

Trees & Sidewalks Operations Plan



Urban Forestry Commission
Jennifer Wieland & Amalia Leighton
May 14, 2014

SDOT's mission & vision

Mission: delivering a first-rate transportation system for Seattle



Vision: a vibrant Seattle with connected people, places, & products

SDOT's core principles



Presentation overview

- Project purpose & goals
- Tree & sidewalk assessment process
- Initial assessment checklist
- Toolbox introduction
- Next steps

Project purpose

- Develop options to address conflicts
- Use case studies to illustrate applications



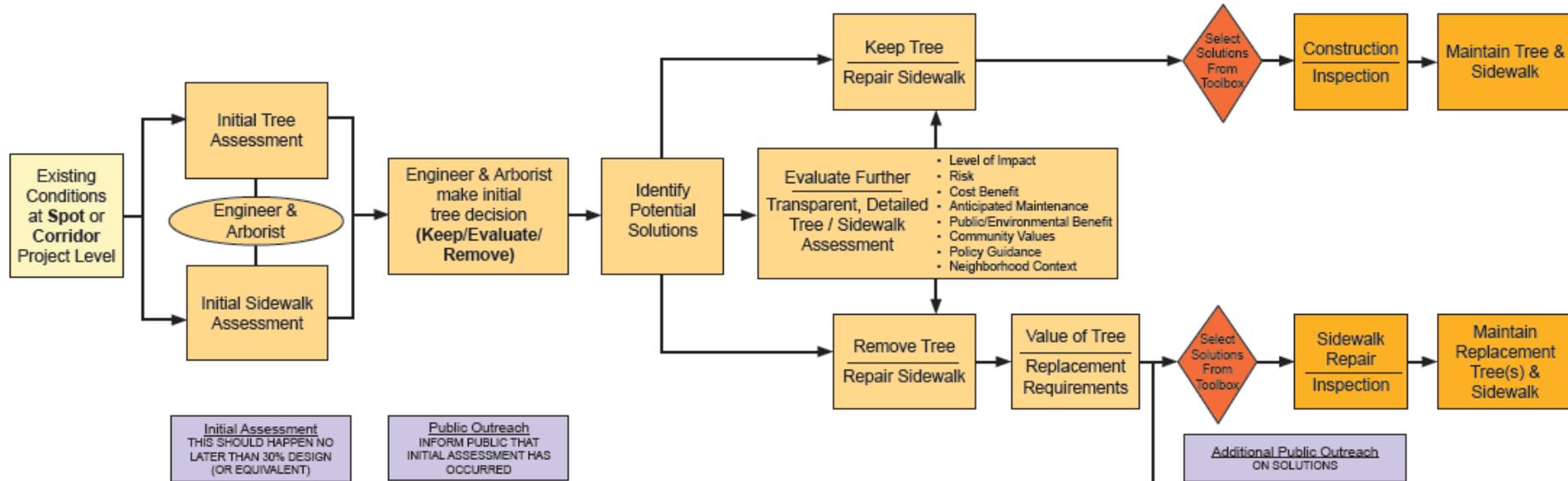
Project goals

- Accessibility & health
- Environment
- Equity
- Efficiency

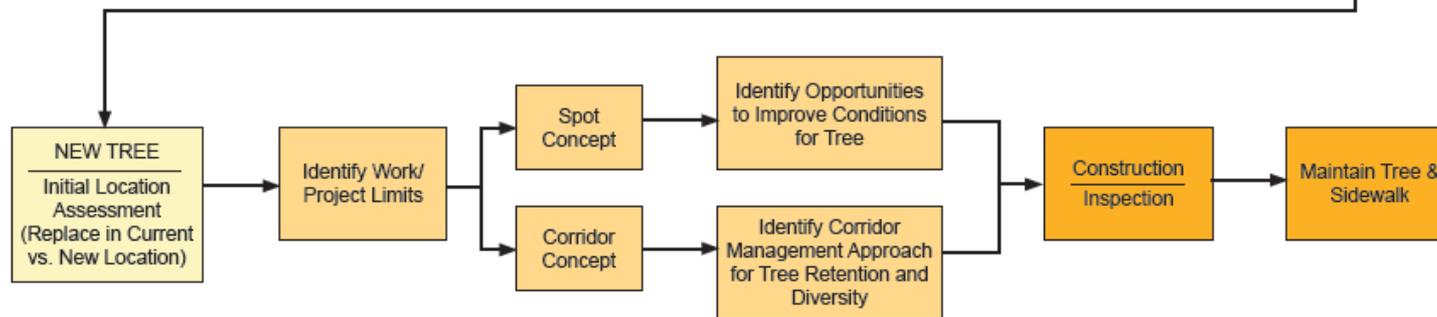


Draft assessment process

EXISTING TREES - RETROFIT / REPAIR

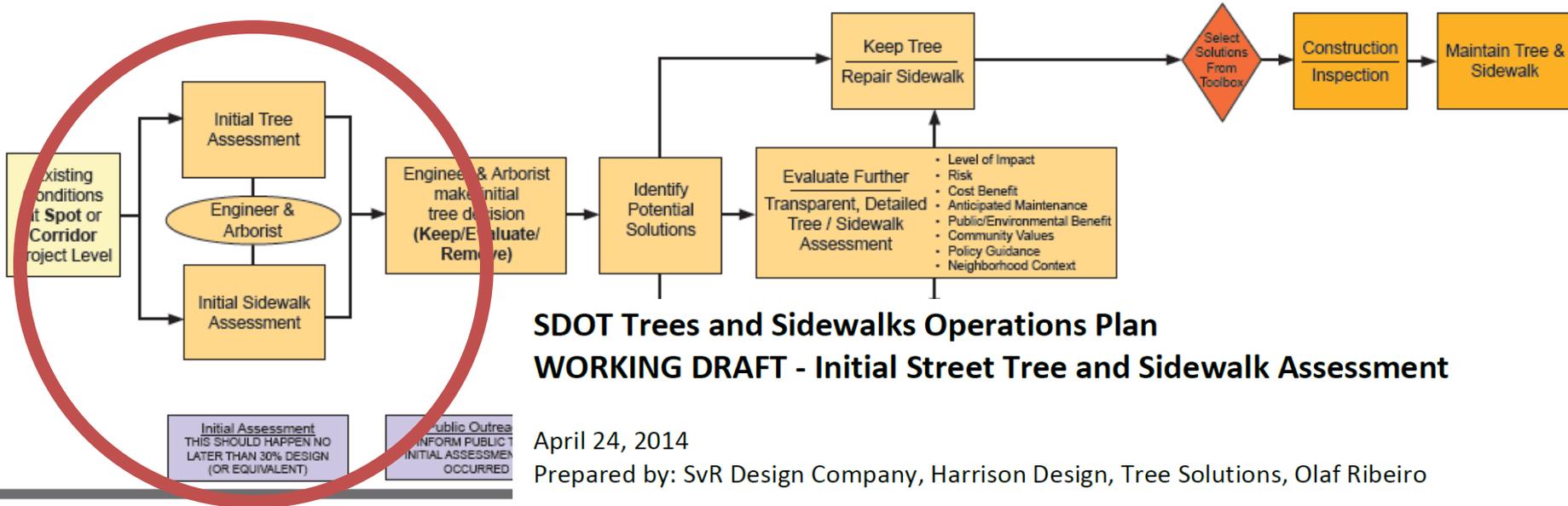


NEW TREES - NEW / REPLACEMENT



Initial assessment checklist

EXISTING TREES - RETROFIT / REPAIR



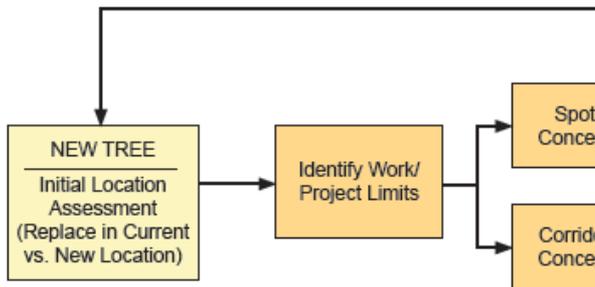
SDOT Trees and Sidewalks Operations Plan WORKING DRAFT - Initial Street Tree and Sidewalk Assessment

April 24, 2014

Prepared by: SvR Design Company, Harrison Design, Tree Solutions, Olaf Ribeiro

NEW TREES - NEW / REPLACEMENT

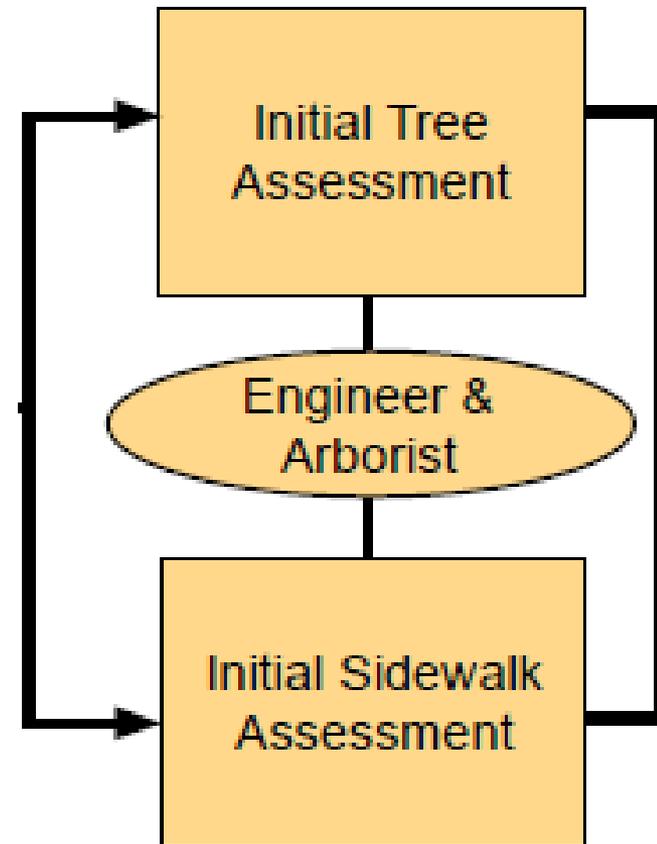
The purpose of this document is to outline the INITIAL ASSESSMENT for locations where sidewalk work is located within the dripline of an existing street tree.



<i>Project Location/Address</i>	
<i>Tree Species/Diameter</i>	
<i>Street Classification/Type</i>	
<i>Tree Asset Inventory ID</i>	
<i>Sidewalk Segment #</i>	
<i>Is this assessment along a corridor project?</i>	

Initial assessment checklist

- Is this tree healthy & worthy of preservation?
- Is this tree in poor health or poor vigor; is there chronic trunk wounding?
- Is this a "hazardous tree"?
- Does the tree present a public safety hazard in terms of visibility or accessibility?



Piloting the initial assessment



Piloting the initial assessment

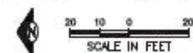


SDOT Trees & Sidewalks Operations Plan | SvR # 13040 | April 24, 2014

Madrona - 34th Ave, 800 Block

Base Map for IDT Tree Assessment Field Trial

PRELIMINARY DRAFT FOR INTERNAL REVIEW



Piloting the initial assessment

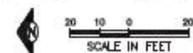


SDOT Trees & Sidewalks Operations Plan | SvR # 13040 | April 24, 2014

Madrona - 34th Ave, 800 Block

Base Map for IDT Tree Assessment Field Trial

PRELIMINARY DRAFT FOR INTERNAL REVIEW



Tree 60077 at 823 34th Ave

- Healthy & worthy of preservation
- Good vigor; no chronic wounding
- Not a hazardous tree
- Sidewalk width is insufficient

Retain tree & repair sidewalk



Tree 60077 at 823 34th Ave



Piloting the initial assessment



SDOT Trees & Sidewalks Operations Plan | SvR # 13040 | April 24, 2014

Madrona - 34th Ave, 800 Block

Base Map for IDT Tree Assessment Field Trial

PRELIMINARY DRAFT FOR INTERNAL REVIEW



Tree 60081 at 805 34th Ave

- Healthy & worthy of preservation
- Good vigor; no chronic wounding
- Not a hazardous tree
- Sidewalk width is insufficient
- Adjacent retaining wall cause for concern

Evaluate further



Tree 60081 at 805 34th Ave



Piloting the initial assessment



SDOT Trees & Sidewalks Operations Plan | SvR # 13040 | April 24, 2014
Madrona - 34th Ave, 800 Block
Base Map for IDT Tree Assessment Field Trial
PRELIMINARY DRAFT FOR INTERNAL REVIEW



Tree 60084 at 806 34th Ave

- Not healthy; poor vigor
- Impacted by pruning & adjacent holly
- Sidewalk width is insufficient
- Opportunity for new trees

**Remove tree &
replace sidewalk**

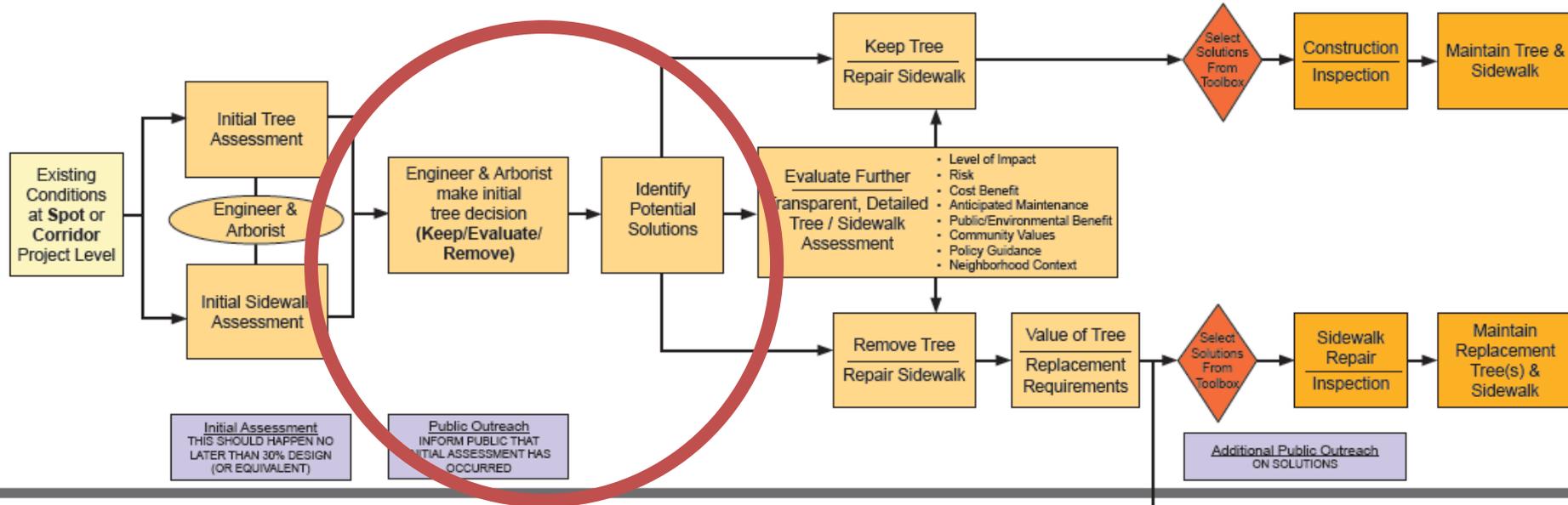


Tree 60084 at 806 34th Ave

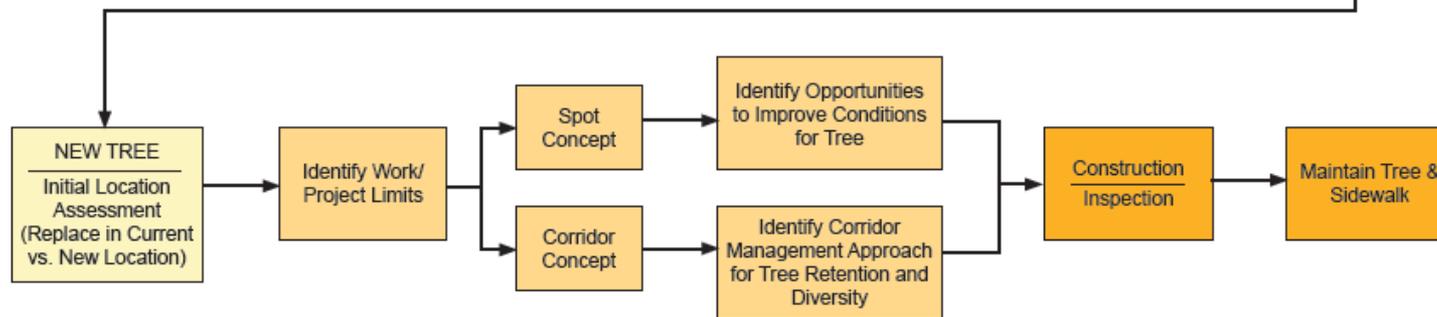


Initial decisions

EXISTING TREES - RETROFIT / REPAIR



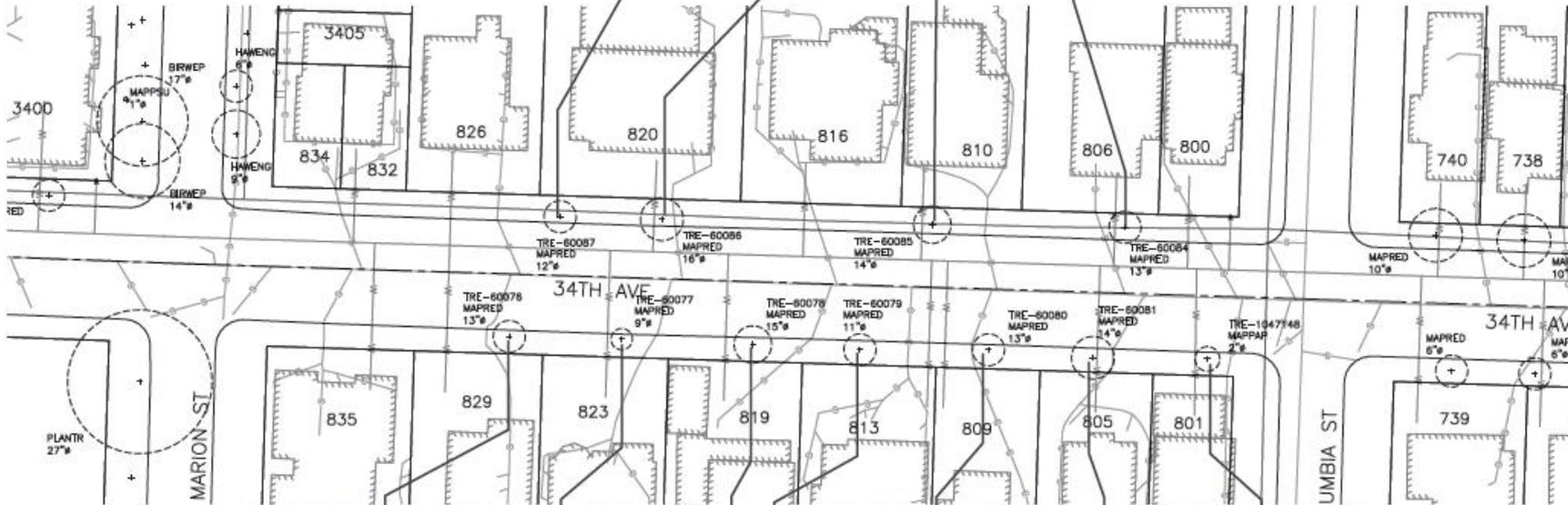
NEW TREES - NEW / REPLACEMENT



Initial decisions

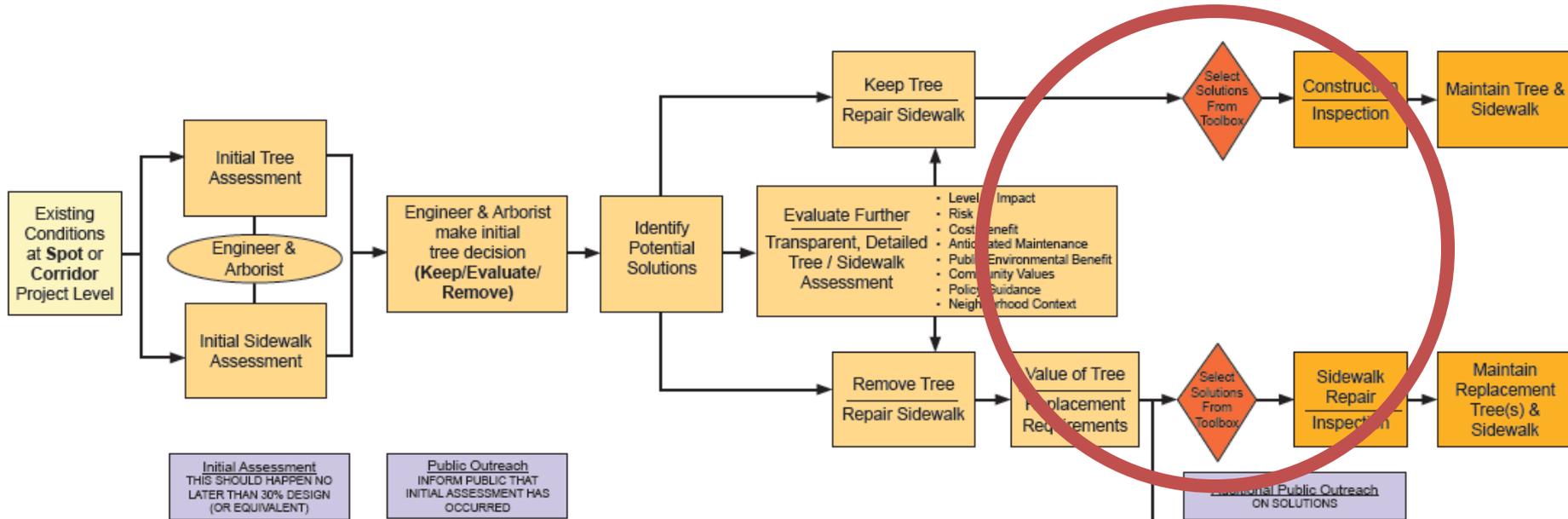


SDOT Trees & Sidewalks Operations Plan | SvR # 13040 | April 24, 2014
 Madrona - 34th Ave, 800 Block
 Base Map for IDT Tree Assessment Field Trial
 PRELIMINARY DRAFT FOR INTERNAL REVIEW

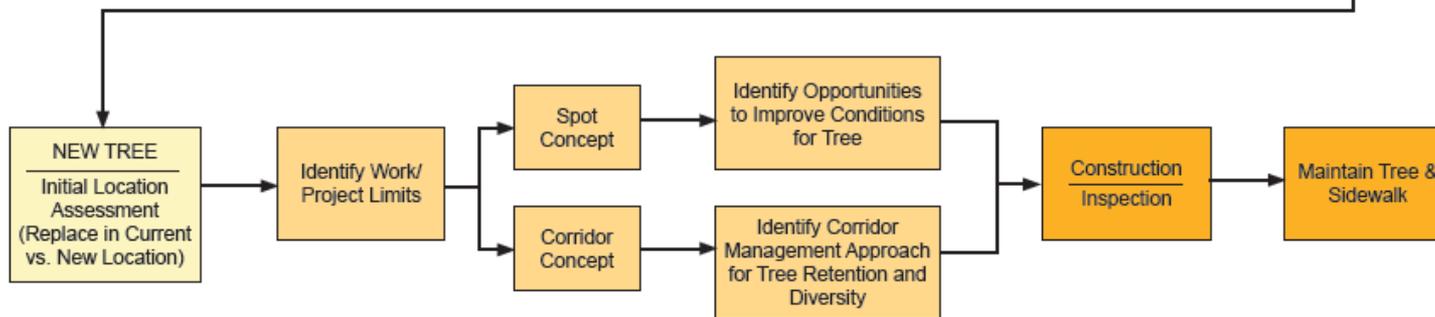


Select solutions from toolbox

EXISTING TREES - RETROFIT / REPAIR



NEW TREES - NEW / REPLACEMENT



Best practices

- Current & emerging national & international policies, programs, & practices
- Current SDOT practices
- Tree size
- Tree valuation
- Tree maintenance
- Root maintenance
- Root structure evaluation
- Sidewalk pavement types
- Sub-base installation
- Soil conditions
- Nutrients
- Water & irrigation
- Utility compatibility
- Accessibility & ADA
- Surface maintenance
- Street edge conditions

Solutions toolkit

Strategy Name	Proactive	Responsive	Description
TREE-BASED			
SDOT Street Tree List	P		Approved Street Tree List helps select appropriate tree species for space
Root Pruning		R	Remove problematic roots as deemed acceptable by Arborist
Corrective Pruning	P	R	Above-ground pruning to remove dead/diseased parts and address conflicts
ROOTZONE-BASED			
Root Barriers	P	R	Used to prevent root growth into (under) certain areas, and/or direct growth
Continuous Trenches	P		Used to provide additional root area; connect tree pits, at surface or below pavement
Root Paths	P		Similar to continuous trenches but narrower, connecting tree pits
Steel Plates		R	Placed above roots and anchored into place, help prevent upward root expansion
Foam Underlay		R	Foam layer under pavement should compress as roots grow, thus preventing uplift
Structural Soils	P		Soil engineered to allow space for root growth while providing structural stability
Soil Modification	P	R	Increasing (uncompacted) soil volume available to trees
Water Management	P	R	Managing water to direct root distribution (practical application may be challenging)
Mulch	P	R	Mulch at surface to promote tree health and encourage root growth in appropriate areas

Solutions toolkit

TREE		TREE-BASED	
	P	R	Root Pruning..... 2
ROOT		ROOTZONE-BASED	
	P	R	Root Barriers 3
DESIGN		INFRASTRUCTURE-BASED / DESIGN	
	P	R	Tree Pit Sizing 4
	P	R	Curving Sidewalk..... 5
	P	R	Curb Bulbs..... 6
	P	R	Pavement Thickness 7
	P	R	Easement 8
	P	R	Curb Realignment..... 9
	P	R	Bridging 10
MATERIAL		INFRASTRUCTURE-BASED / MATERIALS	
	P	R	Pervious Concrete..... 11
	P	R	Asphalt..... 12
	P	R	Composite Pavers 13
	P	R	Grind Edge 14
	P	R	Shims..... 15

Tool description example



ROOT PRUNING



EXPECTED USEFUL LIFE

M	Y	D	C
YEARS			

COST

\$-\$\$

Root pruning is a responsive treatment in which tree roots that are causing issues, such as sidewalk uplift, are removed, typically in conjunction with repair of damaged sidewalks or other infrastructure. The amount of root pruning that a tree can handle varies by tree size, species, condition, age, and root distribution, and must be supervised by a qualified arborist.

BEST USED IF

- A minimal amount of root pruning can prevent or defer future damage caused by the tree's roots
- Removal of specific roots makes space available for an appropriate repair (e.g., allows proper sidewalk width and/or grading)

DON'T USE IF

- Arborist determines that root pruning would significantly impact health or structural integrity of the tree

PROACTIVE/RESPONSIVE

- Responsive - This practice is used to address tree roots that are directly contributing to an infrastructure issue

Example 1: Pre-repair condition



Example 1: Pre-repair condition



Example 1: Solutions applied



Example 2: Pre-repair condition



Example 2: Solutions applied



Next steps

Date	Activity
May	Online survey
May 29	Madrona corridor meeting #3
June 10	Lake City corridor meeting #2
June 11	Rainier Beach corridor meeting #2
Late June	Draft operations plan
July	Final operations plan
Fall	Sidewalk repair in Madrona

Questions?

jennifer.wieland@seattle.gov | (206) 733-9970

<http://www.seattle.gov/transportation/treesandsidewalks.htm>

<http://www.seattle.gov/transportation>

