WATERFRONT SEATTLE

OPERATIONS & MAINTENANCE REPORT

JULY 2018

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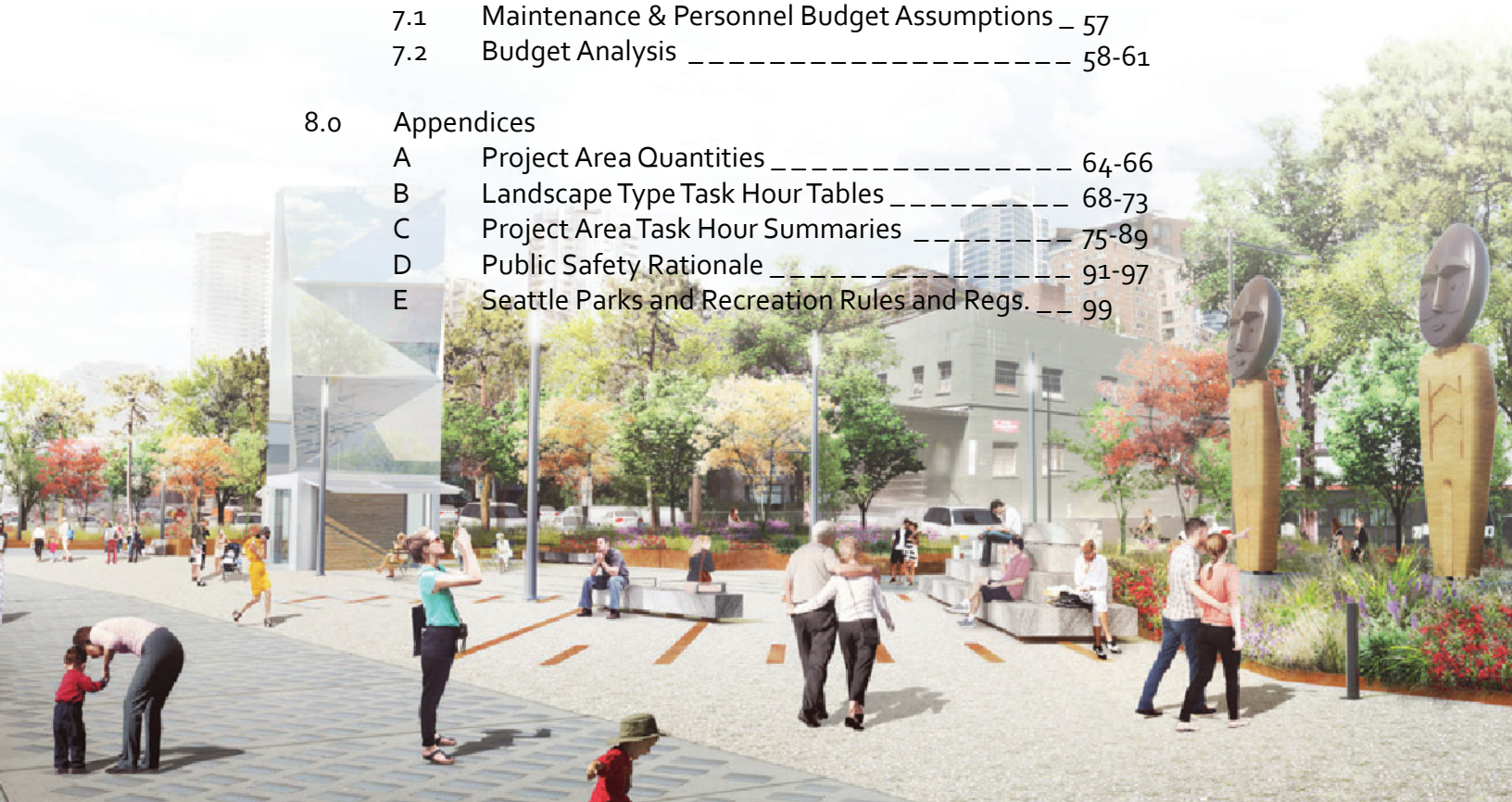


Acknowledgements

This report reflects the work of and input from many individuals over the last several months. The following agencies and organizations provided valuable help during the completion of the project and without their help and guidance this report would not have been possible.

Office of the Waterfront

Marshall Foster
Steve Pearce
Joshua Curtis
Dori Costa

Seattle Parks & Recreation Department

Victoria Schoenberg
Andy Sheffer
Robert Stowers
Patrick Merriam
Carson Jones
Jon Jainga
Donnie Grabowski
Craig Chatburn
Rudy Kollar

Friends of Waterfront Seattle

Heidi Hughes

Downtown Seattle Association

Dave Willard

Seattle Center

Tony Lucero
Mary Wideman-Williams

Olympic Sculpture Park

Brandon Weathers

Pike Place Market

Randy Stegmeier

Discovery Green

Clark Curry

SECTION 1.0

INTRODUCTION

1.0 Introduction

The purpose of this document is to provide an updated estimate of annual expenses for maintenance and operations of the Waterfront Seattle project. ETM Associates previously completed an Operations & Maintenance (O+M) Report in November of 2015, and the Office of the Waterfront and Civic Projects has commissioned our office to update the O+M Report based on current 2018 project designs. This report is a continuation of the process that will ultimately result in a final Operations and Maintenance Plan for the Waterfront.

ETM Associates (ETM) worked closely with the Office of the Waterfront to update the project scope and evaluate the project components to define the various landscape types that will be found within the Waterfront Seattle project and to understand the maintenance needs for each. The 90% construction documentation and design development drawings upon which this Maintenance Report is based were provided by James Corner Field Operations (JCFO) and Jacobs CH2M.

The document carefully considers each landscape type in the current Waterfront Seattle program design and the maintenance tasks, hours, personnel, materials, and supplies necessary to maintain the site. In developing the budget estimate, ETM accounted for standard maintenance practices (mowing, tree care, etc.) as well as site specific requirements and Seattle's unique environment. Budgetary considerations have also been provided for public safety to support Waterfront operations and maintenance. This report provides a detailed assessment of operations and maintenance costs that reflect the current level of program design and the proposed operating model between Friends of Waterfront Seattle (Friends) and Seattle Department of Parks and Recreation (Parks).

This report takes into consideration that a separate joint operating agreement between the Friends of the Waterfront Seattle, a 501 c3 non-profit founded to support the Waterfront Seattle program, and the City has been identified conceptually and is being further formalized at the time of publication. This operating model will be restricted to certain individual project areas reviewed in this analysis, such as the Promenade, Pier 62/63, Waterfront Park, and Lower Union Street. The basic division of labor will commit maintenance to Parks and programming and activation to Friends. The report has been organized in a way that individual project areas can be aggregated to arrive at estimates for the maintenance components of Parks' scope of work, but acknowledges that the majority of the programming and activation budget is out of scope and will be developed by Friends.

The Operations & Maintenance Report is organized into the following sections:

Section 2: **Maintenance Framework** defines the extent of the Seattle Waterfront project, landscape categories and describes the typical landscape types throughout the project area.

Section 3: **Maintenance Tasks and Standards** of care identifies key assumptions and decisions that influence maintenance costs. Maintenance standards have been developed for the landscape types in order to estimate time required to maintain the project areas.

Section 4: **Maintenance Equipment & Materials** discusses equipment and material needs.

Section 5: **Maintenance & Operations Facilities** provides potential facility locations and space needs to accommodate multiple scenarios of daily operations.

Section 6: **Public Safety** discusses potential staffing, technology & programming resources, case studies of Seattle public space security programs, and initial public safety recommendations.

Section 7: **Budget Analysis** provides an operations and maintenance budget for the completed Waterfront Seattle program based on the defined standards of care and operating assumptions.

SECTION 2.0

MAINTENANCE FRAMEWORK

2.1 Scope & Individual Project Areas

The project spans the Waterfront from Railroad Way along Alaskan Way/Elliott Way north to Bell Street. It includes the rebuilt Elliott Bay Seawall, over eight acres of new and improved public open space, improved connections between center city neighborhoods and Elliott Bay, critical utility infrastructure, and new Alaskan Way and Elliott Way surface streets to serve all modes of travel.

The project areas within the scope of this document include:

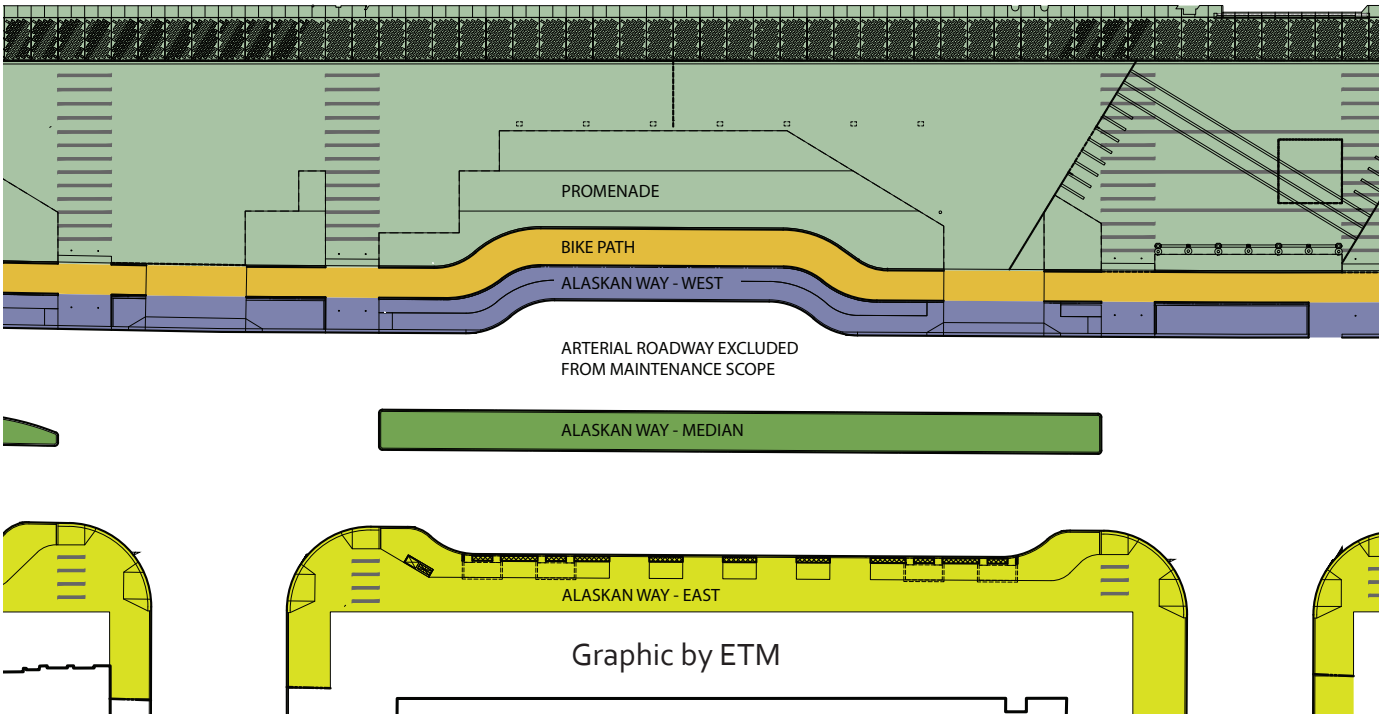
- Promenade & Bike Path
- Alaskan Way (East, Median, West)
- Elliott Way
- Lower Union Street
- Overlook Walk
- Waterfront Park
- Railroad Way
- Seneca Street
- Pier 62/63
- Washington Street Boat Landing
- Seneca Street
- Columbia Street
- Marion St. Bridge

Graphic by ETM
Basemap by JCFO

2.1 Scope & Individual Project Areas Enlargement

The primary project areas of Alaskan Way and the Promenade have been further divided to provide flexibility in defining maintenance scopes of future property managers.

The linear Bike Path has been separated from the Promenade creating two distinct project areas, and Alaskan Way has also been separated into three project areas (East, Median, and West).



2.2 Methodology

The first critical step in defining a maintenance plan is to create a framework tailored specifically to the project design and intent. For the purposes of this report ETM and the Office of the Waterfront and Civic Projects defined several landscape categories to be maintained, each with a sub-set of landscape types, such as paving areas and planting beds that are used as the basis for estimating annual maintenance costs.

Annual maintenance tasks were developed for each landscape type along with an estimated number of hours needed for maintenance of one (1) unit of each landscape type. The hours per unit were then multiplied by the total number of units of each landscape type. This enabled ETM to determine an estimated total number of hours needed for annual maintenance of the Waterfront project. The hours were then used as the basis for determining annual personnel costs.

This report is based on JCFO's current level of design plans dated January thru September of 2017, with understanding of materials and quantities based upon construction documents, specifications, and basis of design reports. Detailed task summaries and estimated hours for each landscape type can be found in Appendix B.

2.3 Landscape Categories and Types

The Waterfront project lends itself to a classification of six (6) broad landscape categories including:

- Paved Areas (P)
- Planting (PL)
- Furnishing & Site Amenities (F)
- Play Areas (PA)
- Infrastructure (I)
- Structures/Building Space (S)

Each of the six (6) landscape categories are further divided into landscape types which account for all project components and simplify the complex project into clearly defined maintenance groups, each with specific maintenance tasks, frequencies and standards. A summary table of the individual landscape types is provided below in Figure 2.1. Detailed tables depicting all project design elements and their respective landscape types are provided in Appendix A.

Paved Areas
P1 - Asphalt & Concrete Paving
P2 - Mortar and Specialty Paving
P3 - Dry-Laid Paving
P4 - Boardwalk

Planting
PL1 - Trees
PL2 - Shrubs
PL3 - Perennial Planting Areas
PL4 - Groundcover/Shrub Planting Areas
PL5 - Vine Planting along Screen
PL6 - Habitat Beach
PL7 - Bioretention Cells
PL8 - Lawn Areas

Structures/Building Spaces
S1 - Kiosks
S2 - Maintenance Facilities
S3 - Restrooms
S4 - Restrooms (Attended)
S5 - Elevators

Furnishing & Site Amenities
F1 - Furnishing
F2 - Moveable Furnishing
F3 - Trash & Recycling
F4 - Railing, Fencing & Screens
F5 - Planter Walls
F6 - Signage and Wayfinding
F7 - Artwork & Sculpture

Play Areas
PA1 - Sand Play Area
PA2 - Rubber Surface Play Area

Infrastructure
I1 - Irrigation
I2 - Water Feature
I3 - Site Drainage
I4 - Storm Filter Catch basins
I5 - Pole Lighting
I6 - Pedestrian Lighting

Figure 2.1 Summary table of landscape types

Paved Areas

Several types of paved surfaces will be located throughout the project areas, including cast in place concrete, light penetrating surface (LPS) panels, asphalt bike path, boardwalks, brick, and metal inlay pavers, as well as pedestal paving on structures. Although often unnoticed by the average visitor, paving is a key element in urban landscapes.

Wood Boardwalk

Dry-laid Paving

Steel Inlay Paving

Light Penetrating Surface (LPS)

Hard-Trowel Conc. W/Messaging

Cast in Place Concrete w/Grooving

Planting

The project area designs call for a broad array of mixed perennial planting beds, bioretention basins, groundcovers, a small coastal beach, tree and shrub plantings, vegetated slopes, lawn areas, and vegetated screens. Lawn areas will likely experience heavy use, and the plantings along roadway medians and sidewalks will endure significant abuse from road traffic, pedestrian traffic, and wet winter weather. Although carefully selected to withstand the harsh coastal environment of Elliott Bay, Waterfront plantings will have to endure strong winds, harsh sun and frequent rains. Plantings are particularly important for visitor perception of a clean and safe public space, which is often attributed to the appearance of well-managed planting areas.


Groundcover Planting


Perennial Planting


Bioretention Planting


Shrubs


Trees


Vine Planting on Screen


Turf Lawn


Habitat Beach, rendering by JCFO

Furnishing & Site Amenities

Furnishings and site amenities includes a diverse mix of site features, including all site amenities (benches, drinking fountains, swings, bike racks, etc.), moveable seating, trash and recycling stations, railings, screens and fences, steel planter walls, wayfinding and signage, as well as artwork and sculpture. These elements are particularly important from a maintenance perspective as they are highly visible in the landscape and will receive a lot of use and abuse from visitors.

Railing

Artwork & Sculpture

Trash/Recycling

Tree Pit Guards

Moveable Games - Ping Pong

Bench

Stone Seating

Graphics by JCFO

Steel Planter

Swings

Play Areas

Several small areas will be located throughout the main corridor which will include a number of play areas with either sand or rubber safety surfacing. Play features in the two locations will include slides,boulders, and log structures. These play areas are located in areas of high visitor concentration and will experience frequent use.

Natural Play Elements

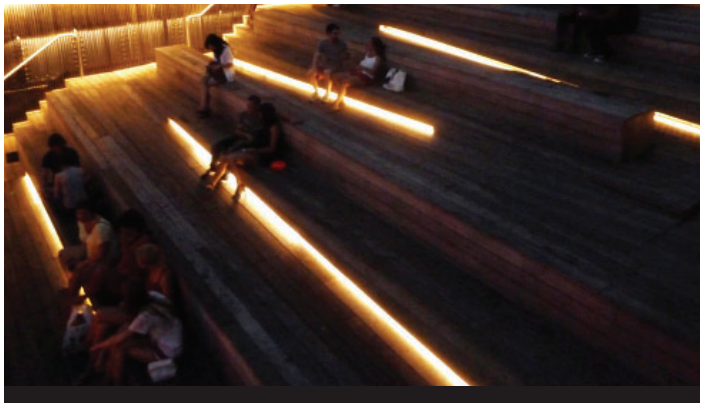
Overlook Walk Slides, rendering by JCFO

Infrastructure

The Infrastructure category includes functional project elements such as irrigation, water features, drainage infrastructure, as well as pedestrian lighting. These components are vital to maintaining a safe, healthy landscape and must be regularly inspected and maintained.

Irrigation

Water Feature



Strip Lighting

Site Drainage

Structures & Building Spaces

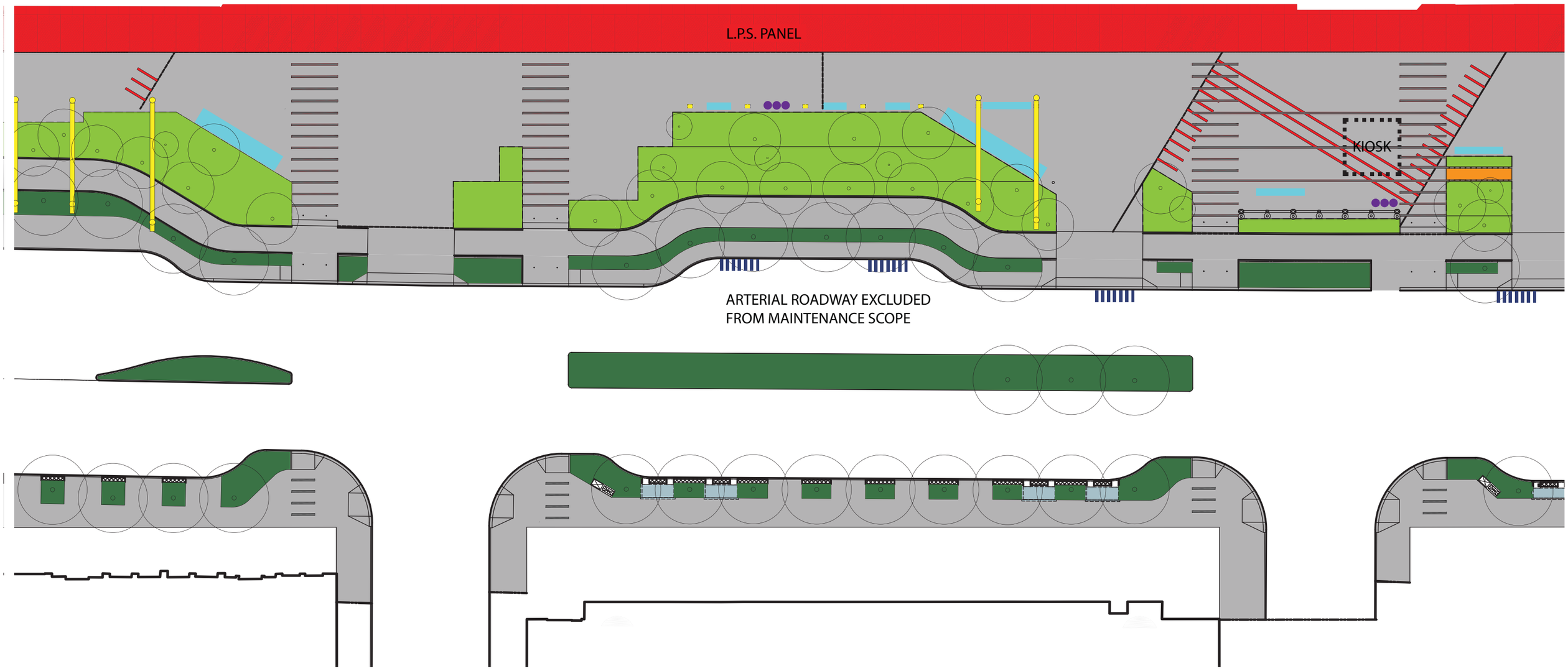
This category includes several freestanding structures and facilities within larger buildings that will need to be cleaned, maintained, and repaired. These structures include the promenade kiosks, elevator enclosures at Lower Union and the Overlook Walk, concrete pedestrian structures, as well as interior space associated with public restrooms at the Overlook Walk.

Elevator at Overlook Walk, rendering by JCFO

Promenade Kiosks, rendering by JCFO

Union Street Overpass, rendering by JCFO

Portland Loo


L.P.S. PANEL
KIOSK
ARTERIAL ROADWAY EXCLUDED
FROM MAINTENANCE SCOPE
P1 - ASPHALT & CONCRETE PAVING
P2 - INLAY & SPECIALTY PAVING
P4 - BOARDWALK
PL3 - PERENNIAL PLANTING
PL4 - GROUNDCOVER / SHRUB PLANTING
PL7 - BIORETENTION CELLS
F1 - FURNISHINGS
F3 - TRASH & RECYCLING
F7 - ARTWORK & SCULPTURE
I4 - STORM FILTER CATCH BASIN
PL1 - TREES
S1 - KIOSKS

2.4 Maintenance Scope & Exclusion Areas

Several areas, elements, or specific maintenance responsibilities are not included within the maintenance scope for the following reasons:

- The O&M Report seeks to create a clearly defined area for Waterfront Seattle operations and maintenance activities.
- Some assets are excluded where existing agencies have clear, strong competencies – such as signals, bridge structures, roadway lighting, and arterial roadway maintenance.
- The defined area for Waterfront Seattle operations and maintenance activities acknowledges integration with existing neighborhoods and parks.

The areas or elements excluded from the scope of this maintenance report include:

- Roadway or vehicle parking area maintenance and cleaning
- Roadway curbing maintenance and cleaning
- Traffic signal maintenance
- Roadway signage maintenance
- Underground electrical utilities
- Roadway and cycle track lighting fixtures (pole lighting)
- Inspection and maintenance of pier structure (pier decking and pedestrian amenities only)
- Major maintenance of concrete structures (pedestrian overpass, stairs, etc.)
- Maintenance and cleaning of interior vendor spaces of the Promenade kiosks
- Building maintenance at Overlook Walk, Washington Street Boat Landing (HVAC, Structural)

Note: The above are not included in ongoing (annual) maintenance estimates or long-term life-cycle replacement cost estimates. Maintenance and repair of these elements/features will not be the responsibility of Waterfront Seattle managers and will be performed by City of Seattle operating departments or other entities.

Project Area Exclusions

Bell Street: The Waterfront program's Bell Street project is contiguous with the Bell Street Park and is a natural fit to become a part of the existing park, consistent with SDOT and Parks partnership agreement.

Lenora Street Bridge: The Waterfront program will design and build the Lenora Street Bridge project, but will be owned and maintained by the Port of Seattle.

Pioneer Square Street Improvements: These proposed project improvements stretch deep into the Pioneer Square neighborhood and have not been significantly designed at the point of this submission. Therefore, as the design is developed the Operations and Maintenance approach can be discussed with local stakeholders and organizations.

Note: The above maintenance scope assumptions have been evaluated and defined by the Office of the Waterfront and Civic Projects.

SECTION 3.0

MAINTENANCE TASKS AND STANDARDS OF CARE

3.1 Standards of Care Summary

The standards of care for maintenance of any public space directly affect the annual maintenance budget and also influence perceptions of safety and use. For example, a maintenance plan in which all tasks are carried out at or above recommended best maintenance practices may create a pristine landscape but may ultimately prove to be unsustainable due to cost. Alternatively, a maintenance plan in which tasks and repairs are carried out at minimal levels may reduce annual budgets, but will likely result in high capital costs required for replacement or repairs that could have been prevented with regular care. Low standards of care can also create an unsafe environment for users.

Intensity of use is another factor that influences the maintenance budget. In general, the greater number of visitors a public space receives, the greater the maintenance load. Similarly, areas with intensive use and higher concentrations of visitors, such as play areas and lawns, typically require greater maintenance. Directly related to this is the fact that the level of maintenance impacts park use. Simply stated, a well-maintained park attracts visitors, whereas a poorly maintained site discourages positive park visitorship and often invites misuse and vandalism. Given this relationship between maintenance and use and the aforementioned standards of care, it is important to develop a maintenance plan that balances fiscal considerations with maintenance needs in order to provide a sustainable, high-quality visitor experience.

General standards of care are based on the Operational Guidelines for Grounds Management, 2001, published by APPA, National Recreation and Park Association, and Professional Grounds Management Society, and adapted to the specific needs of the Waterfront project.

Further consideration was given to the standards of care for the Waterfront Seattle Program based on the vision of the design team and Guiding Principles defined by the Office of the Waterfront and Civic Projects. The landscape design team led by James Corner Field Operations (JCFO) has outlined a vision for "high quality levels of maintenance" throughout the project. Furthermore, the Office of the Waterfront and Civic Projects has defined the Guiding Principles for Operations and Maintenance to "proactively manage new waterfront parks and public spaces to create Seattle's cleanest and safest public space, with high quality operations, maintenance, programming and security".

ETM worked with the Office of the Waterfront and Civic Projects, and Seattle Parks and Recreation to select levels of care that meet the maintenance needs of the Waterfront project features, while also creating a responsible maintenance budget. As a reference, proposed standards of care for the Waterfront are comparable to similar peer parks such as The Highline, Hudson River Park, and East River Waterfront Park.

Peer Project: East River Waterftont Park.

3.1.1 Defining Maintenance Work

Despite the complexity of measuring maintenance work, the process is essential. A good classification system lends itself to the application of standards, as it supports management decision-making (e.g. deploying personnel and equipment), and is based on an understanding and nature of the maintenance work.

Three critical variables condition maintenance work:

- The nature of the task
- The skill levels of those performing the task
- The physical setting

For example, cleaning a paved surface is different from maintaining street tree plantings, both in type of equipment required and in the time it takes to perform the work, as well as the skill of staff performing the work.

The estimated hours for maintenance account for variation in frequency of tasks over the course of the growing season as well as use of the site. Some tasks, such as mowing, occur on a well-defined schedule that is associated with the growing season, while other tasks, such as litter removal are on-going and can be impacted by use of the site.

The estimated task hours were determined by using standard maintenance practices and time standards. Hours were determined and used to project staffing requirements and associated costs. This process was repeated for all maintenance tasks. Travel time has been considered in the setting of time standards and task frequencies.

3.2 Standards of Care

The standard of care summaries in this section define the general tasks and frequencies for all project area components and provide a benchmark for general care, functionality and appearance.

The table below shows a sample task hour standard for the Asphalt and Concrete Paving (P1) landscape type which defines the various required maintenance tasks, their frequencies, and the total number of hours required to perform each task for a typical unit of paving (in this case 10,000 SF).

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Paved Areas - HOURS/Unit								
P1 - Asphalt & Concrete Paving							57	Annual hours/10,000 SF
Clean paved surface	2	msf	5	10	0	52	9	20% of area ; with backpack blower
Surface Washing & Scrubbing	1	msf	70	70	1	20	23	20% of area; clean stained/dirty areas with pavement scrubbers, vacuum/power washers to retain and dispose of dirty water 2x/month during peak season; 1x/week in off season and as needed for localized cleaning and post events.
Paving repair	1	csf	240	240	4	2	8	1% of area - repair pavement marking, cracks, spalling, settling, etc.
Graffiti removal		allow					5	Includes both gum and graffiti removal
Remove litter	0.5	msf	3	2	0	365	9	5% of area; 7x per week
Snow and ice management	10	msf	20	200	3	1	3	100% of an area - Includes snow removal, sand/salt spreading, etc. with vehicle and hand equipment

The estimated total annual hours required to maintain one unit (10,000 SF) of Asphalt and Concrete Paving is estimated to be 57 hours as shown in the above table. Task hour tables have been created for each landscape type and are summarized in the following section. Detailed task hour tables for each landscape type are provided in Appendix B along with a guide that outlines the methodology used to determine the task hour standards.

3.2.1 Paved Areas

Maintenance of all paved areas will include daily litter removal (7x/week) and regular weekly cleaning with backpack blowers to provide a safe, clean, well-managed landscape . Any graffiti or vandalism is to be removed within 48 hours. All paved areas shall be cleaned with a power washer, firm bristle brush, and wet vacuum or a pavement scrubber. It should be noted that all waste water associated with cleaning must be captured before draining to Elliott Bay and properly disposed of. Paving inspections should be conducted during regularly scheduled cleanings/litter removals and any issues such as cracking, spalling, uneven settling, loose pavers/boards, or weed growth should be noted and addressed with repairs as needed. Additionally, snow and ice removal/management will be required during the winter season as needed in order to maintain safe pedestrian access.

It is estimated that the average annual time required to maintain:

- 10,000 SF of Asphalt & Concrete Paving (P1) will be 57 hours
- 1,000 SF of Inlay and Specialty Paving (P2) will be 31 hours
- 1,000 SF of Dry-Laid Paving (P3) will be 18 hours
- 1,000 SF of Boardwalk (P4) will be 20 hours

3.2.2 Planting

All plantings along the Waterfront must be maintained at a high standard of care. Tasks such as fertilizing, pruning/trimming and irrigating should be done on a regular schedule that adjusts for changes in weather, seasonality, and growing season. Groundcovers, trees/shrubs and perennial plantings should be kept free of disease, pests and dead or dying branches. All dead or dying plants should be removed and replaced promptly. All groundcover beds, bioretention cells, and perennial beds must be mulched and kept free of weeds and litter.

Bioretention cell plantings must be frequently inspected to ensure proper drainage, soil quality, and sediment levels. Debris and silt must be cleared from the presettling tank monthly. Mulch must be removed/replaced annually to maintain proper drainage and sediment capture. Plantings must be well-maintained and demonstrate vigorous plant growth in order to function optimally.

Vine plantings shall be trimmed or cut back as needed at least twice annually to maintain a manageable size. This is particularly important in the case of the chocolate vine, a vigorously growing plant.

The habitat beach area is planted with a blend of trees, shrubs, and groundcovers which will require less frequent care than perennial or groundcover beds. Monthly plant care should be performed including trimming, weeding and plant replacement. The beach is the only planting type that will not be irrigated and therefore may require some hand watering during extended periods without rain. Several objects used as soil stabilization are located within the beach area and should be inspected and maintained as needed. Wind blown litter and floating debris along the beach water's edge should be removed 2x/week. Beach gravel and rip-rap edge will need to be inspected and raked regularly and replenished as needed.

The small lawn areas will require frequent, dedicated care in order to maintain a healthy stand of turf during the active growing and use season. A regular mowing schedule should be maintained with regular seasonal applications of fertilizer and pre-emergent weed preventer. In the case of heavy use, some lawn areas may need to be temporarily closed for overseeding, top dressing or major renovation.

It is estimated that the average annual time required to maintain:

- 20 Trees (PL1) will be 12 hours
- 20 Shrubs (PL2) will be 8 hours
- 1,000 SF of Perennial Planting Areas (PL 3) will be 23 hours
- 1,000 SF Groundcover/Shrub Planting Areas (PL4) will be 15 hours
- 100 LF of Vine Planting along Screen (PL5) will be 10 hours
- 25,000 SF of Habitat Beach (PL6) will be 143 hours
- One bioretention cell (PL7) will be 13 hours
- 1,000 SF of Lawn (PL8) will be 19 hours

3.2.3 Furnishing & Site Amenities

Numerous furnishings and site amenities have been specified for the Waterfront which will need to be rigorously maintained to keep up with use and abuse common to such a popular destination. All amenities should be kept clean, safe and functional. Regular cleaning and inspection should be conducted on all furnishing components, and any damage or graffiti should be reported and scheduled for repair or removal immediately.

Custom wood seating components should be regularly inspected, treated for graffiti, and cleaned. As a precaution against theft, all moveable furnishing must be collected and secured each evening at a predetermined time and set up each morning before visitors arrive.

Trash and recycling collection will be a major component of daily tasks. Trash and recycling receptacles must be emptied on a regular schedule depending on usage which can vary depending upon location, season, weather and event schedules. A peak, shoulder, and off-season schedule has been specified for this project which accounts for periods of high and low visitation. Temporary storage of collected trash and recycling bags will need to be addressed and a daily storage and collection plan will need to be created and rigorously implemented due to limited space along the waterfront.

Significant quantities of weathering steel planter walls will be used throughout the project. These surfaces will require cleaning and repair over time as damage occurs from vandalism, graffiti, accidents and general use. Graffiti and repairs will need to be addressed quickly when discovered.

Several sculptures and art pieces will be integrated into the Waterfront design. Although robust features of wood, metal, and concrete, these elements will need to be monitored and regularly conserved by qualified professionals.

It is estimated that the average annual time required to maintain:

- Ten Furnishing Items (F1) will be 19 hours
- Ten Moveable Furnishing Items (F2) will be 48hours
- One Trash/Recycling Station (F3) will be 55 hours
- 50 LF of Railing, Fencing & Screens (F4) will be 6 hours
- 100 LF of Planter Walls (F5) will be 9 hours
- 10 Signage Elements (F6) will be 37 hours
- One Art Piece (F7) will be 16 hours

3.2.4 Play Areas

Play areas will receive a great deal of abuse from Waterfront visitors and must be frequently inspected and maintained at a high level of care to provide a safe, clean play environment. All play equipment must be kept clean, functional and in good repair at all times. Safety surfacing must be kept free of litter and cleaned of any spills or accidents that may occur throughout the day. Additionally, safety surfacing may wear out prematurely in areas of high use and will need to be repaired or replaced as needed. Sand play areas will require frequent surface leveling, litter removal and cleaning due to frequent use. An annual replacement of all sand within play areas is recommended during the off-season.

It is estimated that the average annual time required to maintain:

- 100 SF of Sand Play Area (PA1) will be 28 hours
- 100 SF of Rubber Surface Play Area (PA2) will be 31 hours

3.2.5 Infrastructure

Maintaining infrastructure is potentially the most important task within the Waterfront. Components such as lighting, drainage and irrigation must be well maintained to keep visitors and the landscape safe and healthy. All systems should be monitored on a regular schedule to ensure proper function, and any issues or failures must be identified and addressed quickly.

Several water features will be included in the Waterfront Design including the relocated Tsutakawa Fountain along the Promenade, the relocated Fitzgerald Waterfront Fountain, and a new Waterfront Park water feature with a wave surge field and water jets. The new water feature at Waterfront Park will consist of multiple fountain jets which can be set to produce a mist or spray, as well as a "water sheet" that will flow towards a collection point at the west end of the plaza. The two relocated fountains are less complex recirculating water features with enclosed pools. Water feature maintenance will require frequent cleaning, adjustment, and repair. All surfaces should be cleaned and scrubbed regularly to prevent any biological growth build-up. Daily inspections must be conducted during the operating season to check water quality and adjust chemical levels and filtration components. Strainers and grates must be cleaned weekly and filters must be backwashed. Any issues that prevent proper function must be evaluated immediately and repaired or temporarily closed until a necessary part is delivered. Winterization and spring start up will be required and should be conducted in line with the seasonal changes.

Irrigation is vital to maintaining the extensive plantings throughout the Waterfront. Any failures may result in the loss of plant material. Regular inspections should be performed to ensure adequate coverage and function of all above ground sprinklers/rotors and any underground bubble or drip irrigation through visual checks. Pop up rotors fail regularly and should be quickly replaced to avoid the need for hand watering which can be very time consuming.

Area and trench drains can easily clog with wind blown litter or fallen leaves, and all drainage infrastructure along pedestrian paved areas and planting beds must be monitored and kept free of any surface or sub-grade blockages at all times. Any repairs must be made immediately to prevent potential stormwater backups.

The project area includes a number of green stormwater components called Storm Filter or Perk Filter catch basins. These special stormwater drainage components should be regularly monitored to ensure debris and silt build-up is not excessive and has not clogged any outfall drains. Storm Filter catch basins will require more care than a traditional catch basin as the filters can clog if siltation accumulates on the tank bottom or the outer filter surfaces. Storm Filter basins should be inspected monthly and cleared once every three months or after heavy rain events. Filter cartridges should be checked for proper function and may need to be changed yearly depending on frequency of storm events and maintenance standards of road surface cleaning. Appropriate disposal resources for dirty filters will need to be sourced and filters will need to be properly discarded according to local rules and regulations.

Lighting elements will need to be kept clean and functional with repairs and spent lighting components such as LEDs and lumen boards replaced promptly as needed. Special "rope" lighting is particularly susceptible to frequent damage and may need to be frequently repaired or replaced.

It is estimated that the average annual time required to maintain:

- 1,000 SF of Irrigated Landscape (I1) will be 10 hours
- 1,000 SF of Water Feature (I2) will be 36 hours
- 10,000 SF of Drainage Area (I 3) will be 10 hours
- One Storm Filter Catch Basin (I4) will be 6 hours
- 10 Pole Light Luminaires (I5) will be 5 hours
- 10 Pedestrian Lighting Fixtures (I6) will be 3 hours

3.2.6 Structures/Building Spaces

Structure and building maintenance will be a major component of Waterfront maintenance as these components provide important visitor amenities and services. All structures and buildings must be kept in good working order and appearance to effectively serve Waterfront users.

All freestanding structures including the Promenade kiosks and Washington Street Boat Landing building should be regularly cleaned and inspected for any damage or structural issues. In the case of the kiosks, all glass panels should be thoroughly cleaned bi-monthly.

All elevators must be kept in good working order, clean, and free of graffiti/vandalism. A weekly schedule of interior and glass cleaning should be maintained and monthly service of the mechanical elevator components must be performed. Regular inspections by a certified elevator inspector should be done per code or manufacturer's recommendations. Any mechanical failures that may occur should be addressed immediately.

Several restroom facilities will be included in the Waterfront Design; including two standalone outdoor restroom kiosks called "Portland Loos", a small restroom in the Washington Street Boat Landing (WSBL), and a large restroom facility located at the Overlook Walk. All smaller restroom facilities (Portland Loos and WSBL) must be regularly cleaned and well stocked with toiletries at all times. Visitation and restroom usage are tied to seasons and a recommended restroom cleaning schedule has been developed for these facilities which assumes twice daily cleanings during the peak season and once daily cleanings during

shoulder and off seasons. It should be noted that these recommendations are subject to change if and when actual findings indicate a change in restroom facility maintenance scheduling needs. The primary restroom facility at the Overlook Walk will be staffed full-time with an attendant throughout the year (12 hours/day in summer and 8 hours/day in winter).

It is estimated that the average annual time required to maintain:

- One Kiosk (S1) will be 38 hours
- 2,500 SF of Maintenance Area (S2) will be 32 hours
- One Single Restroom (S3) will be 205 hours
- Overlook Walk Attended Restrooms (S4) 3,778 hours
- One Elevator (S5) will be 169 hours

3.2.7 Landscape Type Standards Summary

The chart below provides a summary of all landscape types and their associated task hour standards.

Landscape Type Hours/Unit Summary	Unit	Hrs/Unit
Paved Areas		
P1 - Asphalt & Concrete Paving	10,000 SF (X̄SF)	57
P2 - Inlay and Specialty Paving	1,000 SF (MSF)	31
P3 - Dry-Laid Paving	1,000 SF (MSF)	18
P4 - Boardwalk	1,000 SF (MSF)	20
Planting		
PL1 - Trees	20 Trees	12
PL2 - Shrubs	20 Shrubs	8
PL3 - Perennial Planting Areas	1,000 SF (MSF)	23
PL4 - Groundcover/Shrub Planting Areas	1,000 SF (MSF)	15
PL5 - Vine Planting along Screen	100 LF (CLF)	10
PL6 - Habitat Beach	Each (EA)	143
PL7 - Bioretention Cells	Each (EA)	13.2
PL8 - Lawn Areas	1,000 SF (MSF)	19
Furnishing & Site Amenities		
F1 - Furnishing	10 Items	19
F2 - Moveable Furnishing	10 Items	48
F3 - Trash & Recycling	Each (EA)	55
F4 - Railing, Fencing & Screens	50 LF	6
F5 - Planter Walls	100 LF (CLF)	9
F6 - Signage and Wayfinding	10 Items	37
F7 - Artwork & Sculpture	Each (EA)	16
Play Areas		
PA1 - Sand Play Area	100 SF (CSF)	28
PA2 - Rubber Surface Play Area	100 SF (CSF)	31
Infrastructure		
I1 - Irrigation	1,000 SF (MSF)	10
I2 - Water Feature	Each (EA)	36
I3 - Site Drainage	10,000 SF (X̄SF)	10
I4 - Storm Filter Catch basins	Each (EA)	6
I5 - Pole Lighting	10 Items	5
I6 - Pedestrian Lighting	10 Items	3
Structures/Building Spaces		
S1 - Kiosks	Each (EA)	38
S2 - Maintenance Facilities	Each (EA)	32
S3 - Restrooms	One Toilet	205
S4 - Restrooms (Attended)	Each (EA) Entire RR	3,778
S5 - Elevators	Each (EA)	169

Figure 3.1 Landscape type task hour standards summary

3.3 Waterfront Master Task Hour Summary

An estimated total of 31,136 hours are needed for annual maintenance of the completed Waterfront project areas.

Figure 3.2 illustrates the total hours required to maintain each of the fifteen (15) project areas included in the scope of this Operations & Maintenance Report.

Waterfront Seattle	Unit	Total	Alaskan Way East	Alaskan Way Median	Alaskan Way West	Promenade	Bike Path	Elliott Way	Lower Union St.	Overlook Walk	Waterfront Park	Railroad Way	Columbia Street	Seneca St.	Washington Street Boat Landing	Marion Street Bridge	Pier 62/63
Paved Areas	Hrs.	7,177	587	35	283	2,556	263	504	90	254	185	1,461	65	66	26	38	764
Planting	Hrs.	5,286	783	506	540	1,974	0	815	27	333	149	128	4	26	0	0	0
Furn. & Site Amen.	Hrs.	8,605	409	22	450	3,261	0	330	164	1,643	474	111	7	81	91	264	1,298
Play Areas	Hrs.	1,170	0	0	0	0	0	0	0	48	1,122	0	0	0	0	0	0
Infrastructure	Hrs.	3,776	429	293	356	1,083	56	422	35	180	562	146	11	27	3	40	133
Struct./Build. Spaces	Hrs.	5,122	0	0	0	561	0	0	169	4,149	0	0	0	0	243	0	0
TOTAL HOURS		31,136	2,208	856	1,629	9,436	319	2,072	484	6,607	2,493	1,846	87	201	363	341	2,195

Figure 3.2 Summary of the total hours required to maintain the Waterfront project area.

SECTION 4.0

MAINTENANCE EQUIPMENT AND MATERIALS

4.1 Maintenance Equipment and Supplies

Although agency responsibilities for delivery of maintenance services have not been fully defined at this time, a joint delivery model between the Friends of the Waterfront and the Seattle Parks and Recreation Department (Parks) will likely be employed using a dedicated Parks workforce and equipment. To the greatest extent possible, equipment should be provided on-site for the dedicated workforce to support efficient operations. The importance of the correct equipment for performing maintenance tasks cannot be overstated. Utility vehicles, accessibility equipment, hand tools, and supplies will be needed to facilitate effective maintenance. Identifying useful new equipment, ensuring that the optimal equipment mix is maintained, and developing an equipment replacement schedule are crucial elements of successful maintenance.

Sustainability and "quiet" operation are two major considerations in maintaining the Waterfront. Several equipment recommendations strive to accomplish both of these considerations through the use of current battery powered equipment. Battery technology has made great strides in recent years with solid battery powered options for almost all conventional landscape equipment and vehicles including utility vehicles, leaf blowers, hedge trimmers, lawn mowers, and edge trimmers.

Small electric or quiet running gas-powered utility vehicles should be considered for operational effectiveness throughout the Waterfront. Small vehicles are more appropriate for the Waterfront rather than full-size vehicles for reasons of maneuverability, economy, and ease of maintenance; and they are more user-friendly. A full-size work truck is also recommended for dedicated on-site use.

Electric utility cart with dump bed.

Crew cab work truck.

Electric backpack leaf blower

Electric lawn mower

Work bicycles could also be considered as environmentally conscious maintenance vehicles. Bicycles with baskets, and even tricycles with dump beds and storage boxes can be used to transport tools and bulk materials. Staff enjoy riding them and visitors enjoy seeing an inventive, sustainable approach to maintenance. Full-size vehicles, such as trucks, should be used only to the extent that they fill needs that cannot be met by smaller, more economical and user-friendly vehicles.

Work trikes with cargo beds and staff bikes

A unique requirement of the Waterfront project, especially along the Promenade, will be to limit all waste water from pavement and furnishing cleaning activities from Entering Elliott Bay. In response, unique cleaning solutions and equipment have been researched to meet these water discharge requirements. Several solutions ranging from traditional power washers used in tandem with a small electric wet-vac, to ride-on pavement scrubbers with internal waste water storage tanks have been included in the equipment recommendations list.

Electric pavement scrubber with water tank

Utility vehicle with bed mounted 150 gallon vac tank

Recommended Maintenance Equipment List

A comprehensive list of tools, equipment & vehicles has been provided below to provide an understanding of the equipment necessary to effectively maintain and operate the Waterfront. Indoor and outdoor space requirements have also been provided to inform facility needs in section 5 of this report.

Tools, Equipment & Vehicles	Use	Qty.
Push Mower: Ego LM2101 Battery Powered	Lawn mowing	1
Ryan Lawnaire V Aerator	Lawn aerating (walk behind, 26.5" width)	1
Stihl string trimmer FSA 45 Battery Powered	Lawn edge trimming	1
Back pack blower: Ego Power + 600	Leaf/Grass/debris blowing from paving	2
Stihl backpack sprayer SG 20	Fertilizer/herbicide application	2
Hedge trimmer: EGO Power + 24"	Pruning	2
Walk behind broadcast spreader	Fertilizer, snow melt, etc. application	2
Snow removal equipment	Snow blower, shovels, salt spreaders	1
Telescoping tree pruner with saw (14')	Tree pruning	2
Stihl Pole Saw Pruner HT 101	Tree pruning	1
Stihl chainsaw	Tree pruning	2
Assorted Landscape Hand Tools	Shovels, rakes, pruners, etc.	1
Assorted Hardscape Tools (Power and hand)	Trowels, chippers, mixers, etc.	1
Lighting lumen board replacement tools	Lumen replacement/repair/cleaning	2
Pressure washer: Dewalt Heavy Duty 1500 PSI	Paving/exterior surface cleaning	2
Pavement Scrubber (ride-on, battery powered)	Cleaning paving surfaces (large area)	1
Tow behind wet-vac (gas powered)	Water disposal for drainage, furnishing, and paving cleaning	1
Industrial wet vac (15 gallon capacity)	Water disposal for furnishing and paving cleaning	2
Extension chords	power supply	4
Cleaning/janitorial supplies	Restroom/exterior cleaning	1
Mid-size Pick-up Truck w/dump bed	Material pick-up/transport	1
Plumbing & Electrical Tools/equipment	Lighting, irrigation, water feature, etc.	1
Carpentry Tools	Furnishing and boardwalk decking repair	1
Misc. tools/equipment	General repairs	1
Ladders - Assorted (step and extension)	Art Cleaning, tree care, lighting, etc.	1
Work Tricycle	Staff transport/material transport	3
Hose cart (200' capacity) + Hoses	Irrigation/spot watering/washing	2
Toro Workman GTX-4WD Utility Vehicle (w dump bed)	Transport/material transport, trash hauling	2

Figure 4.1 Recommended tool, equipment and vehicle list.

4.2 Maintenance Materials

As with any public space, periodic replenishment of landscape materials or replacement of damaged site features will be necessary. Having a ready supply of materials on hand will ensure a safe, usable space by quickly repairing or replacing site features. Materials and replacement parts can often take significant time to procure, especially if not locally available.

Many materials will need to be regularly replaced or replenished due to normal wear and tear. Items such as sand and mulch will need to be occasionally topped off or entirely replaced over time. With even the best horticultural care and proper plant selection, plant material will die and require replacement. These materials should be either made available at a nearby location for immediate use or made quickly accessible through a trusted provider.

Extra Maintenance Materials

Extra maintenance materials (Attic Stock) should be identified and specified within contract documents or readily on hand in order to have adequate replacement supplies to account for normal wear and tear, frequent damage, or vandalism of site features. These items would include special or custom design features that would be difficult or costly to order in small quantities or frequently replaced, such as:

- Custom railing components
- Custom site furnishing wood slats
- Additional trash/recycling cans
- Tree pit guard components
- Additional moveable seating
- Irrigation spray heads
- LPS Panel glass blocks

SECTION 5.0

MAINTENANCE & OPERATIONS FACILITIES

5.1 Facilities Overview

The current joint operating model with Seattle Parks and Recreation (SPR) assumes a dedicated in-house team of SPR staff to perform daily maintenance. On-site facilities will be necessary to support this maintenance and operations (O+M) delivery model including daily trash collection, cleaning and maintenance, repairs, and horticultural work.

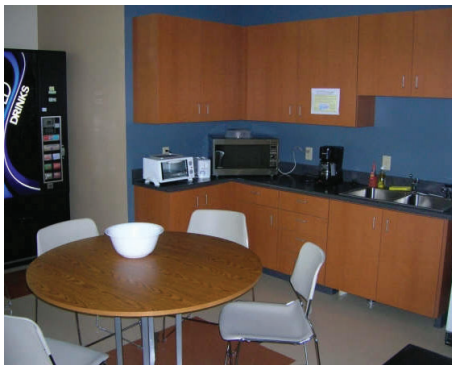
Due to the linearity of the Waterfront, different types and sizes of facilities should be considered for facility locations to efficiently support daily O+M activities. This can be accomplished through careful siting of facilities along the Waterfront to reduce travel distances to pick up/drop off tools/supplies, trash/recycling, and materials. Ideally, a main facility should be centrally located with a number of secondary and tertiary facilities at other key locations that support special uses/programs and reduce time spent transporting materials and supplies back and forth from the main maintenance facility.

Both indoor and outdoor space will be required to accommodate staff, equipment, vehicles, materials, and daily stored items like moveable seating. Some areas used primarily for storage of bulk materials and vehicles can be simple fenced yards. Infrequently used equipment and materials can even be stored at an off-site location if on-site space limitations cannot support all facilities.

Whether maintenance and operations is performed by in-house staff or contracted services, some facility accommodations will be necessary to support daily delivery of services. Ultimately, facility needs will be determined by how much work is done in-house (staff, equipment, tools, etc.) and how much is done with contracted services, who typically supply their equipment as needed.

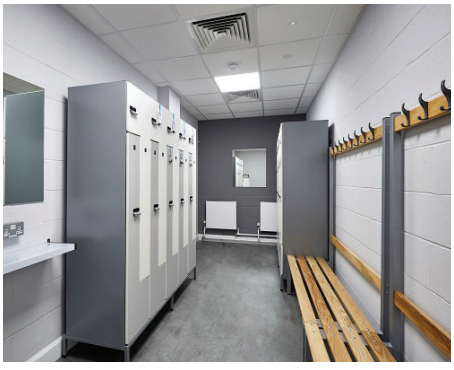
Staff Bathrooms

Material Storage



Staff Break Room

Equipment Storage



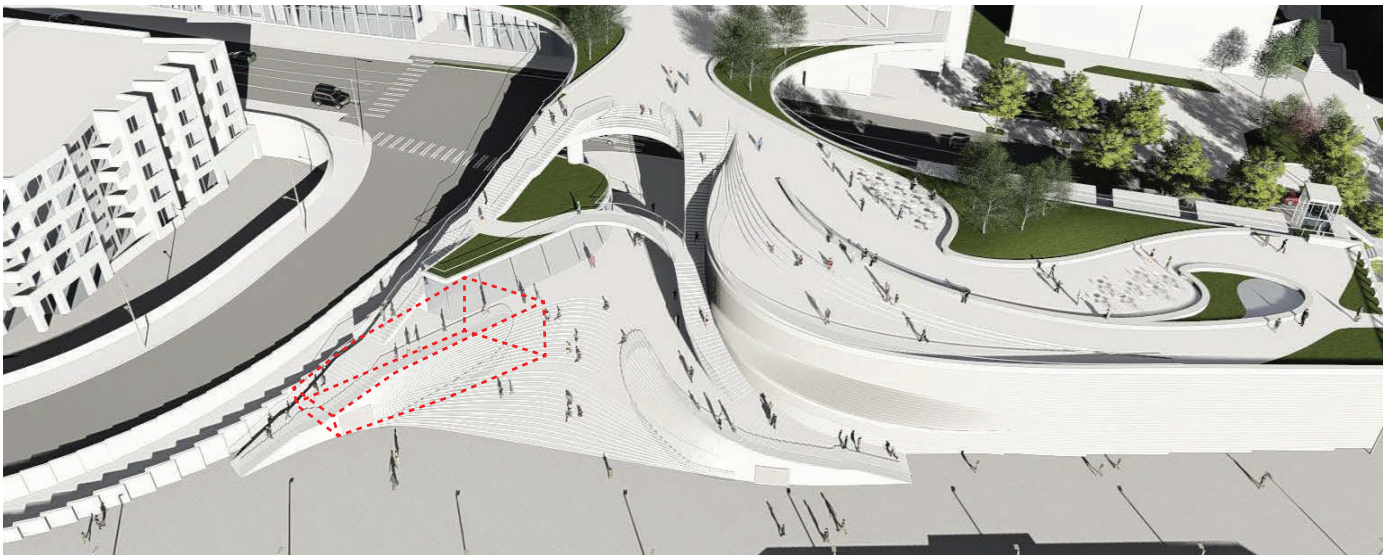
Staff Lockers

Fuel Storage

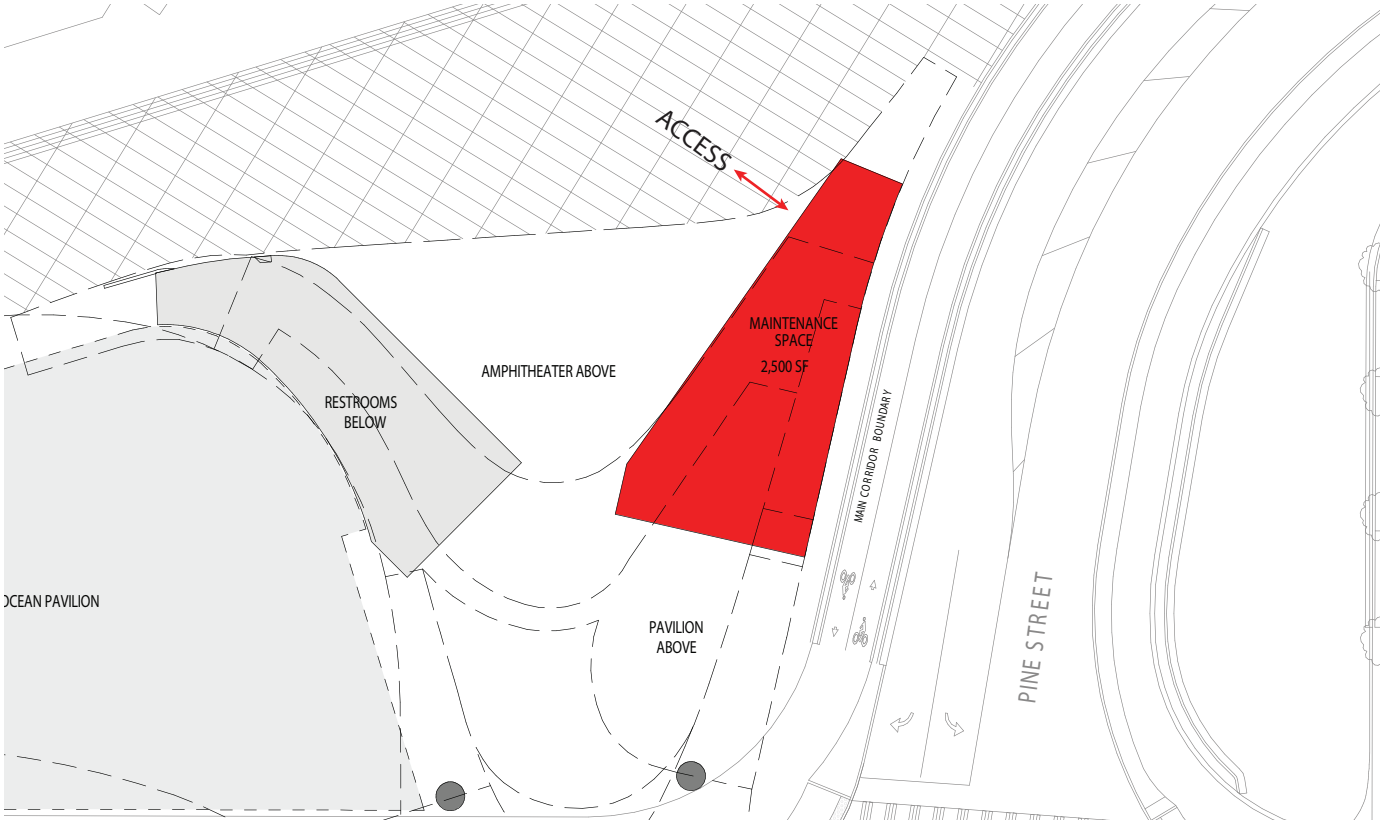
5.2 Potential Facility Locations

5.2.1 Primary On-Site Maintenance Facility

The space below the amphitheater seating steps at the Overlook Walk has the potential to support the primary indoor O+M facility with an allocation of approximately 2,500 SF. The building space is centrally located within the project area with direct access to the Promenade.



Aerial view of the Overlook Walk with potential O+M space below Amphitheater stairway



Plan view of potential O+M space with direct access to Promenade

5.2.2 Potential Off-Site Facility Locations

Additionally, two off-site Seattle Parks and Recreation (SPR) facilities have been identified as potential O+M support locations. The two locations are relatively close to the Waterfront and could potentially provide some available space to support additional maintenance activities or storage. Currently, available space is very limited at these locations and further discussion is required to determine if Waterfront maintenance crews (SPR or other) could utilize the space.

Location #1 – 4420 Westbridge Shops: This facility is a large indoor/outdoor facility with full service offices, conference rooms, paint booths, equipment/machine repair and large shops for carpentry, electrical and plumbing. The facility also has an outdoor parking area to accommodate maintenance vehicles. This facility could serve a number of potential uses for the Waterfront, primarily as a support facility for shop repair work. Due to its location across the Duwamish River, travel times to this facility may limit viability as a daily support facility to mobilize staff.

Location #2 – W Central District Headquarters: The Central HQ Grounds includes crew quarters, office space, and a fenced in yard. This off-site location has potential to serve some or all outdoor bulk material and large equipment storage. Plans are currently being considered to increase yard capacity. Although approximately 3 miles away from the Waterfront center, access is fairly direct in comparison to the Westbridge facility.

5.2.3 On-site Secondary and Tertiary Facilities

Smaller facilities could be included at strategic locations along the Waterfront to support efficient maintenance mobilization and programming support. The linearity and extent of the Waterfront requires a mobile, flexible service delivery solution. Smaller facilities could support in-house staff by acting as way points to pick up additional supplies or temporary trash/debris storage.

These facilities could be small simple structures or small fenced areas used mainly for temporary storage of materials and supplies. Secondary facilities are meant to reduce travel time and ease day-to-day operations. These facilities would need to be secured and enclosed, and be mainly used as storage for frequently used items, such as tools, supplies, small vehicles, and programming elements such as chairs, temporary fencing, AV equipment, or moveable play elements.

Equipment and furnishing such as moveable seating may need to be stored on-site to support daily or seasonal programs such as vending, exercise classes, small music events, or festivals. These storage facilities should be centrally located near the program areas and could be simple storage containers that blend into the landscape. In addition to equipment and supply storage, secondary facilities could also serve as temporary drop off areas for trash/recycling or landscape debris while waiting for daily bulk disposal or transport to off-site composting facilities. Temporary trash/recycling storage facilities may need to be sited at multiple locations depending on the quantity of trash/recycling that is collected on busy or event days.

Outdoor temporary trash enclosure

Semi-permanent Storage cont.

Moveable seating storage

Climate controlled temporary trash enclosure

Gang box small storage

5.3 Facility Space Needs

5.3.1 Delivery of Services

For the purposes of this report we are assuming an in-house maintenance service delivery model of dedicated on-site staff with minimal contracted trades support.

5.3.2 Basis of Estimate

The In-house maintenance task hour estimates are used as the baseline to determine potential facility square footage needs for the Waterfront (estimated staffing and equipment needs).

In-house staff facility needs have been allocated including bathrooms, lockers, changing rooms and break/meeting rooms. Staffing space needs have been determined by converting total estimated task hours into a full time equivalent (FTE) staffing number. An average of 1,860 hours is used for each FTE. Typically full-time staff work 2,080 hours per year, but actual productive time spent working averages 1,860 hours when factoring in time lost for paid holidays, breaks, vacation, and sick time. In-house staffing facility needs are estimated to accommodate between 10-15 full and part time staff.

In addition to personnel, this document identifies the necessary on-site interior space needed to store the various on-site tools, equipment, and materials. Outdoor space requirements for staff work truck parking, temporary trash/recycling storage, and flexible delivery/storage areas have also been estimated for the Waterfront.

Off-site space needs have also been estimated for bulk material storage, large equipment, and landscape debris disposal/composting space.

It is currently assumed that all administrative, programming, and security personnel will operate out of storefront/office space along the east side of Alaskan Way, to be provided as part of the Overlook Walk project.

5.3.3 Equipment & Tool Storage Needs

The below equipment summary is provided to identify the necessary indoor and outdoor space to support Waterfront operations and maintenance. The summary assumes an in-house maintenance scenario in which the majority of work will be performed by dedicated park staff and the majority of tools and equipment will be stored at dedicated on-site facilities.

Tools, Equipment & Vehicles	Use	Qty.	Space needs (SF)	Total SF
Push Mower: Ego LM2101 Battery Powered	Lawn mowing	1	20	20
Ryan Lawnaire V Aerator	Lawn aerating (walk behind, 26.5" width)	1	25	25
Stihl string trimmer FSA 45 Battery Powered	Lawn edge trimming	1	5	5
Back pack blower: Ego Power + 600	Leaf/Grass/debris blowing from paving	2	6	12
Stihl backpack sprayer SG 20	Fertilizer/herbicide application	2	10	20
Hedge trimmer: EGO Power + 24"	Pruning	2	5	10
Walk behind broadcast spreader	Fertilizer, snow melt, etc. application	2	20	40
Snow removal equipment	Snow blower, shovels, salt spreaders	1	25	25
Telescoping tree pruner with saw (14')	Tree pruning	2	5	10
Stihl Pole Saw Pruner HT 101	Tree pruning	1	5	5
Stihl chainsaw	Tree pruning	2	5	10
Assorted Landscape Hand Tools	Shovels, rakes, pruners, etc.	1	100	100
Assorted Hardscape Tools (Power and hand)	Trowels, chippers, mixers, etc.	1	100	100
Lighting lumen board replacement tools	Lumen replacement/repair/cleaning	2	50	100
Pressure washer: Dewalt Heavy Duty 1500 PSI	Paving/exterior surface cleaning	2	20	40
Pavement Scrubber (ride-on, battery powered)	Cleaning paving surfaces (large area)	1	36	36
Tow behind wet-vac (gas powered)	Water disposal for drainage, furnishing, and paving cleaning	1	32	32
Industrial wet vac (15 gallon capacity)	Water disposal for furnishing and paving cleaning	2	6	12
Extension chords	power supply	4	0	0
Cleaning/janitorial supplies	Restroom/exterior cleaning	1	100	100
Mid-size Pick-up Truck w/dump bed	Material pick-up/transport	1	250	250
Plumbing & Electrical Tools/equipment	Lighting, irrigation, water feature, etc.	1	100	100
Carpentry Tools	Furnishing and boardwalk decking repair	1	150	150
Misc. tools/equipment	General repairs	1	250	250
Ladders - Assorted (step and extension)	Art Cleaning, tree care, lighting, etc.	1	0	0
Work Tricycle	Staff transport/material transport	3	25	75
Hose cart (200' capacity) + Hoses	Irrigation/spot watering/washing	2	20	40
Toro Workman GTX-4WD Utility Vehicle (w dump bed)	Transport/material transport, trash hauling	2	50	100
Equipment Storage Needs - Interior				**1,417**
Equipment Storage Needs - Exterior				**250**

5.3.4 Facility Space Needs

The below table provides estimated on-site indoor and outdoor facility square footage needs to support Waterfront maintenance and operations. Off-site O+M space considerations have also been provided.

Facility Needs Summary	Square Footage
On-Site O+M Space (Indoor/Secure) (SF)	
Bathrooms/Lockers/Changing Rooms	300
Office Space (computer/print)	150
Break/Meeting Room	150
Tool & Equipment Storage (hand tools, smaller equipment)	800
Material & Supplies Storage	300
Large Equipment/Vehicle Storage	600
Vented Chemical/Fuel storage	50
Subtotal	2,350
Unusable space (Access/Circulation - 10%)	235
Total	2,585
On-Site O+M Space (Outdoor/Secure) (SF)	
Vehicle Parking (1 parking space, west side of Alaskan Way)	250
Temporary Trash Storage (Enclosure/compactor)	400
Miscellaneous Storage (Materials, Deliveries, etc.)	250
Subtotal	900
Unusable space (Access/Circulation - 10%)	90
Total	990
Off-Site Maintenance Support Space (indoor/outdoor) (SF)	
Flexible Yard Space (Trailer, large equipment, etc.)	1,600
Material Storage (mulch, soil, sand, extra maint. mater., etc.)	1,000
Fuel Station	250
Composting and Landscape Debris	3,000
Subtotal	5,850
Unusable space (Access/Circulation - 20%)	1,170
Total	7,020
Total Indoor/Outdoor Maintenance Space	**9,605**

5.3.5 Facility Needs Summary

Dedicated O+M facility space can often be difficult to secure in urban areas and the Waterfront is no exception. The 2,500 SF interior space below the amphitheater seating/stairs at the Overlook Walk has been reserved for O+M space, however, this location may not be sufficient to support all O+M needs. Additionally, on or off-site outdoor spaces will need to be allocated for vehicles & equipment, bulk materials, and temporary daily trash storage. Several potential options have been identified in this report that may be suitable to support some or all potential O+M facility needs. Leasing of a nearby downtown storage facility may be an option if the identified spaces are determined unsuitable for Waterfront O+M use.

SECTION 6.0

PUBLIC SAFETY

6.1 Waterfront Public Safety Overview

The new Waterfront Seattle project will span from Railroad Way along Alaskan Way/Elliott Way north to Battery Street. The project includes over eight acres of new and improved public open space, improved connections between center city neighborhoods and Elliott Bay, and nearly 1-1/2 miles of new street surfaces along Alaskan Way and Elliott Way. The majority of the project area, including much of the pedestrian promenade is located within the public right of way.

The Waterfront has been designed with public safety as a guiding principle; however, design alone cannot ensure a safe environment. A successful operations and management program for a signature public space such as Waterfront Seattle requires not just traditional public safety measures, but rather a multi-faceted strategy that consists of high-quality maintenance and care, daily and seasonal programming, an integrated team of outreach and safety personnel, law enforcement support, appropriate rules and regulations, and state-of-the-art technology in order to ensure that all spaces are safe and inviting for locals and tourists alike.

It is vital that this strategy be implemented from the initial day of operations to ensure that positive and safe behavior is set as an expectation from the beginning. Many public spaces have struggled with crime and anti-social behavior simply because they take a reactive rather than a proactive approach. Behavioral and social issues can be difficult to manage proactively.

6.1.1 Waterfront Specific Considerations

The Waterfront is a dynamic space that will need a comprehensive and coordinated safety and security strategy. Nestled between the busy downtown core of dense storefronts and residential buildings and the active waterfront piers, the Waterfront will experience significant use even during off-peak times. The Waterfront acts as the "front yard" for the numerous piers along the waterfront and significant traffic will be moving along and through the Promenade to access the Seattle Ferry Terminal and the various shops and attractions located along the water's edge. Stadium Plaza at the southern edge of the Waterfront will be inundated with swarms of fans before and after events at Century Link Field. Additionally, Alaskan and Elliott Way will receive significant vehicular traffic including commuter bus lines and transit stops.

In addition to the spatial challenges described above, the Waterfront is anticipated to serve a number of uses. The Waterfront is a vital commuter corridor accommodating pedestrians walking to work and ferry terminal users. Both tourists and locals frequently visit the waterfront to enjoy the views and the myriad attractions along the waterfront including the Seattle Aquarium, Pike Place Market, and numerous shops downtown.

The newly constructed space will be a great attraction with numerous green spaces, beach areas, playgrounds, water play areas, and scenic views to be enjoyed by all. Additionally, the Waterfront will be activated with a robust schedule of programs and activities as well as occasional large festivals or events.

Weather is also a large factor in maintaining safety and security. Seattle experiences a rather long cold, rainy season which greatly effects outdoor public space usage. Changes in use and behavior patterns will need to be monitored and staffing efforts will need to fluctuate accordingly.

Several elevators are included within the project area which will need to be managed from a use standpoint. Questions of whether elevators will be permanently in use or closed during low-use evening hours will need to be defined. Additionally, some areas of the Waterfront will be difficult for emergency personnel to access such as the Overlook Walk. This elevated area is only accessible on foot by elevators, ramps or stairways.

Another concern from a staffing and jurisdictional perspective will be defining and enforcing Waterfront rules and regulations to limit "street disorder". Antisocial behaviors such as drug use and transaction, alcohol use and public intoxication, camping, public urination, and aggressive panhandling will need to be continually monitored and addressed as needed. Maintaining a safe and secure Waterfront will require diligent efforts.

6.2 Initial Recommendations - Public Safety Strategy

The public safety strategy recommended for the Waterfront is a multi-tiered approach that draws upon all available resources to ensure the Waterfront is a safe and welcoming place. Public Safety is a site-wide responsibility that requires cooperation from not only the police, uniformed Waterfront maintenance and programming staff and additional safety personnel, but visitors as well. The presence of people is what will ultimately make the Waterfront safe. Activated spaces in which people are present year-round effectively promote the perception of safety in public spaces, and this in turn promotes more use. To ensure that the space is activated initially, the Waterfront must be well-maintained and programmed, and supported with a comprehensive safety and security strategy that includes:

- Robust Programming of Events and Activities
- Enforcement Personnel and Uniformed Park Staff- Seattle Police, Security Personnel, Waterfront O&M Staff, and Park Ambassadors
- Security Council
- Safety Technology
- Clear Enforceable Rules and Regulations

6.2.1 Programming and Activation

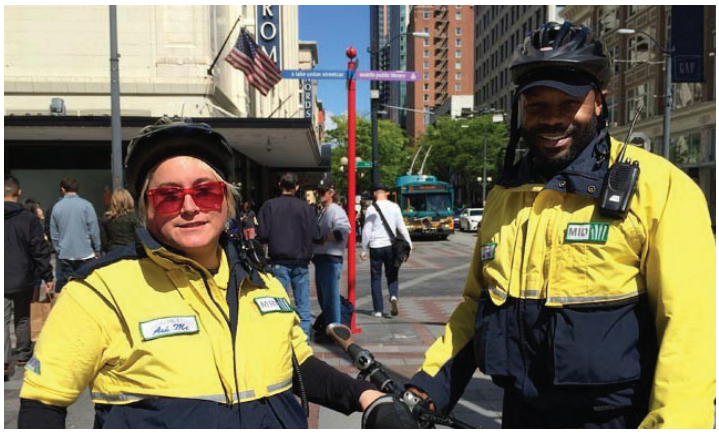
The importance of programming events and activities cannot be understated when considering a public safety strategy. As evidenced in the revitalization of parks such as Bryant Park in New York City and locally in Westlake and Occidental Parks, frequent and diverse activities open to the public are key steps to turning around spaces previously perceived as unsafe. In new spaces, such as those on the future waterfront, this type of positive activity, combined with the other strategies recommended below, prevents antisocial and illegal behavior from taking root.

For the last three summers, Friends of Waterfront Seattle have established a successful event program at Hotspot in Waterfront Park. The City is currently working with Friends to develop the framework for a joint operating model that would build on their experience and combine a robust and inclusive programming strategy on the future Waterfront with a high-quality maintenance program managed by the Seattle Department of Parks and Recreation. This framework, initially endorsed by the Seattle City Council in Resolution 31768, will be further memorialized in legislation this year and in subsequent management agreements with the City.

6.2.2 Enforcement Personnel and Uniformed Park Staff

Park Ambassadors

Currently, the Waterfront is located within the boundaries of the Metropolitan Improvement District (MID). MID Safety and Outreach Ambassadors provide hospitality services, connect vulnerable populations to services, and help to address public safety issues. In the future, a Waterfront Park Ambassador team would provide similar services as an integrated part of the partnership between Friends and the City.



Security Personnel

Many public spaces have a dedicated, security presence to provide safety and security. A uniformed security presence can be provided as either an in-house or contracted service that has been trained to recognize and respond to enforcement and safety issues.

Several Seattle organizations utilize contracted security firms for baseline security as their base of operations or as supplemental security during special events. Olympic Sculpture Park uses an outside security firm for their baseline security as well as special event support. Both Pike Place Market and Seattle Center use contract security to supplement their in-house baseline security staff during special events. One advantage of in-house security is, like in-house maintenance staff, they get to know the rhythms of the site and are more likely to proactively deal with potential enforcement issues.

An inherent issue associated with security staff is the limited authority in enforcing rules and regulations. Typically, security staff can only issue warnings to park users and cannot issue citations or forcibly remove individuals who are causing a nuisance or not abiding by posted rules and regulations. In such an event, local police are often called upon if a security officer cannot independently resolve an issue.

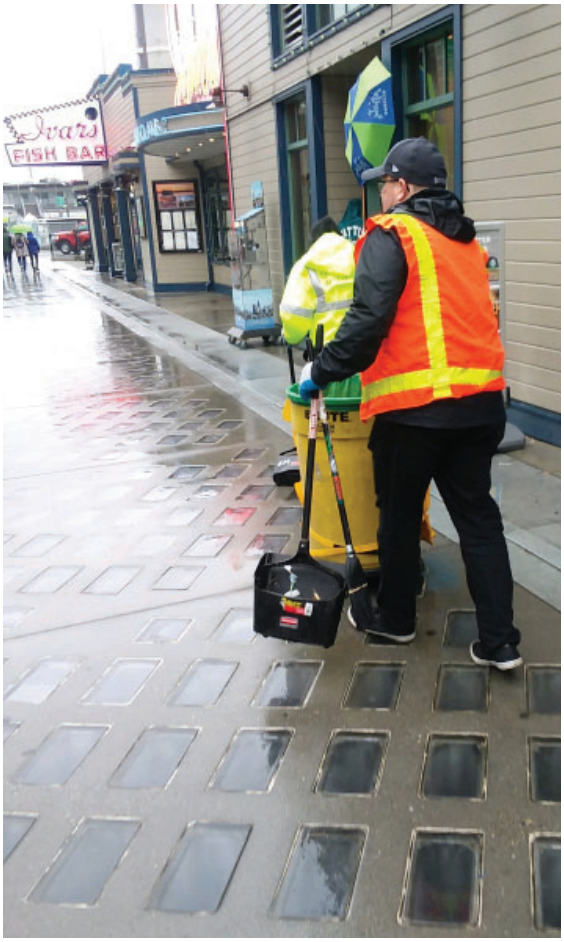
Off-Duty SPD Officers

Off-duty police officers are often used to supplement enforcement in public spaces. In the case of Seattle, many existing adjacent organizations including the MID, Olympic Sculpture Park, and the Seattle Center utilize off-duty SPD officers on an on-going basis or during busy times, such as weekends or special events. Off-duty police officers can be a valuable component in a security strategy as they are highly trained personnel who have the authority to enforce city ordinances and issue citations. They also are important support for Security or Safety & Outreach Ambassadors and reinforce the perception of authority those staff are able to convey when responding to enforcement situations. In the case of Olympic Sculpture Park, paid off-duty officers wear their standard issue uniforms which deters antisocial behavior and crime.

Operations and Maintenance Staff

Uniformed O+M staff can act as additional "eyes and ears" in public spaces. Their primary responsibility is maintenance of park areas, however they can also provide a layer of security simply by their presence and their capacity to see and be seen. The new waterfront will have a dedicated team of Parks Department maintenance and cleaning staff based on site.

All entities who will have some level of involvement in the Waterfront should be knowledgeable with regards to rules and regulations so that they may confidently inform non-compliant park users. In many cases, O+M staff receive training in conflict resolution and are equipped with portable radios for direct communication with appropriate security personnel.



6.2.3 Security Council

A key recommendation is to form a security council which meets regularly to evaluate ongoing issues, changing dynamics and to coordinate response efforts. This will allow the Waterfront safety and security program to adjust to new enforcement issues. In the 1980's, New York City's Central Park formed a security council as a key component to coordinate activities of those involved in safety and security which was very effective in defining and implementing policies and procedures. A Waterfront security council could be created and managed by the Friends of Waterfront Seattle, who would hire a security coodinator to ensure effective coordination and implementation of Security Council initiatives.

6.2.4 Technology and Infrastructure

Any public space safety strategy should consider the use of new technologies and innovative safety infrastructure such as closed-circuit television systems (CCTV), perimeter alarms, and guard tour systems. These elements of the safety and security strategy can act to complement existing efforts although these are more reactive than proactive, and in some cases, increase the general feeling of safety within the environment if used properly and effectively.

CCTV Cameras

Security cameras are often used for monitoring of outdoor public spaces and can be a key component in a security strategy. CCTV cameras can be either actively monitored to address issues as they occur or used as a tool to address and identify issues after they occur. With either approach, cameras can provide an additional level of security and a valuable tool to identify, deter and resolve safety and security issues. However, there is little evidence that CCTV alone deters crime or antisocial behavior.

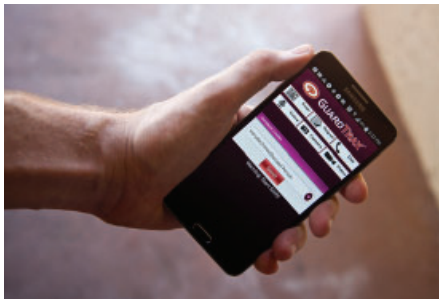
The City of Seattle has historically not been receptive to the use of CCTV cameras in public parks. In keeping with this practice, cameras are recommended only where necessary for protection of facilities and building entrances.

Perimeter Alarms

Laser perimeter alarms are an effective method of alerting security personnel of activity in an area that may be closed for public use. This system is typically used in tandem with CCTV cameras to identify who or what has set off the perimeter alarm. The Olympic Sculpture Park (OSP) utilizes a laser alarm on the perimeter of their campus as a tool to identify activity during evening hours. The OSP has a permeable perimeter with no fencing, however, security personnel do enforce a no trespassing policy during evening hours. This technology enables security staff to quickly identify and evaluate whether any action is necessary.

The Waterfront is also a permeable public space, however; the Promenade and Alaskan Way are heavily traveled commuter corridors which will likely be used at all hours. Additionally, multiple pier properties along the Waterfront can only be accessed by traversing the Promenade, which poses further issues in maintaining a secure perimeter. Perimeter alarms should be employed during evening hours only at specific locations such as the Overlook Walk, Pier 62/63, or Waterfront Park that are not part of the Promenade.

Guard Tour Systems



Electronic guard tour systems are an effective way to ensure supervision of mobile security patrols. Electronic guard tour systems use "touch memory" technology that enables security staff to easily record and report events and document the exact date and time of patrols. Each patrol is electronically recorded to verify that the security rounds were actually performed. This modern "watchman's key" is very effective in ensuring security checks are carried out as scheduled.

Technology innovations now incorporate the use of a mobile device which can greatly increase staff effectiveness. Any enforcement issue can be sent to guards as a "pin-pointed" Geo-referenced location via mobile device. With a single press of a button, a panic notification can be sent to emergency personnel. If a security staff member is down or immobile, a motion sensor will also transmit an alert. An evaluation report can be made using the reported data from a guards' device. Details of time, tours, incidents and progress of individual or multiple personnel reports can be assessed. This can be reviewed by the supervisors to determine certain incidents and improve protocol within a security system.

6.2.5 Safety & Emergency Response

Accidents can occur anywhere at any time. The Waterfront should provide on-site emergency protocols regarding First-Aid assistance and water safety. Any water edge public space should provide emergency equipment such as throw lines and flotation devices to facilitate water rescue. An on-site emergency response station and trained personnel should be available, especially during busy times or special events. All staff should receive basic CPR training, maintain required first aid certification, and know all safety protocols and emergency service contacts. Outside emergency medical personnel won't necessarily have sufficient knowledge of the Waterfront locations and areas, which may hinder the response time in an emergency situation and clear protocols should be defined for staff to guide emergency personnel to specific locations. The Waterfront is designed to allow small emergency vehicles with a medical flatbed to access all areas including the Promenade and Alaskan Way when transporting a patient to an emergency response location.

6.2.6 Waterfront Rules, Regulations, and Enforcement

The Waterfront is an unusual public space, set primarily within the public right of way. This presents several challenges of how to designate the space and implement clear rules and regulations. The Waterfront serves as a transportation corridor that cannot be completely "closed" like traditional park spaces which can make it much more difficult to manage and monitor. Most downtown parks have well defined boundaries with clear rules and regulations regarding drug and alcohol use, and other antisocial or inappropriate behaviors.

Park Boulevard

The City intends to designate the waterfront public spaces that will be subject to the Friends/Parks joint operating model as a "park boulevard" in order to operate under a combination of park and street codes. Parks and park-like spaces will be closed at night, while streets and essential pedestrian access facilities will remain open. An outline has been included in Appendix E of this report that illustrates specific rules and regulations of all Seattle Parks and Recreation properties and the specific enforcement protocols to be followed by SPD, Rangers, and any others designated by Parks. These rules, regulations & protocols provide a useful reference for Waterfront managing entities.

Signage – Rules and Regulation

Signage located throughout the Waterfront could play a role in effectively communicating rules and regulations, whether those are existing laws or rules specific to the waterfront public spaces. Focused implementation of signs clearly stating the rules and regulations will effectively inform the public of what they can and cannot do. Most importantly, clearly posted rules and regulations allow security personnel to effectively enforce. A common issue in urban public space is effectively enforcing park rules, as local police may not be aware of specific enforcement rules and procedures used for enforcement.

6.3 Public Safety Methodology

The following page provides a detailed table of recommended public safety resources for the completed Waterfront. In forming a recommended strategy, a number of assumptions and decisions were made. The below methodology outlines these assumptions to provide a rationale for the proposed recommendations.

Current public safety assumptions include:

- Security staffing recommendations are based upon a high-quality level of safety and security, meaning that proactive security measures will be adequate to manage and maintain safe secure public spaces at all times.
- Baseline security staffing recommendations have been created using Seattle peer parks acreage/ staff ratios as well as Waterfront specific acreage/length and time calculations to ensure staff can adequately cover all areas of the Waterfront on a regular schedule.
- Three 8-hour security shifts are specified for the Waterfront (Day/Swing/Graveyard).
- At least two security officers will be on duty at all times.
- Off-duty SPD patrol (2 person teams) will supplement baseline security teams for an 8 hour shift; Wed.-Sun. during peak season & Sat.-Sun. during off season.
- Two full time Security supervisory officers will supplement (in addition to) baseline security staff at times when most needed (peak times, during events, cover shifts).
- Supplemental security for events is to be provided by off-duty SPD for up to 12 large events with 3 officers for a 6 hour period.
- Safety ambassadors are included as two person teams: year round for an 8 hour shift, 7 days/ week supplemented with a peak season 2 person team for a six month period, 6 hour shift, 7 days/week.
- Hourly rates used for all staffing positions are based upon 2017 Seattle city Employee Salary Union Rate Schedule data (positions and hourly rates) unless otherwise noted.
- All indirect cost rates for baseline security staff and safety ambassadors have been provided by the City of Seattle at a rate of 55%.
- Off-duty police officer hourly rates have been provided by Pike Place Market Security Manager and confirmed by Seattle Art Museum Director of Security. Off-duty SPD rates are flat rate and do not include indirect costs.
- All costs are adjusted from current costs with a 3% annual increase to reflect 2023 costs.

6.3.1 Initial Recommendations - Public Safety Strategy

Waterfront Seattle - Public Safety Strategy	
Management	
Security Council	An in-house council should be formed with members consisting of the Waterfront managing entity, SPD, Friends of the Waterfront, adjacent local businesses such as Pike Place Market, and any other organizations to be invited on a case by case basis. Council meetings should be held on a regular basis (quarterly) to evaluate ongoing issues and implement/adjust initiatives to address changing dynamics. Initial efforts could reduce based on level of need.
Security Coordinator	A part-time Security Coordinator "point person" set in place at the Waterfront to implement and coordinate security initiatives across all applicable organizations. The Coordinator would be a key part of the Security Council and act as link between management and staff, delegating new initiatives and evaluating outcomes. The coordinator would facilitate meetings, create agendas, disseminate information, and provide information and updates to key security staff.
Staffing	
Security Supervision	2 supervisory officers employed on a full time basis to oversee and support security officers and other uniformed staff. Supervisory officers would perform security staff scheduling, equipment and material purchases/repairs/rentals, coordination with partner security resources (Friends Ambassadors, MID teams, off-duty police, etc.), provide special event support, and perform foot patrols when neeeded.
Year Round Security	Year-round security team; 365 days/year: two staff team for three daily shifts (3-8 hours shifts). Security staff should patrol the property on a regular schedule either by foot, bike, or seqway.
Off-Duty SPD Patrol (Peak Season)	Peak Season supplemental security; May-October: two daytime staff team (1-8 hour shift, 5 days/week) to provide support to year-round security team. Off-duty SPD should patrol the property on a regular schedule either by foot, bike, or seqway.
Off-Duty SPD Patrol (Off Season)	Off Season supplemental security; Nov.-April: two daytime staff team (1-8 hour shift, 2 days/week) to provide support to year-round security team. Off-duty SPD should patrol the property on a regular schedule either by foot, bike, or seqway.
Supplemental Event Security (Off-Duty SPD)	Supplemental off-duty SPD staffing to support year-round and seasonal staff during events as needed. Up to 12 large events/year; 3 officers for 6 hours. All supplemental security should be clearly indicated as SPD officers (uniformed).
Safety Ambassadors	A year round 2 person Ambassador team, 7 days/week for an 8 hour shift during daytime hours.
Safety Ambassadors (Peak Season)	A peak season (April-September) 2 person Ambassador team, 7 days/week for an 6 hour shift during daytime hours.
Operations & Maintenance Staff	Dedicated maintenance staff tasked with cleaning, maintaining, and supporting Waterfront operations as additional "eyes and ears".
MID Team Members	MID Clean, Outreach, and Safety Teams working in areas that overlap and abut the Waterfront should coordinate with Waterfront Security and O&M staff to ensure adequate coverage and avoid overlap.
SPR Rangers	Rangers working within the Waterfront area to coordinate with Waterfront Security and MID staff to provide additional "eyes and ears".
Seattle Police Department (SPD)	Seattle Police Department officers to include the Waterfront as part of their regular patrols and provide enforcement of Waterfront rules and regulations. SPR should have direct lines of communication with security staff and have a clear understanding of Waterfront layout and rules & regulations.
Note: all staff should be uniformed, knowledgable of the Waterfront rules and regulations, equipped with personal communication devices, and trained in emergency protocols and First-Aid.	
Security Infrastructure	
CCTV Cameras	For consideration: Focused use of low-profile CCTV cameras in high use areas of the Waterfront such as kiosks. Cameras should be monitored when possible, not just used to address issues after they occur.
Guard Tour System	For consideration: implementation of a guard tour system primarily for use in the evining hours. A strategy of placing a guard tour stop at frequent stops throughout the project area, especially high activity areas where enforcement issues tend to occur.
Perimeter Alarms	For consideration: Perimeter alarms at non-commuter areas to monitor activities during evening hours.

6.3.2 Public Safety Budget

Waterfront Seattle - Public Safety Budget					Comments
Annual Security Expenses	**Qty.**	**Rate**	**Indirect Cost %**	**Total Cost**	
Security Coordinator	2,080	$ 41.98	55%	$135,353	Full-time coordinator
Security Supervision	4,160	$ 39.59	55%	$255,307	Field security supervision - 2 full-time working supervisory officers
Security (Year Round)	17,520	$ 28.60	55%	$776,595	two person teams for three daily shifts (3-8 hours shifts)
Off-duty SPD Patrol (Peak Seson)	2,080	$ 86.14	N/A	$179,169	8Hrs/Day x 2 Officers; 5 Days x week (Wed.-Sun.) May -Oct.
Off-duty SPD Patrol (Off-season)	832	$ 86.14	N/A	$71,668	8Hrs/Day x 2 Officers; 2 Days x week (Sat.-Sun.) Nov. - April.
Off-duty SPD (Event Support)	216	$ 86.14	N/A	$18,606	6Hrs/Event x 3 Officers; 12 large events/year
Safety Ambassadors (Year Round)	5,840	$ 22.36	55%	$202,389	Two person team (8 hour shift, 7 days/week)
Safety Ambassadors (Peak Season)	2,196	$ 22.36	55%	$76,104	April 1 - Sept. 30 - Two person daytime staff team (6 hour shift, 7 days/week)
Equipment and Uniforms				$6,000	Uniform replacement and new hires
Tech support (CCTV, alarms, Etc.)				$15,000	
Security Vehicle Maintenance/Replacement				$10,000	
Subtotal Security Expenses				**$1,746,191**	
Initial Capital Security Expenses		**Qty**	**Cost**	**Total Cost**	
Security Vehicles					
Bike		3	$ 700.00	$2,100	
Segway		2	$ 5,500.00	$11,000	
Gem Vehicle		1	$ 10,000.00	$10,000	With flat bed for use as emerg. response vehicle
Communications - Two-way Radios		14	$ 500.00	$7,000	
Supplies				$20,000	Unifroms,crowd barriers, signage, etc.
Subtotal Capital Security Expenses				**$50,100**	

Initial Capital Construction Security Expenses		Qty	Cost	Total Cost	
Guard Tour system*		1	$ 32,000.00	$32,000	Guard Pen/RFID wall unit system and software, unlimited touch stations
Perimeter Alarm System		3	$ 5,000.00	$15,000	Waterfront Park, Piers 62/63, & Overlook Walk
CCTV Cameras*		12	$ 2,500.00	$30,000	Outdoor low profile dome camera system with recording system and monitor
Subtotal Capital Construction Security Expenses				**$77,000**	

SECTION 7.0

WATERFRONT SEATTLE
BUDGET ANALYSIS

7.1 Maintenance & Personnel Budget Assumptions

The O+M budget is an annual order of magnitude maintenance estimate for the completed Waterfront program area as defined earlier in this document. The budget includes all costs associated with personnel, equipment and materials.

In developing an estimated budget for the Waterfront, ETM has made a number of assumptions that are outlined below. Current assumptions include:

- Hourly rates used for all staffing positions are based upon 2017 Seattle Employee Salary Schedule data (positions and hourly rates) and adjusted with a 3% annual increase through 2023.
- The division of labor between the three pay grades (W-1, W-2, W-3) are defined by skill level required to perform each task. Detailed tables are provided in Appendix B which indicate how tasks are assigned to each worker designation.
- Two (2) full-time working maintenance supervisors are included in the estimate in addition to the estimated total task hours. These staff are primarily responsible for oversight and will supplement the primary maintenance workforce. One supervisor is approximately allocated to oversee ten (10) in-house staff.
- Employee indirect costs are estimated at 75% for all full time staff and part-time staff. These indirect costs are a best estimate at the time of report submission and any rate changes will directly effect on annual staffing costs.
- At least two security officers will be on duty at all times supplemented with Ambassador teams during daytime operating hours.
- Material and supply expenses are included as an in-house expense which includes all necessary materials associated with typical annual maintenance and repair.
- Equipment replacement costs assume the majority of vehicles and equipment will be provided in-house.
- Equipment rental costs assume that not all necessary equipment will be purchased for daily staff use due to the infrequent need for a particular piece of equipment (e.g. scissor lift).
- Equipment fuel and repair costs assume a certain percentage of in-house vehicles/equipment will require ongoing maintenance and regular fueling.
- Plant replacement costs assume a certain percentage of annual loss due to weather, use and plant life cycles.
- Insurance costs are included as an estimate coverage for the Friends of the Waterfront. These costs can be adjusted or removed based on actual needs/agreements as needs are further developed.
- A standard 5% contingency has been applied to the annual budget to account for variables associated with ongoing design changes, undefined O+M facility locations and developing operating model.
- All cost estimates are adjusted from current costs with a 3% annual increase to reflect 2023 costs.

Please note that the above assumptions are used to form a maintenance framework in order to develop estimated budget costs and service delivery.

7.2 Budget Analysis

7.2.1 Annual Operations & Maintenance Expenses

The below table provides estimated annual expenses associated with daily maintenance and operations which includes maintenance, operations and security staffing, material and equipment costs, as well as insurance costs.

Waterfront Seattle - Estimated Annual Maintenance & Operations Budget				Comments
Annual Maintenance Personnel Costs	**Hrs**	**$/hr**	**Total Cost**	
Working Supervisor	3,720	$ 46.66	$173,588	In addition to base task hours. Two FTE equivalent
Maintenance Personnel (Trades Rate; W-3)	3,569	$ 46.76	$166,885	Trades Labor (Lighting and infrastructure maintenance and repair, art cons.)
Maintenance Personnel (Skilled Labor Rate; W-2)	3,621	$ 31.87	$115,396	Skilled labor (furnishing repair, equipment operation, landscape work)
Maintenance Personnel (Semi-Skilled Rate; W-1)	23,946	$ 24.30	$581,857	Semi-skilled labor (Landscape work, cleaning and some maintenance)
Indirect Costs (75%)			$778,295	Current City of Seattle indirect cost of 75%. Includes benefits, health insurance, pensions/retirement (if applicable), and taxes.
Subtotal Maintenance Personnel Costs			**$1,816,021**	
Annual Operations & Maintanance Expenses				
Materials & supplies			$145,000	Small tools, equipment (hoses, paint, etc.), bench slats, lighting, paving, furnishing, trash bags, sand, mulch, etc. (Allowance)
Equipment/Vehicle Replacement			$70,000	Utility vehicles, power washers, trimmers, backpack blowers, small equipment etc. (Allowance)
Equipment rental			$40,000	Rental of trucks, hi-boy, scissor lift, etc. (Allowance)
Equipment/Vehicle Fuel and Repair			$45,000	Parts, repair and fuel (Allowance)
Plant Replacement			$120,000	Perennial, tree and shrub replacement. Includes some contracted tree maintenance. (Allowance)
Utilities			$205,000	Water/Electric for Irrigated landscapes, restrooms, water feature,, and site lighting. (Allowance)
Insurance			$180,000	Liability insurance for entire project area, allowance
Subtotal O+M Expenses			**$805,000**	

Annual Security Expenses	**Qty.**	**$/hr**	**Indirect Cost %**	**Total Cost**	
Security Coordinator	2,080	$ 41.98	55%	$135,353	Full-time coordinator
Security Supervision	4,160	$ 39.59	55%	$255,307	Field security supervision - 2 full-time working supervisory officers
Security (Year Round)	17,520	$ 28.60	55%	$776,595	two person teams for three daily shifts (3-8 hours shifts)
Off-duty SPD Patrol (Peak Seson)	2,080	$ 86.14	N/A	$179,169	8Hrs/Day x 2 Officers; 5 Days x week (Wed.-Sun.) May -Oct.
Off-duty SPD Patrol (Off-season)	832	$ 86.14	N/A	$71,668	8Hrs/Day x 2 Officers; 2 Days x week (Sat.-Sun.) Nov. - April.
Off-duty SPD (Event Support)	216	$ 86.14	N/A	$18,606	6Hrs/Event x 3 Officers; 12 large events/year
Safety Ambassadors (Year Round)	5,840	$ 22.36	55%	$202,389	Two person team (8 hour shift, 7 days/week)
Safety Ambassadors (Peak Season)	2,196	$ 22.36	55%	$76,104	April 1 - Sept. 30 - Two person daytime staff team (6 hour shift, 7 days/week)
Equipment and Uniforms				$6,000	Uniform replacement and new hires
Tech support (CCTV, alarms, Etc.)				$15,000	
Security Vehicle Maint./Rep.				$10,000	
Subtotal Security Expenses				**$1,746,191**	
Annual Maintenance & Operations Costs				**$4,367,212**	
Annual Operations & Maintenance Contingency - 5%				**$218,361**	
Total Annual Maintenance & Operations Costs				**$4,585,572**	

Figure 7.1 Waterfront Seattle Estimated Annual Operations and Maintenance Budget.

7.2.2 Initial Capital Expenses

In addition to annually recurring O+M expenses, initial capital expenses will be required to support operations and maintenance. These initial costs are associated with furnishing equipment, vehicles, general supplies, bulk materials, technology/infrastructure, and attic stock items to support day-to-day operations. However, not all Waterfront O+M management needs and decisions have been defined at this current phase of development. Therefor, general recommendations and estimates of the initial investment have been provided in the following section.

Initial Capital Construction Security Expenses

An initial recommended security program for the Waterfront has been identified which includes recommendations for safety and security infrastructure. The below table outlines security infrastructure components that may need to be purchased or budgeted for during the design and construction phases.

Initial Capital Construction Security Expenses		Qty	Cost	Total Cost	
Guard Tour system*		1	$ 32,000.00	$32,000	Guard Pen/RFID wall unit system and software, unlimited touch stations
Perimeter Alarm System		3	$ 5,000.00	$15,000	Waterfront Park, Piers 62/63, & Overlook Walk
CCTV Cameras*		12	$ 2,500.00	$30,000	Outdoor low profile dome camera system with recording system and monitor
Subtotal Capital Construction Security Expenses				**$77,000**	

Figure 7.2 Waterfront initial capital construction security expenses.

Initial Capital Security Expenses

Initial safety and security staffing support expenses will also be incurred. Whether security is provided by an outside contractor, or provided in-house; security vehicles and equipment will need to be purchased to support safety and security operations. The table below outlines initial security expenses.

Initial Capital Security Expenses		Qty	Cost	Total Cost	
Security Vehicles					
Bike		3	$ 700.00	$2,100	
Segway		2	$ 5,500.00	$11,000	
Gem Vehicle		1	$ 10,000.00	$10,000	With flat bed for use as emerg. response vehicle
Communications - Two-way Radios		14	$ 500.00	$7,000	
Supplies				$20,000	Unifroms,crowd barriers, signage, etc.
Subtotal Capital Security Expenses				**$50,100**	

Figure 7.3 Waterfront initial capital security expenses.

Initial Capital Maintenance Expenses

It is assumed a dedicated in-house staff will need to purchase all new equipment and vehicles before assuming an O+M role. The below list includes all tools and equipment that would likely need to be purchased and permanently stored on-site for daily use by in-house staff. Other infrequently used tools and equipment is assumed to be available from other SPR maintenance facilities for use by Waterfront SPR staff.

Tools, Equipment & Vehicles	Qty.	Cost/Unit	Total Cost
Push Mower: Ego LM2101 Battery Powered	1	$500.00	$500.00
Ryan Lawnaire V Aerator	1	$2,599.00	$2,599.00
Stihl string trimmer FSA 45 Battery Powered	1	$145.00	$145.00
Back pack blower: Ego Power + 600	2	$429.00	$858.00
Stihl backpack sprayer SG 20	2	$119.95	$239.90
Hedge trimmer: EGO Power + 24"	2	$160.00	$320.00
Walk behind broadcast spreader	2	$169.79	$339.58
Snow removal equipment	1	$2,000.00	$2,000.00
Telescoping tree pruner with saw (14')	2	$106.69	$213.38
Stihl Pole Saw Pruner HT 101	1	$599.95	$599.95
Stihl chainsaw	2	$949.95	$1,899.90
Assorted Landscape Hand Tools	1	$1,000.00	$1,000.00
Assorted Hardscape Tools (Power and hand)	1	$2,000.00	$2,000.00
Lighting lumen board replacement tools	2	$300.00	$600.00
Pressure washer: Dewalt Heavy Duty 1500 PSI	2	$549.00	$1,098.00
Pavement Scrubber (ride-on, battery powered)	1	$30,000.00	$30,000.00
Tow behind wet-vac (gas powered)	1	$6,500.00	$6,500.00
Industrial wet vac (15 gallon capacity)	2	$565.00	$1,130.00
Extension chords	4	$50.00	$200.00
Cleaning/janitorial supplies	1	$2,500.00	$2,500.00
Mid-size Pick-up Truck w/dump bed	1	$50,000.00	$50,000.00
Plumbing & Electrical Tools/equipment	1	$6,000.00	$6,000.00
Carpentry Tools	1	$4,000.00	$4,000.00
Misc. tools/equipment	1	$4,000.00	$4,000.00
Ladders - Assorted (step and extension)	1	$500.00	$500.00
Work Tricycle	3	$1,200.00	$3,600.00
Hose cart (200' capacity) + Hoses	2	$255.00	$510.00
Toro Workman GTX-4WD Utility Vehicle (w dump bed)	2	$25,250.00	$50,500.00
Equipment Cost			**$173,852.71**
Sales Tax			**$11,300.43**
Equipment Grand Total			**$185,153.14**

Figure 7.4 Waterfront capital maintenance expenses.

7.2.3 Ongoing Capital Replacement Costs

Capital replacement costs are those costs associated with replacement or repair of site features and amenities such as play equipment, paving and structures due to life-cycle replacement needs or damage. Average annual life-cycle costs for the Waterfront are estimated to be around 2% of total initial construction costs. Most of these costs should, initially, be minimal, as the Waterfront will be newly constructed or covered by warranty or guarantee provisions in construction contracts.

However, there is a chance that a particular replacement cost will not be covered by a guarantee period or warranty, so budgeting some funds for those repairs should be included in any annual operating budget. This capital replacement budget should increase over time as features begin to wear out and need repair or replacement. An annual capital replacement budget of approximately $266,000 has been allocated for the first 5 years following initial construction. This annual cost will naturally increase during the 30 year capital replacement projection provided in the table below.

Annual Capital Replacement Budgets		
Annual Budget - Years 1-5	$266,801	0.3% of total construction cost
Annual Budget - Years 6-10	$754,652	0.75% of total construction cost
Annual Budget - Years 11-20	$2,426,451	2% of total construction cost
Annual Budget - Years 21-30	$6,212,124	4% of total construction cost
Estimated construction costs for all public spaces used to estimate capital replacemenst costs based on Estimated Construction Costs, escalated to midpoint of construction, provided by the Seattle Office of the Waterfront, 2018. All projected costs include an annual inflation.Capital replacement costs for streets are covered under existing City of Seattle budgets and maintenance programs.		
30 Year Total Capital Replacement Reserve Projection		**$91,493,012**
Average Annual Capital Replacement Costs over 30 Years		**$3,049,767.06**

Figure 7.5 Waterfront capital replacement costs.

7.2.4 Waterfront Seattle Budget Analysis Summary

Waterfront Seattle Budget Analysis Summary	
Annual Operations & Maintenance Expenses	**$4,585,572**
Annual O+M Expenses + Average Annual Cap. Rep. Cost (Yrs. 1-5)	**$4,852,373**
Annual O+M Expenses + Average Annual Cap. Rep. Cost (Yrs. 6-10)	**$5,340,225**

Figure 7.6 Waterfront Seattle Budget Analysis Summary.

APPENDICES

APPENDIX A

PROJECT AREA QUANTITIES

Paved Areas			Alaskan Way East	Alaskan Way Median	Alaskan Way West	Promenade	Bike Path	Elliott Way	Lower Union St.	Overlook Walk	Waterfront Park	Railroad Way	Columbia St.	Seneca St.	Wash. St. Boat Land	Marion St. Br.	Pier 62/63	TOTAL
Type	Description	Unit							QTY	QTY	QTY	QTY		QTY	QTY		QTY	QTY
P1	CIP Conc. Paving w aggregate (w &	SF	84,065	1,902	32,922	160,635	5,358	48,873	9,200	26,344	32,164	24,500	10,511	10,973	0	6,572	70,136	573,028
P1	Bike Path Ashpalt Paving (W/Wayfir	SF					40,430	13,298	0	0	0	0		0	0	0	0	67,026
P1 - Asphalt & Conc. Paving Total Quantities		SF	84,065	1,902	32,922	160,635	45,788	62,171	9,200	26,344	32,164	24,500	10,511	10,973	0	6,572	70,136	640,054
P1 - Asphalt & Conc. PavingTotal Unit Quantities		XSF	8.4	0.2	3.3	16.1	4.6	6.2	0.9	2.6	3.2	2.5	1.1	1.1	0.0	0.7	7.0	64.0
P2	Metal Paver, Mortar Set	SF		0		1,645	0	0	0	0	0	1,400	0	0	0	0	0	3,045
P2	Concrete Paver - Mortar Set Type2	SF	1,632	0	64	166	0	0	290	0	0	17,500	0	0	0	0	0	19,652
P2	Hard Trowel Finish	SF	596	0	319	2,777	0	0	0	0	0	0	0	0	0	0	0	3,692
P2	Steel Grating (Piers,Gangway, ped p	SF	1,117	514	1,481	31	0	494	0	0	0	0	136	87	0	0	5,172	
P2	LPS Panels (Light Penetrating Surfa	SF		0		44,968	0	0	0	0	0	0	0	0	0	0	4,505	49,473
P2 - Inlay and Specialty Paving Total Quantities		SF	3,345	514	1,864	49,587	0	494	290	0	0	18,900	136	87	0	0	9,677	85,388
P2 - Inlay and Specialty Paving Total Unit Quant		MSF	3.3	0.5	1.9	49.6	0.0	0.5	0.3	0.0	0.0	18.9	0.1	0.1	0.0	0.0	9.7	85.4
P3	Concrete Paver, Sand Set - Type 1B	SF	0	455	1,993	666	0	7,252	0	0	0	39,000	0	0	0	0	0	56,618
P3	Concrete Pavers on Pedestal	SF	0	0	0	0	0	0	1,540	0	0	0	0	0	0	0	0	1,540
P3	Bonded Pebble Mulch	SF	0	0	0	0	0	0	0	0	0	1,410	0	0	0	0	0	1,410
P3 - Dry-Laid Paving Total Quantities		SF	0	455	1,993	666	0	7,252	1,540	0	0	40,410	0	0	0	0	0	59,568
P3 - Dry-Laid Paving Total Unit Quantities (1,000		MSF	0.0	0.5	2.0	0.7	0.0	7.3	1.5	0.0	0.0	40.4	0.0	0.0	0.0	0.0	0.0	59.6
P4	Boardwalk - Type 1A (Elevated)	SF	0	0	0	3,608	0	0	0	0	0	0	0	0	1,300	0	3,007	7,915
P4	Boardwalk - Type 1B (Ramp)	SF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P4	Boardwalk - Type 2 (At-grade)	SF	0	0	0	352	0	0	0	5,055	0	0	0	0	0	0	0	5,407
P4 - Boardwalk Total Quantities		SF	0	0	0	3,960	0	0	0	5,055	0	0	0	0	1,300	0	3,007	13,322
P4 - Boardwalk Total Unit Quantities (1,000 SF)		MSF	0.0	0.0	0.0	4.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	1.3	0.0	3.0	13.3

Planting			Alaskan Way East	Alaskan Way Median	Alaskan Way West	Promenade	Bike Path	Elliott Way	Lower Union St.	Overlook Walk	Waterfront Park	Railroad Way	Columbia St.	Seneca St.	Wash. St. Boat Land	Marion St. Br.	Pier 62/63	TOTAL
Type	Description	Unit	QTY	QTY	QTY	QTY			QTY	QTY	QTY	QTY		QTY	QTY		QTY	QTY
PL-TL	Trees (Large)	Ea	113	63	102	90	0	124	0	52	9	65	7	8	0	0	0	757
PL-TS	Trees (Small)	Ea	2	0		143	0	6	0	0	0	0		3	0	0	0	160
PL1-TreeTotal Quantities		Ea	115	63	102	233	0	130	0	52	9	65	7	11	0	0	0	917
PL1-Tree Total Unit Quantities (20 Trees)		20X	5.8	3.2	5.1	11.7	0.0	6.5	0.0	2.6	0.5	3.3	0.4	0.6	0.0	0.0	0.0	39.4
PL-S	Shrub - Alaskan/Ell/Prom		442	121	327	1,479	0	412	0	0	0	0	0	0	0	0	0	
PL-S	Shrub - Other Project Areas		0	0	0	0	0	0	5	305	18	0	0	0	0	0	0	
PL2-Shrub Total Quantities		Ea	442	121	327	1,479	0	412	5	305	18	0	0	0	0	0	0	3,521
PL2-Shrub Total Unit Quantities (20 Shrubs)		20X	22.1	6.1	16.4	74.0	0.0	20.6	0.3	15.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	176.1
Mix. Var.	Calculated planting beds and tı	SF	8,742.0	3,753.0	5,251.0	38,663.0	0.0	12,504	1,050.0	7,701.0	1,771.0	2,260.0	0.0	633.0	0.0	0.0	0.0	
PL3 - Perennial Mixed Shrub Planting Area Total (		SF	8,742	3,753	5,251	38,663	0	12,504	1,050	7,701	1,771	2,260	0	633	0	0	0	94,832
PL3 - Perennial Planting Area Total Unit Quant		MSF	8.7	3.8	5.3	38.7	0.0	12.5	1.1	7.7	1.8	2.3	0.0	0.6	0.0	0.0	0.0	94.8
Mix. Var.	Calculated planting beds and tı	SF	11,179	21,835	11,972	12,857	0	18,403	0	0	0	0	0	315	0	0	0	
PL4-Groundcover/ Shrub Planting Total Quantitie		SF	11,179	21,835	11,972	12,857	0	18,403	0	0	0	0	0	315	0	0	0	94,964
PL4-Groundcover/ Shrub Planting Total Unit Q		MSF	11.2	21.8	12.0	12.9	0.0	18.4	0.0	0.0	0.0	0.0		0.3	0.0	0.0	0.0	95.0
mix 62	Calculated vine areas		0	0	0	0	0	0	0	0	0	62	0	0	0	0	0	
PL5-Vine Planting Total Quantities		LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	62.0		0.0	0.0	0.0	0.0	62.0
PL5-Vine Planting Total Unit Quantities (100 LF		CLF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6		0.0	0.0	0.0	0.0	0.6
PL-HB	Habitat Beach area	SF	0	0	0	25,000	0	0	0	0	0	0	0	0	0	0	0	25,000
PL6-Habitat Beach Total Quantities		SF	0.0	0.0	0.0	25,000.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	25,000.0
PL6-Habitat Beach Total Unit Quantities (EA, A		EA	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	1.0
PL-B	Bioretention Cells	SF	1,239	0	330	0	0	0	0	0	0	0	0	0	0	0	0	1,569
PL7-Bioretention Cell Total Quantities		SF	1,239.0	0.0	330.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,569.0
PL7-Bioretention Cell Total Unit Quantities (Ea		CSF	12.4	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.7
PL-L	Lawn Areas	SF	0	0	0	0	0	0	0		5,072	1,655	0	0	0	0	0	6,727
PL8-Lawn Area Total Quantities		SF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5,072.0	1,655.0	0.0	0.0	0.0	0.0	0.0	6,727.0
PL8-Lawn Area Total Unit Quantities (MSF)		MSF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	1.7	0.0	0.0	0.0	0.0	0.0	6.7

Furnishing & Site Amenities			Alaskan Way East	Alaskan Way Median	Alaskan Way West	Promenade	Bike Path	Elliott Way	Lower Union St.	Overlook Walk	Waterfront Park	Railroad Way	Columbia St.	Seneca St.	Wash. St. Boat Land	Marion St. Br.	Pier 62/63	TOTAL
Type	Description	Unit							QTY	QTY	QTY	QTY	QTY	QTY	QTY		QTY	QTY
F 1	Bench - Type 1A *	Ea	3	0	0	46	0	0	11	0	65	0	0	0	6	0	18	149
F 1	Bench - Type 1B *	Ea	0	0	0	14	0	0	0	0	10	0	0	0	0	0	0	24
	Bench - Type 1C		2	0	7	21	0	0	0	0	0	0	0	4	0	0	0	
F 1	Bench - Type 2 *	Ea	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
F 1	Bench - Type 3 *	Ea	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
F 1	Bench - Type 4 (also Wfront Prk Ber	Ea	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
F 1	Bench - Type 5 *	Ea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 1	Bench - Type 1 (Overlook Walk) *	Ea	0	0	0	0	0	0	0	31	0	0	0	0	0	0	0	31
F 1	Bench - Type 2 (Overlook Walk) *	Ea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 1	Precast Concrete Seating at Overlo	Ea	0	0	0	0	0	0	0	55	63	0	0	0	0	0	0	118
F 1	Concrete Stairs (precast or metal) *	Ea	0	0	0	0	0	0	0	152	10	0	0	0	0	20	0	182
F 1	Picnic Table	Ea	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
F 1	Bench - Type 3 (Waterfont Park Cha	Ea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 1	Swings	Ea	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
F 1	Drinking Fountain	Ea	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6
F 1	Stone Block Seats or Stacked Slabs	Ea	0	0	0	0	0	0	0	55	0	0	0	0	0	0	0	55
F 1	Bike Rack *	Ea	0	0	0	41	0	0	0	0	0	0	0	0	0	0	0	41
F 1	Boulders *	Ea	0	0	0	38	0	0	0	0	13	0	0	0	0	0	0	51
F 1	Bollards *	Ea	17	18	39	36	0	0	0	0	0	0	0	0	0	0	0	110
F1 - Furnishing Total Quantities		Ea	15	12	30	139	0	0	11	293	161	0	0	4	9	20	18	713
F1 -Furnishing Total Unit Quantities (10 Furn. It		10x	1.5	1.2	3.0	13.9	0.0	0.0	1.1	29.3	16.1	0.0	0.0	0.4	0.9	2.0	1.8	71.3
F 2	Moveable Chair - Type 1	Ea	0	0	0	45	0	0	0	22	0	0	0	0	0	0	24	91
F 2	Moveable Chair - Type 2	Ea	0	0	0	15	0	0	0	0	0	0	0	0	0	0	18	33
F 2	Moveable Chair - Type 3	Ea	0	0	0	15	0	0	0	0	0	0	0	0	0	0	48	63
F 2	Moveable Table	Ea	0	0	0	15	0	0	0	11	0	0	0	0	0	0	12	38
F 2	Bar seating	Ea	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	21
F2 - Moveable Furn. Total Quantities		Ea	0	0	0	90	0	0	0	54	0	0	0	0	0	0	102	246
F1 -Moveable Furn. Total Unit Quantities (10 Fu		10x	0.0	0.0	0.0	9.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	10.2	24.6
F3	Trash/Recycling	Ea	0	0	0	14	0	0	1	2	1	2	0	1	1	0	10	32
F3 - Trash/Recycling Total Unit Quantities (Eac		Ea	0.0	0.0	0.0	14.0	0.0	0.0	1.0	2.0	1.0	2.0	0.0	1.0	1.0	0.0	10.0	32.0
F 4	Railing - Type 1	LF	0	0	0	764	0	0	104	0	346	0	0	0	95	1,310	1,193	3,812
F 4	Railing - Type 2	LF	0	0	0	0	0	149	0	0	0	0	0	0	0	0	200	498
F 4	Railing - Type 3	LF	216	0	0	0	0	1,242	0	0	0	0	0	0	0	0	0	2,700
F 4	Railing - Type 4	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 4	Railing - Type 5	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 4	Railing - PPMG	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 4	Historic Balustrade	LF	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	150
F 4	Port of Seattle Fence	LF	0	0	0	272	0	0	0	0	0	0	0	0	0	0	0	
F 4	Screen (Market Place Garage + Oth	LF	0	0	0	0	0	562	0	0	0	0	0	0	0	0	0	1,124
F 4	Standoff Glass Rail	LF	0	0	0	0	0	0	0	1250	0	0	0	0	0	0	0	1,250
F 4	Glass Rail with bar top	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 4	Throw Fence (6' glass in frame)	LF	0	0	0	0	0	312	0	0	0	0	0	0	0	0	0	624
F 4	Stair Handrail	LF	30	0	0	266	0	0	115	700	122	0	0	0	0	150	0	1,383
F4 - Railing, Fencing, & Screens Total Quantities		LF	246	0	0	1,452	0	2,265	219	1,950	468	0	0	0	95	1,460	1,393	11,813
F4 -Railing, Fencing, & Screens Total Unit Quar		50 LF	4.9	0.0	0.0	29.0	0.0	45.3	4.4	39.0	9.4	0.0	0.0	0.0	1.9	29.2	27.9	236.3
F 5	Planter Wall - Type 1 (3.5' total, 6" e	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 5	Planter Wall - Type 2 (4.5' total, 18"	LF	0	0	0	0	0	0	0	0	209	0	0	0	0	0	0	209
F 5	Planter Wall - Type 3 (5' total, 24" ex	LF	0	0	0	0	0	0	0	2656	0	0	0	0	0	0	0	2,656
F 5	Planter Wall - Type 4 (6' total, 36" ex	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 5	Planter Wall - Type 5 (2.5' total, 6" e	LF	0	0	4,066	8,164	0	0	0	2251	0	0	0	0	0	0	0	14,481
F 5	Planter Wall - Type 6 (3' total, fully e	LF	0	0	0	0	0	0	0	0	259	0	0	0	0	0	0	259
F 5	Planter Wall - Type 7 (1' total, 6" exp	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 5	Planter Wall - Type 8 (1' total, 6" exp	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F 5	Planter Wall - Type 9 (1' total, 9" exp	LF	0	0	0	0	0	0	246	0	0	0	0	0	0	0	0	246
F 5	Concrete Wall (Retaining or Lean W	LF	577	0	0	0	0	229	0	0	0	0	0	160	0	444	0	1,639
F 5	Tree Pit Guards	LF	3,135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,135
F5 - Planter Wall Total Quantities		LF	3,712	0	4,066	8,164	0	229	246	4,907	468	0	0	160	0	444	0	22,625
F5 -Planter Wall Total Unit Quantities (100 LF)		CLF	37.1	0.0	40.7	81.6	0.0	2.3	2.5	49.1	4.7	0.0	0.0	1.6	0.0	4.4	0.0	226.3
F 6	Wayfinding Stack	Ea	1	0	1	12	0	4	1	2	1	0	1	0	1	0	1	29
F 6	Wayfinding Post - Type 1	Ea	0	0	4	27	0	8	2	1	1	0	1	1	1	1	1	56
F 6	Wayfinding Panel at Railing - Type 1	Ea	0	0	0	36	0	0	0	4	0	0	0	0	0	1	6	47
F 6	Wayfinding Cable Marker at Railing	Ea	0	0	0	6	0	0	0	0	1	0	0	0	0	0	0	7
F 6	Wayfinding Panel at Bench - Type 1	Ea	0	0	0	20	0	0	3	0	0	0	0	0	0	0	0	23
F 6	Wayfinding Panel at Bench - Type 2	Ea	0	0	0	20	0	0	0	2	2	0	0	0	0	0	2	26
F 6	Wayfinding Panel at Bench - Type 4	Ea	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	20
F 6	Wayfinding standalone Tide Elemer	Ea	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
F 6	Wayfinding Treatment on Alaskan V	Ea	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
F6 - Wayfinding & Signage Total Quantities		Ea	2	0	4	107	0	9	6	9	5	0	2	1	2	2	10	167
F6 -Wayfinding & Signage Total Unit Quantitie		10x	0.2	0.0	0.4	10.7	0.0	0.9	0.6	0.9	0.5	0.0	0.2	0.1	0.2	0.2	1.0	16.7
F 7	Artwork & Sculpture		0	0	0	29	0	0	1	0	0	0	0	0	0	0	1	31
F7 -Artwork & Sculpture Total Unit Quantities (		Ea	0	0	0	29	0	0	1	0	0	0	0	0	0	0	1	31

Play Areas			Alaskan Way East	Alaskan Way Median	Alaskan Way West	Promenade	Bike Path	Elliott Way	Lower Union St.	Overlook Walk	Waterfront Park	Railroad Way	Columbia St.	Seneca St.	Wash. St. Boat Land	Marion St. Br.	Pier 62/63	TOTAL
Type	Description	Unit							QTY	QTY	QTY	QTY	QTY	QTY	QTY		QTY	QTY
PA-1	Sand Surfacing	SF	0	0	0	0	0	0	0	0	3,960	0	0	0	0	0	0	3,960
PA1 Sand Play Areas Total Quantities		SF	0	0	0	0	0	0	0	0	3,960	0	0	0	0	0	0	3,960
PA1 Sand Play Areas Total Unit Quantities (100		CSF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.6	0.0	0.0	0.0	0.0	0.0	0.0	39.6
PA-2	Poured Rubber Surfacing	SF	0	0	0	0	0	0	0	0	155	0	0	0	0	0	0	155
PA1 Rubber Surface Play Areas Total Quantities		SF	0	0	0	0	0	0	0	0	155	0	0	0	0	0	0	155
PA1 Rubber Surface Play AreasTotal Unit Quan		CSF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6

Infrastructure			Alaskan Way East	Alaskan Way Median	Alaskan Way West	Promenade	Bike Path	Elliott Way	Lower Union St.	Overlook Walk	Waterfront Park	Railroad Way	Columbia St.	Seneca St.	Wash. St. Boat Land	Marion St. Br.	Pier 62/63	TOTAL
Type	Description	Unit							QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
I1	Irrigated planting areas	SF	19,921	25,588	17,223	51,520	0	30,907	1,050	7,701	6,843	3,915	0	948	0	0	0	196,523
I1 Irrigation Total Quantities		SF	19,921	25,588	17,223	51,520	0	30,907	1,050	7,701	6,843	3,915	0	948	0	0	0	196,523
I1 Irrigation Total Unit Quantities (1,000 SF)		MSF	19.9	25.6	17.2	51.5	0.0	30.9	1.1	7.7	6.8	3.9	0.0	0.9	0.0	0.0	0.0	196.5
I2	Water Feature	SF	0	0	0	1,000	0	0	0	0	12,000	0	0	0	0	0	0	13,000
I2 Water Feature Total Unit Quantities (1,000 S		MSF	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0
I3	Paved/Planted areas with drainage	SF	107,331	28,459	54,002	266,368	45,788	92,475	12,080	34,045	39,007	87,725	0	12,008	1,300	6,572	82,820	962,455
I3 Site Drainage Total Quantities		SF	107,331	28,459	54,002	266,368	45,788	92,475	12,080	34,045	39,007	87,725	0	12,008	1,300	6,572	82,820	962,455
I3 Site Drainage Total Unit Quantities (10,000 S		SF	10.7	2.8	5.4	26.6	4.6	9.2	1.2	3.4	3.9	8.8	0.0	1.20	0.13	0.66	8.28	96
I4	Storm Filter Catch Basins (Cartridge	Ea	21	0	21	0	0	0	0	0	0	0	2	1	0	0	0	45
I4 Storm Filter Catch Basin Total Unit Quantitie		10x	21.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	0.0	0.0	0.0	45.0
I5	Pole Lighting (# of Luminaires)	Ea	0	0	0	55	0	0	0	4	0	22	0	0	0	0	0	81
I5 Pole Lighting Total Quantities		Ea	0	0	0	55	0	0	0	4	0	22	0	0	0	0	0	81
I65Pole Lighting Total Unit Quantities (10 Lum		10x	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.4	0.0	2.2	0.0	0.0	0.0	0.0	0.0	8
I6	LED Linear Wall Mounted Luminair	Ea	0	0	0	364	0	0	13	0	0	0	0	0	7	0	21	405
I6	Pedestrian Light	Ea	0	0	27	374	34	34	12	129	54	8	0	0	0	0	100	806
I6	LED Strip Lighting (Railing, Bench, I	Ea	0	0	0	0	0	0	14	85	28	14	0	0	0	111	46	298
I6 Pedestrian Lighting Total Quantities		Ea	0	0	27	738	34	34	39	214	82	22	0	0	7	111	167	1,509
I6 Pedestrian Lighting Total Unit Quantities (1		10x	0.0	0.0	2.7	73.8	3.4	3.4	3.9	21.4	8.2	2.2	0.0	0.0	0.7	11.1	16.7	150.9

Structures/Building Space			Alaskan Way East	Alaskan Way Median	Alaskan Way West	Promenade	Bike Path	Elliott Way	Lower Union St.	Overlook Walk	Waterfront Park	Railroad Way	Columbia St.	Seneca St.	Wash. St. Boat Land	Marion St. Br.	Pier 62/63	TOTAL
Type	Description	Unit							QTY	QTY	QTY	QTY	QTY	QTY	QTY		QTY	QTY
S1	Kiosks	Ea	0	0	0	4	0	0	0	0	0	0	0	0	1	0	0	5
S1 Kiosk Total Unit Quantities (Each)		Ea	0	0	0	4	0		0	0	0	0	0	0	1	0	0	5.0
S2	Maintenance Facility	Ea	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
S2 Maintenance Facility Total Unit Quantities (		Ea	0	0	0	0	0		0	1	0	0	0	0	0	0	0	1.0
S3	Restrooms	Ea	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	3
S3 Restrooms Total Unit Quantities (Each)		Ea	0	0	0	2	0		0	0	0	0	0	0	1	0	0	3.0
S4	Restrooms (Full-time Attended)	Ea	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
S4 Restrooms FTA Total Unit Quantities (Each)		Ea	0	0	0	0	0		0	1	0	0	0	0	0	0	0	1.0
S5	Elevators	Ea	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3
S5 Elevators Total Unit Quantities (Each)		Ea	0	0	0	0	0		1	2	0	0	0	0	0	0	0	3.0

APPENDIX B

LANDSCAPE TYPE TASK HOUR TABLES

Below is a summary of the methodology behind determining the necessary task hours to annually maintain one unit of each Landscape Type. The task hour charts include the following terms and abbreviations:

- TASK – The specific maintenance task
- QTY – The estimated quantity over which a task is performed (Many of the tasks are estimated as a percentage of the total quantity.)
- UNIT - A unit is a commonly accepted unit of measurement for each landscape type and its associated tasks. The unit abbreviations used throughout this project include:
  - -X̄SF - 10,000 Square Feet
  - -MSF - 1,000 Square Feet
  - -CSF - 100 Square Feet
  - -CLF - 100 Linear Feet
  - -XSF - 10 Square Feet
  - -XLF - 10 LF
  - -Each or EA -1 of a particular item
  - -Allow – Allowance of time for a particular task
- UNIT (MIN) – Time standard necessary to complete 1 UNIT of a task in minutes (These time standards are based on the "Park Maintenance Standards" published by the National Recreation and Park Association (NRPA) and adjusted for the individual project's location and management goals.)
- ONCE (MIN) – The quantity of the task multiplied by the time standard and shown in minutes
- ONCE (HOURS) – The time in minutes divided by 60 and converted into hours
- ANNUAL FREQUENCY – Number of times the task is performed annually (These frequencies reflect assumed maintenance levels based on the project location and design intent outlined in the JCFO "Basis of Design" document.)
- TOTAL HOURS – The annual frequency multiplied by the time in hours for performing the task once

QTY X UNIT = ONCE (MIN) / ONCE (HOURS) X ANNUAL FREQUENCY = TOTAL HOURS/UNIT/YEAR

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	W-1	W-2	W-3
Paved Areas - HOURS/Unit											
P1 - Asphalt & Concrete Paving							**57**	**Annual hours/10,000 SF**	**46**	**3**	**8**
Clean paved surface	2	msf	5	10	0	52	9	20% of area ; with backpack blower	9		
Surface Washing & Scrubbing	1	msf	70	70	1	20	23	20% of area; clean stained/dirty areas with pavement scrubbers, vacuum/power washers to retain and dispose of dirty water 2x/month during peak season; 1x/week in off season and as needed for localized cleaning and post events.	23		
Paving repair	1	csf	240	240	4	2	8	1% of area - repair pavement marking, cracks, spalling, settling, etc.			8
Graffiti removal		allow					5	Includes both gum and graffiti removal	5		
Remove litter	0.5	msf	3	2	0	365	9	5% of area; 7x per week	9		
Snow and ice management	10	msf	20	200	3	1	3	100% of an area - Includes snow removal, sand/salt spreading, etc. with vehicle and hand equipment		3	
P2 - Inlay and Specialty Paving							**31**	**Annual hours/1,000 SF**	**19**	**0.5**	**12.0**
Clean paved surface	3	csf	2	6	0	52	5	30% of area ; with backpack blower	5		
Scrubbing and washing	5	csf	5	25	0	20	8	50% of area, clean stained/dirty areas with pavement scrubbers, vacuum/power washers/medium bristle broom to retain and dispose of dirty water	8		
Repair/reset paving	1.0	xsf	240	240	4	3	12	1% of area, repair/reset loose or damaged paving elements			12.0
Graffiti removal		allow					2	Includes both gum and graffiti removal	2.0		
Remove litter	0.5	csf	1	1	0	365	3	5% of area; 7x per week	3		
Snow and ice management	1	msf	30	30	1	1	1	100% of an area - Includes snow removal, sand/salt spreading, etc. with hand equipment only		0.5	
P3 - Dry-Laid Paving							**18**	**Annual hours/1,000 SF**	**14**	**4**	**0**
Clean paved surface	3	csf	1	3	0	52	3	30% of area ; with backpack blower	2.6		
Scrubbing and washing	5	csf	5	25	0	12	5	50% of area, clean stained/dirty areas with pavement scrubbers, vacuum/power washers/medium bristle broom to retain and dispose of dirty water	5		
Reset paving	1.0	xsf	200	200	3	1	3	1% of area, repair/reset loose or damaged inlay paving		3.3	
Graffiti removal		allow					1	Includes both gum and graffiti removal	1		
Weeding	2	xsf	5	10	0	16	3	2% of area; pulling by hand or herbicide applicator	2.7		
Remove litter	0.5	csf	1	1	0	365	3	5% of area; 7x per week	3		
Snow and ice management	1	msf	30	30	1	1	1	100% of an area - Includes snow removal, sand/salt spreading, etc. with hand equipment only		0.5	
P4 - Boardwalk							**20**	**Annual hours/1,000 SF**	**12**	**8**	**0**
Scrubbing and washing	5	csf	3	15	0	20	5	50% of area; scrub with hose and medium bristle broom or power wash, retain dirty water with wet-vac	5		
Boardwalk maintenance	1	xsf	220	220	4	2	7	1% of area, includesr inspection, deck board/structural repairs and board replacement due to vandalism		7.3	
Remove litter	0.5	csf	1	1	0	365	3	5% of area; 7x per week	3		
Clean boardwalk surface	5	csf	1	5	0	52	4	50% of area ; with backpack blower or broom; 2x/week to clear debris and loose materials from decking	4.3		
Snow and ice management	1	msf	30	30	1	1	1	100% of an area - Includes snow removal, sand/salt spreading, etc. with hand equipment only		0.5	

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	W-1	W-2	W-3
Planting - HOURS/Unit											
PL1 - Trees							12	**Annual hours/20 Trees**	6	6	0
Tree pruning	5	each	30	150	3	1	3	25% of total trees: Prune by hand w/ extension pole pruners & bucket truck for some		2.5	
Tree fertilizer application	5	each	10	50	1	1	1	25% of total trees, 1 application spring	0.8		
Horticultural pest control	2	each	30	60	1	2	2	10% of total trees		2	
Tree replacement	1	each	90	90	2	1	2	1 in 20 trees/year		1.5	
Composting/chipping of landscape debris		allow					5	Collect and deposit compostable materials for off-site composting	5		
PL2 - Shrubs							8	**Annual hours/20 Shrubs**	7	1	0
Pruning	10	each	15	150	3	2	5	50% of total shrubs: Prune by hand	5		
Shrub replacement	2	each	30	60	1	1	1	2 in 20 Shrubs/year		1	
Composting/chipping of landscape debris		allow					2	Collect and deposit compostable materials for off-site composting	2		
PL3 - Perennial Planting Areas							23	**Annual hours/1,000 SF**	22	1	0
Weed control	1	csf	5	5	0	20	2	10% of area; By hand, monthly and more often during growing season	2		
Seasonal cleanup and prep	5	csf	20	100	2	2	3	50% of area; Spring/Fall, removal, cut back, bed prep, material collection and removal for off-site composting	3		
Pruning and trimming	2	csf	10	20	0	17	6	20% of area; weekly during growing season	6		
Top dress soil and/or mulch	5	csf	5	25	0	2	1	50% of area	0.8		
Fertilizer application	10	csf	2	20	0	2	1	100% of area	1		
Annual soils test evaluation		allow					1			1.0	
Horticultural pest control	2	csf	6	12	0	5	1	20% of area; Monit/control - Rodents, birds, etc.	1		
Plant replacement	20	sf	10	200	3	2	7	2% of area	7		
Remove litter	1	csf	2	2	0	78	3	10% of area; 2x/week during peak season; 1x per week in off season	3		
PL4 - Groundcover/Shrub Planting Areas							15	**Annual hours/1,000 SF**	14	1	0
Weed control	1	csf	5	5	0	10	1	10% of area; By hand, monthly during growing season	0.8		
Seasonal cleanup and prep	5	csf	20	100	2	2	3	50% of area; Spring/Fall, removal, cut back, bed prep, material collection and removal for off-site composting	3		
Pruning and trimming	2	csf	10	20	0	6	2	20% of area; Monthly during growing season	2		
Top dress soil and/or mulch	5	csf	5	25	0	2	1	50% of area	0.8		
Fertilizer application	10	csf	2	15	0	2	1	100% of area	0.5		
Annual soils test evaluation		allow					1			1.0	
Horticultural pest control	2	csf	6	12	0	4	1	20% of area; Monitor/control - Rodents, birds, etc.	1		
Plant replacement	20	sf	10	200	3	1	3	2% of area	3		
Remove litter	1	csf	2	2	0	78	3	10% of area; 2x/week during peak season; 1x per week in off season	3		
PL5 - Vine Planting along Screen							10	**Annual hours/100 LF**	2	8	0
Seasonal cleanup and cut-back	5	xlf	30	150	3	2	5	50% of area; Spring/Fall. Seasonal cut back w/boom truck & cleanup, mulching & bed prep, fertilizer application		5	
Pruning and trimming	2	xlf	20	40	1	4	3	20% of area; during growing season w boom truck to control growth		3	
Horticultural pest control		allow					1	20% of area; Monitor/control - Rodents, birds, etc.	1		
Plant replacement		allow					1		1		
PL6 - Habitat Beach							143	**Annual hours/LS (25,000 SF Beach Area)**	141.6	1.0	0
Invasive species control	2.5	msf	45	113	2	10	19	10% of entire beach area; By hand, monthly during growing season	19		
Tree care		allow					2		2		
Beach planting care	1	msf	90	90	2	6	9	20% of 5m SF planting area; Monthly during growing season	9		
Beach material management and replenishing -minor	1.5	msf	660	990	17	4	66	10% of 15m SF sand, gravel, loose substrate, Boulders, and armor rock areas	66		
Annual soils test evaluation		allow					1			1.0	
Horticultural pest control	2	msf	40	80	1	4	5	20% of entire beach; Monit/control - Rodents, birds, etc.	5		
Plant replacement	1	csf	400	400	7	2	13	2% of 5m SF planting area	13		
Hand watering		allow					15	As needed for all trees and planting areas	15		
Remove litter (wind blown + water edge)	1	csf	7	7	0	104	12	10% of entire beach area primarily along water edge; 2x per week	12		
PL7 - Bio retention Cells							13	**Annual hours/ 100 SF**	8	5	0
Seasonal cleanup and prep	5	xsf	15	75	1	2	3	50% of area; Spring/Fall, cut back, plant replacement		3	
Trimming	2	xsf	4	9	0	14	2	20% of area; bi-weekly during growing season	2		
Remove/replace mulch layer	10	xsf	10	100	2	1	2	1x/year; Entire area; coordinate with seasonal cleanup		1.7	
Cell inspection		allow					1	4x/year; Evaluate drainage, soil quality, siltation levels		1	
Clear pre-settling tank	1	each	20	20	0	12	4	Monthly; Remove silt and debris from basin	4		
Remove litter		allow					2	1x per week, surface litter	2		
PL8 - Lawn							19	**Annual hours/1,000SF**	17	2	0
Mow/trim	1	msf	10	10	0	36	6	100% of area, walk-behind mower and string trimmer	6		
Seasonal turf renovation	1	msf	90	90	2	2	3	100% of area, thatch, aerate, seed	3		
Top dress soil	5	csf	10	50	1	2	2	50% of area	2		
Turf fertilizer/weed preventer app.	1	msf	10	10	0	5	1	100% of area; fertilizer and pre-emergent applications	1		
Annual soils test evaluation		allow					2	Done prior to fertilization		2	
Horticultural pest control	2	csf	5	10	0	8	1	20% of area; Monitor/control Grubs/Moles/Voles/rodents	1		
Temporary fence	2	clf	20	40	1	4	3	Install/maintain temporary fencing, assume 320 lf	3		
Remove litter	1	csf	1	1	0	76	1	10% of area, 1x/week and 2x/week during busy season,	1		

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	W-1	W-2	W-3
Furnishing & Site Amenities - HOURS/Unit											
F1 - Furnishing							19	**Annual hours/Ten Furnishing Items**	17	2	0
Clean & inspect site furnishing	2	each	12	24	0	34	14	20% Weekly April - Nov. includes all seating types and standalone site elements. See Project quantities for a complete list.	14		
Graffiti removal		Allow					3	As needed	3		
Repair & maintenance	1	each	120	120	2	1	2	10% of all site furniture, includes material repair/replacement, tightening mechanical connections, vandalism repair, repair, etc.		2	
F2 - Moveable Furnishing							48	**Annual hours/Ten Furnishing Items**	47	1	0
Clean & inspect site furnishing	2	each	4	8	0	34	5	20% Weekly April - Nov.	5		
Graffiti removal		Allow					3	As needed	3		
Maintenance	1	each	20	20	0	2	1	10% of all site furniture, Touch-up of painted surfaces		1	
Secure furnishing	10	each	1	10	0	238	40	All site furnishing, Daily April-Nov.	40		
F3 - Trash & Recycling							55	**Annual hours/ T&R Station**	55	0	0
Empty T/R station - Peak	1	each	5	5	0	384	32	Average 16x/week for 24 weeks	32		
Empty T/R station - Shoulder	1	each	5	5	0	108	9	Average 9x/week for 12 weeks	9		
Empty T/R station - Off-season	1	each	5	5	0	112	9	Average 7x/Week for 16 weeks	9		
Clean T/R station	1	each	10	10	0	24	4	2x/Month	4		
Rodent and pest control		Allow					1	As needed	1		
F4 - Railing, Fencing & Screens							6	**Annual hours/ 50 LF**	5	0	1
Clean & inspect	10	lf	1	5	0	52	4	20%, Weekly; Includes wood, glass and Metal surfaces	4		
Repair & maintenance	1	lf	45	45	1	1	1	2% of all surfaces; Wood, metal, and glass repair; includes paint touch-up			1
Graffiti removal		allow					1	As needed	1		
F5 - Planter Walls & Tree Pit Guards							9	**Annual hours/ 100 LF**	6	0	3
Clean & inspect	10	lf	1	10	0	26	4	10%, bi-weekly;	4		
Repair & maintenance		allow					3	Repair metal or concrete as needed from use and impacts			3
Graffiti removal		allow					2	As needed	2.0		
F6 - Signage & Wayfinding							37	**Annual hours/10 Signage Elements**	36	1	0
Clean & inspect	10	each	6	60	1	34	34	All signage elements; Weekly April - Nov.	34		
Repair & maintenance	1	each	60	60	1	1	1	Includes tightening connections, re-painting, repair and replacement as needed		1	
Graffiti removal		allow					2	As needed	2		
F7 - Artwork & Sculpture							16	**Annual hours/Art Piece**	0	11	5
Clean & inspect	1	each	45	45	1	12	9	Monthly		9	
Conservation	1	each	300	300	5	1	5	1x/year. Deep cleaning, waxing, re-coating, etc.			5
Graffiti removal		allow					2	As needed		2	

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	W-1	W-2	W-3
Play Areas - HOURS/Unit											
PA1 - Sand Play Area							28	**Annual hours/100 SF**	24	4	0
Sand leveling & cleaning	1	csf	4	4	0	260	17	Entire sand area; 5x/week. Includes inspection, raking and leveling of sand, litter removal, cleaning up after spills and accidents	17		
Sand replacement		Allow					4	Complete sand replacement; performed 1x/year	4		
Play equipment cleaning		Allow					3	3x/week	3		
Play equipment Repair		Allow					4	As needed		4	
PA2 - Rubber Surface Play Area							31	**Annual hours/100 SF**	20	11	0
Safety surface cleaning	1	csf	4	4	0	260	17	Entire area; 5x/week. Includes inspection, litter removal, cleaning up after spills, accidents, bird droppings	17		
Safety surface repair	5	sf	40	200	3	2	7	5% of area; repair and replace as necessary		7	
Play equipment cleaning		Allow					3	3x/week	3		
Play equipment repair		Allow					4	3x/week		4	

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	W-1	W-2	W-3
Infrastructure - HOURS/Unit											
I1 - Irrigation							10	**Annual hours/1,000 SF**	4	3	3
Monitoring/system check	1	msf	10	10	0	26	4	Bi-weekly; Monitor to ensure adequate coverage, damage, and functionality.	4.3		
Spray head & valve repair/maint.		allow					3	Repair above grade components as needed; assume 5-10% replacement annually		3.0	
System maintenance		allow					3	System repair and clean out, winterization, spring startup. Note: System maintenance includes supply lines to all quick couplers, Mushroom pump/mud table, and drinking fountains.			3
I2 - Water Feature							36	**Annual hours/1,000 SF**	11	13	11
Check strainer, filter backwash & grate	1	Allow	3	3	0	112	6	Every other day during operating season, **32 Weeks**; Monitor to ensure adequate coverage, damage, and functionality.		6	
Strainer, filter backwash & Grate cleaning	1	Allow	11	11	0	32	6	Weekly during operating season; Maintain proper function of filters & Strainers	6		
Water quality maintenance	1	Allow	2	2	0	224	7	Daily; check water quality, adjust chemicals & filtration		7	
Jet and valve cleaning, testing & service	1	Allow	3	3	0	8	0	Monthly; test, clean, service, repair if needed			0
Surface cleaning/mineral deposit removal	1	msf	20	20	0	16	5	100% of area, Bi-weekly during operation season. Scrubbing and powerwashing	5		
Winterization/spring startup		allow					6	2 days/2 person crew each season			6
Misc. system maintenance		allow					5				5
I3 - Site Drainage (Pedestrian Paving & Planting Beds)							10	**Annual hours/10,000 SF Area**	6	4	0
Inspect & clean surface drainage infrastructure	1	Allow	30	30	1	12	6	Monthly; inspect, remove litter/debris from runnels, trench & area drains	6		
Repair Infrastructure	1	Allow	240	240	4	1	4	Repair damaged drainage infrastructure; Includes trench drains, area drains, and below grade planting bed inlet drains if needed		4	
I4- Storm Filter Catch Basins							6	**Annual hours/Each**	0	6	0
Inspect catch basin	1	Each	5	5	0	12	1	Monthly; inspect for siltation and blockages		1	
Clean catch basin	1	Each	30	30	1	4	2	4x/year; remove debris and silt		2	
Replace filter cartridge (avg. 3 filters/basin)	3	Each	50	150	3	1	3	1x/year or as needed; remove & replace		3	
I5- Pole Lighting							5	**Annual hours/10 Luminaires**	0	4	1
Clean & Inspect		Allow					4	4x/year; Clean graffiti and remove stickers from lower pole section, Inspect for proper function and damage		4	
Luminaire replacement	1	Each	60	60	1	1	1	1x/year or as needed; Assume 10% annually; remove & replace			1
Pole & Fixture Repair/Maintenance		Allow					1	As needed; repair damage from vehicles/vandalism			1
I6- Pedestrian Lighting							3	**Annual hours/10 Light Fixtures**	1	2	0
Inspect &clean		Allow					1	4x/year; Clean & Inspect for proper function and damage	1		
Fixture/lumen board replacement	1	Each	60	60	1	2	2	2x/year or as needed; Assume 10% annually; remove & replace due to damage/fixture burn out		2	

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	W-1	W-2	W-3
Structures/Building Space- HOURS/Unit											
S1- Kiosks							**38**	**Annual hours/Each**	**0**	**30**	**8**
Clean & Inspect	1	Each	300	300	5	6	30	6x/year; Clean all glass and metal surfaces and inspect for any wearing or damage		30	
Repair/Maintain Structure		Allow					8	As needed, repair damage from weather, vandalism, use			8
S2- Maintenance Facilities							**32**	**Annual hours/Each (approx. 2,500 SF)**	**24**	**0**	**8**
Interior Cleaning	1	Each	240	240	4	6	24	2x/year; Clean all interior surfaces and inspect for any damage	24		
Repair/Maintenance		Allow					8	As needed; lighting, plumbing, other.			8
S3- Restrooms							**205**	**Annual hours/Each=1 single unit**	**199**	**0**	**6**
Daily Cleaning/Maintenance	1	Each	20	20	0	584	195	2x daily cleaning for 6 months and 1x daily cleaning for 6 months. Includes cleaning of all surfaces, emptying trash, and restocking toiletries.	195		
Repair/Maintenance		Allow					6	As needed; lighting, plumbing, tile repair, other.			6
Vandalism/Graffiti Removal		Allow					4	As needed	4		
S4- Restrooms (attended)							**3778**	**Annual hours/Each=Entire restroom area**	**3,772**	**0**	**6**
Full-time Attendance - Summer Open 12 Hours	1	Each	720	720	12	213	2556	Includes a minimum of 2x daily cleaning of all toilets/urinals, cleaning of all surfaces, emptying trash, and restocking toiletries & graffiti removal.	2,556		
Full-time Attendance - Winter Open 8 Hours	1	Each	480	480	8	152	1216	Includes a minimum of 2x daily cleaning of all toilets/urinals, cleaning of all surfaces, emptying trash, and restocking toiletries & graffiti removal.	1,216		
Repair/Maintenance		Allow					6	As needed; lighting, plumbing, tile repair, other.			6
S5- Elevators							**169**	**Annual hours/Each**	**73**	**0**	**96**
Glass & Interior Cleaning	1	Each	80	80	1	52	69	weekly; Clean all glass surfaces and inspect for any damage	69		
Vandalism/Graffiti Removal		Allow					4	As needed	4		
Scheduled Maintenance/Repair	1	Each	480	480	8	12	96	Monthly service, on-call maintenance, and repairs (mechanical inspection, maintenance & repair)			96

APPENDIX C

PROJECT AREA TASK HOUR SUMMARIES

ALASKAN WAY - EAST

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	8.4	X̄ SF	57	483	388	28	67
P2 -Inlay and Specialty Paving	3.3	MSF	31	104	62	2	40
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**587**	**450**	**30**	**107**
Planting							
PL1 - Trees	5.8	20 Trees	12	68	34	35	0
PL2 - Shrubs	22.1	20 Shrubs	8	177	155	22	0
PL3 - Perennial Planting Areas	8.7	MSF	23.4	205	196	9	0
PL4 - Groundcover/Shrub Planting Areas	11.2	MSF	15	170	159	11	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	12	EA	13.2	163	99	64	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**783**	**643**	**141**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	1.5	10 Items	19	27	24	3	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	0	EA	55	0	0	0	0
F4 - Railing, Fencing & Screens	4.9	50 LF	6	30	26	0	4
F5 - Planter Walls	37.1	CLF	9	346	235	0	111
F6 - Signage and Wayfinding	0.2	10 Items	37	6	5	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**409**	**291**	**3**	**115**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	19.9	MSF	10	206	86	60	60
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	10.7	MSF	10	107	64	43	0
I4 - Storm Filter Catchbasins	21.0	EA	6	116	0	116	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	0.0	10 Items	3	0	0	0	0
Total Infrastructure Hours				**429**	**151**	**218**	**60**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**2,208**	**1,534**	**391**	**282**

ALASKAN WAY - MEDIAN

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	0.2	X̄ SF	57	11	9	1	2
P2 -Inlay and Specialty Paving	0.5	MSF	31	16	10	0	6
P3 - Dry-Laid Paving	0.5	MSF	18	8	7	2	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**35**	**25**	**3**	**8**
Planting							
PL1 - Trees	3.2	20 Trees	12	37	18	19	0
PL2 - Shrubs	6.1	20 Shrubs	8	48	42	6	0
PL3 - Perennial Planting Areas	3.8	MSF	23.4	88	84	4	0
PL4 - Groundcover/Shrub Planting Areas	21.8	MSF	15	333	311	22	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**506**	**456**	**51**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	1.2	10 Items	19	22	20	2	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	0	EA	55	0	0	0	0
F4 - Railing, Fencing & Screens	0.0	50 LF	6	0	0	0	0
F5 - Planter Walls	0.0	CLF	9	0	0	0	0
F6 - Signage and Wayfinding	0.0	10 Items	37	0	0	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**22**	**20**	**2**	**0**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	25.6	MSF	10	264	111	77	77
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	2.8	MSF	10	28	17	11	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	0.0	10 Items	3	0	0	0	0
Total Infrastructure Hours				**293**	**128**	**88**	**77**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**856**	**628**	**144**	**84**

ALASKAN WAY - WEST

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	3.3	X̄ SF	57	189	152	11	26
P2 -Inlay and Specialty Paving	1.9	MSF	31	58	35	1	22
P3 - Dry-Laid Paving	2.0	MSF	18	36	29	8	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**283**	**215**	**20**	**49**
Planting							
PL1 - Trees	5.1	20 Trees	12	60	30	31	0
PL2 - Shrubs	16.4	20 Shrubs	8	131	114	16	0
PL3 - Perennial Planting Areas	5.3	MSF	23.4	123	118	5	0
PL4 - Groundcover/Shrub Planting Areas	12.0	MSF	15	182	170	12	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	3	EA	13.2	43	26	17	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**540**	**459**	**81**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	3.0	10 Items	19	56	50	6	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	0	EA	55	0	0	0	0
F4 - Railing, Fencing & Screens	0.0	50 LF	6	0	0	0	0
F5 - Planter Walls	40.7	CLF	9	379	258	0	122
F6 - Signage and Wayfinding	0.4	10 Items	37	14	14	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**450**	**321**	**6**	**122**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	17.2	MSF	10	178	75	52	52
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	5.4	MSF	10	54	32	22	0
I4 - Storm Filter Catchbasins	21.0	EA	6	116	0	116	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	2.7	10 Items	3	8	3	5	0
Total Infrastructure Hours				**356**	**110**	**194**	**52**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**1,629**	**1,105**	**301**	**222**

PROMENADE

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	16.1	X̄ SF	57	923	741	54	129
P2 -Inlay and Specialty Paving	49.6	MSF	31	1,541	921	25	595
P3 - Dry-Laid Paving	0.7	MSF	18	12	10	3	0
P4 - Boardwalk	4.0	MSF	20.2	80	49	31	0
Total Paved Area Hours				**2,556**	**1,721**	**112**	**724**
Planting							
PL1 - Trees	11.7	20 Trees	12	138	68	70	0
PL2 - Shrubs	74.0	20 Shrubs	8	592	518	74	0
PL3 - Perennial Planting Areas	38.7	MSF	23.4	906	867	39	0
PL4 - Groundcover/Shrub Planting Areas	12.9	MSF	15	196	183	13	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	1	EA	143	143	142	1	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**1,974**	**1,777**	**196**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	13.9	10 Items	19	259	231	28	0
F2 - Moveable Furnishing	9.0	10 Items	48	431	425	6	0
F3 - Trash & Recycling	14	EA	55	775	775	0	0
F4 - Railing, Fencing & Screens	29.0	50 LF	6	177	155	0	22
F5 - Planter Walls	81.6	CLF	9	762	517	0	245
F6 - Signage and Wayfinding	10.7	10 Items	37	394	383	11	0
F7 - Artwork & Sculpture	29.0	EA	16	464	0	319	145
Total Furn. & Site Amen. Hours				**3,261**	**2,486**	**364**	**412**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	51.5	MSF	10	532	223	155	155
I2 - Water Feature	1	MSF	36	36	11	13	11
I3 - Site Drainage	26.6	MSF	10	266	160	107	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	5.5	10 Items	5	28	0	22	6
I6 - Pedestrian Lighting	73.8	10 Items	3	221	74	148	0
Total Infrastructure Hours				**1,083**	**468**	**444**	**171**
Structures/Building Spaces							
S1 - Kiosks	4	EA	38	152	0	120	32
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	2	EA	205	409	397	0	12
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**561**	**397**	**120**	**44**
Grand Total Maintenance Hours				**9,436**	**6,849**	**1,236**	**1,351**

BIKE PATH

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	4.6	X̄ SF	57	263	211	15	37
P2 -Inlay and Specialty Paving	0.0	MSF	31	0	0	0	0
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**263**	**211**	**15**	**37**
Planting							
PL1 - Trees	0.0	20 Trees	12	0	0	0	0
PL2 - Shrubs	0.0	20 Shrubs	8	0	0	0	0
PL3 - Perennial Planting Areas	0.0	MSF	23.4	0	0	0	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**0**	**0**	**0**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	0.0	10 Items	19	0	0	0	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	0	EA	55	0	0	0	0
F4 - Railing, Fencing & Screens	0.0	50 LF	6	0	0	0	0
F5 - Planter Walls	0.0	CLF	9	0	0	0	0
F6 - Signage and Wayfinding	0.0	10 Items	37	0	0	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**0**	**0**	**0**	**0**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	0.0	MSF	10	0	0	0	0
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	4.6	MSF	10	46	27	18	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	3.4	10 Items	3	10	3	7	0
Total Infrastructure Hours				**56**	**31**	**25**	**0**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**319**	**242**	**40**	**37**

ELLIOTT WAY

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	6.2	X̄ SF	57	357	287	21	50
P2 -Inlay and Specialty Paving	0.5	MSF	31	15	9	0	6
P3 - Dry-Laid Paving	7.3	MSF	18	132	104	28	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**504**	**400**	**49**	**56**
Planting							
PL1 - Trees	6.5	20 Trees	12	77	38	39	0
PL2 - Shrubs	20.6	20 Shrubs	8	165	144	21	0
PL3 - Perennial Planting Areas	12.5	MSF	23.4	293	281	13	0
PL4 - Groundcover/Shrub Planting Areas	18.4	MSF	15	280	262	18	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**815**	**725**	**91**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	0.0	10 Items	19	0	0	0	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	0	EA	55	0	0	0	0
F4 - Railing, Fencing & Screens	45.3	50 LF	6	276	242	0	34
F5 - Planter Walls	2.3	CLF	9	21	15	0	7
F6 - Signage and Wayfinding	0.9	10 Items	37	33	32	1	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**330**	**289**	**1**	**41**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	30.9	MSF	10	319	134	93	93
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	9.2	MSF	10	92	55	37	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	3.4	10 Items	3	10	3	7	0
Total Infrastructure Hours				**422**	**193**	**137**	**93**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**2,072**	**1,606**	**277**	**189**

LOWER UNION STREET

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	0.9	X̄ SF	57	53	42	3	7
P2 -Inlay and Specialty Paving	0.3	MSF	31	9	5	0	3
P3 - Dry-Laid Paving	1.5	MSF	18	28	22	6	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**90**	**70**	**9**	**11**
Planting							
PL1 - Trees	0.0	20 Trees	12	0	0	0	0
PL2 - Shrubs	0.3	20 Shrubs	8	2	2	0	0
PL3 - Perennial Planting Areas	1.1	MSF	23.4	25	24	1	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**27**	**25**	**1**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	1.1	10 Items	19	20	18	2	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	1	EA	55	55	55	0	0
F4 - Railing, Fencing & Screens	4.4	50 LF	6	27	23	0	3
F5 - Planter Walls	2.5	CLF	9	23	16	0	7
F6 - Signage and Wayfinding	0.6	10 Items	37	22	22	1	0
F7 - Artwork & Sculpture	1.0	EA	16	16	0	11	5
Total Furn. & Site Amen. Hours				**164**	**134**	**14**	**16**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	1.1	MSF	10	11	5	3	3
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	1.2	MSF	10	12	7	5	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	3.9	10 Items	3	12	4	8	0
Total Infrastructure Hours				**35**	**16**	**16**	**3**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	1	EA	169	169	73	0	96
Total Structure Hours				**169**	**73**	**0**	**96**
Grand Total Maintenance Hours				**484**	**318**	**40**	**126**

OVERLOOK WALK

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	2.6	X̄ SF	57	151	122	9	21
P2 -Inlay and Specialty Paving	0.0	MSF	31	0	0	0	0
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	5.1	MSF	20.2	102	63	40	0
Total Paved Area Hours				**254**	**184**	**48**	**21**
Planting							
PL1 - Trees	2.6	20 Trees	12	31	15	16	0
PL2 - Shrubs	15.3	20 Shrubs	8	122	107	15	0
PL3 - Perennial Planting Areas	7.7	MSF	23.4	180	173	8	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**333**	**295**	**39**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	29.3	10 Items	19	546	487	59	0
F2 - Moveable Furnishing	5.4	10 Items	48	258	255	4	0
F3 - Trash & Recycling	2	EA	55	111	111	0	0
F4 - Railing, Fencing & Screens	39.0	50 LF	6	237	208	0	29
F5 - Planter Walls	49.1	CLF	9	458	311	0	147
F6 - Signage and Wayfinding	0.9	10 Items	37	33	32	1	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**1,643**	**1,404**	**63**	**176**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	1.6	CSF	31	48	32	17	0
Total Play Area Hours				**48**	**32**	**17**	**0**
Infrastructure							
I1 - Irrigation	7.7	MSF	10	80	33	23	23
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	3.4	MSF	10	34	20	14	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.4	10 Items	5	2	0	2	0
I6 - Pedestrian Lighting	21.4	10 Items	3	64	21	43	0
Total Infrastructure Hours				**180**	**75**	**81**	**24**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	1	EA	32	32	24	0	8
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	1	EA	3,778	3,778	3,667	0	111
S5 - Elevators	2	EA	169	339	147	0	192
Total Structure Hours				**4,149**	**3,838**	**0**	**311**
Grand Total Maintenance Hours				**6,607**	**5,827**	**248**	**532**

WATERFRONT PARK

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	3.2	X̄ SF	57	185	148	11	26
P2 -Inlay and Specialty Paving	0.0	MSF	31	0	0	0	0
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**185**	**148**	**11**	**26**
Planting							
PL1 - Trees	0.5	20 Trees	12	5	3	3	0
PL2 - Shrubs	0.9	20 Shrubs	8	7	6	1	0
PL3 - Perennial Planting Areas	1.8	MSF	23.4	42	40	2	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	5.1	MSF	19	95	85	10	0
Total Horticulture Hours				**149**	**134**	**16**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	16.1	10 Items	19	300	268	32	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	1	EA	55	55	55	0	0
F4 - Railing, Fencing & Screens	9.4	50 LF	6	57	50	0	7
F5 - Planter Walls	4.7	CLF	9	44	30	0	14
F6 - Signage and Wayfinding	0.5	10 Items	37	19	18	1	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**474**	**420**	**33**	**21**
Play Areas							
PA1 - Sand Play Area	39.6	CSF	28	1,122	964	158	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**1,122**	**964**	**158**	**0**
Infrastructure							
I1 - Irrigation	6.8	MSF	10	71	30	21	21
I2 - Water Feature	12	MSF	36	428	134	157	137
I3 - Site Drainage	3.9	MSF	10	39	23	16	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	8.2	10 Items	3	25	8	16	0
Total Infrastructure Hours				**562**	**196**	**209**	**157**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**2,493**	**1,862**	**427**	**204**

RAILROAD WAY

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	2.5	X̄ SF	57	141	113	8	20
P2 -Inlay and Specialty Paving	18.9	MSF	31	587	351	9	227
P3 - Dry-Laid Paving	40.4	MSF	18	733	578	155	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**1,461**	**1,042**	**173**	**246**
Planting							
PL1 - Trees	3.3	20 Trees	12	38	19	20	0
PL2 - Shrubs	0.0	20 Shrubs	8	0	0	0	0
PL3 - Perennial Planting Areas	2.3	MSF	23.4	53	51	2	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.6	CLF	10	6	1	5	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	1.7	MSF	19	31	28	3	0
Total Horticulture Hours				**128**	**99**	**30**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	0.0	10 Items	19	0	0	0	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	2	EA	55	111	111	0	0
F4 - Railing, Fencing & Screens	0.0	50 LF	6	0	0	0	0
F5 - Planter Walls	0.0	CLF	9	0	0	0	0
F6 - Signage and Wayfinding	0.0	10 Items	37	0	0	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**111**	**111**	**0**	**0**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	3.9	MSF	10	40	17	12	12
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	8.8	MSF	10	88	53	35	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	2.2	10 Items	5	11	0	9	2
I6 - Pedestrian Lighting	2.2	10 Items	3	7	2	4	0
Total Infrastructure Hours				**146**	**72**	**60**	**14**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**1,846**	**1,323**	**262**	**260**

COLUMBIA STREET

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	1.1	X̄ SF	57	60	48	4	8
P2 -Inlay and Specialty Paving	0.1	MSF	31	4	3	0	2
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**65**	**51**	**4**	**10**
Planting							
PL1 - Trees	0.4	20 Trees	12	4	2	2	0
PL2 - Shrubs	0.0	20 Shrubs	8	0	0	0	0
PL3 - Perennial Planting Areas	0.0	MSF	23.4	0	0	0	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**4**	**2**	**2**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	0.0	10 Items	19	0	0	0	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	0	EA	55	0	0	0	0
F4 - Railing, Fencing & Screens	0.0	50 LF	6	0	0	0	0
F5 - Planter Walls	0.0	CLF	9	0	0	0	0
F6 - Signage and Wayfinding	0.2	10 Items	37	7	7	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**7**	**7**	**0**	**0**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	0.0	MSF	10	0	0	0	0
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	0.0	MSF	10	0	0	0	0
I4 - Storm Filter Catchbasins	2.0	EA	6	11	0	11	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	0.0	10 Items	3	0	0	0	0
Total Infrastructure Hours				**11**	**0**	**11**	**0**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**87**	**60**	**17**	**10**

SENECA STREET

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	1.1	X̄ SF	57	63	51	4	9
P2 -Inlay and Specialty Paving	0.1	MSF	31	3	2	0	1
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**66**	**52**	**4**	**10**
Planting							
PL1 - Trees	0.6	20 Trees	12	7	3	3	0
PL2 - Shrubs	0.0	20 Shrubs	8	0	0	0	0
PL3 - Perennial Planting Areas	0.6	MSF	23.4	15	14	1	0
PL4 - Groundcover/Shrub Planting Areas	0.3	MSF	15	5	4	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**26**	**22**	**4**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	0.4	10 Items	19	7	7	1	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	1	EA	55	55	55	0	0
F4 - Railing, Fencing & Screens	0.0	50 LF	6	0	0	0	0
F5 - Planter Walls	1.6	CLF	9	15	10	0	5
F6 - Signage and Wayfinding	0.1	10 Items	37	4	4	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**81**	**76**	**1**	**5**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	0.9	MSF	10	10	4	3	3
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	1.2	MSF	10	12	7	5	0
I4 - Storm Filter Catchbasins	1.0	EA	6	6	0	6	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	0.0	10 Items	3	0	0	0	0
Total Infrastructure Hours				**27**	**11**	**13**	**3**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**201**	**161**	**22**	**17**

WASHINGTON STREET BOAT LANDING

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	0.0	X̄ SF	57	0	0	0	0
P2 -Inlay and Specialty Paving	0.0	MSF	31	0	0	0	0
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	1.3	MSF	20.2	26	16	10	0
Total Paved Area Hours				**26**	**16**	**10**	**0**
Planting							
PL1 - Trees	0.0	20 Trees	12	0	0	0	0
PL2 - Shrubs	0.0	20 Shrubs	8	0	0	0	0
PL3 - Perennial Planting Areas	0.0	MSF	23.4	0	0	0	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**0**	**0**	**0**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	0.9	10 Items	19	17	15	2	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	1	EA	55	55	55	0	0
F4 - Railing, Fencing & Screens	1.9	50 LF	6	12	10	0	1
F5 - Planter Walls	0.0	CLF	9	0	0	0	0
F6 - Signage and Wayfinding	0.2	10 Items	37	7	7	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**91**	**88**	**2**	**1**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	0.0	MSF	10	0	0	0	0
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	0.1	MSF	10	1	1	1	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	0.7	10 Items	3	2	1	1	0
Total Infrastructure Hours				**3**	**1**	**2**	**0**
Structures/Building Spaces							
S1 - Kiosks	1	EA	38	38	0	30	8
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	1	EA	205	205	199	0	6
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**243**	**199**	**30**	**14**
Grand Total Maintenance Hours				**363**	**304**	**44**	**15**

MARION STREET BRIDGE

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	0.7	X̄ SF	57	38	30	2	5
P2 -Inlay and Specialty Paving	0.0	MSF	31	0	0	0	0
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	0.0	MSF	20.2	0	0	0	0
Total Paved Area Hours				**38**	**30**	**2**	**5**
Planting							
PL1 - Trees	0.0	20 Trees	12	0	0	0	0
PL2 - Shrubs	0.0	20 Shrubs	8	0	0	0	0
PL3 - Perennial Planting Areas	0.0	MSF	23.4	0	0	0	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**0**	**0**	**0**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	2.0	10 Items	19	37	33	4	0
F2 - Moveable Furnishing	0.0	10 Items	48	0	0	0	0
F3 - Trash & Recycling	0	EA	55	0	0	0	0
F4 - Railing, Fencing & Screens	29.2	50 LF	6	178	156	0	22
F5 - Planter Walls	4.4	CLF	9	41	28	0	13
F6 - Signage and Wayfinding	0.2	10 Items	37	7	7	0	0
F7 - Artwork & Sculpture	0.0	EA	16	0	0	0	0
Total Furn. & Site Amen. Hours				**264**	**224**	**4**	**35**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	0.0	MSF	10	0	0	0	0
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	0.7	MSF	10	7	4	3	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	11.1	10 Items	3	33	11	22	0
Total Infrastructure Hours				**40**	**15**	**25**	**0**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**341**	**270**	**31**	**40**

PIER 62/63

Landscape Type	Qty.	Unit	Hrs/Unit	Total Hrs. Per Year	Performed by W-1	W-2	W-3
Paved Areas							
P1 - Asphalt & Concrete Paving	7.0	X SF	57	403	324	23	56
P2 -Inlay and Specialty Paving	9.7	MSF	31	301	180	5	116
P3 - Dry-Laid Paving	0.0	MSF	18	0	0	0	0
P4 - Boardwalk	3.0	MSF	20.2	61	37	24	0
Total Paved Area Hours				**764**	**540**	**52**	**172**
Planting							
PL1 - Trees	0.0	20 Trees	12	0	0	0	0
PL2 - Shrubs	0.0	20 Shrubs	8	0	0	0	0
PL3 - Perennial Planting Areas	0.0	MSF	23.4	0	0	0	0
PL4 - Groundcover/Shrub Planting Areas	0.0	MSF	15	0	0	0	0
PL5 - Vine Planting along Screen	0.0	CLF	10	0	0	0	0
PL6 - Habitat Beach	0	EA	143	0	0	0	0
PL7 - Bioretention Cells	0	EA	13.2	0	0	0	0
PL8 - Lawn Areas	0.0	MSF	19	0	0	0	0
Total Horticulture Hours				**0**	**0**	**0**	**0**
Furnishing & Site Amenities							
F1 - Furnishing	1.8	10 Items	19	33	30	4	0
F2 - Moveable Furnishing	10.2	10 Items	48	488	481	7	0
F3 - Trash & Recycling	10	EA	55	553	553	0	0
F4 - Railing, Fencing & Screens	27.9	50 LF	6	169	149	0	21
F5 - Planter Walls	0.0	CLF	9	0	0	0	0
F6 - Signage and Wayfinding	1.0	10 Items	37	37	36	1	0
F7 - Artwork & Sculpture	1.0	EA	16	16	0	11	5
Total Furn. & Site Amen. Hours				**1,298**	**1,249**	**22**	**26**
Play Areas							
PA1 - Sand Play Area	0.0	CSF	28	0	0	0	0
PA2 - Rubber Surface Play Area	0.0	CSF	31	0	0	0	0
Total Play Area Hours				**0**	**0**	**0**	**0**
Infrastructure							
I1 - Irrigation	0.0	MSF	10	0	0	0	0
I2 - Water Feature	0	MSF	36	0	0	0	0
I3 - Site Drainage	8.3	MSF	10	83	50	33	0
I4 - Storm Filter Catchbasins	0.0	EA	6	0	0	0	0
I5 - Pole Lighting	0.0	10 Items	5	0	0	0	0
I6 - Pedestrian Lighting	16.7	10 Items	3	50	17	33	0
Total Infrastructure Hours				**133**	**66**	**67**	**0**
Structures/Building Spaces							
S1 - Kiosks	0	EA	38	0	0	0	0
S2 - Maintenance Facilities	0	EA	32	0	0	0	0
S3 - Restrooms	0	EA	205	0	0	0	0
S4- Restrooms (Attended)	0	EA	3,778	0	0	0	0
S5 - Elevators	0	EA	169	0	0	0	0
Total Structure Hours				**0**	**0**	**0**	**0**
Grand Total Maintenance Hours				**2,195**	**1,856**	**141**	**198**

APPENDIX D

PUBLIC SAFETY RATIONALE

INTRODUCTION

In order to inform and guide recommendations for safety/security operations and management of the Waterfront and to gain an understanding of current security efforts by existing organizations, ETM researched and interviewed a number of peer park organizations, and prominent Seattle locations. Discovery Green in Houston, Olympic Sculpture Park, Pike Place Market, Seattle Center, and SPR all provided detailed information regarding staffing resources, technology & operating information that is used as a baseline of understanding to inform our recommendations for Waterfront. It should be noted that the Seattle based case studies differ somewhat from the proposed Waterfront as they are spaces that can be "closed" in the evenings and do not face the same challenges associated with the Waterfront as a public right-of-way. Although somewhat different, the case studies do offer valuable insights into local safety and security issues, solutions and estimated resources needed. The Discovery Green case study may be the most appropriate example of a highly permeable public open space with many similar issues faced by Waterfront Seattle.

Discovery Green

Buskers at Pike Place Market

The following case studies illustrate the staffing composition, scheduling, patrol and coordination methods, support infrastructure, and associated annual budgets for each case study.

CASE STUDY - PIKE PLACE MARKET

Pike Place Market is a historic public marketplace with 240+ businesses and 400+ residents (primarily low-income seniors). Thousands of daily visitors stroll through the nine-acre community of farmers, artisans, butchers, specialty food vendors, musicians and others. With approximately ten million visitors each year, Pike Place Market has become an exceptionally busy Seattle landmark. Due to its mixed-use commercial and residential properties, Pike Place Market is viewed as an active community neighborhood in Downtown Seattle with myriad indoor and outdoor public and private spaces.

Pike Place Market is managed 24/7 by a staff of 21 in-house security personnel assigned to one of three shifts (up to seven officers per shift). CCTV cameras are utilized throughout the Market and are actively monitored to proactively address any enforcement issue. A guard tour system is also employed to monitor security staff and, more importantly, maintain a patrol log in the event of a complaint from Market residents or visitors.

Typical recurring issues at the Market include the drugs and alcohol use in public restrooms, theft, and homeless individuals who settle along streets and alcoves throughout the Market. Market staff actively patrol the alcoves and sidewalks throughout the Market and inform people of the Sit and Lie ordinance to dissuade vagrancy. The illegal drug and alcohol use in public restrooms is an issue and staff often patrol them to spot and remove persons using illegal substances.

SECURITY OPERATION AND MANAGEMENT	PIKE PLACE MARKET
In-House Safety Staffing	21 Full-Time
Contracted Safety Staffing	Special Events Only
Police Department Staffing and Support	NO
Ambassadors	NO
Daily Staffing/Shift Cycles	7 Officers/3 Shifts
Guard Tour Systems	YES Proxi-Pens
CCTV Cameras	YES
Active Monitoring CCTV	YES
Emergency Call Boxes/Towers	YES - Alarms for Staff Only
Annual Security Cost/Budget	$1.3 -$1.4 Million
Patrol Method	By Foot and Bicycles
Security Staff Facilities	YES

Buskers are a common sight throughout the Market and well defined busker protocols are clearly posted on the Market website which define the need for a busker permit and protocols for when and where to perform. This creates a sense of ownership and community among the performers which further adds to the safety and security of the Market.

Interview/Research dated June 2018

CASE STUDY - OLYMPIC SCULPTURE PARK (SEATTLE ART MUSEUM)

The Olympic Sculpture Park is a 9-acre public sculpture garden located along the waterfront in downtown Seattle. Historically, it was the last undeveloped waterfront parcel before it opened in January 2007, as a waterfront park. Since opening in 2007, it has become an award-winning public space with a proactive strategy to provide security and safety all year-round.

SECURITY OPERATION AND MANAGEMENT	OLYMPIC SCULPTURE PARK
In-House Security	NO
Contracted Security Services	YES; Baseline Security and Special Events
Seattle Police Department	4 Off-Duty Officers Special Events Only
Ambassadors	YES; Volunteers
Daily Staffing/Shift Cycles	1 Supervisor; 2 Officers/3 Shifts
Guard Tour Systems	YES (only in first years of operation)
CCTV Cameras	YES
Active Monitoring CCTV	YES
Emergency Call Boxes/Towers	NO
Annual Security Cost/Budget	$640,000
Patrol Method	By Foot and Bicycles
Security Staff Facilities	YES

The Sculpture Park is located just south of Myrtle Edwards Park, and is described by the Director of Security as a having relatively few safety and security "issues" as it is located just outside of the downtown core. Typical issues associated with Seattle downtown public spaces are present; including vagrancy, drug and alcohol abuse, and other small enforcement issues that mostly spill over from Myrtle Edwards Park. Most daytime enforcement issues are limited to issues such as off-leash pets, "art touches", and graffiti.

The Park is an open perimeter public space; however, the upper portion is closed in the evenings and park security staff enforce a no trespassing policy from sunset to sunrise. The lower portion of the park is part of a waterfront bike trail which remains open 24/7. A perimeter laser sensor is in place to assist security staff with maintaining a secure perimeter during evening hours. This system alerts staff when the perimeter is breached. A system of 29 CCTV cameras are used to monitor and assess whether security staff should be deployed. A guard tour system was employed in the first few years of operation; however, staffing levels were reduced due to budget cutbacks and a regular evening patrol was eliminated due to limited staffing. The Park does not utilize emergency call boxes. The Director of Security would like to install one at the lower park near the beach as this area remains open 24 hours and some incidents have occurred here in the past. An additional security camera is also being contemplated in this area.

All security personnel (officers) are provided thru a contract service with approximately 12 dedicated officers covering a 24/7 presence of 3-8 hour shifts. A minimum of two officers and one supervisor are always on staff with one additional officers brought in during the summer months to support increased visitation. Both small and large events are held at the Park and additional contracted staff as well as uniformed off-duty police are deployed to monitor entry points and patrol. Seattle Police do occasionally patrol the Park and the Metropolitan Improvement District provide some cleaning and homeless population interaction support, on a limited basis. A successful program of volunteer Ambassadors is also utilized during daytime hours to inform visitors of Park sculptures and enforcing the "no touch" policy.

Incident report records indicate a seasonal increase during the summer months with notable increase in homeless interactions, drug and alcohol use, as well as trespassing. Security staff are proactive in their approach in dealing with enforcement issues actively attempt to move along any rule violators without escalating the situation or involving SPD.

Interview/Research dated August 2015

CASE STUDY - SEATTLE CENTER

Seattle Center, a 74-acre city hub, hosts approximately 5,000 events and activities related to arts, education, entertainment, and annual recreation. These events, which are held in both indoor and outdoor venues, are visited by approximately 12 million visitors. The 24 acres of public parkland are contain 32 restaurants, shops, museums and other attractions.

As a city property, the Seattle Center is staffed with an in-house force of 17 full-time, two part-time, and six on-call certified union employees on a 24/7, three-shift rotation. In addition to the full-time staff, any programmed events or activities are supplemented with contracted event security staffing firm or the Seattle Police Department.

Typical safety and security issues include graffiti, public use of drugs and alcohol, car theft and break-ins, and first aid responses. Homeless populations do frequent the Center campus during operating hours, and are asked to vacate the property between the hours of midnight and 6:00 AM in accordance with City public space ordinances. Homeless persons generally abide by the ordinance and exit the property without the need for intervention by security staff.

A number of CCTV cameras are located throughout the campus and are monitored by security staff. Emergency call boxes are located in two of the three campus parking garages. An additional emergency call box is planned for installation in the third parking garage.

SECURITY OPERATION AND MANAGEMENT	**SEATTLE CENTER**
In-House Security	17 Full-Time 2 Part-Time 6 On-Call
Contracted Security Services	Special Events Only
Seattle Police Department	On/Off-Duty Special Events Only
Ambassadors	NO
Daily Staffing/Shift Cycles	5 Officers/2 Shifts; 2 Officers/Graveyard Shift
Guard Tour Systems	NO
CCTV Cameras	YES
Active Monitoring CCTV	YES
Emergency Call Boxes/Towers	YES - Only in Parking Garages
Annual Security Cost/Budget	$1.9 Million (95% Personnel Cost)
Patrol Method	By foot; 3 Bicycles; 2 Segways; 1 SUV
Security Staff Facilities	YES

Seattle Center employs a dedicated graffiti response team that addresses any graffiti or vandalism within 24 hours of detection. This simple measure ensures the campus is essentially free of graffiti, which provides visitors with a sense of a clean, safe environment and acts as a deterrent to any further graffiti.

A high-priority future initiative for the Seattle Center is to retrofit all existing signage with clearly stated emergency phone numbers to provide a direct line in the event of an emergency which will decrease response times and ultimately increase public safety. All in-house security staff are annually certified as first aid responders. The Seattle Center also utilizes a several different modes of transit, including bicycles and Seqways.

Interview/Research dated August 2015

CASE STUDY - DISCOVERY GREEN, HOUSTON TX

Discovery Green is a 12 acre urban park in downtown Houston, surrounded by a busy commercial, growing residential, and entertainment district. The park receives over 1.5 million annual visitors and hosts well over 600 events per year.

SECURITY OPERATION AND MANAGEMENT	DISCOVERY GREEN
In-House Safety Staffing	NO
Contracted Safety Staffing	YES; Baseline Security and Special Events
Police Department Staffing and Support	1 Off Duty Officer Daily 8 Hr. Shift + Events
Ambassadors	Yes, Paid
Daily Staffing/Shift Cycles	2 Officers/3 Shifts Weekends + 1 Guard/2 Shifts
Guard Tour Systems	YES (only in first years of operation)
CCTV Cameras	YES
Active Monitoring CCTV	NO
Emergency Call Boxes/Towers	YES
Annual Security Cost/Budget	$600,000
Patrol Method	By Foot and Bicycles
Security Staff Facilities	YES

The public/private partnership between the City of Houston and the Discovery Green Conservancy privately employs a safety and security work force through at contracted security firm. A single security officer is deployed on a 24/7, three-shift rotation. An additional security officer supplements baseline security staff on weekends for two shifts from 1:00 pm – 9:00 pm and 9:00 pm to 5:00 am.

In addition to contracted security personnel, Discovery Green also employs off-duty Houston Police officers on weekdays for a four hour shift from 10:00 am -2:00 pm. Off-duty officers are also employed on weekends from 2:00 pm – 10:00 pm. Officers are primarily employed for their presence as a "non park" activity deterrent, and not for actual enforcement. Park management has indicated that it is difficult to consistently maintain the desired off-duty police scheduling in comparison to the baseline contracted security staff.

An ambassador program is also employed through the Conservancy. High school and college age ambassadors are employed at busier times, primarily on the weekends on a part-time basis to conduct public outreach and inform visitors of the rules of the park. A dedicated in-house maintenance staff is also a strong presence at Discovery Green. Maintenance teams are typically on-site from 7:00 am – 10:00 pm, 7 days/week.

The management staff a Discovery Green view safety and security as an integral part of daily operations and see all park personnel as part of the safety and outreach team. A prevailing mantra for all staff focuses on being proactive and "telling visitors what the rules are, before they have a chance to break them".

Operations management staff maintains an updated book of "offenders" as a tool to help identify disruptive visitors and inform enforcement decision making. This practice has helped security staff with enforcement and coordination with Houston Police.

The busy urban environment brings a host of issues to the park including loitering, substance abuse, panhandling, and illegal vending. A robust event schedule also warrants the use of additional contracted security and off-duty police on an as needed basis. The contracted security firm has the capability to supplement staff as needed with very little notice.

Interview/Research dated June 2018

SUMMARY

Most high use public spaces have a dedicated presence to provide safety and security. As shown in the case studies, a uniformed security presence can be provided with either in-house or contracted service that are been trained to recognize and respond to enforcement and safety issues.

Organizations often utilize contracted security firms for baseline security or as supplemental security during special events. Discovery Green and Olympic Sculpture Park both use outside security firms for their baseline security as well as special event support. Both Pike Place Market and Seattle Center use contract security to supplement their in-house baseline security staff during special events. One advantage of in-house security is, like in-house maintenance staff, they get to know the rhythms of the site and are more likely to proactively deal with potential enforcement issues. However, numerous nationally recognized contracted security firms do provide security services for outdoor public spaces with local, dedicated personnel with low turnover rates. In the case of Discovery Green, during the process of switching security staffing providers, one of the main security officers left that provider to join the newly hired team at the Park.

Staffing levels vary widely among the case studies due to a wide variety of factors, but several parallels can be drawn among them, including:

- Dedicated baseline staffing (dedicated in-house or contracted)
- 24 hour staffing coverage (3 - 8 hour shifts)
- Active staffing management
- Maintenance personnel "eyes and ears" support
- Off-duty police support (regular shift event support)
- Use of security technology (cameras, guard tour pens, etc.)

Additionally, many of the case studies organizations schedule additional staffing on busy days to support increased visitation. No organization relies simply on a single security strategy, and those that are successful rely on several layers of security strategies, including baseline safety/security personnel, off-duty police, as well as ambassadors. Every Seattle based case study employs a dedicated security supervisory staff to handle operational and administrative needs. In the case of Discovery Green, the Operations Director manages the contracted security personnel.

Staffing levels and shifts among the case studies all utilize 3 shifts during a 24 hour period with at least one staff person on-site at all times. All Seattle examples maintain at least two baseline security staff at all times. In many cases, supplementary staff and/or off-duty police are utilized during peak visitation times to support baseline personnel. Although staffing levels and service delivery vary based on the size and complexity of the case studies, a consistent "multi-tiered approach" is common.

In developing a safety and security plan for the Waterfront, we reached out to local sites in order to gain and understanding of Seattle issues and the different approaches that are used, which in turn were used to guide us in developing the security strategy for the Waterfront. This outreach helped guide our staffing and technology recommendations. In addition, ETM worked closely with the Friends of the Waterfront to learn from their experience in programming the Waterfront site. Our case studies along with ETM's experience developing multiple O+M staffing plans, and input from Friends of the Waterfront's experience in programming the site, have led to a comprehensive and informed security strategy that includes staffing, infrastructure, and budgetary recommendation for Waterfront Seattle.

Security Program Case Study Summary

SECURITY OPERATION AND MANAGEMENT	OLYMPIC SCULPTURE PARK	PIKE PLACE MARKET	SEATTLE CENTER	DISCOVERY GREEN
In-House Safety Staffing	NO	21 Full-Time	17 Full-Time 2 Part-Time 6 On-Call	NO
Contracted Safety Staffing	YES; Baseline Security and Special Events	Special Events Only	Special Events Only	YES; Baseline Security and Special Events
Police Department Staffing and Support	4 Off-Duty Officers Special Events Only	NO	On/Off-Duty Special Events Only	1 Off Duty Officer Daily 8 Hr. Shift + Events
Ambassadors	YES; Volunteers	NO	NO	Yes, Paid
Daily Staffing/Shift Cycles	1 Supervisor; 2 Officers/3 Shifts	7 Officers/3 Shifts	5 Officers/2 Shifts; 2 Officers/Graveyard Shift	2 Officers/3 Shifts Weekends + 1 Guard/2 Shifts
Guard Tour Systems	YES (only in first years of operation)	YES Proxi-Pens	NO	YES (only in first years of operation)
CCTV Cameras	YES	YES	YES	YES
Active Monitoring CCTV	YES	YES	YES	NO
Emergency Call Boxes/Towers	NO	YES - Alarms for Staff Only	YES - Only in Parking Garages	YES
Annual Security Cost/Budget	$640,000	$1.3 -$1.4 Million	$1.9 Million (95% Personnel Cost)	$600,000
Patrol Method	By Foot and Bicycles	By Foot and Bicycles	By Foot; 3 Bicycles; 2 Segways; 1 SUV	By Foot and Bicycles
Security Staff Facilities	YES	YES	YES	YES

APPENDIX E

SEATTLE PARKS AND RECREATION RULES AND REGULATIONS

SEATTLE PARKS AND RECREATION PARKS TRESPASS PROGRAM (NOV. 2014)

WHAT TO DO UNDER THE PARKS TRESPASS PROGRAM? (Follow DP&P 17.115)

If you arrive at this property type…use this Trespass Procedure

1) If the suspect is on Parks property in Seattle and violating any provision of the Parks Code (SMC Ch. 18.12), and rule in the Parks Code of Conduct, or any other provision of the Seattle Municipal Code or Revised Code of Washington, issue a Trespass Warning to the Suspect using the Parks Trespass Warning/Exclusion form, keeping a copy for SPD records.
2) If unable to identify the Suspect by name, identify the Suspect by description (including known nicknames) and, if possible, take a photograph.
3) If the Suspect does not accept a warning form, orally warn the Suspect using the language on the form and document the warning using the form in SPD records.
4) Parks Rangers, SPD officers, and others designated by Parks may issue warnings.
5) A warning on its own does not exclude a Suspect from the park as long as the Suspect stops violating the law or rules. However, when a Suspect's law or rule violation creates significant risk of personal injury or property damage, the Suspect may be excluded for the remainder of the day, and a one-year exclusion may be issued to a Suspect who commits a felony or a weapons violation. A remainder-of-the day exclusion applies only to the park where the initial violation occurred. A one-year exclusion applies on to the parks within a specific zone.
6) If the Suspect, once issued a Trespass Warning, continues to commit violations in the park, the Suspect may be arrested under the Parks Trespass Program for Criminal Trespass. - Follow DP&P 17.115.
7) If a Suspect has previously received a Trespass Warning at any park and subsequently commits any violation in a park, the Suspect may be arrested Parks Trespass Program for Criminal Trespass. - Follow DP&P 17.115. Trespass Warnings apply to all parks and do not expire.
8) Attach the original Trespass Warning Form as evidence to send to the Law Department with your GO and give completed NEW Trespass Warning Form to precinct's CPT administrative assistant (Jane Mensoff) to be entered into RMS. Notify the Precinct Liaison Attorney of any arrest for trespass in a park. - Follow DP&P 17.115.

Parks Code SMC 18.12 prohibits:

- SMC 18.12.070b Removing, destroying, or defacing park property
- SMC 18.12.070c Placing in a park any structure or obstruction without a permit
- SMC 18.12.080 Dogs or other pets that are not leashed and licensed; owner must carry and use equipment for removing feces.
- SMC 18.12.145 Urinating or defecating
- SMC 18.12.149 Firearms
- SMC 18.12.150 Soliciting, except as specifically provided by law
- SMC 18.12.160 Sale of merchandise without a permit
- SMC 18.12.170 Amplified sound without a permit
- SMC 18.12.250 Camping
- SMC 18.12.257 Liquor (open or closed container)
- SMC 18.12.260 Littering
- RCW 9.46 Illegal gambling

Parks Code of Conduct (Superintendent's Administrative Rule, enforceable under SMC 18.12.040)

- Abusive or harassing behavior, including obscene language or gestures
- Presence in the park without a permit when the park is not open to the public
- Conduct that creates an unreasonable and substantial risk of harm to any person or property (i.e. dangerous activity)
- Conduct that unreasonable deprives others of their use or enjoyment of the park or park facility
- Smoking, chewing or other tobacco use within 24 feet of other park patrons and in play areas, beaches, or playgrounds
- Leaving packages, backpacks, luggage, or other personal items unattended while the owner is not in the same area of the park
- Blocking entrances, exits, fire exits, handicap access areas, public walkways, or roadways, or obstructing pedestrian traffic or otherwise interfering with the provision of serves or the use of park property
- Disrupting Dept. of Parks and Recreation business, events, or other sponsored activities.
- Creating unsanitary conditions or health hazards that violate public health rules of Seattle and King County

Question: Contact your Precinct Liaison Attorney - Dave Lavelle {David.lavelle@seattle.gov} or (206) 386-4084

APPENDIX D

SAFETY AND SECURITY CASE STUDIES

In order to inform and guide recommendations for security operations and management of the Waterfront and to gain an understanding of current security efforts by existing organizations, ETM reached out to three prominent Seattle landmarks as well as Seattle Parks and Recreation (SPR). Olympic Sculpture Park, Pike Place Market, Seattle Center, and SPR have provided detailed information regarding staffing resources, technology and operating information as a baseline of understanding. It should be noted that the case study properties distinctly differ from the Waterfront as they are well defined spaces that can be "closed" in the evenings. The Waterfront will face additional challenges associated with the public right of way. Although different, the following case studies do offer valuable insights into safety and security issues, solutions and resources that are rooted in long-standing local perspectives.

CASE STUDY - PIKE PLACE MARKET

Pike Place Market is an historic public marketplace with 240+ businesses and 400+ residents (primarily low-income seniors). Thousands of visitors stroll daily through the nine-acre community of farmers, artisans, butchers, specialty food artists, musicians and others. With approximately ten million visitors each year, Pike Place Market has become an exceptionally busy Seattle landmark. Due to its mixed-use commercial and residential properties, Pike Place Market is viewed as an active community neighborhood in Downtown Seattle with myriad indoor and outdoor public and private spaces.

SECURITY OPERATION AND MANAGEMENT	**PIKE PLACE MARKET**
In-House Security	21 Full-Time
Contracted Security Services	Special Events Only
Seattle Police Department	7 - 8 Off-Duty Officers 6 - 7 HRS/Week
Ambassadors	NO
Daily Staffing/Shift Cycles	7 Officers/3 Shifts
Guard Tour Systems	YES Proxi-Pens
CCTV Cameras	YES
Active Monitoring CCTV	YES
Emergency Call Boxes/Towers	YES - Alarms for Staff Only
Annual Security Cost/Budget	$1.3 -$1.4 Million
Patrol Method	By foot and Bicycles
Security Staff Facilities	YES

Pike Place Market is managed 24/7 by a staff of 21 in-house security personnel assigned to one of three shifts (up to seven officers per shift). An additional seven to eight off-duty SPD officers assist for six to seven hours per weekend. SPD are viewed as a key component of the security strategy as they provide a strong uniformed presence with full enforcement authority. CCTV cameras are utilized throughout, allowing staff to actively monitor he Market and proactively address enforcement issues. A guard tour system is also employed to monitor the security staff and, more importantly, maintain a patrol log in the event of a complaint from Market residents or visitors.

Typical recurring issues at the market involve intoxicant use in public restrooms, theft, and homeless individuals who settle along streets and alcoves throughout the Market campus. Market staff aggressively enforce the Sit and Lie ordinance throughout the campus and actively patrol the alcoves and sidewalks to dissuade vagrancy. The use of illegal intoxicants in public bathrooms is an issue and staff often patrol bathrooms to identify and remove any persons using illegal substances.

Buskers are a common sight throughout the Market and well defined busker protocols are clearly posted on the Market website which define the need for a busker permit and protocols for when and where to perform. This creates a sense of ownership and community among the performers which further adds to the safety and security of the Market.

CASE STUDY - OLYMPIC SCULPTURE PARK (SEATTLE ART MUSEUM)

The Olympic Sculpture Park is a 9 acre public sculpture garden along the waterfront in downtown Seattle. Historically, it was the last undeveloped waterfront parcel before it opened in January 2007, as a waterfront park. Since opening in 2007, it has become an award-winning public space utilizing a proactive approach to provide security and safety all year-round.

SECURITY OPERATION AND MANAGEMENT	OLYMPIC SCULPTURE PARK
In-House Security	NO
Contracted Security Services	YES; Baseline Security and Special Events
Seattle Police Department	4 Off-Duty Officers Special Events Only
Ambassadors	YES; Volunteers
Daily Staffing/Shift Cycles	1 Supervisor; 2 Officers/3 Shifts
Guard Tour Systems	YES (only in first years of operation)
CCTV Cameras	YES
Active Monitoring CCTV	YES
Emergency Call Boxes/Towers	NO
Annual Security Cost/Budget	$640,000
Patrol Method	By Foot and Bicycles
Security Staff Facilities	YES

The Sculpture Park is located just south of Myrtle Edwards Park, and the property is described by the Director of Security as a having relatively few safety and security "issues" as the property is located just outside of the downtown core. Typical issues associated with Seattle downtown public spaces are present; including vagrancy, drug and alcohol abuse, and other small enforcement issues that mostly carry over from Myrtle Edwards Park. Most daytime enforcement issues are limited to things such as off-leash pets, "art touches", and graffiti.

The Park is an open perimeter public space; however, the upper portion is closed in the evenings a park security staff to enforce a no trespassing policy from sunset to sunrise. The lower portion of the park is part of a waterfront bike trail which does remain open 24/7. A perimeter laser sensor is in place to assist security staff in maintaining a secure perimeter during evening hours. This system alerts staff when the perimeter is breached and a system of 29 CCTV cameras are used in conjunction to monitor and assess whether security staff should be deployed. A guard tour system was employed in the first few years of operation; however, staffing levels were reduced due to budget cutbacks and a regular evening property patrol was not feasible with limited staffing. The Park does not utilize emergency call boxes on the property, yet the Director of Security would like to install one at the lower park near the beach as this area remains open 24 hours and some incidents have occurred here in the past. An additional security camera is also being contemplated in this area.

All security personnel (officers) are provided through a contracted service with approximately 12 dedicated officers covering a 24/7 presence of 3-8 hour shifts. A minimum of two officers and one supervisor are always on staff with one additional officers brought in during the summer months to support increased visitation. Both small and large events are held at the Park and additional contracted staff as well as uniformed off-duty police are deployed to monitor entry points and patrol. Seattle Police do occasionally patrol the Park and the Metropolitan Improvement District does provide some cleaning and homeless population interaction support, although on a limited basis. A successful program of volunteer Ambassadors is also utilized during daytime hours to inform visitors of the Park sculptures and enforcing the "no touch" policy.

Incident report records indicate a seasonal increase during the summer months with notable rises in homeless interactions, drug and alcohol use, as well as trespassing. Security staff are very proactive in their approach to dealing with enforcement issues actively attempt to move along any rule violators without escalating the situation or involving SPD.

CASE STUDY - SEATTLE CENTER

Seattle Center, a 74-acre city hub, hosts approximately 5,000 events and activities related to arts, education, entertainment, and recreation annually. These events, which are held in both indoor and outdoor venues, bring in approximately 12 million visitors. Of the total area, 24 acres of public parkland are distributed amid 32 restaurants, shops, museums and other attractions.

As a city property, the Seattle Center is staffed with an in-house force of 17 full-time, two part-time, and six on-call certified union employees on a 24/7, three-shift rotation. In addition to the full-time staff, any programmed events or activities are supplemented by a contracted event security staffing firm or the Seattle Police Department.

Typical safety and security issues at the Seattle Center involve graffiti, public use of intoxicants, car theft and break-ins, and first aid response. Homeless populations do frequent the Center campus during operating hours, and are asked to vacate the property between the hours of midnight and 6:00 AM in accordance with City public space ordinances. Homeless persons generally abide by the ordinance and exit the property without the need for intervention by security staff.

A number of CCTV cameras throughout the campus are actively monitored by security staff and emergency call boxes are located in two of the three campus parking garages. An additional emergency call box is planned for installation in the third parking garage.

SECURITY OPERATION AND MANAGEMENT	**SEATTLE CENTER**
In-House Security	17 Full-Time 2 Part-Time 6 On-Call
Contracted Security Services	Special Events Only
Seattle Police Department	On/Off-Duty Special Events Only
Ambassadors	NO
Daily Staffing/Shift Cycles	5 Officers/2 Shifts; 2 Officers/Graveyard Shift
Guard Tour Systems	NO
CCTV Cameras	YES
Active Monitoring CCTV	YES
Emergency Call Boxes/Towers	YES - Only in Parking Garages
Annual Security Cost/Budget	$1.9 Million (95% Personnel Cost)
Patrol Method	By foot; 3 Bicycles; 2 Segways; 1 SUV
Security Staff Facilities	YES

Seattle Center also employs a dedicated graffiti response team that addresses any graffiti or vandalism within 24 hours of detection. This simple measure ensures the campus is essentially free of graffiti, which provides visitors with the sense of a clean, safe environment and acts as a deterrent to any further graffiti.

A high-priority future initiative for the Seattle Center is to retrofit all existing signage with clearly stated emergency phone numbers to provide a direct line in the event of an emergency which will decrease response times and ultimately increase public safety. All in-house security staff are annually certified as first aid responders. The Seattle Center also utilizes a several different modes of transit, including bicycles and Seqways.

Security Program Case Study Summary

SECURITY OPERATION AND MANAGEMENT	OLYMPIC SCULPTURE PARK	PIKE PLACE MARKET	SEATTLE CENTER
In-House Security	NO	21 Full-Time	17 Full-Time 2 Part-Time 6 On-Call
Contracted Security Services	YES; Baseline Security and Special Events	Special Events Only	Special Events Only
Seattle Police Department	4 Off-Duty Officers Special Events Only	7 - 8 Off-Duty Officers 6 - 7 HRS/Week	On/Off-Duty Special Events Only
Ambassadors	YES; Volunteers	NO	NO
Daily Staffing/Shift Cycles	1 Supervisor; 2 Officers/3 Shifts	7 Officers/3 Shifts	5 Officers/2 Shifts; 2 Officers/Graveyard Shift
Guard Tour Systems	YES (only in first years of operation)	YES Proxi-Pens	NO
CCTV Cameras	YES	YES	YES
Active Monitoring CCTV	YES	YES	YES
Emergency Call Boxes/Towers	NO	YES - Alarms for Staff Only	YES - Only in Parking Garages
Annual Security Cost/Budget	$640,000	$1.3 -$1.4 Million	$1.9 Million (95% Personnel Cost)
Patrol Method	By Foot and Bicycles	By Foot and Bicycles	By Foot; 3 Bicycles; 2 Segways; 1 SUV
Security Staff Facilities	YES	YES	YES

CASE STUDY - SEATTLE PARKS AND RECREATION DOWNTOWN PARKS

Conversations with Victoria Schoenberg, Center City Parks Manager also provided valuable insight into safety and security issues and efforts in downtown parks; specifically Westlake Park, Victor Steinbrueck Park, and Occidental Park. These parks near the Waterfront experience quite a bit of use, both good and bad. Although actively used by locals and tourists, significant antisocial behavior occurs within these parks including illegal drug use and transaction.

Baseline security for these parks is primarily provided through SPR Rangers and supplemented by SPD as well as resources provided through the Metropolitan Improvement District. Enforcement of park rules and regulations as well as city ordinances is an ongoing effort throughout downtown parks. Rangers are primarily responsible for enforcement and their powers are limited to issuing warnings and they cannot forcibly remove violators. Park Rangers work a typical 9-5 shift which, unfortunately do not allow them to monitor parks in the evenings. Rangers will typically support maintenance staff in the mornings.

Typically, SPD will be called in to deal with any issue that a Ranger may not be able to resolve. Rangers do have police radios and can directly contact SPD when needed. One issue is that often SPD officers are not aware of the exact procedures associated with the Parks Trespass Program. A recent initiative to provide downtown police officers with specific park enforcement procedures has helped to facilitate enforcement. The specific Parks Trespass Program procedures have been included as an appendix of this report.

In 2006, the Seattle Parks and Recreation Department began activating many areas throughout downtown, following the recommendations of a task force. Parks, working with various community partners, made good progress for several years and then began to experience less success as external forces began to change. Recently, the Downtown Seattle Association, Metropolitan Improvement District has dramatically stepped up its involvement and its investment. Efforts include funding a children's play space in Westlake in 2013 with the addition of more amenities and programs in 2014. In 2015, under a one-year agreement, efforts were made to significantly increase activation of both Westlake and Occidental Parks, with many more programs and amenities as well as 24/7 staffing, including overnight security.

Another recent downtown initiative called the "9 1/2 block strategy" included restricting access to alleys commonly used for drug dealing and an increased police presence in a specific 9 1/2 block downtown area in an effort to reduce illegal behavior. The initiative area included Westlake Park and efforts have shown to significantly increase safety, yet the temporary initiative has ended and issues will begin to creep back in. Efforts like this may need to be implemented on a regular cycle to maintain a baseline of safety and security in these areas.

Downtown Seattle parks do struggle with maintaining a safe, crime free environment at all times and efforts to increase programming, staffing, and SPD coordination are an ongoing challenge. Funding is a large factor which limits potential resources.

6.1 Waterfront Public Safety Overview

The new Waterfront Seattle project will span from Railroad Way along Alaskan Way/Elliott Way north to Bell Street. The project includes over eight acres of new and improved public open space, improved connections between center city neighborhoods and Elliott Bay, and nearly 1-1/2 miles of new street surfaces along Alaskan Way and Elliott Way. The majority of the project area, including much of the pedestrian promenade is located within the public right of way.

The Waterfront has been designed with public safety as a guiding principle; however, design alone cannot ensure a safe environment. A multi-faceted public safety strategy that consists of sufficient staffing, maintenance, programming, technology and coordination is critical in order to ensure the Waterfront will be a safe place for users, locals and tourists alike.

The public safety strategy recommended for the Waterfront is a multi-tiered approach that draws upon all available resources to ensure the Waterfront is a safe and welcoming place. Security is a site-wide responsibility that requires cooperation from not only the police, uniformed Waterfront staff and additional safety personnel, but visitors as well. The presence of people is what will ultimately make the Waterfront safe. Activated spaces in which people are present year-round effectively promote the perception of safety in public spaces, and this in turn promotes more use. To ensure that the space is activated initially, the Waterfront must be well-maintained and programmed, and supported with a comprehensive security strategy, including:

- Enforcement personnel - police and security staff
- Uniformed park staff - Waterfront O+M staff and safety ambassadors
- Safety and security infrastructure
- Robust programming of events and activities
- Clear enforceable rules and regulations

Many public spaces have struggled with crime and anti-social behavior simply because they take a reactive rather than a proactive approach. Behavioral and social issues can be difficult to manage proactively. Not only are there varying philosophical approaches to certain social issues, but existing enforcement rules and regulations can conflict with one another making clear enforcement difficult.

In terms of governance, the waterfront public spaces will likely be designated a "park boulevard" and will operate under a combination of park and street codes. Parks and park-like spaces will be closed at night, while streets and essential pedestrian access facilities will remain open. The waterfront will be monitored 24 hours a day, 7 days a week, by a team consisting of private security, safety ambassadors, and off-duty Seattle police officers. Friends of the Waterfront will provide a high level of programming and activity for the waterfornt public spaces. The Seattle Department of Parks and Recreation will have a permanent on-site maintenance staff that will enable higher levels of maintenance than possible in other city parks and provide and additional continuous staff presence in the new public spaces.

6.2 Potential Resources

6.2.1 Staffing/Uniformed Presence

The following section outlines the potential "boots on the ground" resources that the Waterfront could utilize as part of a comprehensive security strategy. The presence of a uniformed staff is an important component of a safe and secure urban space. Without a dedicated staff presence, issues will not be quickly identified, rules and regulations cannot be enforced, and positive relationships cannot be built. The following resources are provided to show the range of options including:

- Seattle Police Department (SPD)
- Security Personnel
- Off-duty SPD Officers
- Operations & Maintenance Staff
- Ambassadors
- Outreach Personnel
- Rangers & Safety Teams

Seattle Police Department

Police assistance in urban public parks is often necessary for enforcement of rules and regulations. In many cases, security staff do not have the ability to enforce posted rules and regulations or other city laws and local police will need to be called upon to diffuse dangerous situations, issue citations, or in some cases, make arrests. Although limited, SPD does maintain a presence along the Waterfront, and a special bike patrol unit covers some downtown areas.

The key to an effective security plan is coordination among those responsible for security with SPD. Waterfront security management staff will need to maintain a close working relationship with the Seattle Police Department (SPD). Regular meetings should be conducted to identify enforcement issues before they become problematic, and direct lines of communication should be well-established to ensure prompt response times when incidents do occur. Proactive communication and coordination between Waterfront staff and SPD will be a key component in ensuring park security. SPD should be made aware of the Waterfront posted rules and regulations and have a clear understanding what is considered public right-of-way and public park space.

Security Personnel

Many public spaces have a dedicated, security presence to provide safety and security. A uniformed security presence can be provided as either an in-house or contracted service that has been trained to recognize and respond to enforcement and safety issues.

Several Seattle organizations utilize contracted security firms for baseline security as their base of operations or as supplemental security during special events. Olympic Sculpture Park uses an outside security firm for their baseline security as well as special event support. Both Pike Place Market and Seattle Center use contract security to supplement their in-house baseline security staff during special events. Like in-house maintenance staff, one advantage of in-house security is, they get to know the rhythms of the site and are more likely to proactively deal with potential enforcement issues. However, numerous nationally recognized contracted security firms do provide security services for outdoor public spaces with local, dedicated personnel with low turnover rates.

An inherent issue associated with security staff is the limited authority in enforcing rules and regulations. Typically, security staff can only issue warnings to park users and cannot issue citations or forcibly remove individuals who are causing a nuisance or not abiding by posted rules and regulations. In such an event, local police are often called upon if a security officer cannot independently resolve an issue.

Off-Duty SPD Officers

Off-duty police officers are often used to supplement enforcement in public spaces. In the case of Seattle, many existing adjacent organizations including the Olympic Sculpture Park, Pike Place Market, and the Seattle Center utilize or have used off-duty SPD officers during busy times, such as weekends, or as support during special events. Off-duty police officers can be a valuable component in a security strategy as they are highly trained personnel who have the authority to enforce city ordinances and issue citations. In the case of Olympic Sculpture Park, paid off-duty officers wear their standard issue uniforms which deters antisocial behavior and crime.

Operations & Maintenance Staff

Uniformed O+M staff can act as additional "eyes and ears" in public spaces. Their primary responsibility is maintenance of park areas, however they can also provide a layer of security simply by their presence and their capacity to see and be seen.

SPR employs a dedicated staff of maintenance and cleaning personnel who are responsible for all Parks and Recreation properties including all downtown parks and some areas along the Waterfront. Additionally, the Metropolitan Improvement District (MID) employs a "Clean Team" within their MID neighborhoods. The Clean Team is responsible for keeping streets and sidewalks clean and free of trash and graffiti. With the current Waterfront Seattle joint operating agreement, dedicated SPR staff will be responsible for daily maintenance of the project area.

All entities who will have some level of involvement in the Waterfront should be knowledgeable with regards to rules and regulations so that they may confidently inform non-compliant park users. In many cases, O+M staff receive training in conflict resolution and are equipped with portable radios for direct communication with appropriate security personnel.

Outreach Personnel

The MID employs a unique program of outreach and education services called the Outreach Team. The MID Outreach Team works to connect the homeless and mentally ill on the streets of Downtown Seattle with social services, housing, treatment, employment and other basic needs. For many homeless who live on the streets, there isn't a clear understanding of how to connect with services and basic needs to improve their lives. The MID Outreach Team serves as a link to assisting those homeless willing to use existing social services.

Rangers and Safety Teams

In addition to the resources mentioned above, SPR provides a Ranger program and the MID provides an MID Hospitality and Safety Team (Ambassadors) which focus on providing information and assisting downtown visitors. Rangers and the Safety Team are already present at Waterfront Park, Pier 62/63 and other areas along the Waterfront. Their primary role is to interact with visitors and provide assistance. Efforts to build on these existing programs should be explored and encompass the entire Waterfront area either though partnering with existing efforts and/or expanding current efforts with supplemental staff. Their roles could be quite similar to Waterfront Rangers and MID personnel, however their focus would be dedicated solely to the Waterfront. This type of presence can deter anti-social behavior, and can provide visitors with an added sense of safety.

Ambassadors

Ambassador programs are another opportunity to create a community based, uniformed presence along the Waterfront. In Seattle, ambassador programs typically use local volunteer resources to educate and interact with the public. These volunteers are commonly local youths, retirees, and engaged professionals looking to be an active part of their community and help make a difference. The Olympic Sculpture Park utilizes volunteer ambassadors to interact with and inform Park visitors of upcoming events and fun facts about the various sculptures. The Friends of Waterfront Seattle already employ a team of ambassadors that help with events and community outreach to build project awareness. Their role could easily transition into a more dedicated presence upon completion of the Waterfront.

6.2.2 Safety & Security Technology

Any public space safety strategy should consider the use of new technologies and innovative safety infrastructure such as closed circuit television systems (CCTV), perimeter alarms, and guard tour systems. These elements of the safety and security strategy can act to complement existing efforts although these are more reactive than proactive, and in some cases, increase the general feeling of safety within the environment if used properly and effectively.

CCTV Cameras

Security cameras are commonly used for monitoring of outdoor public spaces and can be a key component in a security strategy. However, there is little evidence that CCTV alone deters crime or antisocial behavior. There is also the concern that the presence of too many CCTV cameras can, in fact, give the impression that an area is unsafe - as "why else would there be so many cameras?". The city of Seattle has had a history of resistance to the use of CCTV cameras in public parks. The use of cameras in the Waterfront would need to be carefully planned and implemented. If properly integrated, CCTV can be a valuable addition to any safety and security strategy.

CCTV cameras can be either actively monitored to address issues as they occur or used as a tool to address and identify issues after they occur. With either approach, cameras can provide an additional level of security and a valuable tool to identify, deter and resolve safety and security issues.

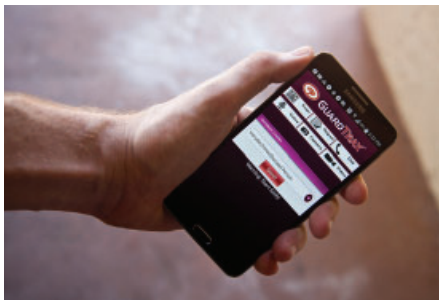
Perimeter Alarms

Laser perimeter alarms are an effective method of alerting security personnel of activity in an area that may be closed for public use. This system is typically used in tandem with CCTV cameras to identify who or what has set off the perimeter alarm. The Olympic Sculpture Park (OSP) utilizes a laser alarm on the perimeter of their campus as a tool to identify activity during evening hours. The OSP has a permeable perimeter with no fencing, however, security personnel do enforce a no trespassing policy during evening hours. This technology enables security staff to quickly identify and evaluate whether any action is necessary.

The Waterfront is also a permeable public space, however, the Promenade and Alaskan Way are heavily traveled commuter corridors which will likely be used at all hours. Additionally, multiple pier properties along the Waterfront can only be accessed by traversing the Promenade, which poses further issues in maintaining a secure perimeter. Perimeter alarms could be employed during evening hours at specific locations such as the Overlook Walk, Pier 62/63, or Waterfront Park that are not part of the promenade.

Guard Tour Systems

Electronic guard tour systems are an effective way to ensure supervision of mobile security patrols. Electronic guard tour systems use "touch memory" technology that enables security staff to easily record and report events and document the exact date and time of patrols. Each patrol is electronically recorded to verify that the security rounds were actually performed. This modern "watchman's key" is very effective in ensuring security checks are carried out as scheduled.



Technology innovations now incorporate the use of a mobile device which can greatly increase staff effectiveness. Any enforcement issue can be sent to guards as a "pin-pointed" Geo-referenced location via mobile device. With a single press of a button, a panic notification can be sent to emergency personnel. If a security staff member is down or immobile, a motion sensor will also transmit an alert. An evaluation report can be made using the reported data from a guards device. Details of time, tours, incidents and progress of individual or multiple personnel reports can be assessed. This can be reviewed by the supervisors to determine certain incidents and improve protocol within a security system.

6.2.3 Waterfront Programming and Safety

Community Involvement

As the Waterfront transitions into a new public space, it will be important that the community feel a sense of ownership. Proactive efforts should be made by the managing entity of the Waterfront to ensure that residents from the adjacent communities and businesses feel welcome and that facilities and activities meet the diverse community needs. Providing relevant activities and opportunities to develop and sustain ties with visitors will be one of the most important and challenging management issues. Establishing partnering opportunities to strengthen the bond between the Waterfront and its community organizations should be a major priority. The Friends of Waterfront Seattle are already engaging the community through a "Hot Spot" event series that partners with local promoters and organizations at Waterfront Park during the construction phase of the Waterfront.

Volunteering also encourages the local community to get involved with the Waterfront, develop new skills, establish stewardship, and increase safety. This is an ideal opportunity to establish an ambassador program through the Waterfront managing entity. Creating a sense of ownership for nearby community members and organizations will be an important management goal and will ultimately help manage enforcement related issues.

Events & Activities

The importance of programming events and activities cannot be understated when considering a park security strategy. Simply stated, events and activities attract visitors, and active public spaces are typically low in crime. More eyes and ears at the Waterfront will simply help to deter crime, vandalism and other anti-social behavior. Also, events and activities encourage repeat visitation and provide visitors with constructive ways to use the Waterfront and build a sense of stewardship. As stated above, the Friends of Waterfront Seattle have already established a reduced scale event schedule at Waterfront Park which could potentially be expanded under the Friends management to include the entire Waterfront.

Safety & Emergency Response

Accidents can occur anywhere at any time. The Waterfront should provide on-site emergency protocols regarding First-Aid assistance and water safety. Any water edge public space should provide emergency equipment such as throw lines and flotation devices to facilitate water rescue. An on-site emergency response station and trained personnel should be available, especially during busy times or special events. All staff should receive basic CPR training, maintain required first aid certification, and know all safety protocols and emergency service contacts. Outside emergency medical personnel won't necessarily have sufficient knowledge of the Waterfront locations and areas, which may hinder the response time in an emergency situation and clear protocols should be defined for staff to guide emergency personnel to specific locations. The Waterfront is designed to allow small emergency vehicles with a medical flatbed to access all areas including the Promenade and Alaskan Way when transporting a patient to an emergency response location.

6.3 Rules, Regulations & Enforcement

The Waterfront is a unique public space, set primarily within the public right of way. This presents several challenges of how to designate the space and implement clear rules and regulations. The Waterfront serves as a commuter corridor that cannot be "closed" like traditional park spaces which can make it much more difficult to manage and monitor. Most downtown parks have well defined boundaries with clear rules and regulations regarding drug and alcohol use, camping, and other antisocial behaviors. Parks also have established methods and resources for enforcement. A typical SPR approach of excluding persons exhibiting antisocial behavior is not currently possible in the right of way and will present some challenges for Waterfront management.

Right of Way in Downtown Seattle is regulated by an ordinance commonly known as the "Sit and Lie" ordinance which prohibits sitting or lying on sidewalks in the city's business areas between the hours of 7:00 a.m. and 9:00 p.m.

The City is currently exploring legal methods to apply park-like rules and regulations to the Waterfront while not infringing on the constitutional rights of users of the right of way. Approaches under consideration include designating the Waterfront as a "Park Boulevard", by transferring operating responsibility to Parks through a Memorandum of Agreement (MOA), or enacting special legislation to address the unique circumstance of a park operating in the public right of way.

Signage - Rules & Regulations

Signage located throughout the Waterfront could play a role in effectively communicating rules and regulations, whether those are existing laws or rules specific to the waterfront public spaces. Focused implementation of signs clearly stating the rules and regulations will effectively inform the public of what they can and cannot do. Most importantly, clearly posted rules and regulations allow security personnel to effectively enforce. A common issue in urban public space is effectively enforcing park rules, as local police may not be aware of specific enforcement rules and procedures used for enforcement.

Seattle Parks and Recreation - Rules, Regulations & Enforcement

An outline has been included in Appendix D of this report that illustrates specific rules and regulations of all Seattle Parks and Recreation properties and the specific enforcement protocols to be followed by SPD, Rangers, and any others designated by Parks. These rules, regulations & protocols provide a useful reference for Waterfront managing entities.

6.4 Waterfront Safety and Security Summary

6.4.1 Waterfront Specific Considerations

The Waterfront is a dynamic space that will need a comprehensive and coordinated security strategy that should include a full-range of tools including design, technology, programming and staffing. Nestled between the busy downtown core of dense storefronts and residential buildings and the active waterfront piers, the Waterfront will experience significant use even during off-peak times. The Waterfront acts as the "front yard" for the numerous piers along the waterfront and significant traffic will be moving along and through the Promenade to access the Seattle Ferry Terminal and the various shops and attractions located along the water's edge. Stadium Plaza at the southern edge of the Waterfront will be inundated with swarms of fans before and after events at Century Link Field. Additionally, Alaskan and Elliott Way will receive significant vehicular traffic including commuter bus lines and transit stops.

In addition to the spatial challenges described above, the Waterfront is anticipated to serve a number of uses. The Waterfront is a vital commuter corridor accommodating pedestrians walking to work and ferry terminal users. Both tourists and locals frequently visit the waterfront to enjoy the views and the myriad attractions along the waterfront including the Seattle Aquarium, Pike Place Market, and numerous shops downtown.

The newly constructed space will be a great attraction with numerous green spaces, plaza areas, playgrounds, water play areas, and scenic views to be enjoyed by all. Additionally, the Waterfront will be activated with a robust schedule of programs and activities as well as occasional large festivals or events.

Weather is also a large factor in maintaining safety and security. Seattle experiences a rather long cold, rainy season which greatly effects outdoor public space usage. Changes in use and behavior patterns will need to be monitored and staffing efforts will need to fluctuate accordingly.

Several elevators are included within the project area which will need to be managed from a use standpoint. Questions of whether all elevators will be permanently in use or closed during low-use evening hours will need to be defined. Additionally, some areas of the Waterfront will be difficult for emergency personnel to access such as the Overlook Walk. This elevated area is only accessible on foot by elevators, ramps or stairways.

Another concern from a staffing and jurisdictional perspective will be defining and enforcing Waterfront rules and regulations to limit "street disorder". Antisocial behaviors such as drug use and transaction, alcohol use and public intoxication, camping, public urination, and aggressive panhandling will need to be continually monitored and addressed as needed. Maintaining a safe and secure Waterfront will require diligent efforts.

6.4.2 Initial Recommendations - Safety and Security Strategy

A park security and safety strategy is a complex mix of elements which must be implemented with the proper balance and be updated to deal with new security issues. Technology, good design, professional management, proper maintenance and robust programming must all be in place to ensure the park is safe and clean. Any security strategy must continually be evaluated and revised to account for new issues and problems or to respond to shifting community needs and concerns. While people will make the park safe, it is only with a proactive approach to security and park use that we can effectively manage the needs and concerns of our visitors.

Recommendations for the safety and security strategy at the Waterfront must begin with effective planning and oversight. A key consideration should be to form a security council which meets regularly to evaluate ongoing issues, changing dynamics and to coordinate response efforts. This will allow the Waterfront safety and security program to adjust to new enforcement issues. In the 1980's, New York City's Central Park formed a security council as a key component to coordinate activities of those involved in safety and security which was very effective in defining and implementing policies and procedures. A Waterfront security council could either be implemented through the SPR or the Waterfront managing entity. A security coordinator should also be appointed to ensure effective coordination and implementation of security council initiatives.

The right mix of staffing is key in ensuring safety and security. We recommend a blend of resources that can support daily use while easily adjusting to accommodate higher use times associated with seasons, weekends and special events. A core dedicated maintenance staff should be employed as the "eyes and ears" of the Waterfront, especially during peak times and weekends when visitation is highest.

A steady security presence must be on-site at all times which adjusts to accommodate the summer season. Security staffing for busy weekends, special events or festivals should be supplemented through additional resources; either off-duty police, on call-staff, or private security forces. Budgeting for supplemental security must be secured prior to the event season to ensure adequate coverage throughout the year. Developing and implementing an Ambassador program should also be a priority to proactively engage Waterfront users and develop positive relationships and a strong identity.

Additionally, installing and effectively implementing technology such as CCTV cameras, guard tour systems, and perimeter alarms will enable staff to effectively maintain a safe and secure environment.

6.4.3 Safety and Security Methodology

The following page provides a detailed table of recommended safety and security resources for the completed Waterfront. In forming a recommended strategy, a number of assumptions and decisions were made. The below methodology outlines these assumptions to provide a rationale for the proposed recommendations.

Current safety & security assumptions include:

- Security staffing recommendations are based upon a high-quality level of safety and security, meaning that proactive security measures will be adequate to manage and maintain safe secure public spaces at all times.
- Baseline security staffing recommendations have been created using Seattle peer parks acreage/staff ratios as well as Waterfront specific acreage/length and time calculations to ensure staff can adequately cover all areas of the Waterfront on a regular schedule.
- Three 8-hour security shifts are specified for the Waterfront (Day/Swing/Graveyard).
- At least two security officers will be on duty at all times.
- Two full time Security supervisory officers will supplement (in addition to) baseline security staff at times when most needed (peak times, during events, cover shifts).
- Off-duty SPD patrol (2 person teams) will supplement baseline security teams for an 8 hour shift 5 days/week (Wed.-Sun. during peak season & Sat.-Sun. during off season).
- Supplemental security for events is to be provided by off-duty SPD for up to 12 large events with 3 officers for a 6 hour period.
- Safety ambassadors are included as two person teams: year round for an 8 hour shift, 7 days/week supplemented with a peak season 2 person team for a six month period, 7 days/week.
- Hourly rates used for all staffing positions are based upon 2017 Seattle city Employee Salary Union Rate Schedule data (positions and hourly rates) unless otherwise noted.
- All indirect cost rates for baseline security staff and safety ambassadors have been provided by the City of Seattle at a rate of 55%.
- Off-duty police officer hourly rates have been provided by Pike Place Market Security Manager and confirmed by Seattle Art Museum Director of Security. Off-duty SPD rates are flat rate and do not include indirect costs.
- All costs are adjusted from current costs with a 3% annual increase to reflect 2023 costs.

6.4.4 Initial Recommendations - Safety and Security Strategy

Waterfront Seattle - Safety and Security Strategy	
Management	
Security Council	An in-house council should be formed with members consisting of the Waterfront managing entity, SPD, Friends of the Waterfront, adjacent local businesses such as Pike Place Market, and any other organizations to be invited on a case by case basis. Council meetings should be held on a regular basis (quarterly) to evaluate ongoing issues and implement/adjust initiatives to address changing dynamics. Initial efforts could reduce based on level of need.
Security Coordinator	A part-time Security Coordinator "point person" set in place at the Waterfront to implement and coordinate security initiatives across all applicable organizations. The Coordinator would be a key part of the Security Council and act as link between management and staff, delegating new initiatives and evaluating outcomes. The coordinator would facilitate meetings, create agendas, disseminate information, and provide information and updates to key security staff.
Staffing	
Security Supervision	2 supervisory officers employed on a full time basis to oversee and support security officers and other uniformed staff. Supervisory officers would perform security staff scheduling, equipment and material purchases/repairs/rentals, coordination with partner security resources (Friends Ambassadors, MID teams, off-duty police, etc.), provide special event support, and perform foot patrols when neeeded.
Year Round Security	Year-round security team; 365 days/year: two staff team for three daily shifts (3-8 hours shifts). Security staff should patrol the property on a regular schedule either by foot, bike, or seqway.
Off-Duty SPD Patrol (Peak Season)	Peak Season supplemental security; May-October: two daytime staff team (1-8 hour shift, 5 days/week) to provide support to year-round security team. Off-duty SPD should patrol the property on a regular schedule either by foot, bike, or seqway.
Off-Duty SPD Patrol (Off Season)	Off Season supplemental security; Nov.-April: two daytime staff team (1-8 hour shift, 2 days/week) to provide support to year-round security team. Off-duty SPD should patrol the property on a regular schedule either by foot, bike, or seqway.
Supplemental Event Security (Off-Duty SPD)	Supplemental off-duty SPD staffing to support year-round and seasonal staff during events as needed. Up to 12 large events/year; 3 officers for 6 hours. All supplemental security should be clearly indicated as SPD officers (uniformed).
Safety Ambassadors	A year round 2 person Ambassador team, 7 days/week for an 8 hour shift during daytime hours.
Safety Ambassadors (Peak Season)	A peak season (April-September) 2 person Ambassador team, 7 days/week for an 6 hour shift during daytime hours.
Operations & Maintenance Staff	Dedicated maintenance staff tasked with cleaning, maintaining, and supporting Waterfront operations as additional "eyes and ears".
MID Team Members	MID Clean, Outreach, and Safety Teams working in areas that overlap and abut the Waterfront should coordinate with Waterfront Security and O&M staff to ensure adequate coverage and avoid overlap.
SPR Rangers	Rangers working within the Waterfront area to coordinate with Waterfront Security and MID staff to provide additional "eyes and ears".
Seattle Police Department (SPD)	Seattle Police Department officers to include the Waterfront as part of their regular patrols and provide enforcement of Waterfront rules and regulations. SPR should have direct lines of communication with security staff and have a clear understanding of Waterfront layout and rules & regulations.
Note: all staff should be uniformed, knowledgable of the Waterfront rules and regulations, equipped with personal communication devices, and trained in emergency protocols and First-Aid.	
Security Infrastructure	
CCTV Cameras	For consideration: Focused use of low-profile CCTV cameras in high use areas of the Waterfront such as kiosks. Cameras should be monitored when possible, not just used to address issues after they occur.
Guard Tour System	For consideration: implementation of a guard tour system primarily for use in the evining hours. A strategy of placing a guard tour stop at frequent stops throughout the project area, especially high activity areas where enforcement issues tend to occur.
Perimeter Alarms	For consideration: Perimeter alarms at non-commuter areas to monitor activities during evening hours.

6.4.5 Safety and Security Budget

Waterfront Seattle - Safety and Security Budget					Comments
Annual Security Expenses	**Qty.**	**Rate**	**Indirect Cost %**	**Total Cost**	
Security Coordinator	2,080	$ 41.98	55%	$135,353	Full-time coordinator
Security Supervision	4,160	$ 39.59	55%	$255,307	Field security supervision - 2 full-time working supervisory officers
Security (Year Round)	17,520	$ 28.60	55%	$776,595	two person teams for three daily shifts (3-8 hours shifts)
Off-duty SPD Patrol (Peak Seson)	2,080	$ 86.14	N/A	$179,169	8Hrs/Day x 2 Officers; 5 Days x week (Wed.-Sun.) May -Oct.
Off-duty SPD Patrol (Off-season)	832	$ 86.14	N/A	$71,668	8Hrs/Day x 2 Officers; 2 Days x week (Sat.-Sun.) Nov. - April.
Off-duty SPD (Event Support)	216	$ 86.14	N/A	$18,606	6Hrs/Event x 3 Officers; 12 large events/year
Safety Ambassadors (Year Round)	5,840	$ 22.36	55%	$202,389	Two person team (8 hour shift, 7 days/week)
Safety Ambassadors (Peak Season)	2,196	$ 22.36	55%	$76,104	April 1 - Sept. 30 - Two person daytime staff team (6 hour shift, 7 days/week)
Equipment and Uniforms				$6,000	Uniform replacement and new hires
Tech support (CCTV, alarms, Etc.)				$15,000	
Security Vehicle Maintenance/Replacement				$10,000	
Subtotal Security Expenses				**$1,746,191**	
Initial Capital Security Expenses		**Qty**	**Cost**	**Total Cost**	
Security Vehicles					
Bike		3	$ 700.00	$2,100	
Segway		2	$ 5,500.00	$11,000	
Gem Vehicle		1	$ 10,000.00	$10,000	With flat bed for use as emerg. response vehicle
Communications - Two-way Radios		14	$ 500.00	$7,000	
Supplies				$20,000	Unifroms,crowd barriers, signage, etc.
Subtotal Capital Security Expenses				**$50,100**	
Initial Capital Construction Security Expenses		**Qty**	**Cost**	**Total Cost**	
Guard Tour system*		8	$ 4,000.00	$32,000	Guard Pen/RFID wall unit system
Perimeter Alarm System		3	$ 3,500.00	$10,500	Waterfront Park, Piers 62/63, & Overlook Walk
CCTV Cameras*		12	$ 2,500.00	$30,000	Outdoor low profile dome camera system with recording system and monitor
Subtotal Capital Construction Security Expenses				**$72,500**	

* Security infrastructure associated with initial design considerations/costs. Expenses do not include utility hookup or installation costs.

** All rates include a 3% COL increase to illustrate 2023 rates.