



Charlottesville **DOWNTOWN MALL** TREE MANAGEMENT PLAN

CITY COUNCIL KICK-OFF MEETING

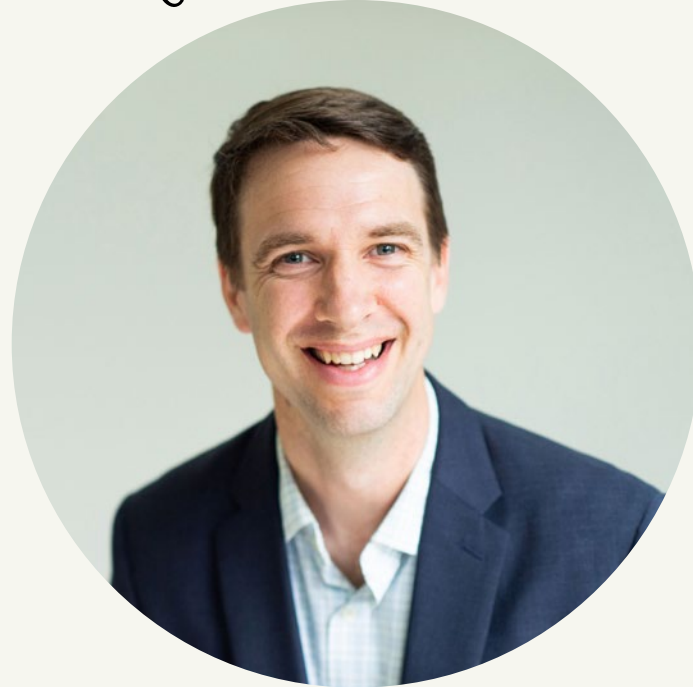
JANUARY 16, 2024



WOLF JOSEY

landscape
architects

CORE PROJECT STAFF



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Project Designer



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Designer

Experience

Urban and Institutional Design & Planning



**UVA Lawn & Rotunda
Tree Framework Plans**
*University of Virginia
Charlottesville, VA*



**Duke Abele Quad
Tree + Soil Framework Plan**
*Duke University
Durham, NC*

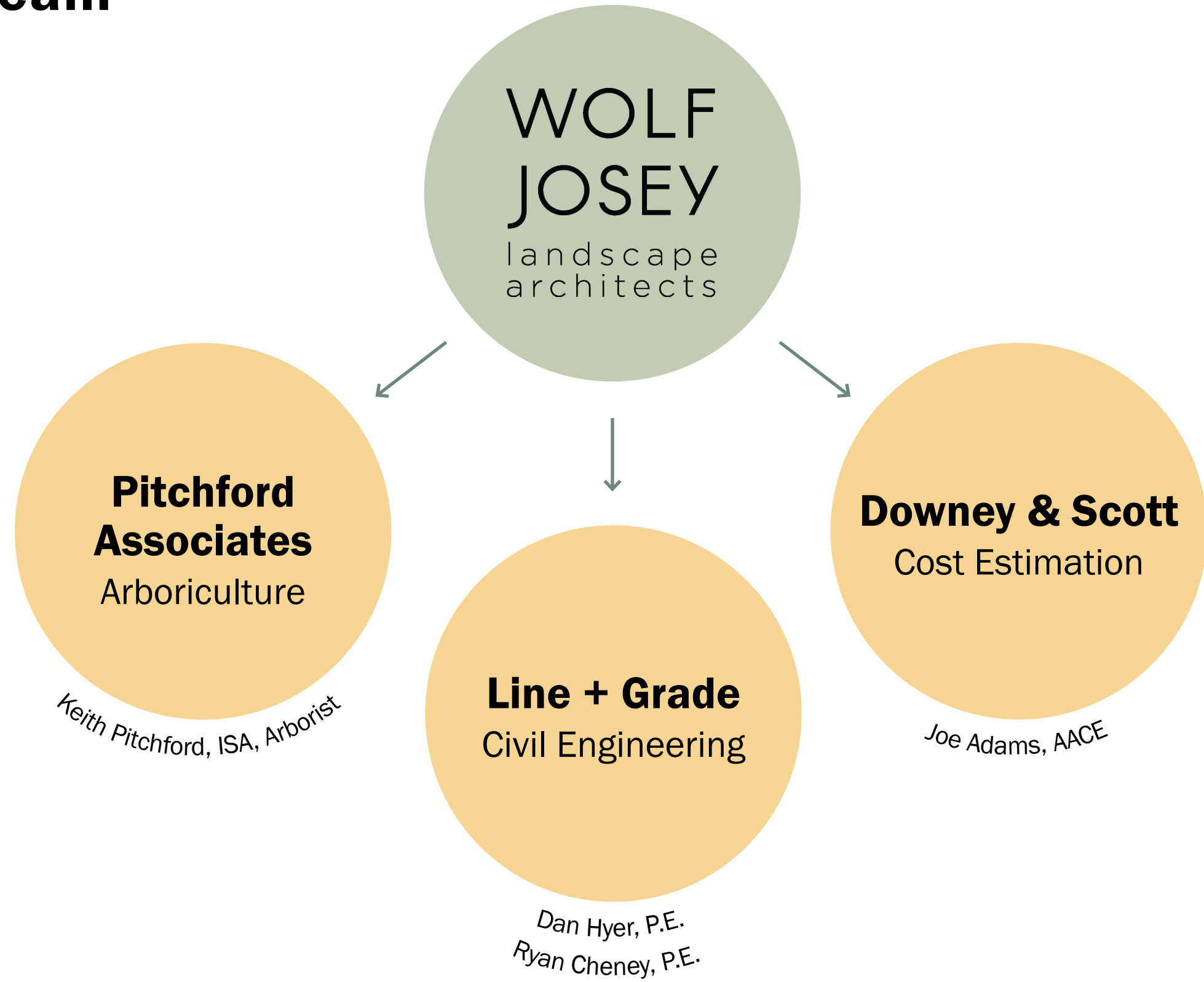


**Smithsonian Gardens
Soils Management Plan**
Washington, D.C



The District Wharf
Washington, D.C.

Project Team



Project Scope | *Limits of Work*



OMNI
HOTEL

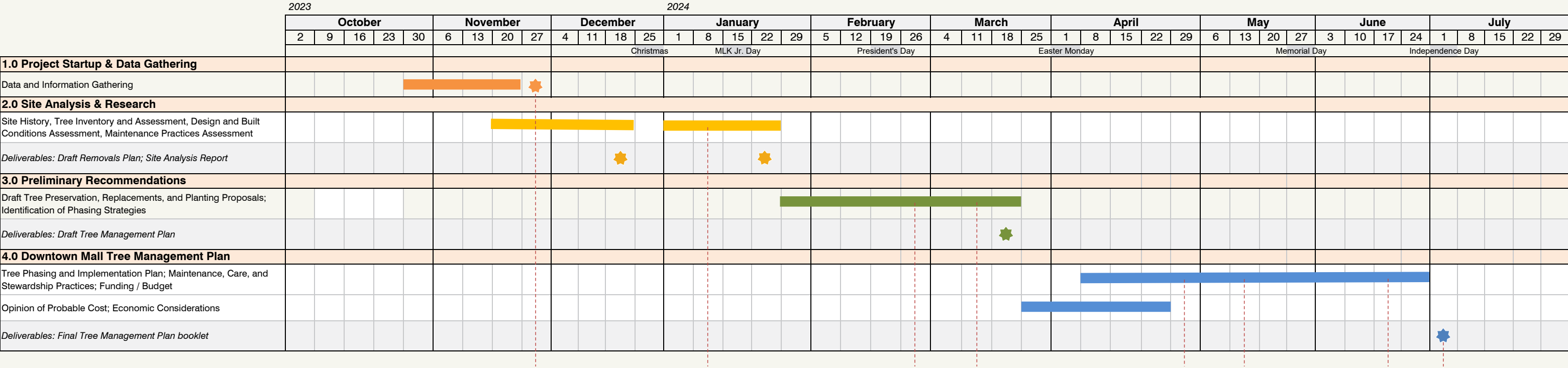
CITY HALL

TING PAVILION

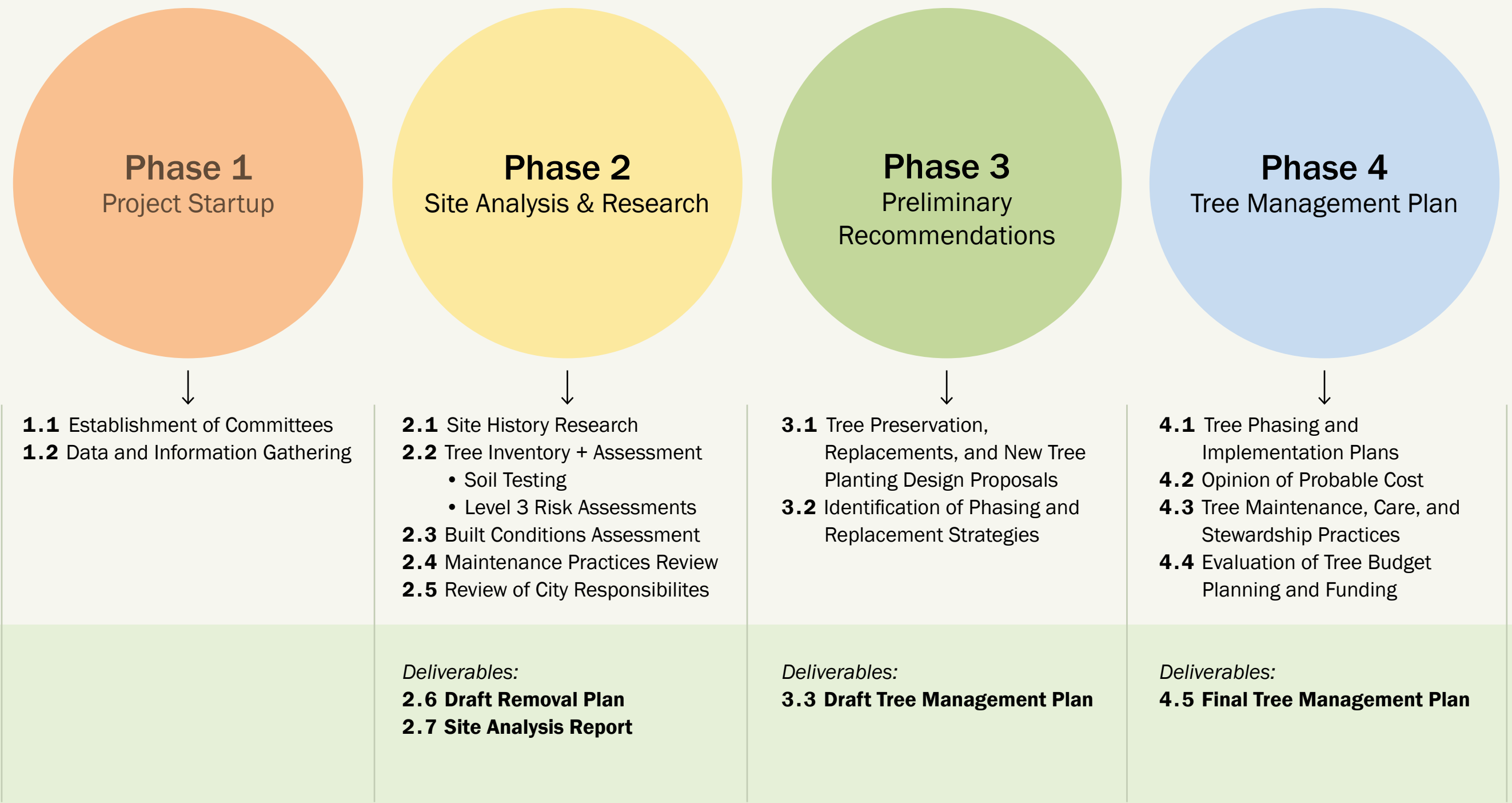
WATER STREET
PARKING GARAGE

Schedule

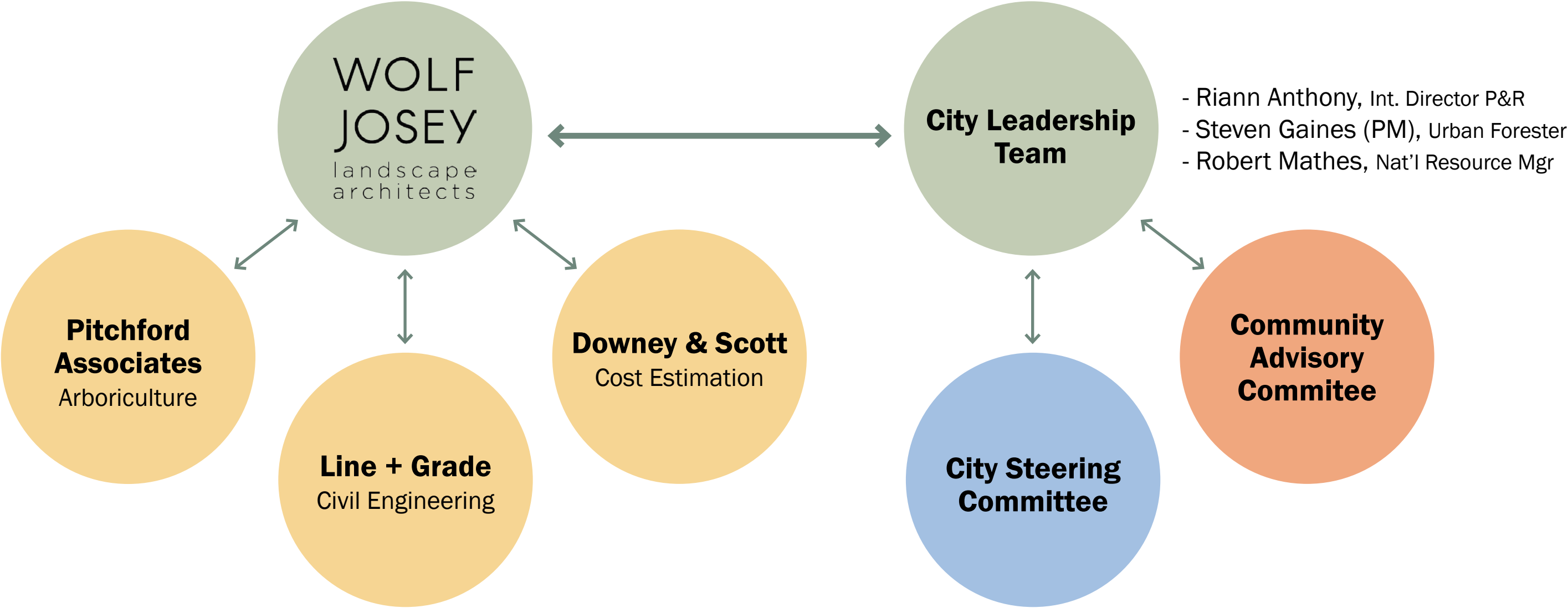
WE ARE HERE!



Process + Approach | Summary



Consensus Building



Consensus Building | *Establishment of Committees*



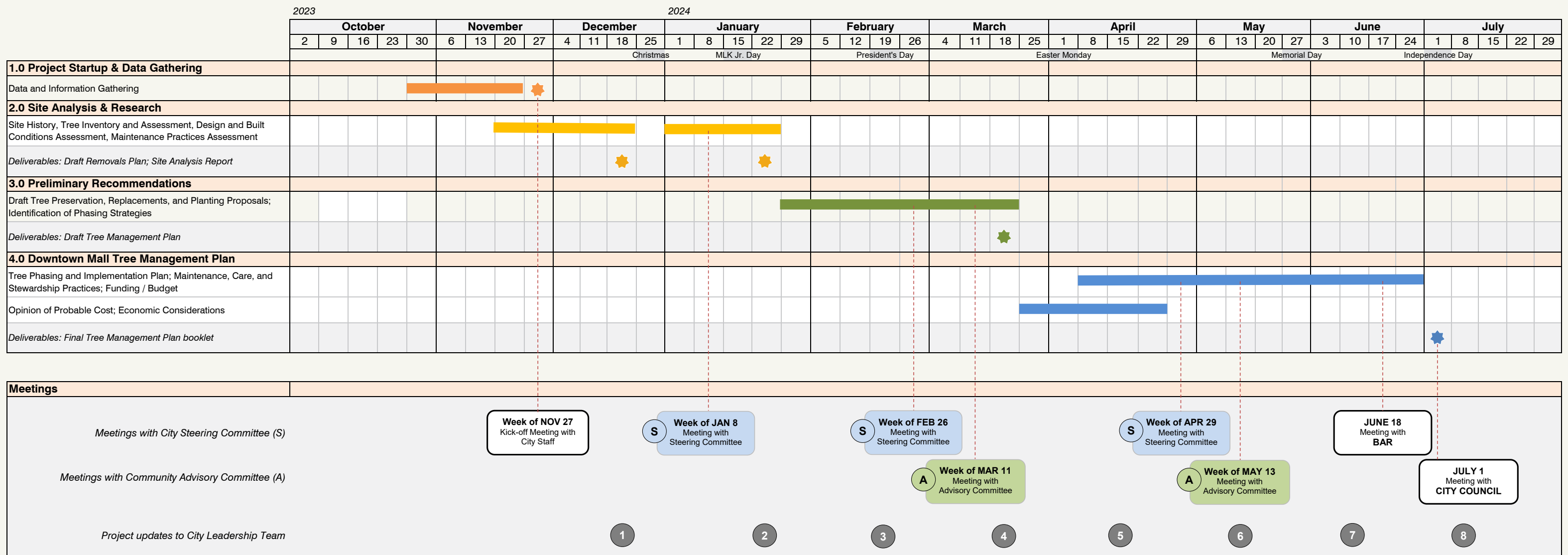
- Parks and Recreation
- Public Works
- Neighborhood Development Services (NDS)
- Economic Development
- Public Utilities



- City Council
- Tree Commission
- Board of Architectural Review (BAR)
- Historic Resources Committee
- Friends of Charlottesville Downtown
- UVA Architecture School

Meetings Schedule (Draft)

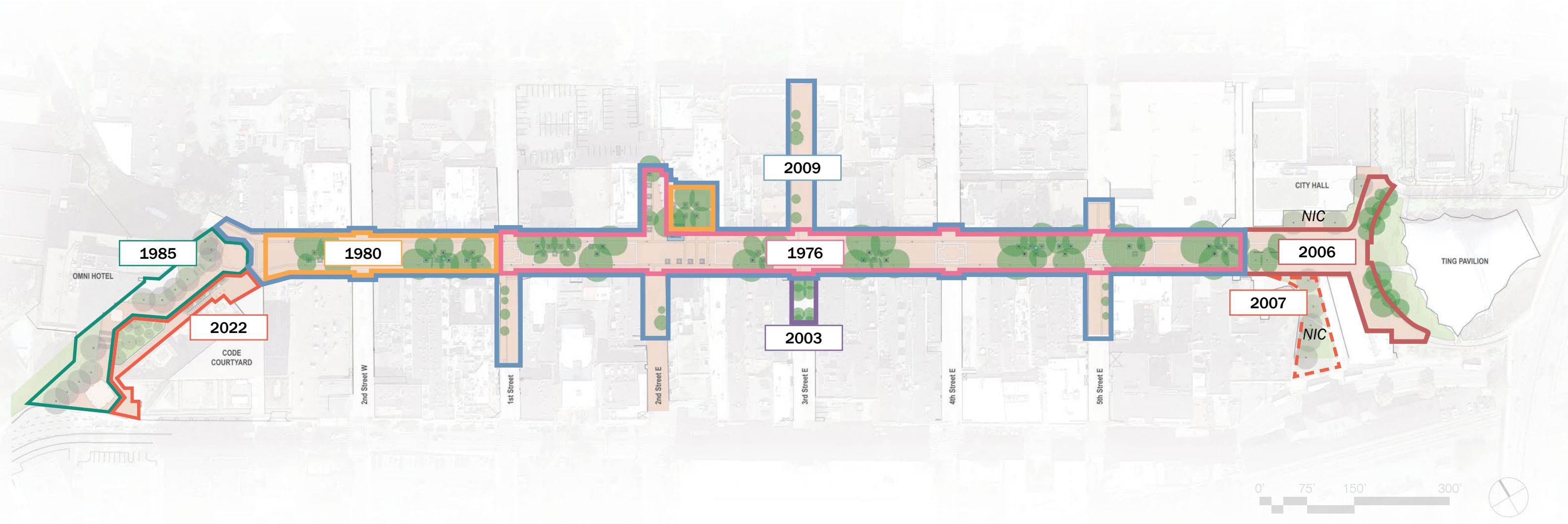
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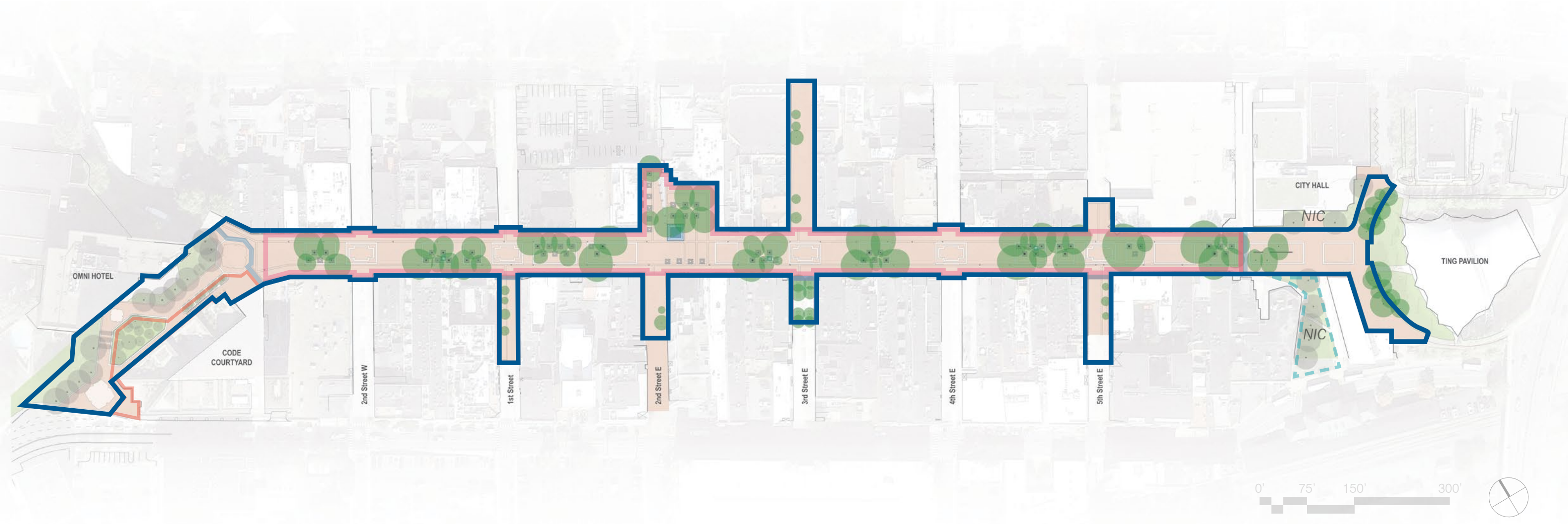


TREE INVENTORY + ASSESSMENT

Site Plan | *Historic Tree Planting Context*

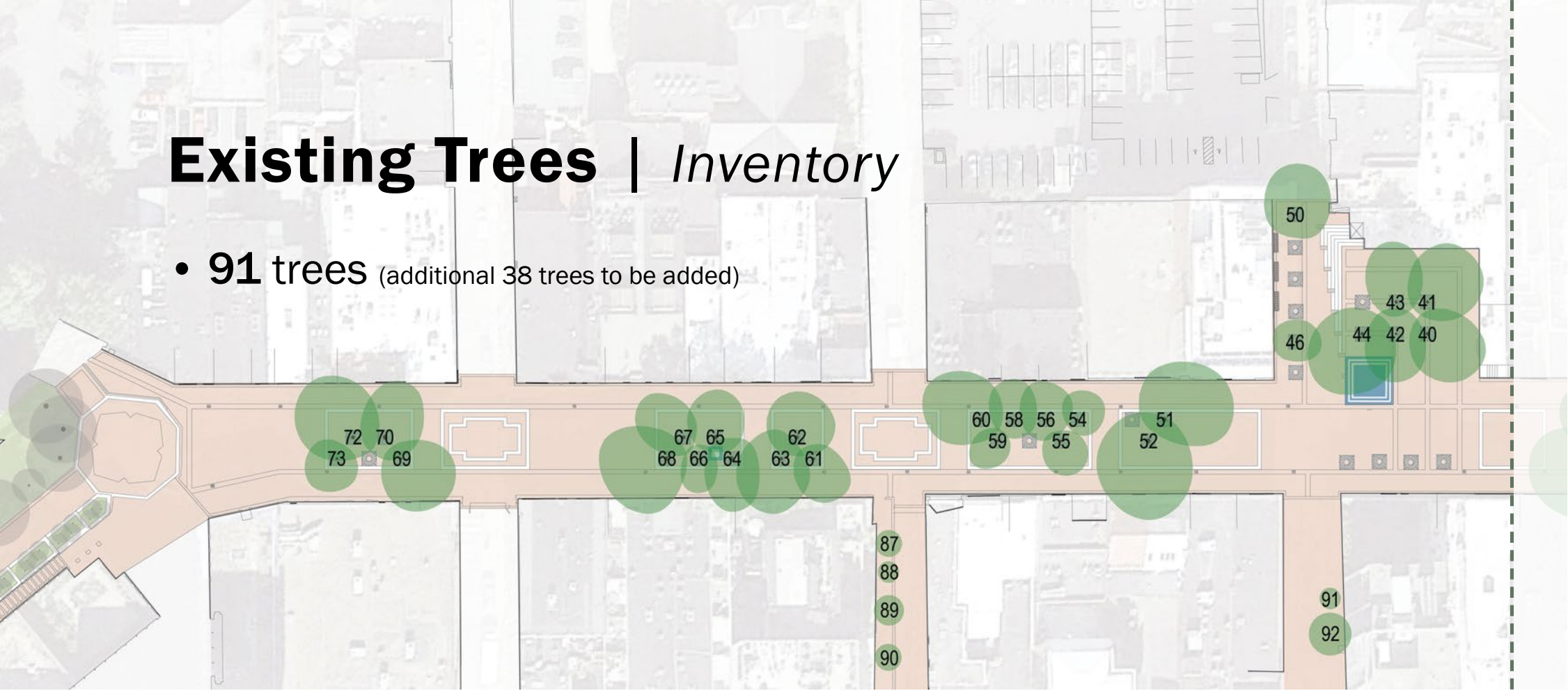


Site Plan | Study Area



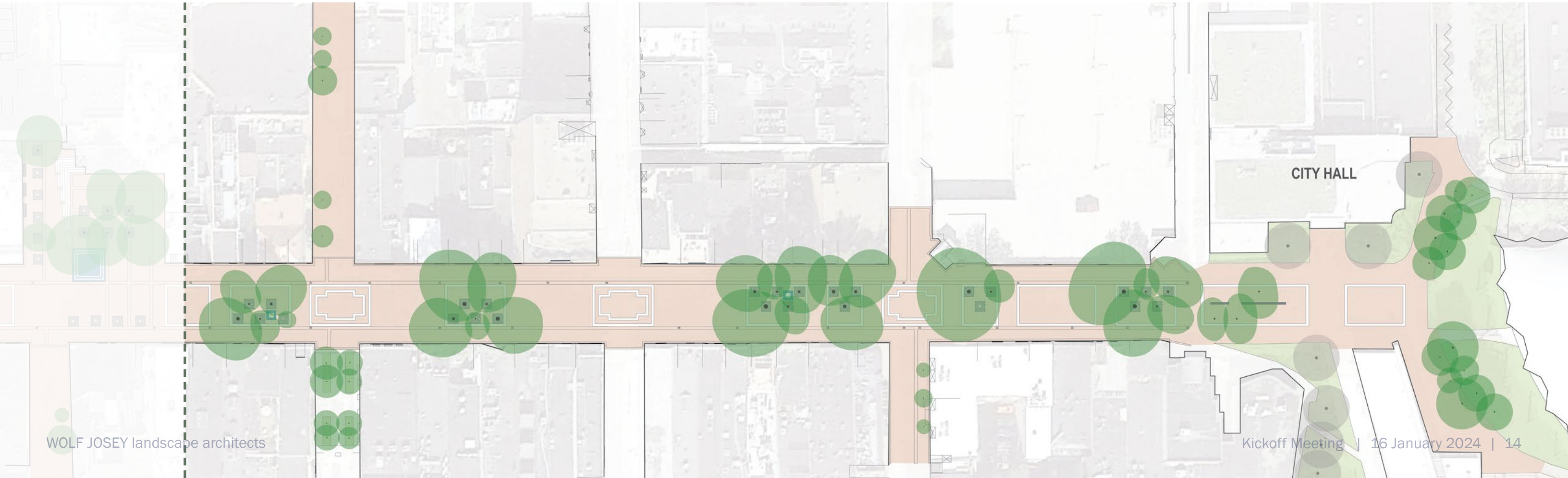
Existing Trees | *Inventory*

• **91 trees** (additional 38 trees to be added)



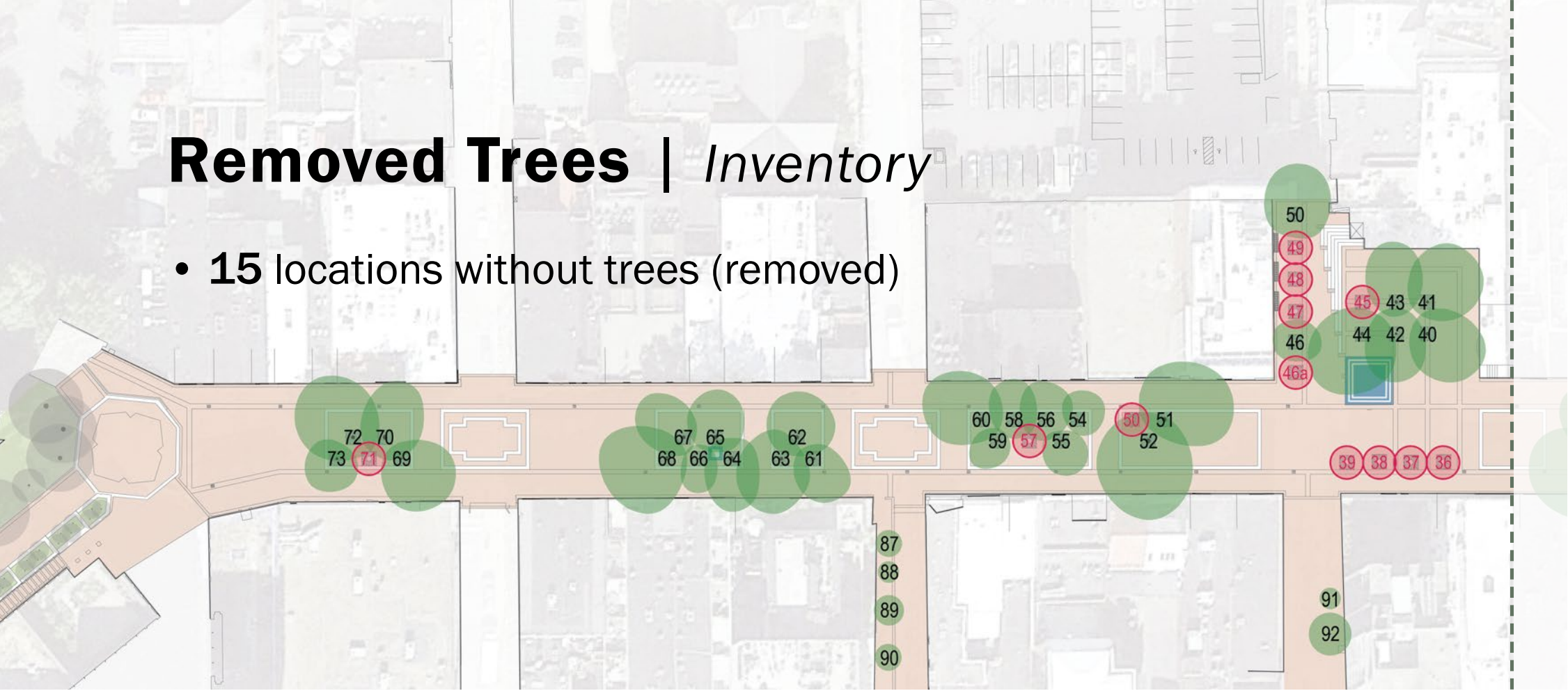
Existing trees Adjacent trees not in study area

0' 37.5' 75' 150'

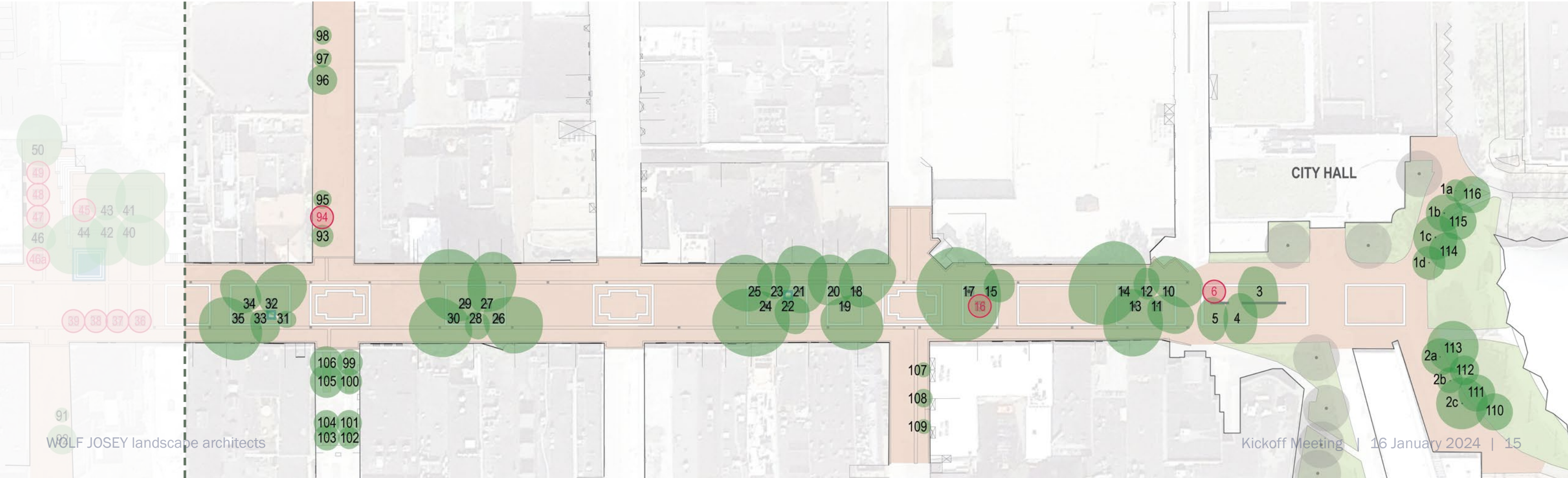


Removed Trees | Inventory

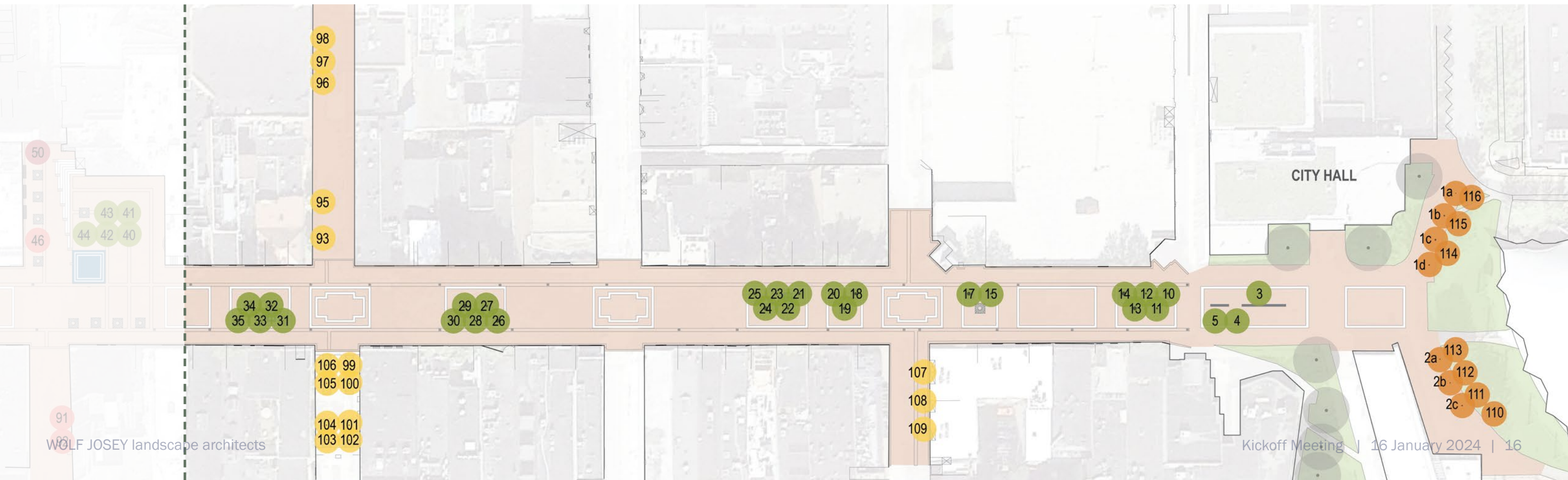
- 15 locations without trees (removed)



Existing trees No tree / removed



Existing Trees | Species Types



Tree Assessment | *In-Field Data Collection*



Physical Traits

- Trunk diameter at 4.5 feet (DBH)
- Trunk flare diameter at grate opening
- Crown size
- % of Live Canopy
- Tree Height
- Structure
- Canopy Quadrants
- Distance from Tree Grate to Soil
- Impacts to trunk flare
- Deadwood
- Building Interference
- Required Pruning
- Tree Damage
- Decay
- Risk Assessment

Tree Assessment | *Sample of Spreadsheet*

Assessment conducted 10/18/23, 10/23/23, 11/3/23

Tree #		Common name	Scientific name	Year Planted	DBH (in.)	DBH (in.) 2015	DBH growth 2023-2015	DBH (in.) 1989	DBH growth 2015-1989	DBH (in.) 1976	DBH growth 2023-1976	Growth Rate (in./yr)	DRF (in.) - at grates	Crown (ft.)	Tree Height (ft.)	% Live Canopy	Structure	Canopy Quadrants	Grate to Ground (in.)	Grate to Ground (in.) 2015	Grate to Ground diff. 2023 - 2015	Roots / Flare Impacts (Y/N)	Deadwood	Deadwood Quadrant	Building Interference (Y/N)	Pruning Req'd (Y/N)	Tree Damage (Y/N)	Decay (Y/N)	Threat / Risk (Y/N)	Projected Lifespan	Overall Condition 2015	Overall Condition	Notes	
1	a	Shumard oak	Quercus shumardii	2006	6.9	5.1	1.8	NA	NA	NA	NA	0.23	10.8	18		1	1	4	10.5	NA	NA	N	<2"		N	N	N	N	N	N	NA	2	possible bacterial leaf scorch, minor branch tip dieback	
1	b	Shumard oak	Quercus shumardii	2006	13.3	10.9	2.4	NA	NA	NA	NA	0.30	20.5	30		1	1	4	7	NA	NA	N			N	N	N	N	N	N	NA	1	oak lecanium scale, no grate	
1	c	Shumard oak	Quercus shumardii	2006	15.6	9.3	6.3	NA	NA	NA	NA	0.79	20.8	36		1	1	4	0	NA	NA	N			N	N	N	N	N	N	NA	1	no grate	
1	d	Shumard oak	Quercus shumardii	2006	12.5	7.6	4.9	NA	NA	NA	NA	0.61	17	27	43.5	1	2	4	0	NA	NA	N			N	N	N	N	N	N	NA	1	co-dominant leader, canopy heavy towards open side, no grate	
2	a	Shumard oak	Quercus shumardii	2007	9.8	7.2	2.6	NA	NA	NA	NA	0.33	11.7	30	48.0	1	1	4	15	NA	NA	N	<2"	SW	N	N	N	N	N	N	NA	1	minor deadwood, possible oak lecanium scale	
2	b	Shumard oak	Quercus shumardii	2007	9	7.1	1.9	NA	NA	NA	NA	0.24	11	21		2	2	4	12	NA	NA	N	2"-4"	SE	N	Y	N	N	N	N	NA	2	co-dominant leader	
2	c	Shumard oak	Quercus shumardii	2007	14.3	9.4	4.9	NA	NA	NA	NA	0.61	18.4	42		1	1	4	9	NA	NA	Y			N	N	N	N	N	N	NA	1	lean towards south, grate tight to trunk	
3		Willow oak	Quercus phellos	2006	19.6	11.6	8	NA	NA	NA	NA	1.00	30.3	42	45.8	1	1	4	0	NA	NA	Y			N	N	N	N	N	N	NA	1	minor deadwood, heaving brick pavers, no grate	
4		Willow oak	Quercus phellos	2006	17.5	11.6	5.9	NA	NA	NA	NA	0.74	24.2	42		1	1	4	0	NA	NA	Y			N	N	N	N	N	N	NA	1	grate tight to root flare, 12" tip growth rate	
5		Willow oak	Quercus phellos	2006	16.4	11.9	4.5	NA	NA	NA	NA	0.56	26.5	36		1	1	4	0	NA	NA	Y			N	N	N	N	N	N	NA	1	grate tight to root flare, heaving brick pavers	
6		No tree																															no tree in 2015	
10		Willow oak	Quercus phellos	1976	23.3	22.2	1.1	13.7	0.3	4.8	18.5	0.39	31.8	57	55.7	1	2	2	8	10	2	Y			N	N	N	N	N	N	3	2	root flare growing into grate structure, topped central leader	
11		Willow oak	Quercus phellos	1976	19.5	19.1	0.4	13	0.2	4.8	14.7	0.31	24.5	39		2	1	1	13.5	12	-1.5	N			N	N	N	N	N	N	3	2	minor deadwood	
12		Willow oak	Quercus phellos	1976	18.1	17.8	0.3	12.2	0.2	4.8	13.3	0.28	22.8	27		2	2	1	9	9	0	N			N	N	N	N	N	N	4	2	open cavity, small elec. conduit in trunk is partially grown over	
13		Willow oak	Quercus phellos	1976	38.8	35.6	3.2	15.7	0.7	4.8	34	0.72	47.6	54		1	1	4	11	11	0	Y			N	N	N	N	N	N	1	1	root flare growing into grate	
14		Willow oak	Quercus phellos	1976	36.5	33	3.5	16.2	0.6	4.8	31.7	0.67	56.4	81	102.8	1	1	4	3.5	9	5.5	Y			N	N	N	N	N	N	3	1		
15		Willow oak	Quercus phellos	1976	19.4	18.5	0.9	12.7	0.2	4.8	14.6	0.31	24.8	27		2	2	1	10	16	6	N	>4"	NE	N	Y	N	N	N	N	4	2	hypoxylon canker, minor branch tip dieback	
16		No tree				11.2		14.7																								3		tree removed since 2015
17		Willow oak	Quercus phellos	1976	34.4	31.7	2.7	16.2	0.6	4.8	29.6	0.63	45.3	84	94.6	2	1	4	10	13	3	Y	>4"	NW	N	Y	N	Y	Y	Y	1	3	root flare growing into grate, flush cuts pruning, quick internal growth bark ridge	
18		Willow oak	Quercus phellos	1976	27.5	25.6	1.9	13.7	0.4	4.8	22.7	0.48	38.7	51	94.0	1	1	2	10	15	5	Y			N	N	N	N	N	N	3	2	root flare growing into grate	
19		Willow oak	Quercus phellos	1976	32.7	30.5	2.2	16.5	0.5	4.8	27.9	0.59	47	54		2	1	2	5	4	-1	Y	>4"	S	Y	Y	N	N	Y	Y	3	3	hypoxylon canker, root flare growing into grate	
20		Willow oak	Quercus phellos	1976	30.1	28.5	1.6	15.5	0.5	4.8	25.3	0.54	37.2	42		1	1	3	4.5	12	7.5	Y			Y	Y	N	N	Y	Y	1	1	canker at base, possible insect damage at 6' high, pruning clearance from bldg needed	
21		Willow oak	Quercus phellos	1976	25.1	24.5	0.6	13.7	0.4	4.8	20.3	0.43	33.3	63		1	1	3	8	12	4	N			N	N	N	N	N	N	1	1	good adventitious sprouting	
22		Willow oak	Quercus phellos	1976	23.4	21	2.4	13	0.3	4.8	18.6	0.40	30.5	33		1	1	1	12	18	6	N			N	N	N	N	N	N	3	1	root flare growing into grate	
23		Willow oak	Quercus phellos	1976	22.3	21.7	0.6	12.7	0.3	4.8	17.5	0.37	30.6	30		1	1	1	9.5	13	3.5	N			N	N	N	N	N	N	2	2	minor branch tip dieback, single-sided	
24		Willow oak	Quercus phellos	1976	40.7	38.2	2.5	17.7	0.8	4.8	35.9	0.76	56.4	64	106.5	1	2	4	0	9	9	Y			Y	N	Y	Y	Y	Y	1	2	possible ambrosia beetle, heater wound, co-dominant leader, included bark, callus wood	
25		Willow oak	Quercus phellos	1976	26.6	24.5	2.1	12.5	0.4	4.8	21.8	0.46	36	45		1	1	2	4	10	6	Y			N	N	N	N	N	N	3	1	minor deadwood, slight lean, ~70'-80' tall	
26		Willow oak	Quercus phellos	1976	38.8	35.6	3.2	16.5	0.7	4.8	34	0.72	65	51	107.2	1	1	3	0	9	9	Y			N	N	N	N	N	N	1	1	minor deadwood, girdling by grate frame, quick internal growth bark ridge, pruning clearance from bldg likely	
27		Willow oak	Quercus phellos	1976	22.4	21.2	1.2	12.5	0.3	4.8	17.6	0.37	28.8	51		2	2	2	10	15	5	N	2"-4"	NW	N	Y	N	N	N	N	3	2	minor deadwood	
28		Willow oak	Quercus phellos	1976	15.6	15	0.6	10.2	0.2	4.8	10.8	0.23	20	21		1	1	4	11	12	1	N			N	N	N	N	N	N	3	1	good adventitious sprouting	
29		Willow oak	Quercus phellos	1976	36.7	34.1	2.6	15	0.7	4.8	31.9	0.68	52.6	69		1	1	3	0	9	9	Y			N	N	N	N	N	N	1	1	minor deadwood, root flare growing into grate	
30		Willow oak	Quercus phellos	1976	25.3	24.2	1.1	12	0.5	4.8	20.5	0.44	32.8	54	95.2	1	2	1	9	10	1	N			N	N	N	N	N	N	1	1	prior wounding, co-dominant leader, pruning clearance from bldg needed	
31		Willow oak	Quercus phellos		6.4	4.8	1.6	13.5	-0.3	NA	NA	0.20	7.5	15		1	1	2	13	15	2	N			N	N	N	N	N	N	2	1	young, competition for light, phototropic lean, gall	
32		Willow oak	Quercus phellos	1976	24.3	22.8	1.5	14	0.3	4.8	19.5	0.41	32	45	62.6	1	1	4	7	12	5	N			N	N	N	N	N	N	2	1	minor deadwood; L3 risk assessment candidate	
33		Willow oak	Quercus phellos	1976	19.8	19	0.8	12.7	0.2	4.8	15	0.32	25	24		2	2	2	12	18	6	N			N	N	Y	N	N	N	3	2	heater damage, co-dominant leader	
34		Willow oak	Quercus phellos	1976	18.9	18	0.9	12.2	0.2	4.8	14.1	0.30	25	36		1	1	1	12	18	6	N			N	N	N	N	N	N	3	1	minor deadwood, phototropic lean	
35		Willow oak	Quercus phellos	1976	32	35.2	-3.2	10	0.9	4.8	27.2	0.58	51	57	83.1	1	1	3	8	13	5	Y	>4"	SE	N	Y	N	N	N	N	1	1	minor deadwood, root flare growing into grate, possible phytophthora cankers	
36		No tree				5.4		7																								3		tree removed since 2015
37		No tree				5.1		8.5																								3		tree removed since 2015
38		No tree				5.1		6.7																								3		tree removed since 2015
39		No tree				4.8		6.2																								4		tree removed since 2015

Health Observations | Overview



Excellent to Good



Fair



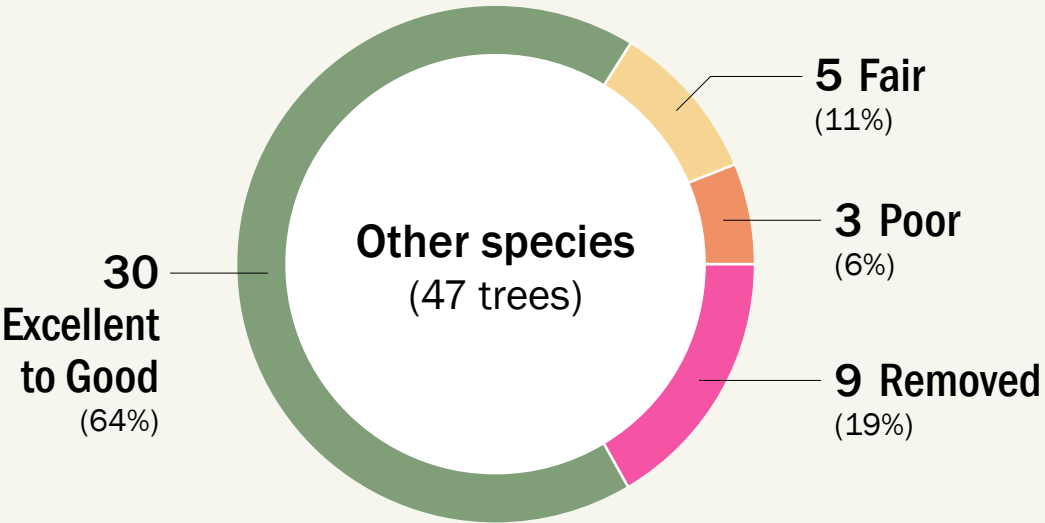
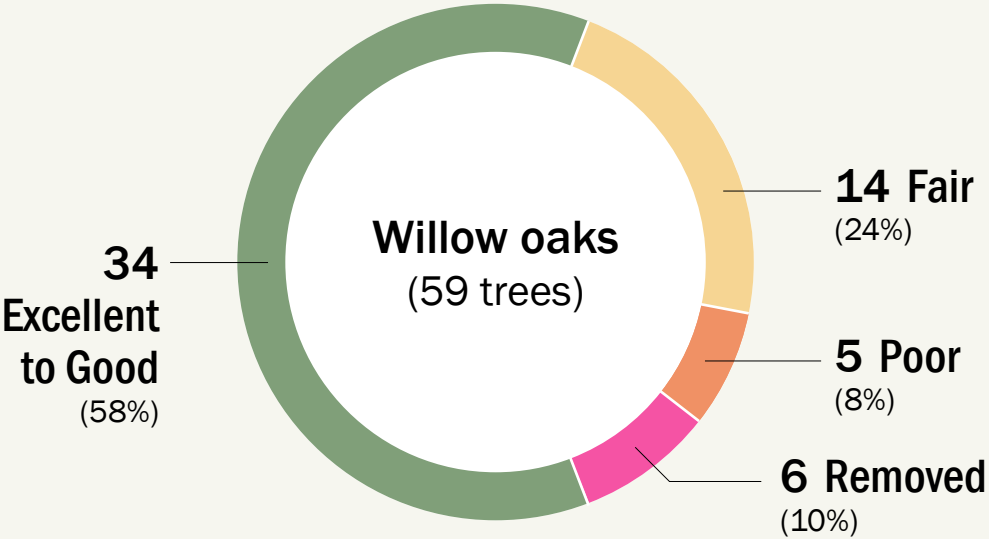
Poor

Typical Conditions

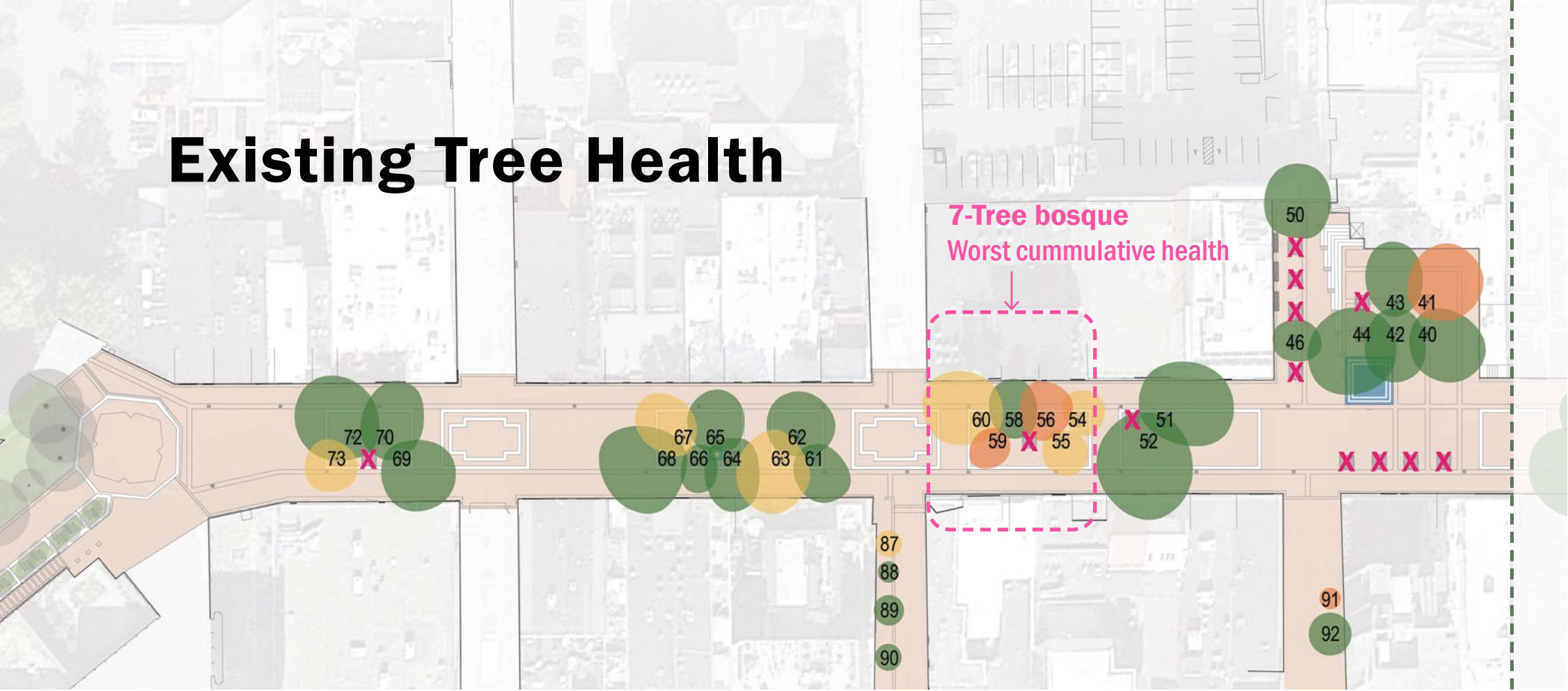
- 100% live canopy
- Strong to average annual growth
- Overall healthy condition

- 75% - 100% live canopy
- Average annual growth
- Some branch dieback and girdled roots

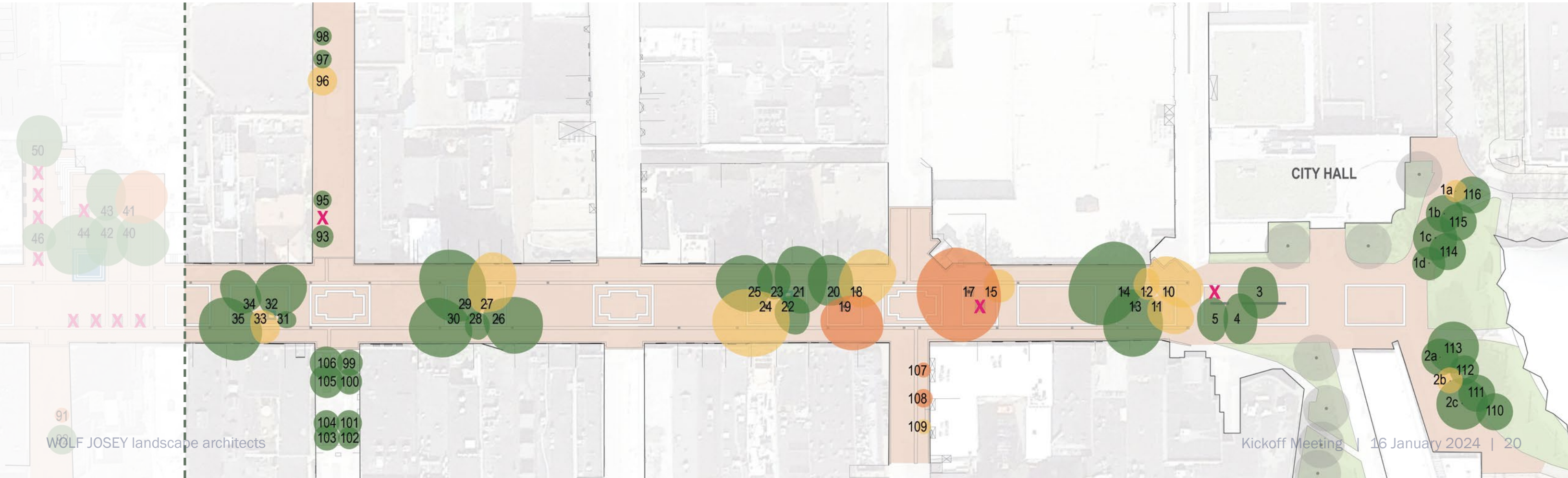
- 50% - 75% live canopy
- Low annual growth
- Structural defects
- Heavy branch dieback or missing central leader



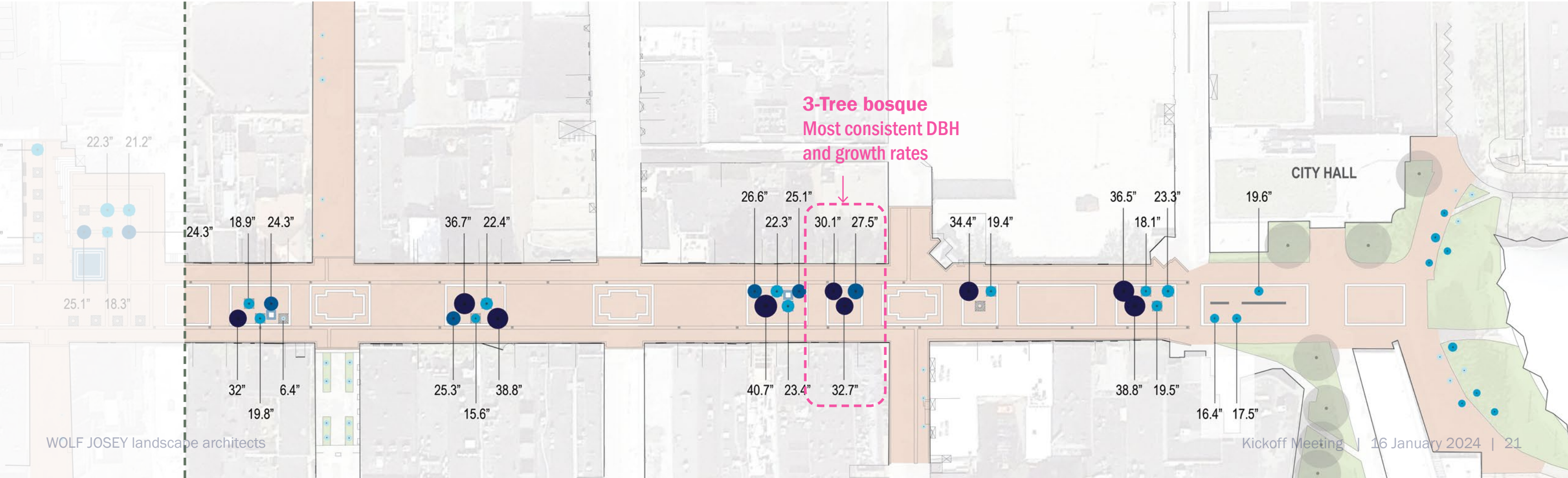
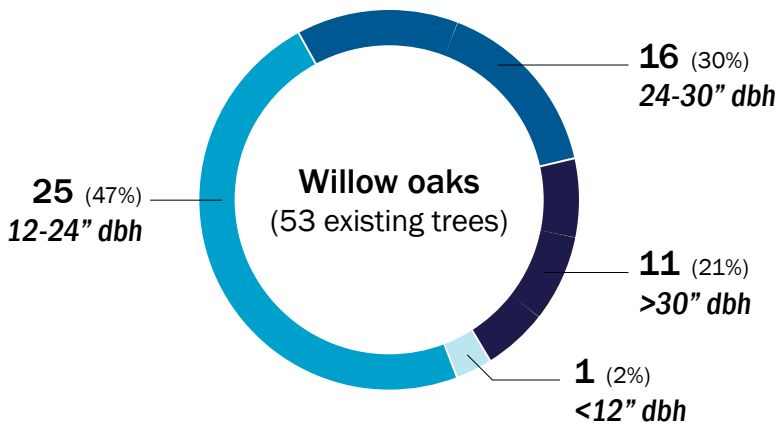
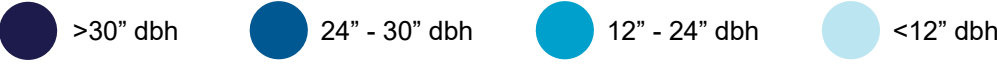
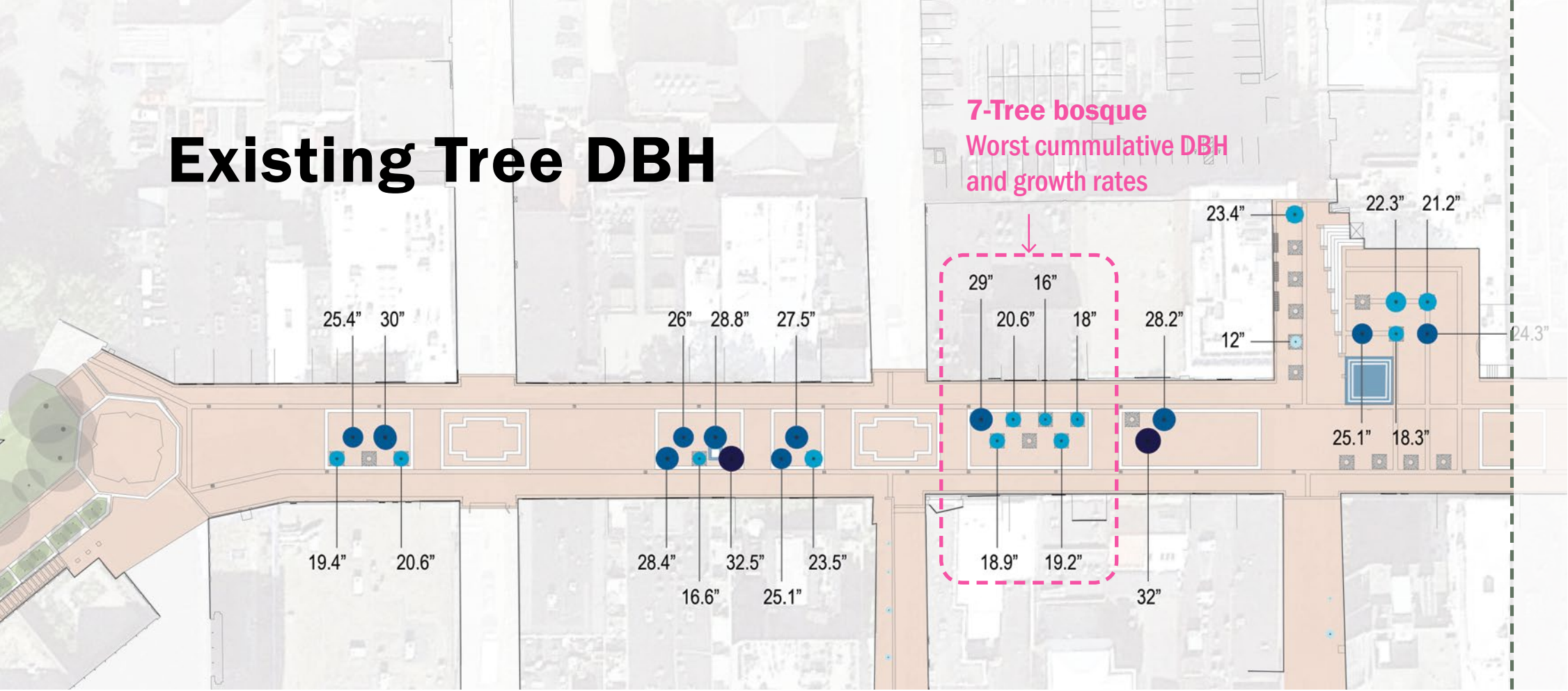
Existing Tree Health



● Excellent to Good ● Fair ● Poor X No Tree / Removed



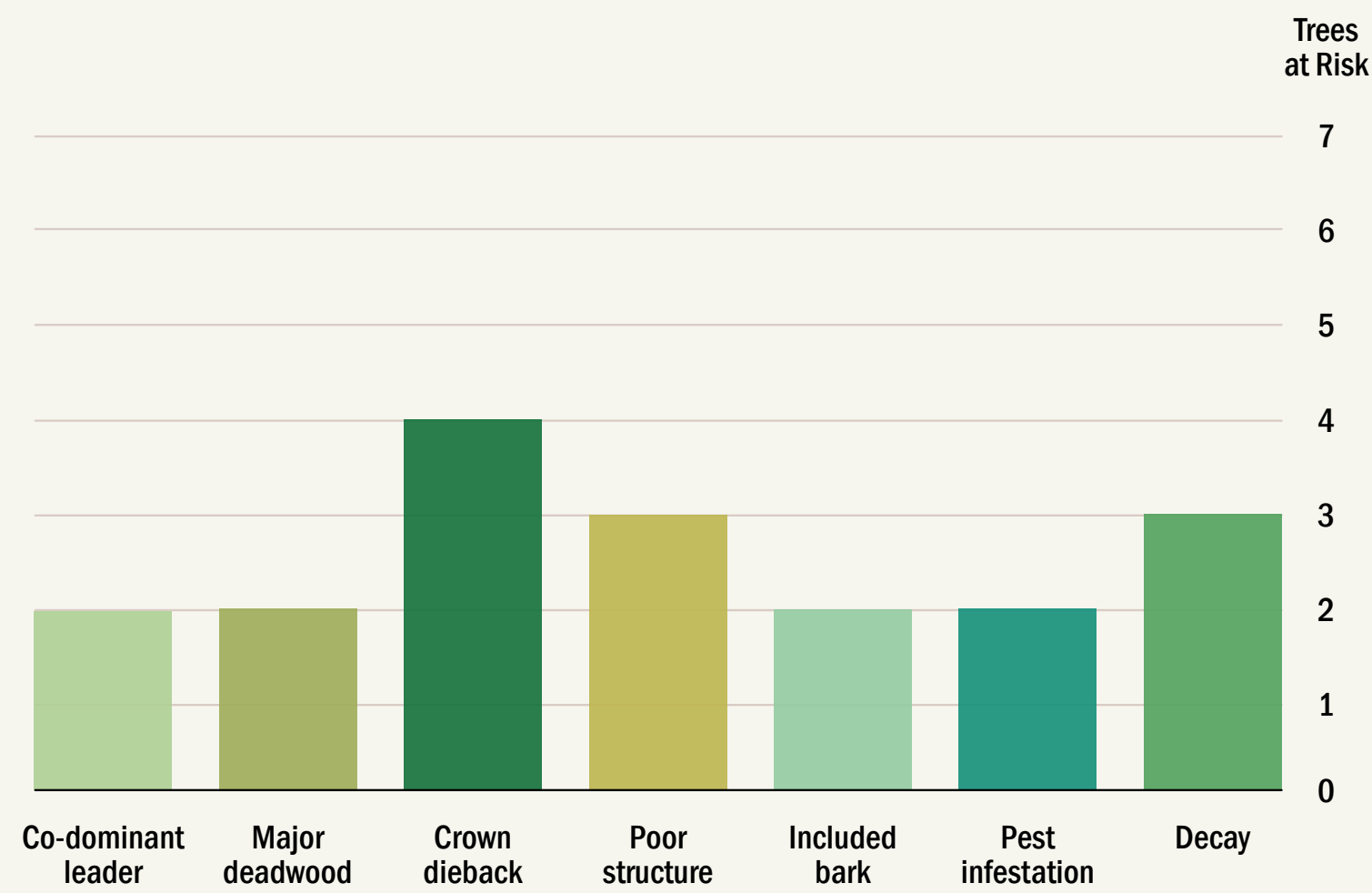
Existing Tree DBH



Trees Presenting Risk | Overview

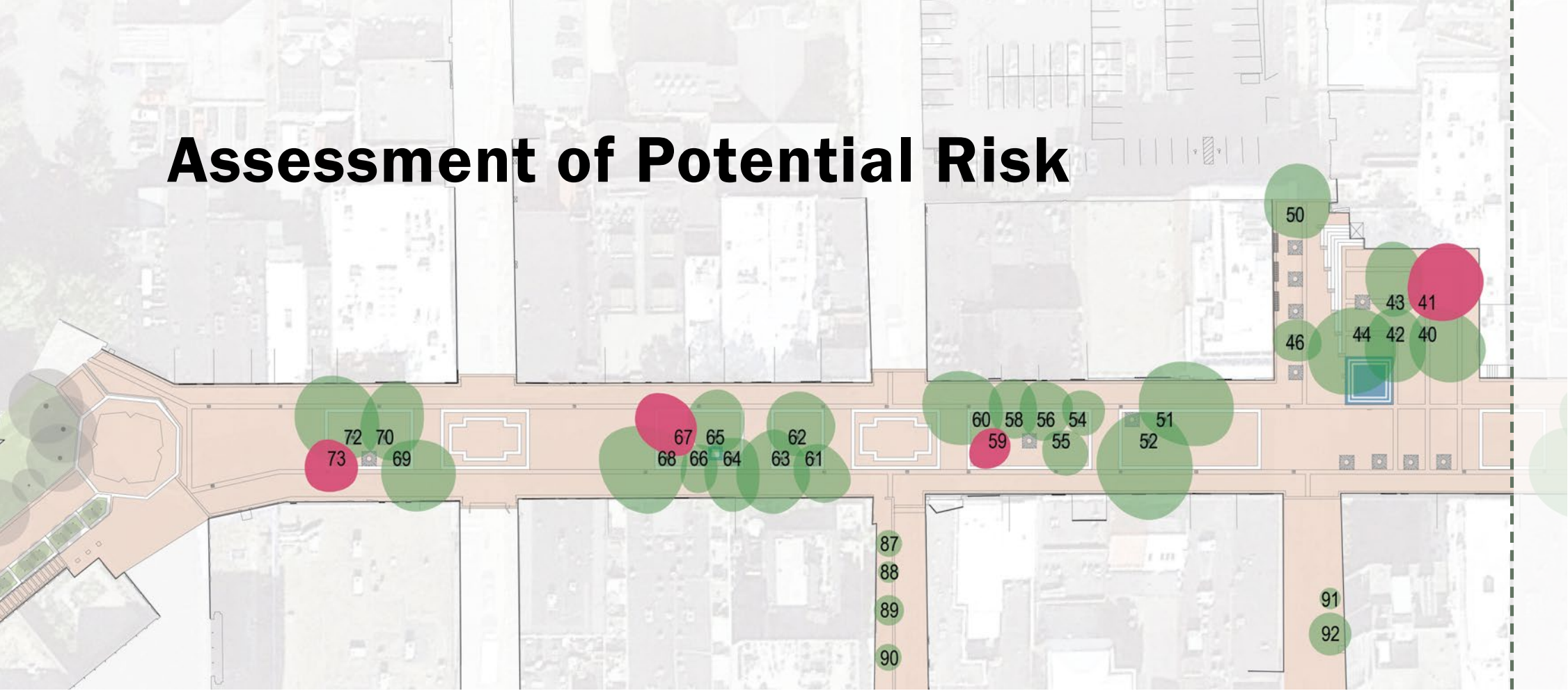
Risk is defined as the likelihood or potential for structural failure of the tree, or its branches, that impacts the safety of persons or structures.

7 of 50 willow oaks have a higher likelihood of failure due to the presence of the following conditions: *co-dominant leader, decay, major deadwood and crown dieback, poor structure, pest infestation, and included bark.*

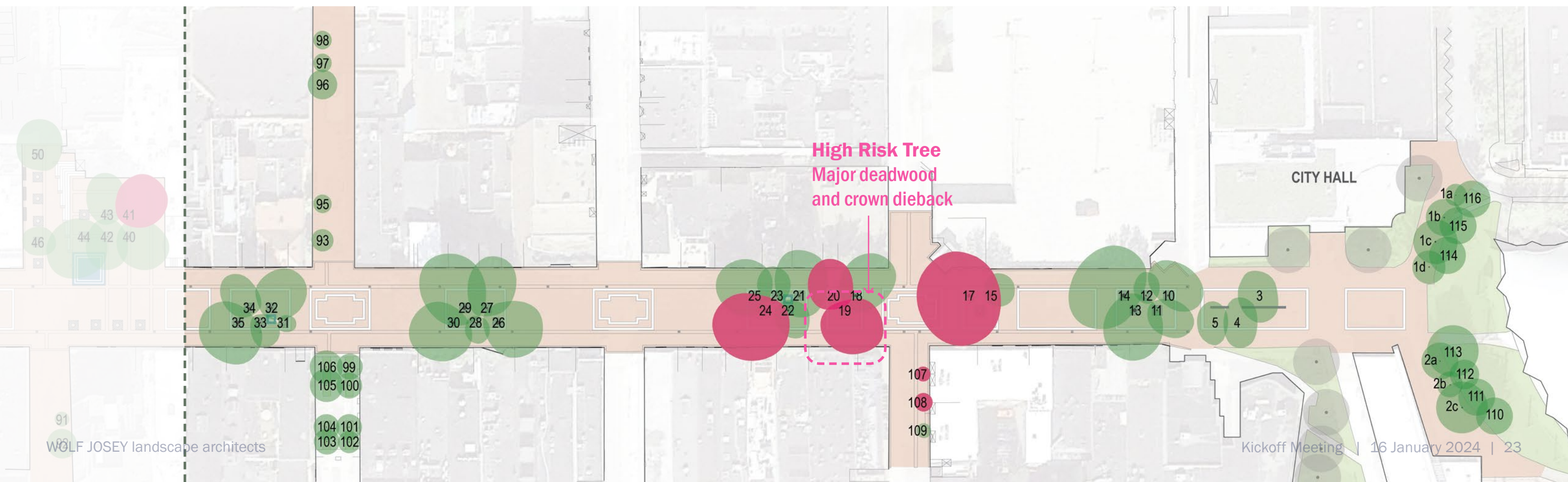


ISA Risk Matrix				
Likelihood of Failure	Consequences of Tree Failure			
	Negligible	Minor	Significant	Severe
Very Likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat Likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Assessment of Potential Risk



Existing trees Trees presenting risk





Willow oak #73

Major deadwood, thin canopy,
phototropic lean with banana crack



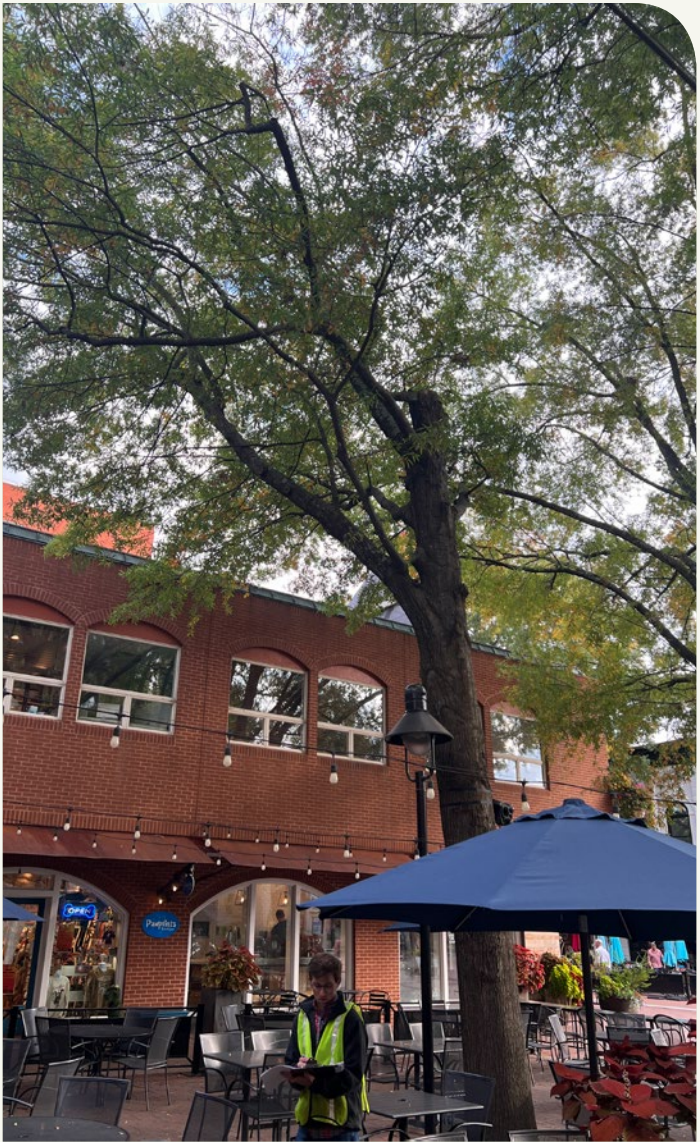
Willow oak #67

Poor overall structure, topped
central leader, top dieback



Willow oak #59

Co-dominant leader, included bark



Willow oak #41

Topped central leader, internal
decay



Willow oak #24

Ambrosia beetle, heater wound, co-dominant leader, included bark, callus wood, internal decay



Willow oak #20

Canker at trunk flare, possible insect damage, pruning clearance from building needed



Willow oak #19

Major deadwood and crown dieback, Hypoxylon canker, trunk flare growing into grate, heavy pruning/removal needed

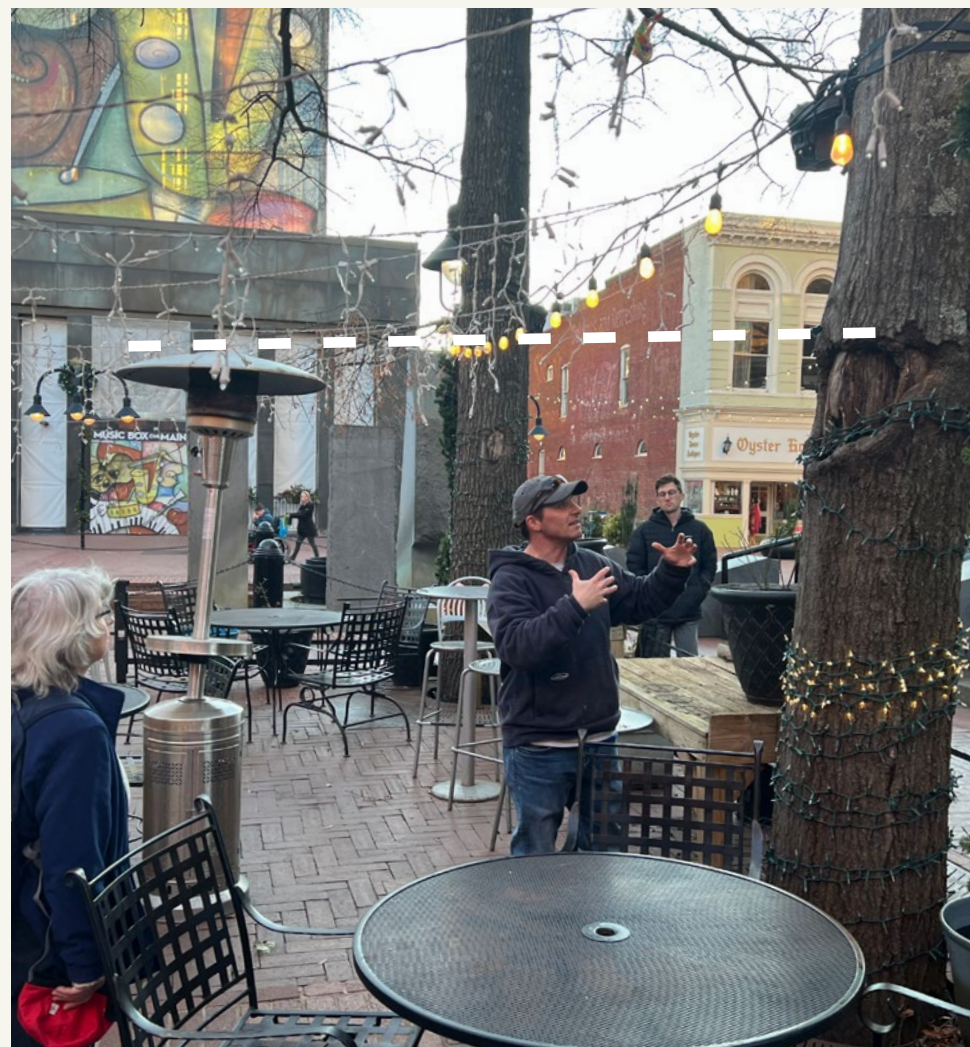
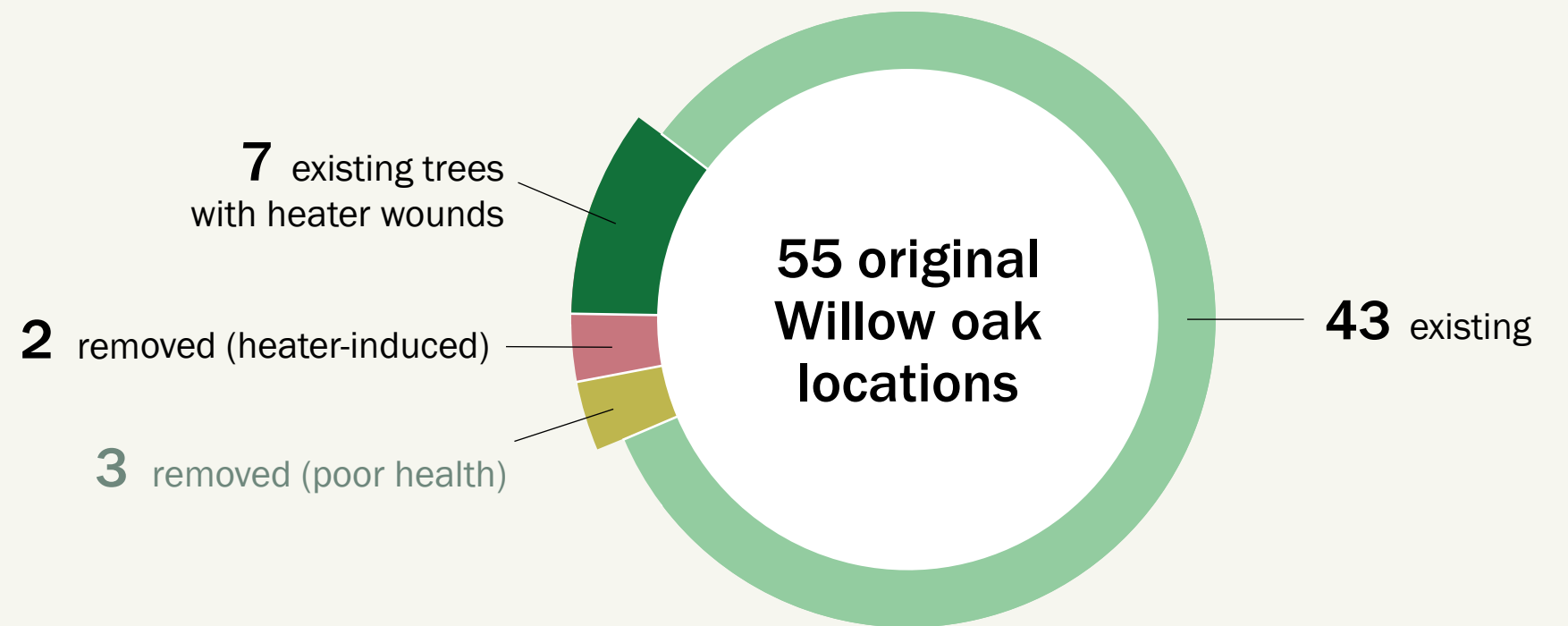


Willow oak #17

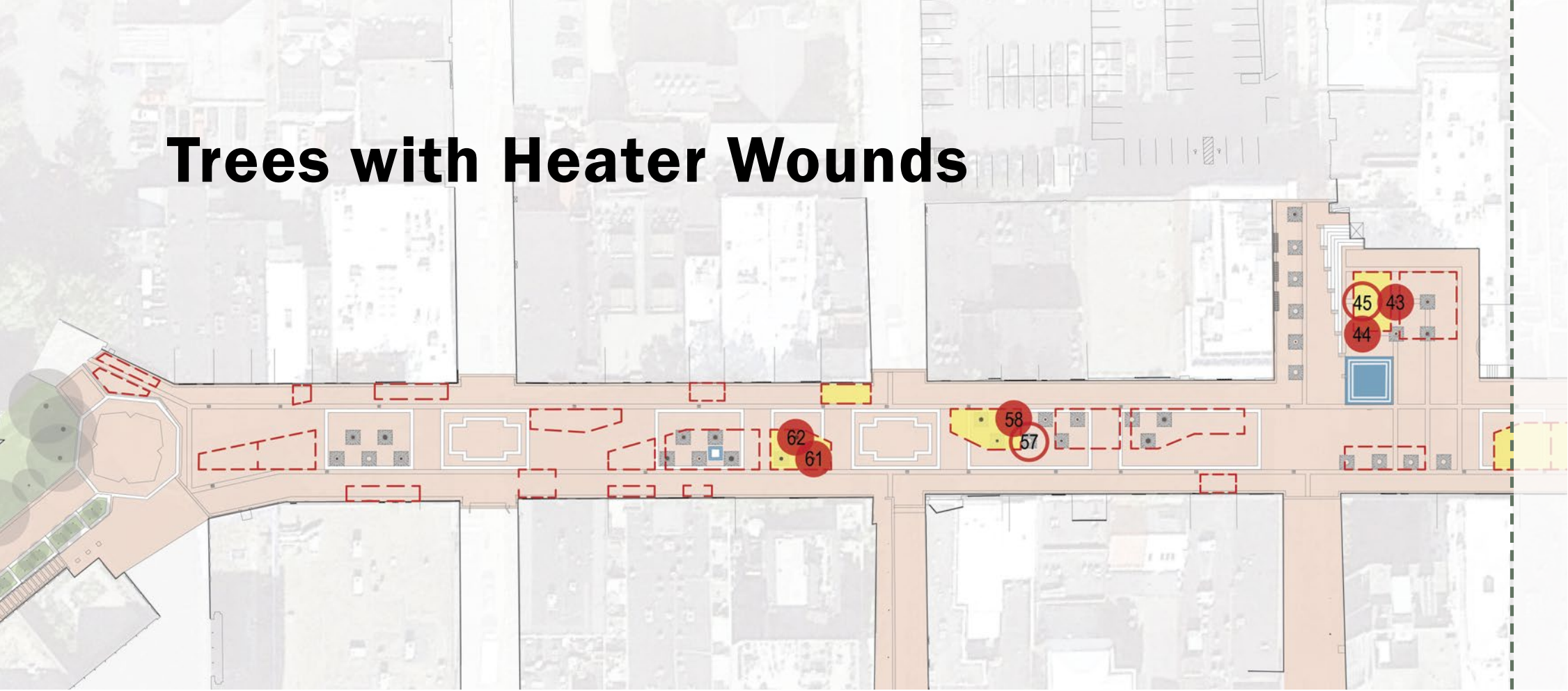
Trunk flare growing into grate, flush pruning cuts, quick internal growth bark ridge, internal decay, crown dieback


Heater Wounds | Overview

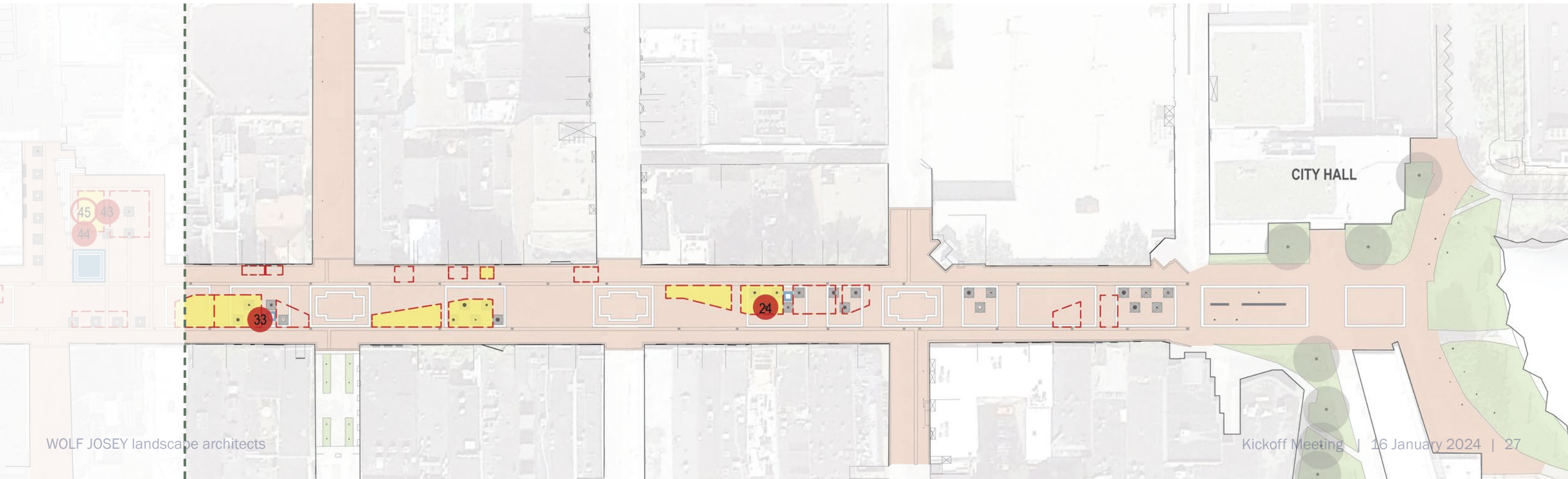
- **9** of **55** original willow oaks were impacted by heater use too close to the trees
(preventable, human-caused damage)
- **2** of these **9** trees required removal in 2022
- **5** of the **6** cafe enclosures that use heaters near trees have caused the damage



Trees with Heater Wounds



-  Trees w/ heater damage
-  Trees removed 2022 (heater damage)
-  Cafe enclosures
-  Cafe enclosures w/ heaters



CITY HALL



Willow oak #62



Willow oak #61



Willow oak #58



Willow oak #57

photo taken prior to removal

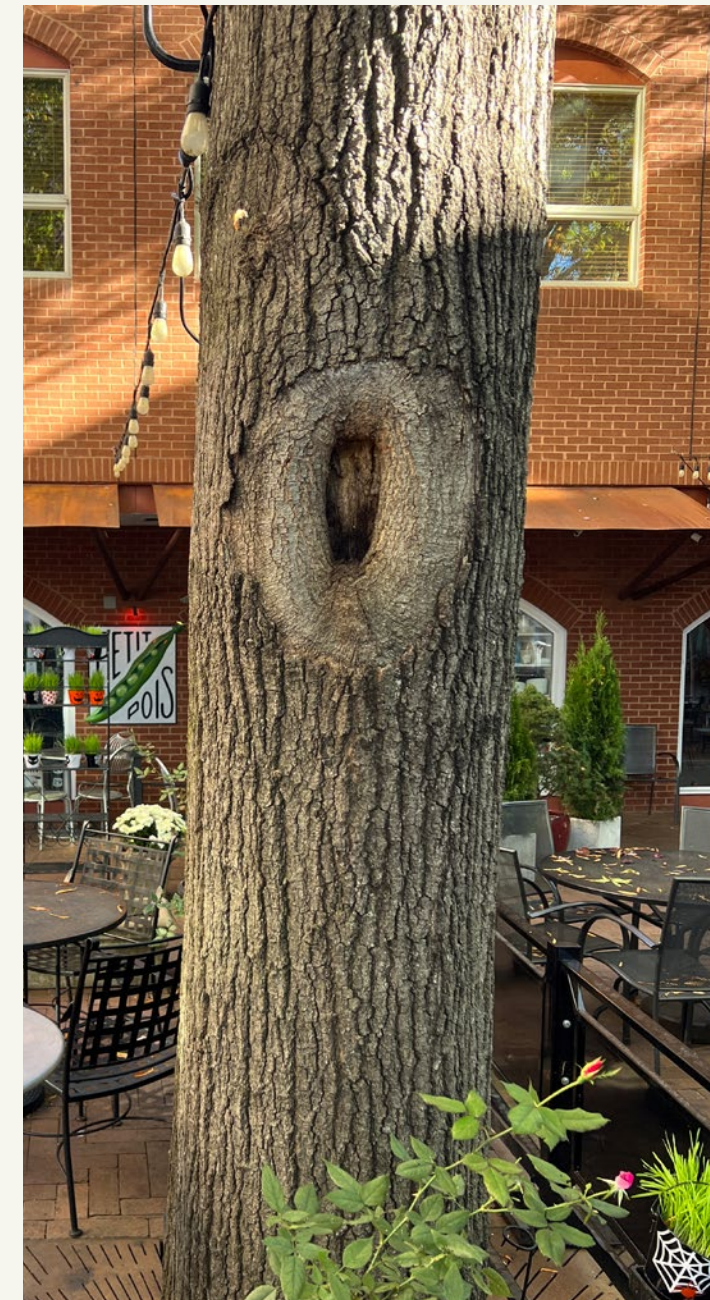


Willow oak #45

photo taken prior to removal



Willow oak #44



Willow oak #43



Willow oak #33

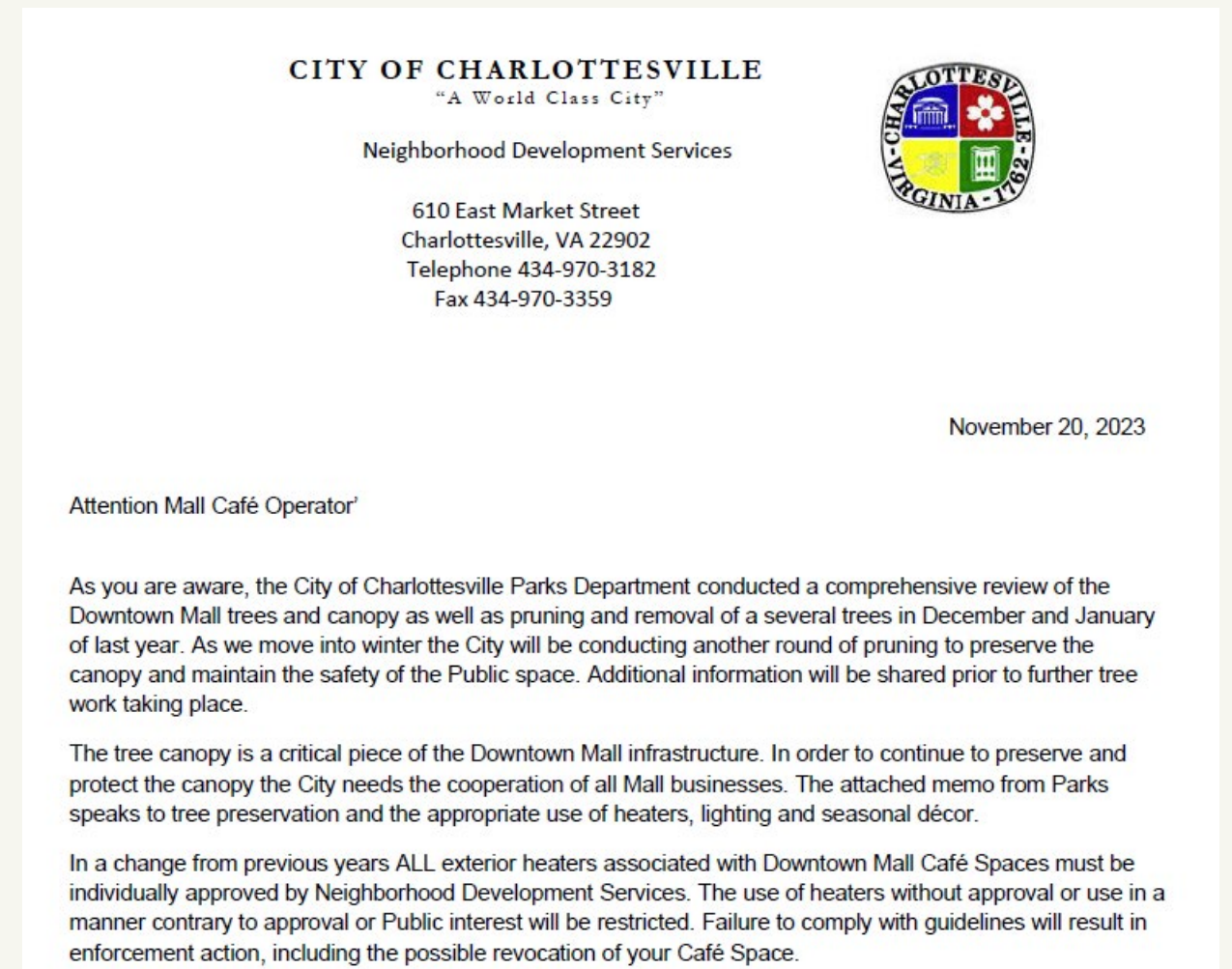


Willow oak #24

City response

NDS submitted new heater requirements to all downtown businesses

- Minimum 10' clearance from trees
- All heater locations to be approved with NDS
- Penalties include loss of heater usage and possible revocation of cafe space



High risk willow oak #19 removed (1/8/24)

Next Steps

- 1. Complete Soil Testing
- 2. Conduct Level 3 Tree Risk Assessments
- 3. Finalize Tree Inventory and Analysis
- 4. Assemble Committees and Schedule Meetings

Phase 1
Project Startup

Phase 2
Site Analysis & Research

Phase 3
Preliminary
Recommendations

Phase 4
Tree Management Plan

