Charlottesville Downtown Mall

TREE MANAGEMENT PLAN

2024

PARTICIPANTS

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Joseph Shifflet	Public Works
Lauren Hildebrand	Public Utilities
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Susan McKinnon	Tree Commission
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Elizabeth K Meyer	UVA School of Architecture
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Design Team

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Mary Wolf	Wolf Josey Landscape Architects
Peter Russell	Wolf Josey Landscape Architects
Dustin Smith	Wolf Josey Landscape Architects
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Ryan Cheney	Line + Grade
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Additional Participants

Tom Chapman	Albemarle Charlottesville Historical Society
James Barton	Vault Virginia
Alvin Edwards	Mt. Zion First African Baptist Church
Bern Ewert	Charlottesville resident
Steve Houchens	The Caton Companies
Michael Joy	Alakazam Toys
Genevieve Keller	Preservation Piedmont
Lynelle Lawrence	Mudhouse Coffee
Anna Mendez	The Haven
David Plunkett	JMRL
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Mike Van Yahres	Van Yahres Tree Company
Jake Van Yahres	Van Yahres Tree Company
Jessica Catalano.	

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Executive Summary

Charlottesville's Downtown Mall is facing a significant challenge: The decline of its iconic large willow oaks.

The trees of the Downtown Mall have long stood as a treasured asset, contributing to the Mall's unique character, experience and economic success. As they age and show signs of decline, this plan provides a comprehensive and strategic approach at this critical point to address their current health and plan for the future.

To be implemented over time, the Tree Management Plan provides various short and long term improvements. These improvements aim to preserve the existing trees, restore the tree canopy, improve accessibility, and revitalize the Mall's social and commercial vitality. This comprehensive approach ensures long-term sustainability, making the Mall a thriving destination for future generations

Key Objectives:

1. **Preserving Existing Trees:** Mature oaks and other trees, essential for providing shade, structure and the Mall's character, are preserved to extend their lifespan. Renovating the tree grate substructure girdling the trees as well as additional tree care will best maintain the Mall's current character.

2. **Canopy Restoration:** The Mall's trees, many planted in the 1970s, are suffering from soil compaction, canopy competition, girdling by metal grates and declining health. Maintaining its long term success, a 25-year, four-phase grove by grove tree replacement plan is proposed to ensure the longevity and vitality of the Mall's trees while restoring components of its original design.

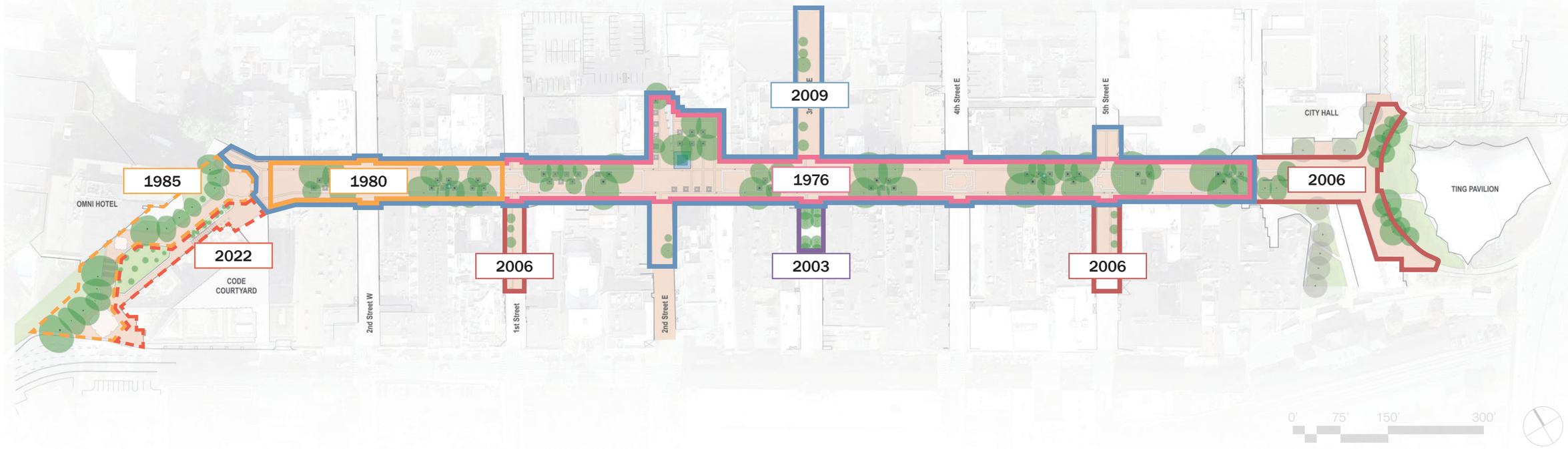
This will be carried out gradually to minimize disruption and maintain the Mall's character throughout the transition period. By carefully managing the introduction of new trees, the Plan aims to preserve the aesthetic continuity of the Downtown Mall while laying the groundwork for a vibrant and sustainable future landscape.

3. Design Intent Restoration

While not in the original design, the cafe areas are vital to the Mall's commercial success. Minor adjustments to fencing and furnishings restore visibility of both the tree groves and overflowing water elements, reclaiming the sensory and engaging experience central to the Mall's historic design.

Project Scope & Development History

The project scope encompasses the original design of the Main Street pedestrian mall, built over two phases in 1976 and 1980 along with expansions to the side streets, the Omni Hotel, The CODE Building, and the Ting Pavilion.



Existing Tree Inventory

Tree #		Common name	*Scientific name*
1	a	Shumard oak	*Quercus shumardii*
1	b	Shumard oak	*Quercus shumardii*
1	c	Shumard oak	*Quercus shumardii*
1	d	Shumard oak	*Quercus shumardii*
2	a	Shumard oak	*Quercus shumardii*
2	b	Shumard oak	*Quercus shumardii*
2	c	Shumard oak	*Quercus shumardii*
3		Willow oak	*Quercus phellos*
4		Willow oak	*Quercus phellos*
5		Willow oak	*Quercus phellos*
6		*No tree*	
10		Willow oak	*Quercus phellos*
11		Willow oak	*Quercus phellos*
12		Willow oak	*Quercus phellos*
13		Willow oak	*Quercus phellos*
14		Willow oak	*Quercus phellos*
15		Willow oak	*Quercus phellos*
16		*No tree*	
17		Willow oak	*Quercus phellos*
18		Willow oak	*Quercus phellos*
19		Willow oak/REMOVED	*Quercus phellos*
20		Willow oak	*Quercus phellos*
21		Willow oak	*Quercus phellos*
22		Willow oak	*Quercus phellos*
23		Willow oak	*Quercus phellos*
24		Willow oak	*Quercus phellos*
25		Willow oak	*Quercus phellos*
26		Willow oak	*Quercus phellos*
27		Willow oak	*Quercus phellos*
28		Willow oak	*Quercus phellos*
29		Willow oak	*Quercus phellos*
30		Willow oak	*Quercus phellos*
31		Willow oak	*Quercus phellos*
32		Willow oak	*Quercus phellos*
33		Willow oak	*Quercus phellos*
34		Willow oak	*Quercus phellos*
35		Willow oak	*Quercus phellos*
36		*No tree*	
37		*No tree*	
38		*No tree*	
39		*No tree*	
40		Willow oak	*Quercus phellos*
41		Willow oak	*Quercus phellos*
42		Willow oak	*Quercus phellos*
43		Willow oak	*Quercus phellos*
44		Willow oak	*Quercus phellos*
45		*No tree*	
46	a	*No tree*	
46		Freeman maple	*Acer x freemanii*
47		*No tree*	
48		*No tree*	
49		*No tree*	
50		Red maple	*Acer rubrum*
51		Willow oak	*Quercus phellos*
52		Willow oak	*Quercus phellos*
53		*No tree*	
54		Willow oak	*Quercus phellos*
55		Willow oak	*Quercus phellos*
56		Willow oak	*Quercus phellos*
57		*No tree*	
58		Willow oak	*Quercus phellos*
59		Willow oak	*Quercus phellos*
60		Willow oak	*Quercus phellos*

Tree #		Common name	*Scientific name*
61		Willow oak	*Quercus phellos*
62		Willow oak	*Quercus phellos*
63		Willow oak	*Quercus phellos*
64		Willow oak	*Quercus phellos*
65		Willow oak	*Quercus phellos*
66		Willow oak	*Quercus phellos*
67		Willow oak	*Quercus phellos*
68		Willow oak	*Quercus phellos*
69		Willow oak	*Quercus phellos*
70		Willow oak	*Quercus phellos*
71		*No tree*	
72		Willow oak	*Quercus phellos*
73		Willow oak	*Quercus phellos*
74		Willow oak	*Quercus phellos*
75		Willow oak	*Quercus phellos*
76		Willow oak	*Quercus phellos*
76	a	Willow oak	*Quercus phellos*
77		Willow oak	*Quercus phellos*
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79		Willow oak	*Quercus phellos*
80		Willow oak	*Quercus phellos*
81		Willow oak	*Quercus phellos*
82		Willow oak	*Quercus phellos*
83		Willow oak	*Quercus phellos*
84		Willow oak	*Quercus phellos*
85		Willow oak	*Quercus phellos*
86		Willow oak	*Quercus phellos*
87		Maidenhair tree	*Ginkgo biloba*
88		Southern Magnolia	*Magnolia grandiflora 'Alta'*
89		Maidenhair tree	*Ginkgo biloba*
90		Maidenhair tree	*Ginkgo biloba*
91		Freeman maple	*Acer x freemanii*
92		Freeman maple	*Acer x freemanii*
93		Maidenhair tree	*Ginkgo biloba*
94		*No tree*	
95		Maidenhair tree	*Ginkgo biloba*
96		Maidenhair tree	*Ginkgo biloba*
97		Maidenhair tree	*Ginkgo biloba*
98		Maidenhair tree	*Ginkgo biloba*
99		Maidenhair tree	*Ginkgo biloba*
100		Maidenhair tree	*Ginkgo biloba*
101		Maidenhair tree	*Ginkgo biloba*
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105		Maidenhair tree	*Ginkgo biloba*
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107		Maidenhair tree	*Ginkgo biloba*
108		Maidenhair tree	*Ginkgo biloba*
109		Maidenhair tree	*Ginkgo biloba*
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111		Shumard oak	*Quercus shumardii*
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113		Shumard oak	*Quercus shumardii*
114		Shumard oak	*Quercus shumardii*
115		Shumard oak	*Quercus shumardii*
116		Shumard oak	*Quercus shumardii*
117		Willow oak	*Quercus phellos*
118		Willow oak	*Quercus phellos*
119		Willow oak	*Quercus phellos*

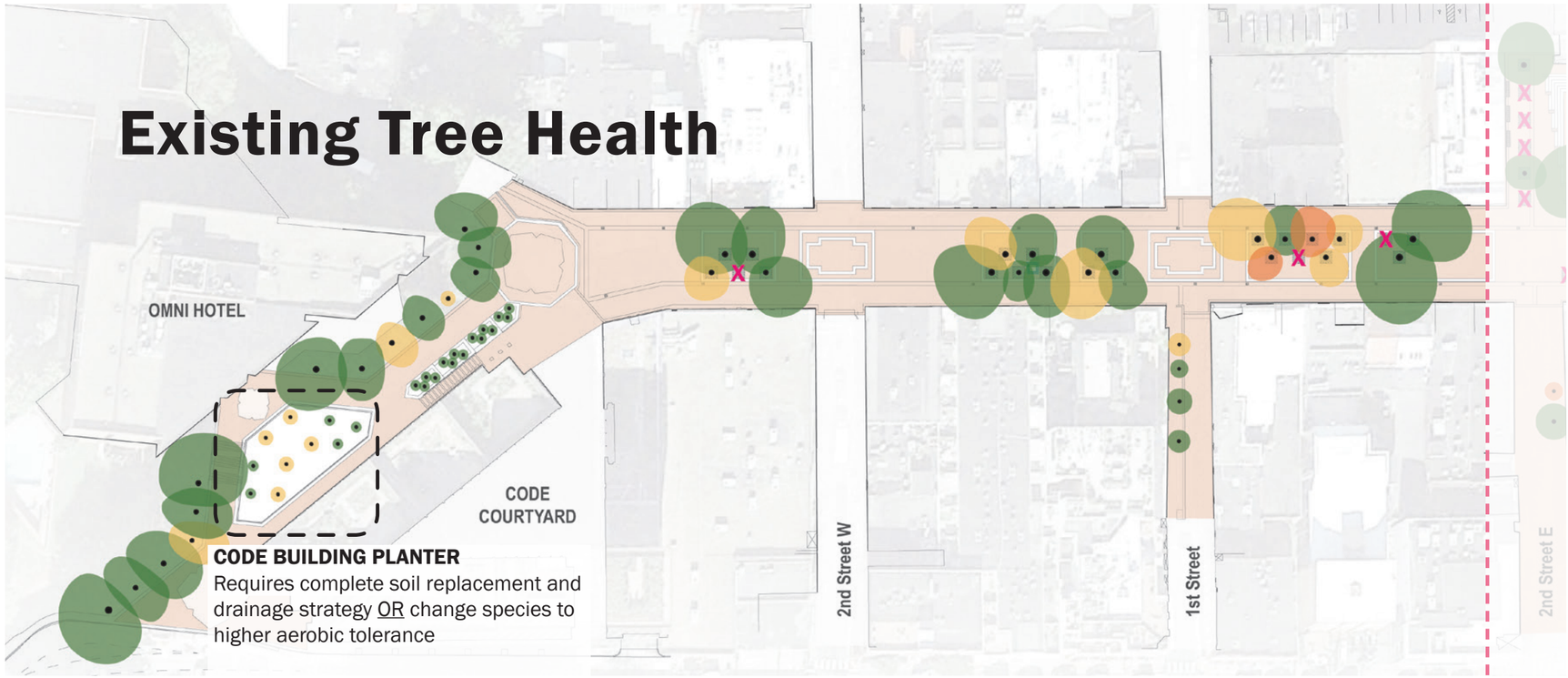
*See Appendix I for additional tree inventory information

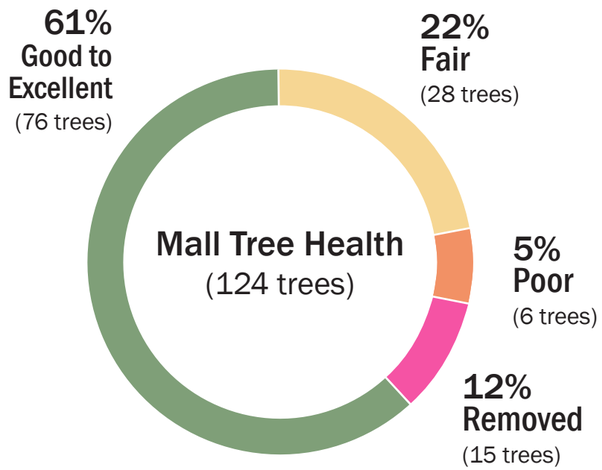
Existing trees were inventoried in October, 2023 with both current and removed trees identified. Prior inventories completed in 1976, 1989, and 2015 by James Urban, FASLA, contributed to the data of the removed trees.

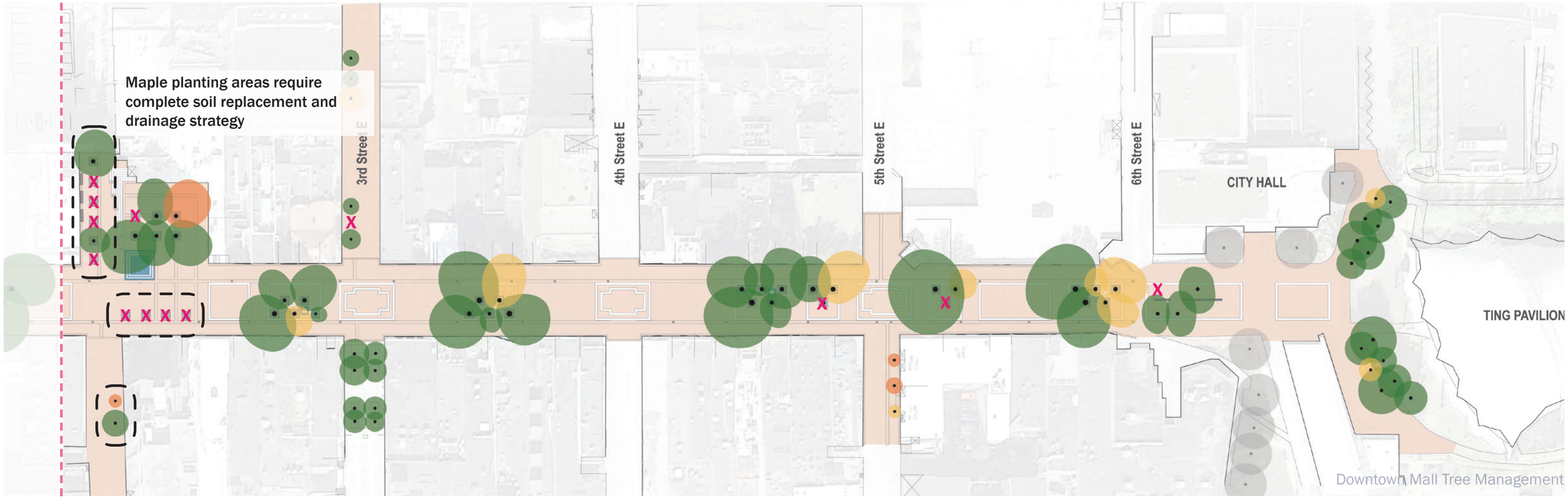
Over 60% of the trees are in good to excellent health. These often are occurring at the perimeter of individual groves with better access to light.

Nearly 40% of existing trees are either removed or in Fair/Poor condition.

Existing Tree Health







Current & Projected Lifespan without intervention

Willow oak #16

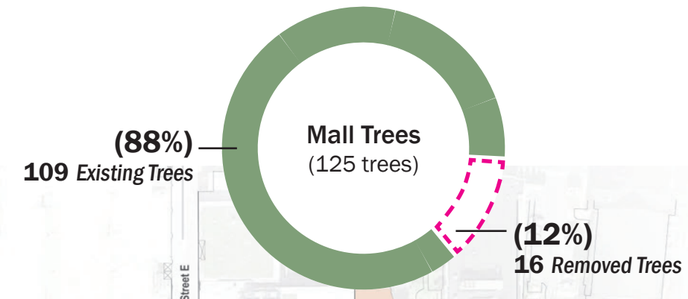
Willow oak #53

Willow oak #57

The original trees planted in 1976 as part of the Downtown Pedestrian Mall have reached their zenith and are beginning to decline. Sixteen of the planted trees (12%) of the Mall have been removed in the past decade and their loss is notable on the vitality of certain areas. It is particularly notable in groves where the majority of the grove has been removed such as at Central Place and outside of the Market Street garage.

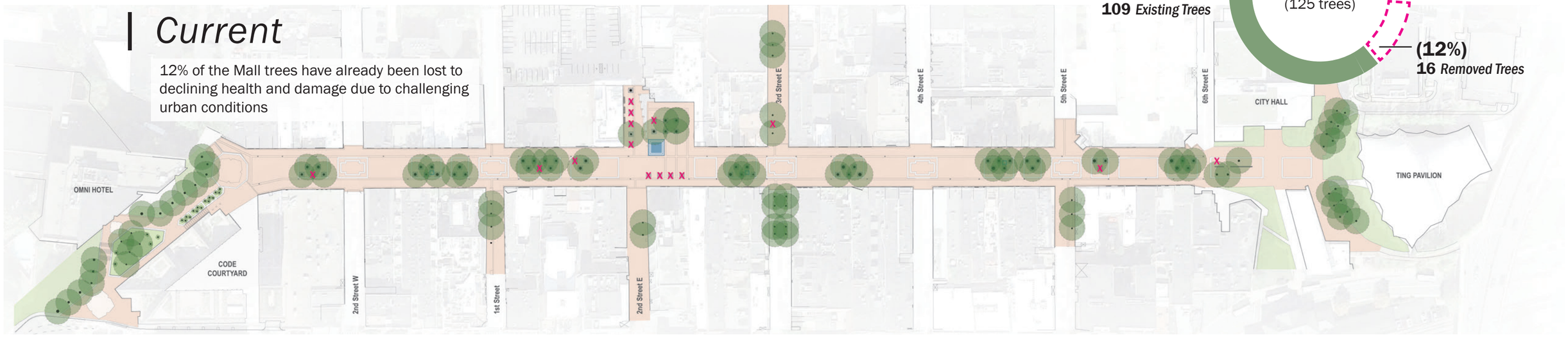
Comparing the current health of Mall trees and their existing conditions, if nothing it done to improve the health of these trees, further loss of up to 44% of the trees in the next 15 years is anticipated.

This conveys the urgency needed to address the health of the current trees and a viable long term replacement plan.

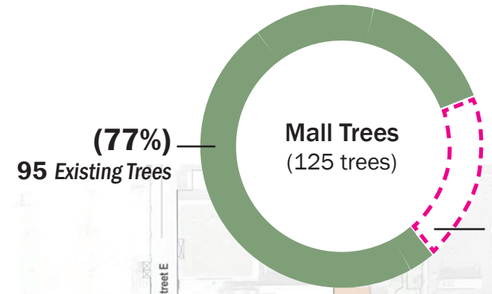


| *Current*

12% of the Mall trees have already been lost to declining health and damage due to challenging urban conditions

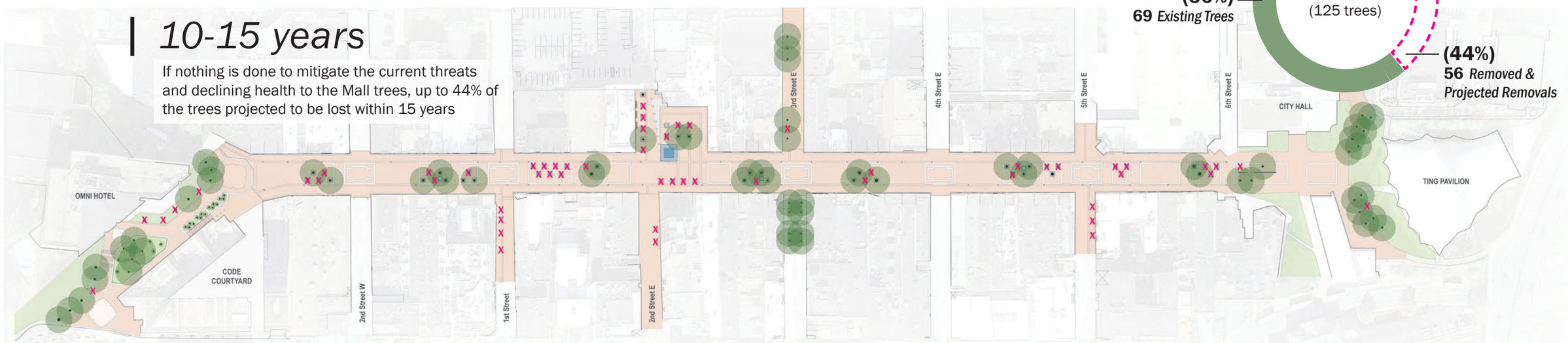


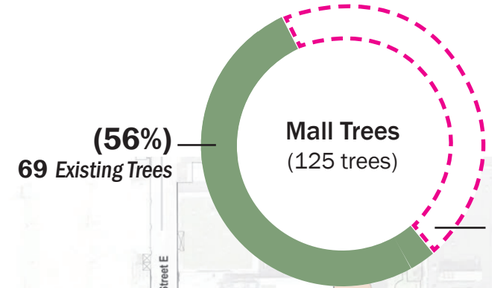
5-10 years



10-15 years

If nothing is done to mitigate the current threats and declining health to the Mall trees, up to 44% of the trees projected to be lost within 15 years





Short Term Recommendations: Protect Existing Trees

The mature trees of the Downtown Mall are essential to its success. Protecting these trees and ensuring they live as long as possible before needing replacement is a key aspect of the maintenance goals.

A. Tree Grates: Expand and/or Replace

- *Metal grate modifications and brick grate replacements*

B. Tree and Soil Improvements

- *Unique conditions*
  (Canopy thinning, Soil protection/renovation, Grate removal, Tree planting, etc.)
- *Side streets*

C. Tree and Fountain Visibility

- *Visibility to trees with revised fencing zones*
- *Fountain accessibility & visibility*

D. Tree Maintenance

- *Tree Care Manual recommendation*

E. Building Height

- *Building height recommendations for tree health*

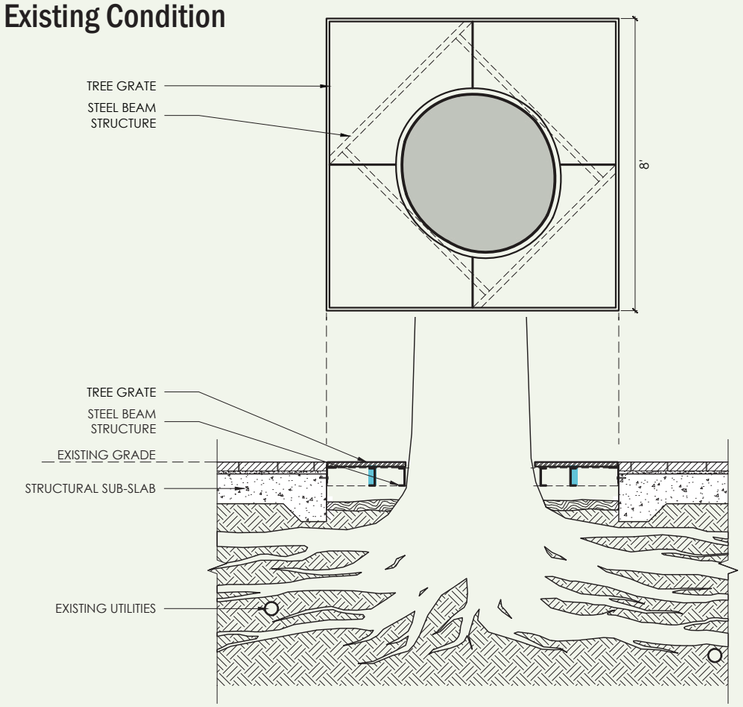
A

Tree Grates | Modification of Metal Grates

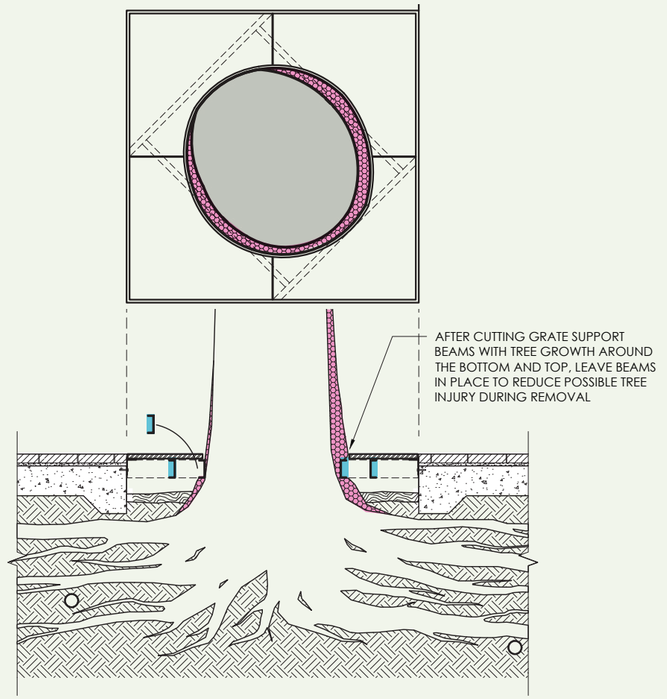
Designing a Flexible and Long Term Solution

Tree grates are essential for preserving the original Halprin design and ensuring the long term health of the trees. The recommendation is to design a grate that accommodates tree growth from installation to maturity, initially being flexible and then transitioning to a rigid foam substructure post 30 years of growth.

Existing Condition



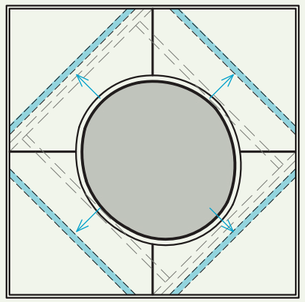
- Trunk flare without girdling by grate beam supports



- Tree trunk growing over grate beam support

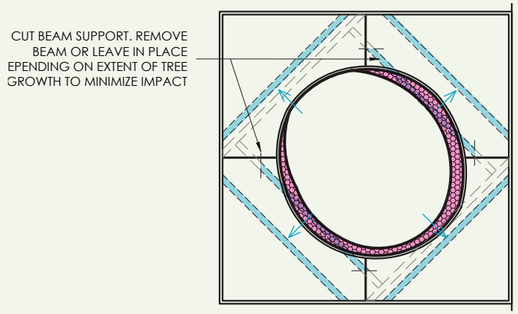
Proposed Modification

1. REPLACE & EXPAND



- Modify grate beams to reduce future conflict

2. MODIFY & EXPAND

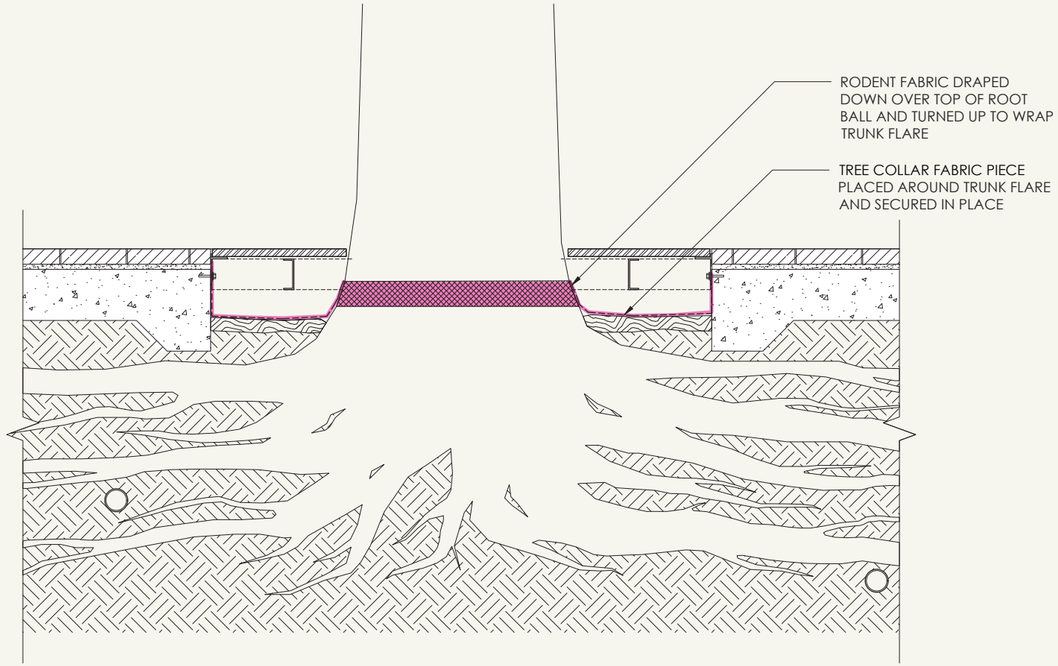


- Modify grate beams as needed to reduce future conflict

Tree Grates | Modification: Rodent Barrier & Light Relocation

Rodent Barrier

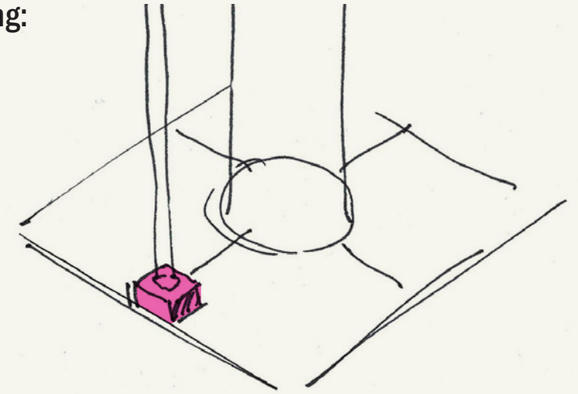
It is recommended to install rat barriers to prevent rats and other rodents from using tree wells as pathways beneath the concrete slab.



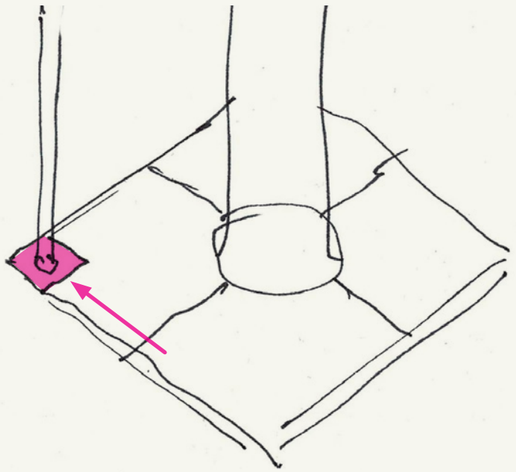
Modify light fixture and driver relocation

The 2010 grate modification repositioned the light fixtures with their bases above grade, creating a trip hazard. It is recommended to move the light fixtures to the corners to increase the distance from the tree and lower the footings so they are flush with the grade.

Existing:



Propose:



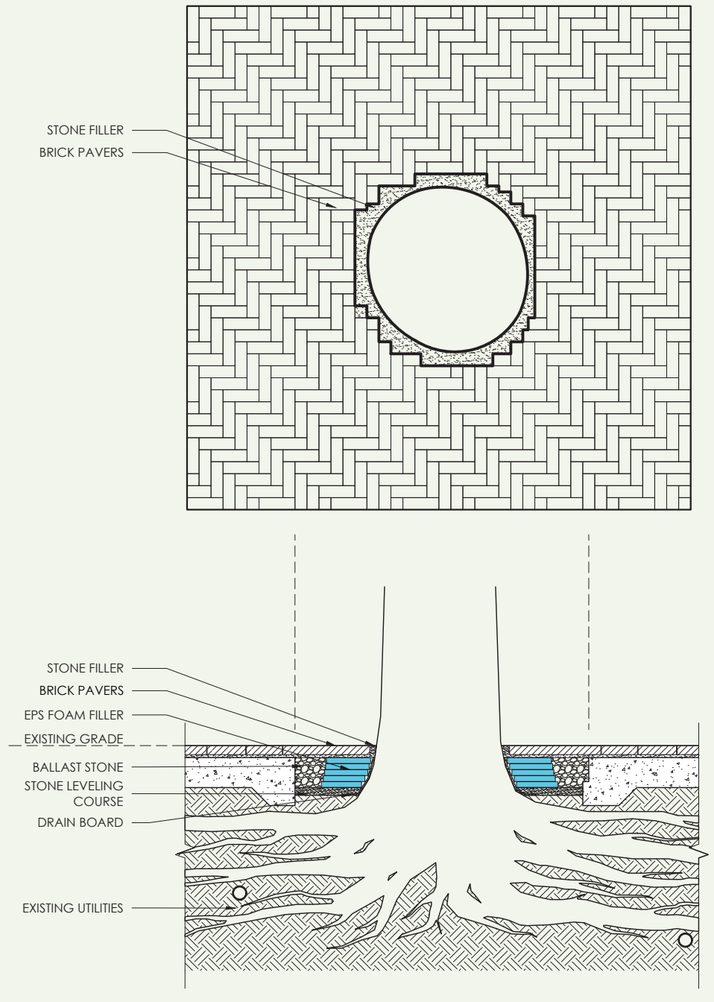
Tree Grates | Brick Grate Replacement

Replace metal grates with pavement and foam support structure

To restore the pavement to its original design intent and prevent girdling from steel grates, a foam support structure is recommended. This structure will be flexible and easily adjustable as the tree trunks expand. For new tree plantings, it is proposed to transition to the foam support structure after 20-30 years of growth or once tree has grown beyond the internal frame sub-structure.

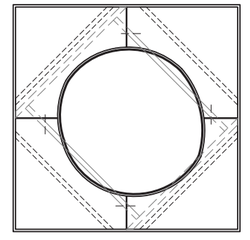
2009

Proposed Brick Grate Replacement Detail

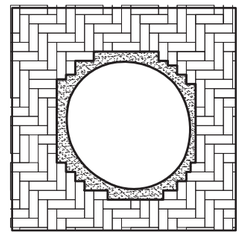


Protect Existing Trees | Grate Recommendations

Metal Grate Modification



Brick Grate Replacement



Trees with Root Flare Impacts

In general, full brick replacement is proposed where all of the trees require grate manipulation. Isolated grate modification was limited in groves with only a portion of trees impacted to conserve costs.

*Prioritize metal grate modifications for healthy Phase 3 & 4 grove replacements.

**The Miller's grove is a potential for full brick replacement pending success of initial Brick Grate replacement areas.

B

Tree & Soil Improvements | *Unique Conditions*

Opportunities to extend the lifespan of existing trees include soil remediation for increased water and nutrient holding, canopy thinning to reduce crown competition, providing additional uncompacted soil volume to new trees and redirecting roots away from paving areas to remove accessibility hazards.

OAKS AT OMNI HOTEL

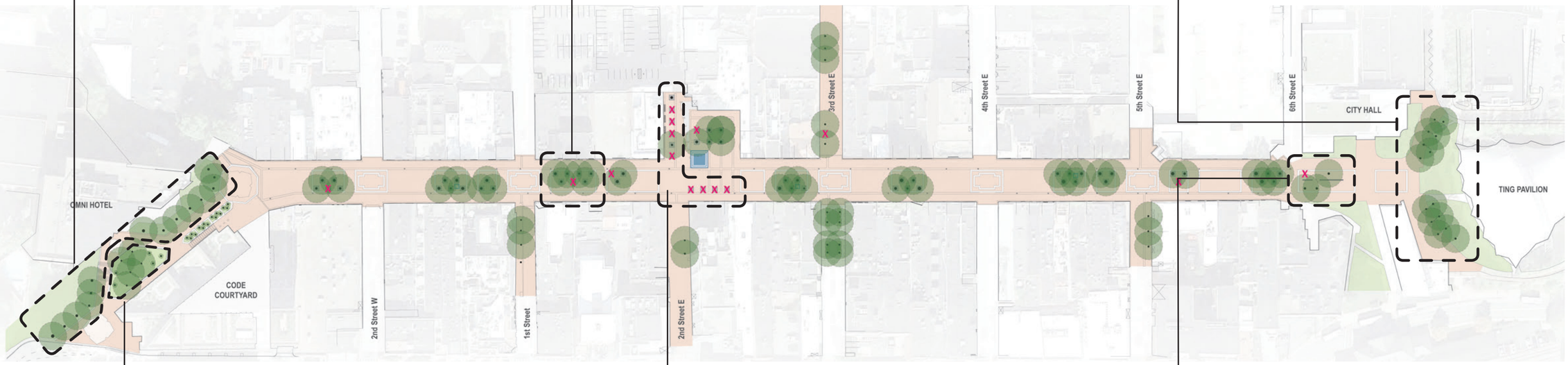
- Poor soil conditions
- Canopy crowding

7 TREE GROVE

- High canopy competition
- Reduce to 5 tree grove during replacement

OAKS AT TING PAVILION

- Severely compacted soils
- Low nutrient holding capacity
- Canopy competition



CODE BUILDING PLANTER

- Poor soils / Saturated soils
- Poor drainage

CENTRAL PLACE TREES

- Limited soil volume
- Saturated soils (minor)

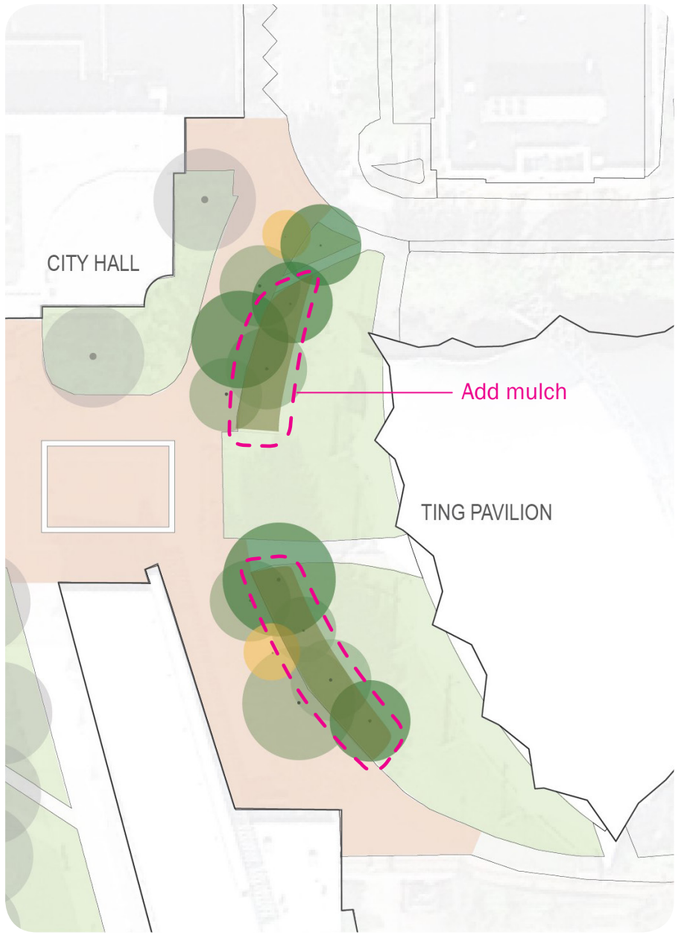
OAKS AT FREEDOM OF SPEECH WALL

- Pavement grate structure failing
- Surface roots buckling pavement

Tree & Soil Improvements | Ting Pavilion

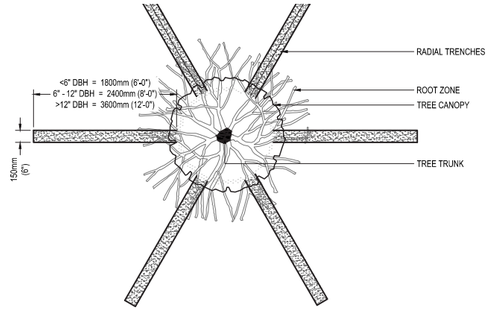
Short Term Recommendation: Mulching

To retain soil moisture and nutrients while limiting compaction, add 3” of double shredded mulch annually each spring.

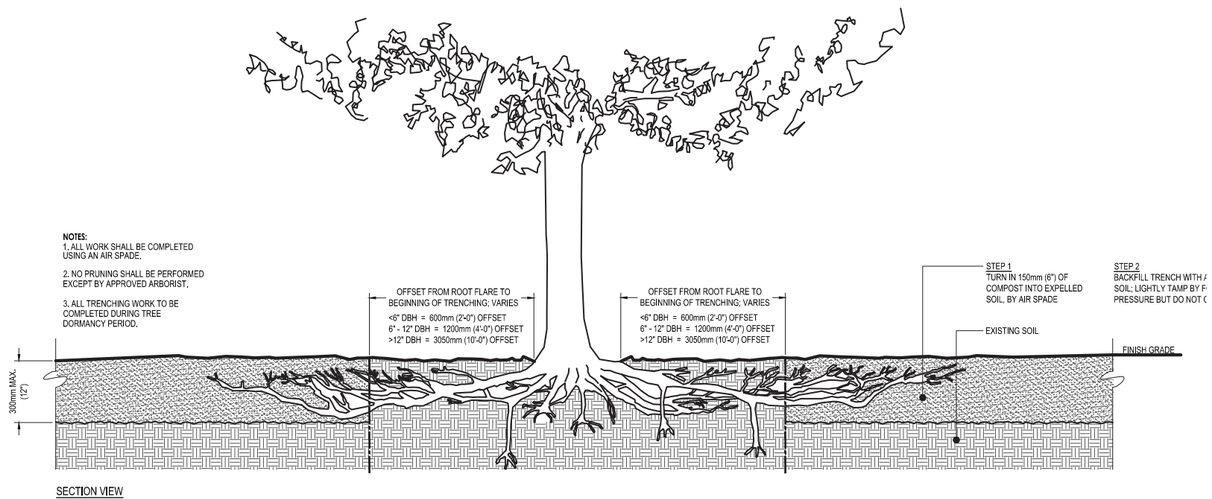


Long Term Recommendation: Radial Trenching

To improve soil compaction, nutrients, and drainage, perform radial trenching. Radial trenching involves the excavation of narrow trenches, arrayed around the tree trunk at equal intervals to open compacted soil, thereby improving soil aeration and drainage. The trench shall be filled with a mixture of compost and expelled soil - allowing a deeper exchange of oxygen and water around tree roots.



PLAN VIEW: NTS



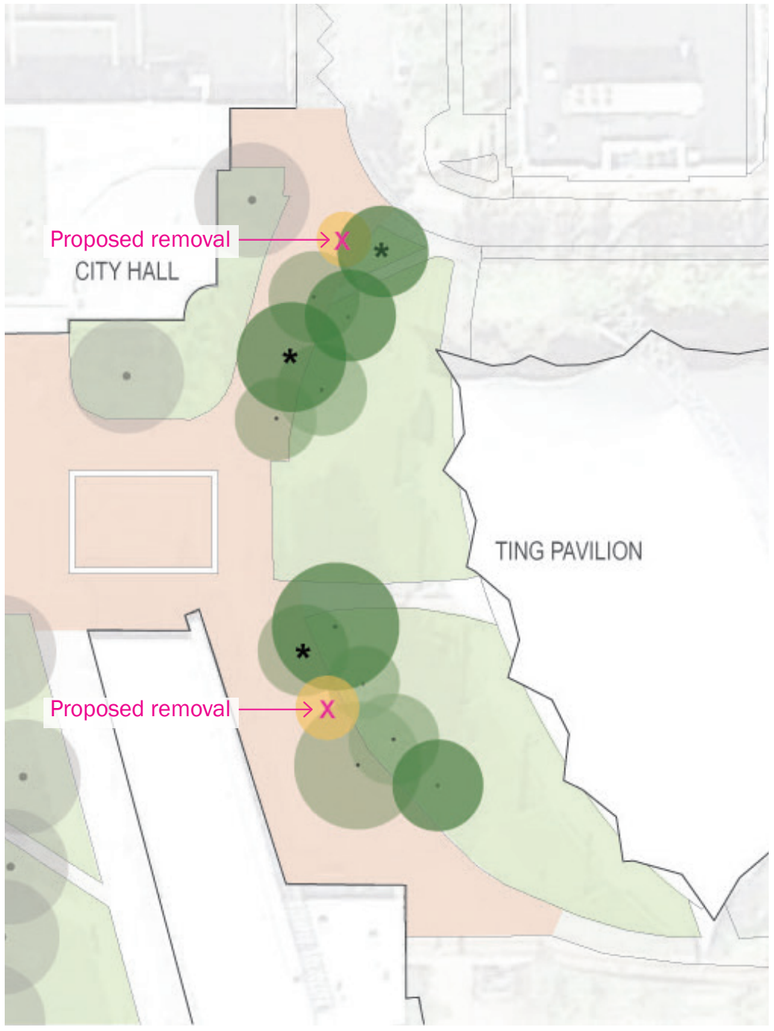
SECTION VIEW

Tree & Soil Improvements | Ting Pavilion

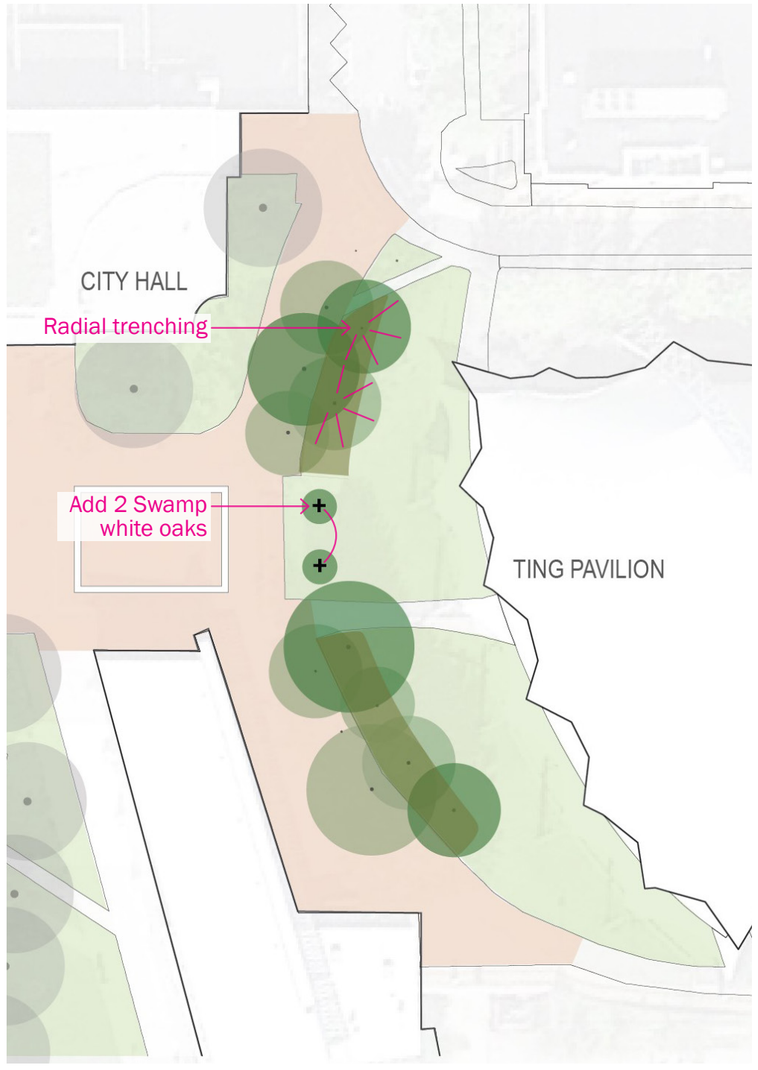
Long Term Recommendations

- The Ting Pavilion Shumard Oaks are predominantly healthy but face heavy competition from the grove
- Thinning the groves, by removing select trees, will reduce competition and allow the existing healthy trees to grow a longer healthier life
- Radial trenching to address compaction and moisture retention (see previous page)
- New tree planting in central lawn to shade popular lawn seating areas during Summer months

Existing



Proposed



*Monitor trees as they develop, consider removal

Tree & Soil Improvements | *Side Streets*

Designed outside of the Halprin plan and primarily pedestrian, the side streets have a wide range of conditions that are more reactive to existing constraints (utilities, service access, emergency vehicular access and increased slopes) than tree health, comfort and function. Minimally, there are opportunities within the side streets to expand tree openings in paving and decompact soils for improved growth rates. With a redesigned and longer vision, these side streets can become more intentionally welcoming destinations.

1st Street

- Redesign opportunity
- No proposed changes

2nd Street E

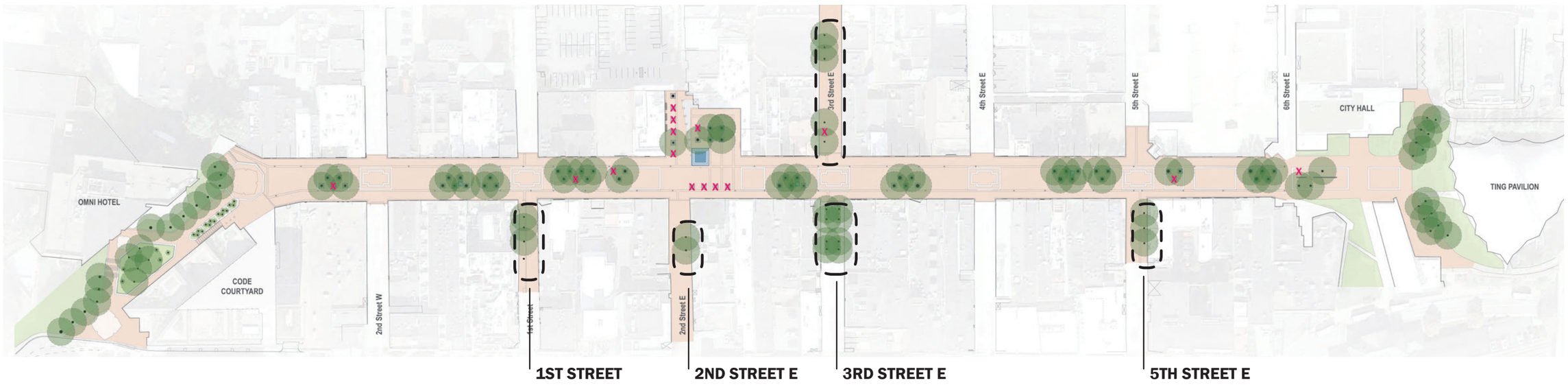
- Add structural slab
- Tree replacement

3rd Street E

- North: gingkos to have metal grate removed/modified
- South: gingkos to have soil remediation

5th Street E

- Tree replacement to avoid access conflicts
- Redesign opportunity



C

Trunk/Ground Plan Interface Obscured

Tree & Fountain Visibility | Tree Visibility

The success of the trees has created shaded and inviting outdoor seating along the Mall, which has led to an expansion of cafe seating. As the space has become more popular, fencing, furnishings, and potted plants have been added. However, these additions have obscured the visual connection between the tree trunks and the pavement, reducing pedestrian interaction with nature.

Additionally, the original Halprin fountains have either been surrounded by cafe seating or fenced off for safety, which has diminished the interactivity they were originally designed to offer.

To improve the experience, reallocating cafe seating, reducing visual clutter, and restoring access to the fountains is recommended. These changes would enhance visibility of the tree trunks and provide pedestrians with direct access to the fountains, enriching their experience of the Mall.

Potted Trees

- Tall vegetation (small trees) enclose and obscure base of trees
- Extensive use of pots obscures base of trees

Fencing/Counters/Furnishings

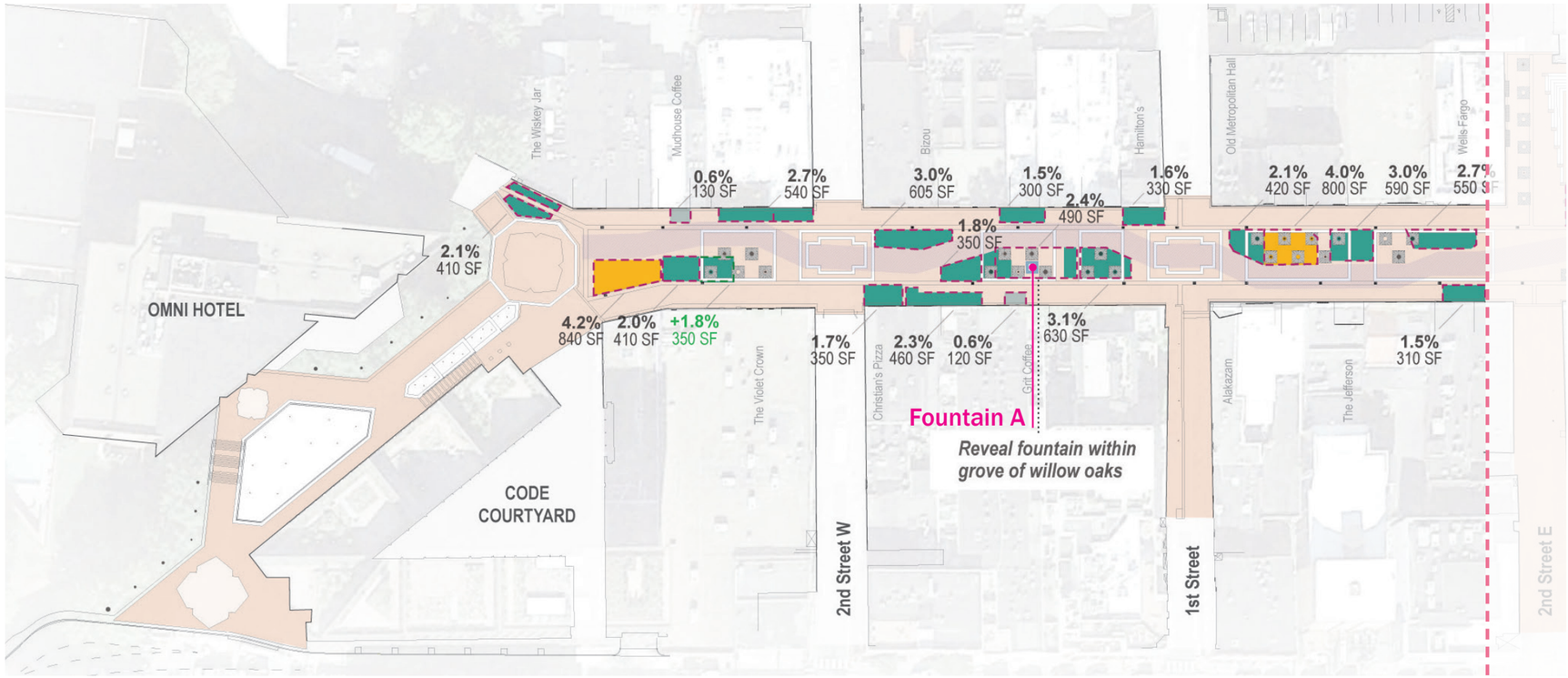
- Solid fencing and counters obscures base of trees
- Tall cafe furnishings such as metal racks obscure base of trees

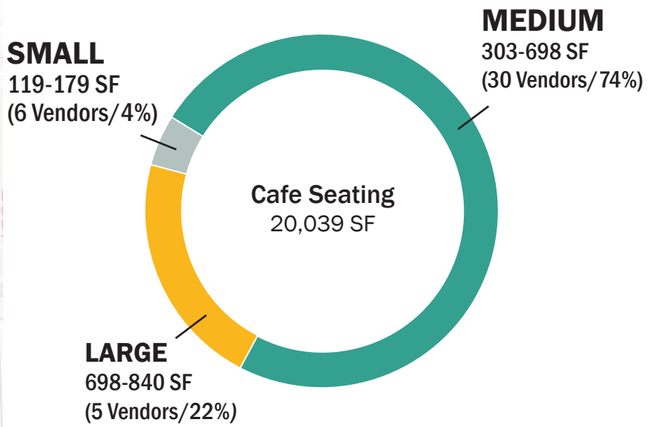
Cafe Fencing

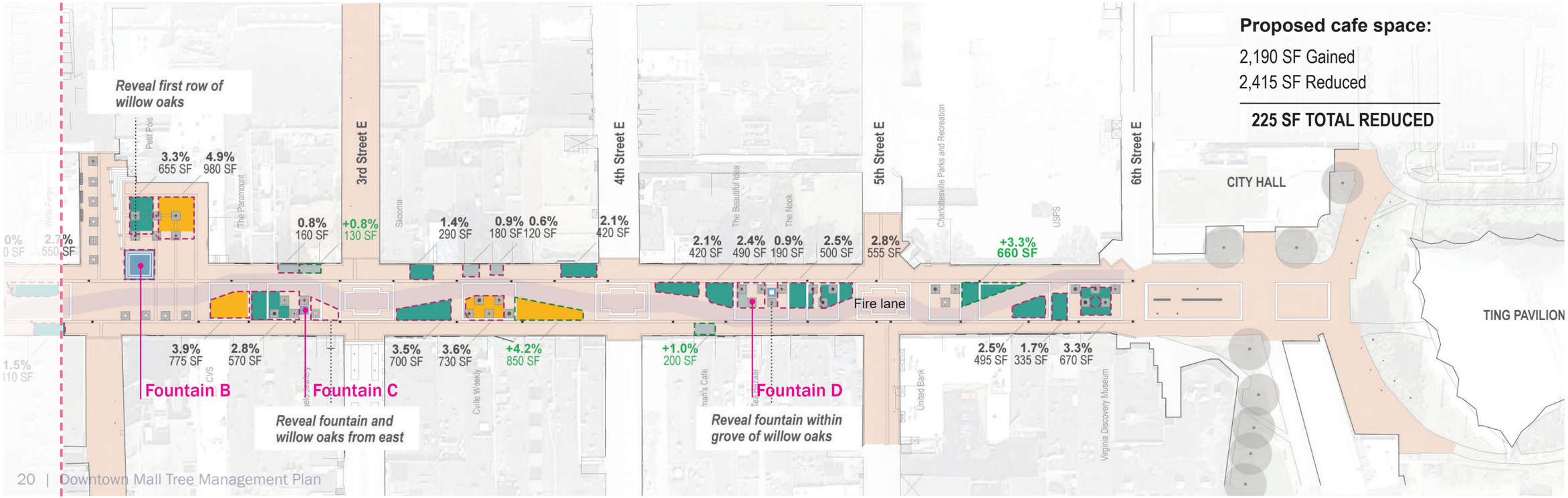
- Cafe fencing blocks the access to public fountain and obscures its visibility

Fencing by Fountain

- Fountain fencing blocks the access







Proposed cafe space:

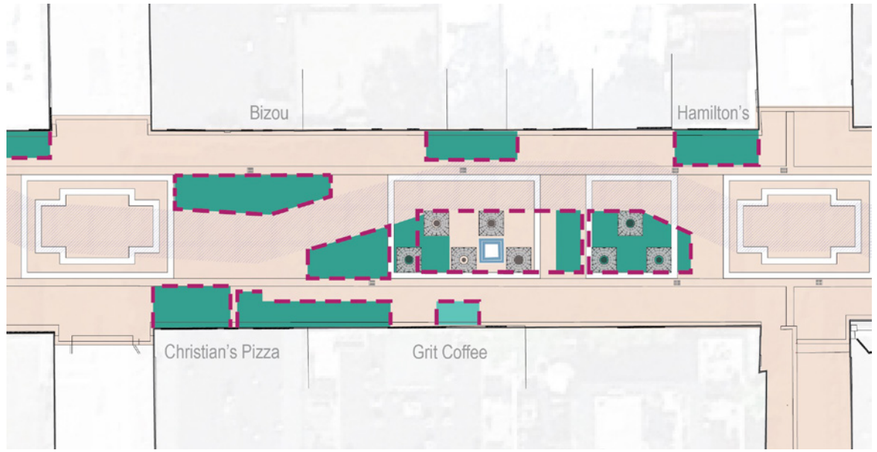
2,190 SF Gained
2,415 SF Reduced

225 SF TOTAL REDUCED

Tree & Fountain Visibility | *Proposed Cafe Space*

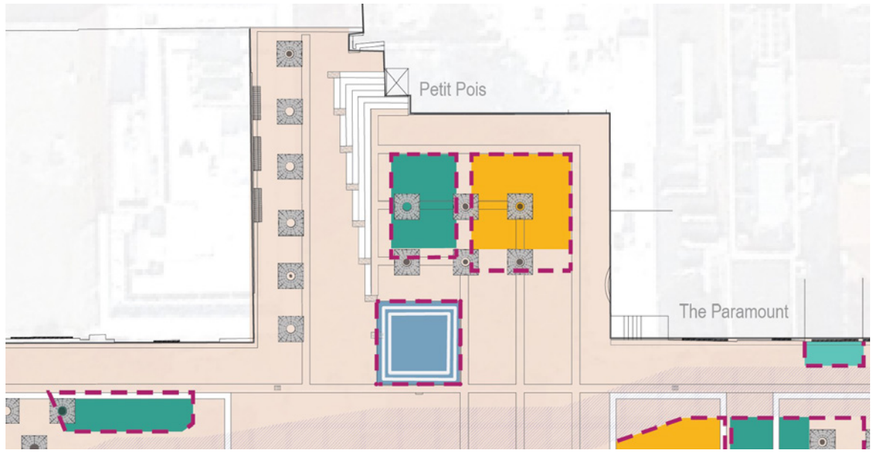
Fountain A

- Reveal fountain and trunks within grove of willow oaks
- Net change: -595 SF



Fountain B

- Reveal first row of willow oaks to increase public area
- Net change: -273 SF



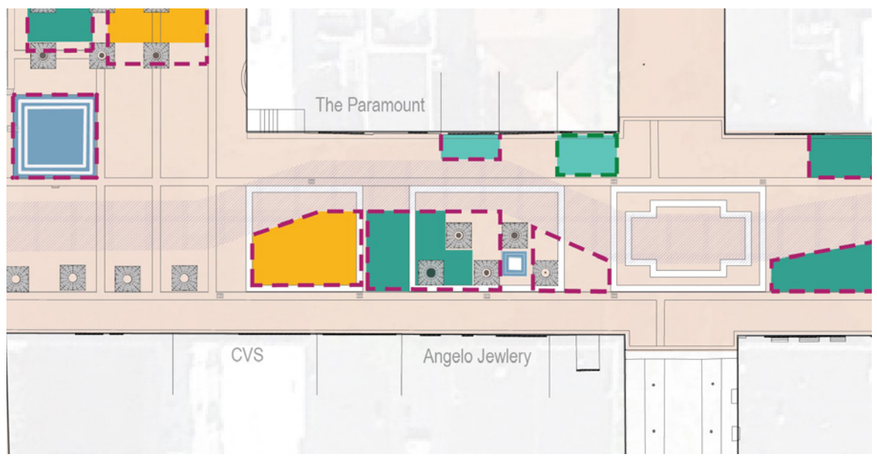
Existing cafe enclosures

Additional seating opportunity

Opportunity to reveal trees & fountains

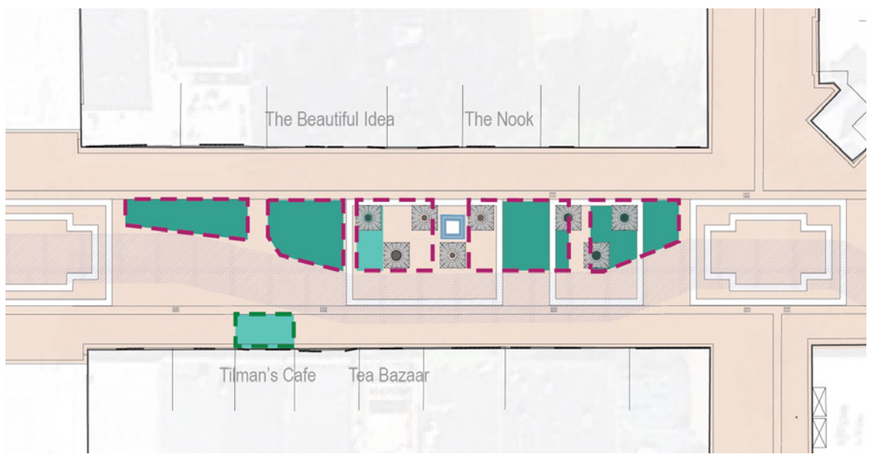
Fountain C

- Reveal fountain and willow oaks from east
- Net change: -927 SF



Fountain D

- Reveal fountain and trunks within grove of willow oaks
- Net change: -690 SF



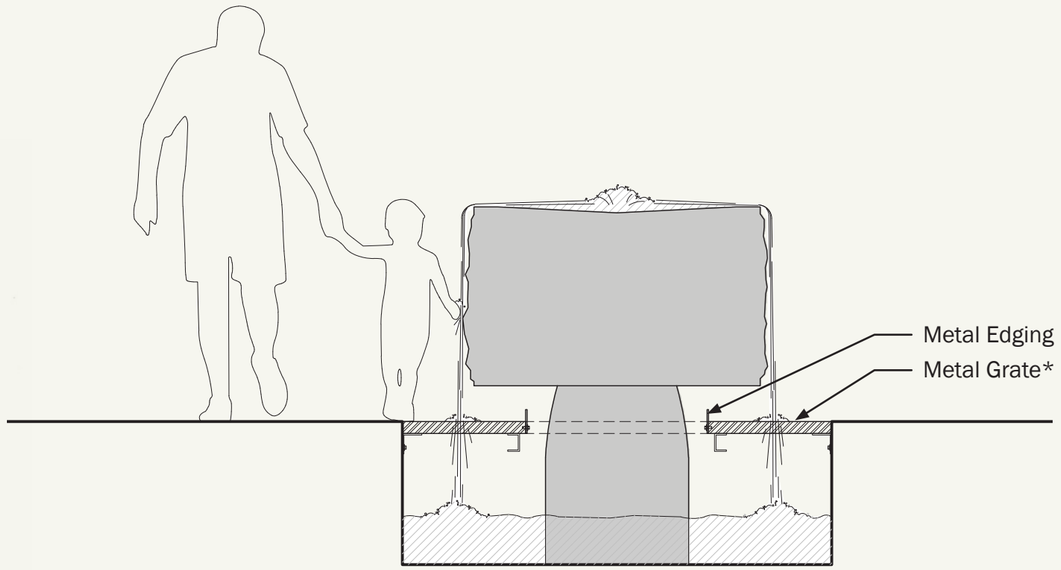
Tree & Fountain Visibility | Fountain Access

Due to trip hazard concerns, the large cascading fountain at Central Place and the three smaller spring fountains along the Mall have been fenced off, limiting pedestrian interaction and summer water play.

To address this, installing a metal grate surface that allows water to flow through while eliminating the trip hazard is recommended. This would make the fountains accessible again, turning them into lively centers of activity and play instead of unused, fenced-off spaces.

Recommended Accessible Metal Grate Detail

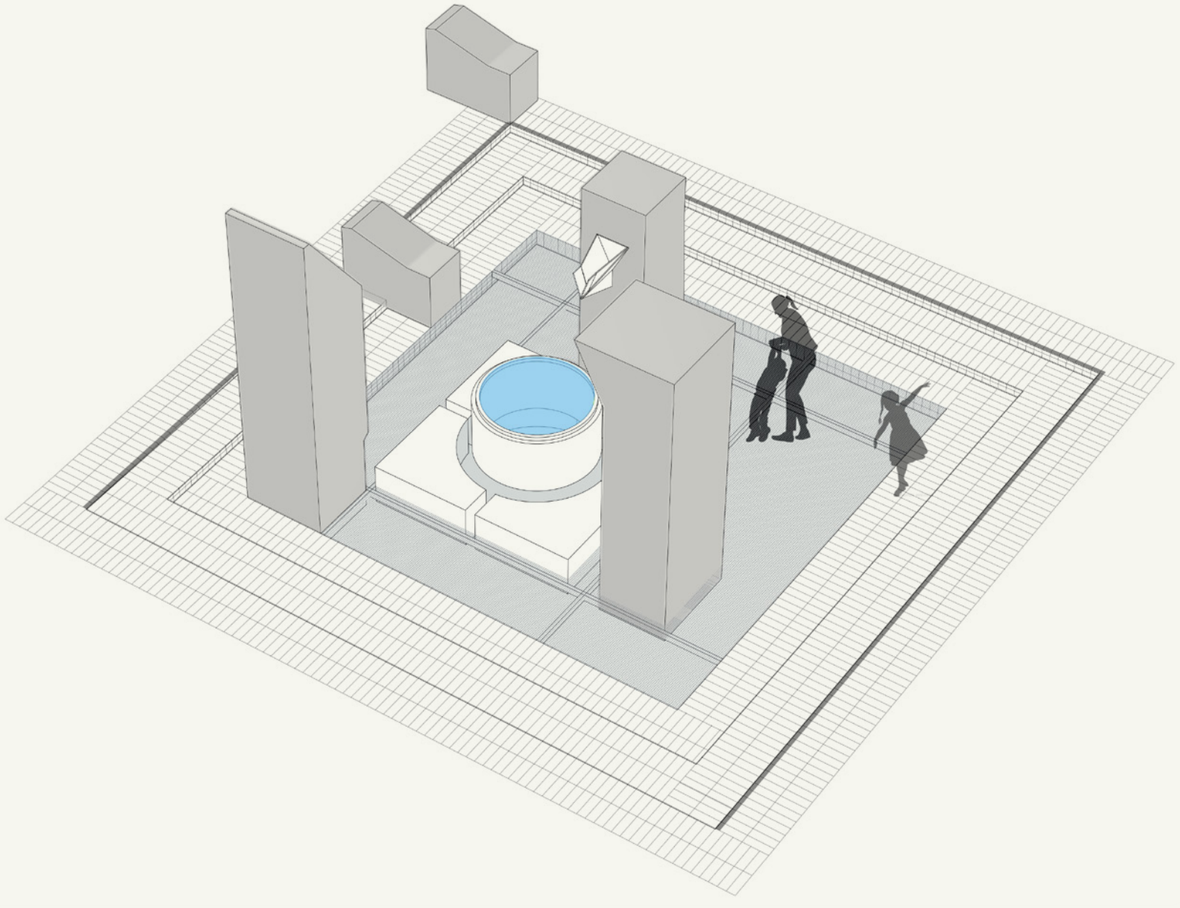
- Remove fencing
- Add metal grate for access



* Final grate elevation to be studied for visibility and compliance with initial design intent

Recommended Accessible Metal Grate Concept

- Add level and accessible stainless grate over basin
- Remove bollards and add safety nosing at stairs
- Add nearby seating for visitors/families



D

Tree Maintenance | Tree Care Manual

An ISA-certified Arborist has provided maintenance recommendations for over 140 assessed trees along the Mall. The report includes details on tree species, current health, and proposed pruning actions. In addition to specific pruning recommendations, general tree care guidelines are provided, categorized by tree age—from newly planted trees to mature specimens.

Takeaways

- **Every tree needs specific and individualized care**
- **Minimize pruning as much as possible**

The most important pruning objective are to reduce risk of failure and to set the stage for long-term maintenance by maintaining and developing strong structure

Four essential age classes of trees on the Downtown Mall
Pruning should be by life stage

STAGE: Young-to medium-aged trees

1) 6 yrs old, beside the Omni and Code Building
2) 20-25 yrs old, along side streets and near the pavilion
   - Structural pruning to reduce potential for limb failure
   - Encourage strong center leader
   - Defect corrections
   - Create good limb spacing

STAGE: Mature - to over mature trees

3) 40-45 yrs old, Willows in front of the Omni
4) 55-60 yrs old, primary trees along the mall
   - Most have good structure and very little pruning is required
   - Maintaining tree vigor and safety are the two most important goals for these trees

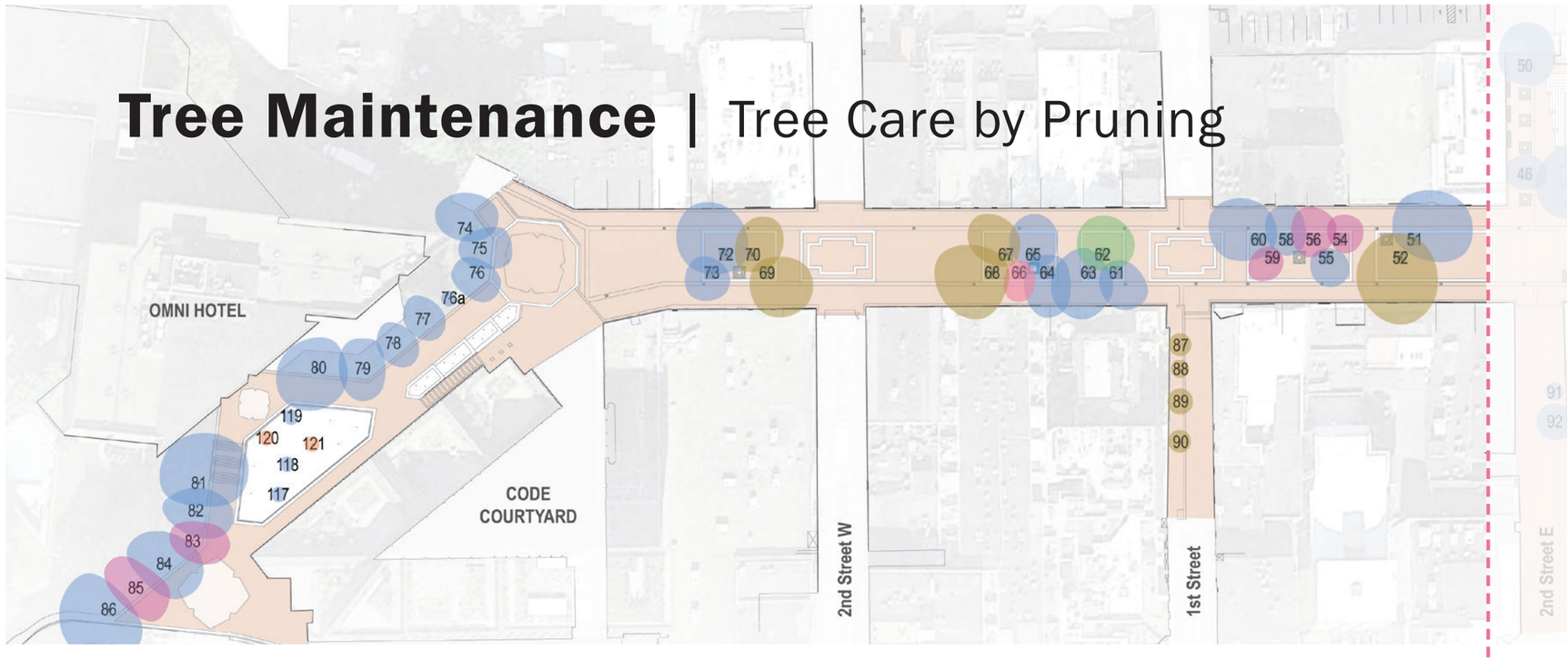
PITCHFORDASSOCIATES
arboriculture + environmental consulting

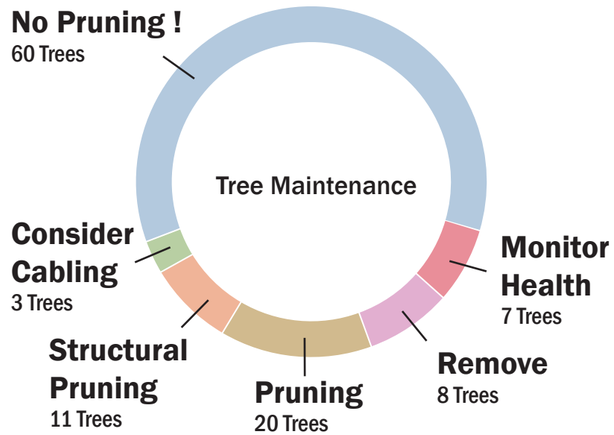
CHARLOTTESVILLE DOWNTOWN MALL
TREE CARE RECOMMENDATIONS - June 2024

Tree #	Common name	Pruning recommendations
1a	Shumard oak	Consider removal for poor form
1b	Shumard oak	No pruning required
1c	Shumard oak	Crown clean to remove minor deadwood (d/w)
1d	Shumard oak	Crown clean to remove minor deadwood (d/w)
2a	Shumard oak	No pruning required
2b	Shumard oak	Consider removal for poor form
2c	Shumard oak	Crown clean for structure. Remove crossing limbs
3	Willow oak	Structural pruning for crossing limbs
4	Willow oak	Structural pruning for crossing limbs
5	Willow oak	Structural pruning for crossing limbs
10	Willow oak	No pruning required
11	Willow oak	Bark inclusion. Consider cable. No pruning.
12	Willow oak	Consider removal for poor form
13	Willow oak	No pruning required
14	Willow oak	Elevate off of roof. Overextended limbs
15	Willow oak	No pruning required
17	Willow oak	Elevate off of roof. Overextended limbs
18	Willow oak	No pruning required
20	Willow oak	Elevate off of roof. Overextended limbs
21	Willow oak	No pruning required
22	Willow oak	No pruning required
23	Willow oak	Consider removal for poor form
24	Willow oak	Bark inclusion. Consider cable. No pruning.
25	Willow oak	No pruning required
26	Willow oak	No pruning required
27	Willow oak	Overextended limbs
105	Ginkgo	No pruning required
106	Ginkgo	No pruning required
107	Ginkgo	Consider removal for poor form
108	Ginkgo	Consider removal for poor form
109	Ginkgo	Consider removal for poor form
110	Shumard oak	No pruning required
111	Shumard oak	No pruning required
112	Shumard oak	Crown cleaning to remove major d/w
113	Shumard oak	Structural pruning
114	Shumard oak	No pruning required
115	Shumard oak	No pruning required
116	Shumard oak	No pruning required
117	Willow oak	No pruning required
118	Willow oak	No pruning required
119	Willow oak	No pruning required
120	American hornbeam	Structural pruning
121	American hornbeam	Structural pruning
122	Sweetbay magnolia	No pruning required
123	Sweetbay magnolia	No pruning required
124	Serviceberry	Structural pruning
125	Serviceberry	Structural pruning
126	Serviceberry	Structural pruning
127	Serviceberry	Structural pruning
128	Serviceberry	Structural pruning
129	Serviceberry	Structural pruning
130	Serviceberry	Structural pruning
131	Serviceberry	Structural pruning
132	Serviceberry	Structural pruning
133	Serviceberry	Structural pruning
134	Serviceberry	Structural pruning
135	Serviceberry	Structural pruning
136	Serviceberry	Structural pruning
137	Serviceberry	Structural pruning
72	Willow oak	No pruning required
73	Willow oak	No pruning required
74	Willow oak	No pruning required
75	Willow oak	No pruning required
76	Willow oak	No pruning required
76a	Willow oak	No pruning required
77	Willow oak	No pruning required
78	Willow oak	No pruning required
79	Willow oak	No pruning required
80	Willow oak	No pruning required
81	Willow oak	No pruning required
82	Willow oak	No pruning required
83	Willow oak	Consider removal for poor form
84	Willow oak	No pruning required
85	Willow oak	Consider removal for poor form
86	Willow oak	No pruning required
87	Ginkgo	Elevation pruning over walkway
88	Southern magnolia	Elevation pruning over walkway
89	Ginkgo	Elevation pruning over walkway
90	Ginkgo	Elevation pruning over walkway
91	Norway maple	No pruning required
92	Norway maple	No pruning required
93	Ginkgo	Structural pruning
95	Ginkgo	Structural pruning
96	Ginkgo	Structural pruning
97	Ginkgo	Structural pruning
98	Ginkgo	Structural pruning
99	Ginkgo	No pruning required
100	Ginkgo	No pruning required
101	Ginkgo	No pruning required
102	Ginkgo	No pruning required
103	Ginkgo	No pruning required
104	Ginkgo	No pruning required
28	Willow oak	Consider removal for poor form
29	Willow oak	Overextended limbs
30	Willow oak	No pruning required
31	Willow oak	Consider removal for poor form
32	Willow oak	No pruning required
33	Willow oak	Prune one lower limb back to branch collar
34	Willow oak	No pruning required
35	Willow oak	No pruning required
40	Willow oak	No pruning required
41	Willow oak	Retrenchment pruning has created hazard
42	Willow oak	No pruning required
43	Willow oak	No pruning required
44	Willow oak	No pruning required
46	Norway maple	No pruning required
50	Red maple	No pruning required
51	Willow oak	No pruning required
52	Willow oak	Crown cleaning to remove major d/w
54	Willow oak	Consider removal for poor condition and hazard
55	Willow oak	No pruning required
56	Willow oak	Consider removal for poor form
58	Willow oak	No pruning required
59	Willow oak	Consider removal for poor condition and hazard
60	Willow oak	No pruning required
61	Willow oak	No pruning required
62	Willow oak	Add cable. No pruning.
63	Willow oak	No pruning required
64	Willow oak	No pruning required
65	Willow oak	No pruning required
66	Willow oak	Consider removal for poor form
67	Willow oak	Remove major d/w. Subordinate co-dom
68	Willow oak	Overextended limbs
69	Willow oak	Elevation pruning off of roof
70	Willow oak	Major d/w, but not hazard now
138	Serviceberry	Structural pruning
139	Serviceberry	Structural pruning
140	Serviceberry	Structural pruning
141	Serviceberry	Structural pruning

* For further details, see separate report

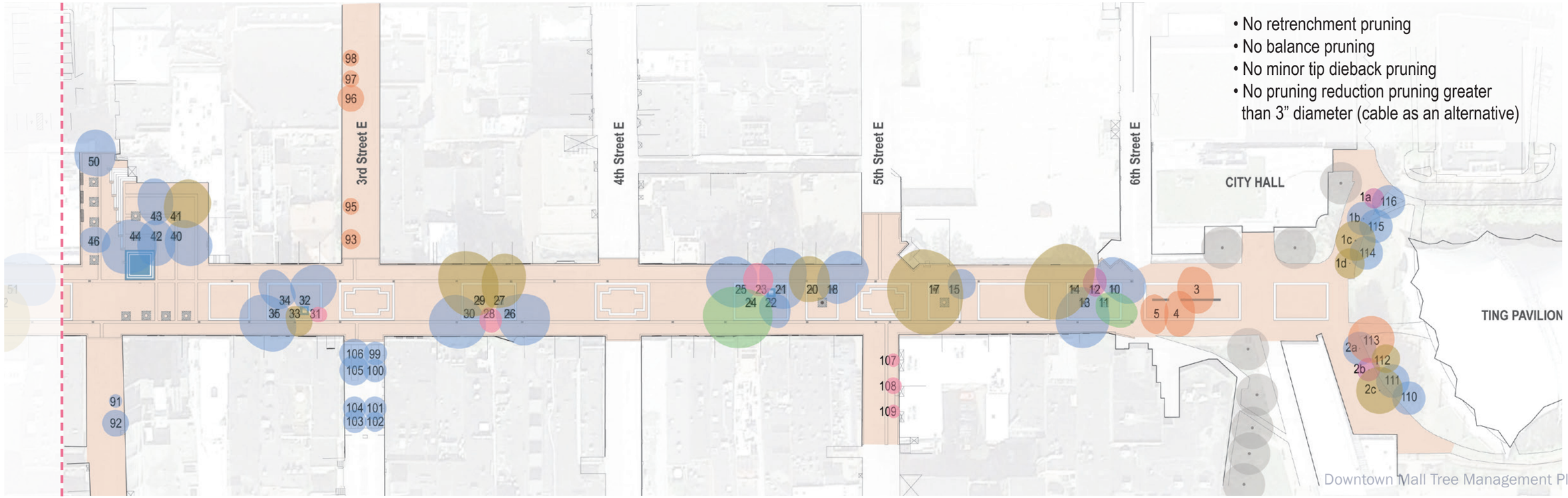
Tree Maintenance | Tree Care by Pruning





No Pruning
Structural Pruning
Pruning
(Dead Wood, Crossing/Overextended Limbs, Elevation Pruning)
Remove
Monitor Health
Consider Cabling

0' 35' 70' 140'



- No retrenchment pruning
- No balance pruning
- No minor tip dieback pruning
- No pruning reduction pruning greater than 3" diameter (cable as an alternative)

E Building Height | Zoning & Light Preservation

Zoning changes allow for increased height and density along the downtown mall. Increased building heights could have unintended consequences for existing and proposed trees. With building height increases, new trees will be challenged or not grow in full shade. Willow oaks, the primary tree along the Mall, do not tolerate shady conditions. New trees willl be slow to develop and mature trees will have accelerated decline growing in shaded conditions.

Zoning: Building Height

Zoning changes adopted in 2023* allow for increased building height along the downtown mall (Downtown Mixed Use district). Increased building heights could have unintended consequences for existing and proposed trees.

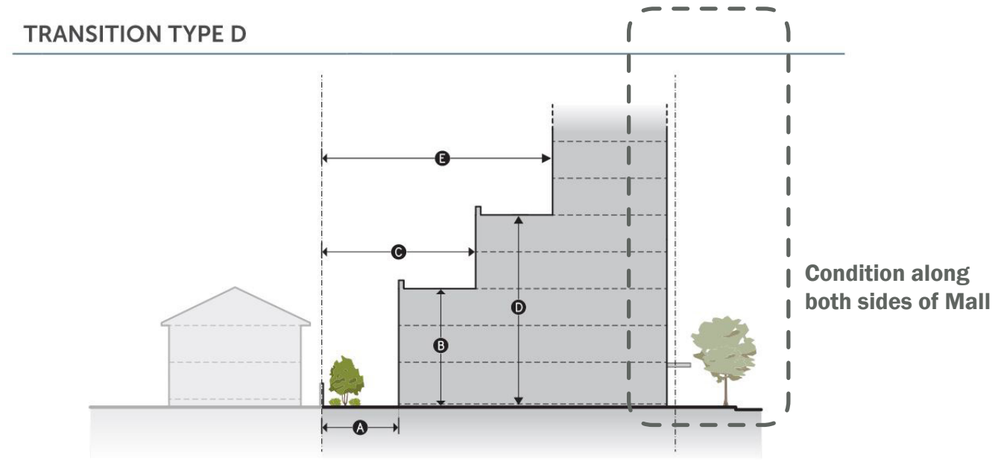
District: DX (Downtown Mixed Use)

Building height (max stories/feet)
- Base: 10 / 142’
- With bonus: 13 / 184’

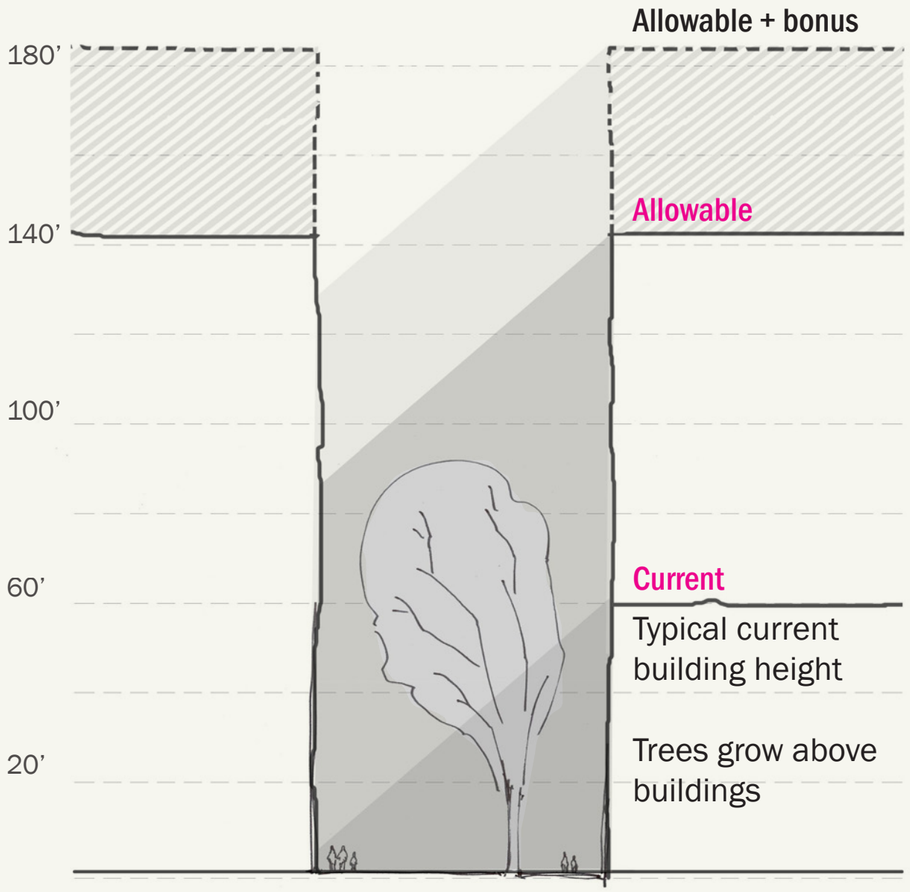
Transition Type D:

Abutting district: R-A, R-B, & R-C
- Setback: 20’
- Step-back 1: 44’H x 40’W
- Step-back 2: 72’H x 60’W

*Charlottesville Development Code (Adopted 12/18/2023)
- Allowable building height fro Downtown Mixed Use (DX) see section 2.5.6
- Building transitions and step-backs see Section 2.10.7 & Div. 4.7

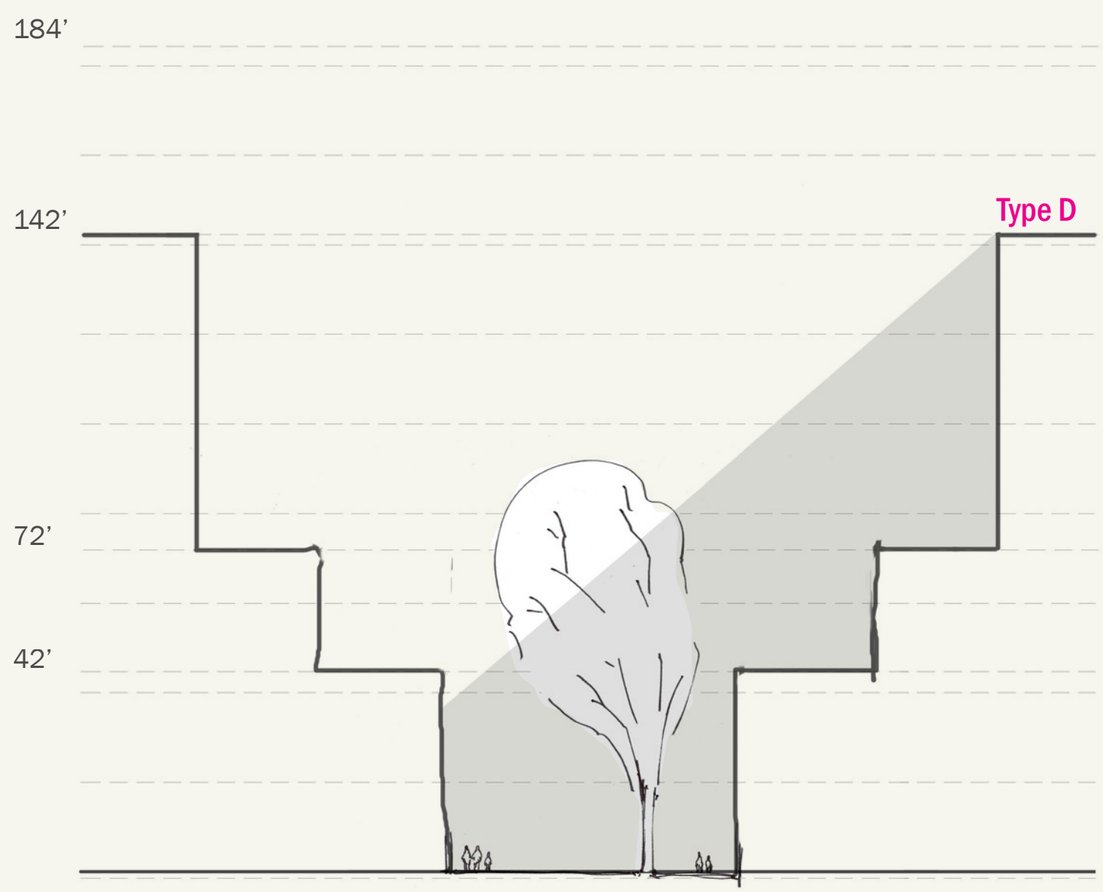


Building Step-Back Precedent: CODE Building



Allowable Condition

Increased building heights directly adjacent to the Downtown Mall will drastically impact the available light for trees to develop. Current buildings, particularly those on the south side, have heights that have largely allowed canopies to have light access. Future zoning heights would create a condition that directly limits light access and plant health.



Recommended code modification

Transition type D for the Downtown Mall corridor creates required step backs that would allow light into the corridor for healthy tree development (and pedestrians).

Long Term Recommendations: Next Generation

The current Willow oaks have thrived for 48 years, despite the challenges of the urban environment. In light of the Mall's historical context and original design intent, the following section outlines an approach for implementing the next generation of trees, creating a resilient and cohesive canopy for the future.

A. Tree Replacement

- *Grove replacement approach*
- *Tree Planter and slab replacement*
- *Tree size at install*

B. Utilities & Critical Root Zones

- *Lateral replacements to avoid critical root zones*
- *Utility relocation options*

C. Tree Selection

- *Size, form, urban resilience, climate, leaf litter, fruit and color*

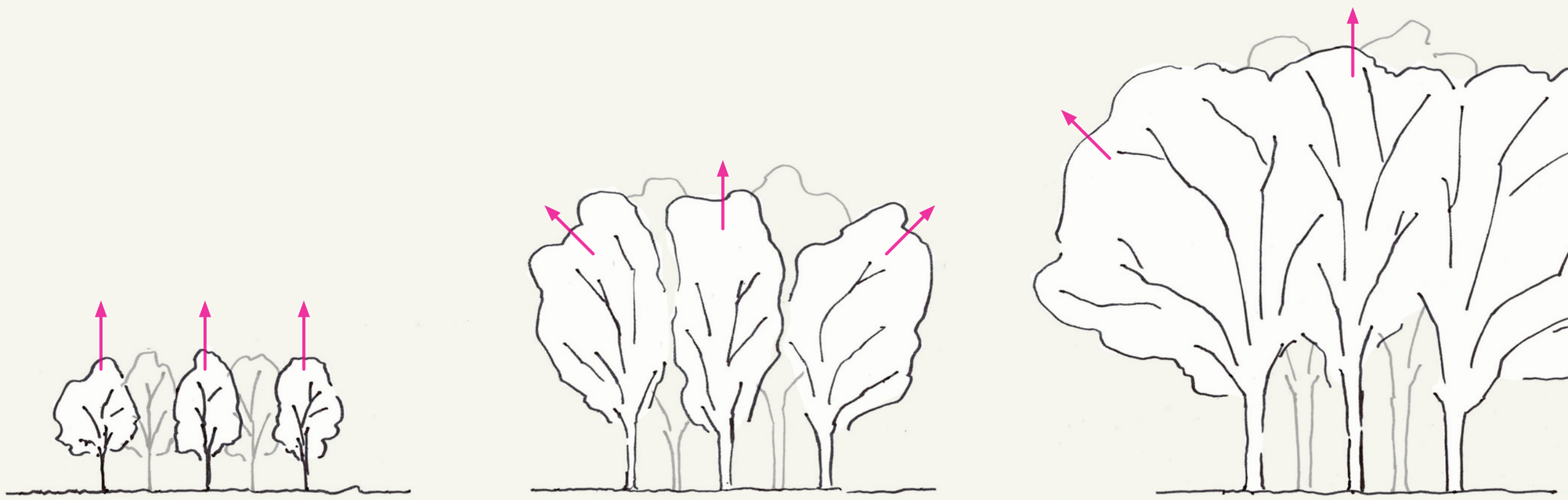
D. Phasing

- *Four phased approach*

E. Celebrate Replacements

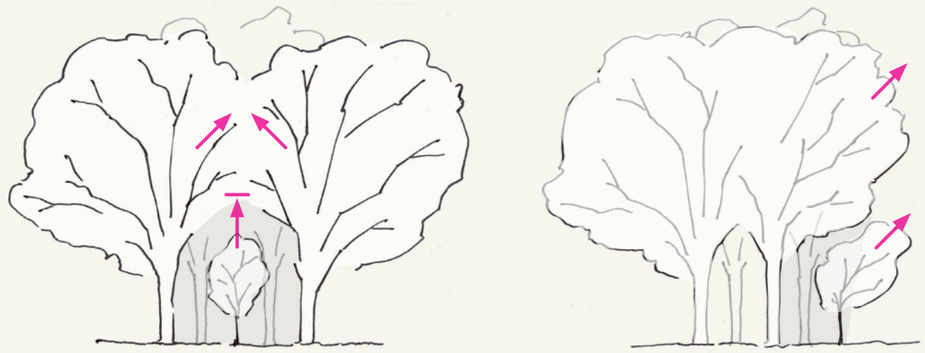
- *Art installations after tree replacement*
- *Upcycle & recycle*

Tree Replacement | Grow Together



Uniform Grove Replacement

When trees are planted at the same time, they grow together as a cohesive form. The outer trees expand outward, while the inner trees focus growth upward, creating a balanced, uniform canopy structure. Each grove should be planted with a single species to promote uniform growth.



Replacing individual trees within established groves can create challenges for the new trees, as they must grow in the shade of the surrounding mature trees. This leads to competition for light, with both the mature and new trees vying to fill the gaps left by the removed trees, often hindering the growth of the replacements.

Tree Replacement | Option 1

Option 1: Planter Replacement

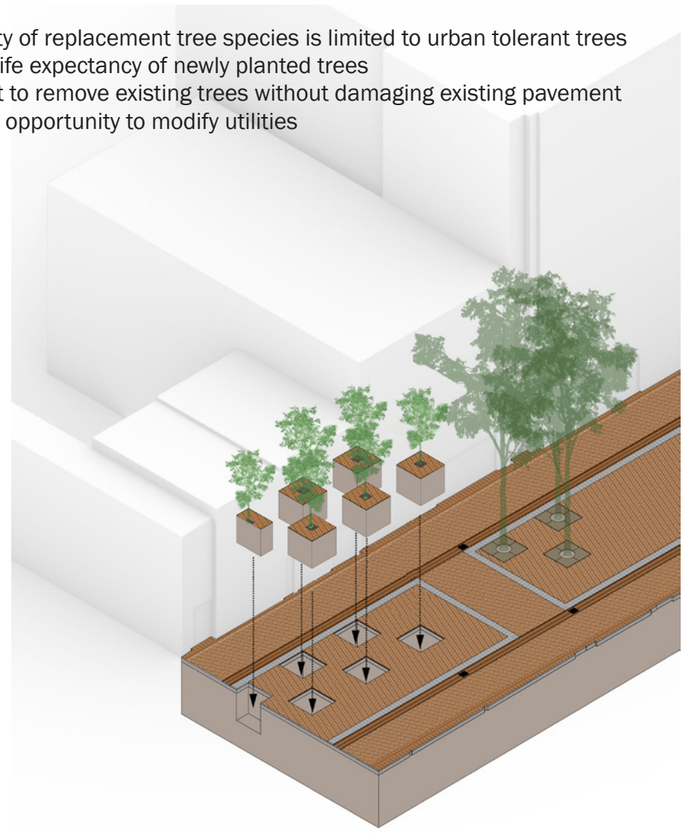
Planter replacement is a minimal tree replacement approach that offers low impact and low cost. This involves removing the tree, metal grate, and the soil directly beneath the grate. A new tree, soil, and paver grate are then installed. This approach does not include soil remediation, drainage, or utility improvements.

Pros

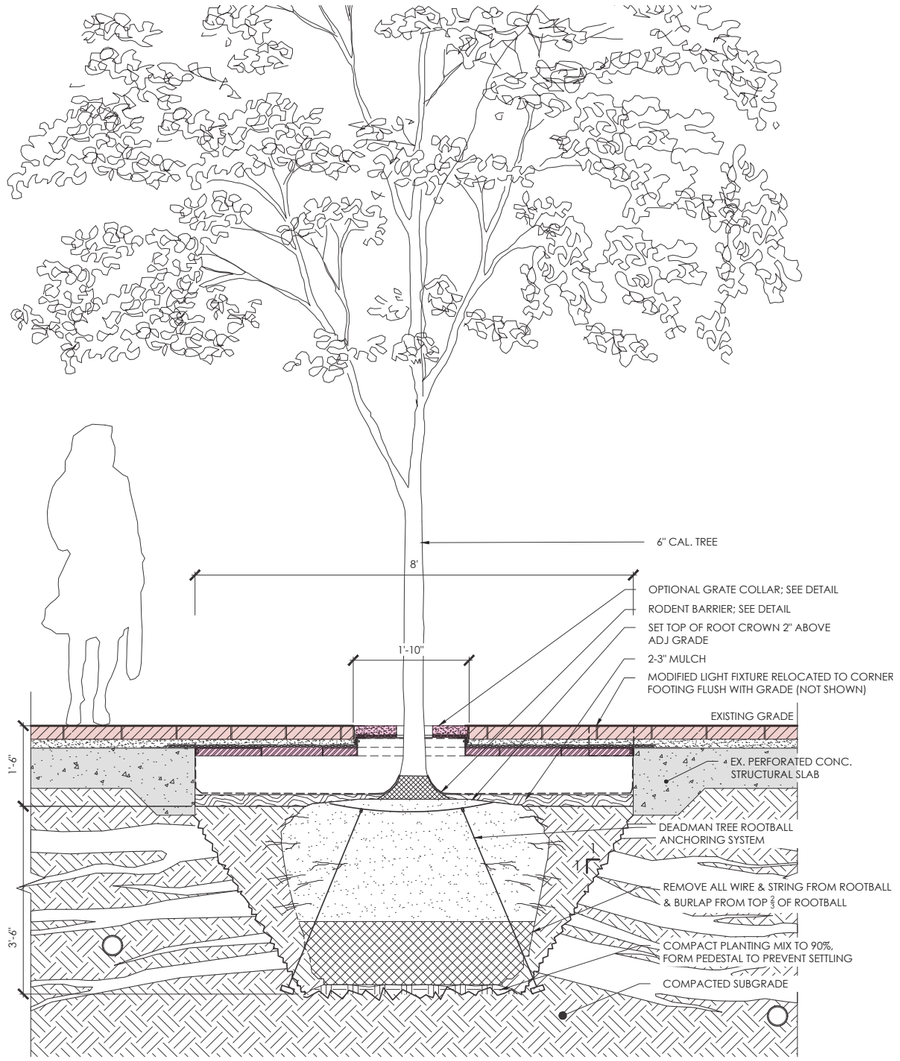
- Cost effective replacement strategy
- Minimal disturbance of existing soils. Existing roots will decompose and provide pore space

Cons

- Diversity of replacement tree species is limited to urban tolerant trees
- Limits life expectancy of newly planted trees
- Difficult to remove existing trees without damaging existing pavement
- Missed opportunity to modify utilities



Option 1 Tree Planting Detail



Once tree extends beyond internal frame sub-structure it is recommended to switcth to foam support structure (See page 12)

Tree Replacement | Option 2

Option 2: Soil & Slab Replacement (Preferred)

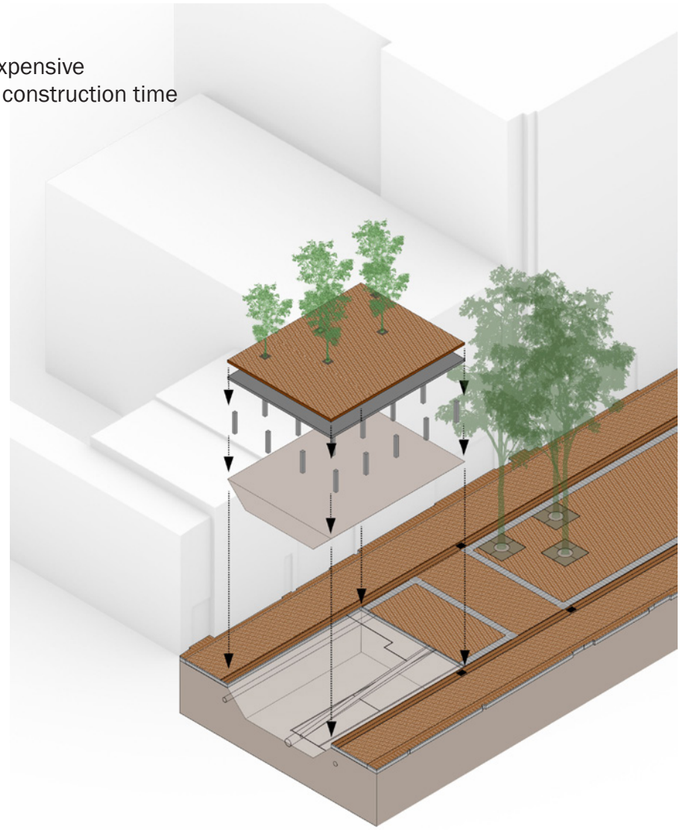
Soil and slab replacement involves a more comprehensive approach to enhance planting conditions and address potential utility conflicts. This method includes suspending the subslab for soils, improving soil quality with drainage and compost, and updating utility connections to prevent future issues.

Pros

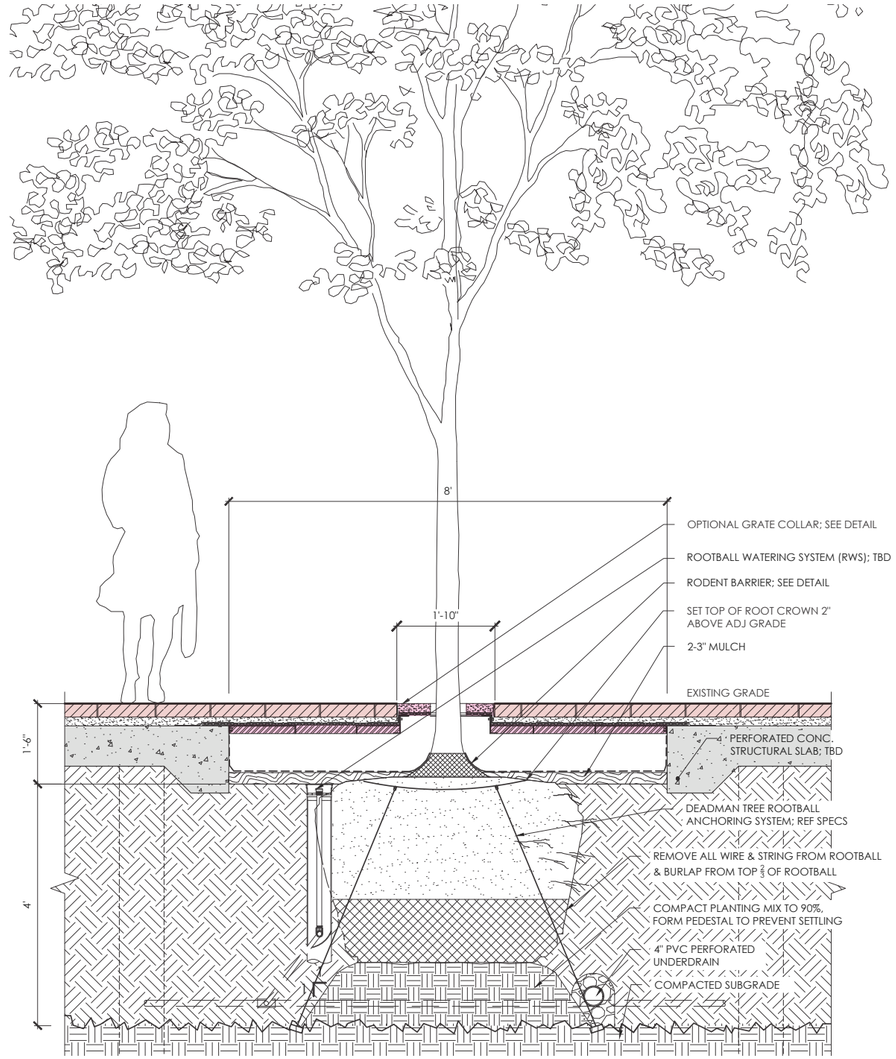
- Extends life expectancy of newly planted trees
- Structural slab provides uncompacted soil volume for tree roots
- Opportunity for utility changes/upgrades during replacement

Cons

- More expensive
- Longer construction time



Option 2 Tree Planting Detail

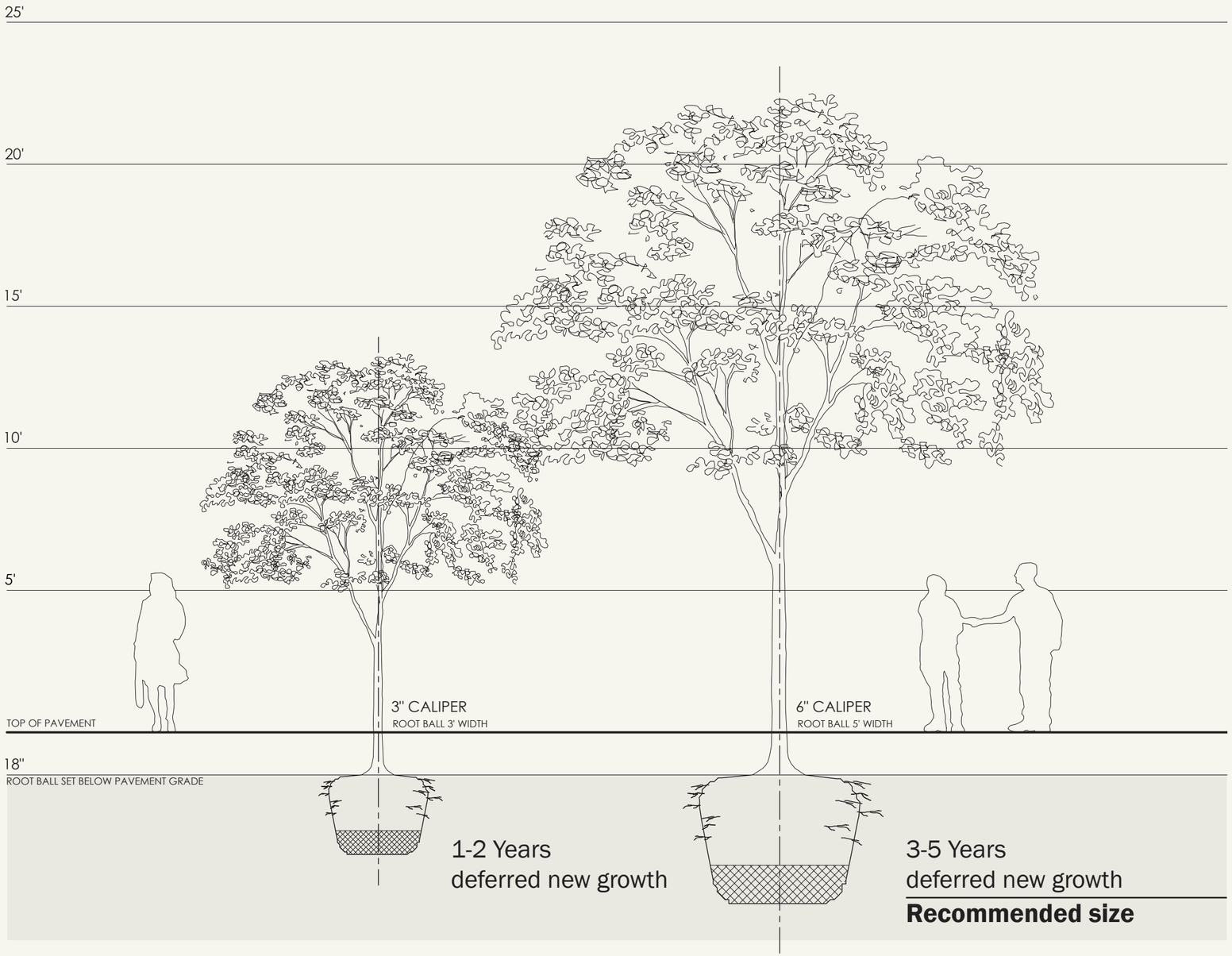


Once tree extends beyond internal frame sub-structure it is recommended to switcth to foam support structure (See page 12)

Tree Replacement | *Tree Size at Install*

The size of tree replacements is crucial for public perception, tree health, and safety. Newly planted trees should have a substantial presence and provide some immediate shade. Additionally, the canopy must be elevated enough to allow maintenance and emergency vehicles to pass along fire lanes.

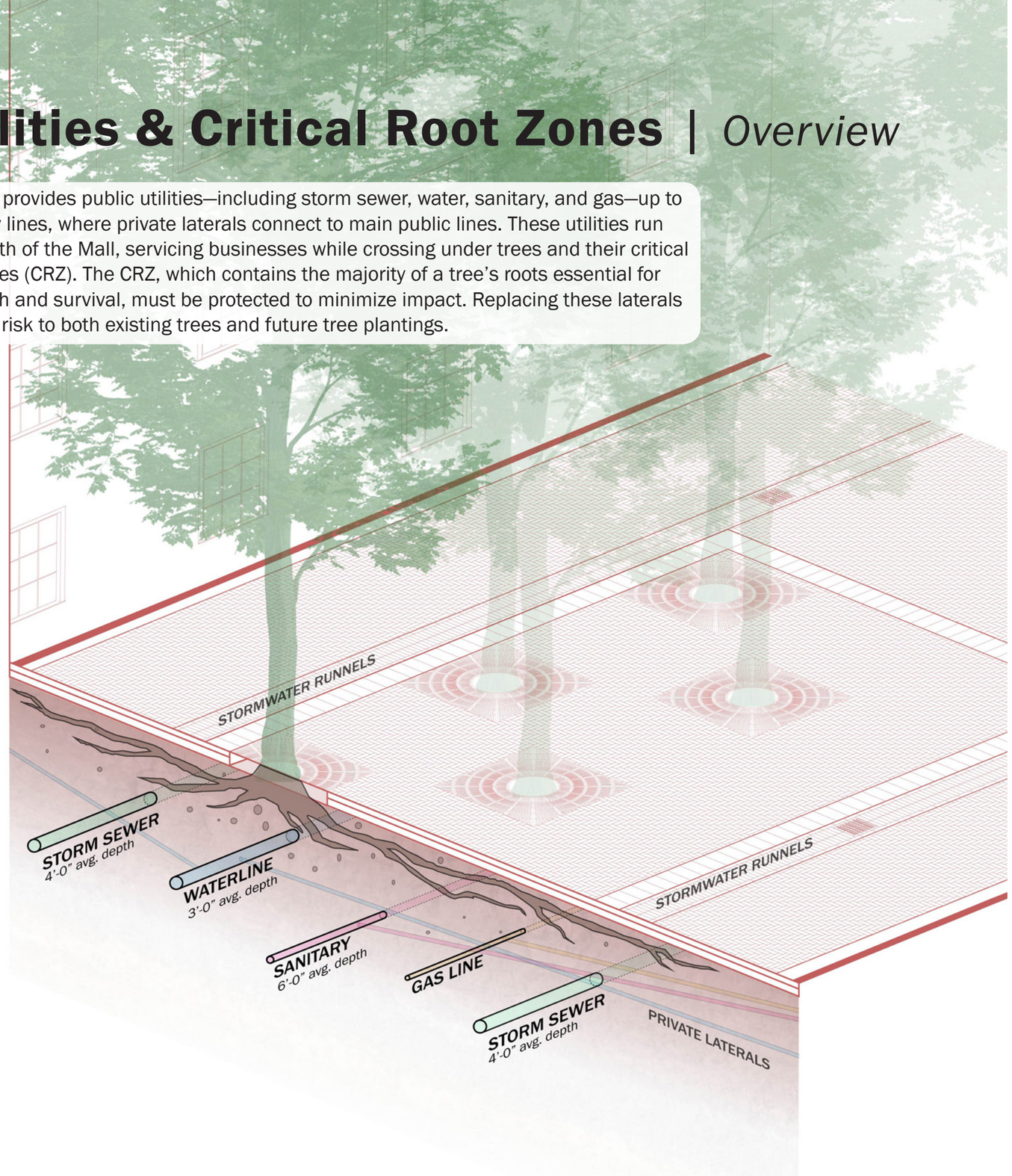
It is recommended to pre-purchase trees from nursery 2-3 years in advance. The nursery should be instructed to limb up to 10’ clear for fire truck access.



B

Utilities & Critical Root Zones | *Overview*

The City provides public utilities—including storm sewer, water, sanitary, and gas—up to property lines, where private laterals connect to main public lines. These utilities run the length of the Mall, servicing businesses while crossing under trees and their critical root zones (CRZ). The CRZ, which contains the majority of a tree's roots essential for its health and survival, must be protected to minimize impact. Replacing these laterals poses a risk to both existing trees and future tree plantings.



Utility Summary

Public

- Main utility lines currently present no immediate concern
- No known waterlines or fountain leaking found
- Laterals have high likelihood to impact critical roots zones in near term due to utility upsizing

Private

- Laterals have high likelihood to impact critical roots zones in near term due to utility up-sizing

Pressure (Water & Gas)

- Water laterals have a high likelihood of replacement and up-sizing as businesses change use

Gravity (Sanitary & Stormwater)

- Terracotta sanitary laterals may need replacement
- Gravity lines are more difficult to modify than pressure fed lines

Utility Recommendations

At Existing Groves

- Lateral replacement tie in distance 25' minimum from existing trees
- Designated no-tie in zones around existing tree groves

At Grove Replacements

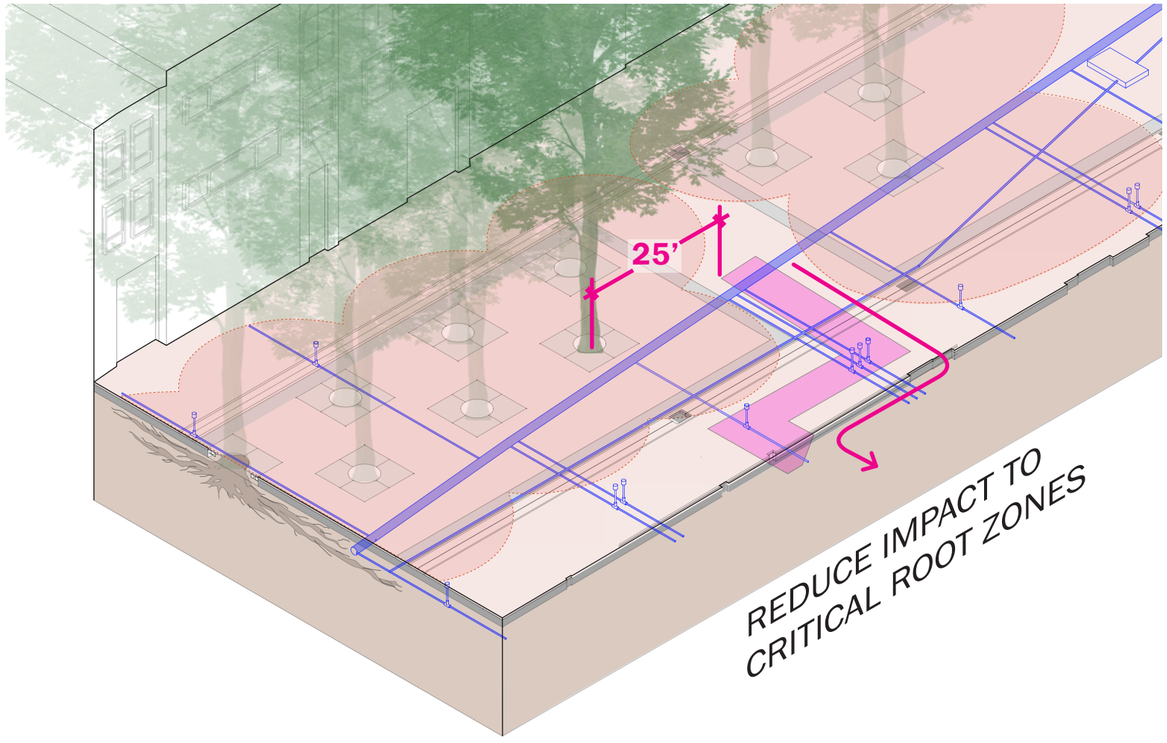
- Shift water & gas connections to perimeter for future up-sizing and easier lateral access for business owners

Alternate

- When viable, buildings could have water access from Water or Market streets

Utilities & Critical Root Zones | *Lateral Replacement Recommendations*

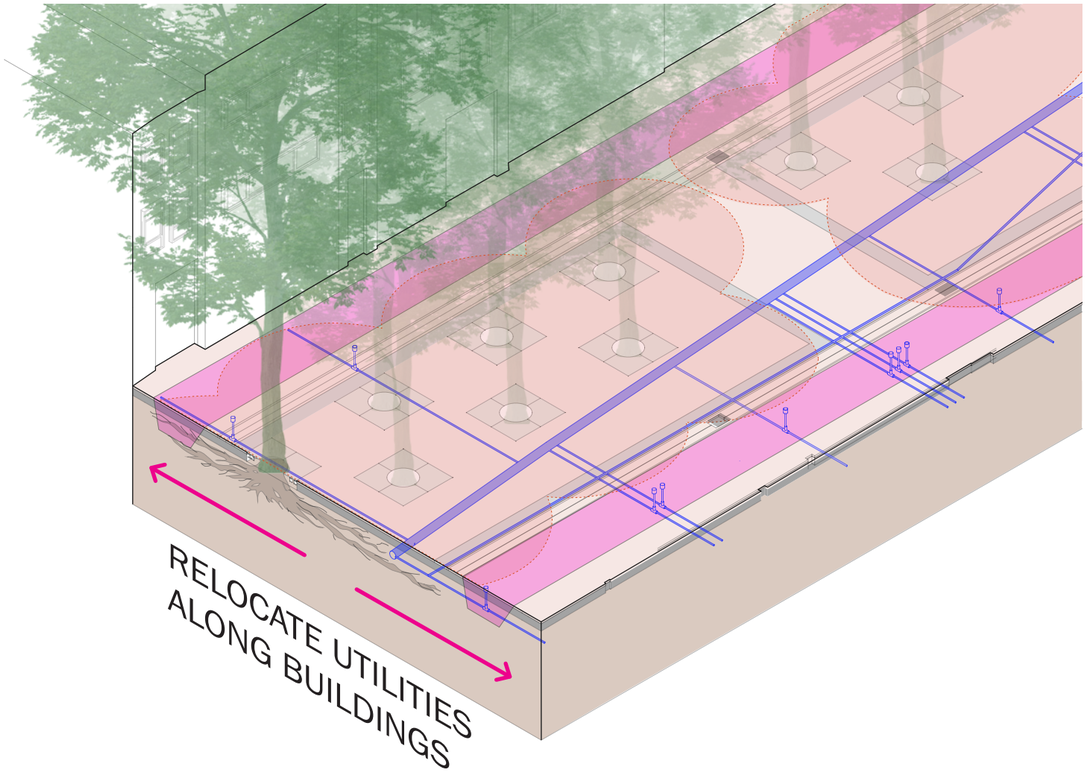
At Existing Groves



Lateral Replacement

Shifting lateral replacements at least 25 feet away from trees on the perimeter of groves would greatly reduce the impact on critical root zones.

At Grove Replacements



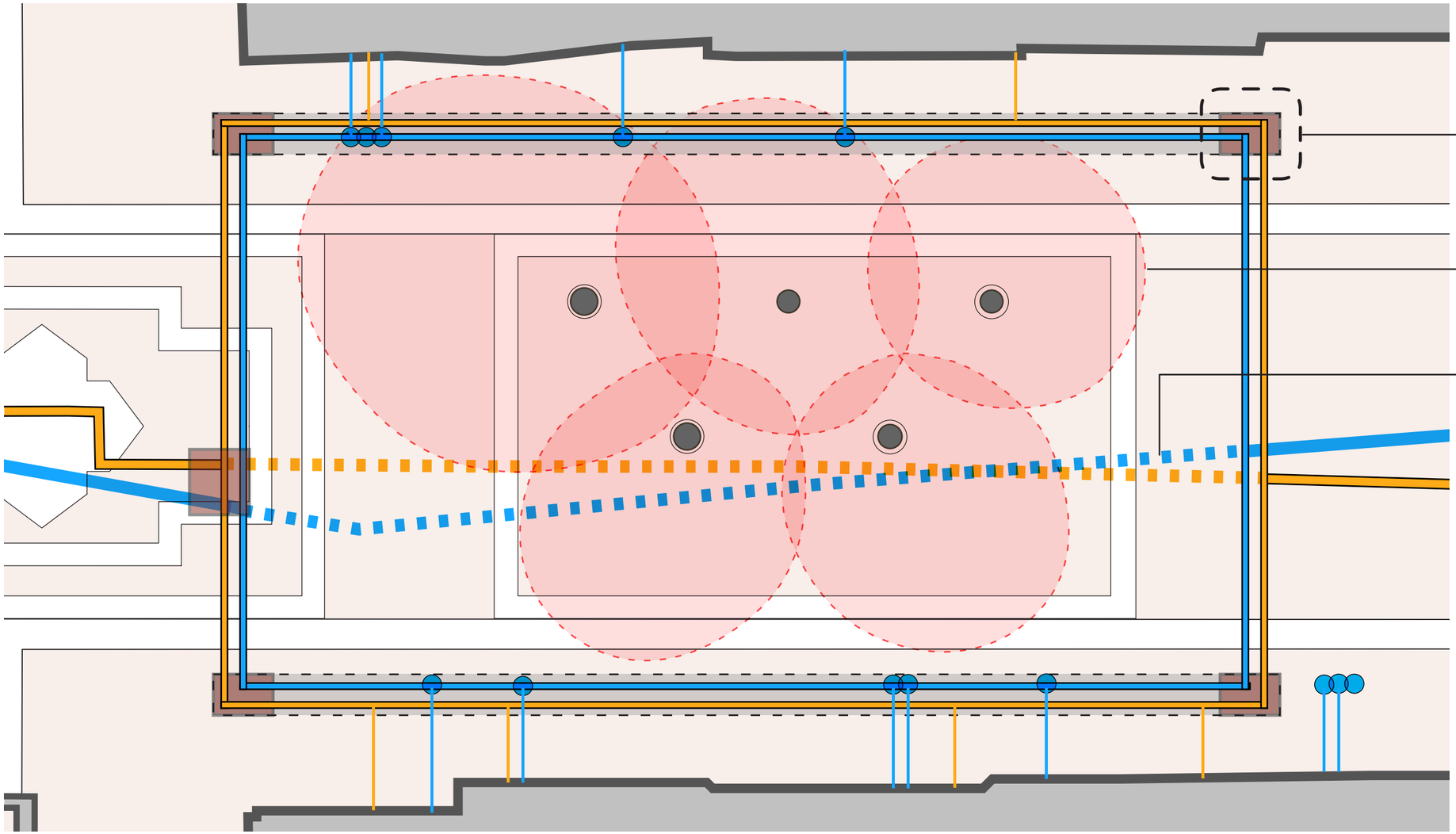
Utility Trench Along Buildings

Replacing the current pavement subslab with a structurally suspended slab and moving utilities to the perimeter of the mall will help minimize future conflicts with Critical Root Zones, thereby supporting the long term health of the trees.

Utilities & Critical Root Zones | *Utility Relocation Diagram*

Relocate Utilities Along Buildings

Relocating utility lines along buildings will help reduce future impacts to critical root zones, ensuring better tree health and longevity. This approach also provides easier access to utility laterals for business owners, minimizing disruption and facilitating maintenance.



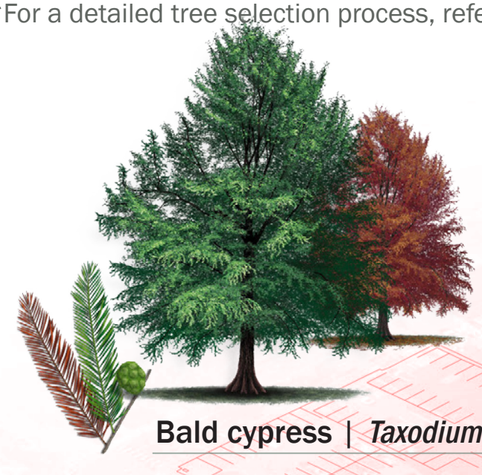
C

Tree Selection | *Recommended Tree Selection & Design Intent*

Yellow and red fall colors

The original Halprin design for Central Place highlighted the distinctive red fall color of Maple trees, creating a unique contrast with the yellow fall color of the Willow oaks that line the rest of the Mall. To maintain this color scheme and enhance diversity, a variety of tree species are now recommended, chosen for consistent growth habit in the urban environment. Tulip poplars are only recommended in a full soil replacement scheme as they do no tolerate compacted urban conditions.

*For a detailed tree selection process, refer to the Full Analysis & Recommendations document.



Bald cypress | *Taxodium distichum*

Central Place
Red, contrasting fall color

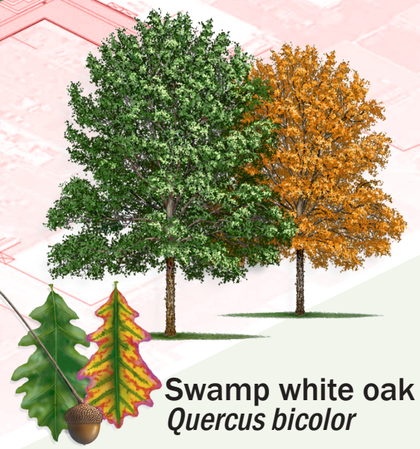
Open Public Space

4th Street E

3rd Street E

2nd Street E

2nd Street W



Swamp white oak
Quercus bicolor

Willow oak
Quercus phellos

American elm
Ulmus americana

Tuliptree
Liriodendron tulipifera

Tree Selection | *Recommended Tree Selection*

DOWNTOWN MALL

WILLOW OAK
Quercus phellos

SWAMP WHITE OAK
Quercus bicolor

JEFFERSON ELM
***Ulmus americana* 'Jefferson'**

TULIP POPLAR
Liriodendron tulipifera

CENTRAL PLACE

BALD CYPRESS
***Taxodium distichum* 'Autumn Gold'**

D

Phasing | *Strategy*

Spatial Strategy

The spatial strategy for tree replacement begins with Phase 1, focused near the geographic center of the Mall, where the highest concentration of missing and unhealthy trees is located. Phases 2 through 4 will distribute the replacements along the length of the Mall, ensuring that the healthiest groves are preserved for the later stages. Staggering the grove replacements allows the newly planted trees time to grow and establish themselves before further replacements are made, without creating any continuous stretch of the Mall without shade.

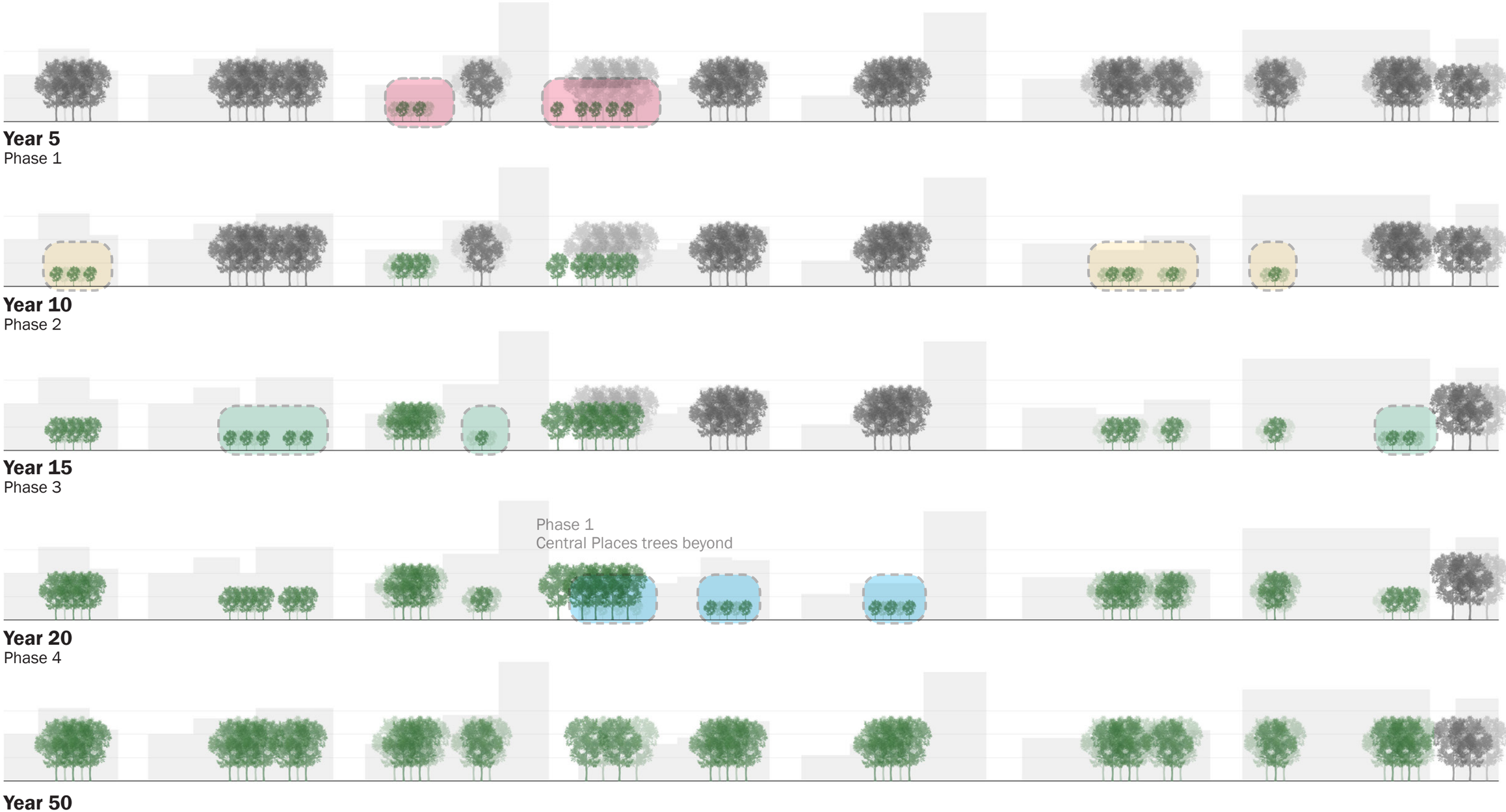
Phase 1 **Year 5**

Phase 2 **Year 10**

Phase 3 **Year 15**

Phase 4 **Year 20**

Phasing | *Four Phased Approach*



Year 5
Phase 1

Year 10
Phase 2

Year 15
Phase 3

Year 20
Phase 4

Year 50

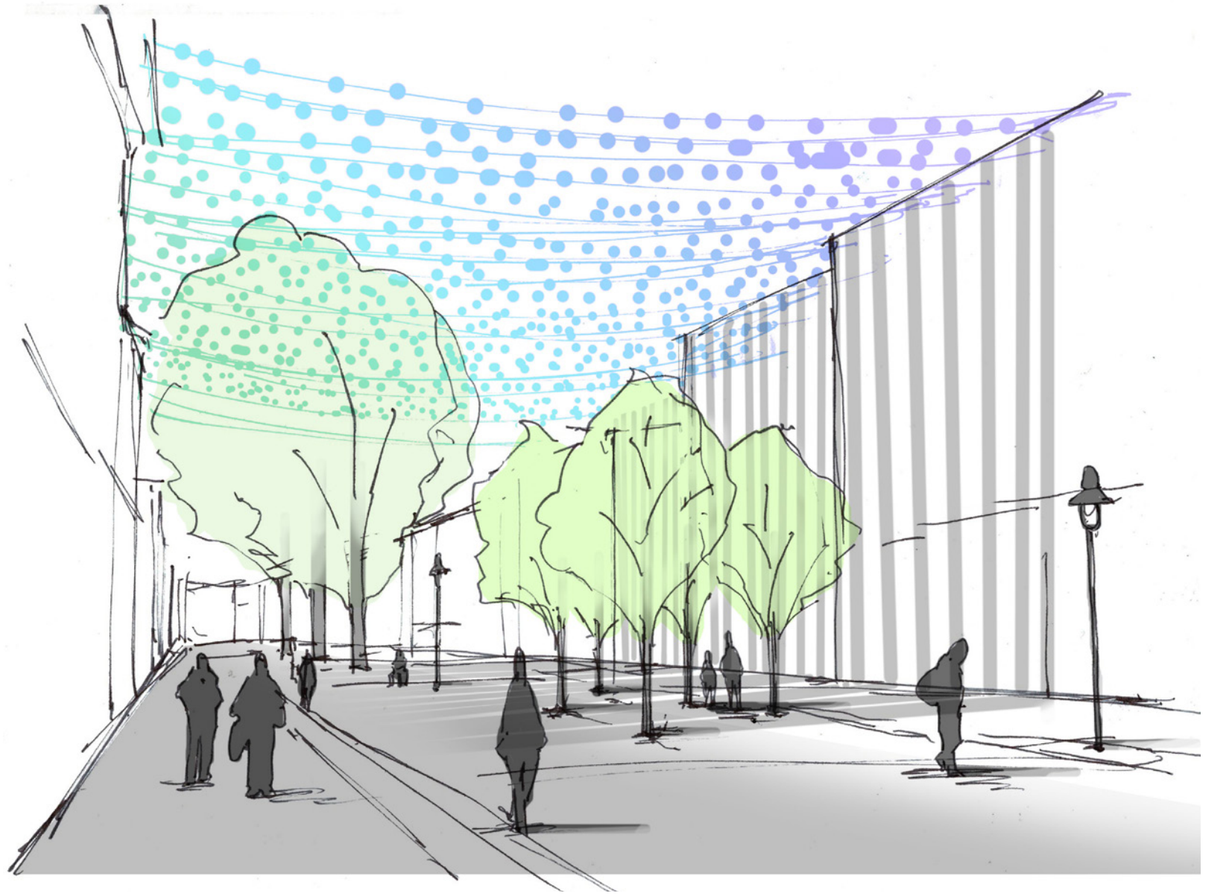
E

Celebrate Replacements | *Tree Replacement Art Installations*

Temporary Art Installations

Removing the existing trees will alter the light and shade in the phased areas until the new trees mature. To enhance this transition, temporary art installations could celebrate the new tree plantings and draw pedestrians to the affected businesses.

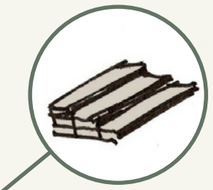
Example
Janet Echelman ,Current (2023)



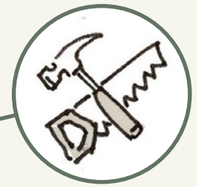
Concept Sketch
Art installations could provide temporary shade and be visually bold attractions

Celebrate Replacements | *Upcycle & Recycle*

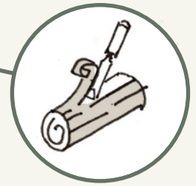
There is an opportunity to upcycle and recycle the wood from tree removals, turning wood waste into a valuable resource for the community. Existing Mall tree sculptures can be reused along other city trails. Environmentally responsible practices can help prevent carbon emissions from decomposition, with the wood being upcycled for lumber, craft wood, creative projects, or recycled into mulch and compost.



Lumber
Construction



Carpentry Wood
Tables, Cabinetry, Etc.



Creative Projects
Sculpture, Woodworking, Etc.

Mulch & Compost

Upcycle
Reusing or re-purposing to create a new product with a different function or improved value.

Recycle
Breaking down to create raw materials to make new products.

Project Cost Estimate

The project costs are outlined by phase and include general requirements, overhead and profit, design contingency, and escalation. For detailed cost breakdowns, refer to the included appendix document by Downey & Scott, LLC, which includes a complete cost estimate report.

A. Phase 1 Cost Estimate

- *Grove replacement alternatives*
- *Metal grate modification & brick grate Replacement*
- *Fountain access improvements*
- *Side street & unique conditions*
- *Phase 1 tree replacements*
- *Phase 1 summary*

B. Cost Estimates Summary

- *Tree replacement costs for phases 2-4*
- *Total porject cost for phases 1-4*

A

Phase 1 Cost Estimate | *Grove Replacement Cost Alternatives*

A1

Planter Replacement
(200 cu ft/tree)

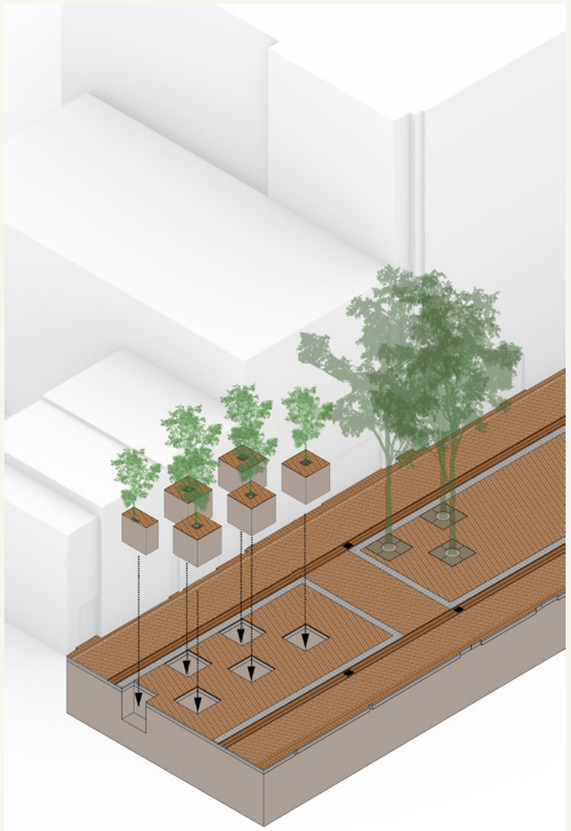
8’x8’ soil box + trees replaced

Benefits

- Minimal disturbance of existing soils, paving

Constraints

- Limited lifespan / less soil (~50-60 years)
- Slower growth rate
- Future utility conflicts



Average 5 Tree Grove Cost:
$ 332K (within 5 years)

A2

Soil & Slab Replacement
(800 cu ft/tree)

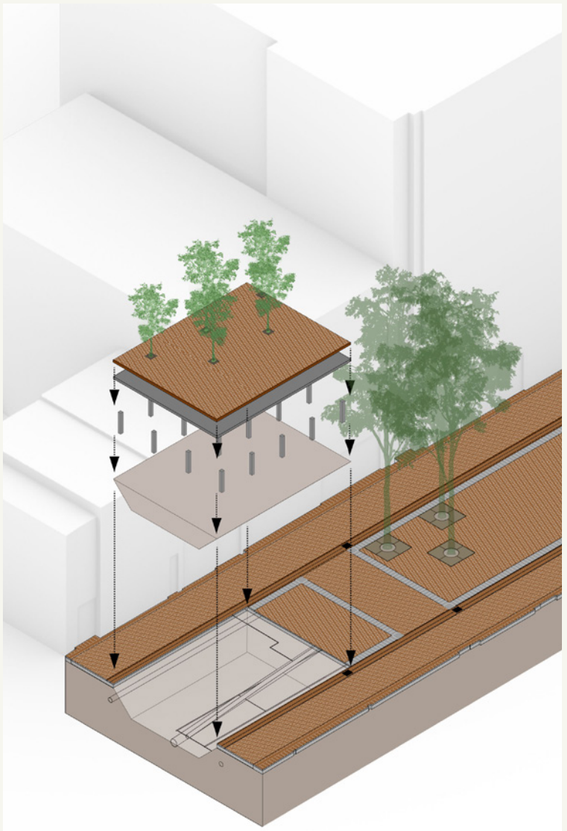
Grove soil, concrete slab
+ trees replaced

Benefits

- Longer tree lifespan / greater soil volume (80+ years)
- Utility improvements

Constraints

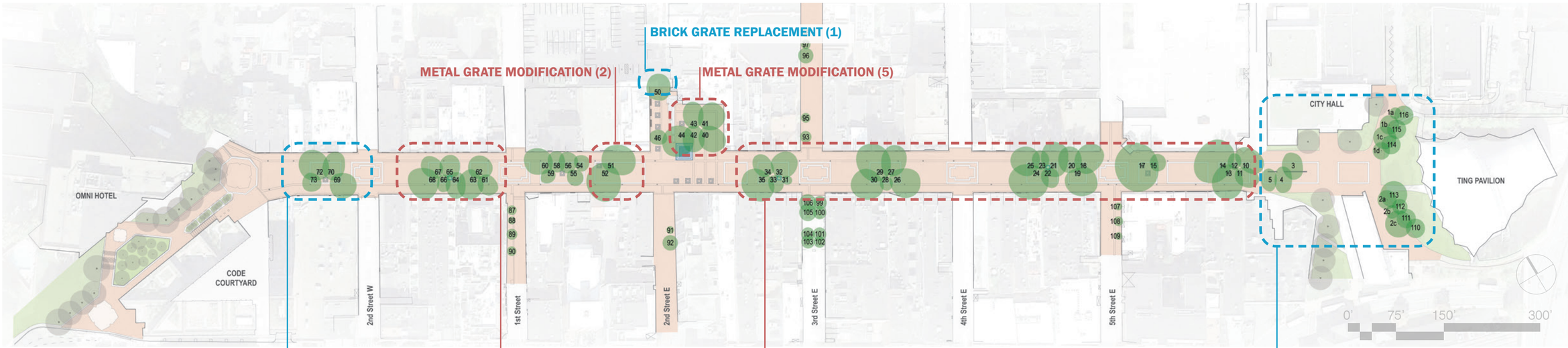
- Longer construction window



Average 5 Tree Grove Cost:
$ 781K (within 5 years)

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Phase 1: Metal Grate Modification & Brick Grate Replacement*



Metal Grate Modification (x40)

SUBTOTAL:	**$238,986**

Brick Grate Replacement (x14)

SUBTOTAL:	**$103,012**

TOTAL:	**$341,998**

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Phase 1: Fountain Access Improvements*

Fountain Grate (x3)

TOTAL: $	**98,642**

Central Place Fountain Grate

TOTAL: $	**151,104**

TOTAL:	**$249,746**

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Phase 1: 3rd & 5th Street*

3RD STREET: GRATE REMOVAL (x6)
TREE REPLACEMENT (x1)

3rd St: Grate Removal & Tree Replacement

TOTAL: $33,239

5TH STREET: GRATE REMOVAL (x3)
TREE REPLACEMENT (x3)

5th St: Grate Removal & Tree Replacement

TOTAL: $31,557

TOTAL: $64,796

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Phase 1: Tree Replacement*

A1 Planter Replacement

TOTAL: $1,265,607

A2 Slab & Soil Replacement

TOTAL: $1,771,536

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Cost Phase 1 Summary*

A. Replace Central Place & Nearby Trees (within 5 years, 2030)

- *A1: Planter Replacement* — $1,265,600
- *A2: Soil & Slab Replacement* — $1,771,500

B. Grates & Paving Repair at Base of Trees

- *Metal Grate Modification* — $ 239,000
- *Brick Grate Replacement* — $ 103,000

C. Unique Condition Improvements

- *3rd Street Improvements* — $ 33,000
- *5th Street Improvement* — $ 32,000
- *Hidden Grate Removal* — $ 14,000

D. Fountain Improvements

- *Fountain Grate (x3)* — $ 99,000
- *Central Place Fountain Grate* — $ 151,000

E. Tree Maintenance

- *Recommended Existing Tree Care* — $ 241,000

F. Art Installation — $ 25,000

*Opinion of Probable Construction Costs excludes ~10% design fees and soft costs

Phase 1 TOTAL: **Opt 1** **$ 2.02M**
Opt 2 **$ 2.68M**

B

Cost Estimate | *Phase 2: Tree Replacement*

Option 1
Phase 2: Planter Replacement

TOTAL: $1,256,996

Option 2
Phase 2: Slab & Soil Replacement

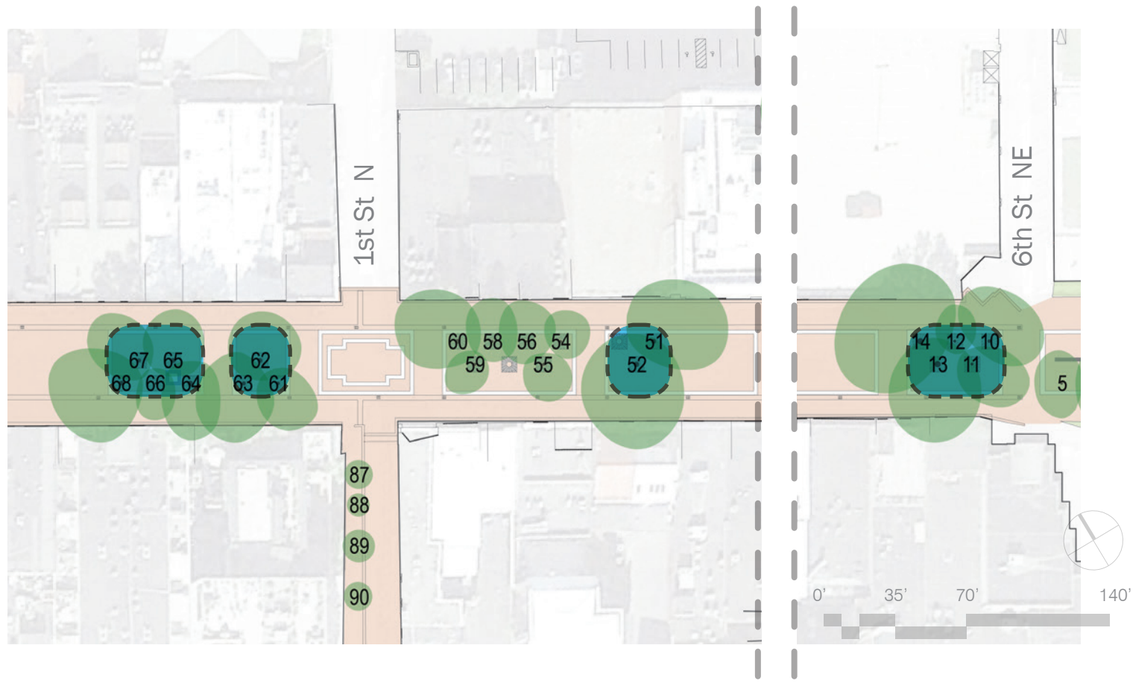
TOTAL: $2,384,834

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Phase 3: Tree Replacement*

Option 1
Phase 3: Planter Replacement

TOTAL: $1,401,819



Option 2
Phase 3: Slab & Soil Replacement

TOTAL: $2,532,047

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Phase 4: Tree Replacement*

Option 1
Phase 4: Planter Replacement

TOTAL: $1,496,858

Option 2
Phase 4: Slab & Soil Replacement

TOTAL: $2,778,712

*Total cost are SD estimates based on current understanding of scope

Cost Estimate | *Phase 2-4 Summary*

Phase 2

- *Option 1: Planter Replacement* ____ $ 1.26M
- *Option 2: Soil & Slab Replacement* ____ $ 2.38M

Phase 3

- *Option 1: Planter Replacement* ____ $ 1.40M
- *Option 2: Soil & Slab Replacement* ____ $ 2.53M

Phase 4

- *Option 1: Planter Replacement* ____ $ 1.50M
- *Option 2: Soil & Slab Replacement* ____ $ 2.78M

Phases 2 - 4 TOTAL: **Opt 1** **$ 4.16M**
Opt 2 **$ 7.69M**

Cost Estimate Summary

Option1: Planter Replacement

PHASE 1	TOTAL:	$2,176,780
PHASE 2	TOTAL:	$1,256,996
PHASE 3	TOTAL:	$1,401,819
PHASE 4	TOTAL:	$1,496,858

PROJECT TOTAL: $6,332,453

Option 2: Slab & Soil Replacement

PHASE 1	TOTAL:	$2,682,709
PHASE 2	TOTAL:	$2,384,834
PHASE 3	TOTAL:	$2,532,047
PHASE 4	TOTAL:	$2,778,712

PROJECT TOTAL: $10,378,302

Charlottesville Downtown Mall

TREE MANAGEMENT PLAN

2024

WOLF JOSEY
landscape architects