 baseline utilization results:

Five-Year Goals

- (1) Triple the number of WMBE firms that contract with the Port, and
- (2) Increase to 15% the percentage of dollars spent on WMBE contracts

The policy also directed the establishment of:

- Executive level accountability that drives performance across the Port
- Port-wide goal setting and reporting processes, requiring Divisions/Departments to establish Annual WMBE Plans that include aspirational goals and performance targets
- Clear lines of responsibility and accountability for implementation with designated WMBE liaisons for each division
- Enhanced compliance and tracking of key performance objectives and incorporation of WMBE goals into the Port’s Long Range Plan
- Categories of contracts where inclusion plans and other tools will be used
- Implementation and monitoring procedures to ensure prompt payment and change order processes
- Expanded technical assistance for WMBE firms, coordination with external partners, and support for internal training to Port staff

2023 Results

2023 was the fifth full year of Diversity in Contracting operations. The table below shows the Port-wide WMBE attainment for 2023, with 12.4% of total (construction and non-construction combined) spend going to WMBE businesses, short of the Port’s 15% goal. The 392 WMBE firm partnerships achieved in 2023 far exceeds the WMBE firm partnership goal of 354 firms.

2023 Total Utilization (Construction and Non-Construction Combined)

Division	Total Spend (dollars)	WMBE Spend (dollars)	WMBE %	WMBE Firm Count
Aviation (AV)	454.9 M	46.6 M	10.2%	231
Corporate	81.9 M	18.5 M	22.5%	126
Economic Development Division (EDD)	5.1 M	1.1 M	21.7%	29
Maritime Division (MD)	80.7 M	11.0 M	13.6%	100
North West Seaport Alliance (NWSA)	4.4 M	0.6 M	13.3%	1
Total	627.0 M	77.7 M	12.4%	392

Meeting Date: April 16, 2024

For construction, since the program launch in 2019, DC staff have established WMBE aspirational goals on a project-by-project basis. In 2022, the Port set an annual Port-wide construction goal for the first time at 11.5%, and in 2023, a goal of 13%. The Port came closer to meeting that goal in 2023 by achieving 9.2% WMBE utilization, an increase from the 8.5% achieved in 2022.

2023 Construction Utilization*

Division	Total Spend (dollars)	WMBE Spend (dollars)	WMBE %	WMBE Firm Count
Aviation (AV)	260.6 M	20.7 M	7.9%	70
Corporate	22.5 M	3.4 M	15.2%	15
Economic Development Division (EDD)	1.4 M	0.0 M	3.4%	5
Maritime Division (MD)	38.1 M	5.7 M	15.0%	27
Northwest Seaport Alliance (NWSA)	0.9 M	N/A	N/A	N/A
Total	323.3 M	29.9 M	9.2%	93

**WMBE Aspirational Goals for Construction are set project-by-project*

For non-construction, per the DC policy directive, every division and department sets WMBE aspirational goals prior to the beginning of the year. The table below illustrates, by division, the 2023 WMBE results for non-construction procurements which includes P-Card spend. The Port narrowly missed its 2023 non-construction goal of 16% WMBE spend, landing at 15.7%.

2023 Non-Construction Utilization

Division	Total Spend (dollars)	WMBE Spend (dollars)	2023 WMBE Goal %	2023 WMBE %	WMBE Firm Count
Aviation (AV)	194.4 M	25.9 M	15% *	21%**	164
Corporate	59.4 M	15.0 M	17%	25.3%	113
Economic Development Division (EDD)	3.7 M	1.1 M	16%	28.3%	25
Maritime Division (MD)	42.6 M	5.3 M	21% *	23%**	73
Northwest Seaport Alliance (NWSA)	3.5 M	0.6 M	N/A	16.4%	1
Total	303.7 M	47.8 M	16%	15.7%	307

**These goals were established on outside service spend budgets*

*** These percentages represent WMBE utilization on outside services spent. Overall WMBE utilization in 2023 for aviation was 13.3% and for maritime 12.4%*

2024 Division/Department WMBE Goals

The table below provides the 2024 WMBE aspirational percent goals per division with a combined total Port-wide goal of 15% utilization for non-construction procurements. The goals and figures below are estimates and we expect not all spending may be realized, and actual results may vary.

Meeting Date: April 16, 2024

2024 Non-Construction WMBE Goals

Division	Projected Total Spend (dollars)	2024 WMBE Projected Spend (dollars)	2024 WMBE Goal
Aviation Division (AV)	140 M	19.6 M	14%
Corporate	49 M	8.3 M	17%
Economic Development Division (EDD)	5.5 M	0.9 M	16%
Maritime Division (MD)	14.7 M	1.9 M	13%
Total	208.6 M	31.3 M	15%

For 2024, the construction WMBE goal (Portwide) is 13%. Having ended 2023 with 9.2% WMBE Utilization on construction, we believe 13% WMBE Utilization is a stretch goal for 2024. Achieving 13% in construction utilization is necessary to advance toward a Port-wide (construction and non-construction) goal of 15% WMBE utilization.

Five-Year (2019-2023) Results

The table below shows the Port-wide WMBE attainment from 2019 to 2023, per division, with 12.4% of total spend (construction and non-construction) going to WMBE businesses. Over the five years, the Port partnered with 791 unique WMBE firms.

2019-2023 Total Utilization (Construction and Non-Construction Combined)

Division	Total Spend (dollars)	WMBE Spend (dollars)	WMBE %	WMBE Firm Count
Aviation	2,216.1 M	238.6 M	10.8%	448
Corporate	332.8 M	76.1 M	22.9%	303
Economic Development	20.1 M	4.0 M	20.1%	68
Maritime	445.0 M	54.4 M	12.2%	224
NWSA	27.1 M	2.8 M	10.4%	3
Total	3,041.0 M	376.0 M	12.4%	791

For construction, since the program launch in 2019, DC staff have established WMBE aspirational goals on a project-by-project basis. In 2022, staff set a Port Wide Annual Construction goal for the first time, at 11.5%. In 2023, the Port-wide Construction goal was 13%.

Over the five-year period the Port spent 9.5% of its outside construction spend of \$1.8 B with WMBE Firms (\$175.9 M), partnering with a total of 222 WMBE firms. The table below reflects, by division, the construction dollars in 2019-2023 driven to WMBE businesses, WMBE spend percentage, and number of WMBE firms partnered.

Meeting Date: April 16, 2024

2019-2023 Construction Utilization*

Division	Total Spend (dollars)	WMBE Spend (dollars)	WMBE %	WMBE Firm Count
Aviation	1,463.8 M	133.5 M	9.1%	161
Corporate	81.2 M	9.6 M	11.8%	42
Economic Development	4.5 M	0.2 M	3.7%	9
Maritime	289.9 M	32.6 M	11.3%	78
Total	1,842.9 M	175.9 M	9.5%	222

**WMBE Aspirational Goals for Construction are set project-by-project*

For non-construction, the Port met its five-year non-construction goal of 15%. Over the five-year period the Port spent 16.7% of its outside non-construction spend with WMBE Firms (\$200.1 M), partnering with a total of 600 WMBE firms. The table below illustrates, by division, the 2019-2023 WMBE results for non-construction procurements which includes P-Card spend.

2019-2023 Non-Construction Utilization

Division	Total Spend (dollars)	WMBE Spend (dollars)	WMBE %	WMBE Firm Count
Aviation	752.2 M	105.1 M	14.0%	302
Corporate	251.6 M	66.5 M	26.4%	264
Economic Development	15.6 M	3.9 M	24.8%	60
Maritime	155.1 M	21.8 M	14.1%	151
NWSA	23.6 M	2.8 M	11.9%	3
Total	1,198.1 M	200.1 M	16.7%	600

From one year to the next since 2016, the Port has steadily increased WMBE participation in both the percent spent with WMBE firms and the number of WMBE firms partnered. The table below illustrates the Port’s WMBE percentages and number of firms utilized from one year to the next.

2016-2023 WMBE Utilization Percentage and Firm Count

Utilization	2016	2017	2018	2019	2020	2021	2022	2023	Policy Goal
WMBE Percentage	5.3%	8.8%	8.9%	10%	10.9%	12.1%	12.6%	12.4%	15%
WMBE Firm Count	118	200	258	296	325	344	329	394	354

Issues/Challenges

Under the Diversity in Contracting (DC) Policy Directive, the Port’s efforts in setting and meeting annual non-construction goals by division have been successful. The percent utilization of WMBE firms in non-construction has exceeded the 15% goal for the past two years. The number of total (construction and non-construction) WMBE firms utilized has also largely trended upward over the past five years, culminating with 392 firms partnered in 2023.

Meeting Date: April 16, 2024

Regarding construction, however, Initiative-200 makes it difficult to hit our goals. Government entities have far less control over WMBE utilization on low-bid lump sum procurements. As a result, WMBE participation may be impacted regardless of their overall availability to work on Port projects.

The Port currently sets WMBE aspirational goals on construction projects on a project-by-project basis, based upon project scope and WMBE availability. WMBE attainment in construction projects have ranged between 8.6% (2020) and 13.1% (2021), averaging at 9.5% over the past five years. WMBE use in construction needs to increase to achieve Port-wide diversity in contracting goals.

Although the Port did not achieve the 15% overall WMBE utilization goal, the Port has made tremendous progress in increasing the utilization of WMBE businesses and will continue dismantling disparities in contracting. The number of WMBE businesses utilized on an annual basis has grown steadily year-over-year and this upward trend is expected to continue.

ATTACHMENTS TO THIS BRIEFING

- (1) Presentation

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

January 23, 2024 – Commission Order to update the Port’s Diversity in Contracting goals for 2024

April 12, 2023 – Diversity in Contracting Annual Report

April 12, 2022 – Diversity in Contracting Annual Report

April 13, 2021 – Diversity in Contracting Annual Report

March 26, 2019 – Diversity in Contracting Annual Report

June 12, 2018 – Commission briefing on Diversity in Contracting program development

January 8, 2018 – Diversity in Contracting 2nd reading policy & passage of resolution 3737

December 19, 2017 – Diversity in Contracting Policy Review

December 12, 2017 - Women and Minority Business Enterprise Policy Review – Resolution 3737 (first reading)

December 5, 2017 - Women and Minority Business Enterprise Policy Review

November 28, 2017 –Women and Minority Business Enterprise Policy Review

October 24, 2017 - Women and Minority Business Enterprise Policy Review

July 12, 2017 – Commission Budget Priorities, Building Economic Opportunity in Underserved Communities

March 28, 2017 – Small Business Development Update

March 22, 2016 – Small Business Utilization briefing

December 14, 2014 – Disparity Study briefing

August 19, 2014 – Small Business Utilization briefing

January 26, 2010 – Adoption of Resolution No. 3618 concerning small business utilization

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Meeting Date: April 16, 2024

Diversity in Contracting 2023 Annual Report and Five-Year Review (2019-2023)



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Mian Rice, Director, Diversity in Contracting
Lawrence Coleman, WMBE Manager, Diversity in Contracting
Emily Ho, Engagement and Training Manager, Diversity in Contracting

April 16, 2024



2023 WMBE Results

Five-Year (2019-2023) WMBE Results

Next Steps and Conclusion



2023 WMBE Results



2023 Port-wide WMBE Utilization

Category	Total Port Spend (Millions)	WMBE Spend (Millions)	WMBE Utilization
Public Works (Construction)	\$323.3	\$29.9	9.2%
Non-Construction	\$303.7	\$47.8	15.7%
Total	\$627	\$77.7	12.4%

2023 Division Goal Attainment (Non-Construction)

Division	2023 Goal	2023 Goal Attainment
Aviation (AV)	15%*	21%*
Economic Dev. (EDD)	16%	28.3%
Maritime (MD)	21%*	23%*
Corporate	17%	25.3%

*Goals were established on Outside Service Budget

2023 Corporate Departments Goal Attainment (Non-Construction)

Department	2023 Goal	2023 WMBE Attainment
Engineering	NA	38.2%
Environmental	14%	37.1%
Internal Audit	1%	33.7%
Thomas (IT, BI, AFR)	17%	31.1%
Human Resources	20%	24.6%
External Affairs	15%	24.3%
Labor	10%	19.8%
EDI	15%	16.1%
PCS	10%	9.8%
CPO	10%	8.6%
Commission	10%	6.6%
Legal	4%	3.3%

2024 Port-Wide Goals

- Percent Spend with WMBE firms: **15%**
- Number of WMBE Firms Utilized: **400**

Division Goals (Non-Construction)	2024 Goal
Aviation (AV)	14%
Economic Dev. (EDD)	16%
Maritime (MD)	13%
Corporate	17%
Port Wide	15%

2019-2023 WMBE Results





Purpose:

Advance equity and address contracting disparities by increasing the utilization of Women Minority Business Enterprises and other disadvantaged firms

Five-year Policy Benchmarks (2019 – 2023):

- Increase to 15% the amount of spend on WMBE contracts within 5 years
- Triple the number of WMBE firms doing business with the Port
(Baseline was **118**; Goal is **354**)

Diversity in Contracting Policy to Program

In 2018 we developed the Diversity in Contracting program from scratch:

- ✓ Developed process to **set annual division and department WMBE utilization goals**
- ✓ Established **“Inclusion Plans”**
- ✓ Established **new supplier/vendor database**
- ✓ Developed **new Outreach and Technical Assistance** initiatives
- ✓ Addressed **organizational structure/roles and responsibilities**
- ✓ Established **compliance elements**
- ✓ Established **monitoring, reporting and evaluation systems**

\$375 Million to WMBE Firms Over 5 Years



Five Years

WMBE Utilization	2016	2017	2018 Policy Directive	2019 DC Program First Year	2020	2021	2022	2023
Percent Utilization	5.3%	8.8%	8.9%	10.0%	10.9%	12.1%	12.6%	12.4%
Annual WMBE Firm Count	118	200	258	296	318	344	329	392

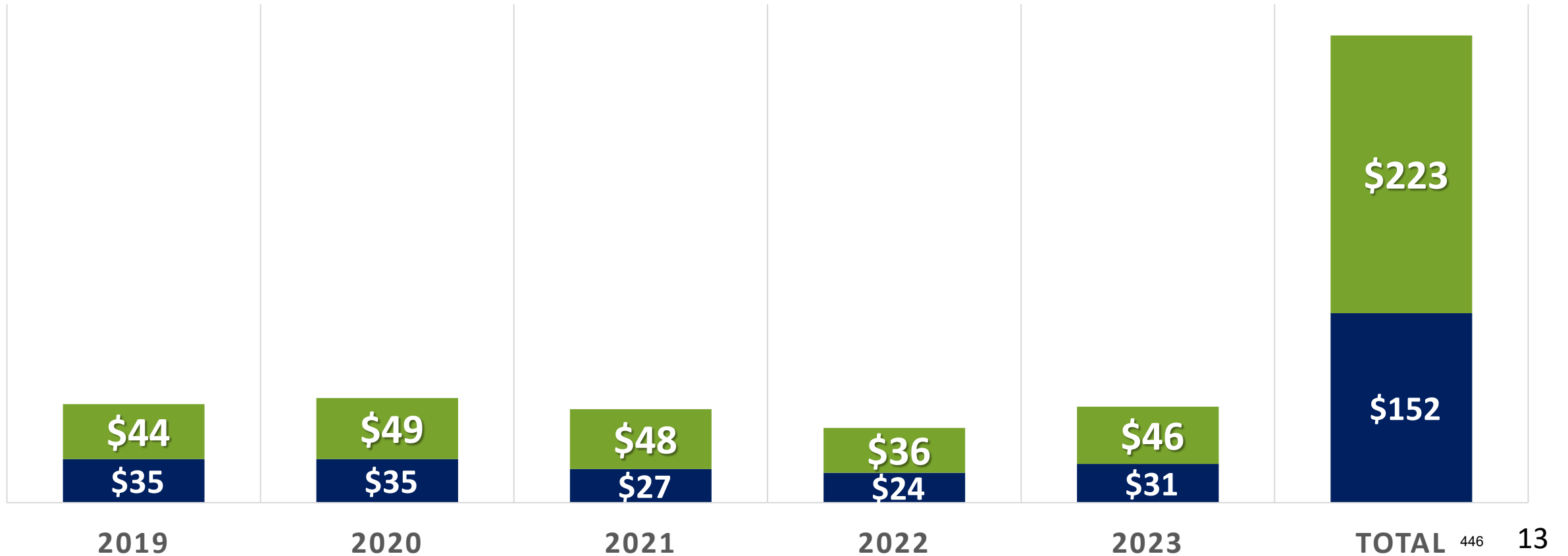
Annual Goal for Number of WMBE Firm Partners: 354



Five Years

PORT OVERALL CONSTRUCTION & NON-CONSTRUCTION INTENTIONAL WMBE SPEND (\$ MILLIONS)

■ 5% WMBE Spend ■ Intentional WMBE Spend



791 WMBE Firm Partners Over 5 Years



Five Years

Ethnicity	Spend	Percent of Port Spend	Number of Companies
Asian	\$64.5 M	2.2 %	97
Black or African American	\$61.2 M	2.2 %	76
Hispanic/Latino	\$46.2 M	1.6 %	67
Native American	\$63.2 M	2.2 %	33
Multi-Racial	\$2.0 M	0.1 %	12
Other Racial Category	\$3.8 M	0.1 %	9
Minority Ethnicity Total	\$240.9 M	8.5 %	292

Minority Status and Gender	Spend	Percent of Port Spend	Number of Companies
Minority Female	\$ 24.6M	0.9%	85
Non-Minority Female	\$ 98.4M	3.50%	240


WMBE Goal Attainment by Division/Department



Five Years


76% divisions/departments hit their WMBE goal over the last five years


Total: 80


 Green: 56

 Red: 19

 Blank: 6

 Green: means department goal was met for that year

 Red: means department missed goal for that year

 Blank: not applicable for that year

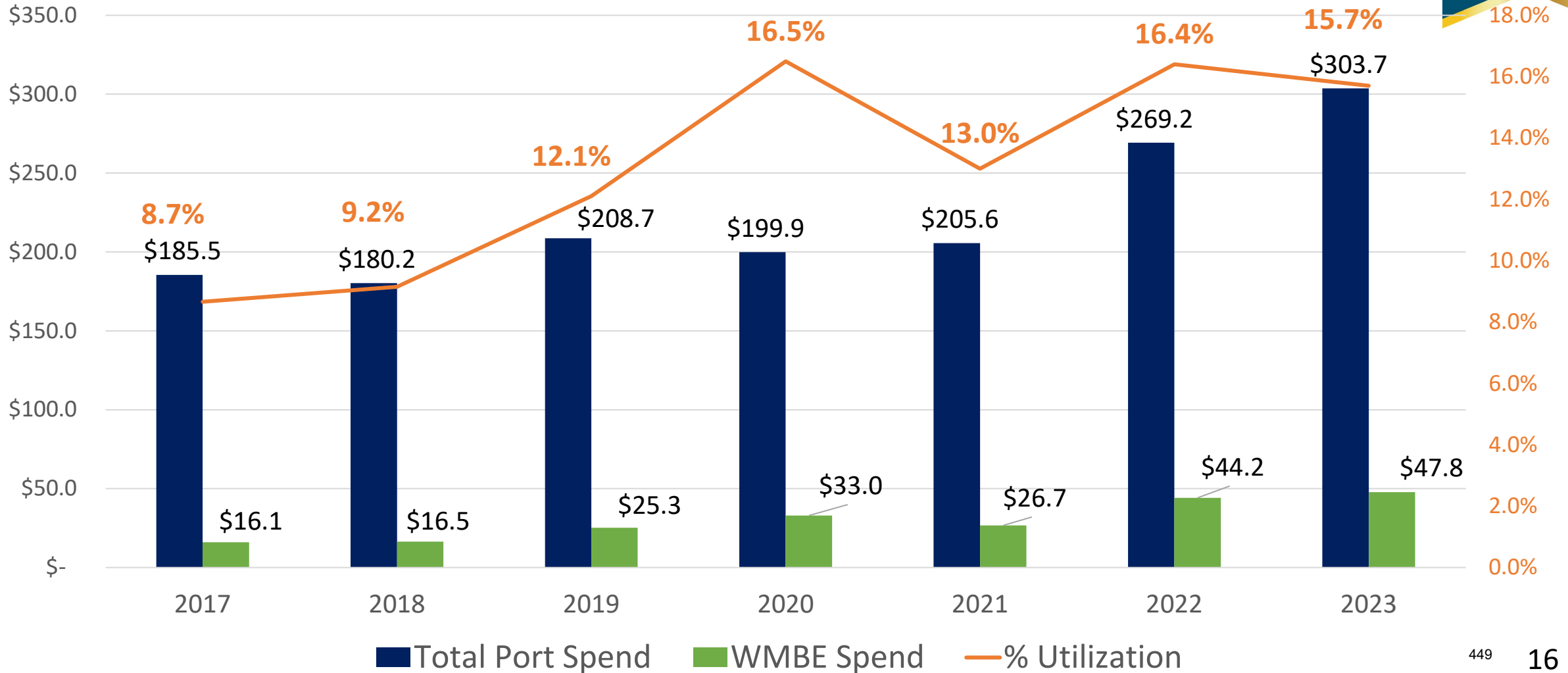
Division/Department	2019	2020	2021	2022	2023
Aviation	Green	Green	Green	Red	Green
Commision	Blank	Green	Green	Green	Red
Corporate	Green	Green	Green	Green	Green
CPO	Blank	Blank	Blank	Blank	Green
Economic Development	Green	Green	Green	Green	Green
EDI	Blank	Green	Green	Green	Green
Environmental	Green	Green	Green	Green	Green
External Affairs	Green	Green	Green	Red	Green
Finance/ICT	Green	Green	Green	Green	Green
Human Resources	Red	Red	Green	Green	Green
Internal Audit	Green	Red	Green	Red	Green
Labor Relations	Red	Green	Red	Red	Green
Legal	Red	Green	Red	Green	Red
Maritime	Red	Green	Green	Green	Green
Office of Strategic Initiatives	Green	Green	Green	Red	Green
Police	Red	Red	Red	Green	Green

Total Goals achieved by department: 8 12 12 10 14

Non-Construction Utilization (\$ in Millions)



Five Years

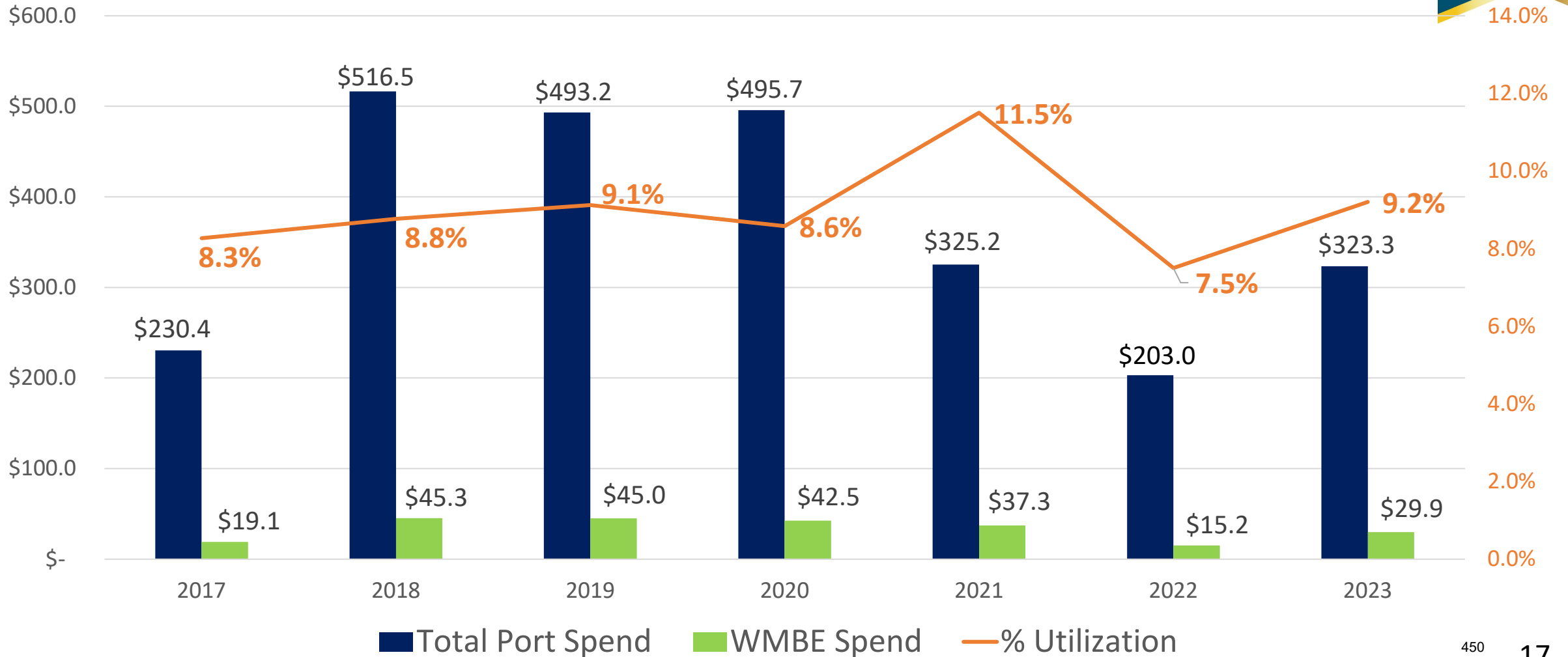


18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%

Construction Utilization (\$ in Millions)



Five Years



14.0%

12.0%

10.0%

8.0%

6.0%

4.0%

2.0%

0.0%



2023 Training and Events Results

- PortGen: 193 WMBE firms
- Advanced PortGen: 26 WMBE firms
- Accelerator: 11 graduates

2023 Outreach Results

- New WMBE firm VendorConnect registrations: 108
- One-on-one assistance provided: 70+ firms

2023 Communications Results

- Established new modes of communication: weekly digest, newsletter, blogs
- Mailing list: nearly 7,000 contacts
- Open rate: 30%

Program Evaluation and Next Steps



Internal and External Review - Diversity in Contracting Program

- Construction
- Consulting
- Goods & Services
- Outreach/Training

Community Partners

- Tabor 100
- Ethnic Chambers of Commerce
- National Association of Minority Contractors
- NW Minority Builders Association
- NW Minority Supplier Development Council
- American Council of Engineering Companies (ACEC)
- Association of General Contractors (AGC)
- **Other partners**

Construction Drivers

- Use Alternative Contracting Methodologies
- Small Works
- PortGen Efforts (Outreach of Opportunities, Trainings, Workshops, Mentorship Programs, etc.)

Construction Challenges

- Capital Project Management: Challenge between bundling for efficiency vs Unbundling projects for increased WMBE participation
- Significant Project Requirements
 - Cash Flow
 - Bonding / Insurance
 - Project Labor Agreements



Service Agreements Drivers

- WMBE Goal Setting on Contracts large RFPs
- Inclusion Plans
- PortGen Efforts (Outreach of Opportunities, Trainings, Workshops, Mentorship Programs, etc.)

Service Agreements Challenges

- Rates
- Insurance (Professional Liability Insurance)
- Utilization of same large firms
- Low use of Professional Service Roster - Category thresholds too low
- Monthly Amounts Paid (MAP) are not always submitted on time



Goods and Services Drivers

- P-Cards (Direct Buys)
- Service Contracts (e.g. Janitorial)

Goods and Services Challenges

- Transactional relationships (P-card purchases) have been difficult to capture WMBE and ethnicity status
- Port request materials first, there is no payment. SBE's typically work with 3rd party supplier who wants payments first, then supplies will be shipped



Outreach and Training Drivers

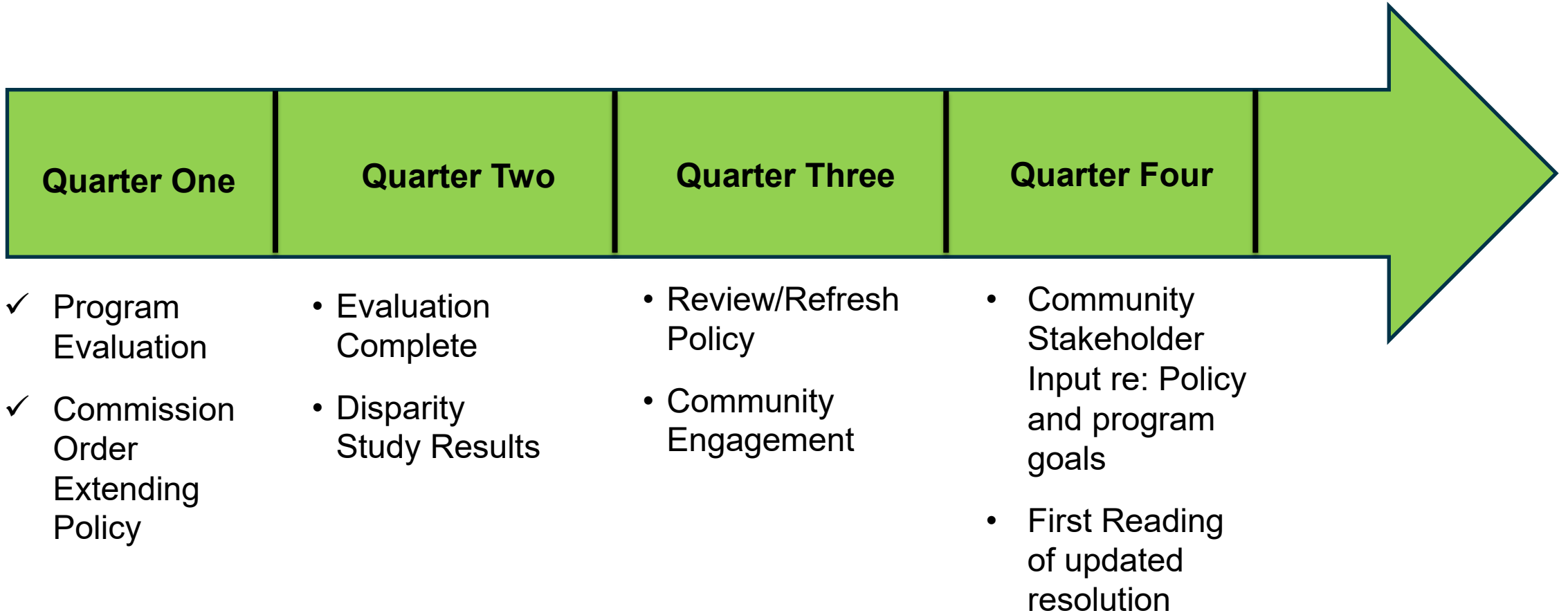
- Large number of well-attended PortGen training and networking events
- Regular and effective communication efforts
- Consistent presence and engagement with community groups

Outreach and Training Challenges

- Bridging knowledge/resource gap between vendor capabilities and Port requirements
- Connecting vendors and Port purchasing decisionmakers with each other
- Tracking outreach and training participant outcomes (e.g. which firms pursue projects)



- Diversity in Contracting program has made a big difference. We've successfully moved the needle in the right direction - there is still room for improvement.
 - **Major** community **shift** from “the Port isn't interested” and “I can't find work” to “there are good opportunities at the Port and they want to support WMBE businesses”
- Ability to influence utilization in each industry differs (Construction vs. Consulting vs Goods & Services)
- Increasing construction WMBE utilization is the key to achieving higher Port-wide WMBE utilization goal





- **Improve WMBE Compliance System** to **support** WMBE partners and **validate** WMBE Attainment
 - Ombudsperson position
 - B2Gnow System
- **Raise Port Contracting Thresholds** to harmonize with new Delegation of Authority
 - Policy: Raising of Professional Services Dollar Thresholds (A&E)
- **Refine Labor Agreements** to support both Workforce and WMBE Businesses
- **Prioritize alternative delivery** methods on construction projects



APPENDIX



Five Years

2019-2023 Number of WMBE firms on Construction Projects by Ethnicity

