

Project No. TS - 7715

# **Arborist Report**

То:	City of Seattle; EA Engineering; Seattle Pacific University
Site:	Seattle Central College
Re:	Tree Analysis for Seattle Central College Preliminary Draft MIMP and Alternatives
Date:	September 16, 2022
Revised:	December 11, 2024
Project Arborist:	Tyler Bunton ISA Certified Arborist PN-8715A ISA Qualified Tree Risk Assessor
Reviewed By:	Connor McDermott ISA Certified Arborist PN- 8704A ISA Qualified Tree Risk Assessor
Referenced Documents:	Seattle Central College Draft MIMP (Project #3034600-LU, October 2024)
Attached:	Table of Trees Tree Site Map

# Summary

We inventoried and assessed a total of 195 trees within the existing and proposed Major Institution Overlays (MIO). The existing MIO contains 161 trees, and the proposed MIO contains 188 trees. Seven trees within the existing MIO are not included in the proposed MIO due to the removal of several sites from the existing MIO in the proposed MIO.

Of the trees assessed in the existing MIO, 31 met the tier 2 tree criteria outlined in the Seattle Director's Rule 7-2023, 28 of which are located within a grove. None of the tier 2 grove trees are also tier 2 by size. In the proposed MIO, one additional tree met the tier 2 tree criteria by size, for a total of 32 tier 2 trees.

In some areas access was limited or properties were not owned by Seattle Central College (SCC) and tree sizes were estimated.

# Assignment and Scope of Work

This report documents the visit by Josh Petter and Holly Iosso, of Tree Solutions Inc., on May 11, 2021 to the above referenced site. We were asked to complete a tree inventory and assessment by EA Engineering in preparation for the proposed MIO, draft Major Institution Master Plan (MIMP), and draft Environmental Impact Statement (EIS).

Trees were located using the Global Position System and GLONASS with a Trimble TDC600. This produced a tree map with approximately 1.5-meter accuracy. Tree points were manually adjusted based on the aerial imagery as needed. On parcels that were not owned by the university, or were restricted due to access, tree measurements and locations were estimated from public property.

# **Observations and Discussion**

# Site and Trees

The SCC campus is in the Capitol Hill neighborhood of Seattle and is comprised of numerous buildings and landscaped open spaces and plazas.

The open spaces are primarily maintained as lawn and/or paved areas with planted landscape beds.

According to the Seattle Department of Construction and Inspections (SDCI) GIS map there is one environmentally critical area (ECA) on campus steep slope (40% average) – ECA 1.

Tree species were varied and included natives and ornamentals. Using i-Tree Eco, the species composition and benefits provided by the trees were calculated and are in the attached table of trees. The most common tree species were London planetree (*Platanus x acerifolia*), pin oak (*Quercus palustris*), red oak (*Quercus rubra*), and sweetgum (*Liquidambar styraciflua*), at 16.3 percent, 11.2 percent, 8.7 percent, and 8.2 percent identified respectively. Increasing tree species diversity is important to urban forest resiliency. New plantings should strive to increase diversity throughout the campus and should avoid these four species.

There is one exceptional tree grove within the existing and proposed MIO consisting of trees 73, 74, 76 through 78, 82 through 87, 89 through 93, 96, and 99 through 108. Typically, groups of trees provide higher quality habitat and have a higher ecological value than individually spaced trees, not only due to the trees, but also the forested understory. The one exceptional grove on-site currently has an understory maintained entirely as lawn. Large individual exceptional trees provide habitat and ecological value, however, depending on the surrounding trees and landscaping their influence may be dispersed compared to groups of trees.

Young trees are typically better able to adapt to construction disturbances than mature trees and can provide replacement canopy as mature trees decline. When developing the campus, the locations of groves, individual exceptional trees, and other trees of all sizes should be taken into consideration to ensure a diversity of size, age, and species on campus.

The existing MIO is proposed to be expanded in some areas and reduced in others in the preliminary draft MIMP. The preliminary draft MIMP also proposes increases to building height limits on campus. There are two alternatives explored in the case the proposed MIMP is not approved.

Seven right-of-way (ROW) trees are located within the existing MIO which are not in the proposed MIO due their locations in the areas which are proposed to be removed from the existing MIO.

# Trees: Existing MIO

There are a total of 161 trees within the existing MIO. Of those trees 77 are estimated to be on private property, which is regulated by SDCI. There are 84 trees that are estimated to be growing in the ROW which are regulated by Seattle Department of Transportation (SDOT).

There are a total of 31 tier 2 trees within the existing MIO, 28 of which are growing within a tier 2 grove, none of which are also tier 2 by size. There are a total of three trees within the existing MIO that are tier 2 by size.

Tier 2 groves were determined by drawing the measured driplines of all trees 8-inches diameter at standard height (DSH) on a map and assessing whether at least eight trees had overlapping canopies.

Within the existing MIO there are two trees within a steep slope ECA or steep slope buffer.

#### Trees: Proposed MIO

There are a total of 34 trees in the proposed MIO which are not located in the existing MIO. Of those trees, 17 are estimated to be on private property, which is regulated by SDCI. There are also 17 that are estimated to be growing the ROW, which are regulated by SDOT.

There is one tier 2 tree by size in the proposed MIO.

There are no trees in the proposed MIO which are not located in the existing MIO and in a steep slope ECA, or steep slope buffer.

# **Discussion**—Construction Impacts

This report provides a high-level analysis of tree impacts based only on building locations as outlined in the draft MIMP and draft EIS. Tree removals listed are an estimate; specific tree removal, retention, and replacement numbers for each building must be revised based on tree inventories for each project and design and construction plans prior to construction.

Depending on construction access requirements to the planned and potential projects, ROW trees may be required to be removed. Any decisions on the removal of ROW trees should occur when plans are available. For this report we have assumed that existing driveways and spaces between ROW trees will be adequate for construction access.

At least one replacement tree is required for each removed tree located within an ECA and removed tier 1, 2, and 3 trees (Seattle Municipal Code (SMC) 25.11.090.A, SMC 25.09.070). The replacement trees are required to have a canopy coverage at maturity equal to or greater than the removed trees.

# **Proposed MIMP Expansion**

#### Planned Projects

There are four planned projects, an Information Technology Education Center (ITEC), a student housing building, and renovation of the Broadway Achievement Center (BAC) and the student union.

ITEC

The ITEC building would be in the northeast portion of campus, east of the Science and Math building.

Trees **136 through 141, and 143 through 152**, are located approximately within, or immediately adjacent to, the footprint of the ITEC building necessitating removal.

A minimum of one replacement tree would be required to be planted for trees removed for the ITEC building.

# Student Housing

The proposed student housing building would be in the southwest portion of the campus on the site of the existing parking garage north of E Pine St and east of Boylston Ave.

Trees 1, 20, and 22 through 25 are located approximately within the footprint of the student housing building and would require removal. Trees 2 and 3 are located near the footprint of the building and depending on construction requirements may require removal.

Trees 23 and 25 are located within a steep slope ECA/steep slope buffer.

Construction of the student housing building would likely necessitate the removal of trees **1 through 3**, **20**, and **22 through 25**. Tree 22 is tier 2 by size.

A minimum of three replacement trees would be required to be planted for trees removed for the Student Housing building.

#### ВАС

The current BAC is located centrally on the campus. This building would be renovated and have an addition added to connect the BAC to the existing Broadway Edison Phase II building.

Since this project is primarily a renovation, and no trees are located between the BAC and the Broadway Edison Phase II building, no trees should be required to be removed for this work.

# Student Union

The current student union building is in the east central portion of campus. This project is primarily a renovation of the existing building and addition of a third floor.

No trees should be required to be removed for the renovation and addition. However, trees 115 and 116 are located immediately to the south of the existing student union and depending on façade installation requirements may need to be removed.

Renovation and the addition of the third level to the student union would likely necessitate the removal of trees **115 and 116**.

No replacement trees would be required to be planted for trees removed for the Student Union building.

# Potential Projects

# Harvard Building I

The Harvard Building I project is a new building which would be in the northwest portion of campus, north of E Howell St and between Harvard Ave and Boylston Ave. Construction of this building would likely require the removal of trees **167 through 170**.

Two replacement trees would be required to be planted for two tier 3 trees removed for Harvard Building I.

# Harvard Building II

The Harvard Building II project is a new building which would be in the northwest portion of campus, south of E Howell St and between Harvard Ave and Boylston Ave. Construction of this building would likely require the removal of trees **179 and 180**.

Two replacement trees would be required to be planted for two tier 3 trees removed for Harvard Building II.

# District Energy Plant

The district energy plant would be located below grade at the South Plaza, east of the BAC. Construction of this structure would likely require the removal of trees **90 through 93, and 106 through 108**, which are located immediately adjacent to the proposed structure. All the trees which would be removed are tier 2 grove trees.

A minimum of seven replacement trees would be required for trees removed for the District Energy Plant.

# Modification of Campus Parking Facilities

No additional tree impacts, parking will remain the same or be installed below ground level as part of new building construction.

# Community Connectivity and Circulation Improvements

The community connectivity and circulation improvements would primarily include changes to landscaping, sidewalks, site lighting, stormwater management, pedestrian safety. Improvements of these types can typically be planned around existing trees. Therefore, as part of this assessment we do not anticipate any tree removals associated with the community connectivity and circulation improvements.

# Alternative – No Boundary Expansion

# Planned Projects

The Student Housing, BAC, and Student Union projects would stay the same as in the draft MIMP, requiring the same tree removals.

# Planned Project ITEC

In the no boundary expansion alternative, the ITEC building would be located in the same area as in the draft MIMP. However, the size of the building would be reduced due to no MIO boundary expansion.

Due to the reduced size only trees **136 through 141 and 143** would likely be removed for the construction of the building. Tree 139 is exceptional by size.

A minimum of one replacement tree would be required for trees removed for the ITEC building in the no boundary expansion alternative.

# Potential Projects

The District Energy Plant would still be built as part of the No Boundary Expansion alternative and would result in the same impacts to trees as in the draft MIMP.

#### Modification of Campus Parking Facilities

The only parking modifications would happen in conjunction with the ITEC and the Student Housing projects and would not require any further tree removals.

#### Community Connectivity and Circulation Improvements

As part of this alternative there would be fewer areas where community connectivity and circulation improvements would occur. In the areas where the improvements would occur proposed improvements could be expected to plan around existing trees. As part of this alternative, we do not anticipate any tree removals for community connectivity and circulation improvements.

#### Alternative – No Action

#### Planned Projects

Of the four planned projects in the draft MIMP only two would likely occur, the BAC and the Student Union, which primarily involve renovations to existing structures. We would expect the same tree removals would be required for the Student Union building as in the draft MIMP.

#### Potential Projects

The District Energy Plant would still be built as part of the No Action alternative and would result in the same impacts to trees as in the draft MIMP.

#### Modification of Campus Parking Facilities

Since there would be no changes to existing parking facilities there would not be impacts to existing trees.

# Community Connectivity and Circulation Improvements

Several community connectivity and circulation improvements could still occur within the existing MIO. In the areas where the improvements would occur proposed improvements could be expected to plan around existing trees. As part of this alternative, we do not anticipate any tree removals for community connectivity and circulation improvements.

# Conclusions

The proposed MIMP results in the most tree removal compared to the two alternatives since it proposes the most development. All the proposed developments are planned in areas which already have buildings or parking areas.

The greatest number of tier 2 tree removals would occur from the construction of the District Energy Plant which would likely require the removal of seven trees in the tier 2 grove to the south of where the District Energy Plant is proposed in the draft MIMP.

The No Action alternative would remove the fewest trees due to the limited scope of proposed development on campus.

Prior to construction the exact locations of trees should be surveyed, and plans should be reviewed by an arborist to determine impacts to trees and final retention numbers. It is possible that utilities, demolition, grading, and revised building footprints could have a considerable impact on overall tree retention. Considering tree retention throughout the design and development phase can lead to an increase in overall tree retention.

Site Trees	77
ROW Trees	84
Tier 2 Trees by Size	3
Tier 2 Trees by Grove	28
Tier 2 Trees by Size Within Exceptional Groves	0
Total Tier 2 Trees	31
Trees Within Steep Slope ECA/Buffer	2
Total Trees in Existing MIO	161

# **Table 2.** Summary of Tree Totals in Expanded MIO

Site Trees	94
ROW Trees	94
Tier 2 Trees by Size	4
Tier 2 Trees by Grove	28
Tier 2 Trees by Size Within Exceptional Groves	0
Total Tier 2 Trees	32
Trees Within Steep Slope ECA/Buffer	2
Total Trees in Expanded MIO	188

# **Table 3.** Summary of Tree Removals in the Proposed MIMP Expansion

Total Trees Removed	39
Tier 2 Trees Removed (grove and/or size)	8
ECA Trees Removed	2
Minimum Replacement Trees Required	15

# **Table 4.** Summary of Tree Removals in the No Boundary Expansion Alternative

Total Trees Removed	24
Tier 2 Trees Removed (grove and/or size)	8
ECA Trees Removed	2
Minimum Replacement Trees Required	11

# Table 5. Summary of Tree Removals in the No Action Alternative

Total Trees Removed	9
Tier 2 Trees Removed (grove and/or size)	7
ECA Trees Removed	0
Minimum Replacement Trees Required	7

# Recommendations

- Site planning around tier 2 trees must follow the requirements outlined in SMC 25.11.080.
- Site planning around trees in critical areas must follow the requirements outlined in SMC 25.09.070.
- All pruning required for construction clearance should be performed by an ISA certified arborist conforming to current ANSI A300 standards.
- Trees should be surveyed prior to construction and final impacts analyzed. Tree retention should be considered throughout the design process to ensure that trees with high retention value can be protected.

Respectfully submitted,

Tyler Bunton, Senior Consulting Arborist

# Appendix A **Glossary**

ANSI A300: American National Standards Institute (ANSI) standards for tree care

**DBH or DSH:** diameter at breast or standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade (Council of Tree and Landscape Appraisers 2019)

**ISA:** International Society of Arboriculture

Regulated Tree: A tree required by municipal code to be identified in an arborist report.

Visual Tree Assessment (VTA): method of evaluating structural defects and stability in trees by noting the pattern of growth. Developed by Claus Mattheck (Harris, *et al* 1999)

# Appendix B References

- Accredited Standards Committee A300 (ASC 300). <u>ANSI A300 (Part 1) Tree, Shrub, and Other Woody</u> <u>Plant Management – Standard Practices (Pruning)</u>. Londonderry: Tree Care Industry Association, 2017.
- Council of Tree and Landscape Appraisers, <u>Guide for Plant Appraisal, 10<sup>th</sup> Edition, Second Printing</u>. Atlanta, GA: The International Society of Arboriculture (ISA), 2019.
- Mattheck, Claus and Helge Breloer, <u>The Body Language of Trees.</u>: A Handbook for Failure Analysis. London: HMSO, 1994.

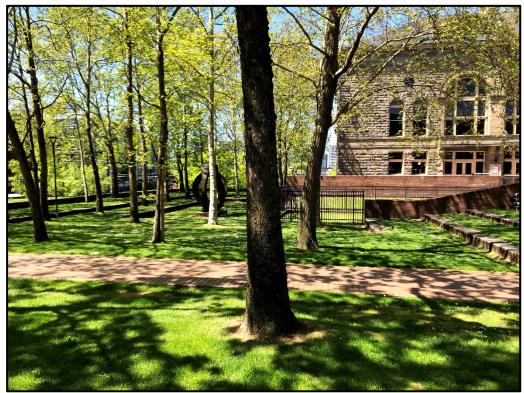
Seattle Municipal Code 25.09.070. Standards for Trees and Vegetation in Critical Areas.

Seattle Municipal Code 25.11.080. Tree protection on sites in Major Institution Overlay Districts

Seattle Municipal Code 25.11.090. Tree Replacement, Maintenance, and Site Restoration

Torgelson, N. Director's Rule 7-2023 - Designation of Tier-2 Trees. Seattle, WA, 2023.

# Appendix C Photographs



**Photo 1.** Photo of the exceptional grove on the SCC campus.

# Appendix D Assumptions & Limiting Conditions

- 1 Consultant assumes that the site and its use do not violate, and is in compliance with, all applicable codes, ordinances, statutes or regulations.
- 2 The consultant may provide a report or recommendation based on published municipal regulations. The consultant assumes that the municipal regulations published on the date of the report are current municipal regulations and assumes no obligation related to unpublished city regulation information.
- 3 Any report by the consultant and any values expressed therein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event, or upon any finding to be reported.
- 4 All photographs included in this report were taken by Tree Solutions, Inc. during the documented site visit, unless otherwise noted. Sketches, drawings and photographs (included in, and attached to, this report) are intended as visual aids and are not necessarily to scale. They should not be construed as engineering drawings, architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.
- 5 Unless otherwise agreed, (1) information contained in any report by consultant covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, climbing, or coring.
- 6 These findings are based on the observations and opinions of the authoring arborist, and do not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described and assessed.
- 7 Measurements are subject to typical margins of error, considering the oval or asymmetrical cross-section of most trunks and canopies.
- 8 Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.
- 9 Our assessments are made in conformity with acceptable evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

# Appendix E Methods

# Measuring

We measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, we measured each stem individually at standard height and determined a single-stem equivalent diameter by using the method outlined in the city of Seattle Director's Rule 16-2008. A tree is regulated based on this single-stem equivalent diameter value. Because this value is calculated in the office following field work, some trees in our data set may have diameters smaller than 6 inches. These trees are included in the tree table for informational purposes only and not factored into tree totals discussed in this report.

# Evaluating

We evaluated tree health and structure utilizing visual tree assessment (VTA) methods. The basis behind VTA is the identification of symptoms, which the tree produces in reaction to a weak spot or area of mechanical stress. A tree reacts to mechanical and physiological stresses by growing more vigorously to re-enforce weak areas, while depriving less stressed parts. An understanding of the uniform stress allows the arborist to make informed judgments about the condition of a tree.

# Rating

When rating tree health, we took into consideration crown indicators such as foliar density, size, color, stem and shoot extensions. When rating tree structure, we evaluated the tree for form and structural defects, including past damage and decay. Tree Solutions has adapted our ratings based on the Purdue University Extension formula values for health condition (*Purdue University Extension bulletin FNR-473-W - Tree Appraisal*). These values are a general representation used to assist arborists in assigning ratings.

<u>Excellent</u> - Perfect specimen with excellent form and vigor, well-balanced crown. Normal to exceeding shoot length on new growth. Leaf size and color normal. Trunk is sound and solid. Root zone undisturbed. No apparent pest problems. Long safe useful life expectancy for the species.

<u>Good</u> - Imperfect canopy density in few parts of the tree, up to 10% of the canopy. Normal to less than ¾ typical growth rate of shoots and minor deficiency in typical leaf development. Few pest issues or damage, and if they exist they are controllable or tree is reacting appropriately. Normal branch and stem development with healthy growth. Safe useful life expectancy typical for the species.

<u>Fair</u> - Crown decline and dieback up to 30% of the canopy. Leaf color is somewhat chlorotic/necrotic with smaller leaves and "off" coloration. Shoot extensions indicate some stunting and stressed growing conditions. Stress cone crop clearly visible. Obvious signs of pest problems contributing to lesser condition, control might be possible. Some decay areas found in main stem and branches. Below average safe useful life expectancy

<u>Poor</u> - Lacking full crown, more than 50% decline and dieback, especially affecting larger branches. Stunting of shoots is obvious with little evidence of growth on smaller stems. Leaf size and color reveals overall stress in the plant. Insect or disease infestation may be severe and uncontrollable. Extensive decay or hollows in branches and trunk. Short safe useful life expectancy.



						Dripline					Steep	Est. Structural			Carbon	Gross Carbon	Avoided	Avoided	Pollution	Pollution	Total Annual			
ROW /			DSH DSH	Health	Structural		Tier 2	_				Value (9th		Carbon	Sequestrat			Runoff	Removal		Benefits		Alternative 1 No	No Actio
	Scientific Name		(in) Multistem				Threshold (in)		ier Level	Notes	Buffer	Ed.) (\$)	(lbs/yr)		) ion (lbs/yr)		(ft^3/yr)	(\$/yr)	(oz/yr)	(\$/yr)	(\$/yr)	Proposed MIMP		Alternati
	Gleditsia triacanthos		9	Good	Good		20	4					211.8	18.06		1.92	13.2	0.88	6.1	1.99	4.8	Remove	Remove	
	Gleditsia triacanthos		8.3	Good	Good		20	4				1,118.54		14.9		1.72	11.3	0.75	5.3	1.7	4.17	Remove	Remove	
	Gleditsia triacanthos		7.7	Good	Good		20	4					146.4	12.48		1.54	9.7	0.65	4.5	1.47	3.66	Remove	Remove	
ROW	Crataegus x lavallei	Lavalle hawthorn	7.9	Good	Good	8.3						1,289.85	197	16.8	13	1.11	5.9	0.4	2.8	0.9	2.4			
ROW	Crataegus x lavallei	Lavalle	7.9	Good	Good	8.3						1,289.85	197	16.8	13	1.11	5.9	0.4	2.8	0.9	2.4			
ROW	Crataegus x lavallei	hawthorn Lavalle	9	Good	Good	9.4						1,590.67	271	23.11	15.7	1.33	7.5	0.5	3.5	1.14	2.97			
		hawthorn																						
ROW	Crataegus x lavallei	Lavalle hawthorn	8	Good	Good	9.3						1,315.58	203.1	17.32	13.2	1.13	6.1	0.41	2.8	0.92	2.45			
ROW	Crataegus x lavallei	Lavalle	6.1	Good	Good	7.3						882.07	104.6	8.92	9	0.77	3.8	0.25	1.8	0.57	1.59			
ROW	Liquidambar styraciflua	hawthorn American	12.2	Good	Fair	16.5				animal burrow under concrete		3.234.14	320.2	27.3	24.5	2.09	28.9	1.93	13.5	4.36	8.38			
NOW		sweetgum	12.2	6000	1 di	10.5				sidewalk adjacent. uplift of sidewalk panels		5,254.14	520.2	27.5	24.5	2.05	20.5	1.55	13.5	4.50	0.50			
ROW	Liquidambar styraciflua	American	8.7	Good	Fair	12.4						1,753.51	139.5	11.89	15	1.28	13.4	0.9	6.3	2.02	4.2			
ROW	Liquidambar styraciflua	sweetgum American	8	Good	Good	7.3				overhead utility lines for entire row		1,599.34	113.6	9.69	14	1.2	11.9	0.8	5.6	1.8	3.79			
		sweetgum								of street trees														
ROW	Liquidambar styraciflua	American sweetgum	9.2	Good	Good	11.4						2,039.82	159.9	13.64	17.2	1.46	16.5	1.1	7.7	2.49	5.06			
ROW	Liquidambar styraciflua	American	8.4	Good	Good	12.3						1,739.34	128	10.92	15.1	1.28	13.4	0.89	6.2	2.02	4.19			
ROW	Liquidambar styraciflua	sweetgum American	8.4	Good	Good	15.3						1,739.34	128	10.92	15.1	1.28	13.4	0.89	6.2	2.02	4.19			
ROW	Liquidambar styraciflua	sweetgum American sweetgum	15.2	Good	Good	18.6						5,164.13	551	46.99	35.7	3.04	46	3.07	21.4	6.94	13.06			
ROW	Gleditsia triacanthos		8.7	Good	Good	16.4						1,197.22	195.4	16.66	21.5	1.83	12.3	0.83	5.8	1.86	4.52			
ROW	Gleditsia triacanthos		10.8	Good	Good	19.5						1,671.02		27.94		2.5	18.6	1.24	8.7	2.8	6.54			
ROW	Gleditsia triacanthos		9.5	Good	Good	17.4				pavement uplift and has been			240.9	20.54		2.08	14.6	0.98	6.8	2.21	5.26			
ROW	Gleditsia triacanthos	Honeylocust	11.5	Good	Good	17.5				shaved		1,851.64	381.2	32.51	32	2.73	20.8	1.39	9.7	3.13	7.25			
Private	Prunus x subhirtella 'Autumnalis Rosea'	Autumn flowering	10.2	Good	Good	18.4	23	4				1,963.49	567.3	48.38	54.4	4.64	20	1.34	9.3	3.02	8.99	Remove	Remove	
		cherry																						
	Gleditsia triacanthos		9.6	Good	Good	18.4						1,387.78		21.06		2.11	14.9	1	7	2.25	5.36			
	Salix sp. (native)	Native Willow		Good	Good	14.4	8	2		estimated from outside fence			773.4	65.95		5.01	18.3	1.22	8.5	2.76	9	Remove	Remove	
	Betula nigra		10.4 6 ,6,6	Good	Good		24	4		estimated from outside fence	X		405.3	34.56		3.3	28.2	1.89	13.1	4.26	9.44	Remove	Remove	
Private	Sorbus aucuparia	European mountain ash	5.2 3,3,3	Good	Good	6.2	-			estimated from outside of fence		717.51	85.8	7.32	16.6	1.42	4	0.26	1.8	0.6	2.28	Remove	Remove	
Private	Rhus typhina		10.5 6,5,4,4,3,3	Good	Good	13.4	24	4	ŀ	estimated from outside of fence	x	2,077.60	386.1	32.93	25.8	2.2	8.9	0.59	4.1	1.34	4.13	Remove	Remove	
ROW	Tilia cordata	Littleleaf linden	9.2	Good	Fair	8.4				hedge pruning		1,842.44	244.8	20.88	18.2	1.55	14.5	0.97	6.8	2.19	4.71			
ROW	Tilia cordata	Littleleaf linden	10	Good	Fair	9.4				4x6 brace at base		2,134.61	298	25.41	20.4	1.74	17.2	1.15	8	2.59	5.48			
ROW	Tilia cordata	Littleleaf linden	9.1	Good	Fair	8.4						1,807.63	238.6	20.35	18	1.53	14.2	0.95	6.6	2.14	4.62			
ROW	Tilia cordata	Littleleaf linden	9.1	Good	Fair	9.4						1,807.63	238.6	20.35	18	1.53	14.2	0.95	6.6	2.14	4.62			
Private	Prunus cerasifera	Thundercloud	10	Good	Good	9.4	24	4		estimated outside of fence		1.898.12	453.7	38.69	33.8	2.88	19.3	1.29	9	2.92	7.1			
	'Thundercloud'	plum										/												
ROW	Crataegus laevigata	English hawthorn	7.1	Good	Good	10.3						1,095.67	180.9	15.42	19.3	1.64	4.9	0.33	2.3	0.74	2.71			
ROW	Crataegus laevigata		6.5	Good	Good	10.3						963.63	145.7	12.43	17	1.45	4.2	0.28	2	0.64	2.37			
ROW	Crataegus laevigata		7.8	Good	Good	10.3						1,264.45	227.7	19.41	22	1.88	5.8	0.39	2.7	0.88	3.14			
ROW	Crataegus laevigata	English	6.9	Good	Good	9.3						1,050.36	168.7	14.38	18.5	1.58	4.7	0.31	2.2	0.71	2.6			
Private	Cedrus deodara	hawthorn Deodar cedar	31	Good	Good	19.3	24	2		estimated outside of fence		14,699.36	3,843.90	327.79	99.1	8.45	41.2	2.76	19.2	6.22	17.43			
ROW	Quercus rubra		14	Good	Good	23.6							843.3	71.91		3.8	44.4	2.97	20.7	6.7	13.46			
ROW	Quercus palustris		19.2	Fair	Fair	22.8				concrete uplift, tree grates		5,843.17	1,660.30	141.58		4.6	48.9	3.27	22.8	7.38	15.24			
_	Quercus palustris	Pin oak	11.1	Good	Good	13.5				restricting some surface roots		2,628.01	558.2	47.6	39.6	3.38	29.2	1.95	13.6	4.41	9.74			
ROW	Quercus palustris		11.9	Fair	Fair	17.5		i					640.9	54.65	33.6	2.86	22.9	1.53	10.7	3.45	7.85			
ROW	1		10	Fair	Fair	16.4						1	454	38.72	28.3	2.41	16.3	1.09	7.6	2.46	5.96			
	Quercus palustris									İ	-	3,875.27	897.7	76.55		4.05	39.1	2.61	18.2	5.9	12.57	1		
ROW		Pin oak	14.1	Good	Fair	17.6																		
ROW ROW ROW	Quercus palustris			Good		17.6											9.8	0.65		1.48	4.07			
ROW ROW ROW		Pin oak	14.1 10 15.5	Good Poor Fair	Fair Good								454	38.72	22.7	1.94			4.6	1.1.1				



													Est.			Gross	Gross					Total			
ROW /	,	Common	DSH	DCU	Health	Structural	Dripline	Tier 2					Structural Value (9th		Carbon	Carbon	Carbon t Sequestrat	Avoided	Avoided Runoff	Pollution Removal	Pollution Removal	Annual Benefits		Alternative 1 No	No Actio
	Scientific Name	Name		Multistem				Threshold (in)	Grove	Tier Level	Notes		Ed.) (\$)	(lbs/yr)		\$) ion (lbs/yr		(ft^3/yr)	(\$/yr)	(oz/yr)	(\$/yr)	(\$/yr)	Proposed MIMP	Boundary Expansion	
ROW	Quercus rubra	Red oak	20.5		Good	Good	31.9	rin conord (iii)	diore	inci icitei	Notes	build	9.413.53	2,130.00	181.64	76.4	6.52	56.8	3.8	26.5	8.57	18.89	rioposcu mini	boundary Expansion	Futernat
ROW	Quercus palustris	Pin oak	13		Fair	Fair	23.5						2,787.10	763.8	65.14	36.6	3.12	26.7	1.79	12.5	4.04	8.95			
ROW	Quercus palustris	Pin oak	12.3		Fair	Good	24.8	1					7,051.87	1,677.60	143.06	64.8	5.53	66.6	4.45	31.1	10.05	20.03			
ROW	Quercus palustris	Pin oak	18.7		Fair	Fair	22.8						5,553.09	1,575.20	134.33	52.5	4.48	46.7	3.12	21.8	7.05	14.65			
ROW	Quercus palustris	Pin oak	17.9		Fair	Fair	23.7						0,20.000	1,443.70	123.12	50.3	4.29	43.3	2.89	20.2	6.54	13.72			
ROW	Quercus palustris	Pin oak	22.3		Fair	Fair	24.9							2,238.00	190.85	62.5	5.33	63.4	4.24	29.5	9.56	19.13			
ROW	Quercus rubra	Red oak	19.4		Good	Good	24.8							1,862.90	158.86	70.7	6.03	54.6	3.65	25.4	8.24	17.91			
ROW	Quercus palustris	Pin oak	16.8		Fair	Fair	27.7							1,272.30	108.5	47.2	4.03	38.8	2.59	18.1	5.85	12.47			
	Quercus palustris	Pin oak	24.4		Good	Fair		24		2			11,128.15		228.4	81.8	6.97	99.9	6.68	46.6	15.08	28.74			
	Quercus palustris	Pin oak	19.4		Good	Good		24		3			7,509.75	1,695.00	144.54	68.7	5.86	70.9	4.74	33	10.7	21.29			
	Quercus palustris	Pin oak	15.5		Good	Fair		24		3	11		4,633.20	1,083.80	92.42	52.2		45.5	3.04	21.2	6.87	14.36			
Private	Quercus palustris	Pin oak	19.1		Fair	Fair	15.8	24		3	chlorotic		5,800.10	1,983.10	169.11	49.6	4.23	44.7	2.99	20.9	6.75	13.97			
	Quercus palustris	Pin oak	14.5		Fair	Fair		24		3	worst of the 6				97.68	37.7	3.21	32.4	2.16	15.1	4.88	10.26			
Private	Quercus palustris	Pin oak	17.4		Fair	Fair		24		3				1,646.80	140.43	45.2	3.85	40.4	2.7	18.8	6.09	12.65			
	Quercus palustris	Pin oak	20.5		Fair	Fair		24		3			6,651.20	2,283.50	194.73	53.2	4.53	49.3	3.29	23	7.44	15.27			
	Quercus palustris	Pin oak	15		Fair	Fair		24		3			3,653.79	1,225.40	104.49	39	3.32	33.9	2.27	15.8	5.12	10.71			
	Quercus palustris	Pin oak	14.6		Fair	Fair	15.6	24		3			3,472.03	1,161.20	99.02	38	3.24	32.7	2.18	15.2	4.93	10.35			
ROW	Quercus rubra	Red oak	13.4		Fair	Fair	16.6						3,296.88	758.2	64.65 48.46	33.1	2.82	30.4	2.04	14.2	4.6	9.46	-	-	
ROW	Quercus rubra	Red oak	11.9		Fair	Good	14.5						3,152.47	568.2	10110	33.5	2.86		2.33	16.3	5.27				
ROW	Quercus rubra	Red oak	10.8		Good	Good	13.5						2,778.08		38.28	30.9	2.63	32	2.14	14.9	4.83	9.6			
ROW	Quercus rubra	Red oak Pin oak	10.3		Good Fair	Good Fair	16.4			-			2,547.51	400.1 481.4	34.12 41.05	28.9 29.1	2.46	29.7	1.99	13.9	4.49 2.61	8.94 6.25			
ROW	Quercus palustris Quercus rubra	Red oak	10.3		Fair	Good	15.4 18.4			-			1,824.08		35.75	29.1	2.48	17.3 28.8	1.16	8.1	4.35	8.67	1		
ROW	Quercus palustris	Pin oak	10.5		Fair	Good	18.4			1			4,690.08	1,097.80	93.61	52.5	4.48	46	3.08	21.5	6.95	14.5	1	1	+
Private		Pin oak	15.5		Good	Fair		24		3			4,633.20	1,083.80	92.42	52.2	4.45	45.5	3.04	21.2	6.87	14.36			-
	Quercus rubra	Red oak	13.7		Good	Good		24		3			4,330.89	800.1	68.23	43.2	3.68	43.4	2.9	20.2	6.56	13.14			-
	Quercus rubra	Red oak	11.3		Fair	Good		24		4				501.1	42.73	31.2	2.66	32.3	2.16	15.1	4.88	9.7			
Private	Prunus x subhirtella	Autumn	6.6		Good	Good	15.3	23		4			984.83	196.5	16.76	29.5	2.52	8.6	0.57	4	1.3	4.39			
	'Autumnalis Rosea'	flowering cherrv																							
Private	Platanus occidentalis	American	19.5		Good	Good	16.8	#N/A	Grove	2			7,584.76	997.9	85.09	50.1	4.27	72	4.81	33.5	10.86	19.95			
Private	Platanus x acerifolia	London	13		Good	Good	13.5	24	Grove	2			3,305.33	427.4	36.45	24.7	2.11	35.4	2.36	16.5	5.34	9.81			
Private	e Platanus x acerifolia	planetree London	7.6		Fair	Good	9.3	24		4			1,236.01	114.4	9.76	10.7	0.91	11	0.73	5.1	1.66	3.3			
Private	e Platanus x acerifolia	London	13.2		Good	Good	14.5	24	Grove	2			3,399.64	443.8	37.85	25.3	2.16	36.3	2.42	16.9	5.47	10.06			+
Private	Platanus x acerifolia	planetree London	16.5		Good	Good	17.7	24	Grove	2			5,163.66	770.3	65.69	35.1	2.99	48.5	3.24	22.6	7.32	13.56			
Private	Platanus x acerifolia	planetree London	13.8		Fair	Good	17.6	24	Grove	2			3,500.94	495.3	42.24	25.6	2.18	37.2	2.48	17.3	5.61	10.27			
Private	Platanus x acerifolia	planetree London	8.4		Fair	Fair	11.3	24		4			1,217.37	146.1	12.46	10.3	0.88	9.4	0.63	4.4	1.42	2.93			
Private	Platanus x acerifolia	planetree London	7.2		Fair	Good	10.3	24		4			1,134.96	100.3	8.55	9.9	0.85	9.8	0.65	4.5	1.47	2.97			
Private	Platanus x acerifolia	planetree London	10.5		Fair	Good	17.4	24		4			2,132.05	252.5	21.53	17.1	1.46	22.1	1.48	10.3	3.34	6.28			
	Platanus x acerifolia	planetree	14.4		Good	Good		24	Grove	2			3.995.75	550.2	46.92	28.7	2.45	41.4	2.77	19.3	6.26	11.48			
		planetree						<u> </u>		-															
	Platanus x acerifolia	London planetree	19.7		Good	Good		24	Grove	2			7,248.59	1,193.90	101.81	45.4	3.87	52.1	3.48	24.3	7.86	15.22			
	Platanus occidentalis	American sycamore	11.1		Poor	Fair	8.5	#N/A	Grove	2	smooth bark			248.2	21.16	14	1.19	12.4	0.83	5.8	1.87	3.88			
Private	Platanus x acerifolia	London planetree	12		Fair	Good	16.5	24	Grove	2			2,708.18	350.8	29.92	20.8	1.78	28.9	1.93	13.5	4.37	8.08			
Private	Platanus x acerifolia	London planetree	12.1		Fair	Good	15.5	24	Grove	2			2,749.33	358.1	30.54	21.1	1.8	29.4	1.96	13.7	4.44	8.2			
Private	Platanus x acerifolia	London planetree	18		Good	Good	19.8	24	Grove	2			6,095.08	955.2	81.45	39.8	3.39	51.4	3.44	24	7.76	14.59			
Private	Platanus x acerifolia	London planetree	10.8		Good	Good	18.5	24		4			2,362.93	270.6	23.08	18.9	1.61	25	1.67	11.7	3.77	7.05			
Private	Platanus x acerifolia	London planetree	14.6		Fair	Good	13.6	24	Grove	2			3,888.79	569.3	48.55	27.8	2.37	40.6	2.71	18.9	6.12	11.21			
Private	Platanus x acerifolia	London	14.1		Fair	Good	12.6	24	Grove	2			3,643.83	522.3	44.54	26.4	2.25	38.5	2.57	17.9	5.81	10.63	Remove	Remove	Remove
Private	Platanus occidentalis	American sycamore	14		Good	Good	15.6	#N/A	Grove	2	smooth bark		4,031.69	439.9	37.51	30.9	2.64	41	2.74	19.1	6.19	11.57	Remove	Remove	Remove
Private	Platanus occidentalis	American	22		Fair	Good	25.9	#N/A	Grove	2	smooth bark		9,091.38	1,344.40	114.64	56.6	4.83	85.5	5.72	39.9	12.91	23.45	Remove	Remove	Remove
Private	Platanus x acerifolia	London	13.9		Fair	Good	13.6	24	Grove	2			3,548.23	504.2	43	25.9	2.2	37.6	2.51	17.5	5.67	10.39	Remove	Remove	Remove

Tree Solutions, Inc.



RO					DSH		Structural						Slope /	Est. Structural Value (9th	Storage	Carbon	Sequestrat	Sequestrat		Avoided Runoff	Removal	Removal	Total Annual Benefits		Alternative 1 No	No Action
		<b>Scientific Name</b> Platanus x acerifolia	Name London		Multistem	Condition Fair			Threshold (in) 24	Grove	Tier Level	Notes	Buffer		(lbs/yr) 315.9	storage (\$ 26.94	ion (lbs/yr)	ion (\$/yr) 1.67	(ft^3/yr) 26.6	(\$/yr) 1.78		(\$/yr) 4.02	(\$/yr) 7.47	Proposed MIMP	Boundary Expansion	Alternativ
Priv	ate P	natarius x aceritolia	planetree	11.5		Fdlf	GOOD	17.5	24		4			2,507.61	515.9	20.94	19.6	1.07	20.0	1.78	12.4	4.02	7.47			
Priv	vate P	Platanus x acerifolia	London	8.1		Good	Good	11.3	24		4			1,444.48	133.7	11.4	12.4	1.06	13.6	0.91	6.3	2.05	4.02			
Priv	/ate P	Platanus x acerifolia	planetree London	22.5		Good	Good	26.9	24	Grove	2			9,375.28	1,657.90	141.38	55.1	4.69	61.5	4.11	28.7	9.29	18.09			
			planetree																							
Priv	/ate P	Platanus x acerifolia	London planetree	11.6		Fair	Good	22.5	24		4			2,547.04	322.7	27.52	19.8	1.69	27.1	1.81	12.6	4.09	7.59			
Priv	vate P	Platanus x acerifolia	London	12.5		Fair	Good	19.5	24	Grove	2			2,917.30	388	33.09	22.1	1.89	31.2	2.09	14.6	4.72	8.69			
Priv	vate P	Platanus x acerifolia	planetree London	17.9		Good	Good	21.7	24	Grove	2			6,030.46	942.1	80.34	39.5	3.37	51.3	3.43	23.9	7.74	14.53			
			planetree																							
) Priv	/ate P	Platanus x acerifolia	London planetree	9.8		Good	Good	16.4	24	Grove	2			1,992.17	213.2	18.18	16.4	1.4	20.5	1.37	9.5	3.09	5.85			
1 Priv	vate P	Platanus x acerifolia	London	15.2		Good	Good	23.6	24	Grove	2			4,421.95	628.9	53.63	31.1	2.65	44.5	2.97	20.7	6.72	12.34			
2 Priv	ate P	Platanus x acerifolia	planetree London	20.2		Good	Good	25.8	24	Grove	2			7,607.66	1,270.20	108.32	47.1	4.01	51.8	3.46	24.1	7.82	15.3			
			planetree																							
B Priv	/ate P	Platanus x acerifolia	London planetree	21		Fair	Good	25.9	24	Grove	2			7,778.16	1,398.20	119.23	47.2	4.03	52.4	3.5	24.4	7.91	15.43			
4 Priv	vate P	Platanus x acerifolia	London	15.1		Poor	Fair	14.6	24	Grove	2			2,791.54	618.7	52.76	19.6	1.67	20.5	1.37	9.6	3.1	6.14			
5 Priv	vate P	Platanus x acerifolia	planetree London	12.9		Fair	Good	15.5	24	Grove	2			3,090.74	419.3	35.76	23.2	1.98	33.1	2.21	15.4	4.99	9.18			
			planetree						-								-									
5 Priv	/ate   P	Platanus x acerifolia	London planetree	16.7		Fair	Good	19.7	24	Grove	2			5,010.84	793.6	67.67	33.8	2.88	48	3.21	22.4	7.25	13.34	Remove	Remove	Remove
7 Priv	vate P	Platanus x acerifolia	London	14.6		Good	Good	16.6	24	Grove	2			4,100.14	569.3	48.55	29.3	2.5	42.2	2.82	19.7	6.38	11.7	Remove	Remove	Remove
B Priv	/ate P	Platanus x acerifolia	planetree London	13.8		Fair	Good	18.6	24	Grove	2			3,500.94	495.3	42.24	25.6	2.18	37.2	2.48	17.3	5.61	10.27	Remove	Remove	Remove
			planetree																							
9 ROV	w l	iquidambar styraciflua	American sweetgum	10.9		Fair	Good	15.5						2,626.30	242.6	20.69	20.8	1.77	22.6	1.51	10.5	3.41	6.7			
D ROV	W L	iquidambar styraciflua	American	8.6		Fair	Good	9.4						1,718.50	135.6	11.56	14.7	1.26	13.1	0.87	6.1	1.97	4.1			
L ROV	W L	iquidambar styraciflua	sweetgum American	7.1		Good	Good	7.3						1,309.32	84.9	7.24	11.8	1.01	9	0.6	4.2	1.36	2.97			
2 BOV		· · · · · · · · · · · · · · · · · · ·	sweetgum	8.4		C	- · · ·	44.2						1.540.50	430	40.02		4.33	12.2	0.02	5.0	1.05	2.04			
2 ROV	w  L	iquidambar styraciflua.	American sweetgum	8.4		Good	Fair	11.3						1,649.68	128	10.92	14.3	1.22	12.3	0.83	5.8	1.86	3.91			
B ROV	W L	iquidambar styraciflua	American	9.1		Good	Fair	14.4						1,897.63	155.7	13.28	16	1.36	14.9	1	7	2.25	4.61			
4 ROV	wc	Quercus rubra	sweetgum Red oak	12.8		Good	Good	17.5						3,809.64	678.3	57.84	39.2	3.35	40.3	2.69	18.8	6.08	12.12			
5 Priv	/ate A	Arbutus unedo	Strawberry	8.7	7.2, 4.8	Good	Good	9.4	24		4	grows within 12in of foundation		1,490.71	375.7	32.04	21.5	1.83	16.3	1.09	7.6	2.46	5.38	Remove	Remove	Remove
5 Priv	/ate A	Arbutus unedo	tree Strawberry	6		Good	Good	7.3	24		4	grows within 6 in of foundation,		862.49	156.8	13.37	12.9	1.1	8.7	0.58	4.1	1.32	3	Remove	Remove	Remove
7 Priv	ate D	Populus tremuloides	tree Quaking aspen	63		Good	Good	5.3	12		4	asymmetrical canopy		741.23	83.9	7.16	13.4	1.14	3.4	0.23	1.6	0.51	1.88			
		· · · · · · · · · · · · · · · · · · ·																								
B Priv	/ate P	opulus tremuloides	Quaking aspen	7		Good	Good	5.3	12		4			836.98	108.7	9.27	15.5	1.32	4.2	0.28	2	0.64	2.24			
9 Priv	vate C	Carpinus betulus	European	7.1		Good	Good	8.3	16		4			1,095.67	202.4	17.26	19.2	1.63	12.7	0.85	5.9	1.91	4.39			
) ROV	w A	Acer platanoides	hornbeam Norway maple	11.3		Good	Good	13.5						2.714.40	559.6	47.72	43.9	3.75	18.7	1.25	8.7	2.82	7.81			
							-												-							
1 ROV	w 🏻	Acer platanoides	Norway maple	14		Good	Good	12.6						4,031.69	910.8	77.66	57.8	4.93	28	1.87	13.1	4.23	11.03			
2 Priv	/ate A	Acer pseudoplatanus	Sycamore	6.7		Good	Good	7.3	24		4			1,053.09	174.4	14.87	17.4	1.48	13.9	0.93	6.5	2.1	4.52			
3 ROV	w A	Acer platanoides	Maple Norway maple	12		Good	Good	15.5						3,028.92	641.5	54.7	47.4	4.05	20.9	1.4	9.8	3.16	8.61			
4 ROV		Acer platanoides				Good	Good	16.4						2.104.07	405.2	34.55	36.6	3.12	14.2	0.95	6.6	2.14	6.21			
- KOV	**   <sup>A</sup>		Norway maple	5.0		3000	3000	10.4						2,104.07	+03.2	34.35	30.0	3.12	14.2	0.55	0.0	2.14	0.21			
5 ROV	W A	Acer platanoides	Norway maple	10		Good	Good	12.4						2,180.43	424.1	36.17	37.6	3.2	14.7	0.98	6.9	2.22	6.41			
5 ROV	W A	Acer platanoides	Norway maple	8.9	1	Good	Good	10.4						1,779.52	325.8	27.78	32.4	2.76	11.7	0.78	5.5	1.77	5.32	1		1
7 ROV	w A	Acer platanoides	Norway maple	7.9		Good	Good	7.3						1,455.54	248.8	21.22	27.9	2.38	9.3	0.62	4.3	1.41	4.41			
-					ļ																			ļ		
B ROV	w A	Acer platanoides	Norway maple	9.6		Good	Fair	11.4						1,924.64	386.7	32.97	33.8	2.88	12.6	0.84	5.9	1.9	5.62			
9 ROV	W A	Acer platanoides	Norway maple	9.4		Fair	Fair	8.4						1,552.67	368.7	31.44	27.4	2.34	8.2	0.55	3.8	1.24	4.13			
) ROV	W A	Acer platanoides	Norway maple	10.3		Good	Fair	11.4						2,179.42	453.5	38.68	37	3.15	14.4	0.96	6.7	2.18	6.29			
			1 1 1 1 1	1	1					1	1			1	1	1	1	1	1	1	1		1	1	1	1



	ROW /		Common	DSH DSH		Health	Structural	Dripline	Tier 2				Steep	Est. Structural		Carbon	Carbon	Gross Carbon	Avoided	Avoided Runoff	Pollution Removal	Pollution Removal	Total Annual Benefits		Alternative 1 No	No Actior
		Scientific Name	Name				Condition		Threshold (in)	Grove	Tier Level		Siope / Buffer	Value (9th Ed.) (\$)	Storage (lbs/yr)	storage (	Sequestrat (bs/yr)		(ft^3/yr)	kunoπ (\$/yr)	(oz/yr)	(\$/yr)	(\$/yr)	Proposed MIMP	Boundary Expansion	
		Quercus rubra		16.2				15.7	Threshold (iii)	GIOVE	Her Lever	Notes	Duner	5,964.56	1,202.20	102.52		4.67	49.4	3.3	23	7.46	15.43	r toposed within	boundary Expansion	Alternat
2 F	ROW	Quercus rubra	Red oak	11			Fair	10.5						1,836.59	469.4	40.03	20.1	1.71	13.4	0.89	6.2	2.02	4.62			
		Quercus rubra		10.1				9.4						1,317.87	381.5	32.53	14.9	1.27	7.4	0.49	3.5	1.12	2.88			
		Quercus palustris		8.8				15.4							352.7	30.08		2.13	12.5	0.83	5.8	1.88	4.84			
-		Quercus rubra		9.4 11.8				12.4 10.5	24						320.4 627.1	27.32		1.71 3.39	16.7 12.4	1.11	7.8	2.52	5.34 6.08			
6	rivate	Crataegus laevigata	English hawthorn	11.8		Good	Good	10.5	24		4			2,533.09	627.1	53.48	39.7	3.39	12.4	0.83	5.8	1.87	6.08	Remove	Remove	
7 F	Private	Crataegus laevigata		8.2		Good	Good	9.3	24		4			1,368.01	257.3	21.94	23.6	2.01	6.4	0.42	3	0.96	3.4	Remove	Remove	
8 F	Private	Zelkova serrata		14		Good	Good	16.6	24		3			4,031.69	443.5	37.82	21.9	1.87	41	2.74	19.1	6.19	10.8	Remove	Remove	
9 F	Private	Arbutus unedo		16.3 7.3, 4.9,	5.4,	Good	Good	13.7	24		3			4,589.82	1,709.80	145.8	18.8	1.6	35.5	2.37	16.5	5.36	9.33	Remove	Remove	
0 F	Private	Arbutus unedo		8.2. 7.7 5.2,		Good	Fair	10.3	24		4			1,180.21	285.6	24.36	17.3	1.48	12.8	0.85	6	1.93	4.26	Remove	Remove	
1 F	Private	Arbutus unedo		8.1 7, 4		Good	Good	13.3	24		4	estimated from fence		1,331.17	317.4	27.07	19.4	1.66	14.6	0.98	6.8	2.21	4.84	Remove	Remove	
2 F	Private	X Cuprocyparis leylandii		26		Good	Good	19.1	24		2	estimated from outside of fence		7,787.72	6,012.70	512.74	157.4	13.42	54.6	3.65	25.5	8.25	25.32			
3 F	Private	Acer pseudoplatanus		17.4 9, 10		Good	Fair	15.7	24		3	grows out of rockery		5,257.74	1,532.70	130.7	56.2	4.8	48	3.21	22.4	7.25	15.26	Remove	Remove	
4 F	Private	X Cuprocyparis leylandii		10.3 10.8		Good	Good	9.5	24		4	estimated from outside of fence		1,299.72	984.3	83.94	71	6.06	15	1.01	7	2.27	9.33	Remove		
5 F	Private	X Cuprocyparis leylandii	cypress Leyland cypress	8.3		Good	Good	9.3	24		4	estimated from outside of fence		745.87	570.8	48.68	53.8	4.58	8.1	0.54	3.8	1.22	6.35	Remove		
6 F	Private	X Cuprocyparis leylandii	Leyland cypress	7		Good	Good	9.3	24		4	estimated from outside of fence		515.17	402.2	34.3	45	3.83	5.4	0.36	2.5	0.82	5.02	Remove		
7 F	Private	X Cuprocyparis leylandii	Leyland cypress	7		Good	Good	9.3	24		4	estimated from outside of fence		515.17	402.2	34.3	45	3.83	5.4	0.36	2.5	0.82	5.02	Remove		
8 F	Private	X Cuprocyparis leylandii	Leyland cypress	7		Good	Good	9.3	24		4	estimated from outside of fence		515.17	402.2	34.3	45	3.83	5.4	0.36	2.5	0.82	5.02	Remove		
9 F	Private	X Cuprocyparis leylandii	Leyland cypress	7		Good	Good	9.3	24		4	estimated from outside of fence		515.17	402.2	34.3	45	3.83	5.4	0.36	2.5	0.82	5.02	Remove		
0 F	Private	X Cuprocyparis leylandii	Leyland cypress	7		Good	Good	9.3	24		4	estimated from outside of fence		515.17	402.2	34.3	45	3.83	5.4	0.36	2.5	0.82	5.02	Remove		
		X Cuprocyparis leylandii	Leyland cypress	7				5.5	24		4	estimated from outside of fence		515.17	402.2	34.3		3.83	5.4	0.36	2.5	0.82	5.02	Remove		
		X Cuprocyparis leylandii	Leyland cypress	7					24		4	estimated from outside of fence		515.17	402.2	34.3		3.83	5.4	0.36	2.5	0.82	5.02	Remove		
		Acer macrophyllum Acer pseudoplatanus	Bigleaf maple					17.6 15.6				wound on southeast side		3,945.45 3,375.94	899.9 893.4	76.74	52	4.44 3.53	45.7 39.9	3.06	21.3	6.9 6.02	14.39 12.21			
			maple	13.7 9.6,			-		-		-	wound on southeast side														
		Acer circinatum	Vine maple Ponderosa pine	7.2 4.3, 3.4,	3.2			5.5	8		3	estimated from outside of the fence		1,038.43	411	35.05 87.84		3.23 2.86	16.8 56.4	1.12 3.77	7.8 26.3	2.53 8.51	6.88			
		Pinus ponderosa Caroinus betulus	· · ·						16		3	estimated from outside of the fence			228.2	19.46				0.93	6.5	2.1	4,79			
			hornbeam	7.5					16		4			1,190.17	208.7	19.46		1.75	13.9 13	0.95	6.1	1.96	4.79			
		Carpinus betulus Carpinus betulus	hornbeam	6					16		4			862.49	140.7	17.8		1.66	9.5	0.63	4.4	1.96	3.39			
		Carpinus betulus	hornbeam	6.7					16		4			1,006.35	140.7	15.22		1.52	9.5	0.63	5.3	1.43	4.02			
-	ivate	corpinus octulus	hornbeam	0.7		5000	5000	23.3			-			1,000.35	1/0.4	13.22	17.0		1.5	3.77		1.75	1.02			
1 F	ROW	Acer campestre	Hedge maple	6.3		Good	Good	8.3						857.34	155.4	13.26	11.4	0.97	12.9	0.86	6	1.95	3.78			
		Acer campestre	Hedge maple					10.3							237.9	20.29	14.5	1.23	18.3	1.22	8.5	2.76	5.22			
		Acer campestre		7.5				10.3						1,034.10	230.8	19.69	13.5	1.15	16.7	1.11	7.8	2.52	4.78			
		Acer campestre	Hedge maple					10.3				1		930.49	178.7	15.24		1.05	14.5	0.97	6.8	2.19	4.21			
		Acer campestre		7				12.3						988.31	197.4	16.83		1.11	15.7	1.05	7.3	2.38	4.54			+
6 F	ROW	Thuja plicata	Western redcedar	6.1		Good	Good	9.3					1	395.99	19.8	1.69	1	0.08	3.2	0.22	1.5	0.49	0.79			
7 F	Private	Betula papyrifera		18		Good	Good	22.8	20		3	canopy is intertwined with photinia canopy, estimated from parking lot		6,095.08	1,846.20	157.44	104.6	8.92	44	2.94	20.5	6.64	18.5	Remove		
8 F	Private	Photinia x fraseri	Fraser photinia	11.7 4, 9,	5, 4,	Good	Good	16.5	24		4	canopy is intertwined with Birch		2,514.04	1,028.10	87.68	63.7	5.43	21.8	1.46	10.1	3.29	10.17	Remove		-
9 F	Private	Umbellularia californica	California laurel	10.1 5, 4,	6, 4, 3,	Good	Good	9.4	24		4			1,930.65	522.8	44.58	37.1	3.17	20.8	1.39	9.7	3.15	7.7	Remove		-
0 F	Private	Acer macrophyllum	laurel Bigleaf maple	6.5,		Good	Fair	20.7	24		3	asphalt uplift in parking lots, grows through 3 foot chain link fence, multi stem at base		4,676.51	1,175.90	100.28	57.1	4.87	52.4	3.5	24.4	7.91	16.28	Remove		



														Est.			Gross	Gross					Total			
								Dripline					Steep	Structural	Carbon		Carbon	Carbon	Avoided	Avoided	Pollution	Pollution	Annual			
	ROW /		Common	DSH	DSH	Health	Structural		Tier 2					Value (9th		Carbon		t Sequestrat		Runoff	Removal	Removal	Benefits		Alternative 1 No	No Action
Tree ID		Scientific Name	Name		Multistem				Threshold (in)	Grove	Tier Level	Notes	Buffer		(lbs/yr)		5) ion (lbs/y		(ft^3/yr)	(\$/yr)	(oz/yr)	(\$/yr)	(\$/yr)	Proposed MIMP		
171	ROW	Malus domestica	Apple		6. 4.4	Good		14.3	rin conord (iii)	U.U.U	ner zerer	white flowering crabapple	Durrer		212.6	18.13	20.4	1.74	5.1	0.34	2.4	0.77	2.85	r roposed mini	boundary Expansion	
172	ROW	Malus domestica	Apple	9	0, 4.4	Good		15.4				white flowering crabapple		1,590.67	338.8	28.89	28.3	2.41	7.5	0.5	3.5	1.14	4.05			
174	ROW	Quercus palustris	Pin oak	15.1		Good		18.6				a second s			1.028.80	87.73	50.8	4.34	43.5	2.91	20.3	6.56	13.81			
175	ROW	Quercus palustris	Pin oak	19.9		Good		25.8						7.888.68	1,783.20	152.06	70.5	6.01	74	4.95	34.5	11.18	22.14			
176	ROW	Quercus palustris	Pin oak	15.2		Good		23.6						4,707,40	1,042.40	88.89	54	4.6	46.4	3.1	21.6	7	14.7			
177	ROW	Malus domestica	Apple	6.2	4.2.4.5	Fair		9.3	1		1	flowering crab apple		709.65	134	11.42	13	1.11	2.6	0.18	1.2	0.4	1.68			
178	ROW	Acer palmatum	Japanese	11.8	6.6, 4.5,	Good	Good	13.5	1		1			2.251.19	481.9	41.09	19.8	1.68	16.8	1.13	7.8	2.54	5.35			
			maple		4.5, 4.6, 5.8									,												
179	Private	Pinus sylvestris	Scots pine	17.6		Good	Good	14.7	24		3			2,566.20	871.7	74.34	39.7	3.39	44.2	2.95	20.6	6.67	13.01	Remove		
180	Private	Cupressus macrocarpa	Monterey	13.6		Good	Good	14.6	24		3	blue foliage		1,977.74	813	69.33	25.9	2.21	17.5	1.17	8.2	2.64	6.02	Remove		
			cypress																							
181	ROW	Malus domestica	Apple	6.4		Good	Good	6.3			1	flowering crabapple		942.75	147.1	12.54	17.4	1.49	4.3	0.29	2	0.65	2.43			1
182	ROW	Malus domestica	Apple	7.1	4.5, 3.5, 3, 3	Good	Fair	5.3				multi stem at base, topped		1,041.37	190.3	16.23	19.2	1.63	4.7	0.32	2.2	0.71	2.66			
183	ROW	Prunus serrulata	Flowering cherry	17.9		Fair	Fair	16.7						4,337.98	2,231.60	190.3	9.1	0.78	22.1	1.48	10.3	3.34	5.59			
184	ROW	Prunus serrulata	Flowering cherry	20.3		Fair	Fair	15.8						5,515.63	3,031.70	258.53	1.9	0.16	24.3	1.63	11.3	3.67	5.46			
185	ROW	Prunus serrulata	Flowering	14.6		Fair	Fair	13.6				large tear outs on Streetside		2,960.32	1,358.60	115.86	33.4	2.85	17	1.14	7.9	2.57	6.56			1
186	ROW	Lagerstroemia indica	Common crape myrtle	6.2		Good	Fair	6.3						855.48	130.4	11.12	14.8	1.26	3.1	0.2	1.4	0.46	1.92			-
187	ROW	Lagerstroemia indica	Common crape myrtle	6.4		Good	Good	8.3						942.75	140.7	12	16.3	1.39	3.5	0.23	1.6	0.52	2.14			
188	ROW	Lagerstroemia indica	Common crape myrtle	7		Good	Good	8.3						1,072.85	174.4	14.87	18.4	1.57	4	0.27	1.9	0.61	2.45			
189	ROW	Fraxinus pennsylvanica	Green ash	7.3		Good	Good	12.3					_	972.2	140	11.94	13.9	1.19	12.1	0.81	5.6	1.83	3.82			
190	ROW	Fraxinus pennsylvanica	Green ash	6.7		Good		9.3			1			868.53	116.9	9.97	12.7	1.08	10.1	0.67	4.7	1.52	3.28			+
191	ROW	Acer platanoides	Norway maple			Good		18.7						5,188.73	1,234.40	105.26	68.7	5.85	35.7	2.38	16.6	5.39	13.62			1
192	ROW	Acer platanoides	Norway maple	12.6		Fair	Fair	12.5						2,630.35	716.7	61.12	39.9	3.4	14.5	0.97	6.8	2.19	6.56			1
193	ROW	Liquidambar styraciflua	American sweetgum	13.8		Good	Good	16.6						4,297.69	434	37.01	31	2.64	39.2	2.62	18.3	5.92	11.18			1
194	ROW	Liquidambar styraciflua	American	16.5		Good	Good	17.7						6,043.59	674.9	57.55	40.2	3.43	52	3.48	24.3	7.86	14.76			
195	ROW	Liquidambar styraciflua	sweetgum American	12.9		Good	Good	13.5						3,784.86	367.4	31.33	28.1	2.39	34.6	2.31	16.1	5.22	9.93			1
196	ROW	Liquidambar styraciflua	sweetgum American sweetgum	13.8		Fair	Good	15.6						4,076.16	434	37.01	29.3	2.5	36.9	2.47	17.2	5.57	10.54			1

