



DRAFT Seattle Pedestrian Master Plan Issue Paper: Trees and Sidewalks April 29, 2009

Introduction

The following is a review of the relationship between trees and sidewalks and the role they play in creating a walkable city. The Seattle Pedestrian Master Plan examined City of Seattle policies and practices related to the pedestrian environment and experience, specifically focusing on the American Disabilities Act (ADA) transition plan, construction zones, lighting, intersection design, maintenance, snow and icy conditions, speed and signage, street types, and trees and sidewalks. This process was also informed by discussions with staff of the Inter-Agency Team and the Pedestrian Master Plan Advisory Group¹.

The sidewalk streetscapes of Seattle provide a major component of city and neighborhood vibrancy. By creating a pedestrian friendly environment the streetscapes encourage residents and visitors to congregate and connect. The City of Seattle 2005 Comprehensive Plan, the 2005 Transportation Strategic Plan and the 2007 Urban Forest Management Plan provide guidance on the importance of trees in the pedestrian environment. Successful streetscapes allow for pedestrian movement and plantings providing a comfortable and safe atmosphere. In addition, streetscapes must accommodate signage, utility vaults, poles and structures, lighting, passing and landing zones and where designated, transit stops. Many areas outside of the travelway in the City are wide enough to accommodate extensive plantings, site furnishings and artwork, adding to the richness of the experience. Other streetscapes are confined by existing conditions and must carefully balance competing needs. In this balancing we suggest there is a hierarchy that will allow decisions to be made on clear pedestrian width and tree planting.

Applicable/Related Regulations – Guidelines

Planting strips are required to be maintained by the abutting property owner or applicant, per Seattle Municipal Code SMC 10.52.030.

A new streetscape in Seattle, per the Right-of-Way Improvements Manual (SROWIM) (sections 4.11 and 4.14) must provide, at a minimum, a 6 inch curb, a 5-foot wide planting strip, a 6-foot wide clear pedestrian zone for travel, and a minimum 1-foot wide frontage zone between pedestrian zone and property line. Some land uses such as transit station zones (per the SROWIM), must accommodate larger volumes of traffic. Seattle also has defined an overlay of Pedestrian Street Classifications that note high and moderate levels of

¹ The Pedestrian Master Plan Advisory Group (PMPAG) is an ad hoc group appointed by the City of Seattle, consisting of twenty-three members representing various groups and organizations.

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pedestrian activity and recommend additional sidewalk space and reduced curb cuts.

Understanding and evaluating each streetscape's specific needs and potential is a vital to developing the best pedestrian fabric in the city. A major part of this fabric is the existing and new street trees. In 2007, the mayor's office issued the Urban Forest Management Plan. This plan recognizes the environmental and social value of trees, identifies the decreasing canopy coverage in the city (18-percent over the last thirty years) and recommends increasing canopy coverage by 30-percent over the next thirty years. The report identifies nine tree management units in the city including Transportation Corridors/Street Right-of-Way (ROW). The report estimates that 16-percent of the transportation corridors are currently covered and proposes 24-percent canopy coverage within thirty years. To achieve this increase the report outlines a list of goals and actions that target tree selection, tree planting and tree maintenance.

It is inherently understood that more planting area provides space for more trees and for each tree to potentially grow to its potential canopy with increased root space. However, maximizing planting area must be balanced with providing the appropriate space for pedestrian movement. The SROWIM allows some alternatives to a continuous 5-foot wide planter strip. Currently under section 4.14.2 "Up to 40-percent of the area in planting strips may be paved if the following conditions are met:

- Paving is done in combination with street trees;
- Related landscape architectural features pose no public safety concern; and
- The combination of paving and trees provides an equal or better balance of functional and environmental benefits than a fully planted condition.
- Paved area is not used for parking.

Also under this section tree pits may be used as an alternative to planting strips in business districts where additional sidewalk width is important to accommodate pedestrian volumes. Currently tree pits must be a minimum of 24-square feet, either a 4-foot x 6-foot or 5-foot x 5-foot or greater dimension. Observations in the field indicate that a 5-foot width planting strip or 24-square foot tree pit is not large enough to accommodate most trees. When this happens the adjacent sidewalk may heave up and break creating a potential hazard for pedestrians. This often occurs because the selected tree species needs a larger area of soil to achieve its mature canopy size or has an aggressive root system or trunk character that spreads at the base. It also may occur because the subgrade soils are severely compacted or dense and do not allow root penetration.

There are many tools and approaches available to address this root heave versus sidewalk maintenance problem.



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- Maximize length of tree planting strips. Trees with more room to grow are less likely to buckle sidewalks. Providing continuous planting strip areas where possible allows trees to share root space. *This may require fewer exceptions to the tree pit size in urban areas or requiring the proposer to show alternative means of soils volume.*
 - Provide additional growing medium under adjacent paved surfaces using structural soils, structural cells, linear trenches, and other technologies. These often add considerably to the cost of tree planting and would need to be carefully evaluated.
- Revise the sidewalk installation requirements to require 2 to 3-inches of gravel base under sidewalks allowing air and possible root movement through the gravel zone.
- Select the right tree for the right place. Plant large canopied trees in areas where they will have enough room to grow. The City could expand upon its current tree list with more specific information about tree growth habits including trunk development.
- Plant only shrubs in very tight areas. Planting of shrubs where soils and spreading room is limited provides green along the street and maintains the buffer between the pedestrian and vehicular traffic.
- Identify right-of-way locations that can accommodate planting of larger trees or groupings of trees. These could be at odd angled intersections, unimproved alleys, or large medians.
- Removal of mature trees due to root problems should be off set with new tree plantings.

Potential Recommendations for Review

- Maintain the current sidewalk minimum width at 6-foot minimum with Director approval of exceptions. The following is understood:
 - Older 5-foot sidewalks would remain at the current 5-foot width until the entire block face was replaced.
 - Removal of trees is discouraged unless the space falls below the ADA minimum. (Current 36-inches but PROWAG the proposed Federal Public Right of Way Accessibility Guidelines may change this to 48-inches.)
- Develop a field useable checklist protocol for assessing conditions where the mature tree size and/or root upheaval results in less than 36 inches clearance. The following are protocol suggestions:
 - Downtown; Urban Centers; Urban Villages
 - If field visit indicates an issue with passage then a protocol needs to be established for the field staff to determine if the sidewalk needs to be closed.



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- Review if parking lane can be removed and the pedestrian path of travel can be rerouted.
- Review if lane diets would allow enough space to accommodate rerouting around tree.
- Review impacts of surface changes to drainage
- Review if acquiring an easement is feasible from the adjacent property
- Provide a cost/benefit analysis with tree valued according to Urban Forestry's standard.
- Suggest assigning two people to review the field checklist and make determination based on criteria. One from Urban Forestry and one from Traffic maintenance.
- If result indicates that it is not feasible to retain the tree then the plan shall include mitigation according to Seattle Tree ordinance for planting trees at another location within the boundaries of the area.
- Other areas add:
 - Review if land use or context requires full block sidewalks on both side of street. (This applies primarily in residential or industrial locations and may require the removal of sidewalks along the length of the block if there is a need to allow space for more than one mature tree...
- Maintain a clear pedestrian zone of 6-feet wide by 8-feet high.
 - Width:
 - This proposed clear zone of 6-feet allows for the minimum unobstructed width to be 4-feet as long as the reduced width does not exceed 20-feet in length without a full passing width. *(Note: Federal Proposed Right-of-Way Accessibility Guidelines (PROWAG) allow for up to 200-feet in length with 4-feet however we recommend the City of Seattle strive for 20-feet before a passing dimension is required. This allows modified sidewalks around existing mature trees.*
 - Removal of mature trees is discouraged; consult with Urban Forestry prior to tree removal to review options.
 - Understanding naturally growing vegetation enhances the streetscape vegetation could overhang into the clear zone not to exceed 6-inches.
 - Consider a program similar to New York's "Citizen Pruner" or Tree Stewards that can volunteer light pruning.
 - Height:
 - 8 foot clearance is recommended. The vertical clearance discussion is complicated however for consistency in enforcements it is recommended to follow the clearance criteria SDOT has established for other items above the sidewalk with a 96-inch (8-foot minimum) vertical



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- clearance along the sidewalk. This accommodates signs, umbrellas and allows for a variety of trees.
- Newly planted trees should be allowed an exemption since it may take a few years before branching can accommodate the clearance. This height can be adjusted for additional clearance as needed for specific locations.
 - Seattle Department of Transportation (SDOT) current guidelines vary on the vertical clearance. *AASHTO Guide Chapter 3 and the Oregon and Missouri Departments of Transportation allow a 7-foot vertical clearance. Note utility wires should have 8-foot clearance.*
- Provide clear zones at intersections that define tree locations to be no closer than 15-feet from the edge of the curb ramp wing.
 - *Revise Chapter 4.14 of the SDOT ROWIM Define minimum tree planting pits* to not less than 32 square feet ex: 4-foot minimum by 8-foot minimum or 5.5 foot minimum by 6-foot minimum. The intent is to maximize the tree pit area with the tree placed in the center. See SROWIM for buffer zones (planting strip dimensions).
 - Identify unused right-of-way or excess paved zones that can accommodate trees to address right-of-way canopy coverage goals.
 - Develop alternative surfacing and repair methods to accommodate tree heaving tree roots.
 - Update the SROWIM to provide consistency for sidewalk width and clearances.
 - Update the Standard Plans to provide consistency for sidewalk width, clearances and minimum tree pit size.
 - *Update the Street Tree Planting List and Streetside Garden Plant List to one list: Street Tree and Right-of-Way Planting List.*
 - Provide guidance on which trees can be planted in the varying widths. Review trees identified for planting strips under 5-feet for adequate growth.
 - Expand vegetative planting options to suggest additional natives encouraging low rubs and ground cover vegetation in intersection zones and planting strips less than 5-feet.
 - Coordinate with Department of Planning and Development (DPD) Green Factor staff so that the City has one Street Tree list for consistency.
 - Discuss with DPD tighter controls for setback requirements for trees on private property.
 - Update the Street Tree Planting Procedures. Include initial guidance to prune branching along trunk at time of planting (example 4-foot clear?)
 - Eliminate permit requirements and fees for minor pruning as this is difficult to enforce and it is more important to provide the public education and encouragements on pruning to keep vegetation out of the 6-foot by 8-foot clear walkable zone.



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