

CITY OF CAMAS

STREET TREE SUCCESSION PLAN

MARCH 2023

GREENWORKS™

City of
Camas
WASHINGTON

TABLE OF CONTENTS

04	SECTION 1: INTRODUCTION
08	SECTION 2: EXISTING CONDITIONS AND TREE INVENTORY
14	SECTION 3: BEST MANAGEMENT PRACTICES
18	SECTION 4: RECOMMENDATIONS
30	APPENDIX A: FULL SIZE MAPS
34	APPENDIX B: ARBORIST TREE INVENTORY

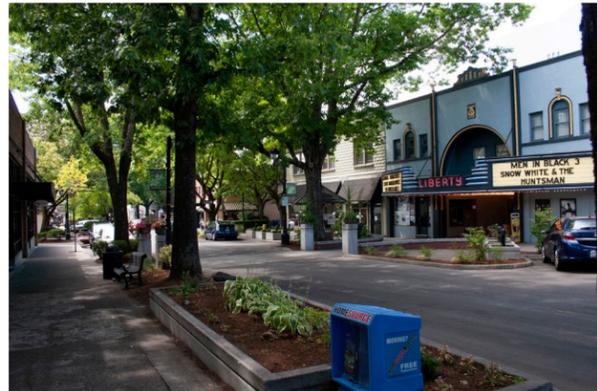
A photograph of a street scene, likely in a historic district, featuring a street sign for 'E DALLAS ST', a cafe named 'Whittier's CAFE', and people sitting at outdoor tables. The image is overlaid with a semi-transparent blue filter.

SECTION 1

INTRODUCTION

INTRODUCTION

The City of Camas downtown is characterized by beautiful tree-lined streets. These trees have created a unique sense of place for the community while also providing economic, environmental, and social benefits. Unfortunately, all trees have a limited lifespan, especially in dense urban environments. The purpose of this document is to help the City of Camas preserve the character of its downtown core through strategic replacement of its existing tree canopy. This succession plan will help reduce risks from aging trees and gradually introduce a more diverse canopy to support the city in the years to come.



BENEFITS OF STREET TREES

Street trees provide a wide range of benefits, not only environmentally, but also economically and culturally.

The tree canopy in downtown Camas is a beloved feature of the city that helps shape the character of the downtown core. The grand oak trees have paralleled the storefronts for many years, framing the street, providing shade, and helping to create the inviting atmosphere that is unique to Camas.

Trees not only add to the aesthetic value of an urban core but also serve an important role in its infrastructure. The environmental benefits of urban trees are also well documented. Trees provide shade in the summer months, helping to provide a respite for shoppers or diners at one of Camas's local restaurants. Urban trees also help reduce urban heat island impacts, reduce stormwater runoff, and provide habitat.

GOALS

This plan aims to guide the replacement of Camas's urban canopy within the downtown core. The plan is further guided by four specific goals:

Healthy, Long-lived, Resilient Urban Forest

Trees are an important part of urban infrastructure, but they can also be expensive and hazardous if not properly managed. With proper planning, tree selection, and maintenance, urban trees can have healthy, long lives.

Diversity of species and ages

Increasing diversity in both species and age of the urban canopy will help create a more robust and resilient system for years to come.

Maintain Sense of Place for Camas

The mature and majestic urban canopy is central to the identity of Camas.

Balance space limitations in ROW

As a well-developed downtown core, the project area is bound by spatial limitations such as sidewalks, roads, and buildings. Where possible, efforts should be taken to expand the soil available for trees. Minimize conflicts of trees with buildings, utilities, and paving. Promote long-lived, healthy trees with functional canopies.

A photograph of a street scene, likely in a historic district, featuring mature trees, a street sign for 'E DALLAS ST', and a building with a 'Cafe' sign. People are sitting at an outdoor cafe table. The image is overlaid with a semi-transparent dark blue filter.

SECTION 2

EXISTING CONDITIONS AND TREE INVENTORY

EXISTING CONDITIONS ANALYSIS

This tree succession plan covers the downtown core of Camas, WA from NE 3rd Ave to NE 6th Ave and from NE Adams St to NE Garfield St.

A tree inventory for part of this project area was completed in 2017 by New Day Arborist. The report surveyed 102 individual trees with DBHs ranging from 2" to 34.5". Twelve different types of trees are planted on site:

- Norway Maple (28)
- Ash, *Fraxinus spp.* (25)
- Red Oaks, *Quercus rubra* (16)
- Sweetgum, *Liquidamber spp.* (9)
- Eastern Dogwood, *Cornus spp.* (8)
- Cherry, *Prunus spp.* (5)
- Sycamore Maple, (4)
- Autumn Gold Ginko, (2)
- Fl. Pear (2)
- Red Sunset Maple (2)
- Sugar Maple (1)
- Smoke Tree (1)

The tree inventory noted a number of critical issues that helped inform this succession plan:

- Most species within the project area are Red Oaks (*Quercus rubra*) and Norway Maples.
- Most of the Norway Maple trees in the area are over-mature and showing signs of decline. The inventory recommends that the majority should be budgeted for removal and replacement.

- 80% of the trees have a concrete opening that is undersized for the size or age of the tree.
- Most of the Ash trees are small or stunted and appear to be under drought

While there are some challenges to the tree canopy, there are also some positives:

- There is a deep appreciation for the existing tree canopy within Camas.
- The existing trees are generally well spaced and do not overcrowd each other.

Additional Considerations:

- The tree inventory was only conducted for a part of the Succession Plan project area. In order to fully assess the project area, a comprehensive tree inventory for the remain blocks will need to be completed.
- The arborist inventory report covered recommendations for 86 trees within the downtown core, however GIS data provided expanded information and covered 102 total trees. The maps provided in this document utilise the expanded GIS data.
- A 2022 site visit conducted by the GreenWorks team also identified gaps in the urban canopy. These locations are opportunities to plant new trees and are indicated in the Recommendations sections of this plan.

EXISTING TREE INVENTORY

Map from GIS information provided by New Day Arborist



Tree Inventory

Common

- American Sweet Gum
- Ash Species
- Autumn Gold Ginkgo
- Chanticleer Pear
- Eastern Dogwood
- Japanese Flowering Cherry
- Norway Maple
- Red Oak
- Red Sunset Maple
- Smoke Tree
- Sugar Maple
- Sycamore Maple

CURRENT THREATS TO EXISTING TREES

Due to the density of Camas's downtown core, the street trees in this setting face many challenges that make maintaining a healthy, mature canopy difficult. Trees planted in urban environments must compete for space with pavement and various utilities, deal with heavily compacted soil, and suffer from air and soil pollution.

Soil Volume

Most trees in downtown Camas do not have enough soil and/or suffer from soil that is too compacted. The existing trees in this zone are often constrained to narrow ROW spaces between sidewalks and roadways.



Canopy Space

Trees also must compete for aerial space. While most of the existing trees in Camas are generally well spaced apart from each other, many trees are close to buildings and either cause conflict with the building face/ roof, or have been improperly pruned and shaped to avoid conflict, thus creating a weak tree structure. In other areas, trees are planted directly under utility lines. While many trees can grow around this, it does create a hazard for falling limbs and makes utility maintenance difficult.

Species Diversity

Despite having a number of different tree species in the project area, actual species diversity is low in downtown Camas as most trees are Oaks, Maples, or Ash trees. Overplanting of a single species creates a monoculture system and leaves the area vulnerable to pests and disease.

Pests and Disease

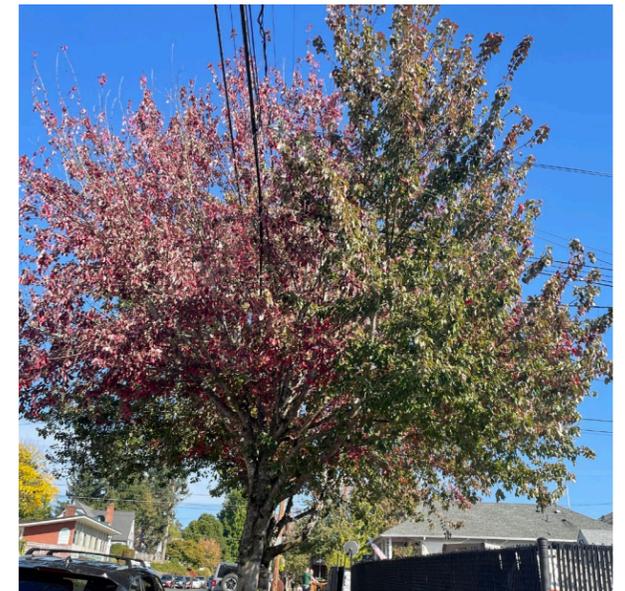
Trees are also subject to stress from biotic disorders such as pests and disease. One of the primary high-threat pest across the U.S. currently is the Emerald Ash Borer (EAB). EAB (*Agrilus planipennis* Fairmaire) is a beetle that feeds on Ash trees. The insect lays its eggs in the crevices of Ash tree bark. When they hatch, the larvae tunnel into the bark, feeding on the inner bark and destroying the vascular tissue. This severely harms and typically kills the tree. Since its discovery, EAB has killed millions of Ash trees across the country. In 2022, it was found in Forest Grove, Oregon, the first sighting in the Pacific Northwest. Mortality rates of Ash trees in the region are expected to be as high as they've been in the rest of the country.

Climate Change

As the impacts from Climate Change become increasingly evident, urban trees will have to contend with increasingly severe weather patterns such as longer and colder winter conditions and hotter, drier summer heat and drought.

DANGERS FROM EXISTING TREES

Existing trees that are in poor health or declining health should be attended to in an appropriate time frame as they can be a serious hazard for people, cars, utilities, and buildings. As downtown Camas is a highly trafficked area, the potential for conflict is high and high risk trees should be taken seriously.



SECTION 3

BEST MANAGEMENT PRACTICES



BEST MANAGEMENT PRACTICES

The recommendations in this Succession Plan will be guided by the current best management practices (BMPs) in urban forestry and arboriculture.

The following is a list of "Ingredients of Successful Resilient Urban Trees"

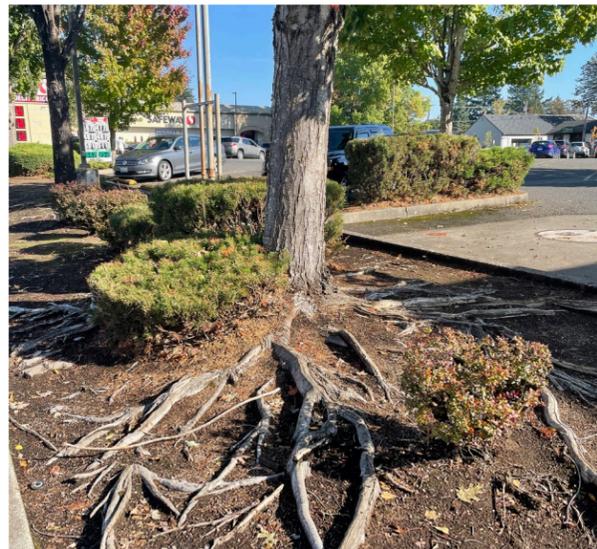
Location

This category guides all aspects of tree BMPs. Choosing the right location for street trees, and choosing the right tree for each location will help create longer-lived trees and reduce potential conflicts with existing infrastructure.



Soil

Soil is one of the most important aspects for tree health and is often a key limiting factor for urban trees. Ideally, trees should have an appropriate soil volume for their size. It's also best to provide soil that is uncompacted and regularly has organic matter introduced. Use soil that is well-draining and rich in nutrients.



Mulch

Mulch is a highly beneficial supplement to urban trees. Mulch helps keep the soil cool, conserves moisture, and reduces competition from unwanted plants. It also provides organic matter as it breaks down, helping to nourish trees. Aim for 2"-4" of mulch depth in a ring around the trunk. Avoid placing mulch directly against the trunk as this traps moisture and can lead to decay.

Water and Irrigation

Water needs will vary by tree species and depend on other context pieces. It's crucial that trees get sufficient water, especially during their establishment period. Supplemental irrigation may be necessary during the summer months.

Species Diversity

Historically many cities relied on homogenous planting plans for their street trees. While this approach is aesthetically pleasing, the canopy is more vulnerable as just one pest or disease could impact all the trees at once. It is now recommended to plant a diversity of tree species to create a more resilient system.

Tree Planting and Establishment

Proper tree planting helps maintain a healthy canopy for the long-term. The City of Camas standard tree planting details provide good instruction on appropriate depth and width required for holes when planting new trees.

In addition to proper planting techniques, several establishment practices can be utilized to help promote healthy trees. These techniques include applying mulch, providing adequate water, structural pruning, tree stabilization and staking, and even fertilization in some select cases.

Removal Strategies

Tree removal in urban environments can be difficult due to the proximity of other infrastructure and nearby trees. After a tree is successfully removed, consider ways to use the felled wood, such as mulch, if possible.



Tree Preservation Strategies

As trees begin to age, strategic interventions can extend the life of existing trees and reduce the need for frequent replacement. These strategies include strategic pruning, bracing, cabling, and other plant health care strategies.

Maintenance

Consistent and appropriate maintenance can help extend the life of urban trees.

A photograph of a street scene, likely in a historic district, featuring mature trees, a street sign for 'E DALLAS ST', and a building with a 'Cafe' sign. People are seen sitting at an outdoor cafe table. The image is overlaid with a semi-transparent blue filter.

SECTION 4

RECOMMENDATIONS FOR TREE SUCCESSION

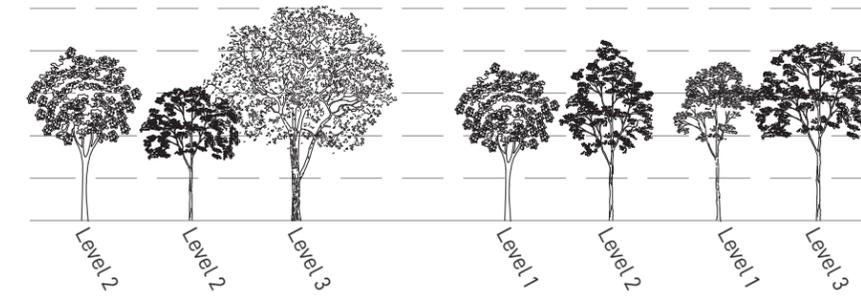
INTRODUCTION

This strategy guides the future replacement of trees so that the City of Camas retains its lush, tree-lined street character. The succession plan is broken down into three parts:

- REMOVE** This step provides recommendations for which trees should be removed first and canopy phasing.
- REPLACE** This step provides suggestion on suitable replacement trees.
- IMPROVE** This section provides recommendations for possible street infrastructure improvements that could happen alongside tree replanting to support a long-living healthy canopy.

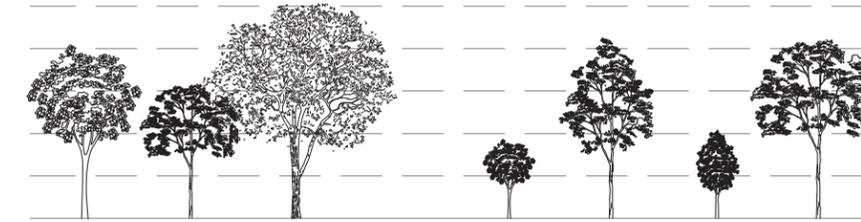
This succession plan also recommends strategies for planting techniques of new trees, ongoing maintenance, and best management practices to foster a healthy canopy in perpetuity. These recommendations are based upon the 2017 Arborist Inventory, on-site assessments, and visual assessments.

TREE SUCCESSION DIAGRAM



Existing Conditions:
Some diversity in species and age but many trees in moderate or poor health.

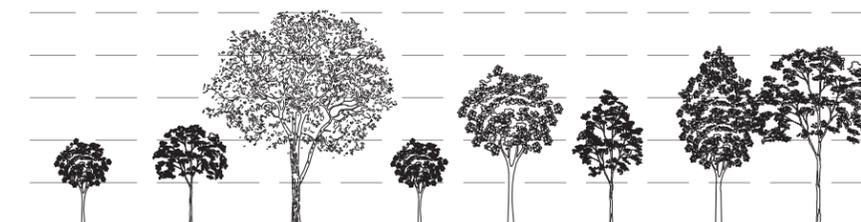
See page 22 for descriptions of Level 1, Level 2, and Level 3 trees.



0-5 Years
Dead, hazardous, and high risk trees removed and replaced.



5-10 Years:
Level 2 trees replaced. All trees monitored for changes in health.



10+ Years:
Level 3 trees begin to decline in health and will need to be replaced.

Plant trees in gaps in the tree canopy.



Goal:
Healthy canopy with a diversity of tree species and ages.

REMOVE

The 2017 Arborist Inventory is instrumental in understanding existing tree health. The inventory collected tree health information for each surveyed tree and categorized them into "good, fair, or poor" health.

These categories formed the baseline for the recommended removal timeline. Trees are recommended for removal and replacement based on the following criteria:

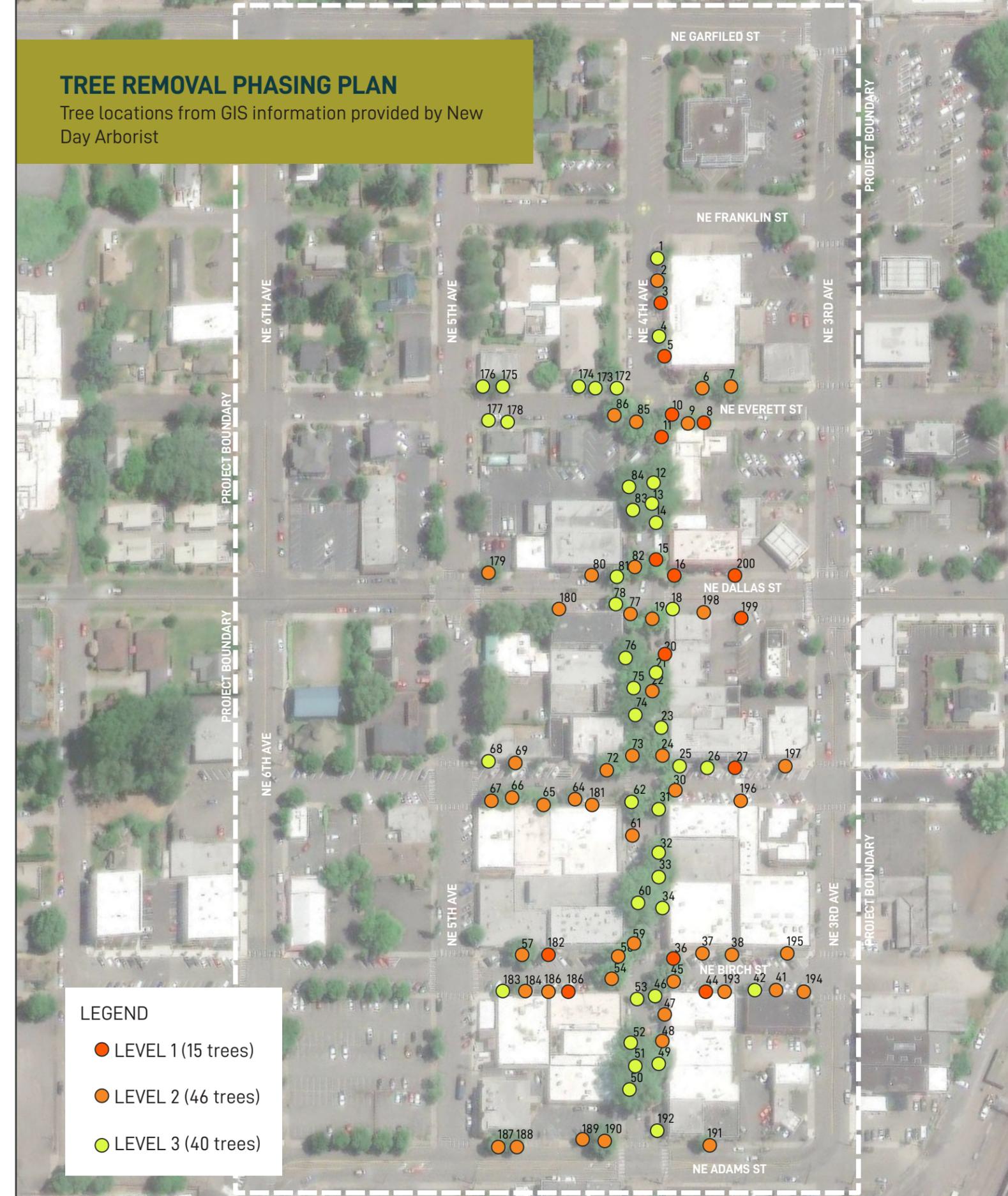
- **Level 1: Urgent/High Risk/Hazard Tree**
Timeframe: 0-5 years
Remove any dead or dying trees or trees classified as 'high risk'. Remove dead wood in the canopy of all species.
- **Level 2: Moderate**
Timeframe: 5-10 years
Tree is in moderate or poor health but does not immediately pose a risk. Remove and replace on an ongoing basis as time and budget allows. This category generally includes
- **Level 3: Good**
Timeframe: Monitor
Tree currently in good health. Monitor every 10 years. If tree health declines, consider moving it to Level 1 or Level 2 as needed.
- **Level 4: Infill**
Timeframe: Ongoing
Infill identified gaps in the streetscape with recommended trees.

Additional notes and considerations related to the removal timeline:

- The tree inventory was only conducted for a part of the Succession Plan project area. If the tree inventory is updated or expanded in the future, that report will supplement the recommendations in this section.
- The level assigned to each tree may need to be adjusted based on severe weather, stress, or other conditions.
- All Ash trees on site have been placed in the 'Level 2' category to reflect the specific health risks they face from the Emerald Ash Borer.

TREE REMOVAL PHASING PLAN

Tree locations from GIS information provided by New Day Arborist

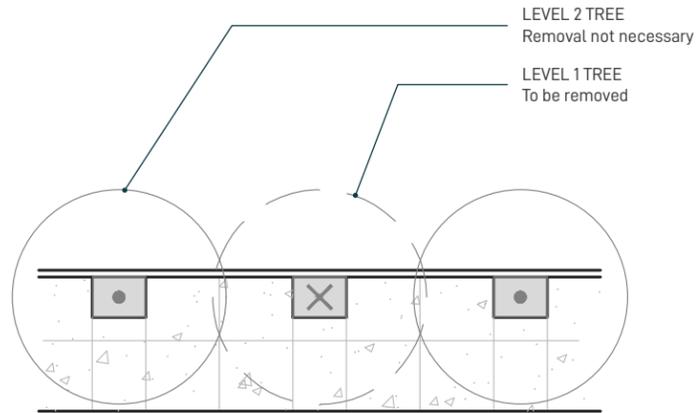


REMOVE cont.

In order to maintain phasing and diversity of age within the tree canopy, removal and replacement should not happen all in the same year.

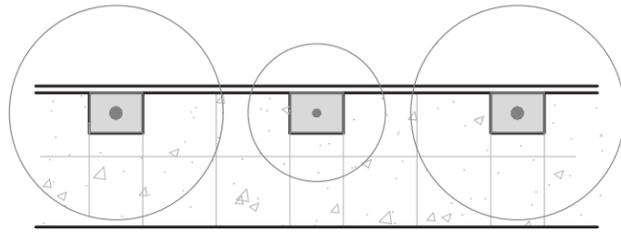
Spatial context should also be taken into consideration. Generally, it is not recommended to remove all the trees on a single block face at the same time UNLESS where doing so will allow for infrastructure changes to support healthier trees in the long term.

Additionally, in some instances, it may make sense to remove Level 2 trees earlier to support these larger infrastructure changes as well.



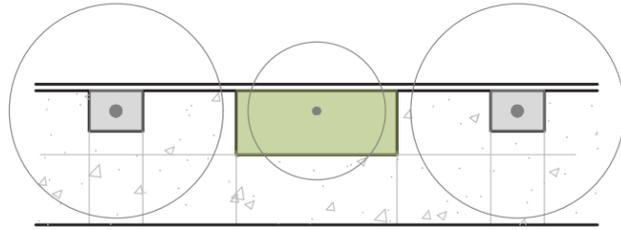
Existing Conditions:

Sidewalk with street trees. Tree wells are undersized and soil volume is too small. One tree is listed as Level 1 and ready for removal.



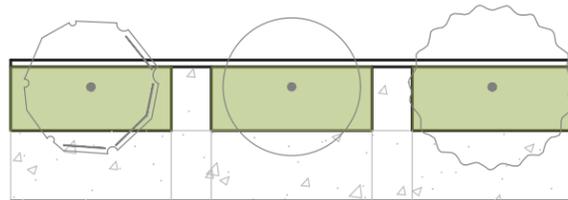
Option 1:

Remove and replace single Level 1 tree. No supplemental infrastructure improvement. Lowest cost in the short term. Option not recommended as it does not improve tree health long-term.



Option 2:

Remove and replace single Level 1 tree with supplemental infrastructure improvement to increase soil volume. Moderate cost in the short term. Some improvement in individual tree health however infrastructure is piecemeal.



Option 3:

Remove and replace Level 1 tree and adjacent Level 2 trees. Higher upfront cost but cost savings over time. Improved soil volume increases long-term tree health and reduces maintenance costs.

Example removal phasing of Level 1 Trees:

Year 1	Trees to remove: 44, 10, 11 Additional maintenance: Deadwood removal on 8, 27	Tree 44 considered high risk and trees 10 and 11 considered moderate risk. Remove dead branches to decrease risk in remaining trees
Year 2	Trees to remove: 16, 20, 36 Additional maintenance: Remove any additional deadwood. Monitor canopy health for changes.	Remove and replace tree 16 so there is diversity in age between 15 and 16 at this corner. Decay in 36.
Year 3	Trees to remove: 3, 5, 182 Additional maintenance: Consider additional improvements in this area to increase planter size.	Group removal of 3 and 5 together to increase ability to improve infrastructure for additional soil volume.
Year 4	Trees to remove: 8, 15, 27, 186 Additional maintenance: Remove any additional deadwood. Monitor canopy health for changes.	Trees not currently identified as immediate risk. Monitor and remove earlier if conditions change.

Note: This phasing recommendation is based on tree health and risk as noted in the 2017 arborist report. Adjustments may be needed in response to changes in tree health and risk.

Considerations:

- Remove high risk and hazardous trees first.
- Generally trees to be removed are phased spatially across the area to support age diversity.

REPLACE

Suggestions for proposed trees are guided by the adage "right tree, right place."

Tree Replacement Guidelines

- New trees should be planted with a diverse range of species.
- No species shall exceed 20% of total site area and no species should make up more than half the trees of each block face.
- No large trees should be planted under overhead utilities.

Recommended tree species for each location are broken into categories rather than specific species. Each category contains a few species that can be chosen from for the site based on availability, surrounding species diversity, and other considerations. All recommended species were selected for drought tolerance in anticipation of further climate change.

Recommendations were made based on the following spatial elements:

- 1) Existing sidewalk width
- 2) Overhead Utilities
- 3) Distance to Adjacent Buildings
- 4) Adjacent Trees

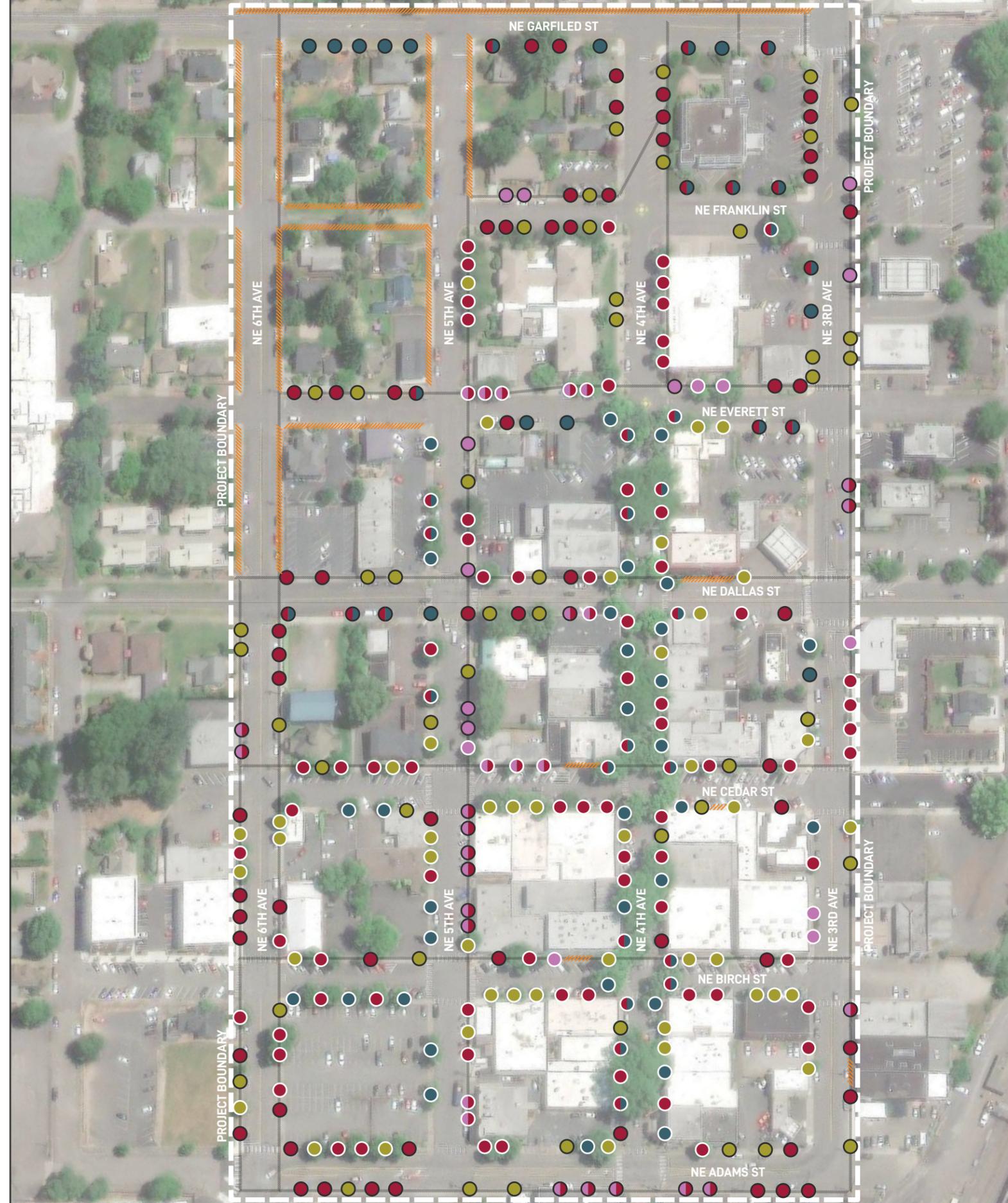
Planting under overhead utilities

Trees recommended for under powerlines are marked with an * next to species name.

- Small and Ornamental
 - Galaxy Magnolia, *Magnolia 'Galaxy'* *
 - Cornus 'Eddie's White Wonder' *
 - Redbud 'Summers Tower', *Cercis canadensis* *
- Broadleaf Evergreen
 - Canyon Live Oak, *Quercus chrysolepis*
 - Oregon Myrtle, *Umbellularia californica*
 - Cork Oak, *Quercus suber*
 - Silverleaf Oak, *Quercus hypoleucoides*
 - Bambooleaf Oak, *Quercus myrsinifolia*
- Medium Deciduous
 - Cascara, *Rhamnus purshiana*
 - Honeylocust, *Gleditsia triacanthos*
 - Starlight Dogwood, *Cornus kousa x nutallii 'KN4-43'* *
 - Hackberry, *Celtis occidentalis*
 - Wireless Zelkova, *Zelkova serrata 'Wireless'* *
- Large Deciduous (Plant 35'-45' apart)
 - Oregon White Oak, *Quercus garryana*
 - Espresso Kentucky Coffeetree, *Gymnocladus dioica 'Espresso'*
 - Presidential Gold Ginko, *Ginkgo biloba 'The President'*
 - Frontier Elm, *Ulmus 'Frontier'*

LEGEND

- | | | | |
|----------------------------|--|-----------------------------|---|
| ● Small or Ornamental Tree | ● Small tree recommended, Medium possible with infrastructure improvements | ○ Existing Tree Replacement | — Overhead Utility |
| ● Broadleaf Evergreen Tree | ● Medium tree recommended, Large possible with infrastructure improvements | ○ Gap or Infill Tree | ▨ Existing sidewalk too narrow to support street trees. Consider future improvements to widen sidewalk. |
| ● Medium Deciduous Tree | | | |
| ● Large Deciduous Tree | | | |



IMPROVE

In addition to selecting the most appropriate tree for each location, long-term canopy health should also be supported by additional improvements in infrastructure where possible.

This section lists a number of possible improvements that should be considered in alongside tree replacement.



Increase Tree Well Size

As mentioned, one of the most beneficial factors in maximizing tree health is soil volume. Consider ways to enlarge this in the existing ROW space. When additional width is not available, tree wells can be made longer and still provide benefits to the tree.



Co-Planting

Including ground cover plants in the tree well can help support a healthy canopy as well. Co-planting helps support healthy soil by increasing organic matter. It can also help reduce compaction by discouraging foot traffic over the tree well and can assist in taking up stormwater as well.



Raised Planter

Planter boxes can help provide additional soil volume by using vertical space when horizontal space is not available. Raised planters come in variety of styles and can be purchased off the shelf or customized designed for Camas.



Tree Grates

Tree grates can be a useful tool when space is limited. Tree grates help to preserve pedestrian space while also providing soil below for the tree. However, tree grates are not always the best option for the tree as they can outgrow the size of the grate, thus damaging the overall tree health.



Permeable Pavers

Permeable pavers allow water to infiltrate into the soil below instead of running off. This also puts less pressure on the stormwater system and reduces irrigation needs for trees.



Structural Soils

Structural soils are a type of soil medium that can be compacted to support paving but still allow for root growth by urban trees. It is generally comprised of a certain percentage of soil and carefully graded crushed gravel.



Structural Cells & Suspended Pavement

Suspended pavement systems allow for the weight of hardscape elements to be supported while providing a larger area of uncompacted soil for trees to use. Suspended pavement systems are typically modular, such as the Silva Cell system.

A photograph of a street scene, likely in a historic district, featuring a street sign for 'E DALLAS ST', a cafe named 'Whittier's CAFE', and people sitting at outdoor tables. The image is overlaid with a semi-transparent blue filter.

APPENDIX A

FULL SIZE MAPS

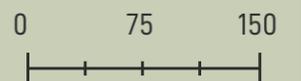


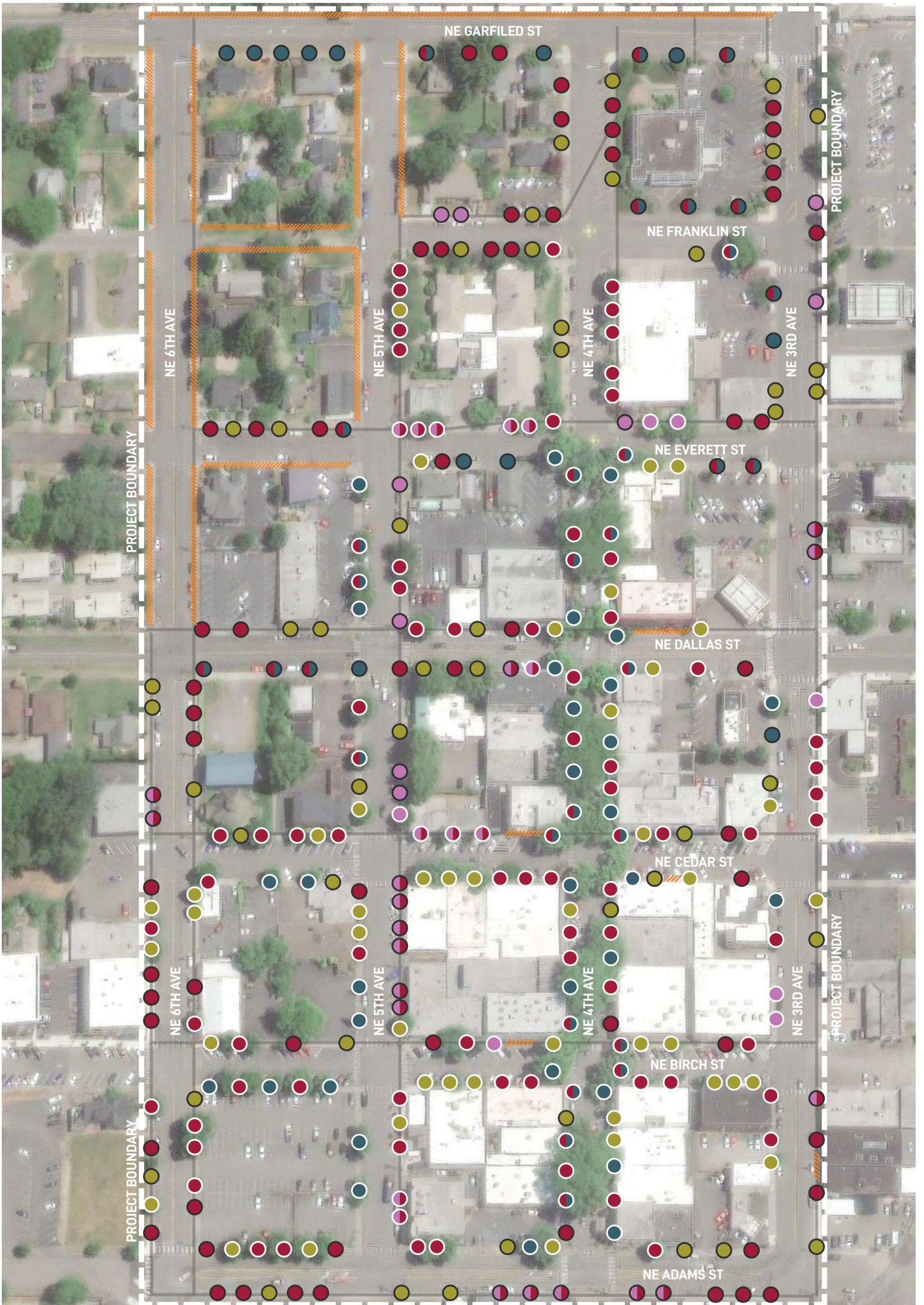
TREE REMOVAL PHASING PLAN

Tree locations from GIS information provided by New Day Arborist

LEGEND

- LEVEL 1 (15 trees)
- LEVEL 2 (46 trees)
- LEVEL 3 (40 trees)





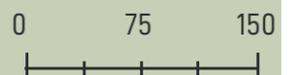
TREE REPLACEMENT PLAN

LEGEND

- Small or Ornamental Tree
- Broadleaf Evergreen Tree
- Medium Deciduous Tree
- Large Deciduous Tree
- Small tree recommended, Medium possible with infrastructure improvements
- Medium tree recommended, Large possible with infrastructure improvements

- Existing Tree Replacement
- Gap or Infill Tree

- Overhead Utility
- Existing sidewalk too narrow to support street trees. Consider future improvements to widen sidewalk.



A photograph of a street scene, likely in a historic district, featuring mature trees, a street sign for 'E DALLAS ST', and a building with a 'Cafe' sign. The image is overlaid with a semi-transparent blue filter. The text 'APPENDIX B' is written in large, bold, yellow letters, underlined with a horizontal line that has a color gradient from orange to white. Below it, 'ARBORIST TREE INVENTORY' is written in smaller, bold, yellow letters.

APPENDIX B

ARBORIST TREE INVENTORY



City of Camas- Tree Inventory- Downtown Camas
1620 SE 8th Ave. Camas, Wa
Denis Ryan
Jim Gant

New Day Arborist
1415 NE 199th St. Ridgefield WA 98642
Jeff Day- Owner
Jeff@newdayarborist.com
360-608-8160
10.2.17



Assumptions and Limiting Conditions

1. This report is in no way to be considered a complete hazard tree evaluation, nor does the consultant take any responsibility for the inactions of others in dealing with this matter.
2. Any legal description provided to the consultant is assumed to be correct.
3. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations other than those that may be identified in this report.
4. The consultant cannot be responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
5. The consultant cannot be responsible for work conducted by any other arborist, contractor or worker attempting to fulfill the requirements and/or specifications contained in this report.
6. Loss or alteration of any part of this report invalidates the entire report. Ownership of any document by the intended client shall only be valid after full payment for such document(s) has been received by New Day Arborist LLC.
7. The production of this report by New Day Arborist, LLC is a complete production in accordance to the scope of work requested by the client. Any additional tasks, including reproduction of report, phone consultation, production of additional documents, arbitration, deposition, testimony, or any other related service shall be billed at the standard rates for such services as determined by the current Fee Schedule of New Day Arborist, LLC, and will be the responsibility of the client.
8. Any and all claims, losses, expenses, injuries, or damages arising out of or any way related to this report or this agreement by reason or any act or omission, including breach of contract or negligence not amounting to a willful or intentional wrongdoing shall not exceed the total compensation received by New Day Arborist LLC. under this Agreement.

Arborist Disclosure Statement

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living, working and playing near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of trees. Trees are living organisms that fail in ways that we do not fully understand. Conditions are often hidden within trees or below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed. Even healthy trees with little to no observable defect or disease can begin to fail when wind speeds exceed average high annual wind speeds, and under snow and ice loads; such events cannot be managed or predicted.

Treatment, pruning and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.



Observations

This is the main street shopping area of Camas with at least 70 small to medium business entities and many community events that occur in this vicinity. It is high traffic area with parking on both sides of the street and a high volume of pedestrian's during business hours. It is quintessential of "old town America".

There are seven species that are planted in this area. They are;

- Norway Maples-34
- Red Oaks, *Quercus rubra* - 14
- Ash, *Fraxinus* spp. 24
- Liquidamber spp. sweetgum 9
- *Prunus* spp. Fl. Cherry 3
- *Cornus* spp.. 5
- Fl. Pear 2

The majority of canopy is provided by two species, the Oaks and Maples. The other varieties are relatively small and insignificant in the area. In fact most are under drought stress, (Ash) and are disfigured. The concrete opening for 80% of the trees is too small, most being less than 3'. Soil levels are high; there is no provision for watering the trees. There is surprisingly little concrete uplifting.

The Norway Maple spp. is a relatively short lived tree, with 50-60 years in these conditions being a long life. Most of the specimens are over-mature, over pruned and showing signs of decline.

The red Oaks are a massive organism and when planted in the ideal space, (large parks) are a very special tree. A few of the specimens had end weight reduction cuts made, the effect was to make the trees narrow and not overhang the building. These are a longer lived tree spp. but usually there are many underground utilities issues that arise. This causes concern any time roots are cut during utility repair, replacement, or construction. This area of the world can experience very high winds because of the proximity to the Columbia gorge.

The *Fraxinus* spp. Ash was planted within the last 5-7 years, (I'm guessing). Most are stunted and insignificant. The openings are two small, the quality of trees was poor. The biggest issue is what is coming our way, (Emerald Ash Borer). No one is planting this species anymore.

Throughout the canopy there are Christmas lights that are attached. On many of the trees we looked at this is too tight and cutting into the cambium. Attempting to decrease the number of years between light service will help reduce this issue.



Discussion

This is a highly visible area in an affluent community. Most of the Maples should be budgeted for removal and replacement inside of 5 years. The Oaks are too large for this area but I fear the repercussions and politics surrounding this species will be overpowering. It will take strong leadership to make some of the changes that need to be made. I believe the future of this area has great potential but it will take a large budget and planning to pull my recommendations off.

Recommendations

Short term- Budget for removal of dead or dying trees and removal of dead wood in the canopy of all species. Have discussions about conditions of Oak trees in this area.

Medium term - Have a landscape architect redesign this area with raised planters, larger opening, fewer but more significant trees. Have a company like New Day Arborist consult on locations of tree placement and design ideas with landscape Architect.

Long term- Budget and implement plan over a 2-3 year time frame.

The recommendation for removal in the tree inventory is subject to City of Camas's long term goals. If the City is interested in re-design of the downtown canopy, replacement trees can wait until a more established plan is in place.

At the end of this report are several pictures that I have searched that may provide an idea to the future that I see as a possibility for Camas. My idea is to keep the "old town" feeling while adding a "modern" flair.

If you have any questions, please let me know.

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ASCA Registered Consulting Arborist # 525



New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
1	Acer- Norway Upright	15	NE 4th Ave. NE Franklin St. Lat 45.586 Long- 122.401900	20	Small Concrete Opening- one low limb	Increase size of planter- raise canopy	
2	Acer- Sp. Norway	14	45.586987X -122.401900	20	Small Concrete opening	Increase size of planter- raise canopy	
3	Acer Norway	12	45.586963 X -122.401910	20	Canopy in decline- opening too small	budget for removal	
4	Acer Norway	16	45.586905 X -122.402139	20	Opening too small		
5	Acer Norway	13	45.586831 X -122.402139	20	Opening too small	Increase size of planter-- 5-10 yr life span	
6	Liquidamber	14	45.586617 X -122.402132	20	Topped- Under wire	slightly low on street side- raise canopy	
7	Liquidamber	24	45.586537 X-122.402059	25	Blowing up sidewalk	Remove and replace	
8	Liquidamber	13.5	45.586527 X-122.402280	30	3 leaders- concrete opening too small	subordinate two - increase planter size	

New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
9	Liquidamber	12	45.586561 X -122.402354	30	A few long limbs over building	end weight reduction	
10	Norway Maple	20	45.586561 X -122.402354	30	Canopy in decline	replace	
11	Norway Maple	19.5	45.586649 X-122.402507	30	Declining	budget for replacement	
12	Red Oak	25	45.586550X -122.402780	60	Co-dominant attachment at 10'-raising of concrete	will continue to cause issue with infrastructure	
13	Red Oak	25.5	45.58551X -122.402832	60	Nice tree - very large for space allowed	low limb over parking- raise canopy	
14	Liquidamber	9	45.586400 X-122.402887	30	small opening	increase size of planter	
15	Norway Maple	19	45.586339 X -122.403105	30	declining	replace	
16	Norway Maple	15	45.586244X -122.403083	20	declining	replace	

New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
17	Flowing Cherry	5	45.586085X -122.403170	12	concrete opening is too small	increase size of opening	
18	Flowing Cherry	6.5	45.586156 X-122.403182	12	damage to trunk- cars		
19	Norway Maple	19	45.586219 X-122.403339	35	declining- deadwood.	Budget for removal 3-5 yrs. Remove deadwood now	
20	Cornus florida	9	45.586146 X -122.403500	12	over pruned	Budget for removal 3-5 yrs. Remove deadwood now	
21	Red Oak	29	45.586109 X-122.403641	60		reduce limbs over structure	
22	Liquidamber	10	45.586056X -122.403673	25		some limbs too low - raise	
23	Liquidamber	9.5	45.585973X-122.403813	30	concrete opening is too small		
24	Norway Maple	23.5	45.585929 X-122.403945	40	small amount of deadwood.- grade is raised.	no more bark- soil grade too high	



New Day Arborist						
Tree Inventory and Assessment Form						
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation
		Inch				
25	Norway Maple	16	45.585856X-122.403969	30	Wire should be removed	Remove wire
26	Liquidamber	9.5	45.585736X-122.403872	30		
27	Ash	7	45.585591X-122.403771	25	drought stressed- poor specimen	increase size of concrete opening
	Ash		Not tagged bad shape			
28	Ash	3	45.585534X-122.403842	12		increase size of concrete opening
29	Ash	3	45.585573X-122.403939	12		ince
30	Norway Maple	18	45.585740X-122.404078	30	declining canopy	replace
31	Norway Maple	18	45.585751X-122.404.154	30	dead wood	remove wire

New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
31	Ash	2	45.585712X-122.404350	12	Dead	removal	
32	Red Oak	20	45.585619X-122.404432	40	Dead wood	remove dead wood	
33	Red Oak	22	45.585610X-122.404550	60	Dead wood	remove dead wood	
34	Red Oak	24	45.585558X-122.404599	60	too much pruning- small dead wood. over sized	remove dead wood	
35	Ash	2.5	45.585545X-122.404689	12	concrete opening too small	increase concrete opening	
36	Norway Maple	24	45.585377X-122.404775	25	declining- small amount of dead wood	budget for removal 3 yrs	
37	Ash	2	45.585218X-122.404753	12	small concrete opening	increase concrete opening	
38	Ash	7.5	45.585218X-122.404753	17	small concrete opening	increase concrete opening	

New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
39	Ash	8	45.585006X-122.404472	20	Small concrete opening- poor specimen	Increase size	
40	Maple	6	45.584872X-122.404455	15	Declining	budget for Removal	
41	Maple	4.5	45.584977X-122.404614	15	Small concrete opening Poor specimen	increase concrete opening	
42	Maple	8	45.585000X-122.404635	20	Increase size of concrete opening- low limbs	increase concrete opening- Remove limb	
43	Ash	2.5	45.585144X-122.404733	15	small concrete openings		
44	Maple	7	45.585158X-122.404775	20	stem damage at base	budget for Removal	
45	Maple	23.5	45.585283X-122.404934	30	wire too tight. Soil raised around trunk. Small amount of dead wood	take wire off- remove dead wood	
46	Cornus florida	11.5	45.585377X-122.405047	15	grade too high	remove soil from base of trunk	

New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
47	Ash	7	45.585291X-122.405137	20	Nice tree no problems		
48	Liquidamber	7.5	45.585208X-122.405262	25			
49	Red Oak	32.5	45.585172X-122.404411	65	Wires	remove wire	
50	Red Oak	33	45.585141X-122.405401	70	Cluster branching/ water meter at base.	consider removal	
51	Red Oak	27	45.585206X-122.405453	70	heavy reduction cuts in past		
52	Red Oak	27	45.585278X-122.405321	70	heavy reduction cuts in past	splinter growth	
53	Cornus Sp.	2	45.585354X-122.405057	10	too small of a species in this space	wrong tree in this location	
54	Norway Maple	26	45.585497X-122.405081	40	small amount of dead wood.	remove	

New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
no tag	Cornus Kousa	4	45.585538X-122.405212	10			
55	Acer	10	45.585633X-122.505305	20	Concrete opening too small	Increase size of concrete opening	
56	Cornus sp.	6	45.585675X-122.405304	18	construction damage		
57	Ash	18	45.585818X-122.405294	18	heavy limbs over building	end weight reduction. Increase concrete opening	
no tag	Ash	4.5	45.585695X-122.405276	15	trunk damage	remove- increase concrete opening	
58	Maple- norway	22.5	45.585530X-122.404980	35	some lower limbs over parking area. Small amount of dead wood	raise canopy. Or remove	
59	Norway Maple	23.5	45.585488X-122.404877	40	light canopy. Small amount of dead wood	5 years left. Not strong specimen	
60	Red Oak	34.5	45.585623X-122.404706	80	Some limbs over building		

New Day Arborist						
Tree Inventory and Assessment Form						
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation
		Inch				
no tag	Ash	2	45.585732X-122.404535	12	Dead- Increase size of concrete opening	Remove
61	Ash	3	45.585766X-122.404396	15	Small concrete opening	Increase size of concrete opening
62	Maple	19	45.585829X-122.404221	35	light canopy small amount of dead wood	short timer- budget for removal
63	Maple	26	45.585961X-122.404228	35	over 50% canopy dead	hazard tree- remove
no tag	Ash	4	45.585944X-122.404264	20	Poor specimen Increase size of concrete hole	remove- increase concrete opening
64	Ash	12	45.586027X-122.404360	30	a few limbs on the building	end weight reduction
65	Ash	17.5	45.586133X-122.404494	30	Poor specimen Increase size of concrete hole	removal
66	Ash	17	45.586249X-122.404628	30	small opening. Telephone pole rubbing. Wire on stem	increase size of opening

New Day Arborist							
Tree Inventory and Assessment Form							
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation	
		Inch					
67	Ash	16.55	45.586355X-122.404691	35	Small opening.		
68	Flowering pear	5	45.586378X-122.404571	17	low limbs in visual space	raise canopy. Hazard	
69	Ash	4	45.586330-X122.404498	17			
70	Flowering Pear	12	45.586227X-122.404407	17	low limbs in visual space	raise canopy	
71	Ash	21	45.586147X-122.404290	25	Dead- Increase size of concrete opening	hazard tree- remove	
72	Maple	22	45.585982X-122.404203	40	some low dead limbs	Remove dead limbs	
73	Maple	31	45.585945X-122.404604	45	light canopy. Some dead wood		
74	Red Oak		45.586066X-122.403858		some low limbs over street	Raise	



New Day Arborist						
Tree Inventory and Assessment Form						
Tree #	Species	DBH	Location Lat X Lng	Approx. Height	Defects	Mitigation
		Inch				
75	Red Oak	22	45.586172X-122.403740	60	Small dead wood	
76	Red Oak	28	45.586215X-122.403603	65	heavily weighted over building	reduce branch length over building
77	Maple	17	45.586334X-122.403477	35	light canopy	budget for removal
78	Maple	17.5	45.586347X-122.403441	30	light canopy	
no tag	Ash	2.5	45.586395X-122.403509	15	dead	removal and replace
79	Ash	3	45.586514X-122.403675	15	increase size of concrete opening	
80	Prunus	10	45.586458X-122.403494	15	poor specimen	remove
81	Maple	18	45.586.51X-122.403373	30	Light canopy	remove



New Day Arborist						
Tree Inventory and Assessment Form						
Tree #	Species	DBH Inch	Location Lat X Lng	Approx. Height	Defects	Mitigation
82	Maple	19	45.586349X-122.403156	45	Light canopy Dead wood throughout	Remove
83	Red Oak	22	45.586407X-122.402879	65	Cluster branching.	Structural pruning
84	Red Oak	24	45.586557X-122.402894	65	Cluster branching. Few low limbs	structural pruning
85	Maple	25	45.586709X-122.402576	40	Dead wood throughout	remove dead limbs
86	Maple	24	45.586763X-122.402581	40	Topped in past. Light canopy	remove dead limbs





One idea for a more interesting planting space.



Creating larger openings for the trees, and adding a more “interactive” place for pedestrians.

This helps to reduce the amount of compacted soil around the tree. The planters should be as large as possible. Overall, my idea is fewer trees, but higher end species, quality, and more consideration to location through the downtown area.