CITY OF KIRKLAND
Planning and Building Department
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MEMORANDUM

To: City Council

From: Adam Weinstein, AICP, Director of Planning and Building
             Lynn Zwaagstra, Director of Parks and Community Services
             Julie Underwood, Director of Public Works
             Jeremy McMahan, Deputy Director, Planning and Building Department
             Deb Powers, Urban Forester

Date: February 17, 2021

Subject: SIX YEAR URBAN FORESTRY WORK PLAN, PLN21-00091

RECOMMENDATION:

It is recommended that the City Council receive a briefing on the Draft Priorities: 2021-2026 Six Year Work Plan (Attachment 1) and provide direction on citywide sustainable urban forest management priorities. Staff will return to a future meeting for further discussion and final adoption of the Work Plan.

BACKGROUND DISCUSSION:

Trees are recognizable symbols of a vibrant and healthy community. As attractive urban amenities, trees beautify landscapes, enhance our parks, and create an ambiance that has been shown to have positive economic effects on local business districts. But beyond aesthetic and place-making qualities, studies show that trees, or more collectively, urban forests, address significant environmental, economic and social issues, highlighting the need for communities to better manage their urban forest resource.[1]

The well-known contribution that trees make to urban areas is to remediate the expansive increase in impervious surfaces from development. Urban forests are biophilic (nature-based) solutions, a Low Impact Development (LID) feature and green infrastructure. Trees provide quantifiable stormwater management, pollution control, and improvements to air and soil quality.

Regardless of the terminology, it is important to consider urban forests as a community asset for the myriad of public benefits they provide.[2] With other types of municipal assets such as utilities and other urban infrastructure, the City plans for and expects high performance to allow public investment dollars to go as far as possible. The Urban Forestry Work Plan that is the focus of this memo employs this same principle.

Recognizing the value and benefits of its urban forest, Kirkland established policies and goals to protect, enhance and "strive to achieve a healthy, resilient urban forest…" (Comprehensive Plan Policy E-2.1). Yet a healthy, resilient urban forest doesn't just happen - it requires decisions that

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[1] City of Kirkland Urban Forestry Strategic Management Plan, Section 1.2, Urban Forest Benefits, pages 7-11
[2] Green Cities: Good Health online research portal

may take 20 years to have an effect, can involve public *and* privately-owned trees, and often requires the coordination of multiple City divisions.

Kirkland's Urban Forestry Strategic Management Plan (UFSMP) was developed to address these challenges and guide municipal efforts over a long-term horizon. Adopted in 2013 (Resolution 4986), it provides a 24-year framework for cohesive and efficient municipal urban forest management, using
- Science-based strategies
- Sustainable urban forestry program modeling
- Data-driven performance measures[3]

A citywide gap analysis was conducted by Davey Research Group consultants to assess the City's 2013 performance in urban forest management.[4] Based on the gap analysis, the risks of inaction and the benefits of increased performance, actionable recommendations were developed to guide Kirkland's tree management efforts within shorter, six-year timeframes.

The first Citywide Six Year Work Plan (Work Plan) focused on high priority objectives and the most feasible accomplishments that could be addressed between 2014 and 2019. A six-year timeframe was intended to correlate with Kirkland's biennial budget and Capital Improvement Project (CIP) cycles, with the intent that each department would develop its annual operating documents, or work plans, ensuring long range goal achievement results from day-to-day operations.

To monitor performance over time as the UFSMP is implemented, a review and gap analysis was anticipated for the final year of each six-year Work Plan. Evaluating the performance of the 2014-2019 period and developing citywide priorities for a 2021-2026 Work Plan is a project on the 2020-22 Planning Work Program. Like several Planning Work Program items, the timing has was slowed somewhat due the impacts of the COVID-19 pandemic.

Project Framework
The process outlined in Attachment 2, the Project Framework, includes scoping, timeline and steps involved with developing a six-year work plan. A Steering Team was formed with directors from each of the three departments primarily involved in urban forest management: Parks and Community Services (Parks), Public Works and Planning and Building. The Steering Team selected a Staff Team of representatives from each department to conduct the review and gap analysis:

> Jodie Galvan, Parks and Green Kirkland Partnership Supervisor, Parks
> Ryan Fowler, Parks Supervisor, Parks
> Nathan Hower, Streets and Grounds Manager, Public Works
> John Burkhalter, Development Engineering Manager, Public Works

After the scoping process, the department representatives (Staff Team) began reporting on progress by providing data on each of the action items identified in the prior six-year work plan. Staff had not been consistently tracking progress, so obtaining sufficient data on 2014-2019 urban forestry objectives was challenging, demonstrating a need for better monitoring and coordination across divisions. In addition to noting progress, the staff team identified inefficiencies or barriers to completing action items – important considerations as priorities are being developed.

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[3] UFSMP Appendix A, Performance Measures, pp. 63-66
[4] Summarized in the UFSMP Section 5, Current Performance Assessment (2013), pp. 42-48

The City's key achievements are listed below, with a more detailed assessment and gap analysis included in the Status Report on 2014-2019 Urban Forestry Objectives (Attachment 3) that outline actions towards a healthy, sustainable urban forest.

Key 2014-2019 Accomplishments
Below is a summary of the urban forestry objectives achieved over the last six-year period by department. Projects that were not identified in the UFSMP or 2014-2019 Work Plan are noted with an asterisk (*):

Planning and Building
- ✓ 2014 - Procured grant funding for UFSMP
- ✓ 2014 - UFSMP & Six Year Work Plan development
- ✓ 2015 - Procured grant funding for park tree inventory
- ✓ 2018 - Tree Canopy Assessment
- ✓ 2018 - Participation as pilot city for a regional stormwater modeling project*
- ✓ 2018 - Sterling Tree City USA Award, a culmination of 10 years of Growth Awards
- ✓ 2019 - Outreach/education: video series (3) and This Week in Kirkland articles (6)
- ✓ 2020 - Updated codes for tree code enforcement

Parks Maintenance
- ✓ 2015 - inventoried 2,400 trees in 23 active parks, community center and cemetery
- ✓ Ongoing - updating 4-9 parks/year tree inventory
- ✓ Ongoing – approximately 40 trees are planted annually to replace removals and where space allows

Green Kirkland Partnership
- ✓ Assessed 512 acres of open space using Tree-iage (traditional stand management)
- ✓ 2007-2019 - planted 12,922 native trees
- ✓ 2019 - met prior 20-year goal, including 119 acres enrolled in restoration, 12,922 native trees planted, and 111,604 volunteer hours donated
- ✓ Ongoing - community involvement and forest stewardship
- ✓ Ongoing - engagement with kids, students and families

Public Works Grounds
- ✓ 2017 – inventoried 12,000 street trees located on select arterials and collectors (approximately 26,600 trees remain to be inventoried)

Public Works CIP
- ✓ 2014 – revised Tree Grate Detail
- ✓ Ongoing - plant right of way (ROW) trees with CIP projects (quantities per year vary)

Priorities for 2021-2026
After compiling data on progress towards 2014-2019 Six Year Work Plan objectives, including an understanding of any barriers to completing action items, the Project Team moved forward with a gap analysis of each objective, assessing the City's performance based on the same model for sustainable urban forest management established in the UFSMP. A summary in "dashboard" format shows the 2013 and 2020 performance of management objectives by department (Attachment 4).

The significance of viewing performance indicators allows decision-makers to have a better understanding of how objectives relate within a programmatic context and compared to each other, using data-based criteria. The Staff and Steering Teams assessed urban forestry priorities for 2021-2026, considering prior performance in addition to:

- Risk of inaction versus benefit of improved performance
- Department needs
- Estimated resources to implement
- Sequence of order to implement, compared to other priorities
- Desired outcome of the urban forest asset and its functionality

The Draft Priorities: 2021-2026 Six Year Work Plan (Attachment 1) is formatted to show the Staff and Steering Team's decision process by recommending priorities assessed under high, medium and low categories. Estimated resources and project/program sequencing are shown for further prioritization.

Some key guiding documents that helped to shape the draft work plan's high priorities include the City's equity and inclusion Resolution R-5434, the Sustainability Master Plan and two recently-approved service package requests (outlined below), underscoring the need for citywide urban forest management.

High priorities for the 2021-2026 Plan that reflect these themes include:
- Proactively maintain public trees in both public right-of-way and parks
- Development of robust tree planting programs, including aftercare
- Complete the street tree inventory
- Equitably distribute tree canopy cover and benefits
- Enhance canopy cover through CIP projects
- Protect Heritage trees
- Develop departmental work plans and report to City Council annually

While many of the objectives that were not completed within the 2014-2019 period were moved to the next six-year planning cycle, some of the objectives were reorganized to avoid redundancies or dropped altogether. Outreach efforts were consolidated under a single objective to develop inclusive community education and outreach. Seeking program/project accreditation was not carried over as a 2021-2026 priority.

Related Policies, Plans and Community Feedback
In assessing urban forestry priorities for the next six years, the Staff and Steering Teams considered the following public input and supporting policies or initiatives:

Community Feedback
- The 2015 public feedback Wordle, which indicated that a "green" and "livable" city was the top vision for Kirkland in 2035
- A key result from the recent 2020 Community Survey is that "protecting the natural environment" ranked 5th in importance out of 21 City services

To develop the last six-year plan, a survey about trees was conducted in 2012.[5] A recent online Community Tree Survey was released February 5, remaining open for 2 weeks through February 19, 2021. Like the 2012 survey, the number of responses exceed 600 (as of February 18, 2021). To benchmark the community's input on the City's urban forestry management efforts, the questions are similar, with additional options to select "I'm not sure, give me examples of…" and "I don't have enough information to respond" to understand areas for targeted public outreach.

Survey questions relate primarily to municipal tree care operations with the intent of informing the City's priorities for the 2021-2026 Six Year Work Plan. Open-ended comments are limited to

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[5] UFSMP Appendix C: Public Survey Results, pp. 70-92

two questions, asking for solutions or ideas on public tree management and how to encourage the preservation and planting of trees on private property. Staff will provide an overview of the final survey results at the study session.

Recently-Approved Funding Requests
- Service Package Request #21PB14 - Public Land Tree Inventory to "shape a future tree planting program on City properties and in City rights-of-way, including supplementing previous City tree inventories"
- Service Package Request #21PB15 – Formalization and Enhancement of Tree Bank to "support creating a more formal framework around the City's Forestry Account, including establishing priorities for funding"

Sustainability Master Plan Goals
- Develop strategies to manage Kirkland's urban forest for optimal health, climate resiliency and social equity
- Formally recognize and support internal cross-department collaborative planning to develop and implement sustainable urban forestry strategies for the broader community
- Ensure continued health and growth of public trees by improving the public tree maintenance program: provide adequate public tree maintenance resources and update and maintain the right-of-way tree inventory to manage for age and species diversity objectives
- Develop canopy enhancement strategies to mitigate public health impacts in areas that may be disproportionately affected by adverse environmental conditions which may directly, or indirectly, be associated with social disparities in income, homeownership, education, access to transportation and other services, public health outcomes, and other challenges
- Develop and implement tree planting programs in partnership with schools, regional agencies and nonprofits to increase tree canopy cover on private and public property, including rights-of-way, parks and natural areas
- Identify and prioritize climate resilient tree species for public and private tree planting programs
- Dedicate resources for an ongoing, robust and inclusive public education framework that engages the community, increases awareness of long-range goals and code requirements, promotes stewardship of the urban forest, communicates the value and benefits of trees, and garners public support for the planting and preservation of trees citywide
- Evaluate pre-approved public works plans and look for opportunities for retention of right-of-way trees

Direction from City Council
Some of the 2021-2026 proposed Work Plan items are policy related and/or can be absorbed by current levels of staffing. However, implementing some of the key high priority items, especially additional public tree maintenance, will take additional resources. Options for funding would need to be developed as part of the 2023-2024 budget process. Therefore, the Project Team will be seeking direction from City Council on the following:
- Does the City Council agree that the priorities outlined in Attachment 1, the Draft 2021-2026 Work Plan?
- Are there other policies or additional objectives that should be considered in establishing the 2021-2026 Citywide Urban Forest Work Plan?
- Does the City Council have any guidance on the most effective way to bring back information on achieving work plan objectives? What types of information/data would be most useful?

NEXT STEPS:

With direction from the City Council, staff will refine the draft 2021-2026 Six Year Work Plan objectives. Staff will return to City Council on April 6, 2021 to present an updated draft for further discussion or potential adoption by resolution.

Attachments:
1) Draft Priorities: 2021-2026 Six Year Work Plan
2) Project Framework
3) Status Report: 2014-2019 Urban Forestry Objectives
4) Performance Indicator Dashboard

Draft Priorities for 2021-2026 Six Year Work Plan

Citywide Sustainable Urban Forest Management

Management Objective	Lead Department	2014-2019 Performance [1]	Resources[2]	Sequence
		Low, Moderate, Good Optimal	Estimated Cost, Funding Type	Order of Implementation
HIGH PRIORITY RECOMMENDATIONS FOR 2021-2026				
Maintain right of way (ROW/street trees) proactively *Establish level of service that correlates need with staffing and budget resources*	Public Works	Moderate	$$$ Ongoing	At any time
Maintain Park trees proactively *Establish level of service that correlates need with staffing and budget resources*	Parks, Green Kirkland Partnership (GKP)	Good	$$ Ongoing	At any time
Ensure newly-planted public trees thrive *Develop tree establishment protocols for greatest return on public investment*	Public Works, Planning	Low	$$* Ongoing	Prior to planting (2)
	Parks, GKP	Moderate		
Complete ROW tree inventory *Collect consistent data for proactive, cost-effective public tree management and to inform planting strategies*	Public Works	Low	$-$$* One-time	Prior to planting (2)
Complete Park Tree-iage assessment (vs. tree-by-tree inventory) *Assess remaining 8 acres of open space using traditional stand management*	GKP	Moderate	$ One-time	At any time
Enhance ROW canopy cover with CIP projects *Retain and plant trees under Capital Improvement Project funding*	Public Works	New	$ One-time	After street tree inventory (3)
Develop a robust ROW/street tree planting program *Data-driven program with targeted goals using incentives, public outreach and community involvement. Correlate need with staffing and budget resources*	Public Works	Low	$$* Ongoing	Maintenance 1st, after street tree inventory (3)
Develop a robust park tree planting program *Data-driven program with targeted goals using incentives, public outreach and potential for community involvement. Correlate need with staffing and budget resources*	Parks	Moderate	$$* Ongoing	At any time
Develop a robust planting program for trees on private property *Data-driven program with targeted goals, incentives and public outreach*	Planning	Low	$$* Ongoing	At any time

Management Objective	Lead Department	2014-2019 Performance [1]	Resources[2]	Sequence
		Low, Moderate, Good Optimal	Estimated Cost, Funding Type	Order of Implementation
Define municipal urban forestry program structure, funding and leadership *Ensure program capacity is adequate to implement plan objectives, sustain expected level of service and cooperate with common goals and leadership support*	?	Low-Moderate (combined)	$-$$$ Ongoing	Prior to other objectives (1)
Promote Heritage (mature) tree protection *Incentivize and/or regulate mature tree protection to ensure an even forest succession and to maximize benefits on private and public property*	Planning	Low	$$ One-time	Private: any time Public: after street tree inventory (3)
Develop annual departmental work plans *Shape/track incremental efforts toward long term goals and increase internal efficiency*	All	Low	$ Ongoing	Annually
Report to City Council annually *Increase accountability to decision-makers and community*	All	Low	$ Ongoing	Annually

MEDIUM PRIORITY RECOMMENDATIONS FOR 2021-2026

Management Objective	Lead Department	2014-2019 Performance [1]	Resources[2]	Sequence
Develop "tree bank" program to offset City/private development tree removals *Designate City locations, establish funding structure and program administration*	Planning, Finance	New	$$ Ongoing	After ROW inventory (3)
Establish uniform operational standards across divisions *Ensure staff, contractors, utility agencies comply with current BMPs, industry/safety standards and tree codes. Maintain consistent tracking/data points across divisions.*	All	Low	$ One-time	At any time
Eradicate ivy in park open space areas *Increase management levels in public natural areas from 'proactive' to 'intensive'*	GKP	Good	$$ Ongoing	At any time
Ensure equitable parks acquisition *Policy, funding & strategy to acquire park land in under-served areas as a mechanism to plant, preserve tree canopy equitably across neighborhood groups*	Parks	New	$$	At any time
Develop well-coordinated, inclusive public outreach plan *Provide ongoing multi-media education/outreach involving diverse audiences specifically for urban forestry issues, codes, incentives, engagement opportunities, etc.*	Planning	Good	$$ Ongoing	At any time

Management Objective	Lead Department	2014-2019 Performance [1]	Resources[2]	Sequence
		Low, Moderate, Good Optimal	Estimated Cost, Funding Type	Order of Implementation
Equitably distribute tree canopy and benefits *Quantify the benefits of public trees using demographic, inventory and canopy data to ensure canopy cover enhancement programs are distributed equitably*	Planning	Low	$$* One-time	After ROW inventory (3)
Inventory trees on "other" City-owned property *Cross Kirkland Corridor, fire stations, stormwater detention facilities, etc.*	Public Works, Parks, IT/GIS	Low	$$* One-time	At any time
Develop a robust open space tree planting program *Data-driven program with targeted goals using incentives, public outreach and continued community involvement*	GKP	Moderate	$$* Ongoing	At any time
LOW PRIORITY RECOMMENDATIONS FOR 2021-2026				
Conduct next canopy assessment (2026) *Informs planting strategies, policy/code changes and gauges program effectiveness. Requires 2025 service package. Low priority level assumes approval of funding*	Planning	Good	$$* One-time	2025-2026 (4)
PREVIOUSLY IDENTIFIED IN 2014-2019 SIX YEAR WORK PLAN, BUT NOT CARRIED OVER TO 2021-2026				
Seek project/program accreditation *Receive management guidance, gain program/project recognition, credibility and visibility and for greater partnership and marketing opportunities*	Planning	Low	$ One-time	At any time

[1] Performance measures for sustainable urban forest management using the Clark, van Wassenhaer, et al modeling (Attachment 4).

[2] Estimated resources from Urban Forestry Strategic Management Plan, Table 7, page 57.

$ Less than $50,000. Could be accomplished with existing City staff resources, may need inter-departmental coordination.

$$ Between $50,000 and $100,000. Has budget implications; requires dedicated staffing, contractor and/or volunteer commitment.

$$$ Greater than $100,000. Involves substantial project/program management, staffing and funding commitment.

*Denotes item is identified in approved 2021-2022 Service Package Requests

Abbreviations/acronyms: BMP – Best Management Practices, GKP – Green Kirkland Partnership, ROW – right of way, CIP – Capital Improvement Project

Gray shading indicates a prior Six Year Work Plan action and its 2014-2019 performance

Project Framework
2021-2026 Six Year Work Plan
Sustainable Urban Forest Management

The purpose of the 2021-2026 Six Year UF Work Plan is to guide each department's efforts implementing the adopted Urban Forest Strategic Management Plan, linking long-range goals to specific actions using uniform performance measures. This project is listed on the approved 2019-2020 PBD Work Plan.

Project Goal: Conduct an evaluation of Kirkland's prior urban forestry management six-year work plan and collaboratively establish a functioning work plan to guide City efforts in 2021-2026.

I.   Scope

☒ Develop project framework/scope
☒ Set up project webpage
☒ Review relevant documents and policy guidelines
   • [Kirkland Urban Forestry Strategic Management Plan](), Appendix A (performance criteria and indicators)
   • https://www.vibrantcitieslab.com/assessment-tool/
   • A Guide to Community and Urban Forestry Programming by the Washington State Department of Commerce and the Evergreen Communities Partnership Taskforce (Section 5)
   • City of Kirkland Comprehensive Plan, Natural Environment Policy E-1.2
   • Kirkland Zoning Code Chapter 95, Kirkland Municipal Code Title 1.12.100
   • Kirkland 20-Year Forest and Natural Areas Restoration Plan
   • Kirkland Community Survey 2020
   • Comparison cities urban forestry management plans

☒ Assemble Project Team
Note: Kirkland City Council is the authority endorsing the project.
   • Steering Team: Adam Weinstein, Julie Underwood, Lynn Zwaagstra – project introduction, select staff team from respective departments, request project starts after Labor Day
   • Staff Team (selected by Steering Team): Deb Powers, Jeremy McMahan, John Burkhalter, Nathen Hower, Jodie Galvan, Ryan Fowler

☒ Establish Project Timeline

Date	Task	Staff
June-July 2020	Define project scope	Deb Powers Jeremy McMahan
Late Aug 2020	Send draft Performance Matrix to Staff Team for review/edits	Staff Team (via email)
Sept 17 2020	Kickoff meeting	Staff Team Mtg #1
Sept 23 2020	Project update	Tree Team (monthly meeting)

Late Sept 2020	Address data gaps	Staff Team Mtg #2
Oct, Nov 2020	Project updates	Tree Team (monthly meetings)
Nov 2020	Address data gaps	Staff Team Mtg #3
Dec 2020	Develop preliminary questions based on 2012 public tree survey	Deb Powers, IT
Early Dec 2020	Steering Team project briefing. Overview of 2014-2019 performance. Discuss challenges/barriers, opportunities, next steps	Steering Team #1, Staff Team Mtg #4
Early Jan 2021	Staff Team establish next 6-year priorities	Staff Team Mtg #5
Late Jan 2020	Refine public tree survey questions based on draft 2020-2026 priorities	Deb Powers, CMO Comm. Team
Jan 29 2021	Steering Team guidance on Draft 2021-2026 Work Plan priorities	Steering Team Mtg #2
Early Feb 2021	Prepare Draft 2021-2026 Work Plan for 3/2 City Council packet, circulate for review/edits by Feb 12, submit by Feb 17th	Deb Powers Staff/Steering Team (via email)
Feb 1 2021	Release public survey, allow 2-week response time	Deb Powers, IT, CMO Comm. Team
Early Mar 2021	Compile and analyze public survey responses (present to CC?)	Deb Powers
Mar 2 2021	Report progress on 2014-2019 urban forestry initiatives, present draft 2020-2026 Work Plan, get Council feedback	City Council Mtg #1 (Study Session)
Apr 6 2021	Adoption by resolution	City Council Mtg #2
2021-2026	See Implementation below	Tree Team?

II.   Review Prior Efforts 2014-2019

☒ Develop Performance Tracking Matrix, Dashboard, Priorities chart, etc., place in H:drive folder
☒ Map prior six year's efforts in urban forest management
  • Send Matrix for review, schedule minimum number of Staff Team meetings (per Steering Team)
  • Kickoff meeting #1: Review project context, scope, timeline. Discuss Matrix, next steps
  • Staff Meeting #2: address data gaps
  • Staff Meeting #3: address data gaps. Facilitate discussion on achieving objectives. What were the challenges/barriers? Opportunities? What are you particularly proud of accomplishing?
  • Examine efficacy of the Tree Team
  • Provide updates to Steering Team

III.   Develop Draft Work Plan 2021-2026

☒ Establish Staff Team Priorities for the next six years

☒ Steering Team guidance. Ask: Considering our 2014-2019 UF management challenges and your department priorities…
- What are your Top 15 UF Priorities?
- What's changed over the last 6 years and to what degree should that influence the next six years? (ie: new science/data, COVID, City Council priorities, new codes/policies, heightened equity/inclusivity awareness, Sustainability Master Plan, etc.)
- Are shifting priorities a reflection of immediate, short-term issues not related to urban forestry?
- For any prior objectives carrying over to 2021-2026, how can any barriers that impede meeting objectives be overcome?
- Should any 2014-2019 action items be carried over? Dropped?

☒ Public Tree Survey
- Develop questions
  - Are any questions from prior survey relevant? (can compare any changes in public opinion)
  - Provide City's performance data and ask: what should our priorities be for 2021-2026?
- Release to public, allow 2 weeks for public response
- Compile and analyze public survey responses, share results with City Council, Project Team, Tree Team
- Format results for March 2, 2021 City Council meeting

IV.   City Council Action

☒   Prepare for City Council Study Session
- Staff memo
- Draft 2020-2026 Six Year Work Plan (priorities)
- Performance Dashboard
- 2014-2019 Performance Matrix
- Public survey results

☐ Obtain Council feedback/direction, adjust 6 Year Work Plan

☒ April 6th City Council meeting – Work Plan adoption
- Draft resolution (Legal review)

V.   Implementation

What will that look like?
- Should we continue to track UF performance in the same manner?
- Who's providing program oversight and coordination of 2021-2026 UF priorities/goals, making sure they get implemented?
- How will the 2021-2016 objectives be funded and who is responsible for securing funding/resources?

OBJECTIVE	ACTION ITEMS	LEAD DEPT.	GAP ANALYSIS	STATUS • **Was Action Item completed?** • **If not, what were the barriers?**
1.0 INVENTORY PUBLIC TREES *Document asset for proactive, efficient management. Allows data to guide management decisions.*	1.1 STREET TREES - Update 2004 ROW tree inventory data - Collect data on ROW trees in annexed area. Include tree condition data to prioritize management efforts - Automate tree replacement value for claims/damage, follow FEMA inventory protocols (see Action 8.1).	**PW Grounds**	2017 - Data was collected or updated on 12,000 street trees located on select arterials/collectors at contractor cost of $74,000. Did not automate replacement values. Unknown if FEMA inventory protocols are met. 2020 – 26,000 (70% of all ROW trees) remain to be inventoried. Updates to the ROW tree inventory seldom occur to document new/removed trees or when existing tree conditions change. Total number of ROW tree locations citywide = approx. 38,600.	**Partially completed** **Barrier** Lack of resources for contractor services to collect remaining tree data and for staff to update the GIS database (using the current system).
	1.2 ACTIVE PARK TREES – inventory public trees in active community parks. Automate replacement values for claims/other damage and follow FEMA inventory protocols.	**Parks**	2015 - Data collected on 2,400 trees in 23 active parks, North Kirkland Community Center and cemetery (funded by a grant and $1,500 from City Forestry Account). Did not automate replacement values. Unknown if FEMA inventory protocols are met. Ongoing - inventory updated in 4-9 parks per year to account for new/removed trees and condition changes. Estimated completion date: 2024 (using current system).	**Completed**
	1.3 PARK OPEN SPACE – assess trees in these areas per the 20-Year Restoration Plan using the Tree-iage method (traditional stand management).	**GKP**	Tree-iage assessment (stand management) completed in 512 acres open space. Approx. 8 acres remain in 4 parks: Hazen Hills, Neal Landguth, McAuliffe, Juanita Hts.	**Partially completed** **Barrier** Lack of resources for consultant/partner to complete assessment in remaining 8 acres
	1.4 "OTHER" PUBLIC AREAS – Cross Kirkland Corridor, SW detention facilities, set-aside areas from annexation, unimproved ROW areas, City-owned stream buffers, City facilities, etc.	**PBD**	2015 – PBD applied for WA Department of Natural Resources (DNR) grant funding to inventory CKC trees (not awarded)	**No action** **Barrier** "Other" public areas have been a lower priority than ROW trees when competing for the same resources (Action 1.1).

OBJECTIVE	ACTION ITEMS	LEAD DEPT.	GAP ANALYSIS	STATUS • Was Action Item completed? • If not, what were the barriers?
2.0 MAXIMIZE TREE PLANTING EFFORTS *Use data-driven strategies that include establishment plans. [Consider programs with social equity and inclusivity values.]*	**2.1 MAINTAIN CURRENT EFFORTS** – continue to plant trees in these areas: - ROWs to replace removed street trees (as resources allow) - ROWs with CIP projects (depending on project footprint) - ROWs adjacent to private property development - On private property undergoing development, to meet minimum credit requirements for the lot - On private property, with certain property owner tree removals - Parks and open space areas under restoration	**PW Grounds** **PW-CIP** **PBD** **Parks** **GKP**	Replacement street trees are planted infrequently. PW limits quantities to <30 trees/year due to limited resources for aftercare. Approx. $2,000/year is budgeted for ROW tree planting. Street trees are frequently planted with CIP projects, however the cost, #/year vary, depending on project footprint. In 2019, 53 ROW trees were planted at a cost of $34,280. Data on tree mortality/establishment is not readily available. Street trees are planted to meet frontage improvement requirements where private property development abuts ROW (the property owner/developer incurs cost). Data on # trees planted for frontage improvements not readily available. Data on tree mortality/establishment is anecdotal. On private property undergoing development, trees are frequently planted to meet minimum credit requirements, depending on how existing trees fulfill credit requirements. The property owner/developer incurs the cost of new trees. Data on # of trees removed/planted on development is not readily available. With homeowner tree removals, replacement trees are required when the last 2 trees on the site (or trees in critical areas) are removed. Property owners incur cost of replacement trees. Data on the number of trees required to be planted and tree establishment rates is not available. In active parks, trees are often planted to replace removals in addition to areas that have capacity for more trees. Approx. 40 trees/year are planted in active parks. An unspecified annual budget is allotted but typically does not cover tree planting. Trees are always planted in open space restorations (12,922 planted between 2007-2019). Annually, approx. $5,000 is budgeted for trees, $2,500 for protection (browse cages).	**Partially Completed** As resources allow, apart from ongoing GKP efforts **Barriers** - Except in open space areas, there are no formal tree planting programs for the areas identified in 2.1 - Lack of resources for initial watering and further maintenance of public trees - No database or system for uniformly tracking planted/removed trees exists across divisions - Use of City Forestry Account (CFA) funds for tree planting varies across divisions. For example, between 2018-2020, CFA funds were used for tree planting projects accordingly: $3,585 (PW Grounds) for tree planting in rights-of-way $0 (PW-CIP) no City Forestry Account use $4,027 (PBD) for 2019 Arbor Day trees and a 2018 tree-giveaway pilot project for private property tree planting $6,850 (CMO) for tree planting at the Kirkland Women's Shelter $0 (Parks) no City Forestry Account use $105,000 (GKP) for open space restoration projects
	2.2 MINOR INCREASE IN PLANTING EFFORTS – Revise/develop: - [New] Green Infrastructure guidelines/incentives: green roofs, vertical walls, LID parking lots - [New] Pre-Approved Plan – for adequate soil volumes and installation standards for ROW tree planting - Prohibited Plant List – consistent with county/state	**PW-CIP** **PBD**	2014 - Tree grate detail updated for Pre-Approved Plans 2019 - Prohibited Plant List revised	**Partially completed** As resources allow **Barriers (in addition to 2.1)** - Resources, planning and cross-department collaboration or making these improvements are not a priority - New standards and lists need to be maintained over time

OBJECTIVE	ACTION ITEMS	LEAD DEPT.	GAP ANALYSIS	STATUS • Was Action Item completed? • If not, what were the barriers?
2.0 MAXIMIZE TREE PLANTING EFFORTS *(continued)*	2.3 MAJOR INCREASE IN PLANTING EFFORTS – Targeted tree planting to: - Replace public tree removals at a minimum 1:1 ratio - Establish numerical or percentage tree planting goals according to canopy, inventory and other data - Select public trees by species diversity/distribution - Remove/replace public trees negatively impacted by utility line clearance pruning (see Action 8.2) - Incentivize, ie: Tree-bates, paperless billing, tree giveaways and planting/training classes, etc.	**PW Grounds** **PBD** **Parks**	No major increase in tree planting efforts	**No action** **Barriers (in addition to 2.1, 2.2)** - Without planning and resources, tree planting efforts are not a priority - An inventory system available for use by all divisions that easily documents all newly-planted trees, removed trees and changes in tree condition - Reliable watering program for initial establishment of ROW trees
3.0 PROACTIVELY MAINTAIN PUBLIC TREES/NATURAL AREAS *Maintain asset for optimal condition, diversity and longevity. Reverse the decline of natural areas. Meet expected level of service for highest return on public investment.*	3.1 DEDICATE RESOURCES – to manage/maintain public trees, including those in natural areas: - Equipment (aerial truck, chip truck, climbing gear, PPE, etc.) for safe, efficient operations - Merge staffing resources to meet 2014 maintenance needs and examine how to meet projected needs - Budget/procure contractor services, particularly in advance for inclement weather events - Maintain public trees efficiently using a combined inventory, GIS, service request and work order system (see Objective 1.0). Acquire software that synchronizes these systems and possibly the City's permit database. - Clarify public/private tree maintenance responsibilities in policy and practice - Employ efficient Integrated Pest Management (IPM) methods to monitor/control invasive weeds, pests, pathogens that threaten tree health and longevity - Establish tree worker safety policies to comply with industry standards (see Action 8.3)	**PW Grounds & Parks**	2014 - Chipper acquired ($62k) 2016 - Aerial lift truck acquired (approx. $180k) PW/Parks annual operating budget provides adequate gear/PPE, however Parks' arborist gear is purchased as-needed or as funds allow. Current staffing – Parks/PW each staff 1 Field Arborist and share the 1 lift truck, necessitating that both departments assist each other with technical removals. The Parks Field Arborist is also responsible for open space/natural area tree maintenance. When not pooling resources, Parks/ PW's tree crews are comprised of one Field Arborist and one randomly-assigned FTE (depending on the work). Field Arborists are often assigned non-tree related tasks, so pruning is typically done on a reactive basis. Consequently, public tree pruning cycles (# years that lapse between pruning the same trees in a given area) have not been established. Note: typical municipal tree crews consist of 2-3 dedicated staff to maintain 5 to 7-year public tree pruning cycles. Both departments agree the current arrangement does not allow either to keep up with average workloads and is stretched when inclement weather affects trees. 2017-2018 - Lucity asset management system implemented city-wide, using its standard tree maintenance module. Lucity is used to generate work orders and occasionally update tree inventory. 2017 – a city-wide Integrated Pest Management (IPM) program was implemented, however it's unknown to staff if specific tree	**Partially completed** **Barriers** - Adequate qualified staffing resources to allow more proactive maintenance - Resources to update tree inventory and further develop IPM and safety policy/procedures that are unique to tree care operations

OBJECTIVE	ACTION ITEMS	LEAD DEPT.	GAP ANALYSIS	STATUS • Was Action Item completed? • If not, what were the barriers?
3.0 PROACTIVELY MAINTAIN PUBLIC TREES/NATURAL AREAS *(continued)*		**PW Grounds & Parks**	issues are addressed, such as pest prevention or sudden response for highly invasive/contagious pests, such as Emerald Ash Borer. PW/Parks do not have written operational plans for proactively inspecting and mitigating tree issues. Parks routinely download tree risk assessment data into Lucity but the same does not occur with street trees. Note: currently, most tree inspections respond to issues reported by the public (reactive). A proactive approach uses inventory data to schedule routine inspections/mitigation.	
		PBD	2020 – public/private tree maintenance responsibilities are clarified in the draft tree code, KZC 95.	**Currently underway**
	3.2 GROW GREEN KIRKLAND PARTNERSHIP PROGRAM [NOTE: The Parks Field Arborist is responsible for open space/natural area tree maintenance] for sustainable public natural area restoration and maintenance: - Meet/exceed goals in 20 Year Forest Restoration Plan - Update goals, add Natural Areas to Plan in 2015	**GKP**	2014 – growth potential exceeded levy funding and significant acreage in annexation parks/open space was added to GKP program scope. 2019 - GKP met their prior 20-year goals, including 119 acres enrolled in restoration, 12,922 native trees planted, and 111,604 volunteer hours donated	**Completed**
4.0 ANALYZE TREE CANOPY COVER *Measure performance towards tree canopy cover goals. Data informs planting strategies, code updates and public education/outreach*	4.1 CONDUCT IN-HOUSE (IT-GIS) OR CONTRACT PROFESSIONAL SERVICES TO - Procure imagery, assess canopy cover citywide and in various land use areas - Analyze canopy gain/loss over time - Acquire data files that allow further analysis - Plan every 7-8 years	**PBD**	2004, 2011 - prior tree canopy cover assessments 2018 – tree canopy cover assessment funded by King Conservation District, with additional $7K for expanded scope	**Completed** Note: next canopy assessment should be scheduled for 2026 (may need service package request funding)
5.0 CALCULATE HEALTH-RELATED BENEFITS OF PUBLIC TREES *Ensure equitable distribution of benefits, establish environmental performance measures and justify public tree maintenance budget*	5.1 USE CITYGREEN, i-TREE, etc. to assess the degree in which public trees impact local: - Stormwater runoff reduction - Carbon storage/sequestration (to participate in canopy-carbon offset programs) - Air quality and extreme heat incidents (see WA Environmental Health Disparities Map)	**PBD**	Project not pursued	**No action** **Barrier** Staff focus on other projects (grant funding for 2015 Park tree inventory, 2017 canopy analysis) and high priority 2018-2020 tree code updates.

OBJECTIVE	ACTION ITEMS	LEAD DEPT.	GAP ANALYSIS	STATUS • Was Action Item completed? • If not, what were the barriers?
6.0 DEVELOP CITYWIDE UF MANAGEMENT PLAN *Establish and meet UF objectives, sustain expected level of service and cooperate with common goals and leadership support.*	6.1 PLAN DEVELOPMENT - Determine appropriate performance measures, criteria and indicators for sustainable urban forest management - Conduct citywide gap analysis, assess performance - Develop/adopt Urban Forestry Strategic Management Plan (UFSMP) - Establish interdepartmental working team to implement plan - Consider funding structure to meet plan objectives	PBD	2013 - Tree Team established with Deputy Planning Director oversight 2013-2014 – leveraged project funding through a WA DNR grant combined with $10,000 City Forestry Account match. Procured professional services from Davey Resource Group and Forterra. 2014 – adopted UFSMP, followed by Six Year Work Plan (below) 2016-2020 – regarding funding: Tree City USA reporting indicates the City spends over $1M in tree-related expenses annually	**Partially completed** **Barriers** - Funding to achieve objectives is not coordinated across divisions, so that… - Divisions may compete for funding/resources to achieve shared goals and plan objectives - Tree Team members have little to no budget authority; current program structure does not include ongoing communication with senior staff
	6.2 DEVELOP SIX YEAR WORK PLANS – track performance, allow for adaptability over time by: - Reviewing each 6-year planning period, so that - Findings may be incorporated into the next Six Year Work Plan, and - Plan adapts to changes and adjusts to new criteria and performance indicators	PBD	2014 – 1st Six Year Work Plan (2014-2019) developed to implement the UFSMP 2019 – 2nd Six Year Work Plan (2020-2026) is an approved PBD work program item	**Currently underway**
	6.3 DEVELOP ANNUAL WORK PLANS BY DEPT. – plan incremental efforts toward long-term goals: - Link 6 Year Work Plan objectives to departmental operations - Track progress and periodically clarify responsibilities towards goals - Check if annual work plans are consistent with City Council goals	ALL	No action	**No action** **Barriers** - Limited time for coordination within and across divisions - Tree Team efficacy in tracking progress and ensuring all departments are responsible for completing Action Items
	6.4 REPORT TO CITY COUNCIL – increase accountability to decision-makers/community - Communicate progress (setbacks/milestones) to City Council, community members and stakeholders on UF Management Plan objectives - Guides budget development	PBD	2014-2016 – UF annual reports provided to City Council	**Partially completed** **Barrier** While busy implementing objectives, reporting falls to the wayside
7.0 SEEK PROGRAM/PROJECT ACCREDITATION	7.1 EXAMPLES: - Salmon-Safe (land-use certification, eco-label) - Sustainable SITES (LEED affiliated, site eco-function)	PBD	2015 - CKC eco-certification pursued, however not considered with CKC Master Plan.	**Partially completed** **Barrier**

OBJECTIVE	ACTION ITEMS	LEAD DEPT.	GAP ANALYSIS	STATUS • Was Action Item completed? • If not, what were the barriers?
Receive guidance, gain program/project recognition, credibility, visibility and for greater partnership and marketing opportunities	- Greenroads Sustainable Infrastructure Certification - Society of Municipal Arborists (standards for municipal tree management) - Tree Care Industry Association (standards for tree care practice) - Sterling Tree City Award, etc. - ISA Gold Leaf Award (Recognition for Tree Retention on Development Sites)		2018 – Kirkland recognized as Sterling Tree City for urban forestry leadership No further accreditation pursued for City projects or programs	Staffing resources limited to high priority projects (code updates, etc.)
8.0 ESTABLISH UNIFORM OPERATIONAL STANDARDS *Ensure that citywide staff, contractors and utility agencies comply with current BMPs, industry/safety standards and tree codes.* *Ensure City is monitoring and tracking data using uniform standards (see Objective 3.0)*	8.1 Expand City's urban forest storm response & emergency protocols for FEMA reimbursement (Action 1.1)	**PBD or...?**	2017 – discussed with former Emergency Response Coordinator but not developed or implemented	**No action** **Barrier** Have not pursued, became a low priority
	8.2 Develop Vegetation Management Plans (VMP) with Seattle City Light and Puget Sound Energy to comply with KZC 95, reduce tree-utility conflicts, and address utility clearance/critical area issues.	**PBD**	2008 - initiated VMPs with Seattle City Light and PSE, but not developed or implemented	**No action** **Barrier** Became a low priority among other work
	8.3 Establish safety protocols to comply with industry standards: ANSI Z133 safety standards, A300 Series for Tree Care Operations, ISA BMP Series and WISHA Standards. Document ongoing safety training for ANSI/WISHA compliance.	**PW Grounds & Parks**	Written safety policy or protocols for tree crew operations have not been established. PW/Parks staff follow ANSI standards and ISA BMPs; however, the documented safety training covers general topics appropriate for all staff vs tree crew operations.	**Partially completed** **Barrier** Both departments feel a safety policy is unnecessary without full tree crew staffing
	8.4 Establish preference for contractors with TCIA accreditation (or equivalent) for meeting City's acceptable level of pruning and safety standards	**PW Grounds & Parks**	PW/Parks try to hire contractors that meet expected standards. Sometimes the level of contractor's safety standards is not evident until the job is completed, primarily with new/low bid contractors.	**No action** **Barrier** Became a low priority among other work
9.0 DEVELOP INCLUSIVE COMMUNITY EDUCATION AND OUTREACH *Diversify outreach efforts to increase awareness of urban forestry issues, codes, incentives, etc. and to provide opportunities for engagement*	9.1 ADVISORY - Convene focus groups to advise UF managers and decision-makers on urban forest issues, or for specific projects - Support stewards, volunteers, advocates, and partners in UF 9.2 DEVELOP PROGRAMS OF INTEREST - Community tree planting/training - Heritage Tree program - Outdoor Explorers	**GKP** **PBD**	Ongoing efforts - broad outreach to students and families for participation in restoration events. Partnership with Eastside Preparatory School and EarthCorps for Watershed Park restoration. University of WA Restoration Ecology students have adopted sites in several Kirkland parks for special projects. 2014-2017 - annual Expand Your Horizons program workshop lead (intro to STEM careers for middle/high school-aged young women) 2016 - Lake WA High School Environmental Science Advanced Placement panelist on environmental careers	**Ongoing (GKP)** **Partially completed (PBD)** **Barrier** As time/resources allow, not supported on an ongoing basis. Community

OBJECTIVE	ACTION ITEMS	LEAD DEPT.	GAP ANALYSIS	STATUS • Was Action Item completed? • If not, what were the barriers?
	- Partner with schools for 4th Grade Foresters and other programs (elementary, high school and Lake WA Tech) - Host adult/kid's tree climbing event			involvement/outreach is limited to high priority projects
10.0 MEET TREE CITY USA CRITERIA *Retain status for grant eligibility, accreditation and to achieve National Arbor Day Foundation Growth Awards*	**10.1 ENSURE REQUIREMENTS ARE MET:** - Proclaim and celebrate Arbor Day annually - Coordinate, compile department's budget data, write annual work plan, submit application annually - Coordinate efforts to meet Growth Awards	**PBD**	2005-2020 – TCUSA criteria met annually for 16 consecutive years 2018 – Kirkland recognized as a Sterling Tree City for achieving 10 consecutive annual Growth Awards 2020 Arbor Day event requirements waived (COVID)	**Completed** **Ongoing**
11.0 CONDUCT TREE CODE-SPECIFIC PUBLIC OUTREACH *Provide ongoing public education on the regulatory aspect of trees in Kirkland*	- Continually update forms, handouts, and City website content - Conduct ongoing training sessions for staff, arborists, permit applicants, stakeholders; general public on permit procedures and other forestry-related policies. - Use multi-media approach for outreach efforts - Combine with Objective 9.0 to promote ongoing, inclusive public outreach on urban forestry issues	**PBD**	2017-2018 – public outreach associated with HPO code updates related to Finn Hill Neighborhood Plan development (open house, public meetings, public hearing, etc.) 2019 - video production (3) and This Week in Kirkland articles (6) on the benefits of trees and the City's tree code	**Completed** As related to KZC 95 code update

12.0 UPDATE TREE CODES
 	
 Revise codes using data findings towards a healthy, resilient urban forest to maximize public benefits for all
	- Re-evaluate 40% canopy goal?
	 - Evaluate the effectiveness of current codes/policies
	 - Consider feedback from staff, residents, developers
	 - Amend KZC 95 to simplify, clarify and reference current industry standards
	 - Amend related codes as needed (enforcement, shoreline, critical areas, HPO, etc.)
		PBD	2021 - KZC 95, KZC 70 – anticipated adoption. Studies:
			  - 2018 - Field study on post-development code efficacy
			  - 2018 - Canopy assessment (change over time)
			  - 2019 – Case studies on tree size before/after development, tree retention vs. planting, etc.
			  - 2018-2020 - MBAKS/FHNA stakeholder involvement
				Completed
				 KMC 1.12.100 (code enforcement) adopted 2020
				
				 Currently underway
				 KZC 95 (citywide tree code)
				 KZC 70 (HPO)

Other urban forestry related actions/accomplishments that were not identified in the 2014-2019 Work Plan

STAFF LEAD/DEPARTMENT	YEAR COMPLETED	ACTIVITY/ACTION	RELEVANT DATA (NUMBERS, PERCENTAGE, COST)
D. Powers (PBD)	2013	Park Place tree removals repurposed in cooperation with WA DNR pilot program/White River Correctional Facility	No cost (pilot project). Fabricated live-edge maple coffee table displayed in City Hall lobby.
D. Powers (PBD), Jenny Gaus (PW-SW)	2017	Regional stormwater and tree canopy cover modeling project	Final report. No cost; as a pilot city, Kirkland obtained its 2018 tree canopy cover analysis gratis – see Objective 1.4.

Gray shading indicates an Action Item that was identified to carry over to the Draft 2021-2016 Work Plan Priorities

Abbreviations/Acronyms
ANSI – American National Standards Institute
CFA – City Forestry Account
CIP – Capital Improvement Project
CKC – Cross Kirkland Corridor

CMO – City Manager's Office
FEMA – Federal Emergency Management Agency
FHNA – Finn Hill Neighborhood Alliance
FTE – full time employee

GKP – Green Kirkland Partnership
IPM – Integrated Pest Management program
ISA - International Society of Arboriculture
IT/GIS – Information Technology Department, mapping division

KZC, KMC - Kirkland Municipal or Zoning Codes
MBAKS – Master Builders Assoc. of King and Snohomish Counties
PBD - Planning and Building Department
PPE – personal protective equipment

PW – Public Works
STEM – science, technology, engineering and math
SW - stormwater
TCIA – Tree Care Industry Association

UF – urban forestry
UFSMP – Urban Forestry Strategic Management Plan
WA DNR - Washington State Department of Natural Resources
WISHA – Washington Industrial Safety and Health Act

Performance Indicator Dashboard (2013, 2020)
Sustainable Urban Forest Management

Criteria	Justification	Performance Indicators			
		Low	Moderate	Good	Optimal
Canopy cover data	Data informs planting strategies, codes, policy	No data	Ground-based visual or sample-based aerial assessment	City-wide and specific study areas using aerial photographs, satellite and/or LIDAR imagery. ***2013, 2020***	Same as Good, plus: data available for citywide use in GIS system.
Canopy cover status (compared to goal)	Gauges program effectiveness	Existing status is 0%-25% of the goal	Existing status is 25%-50% of the goal	Existing status is 50%-75% of the goal	Existing status is 75%-100% of the goal ***2013, 2020***
Tree inventory	Measures tree asset for strategic, cost-effective management, guides management decisions	No inventory ***2013, 2020 "other" trees on City property***	Sample-based public tree inventory ***2013 – Parks, ROW, GKP*** ***2020 – ROW, GKP***	Complete public tree inventory ***2020 – Parks***	Complete inventory of public trees and sample-based inventory of privately owned trees
Inventory - tree age data *2013, 2020 - ALL Data not accessible*	Guides tree protection strategies for an even forest succession	DBH (trunk size) class represents more than 75% of the tree population	DBH (trunk size) class represents between 50% and 75% of the tree population	No DBH (trunk size) class represents more than 50% of the tree population	25% of tree population is in each of four DBH classes: <6" DBH 6-12" DBH 12-24" DBH >24" DBH
Inventory - suitable tree species distribution *2013, 2020 - ALL Data not accessible*	Guides tree planting strategies for greater asset resiliency	Less than 50% of trees are species considered suitable for the region	50% to 75% of trees are species considered suitable for the region	More than 75% of trees are species considered suitable for the region	All trees are species considered suitable for the region

Criteria	Justification	Performance Indicators			
		Low	**Moderate**	**Good**	**Optimal**
Inventory - species diversity *2013, 2020 ROW Data not accessible*	Avoid species dominance to buffer tree loss from pests, disease and climate change, increase biodiversity	Fewer than five species dominate the entire tree population. **2020 - Parks**	No class represents more the 30% of the entire tree population citywide.	No genus represents more than 20% of the entire tree population citywide.	No species represents more than 10% of the entire tree population at the neighborhood level.
Assess tree benefits	Quantify environmental services, ensure benefits are distributed equitably.	No or limited assessment **2013, 2020**	Assessment from sample-based areas for value of stormwater mitigation performed by public trees.	Assessment from inventory data for value of stormwater mitigation and air quality improvements performed by public trees.	Same as Good with: value of carbon storage/sequestration performed by public trees, with additional sample-based value assessment of privately owned trees.
Public tree maintenance	Prioritized management increases asset health/longevity, lowers risk of tree failure	Maintenance is reactive and request-based. Priorities are not established by condition data. **2013 – Parks, ROW**	Proactive tree maintenance. Sample-based inventory with tree condition, no risk data. Tree inspections on an as-needed basis. **2020 - ROW**	Proactive tree maintenance with regular inspections and inventory updates. Tree condition and risk data guide management decisions. **2020 – Parks**	Proactive tree maintenance with regular inspections. Priorities guided by complete inventory using condition and risk data.
Public natural area management	Restore & protect healthy, resilient public open spaces	No information about publicly owned natural areas. Not managed.	Publicly owned natural areas identified in a "natural areas survey" or similar document. Management as-needed.	Ecological structure/function of natural areas and the level and type of use documented. Proactive management. **2013, 2020 - GKP**	Same as Good with: natural areas documented in City's GIS system and intensively managed.
Tree planting & establishment	Enhance canopy cover equitably, achieve species diversity objectives and maximum tree health/longevity	Tree planting is ad hoc. **2013 – Parks, ROW, PBD** **2020 – ROW, PBD**	Limited public tree planting occurs on an annual basis with some assurance of establishment. **2020 – Parks, GKP**	Ongoing public tree planting and establishment is derived by the needs of inventory, demographic and health disparities data.	Robust, data-driven public & private property tree planting and establishment programs are sufficient to meet canopy goals.
Tree planting specifications	Achieve highest return on investment, decrease tree mortality rates	Trees are planted without consideration of site conditions or species suitability.	Public tree species selection and appropriate siting are considered. Public/private tree planting guidelines are available as needed. **2013, 2020 – Parks, ROW**	Guidelines for public and private property tree species/site selection and proper planting techniques are widely available.	Same as Good with: public tree planting specifications require adequate soil volume and site preparation.

Criteria	Justification	Performance Indicators			
		Low	Moderate	Good	Optimal
Use of native vegetation	Preserve and enhance local natural biodiversity	No program	Voluntary use of native species on publicly and privately-owned lands; invasive species are recognized.	The use of native species is encouraged when project-appropriate, invasive species are recognized/discouraged. *2013 – GKP, PBD*	The use of native species is required when project-appropriate, invasive species are recognized and prohibited. *2020 – GKP, PBD*
Tree protection codes	Supports community vision and provides an even forest succession over time	No codes	Public tree protection but minimal land use protection.	Land use and public tree protection.	Effectively enforced land use and public tree protection; tree removal limitations on private property. *2013, 2019*
Strategic planning	Consistent, efficient and sustainable urban forest management	No plan *2013*	Informal plan with limited scope/management timeline that applies to select public tree(s) or sample-based areas.	Adopted management plan for public trees. Includes gap analysis of program performance and prioritizes long-term goals.	Adopted strategic plan with actionable recommendations to achieve long-term goals. Applies to public and privately-owned forest resources. *2020*
Management plan implementation	Link daily efforts to long term goals, demonstrate accountability	No or sporadic plan implementation *2013*	Periodic, adaptive review of plan objectives on 5 to 6-year basis. Track progress using meaningful performance measures. *2020*	Same as Moderate with: annual work plans guide each division/unit, linking 5 to 6-year work plan to daily efforts.	Same as Good with: annual progress reports to City Council. Annual and 6-year work plans shape plan priorities and guide budget development.
Program funding	Efficiently meet urban forestry objectives for highest return on public investment	No or unstable program funding	Maintain public trees under primarily reactive management, may address high-priority initiatives. *2013, 2020 - Parks, PW*	Maintain public trees proactively and meet most plan objectives towards a net increase in urban forest benefits. *2013, 2020 – PBD, GKP*	Stable funding to proactively manage public trees and meet long-range plan objectives. Sustain maximum urban forest benefits. Anticipates program growth.
Program staffing	Meet expected level of service with adequate qualified staffing	No qualified staff	Ad hoc staff satisfies limited urban forestry-related roles.	Adequate certified arborists, professional foresters on staff to support high-priority initiatives. Some opportunities for training. *2013, 2020*	Multi-disciplinary staff to meet current and long-range plan objectives. Regular professional development.

Criteria	Justification	Performance Indicators			
		Low	**Moderate**	**Good**	**Optimal**
Program structure	Units/program cooperates with common goals, standards and leadership support	Conflicting goals among departments or agencies	Some common goals but little or no coordination among departments and/or agencies. *2013*	Informal team(s) among departments function on a project-specific basis with some common goals and standards. *2020*	Formally-recognized program/units implement plan objectives, manages asset. Efforts are well-coordinated. Included in other municipal project/policy decisions.
Operational standards	Consistently applied municipal tree care, safety standards and code requirements	No written standard operating procedures	Some written standards for tree care BMPs, equipment operation, safety protocols, emergency response exist. Communication across divisions vary.	Standard operating procedures for equipment operation, safety protocols, emergency response, etc.) and City codes are consistently applied across divisions throughout City.	Same as Good with: staff, contractors and utility agencies comply with current BMPs, industry/safety standards
Stakeholder involvement	Better understanding of broadly diverse stakeholder needs and perspectives, greater stakeholder cooperation	No stakeholder cooperation	General cooperation with few key stakeholders on a project-by-project basis. Tree codes/standards are generally observed. *2013, 2020*	Same as Moderate with: many stakeholders participate in an ongoing capacity. Wide-spread adherence to tree codes/standards.	Same as Good with: all-inclusive, diverse stakeholders collaborate & participate in code/strategic planning, operate with high professional standards.
Community engagement	Foster stewardship through inclusive and diverse community interactions (Heritage Tree program, GKP, recognition for urban forest leadership, etc.)	No or low interest in interaction, conflicting goals among constituencies.	Active groups focused on specific goals that impact select areas on public property. *2013, 2020*	Active, diverse community groups engaged in a variety of urban forestry initiatives that impact public and privately-owned areas.	Same as Good with: formal, diverse representation of constituents interact with municipality on an ongoing basis, such as a tree board with staff coordination.
Ongoing public education	Increase community's awareness of opportunities for engagement and of urban forest benefits/issues, codes and projects	Little to no outreach.	Isolated outreach efforts on an as-needed or project-by-project basis using limited media formats. Messaging is not well-coordinated across divisions. *2013*	Multi-media outreach approach that may include informational website, mailings, video, news release, public meetings and written literature and online bulletins. Some coordination. *2020*	Same as Good, using all media formats with the addition of social media platforms on an ongoing, well-coordinated basis.
Value to community	Linked to appropriate service levels and management efforts	Trees seen as a nuisance and drain on budgets *2013 (polarized view i)*	Trees generally seen as important to the community. *2020*	Trees are a valued asset to the community worthy of management efforts.	Urban forest recognized as vital to the community's health, environmental, social and economic well-being. *2103 (polarized view II)*

Criteria	Justification	Performance Indicators			
		Low	**Moderate**	**Good**	**Optimal**
Regional cooperation	Cooperate and interact among neighboring communities and regional groups	Communities operate independently	Communities share a similar policy goal framework and collaborate on a project-by-project basis. *2013, 2020 – Parks, PW, PBD*	Regional planning is in effect	Planning, coordination, and/or management plans are a regular part of regional interaction among neighboring communities. *2013, 2020 - GKP*

Key to Abbreviations
ROW - right-of-way/street trees
PW – Public Works division
PBD – Planning/Building division applicable to private property/development
GKP - open space Park areas managed by Green Kirkland Partnership
DBH – tree trunk size by diameter

Sustainable urban forestry programming based on models established by Clark, et al 1997 and van Wassenaer, et al 2000

Yellow highlighting indicates the level of performance of that criteria on the dates that the gap analyses occurred