

Tree Assessment

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Notice of Disclaimer

Assessment data provided by Treecology Consulting Group is based on visual recording at the time of inspection. Visual records do not include testing or analysis and do not include aerial or subterranean inspection unless indicated. Treecology Consulting Group is not responsible for discovery or identification of hidden or otherwise non-observable risks. Records may not remain accurate after inspection due to variable deterioration of surveyed material. Risk ratings are based on observable defects and mitigation recommendations do not reduce potential liability to the owner. Treecology Consulting Group provides no warranty with respect to the fitness of the trees for any use or purpose whatsoever.

Summary

In May 2022, Treecology Consulting Group (TCG) conducted a risk assessment, and site evaluation for one street tree at 218 Jewett Blvd. in White Salmon, WA. The tree was assessed on May 20, 2022 by Ruth Williams, International Society of Arboriculture (ISA) Board Certified Master Arborist #WE-7317-BM, ISA Tree Risk Assessment Qualified. The results of this assessment are documented in this report. The goal of this assessment is to provide strategies to manage the tree and site that may impact people and property, and to guide long-term tree care decisions. Considerations include tree health, safety, and site history.

A tree risk assessment is an evaluation of current risk of failure and the consequences anticipated within a specified timeframe, in this case five (5) years. The tree was inspected for risks to buildings, infrastructure, and people. The data set was collected via the ISA Tree Hazard Evaluation Form that will allow managers to better understand, prioritize, and make decisions about the tree. Analysis of the data showed the following:

- The tree is a mature 25" DBH *Liquidambar styraciflua* that is 64' tall and approximately 35' wide with minor crown asymmetry. Two prior limb failures were documented. The tree has healthy vigorous foliage. The overall condition is fair. The tree provides \$151 in property value and ecosystem benefits annually.
- The tree risk is moderate based on the ISA TRA methodology. The tree risk mitigation option is pruning to reduce end weight. With this pruning, the residual risk rating is likely low, but that should be verified with a visual inspection from the pruning arborist at the time of work.
- Adjacent pavement was replaced within the decade, and has become disrupted. This site-related risk is likely to reoccur in a 3-8 year timeframe post sidewalk repair without an innovative solution that adapts to root growth. Minimal root pruning is possible, but is not likely to provide a complete solution that also allows tree preservation.
- Tree removal and replacement may be considered. It will likely require 30-40 years to grow a tree of comparable size with comparable ecosystem and property value benefits.

Introduction

This street tree provides shade and beauty to the commercial streetscape. The community in the Columbia river gorge routinely experiences significant wind events.

Assignment and Limits

City of White Salmon contracted Treecology Consulting Group to inspect the tree and answer specific management questions.

1. Health of the tree including ongoing health of the tree based on its location. The tree has been pruned on the north side to keep it off the structures that are located adjacent to it. Are there any prescriptive pruning recommendations if the tree were to remain in place to 1) keep the tree of the structures to the north and to keep it from growing out into the sidewalk and the roadway. The tree must be pruned up to 8 feet above sidewalks for clearance and 14 feet above any roadways.
2. If the tree were to remain in place, how can the city remove the lower sidewalk and replace it so it is walkable and maintain the health of the tree without further damage. The city has plans in the future (1 to 2 years at the earliest and more likely 2 to 3 years at best) for constructing a sidewalk that would move out into the street. However, we need a temporary concrete or something similar fix so that pedestrians can use the sidewalk.
3. The upper sidewalk does not belong to the city. Is there any likely damage to the upper concrete?

The arborist collected information about the species, size, condition, and risk factors for the tree. This assessment was a ground-level visual inspection, and did not include root excavation, advanced structural analysis, or climbing to inspect defects only visible from the canopy or scaffold branches. Many factors can limit specific and accurate data when performing evaluations of trees, their conditions, and values. The determinations and recommendations presented here are based on current data and conditions that existed at the time of the evaluation and cannot be a predictor of future performance for the trees.

Methods

Inventory & Assessment

Data was collected by an ISA Board Certified Master Arborist (Ruth Williams #WE-7317 BM) with a current tree risk assessment qualification (TRAQ). A visual inspection was used to develop the findings, conclusions, and recommendations found in this report.

The following attributes were collected:

Species: Tree genus and species were identified.

Diameter at Breast Height (DBH): Trunk diameter was recorded to the nearest inch at 4.5 feet (breast height) above grade except where noted. When limbs or deformities occurred at breast height, measurement was taken below 4.5 ft.

Height: Tree height was measured with a laser range finder accurate within a range of +/-5'

Crown Spread: Horizontal spread of scaffold branches was visually estimated within a range of +/-10'

Condition Rating: The condition of each tree was recorded in one of the following categories adopted from the rating system established by the International Society of Arboriculture: excellent, good, fair, poor, dead.

Excellent - An immaculate specimen with minor or insignificant defects

Good - A tree with minor issues that can be mitigated with pruning or cultural care

Fair - A tree with significant issues with either structure or health that may be improved with multiple cultural improvements or specific pruning.

Poor - A tree near the end of it's useful life with issues that cannot be resolved

Dead - A tree with less than 5% live crown

Observations: Additional observations, comments, or other points of consideration.

Photographs: Photographs of the full tree and defects were collected as necessary.

Findings

Site Attributes

The site is adjacent to a relatively busy commercial roadway with frequent use. Irrigation was present but not tested. The area is landscaped. The tree is open-grown, with no nearby adjacent street trees. There are sidewalks on both sides of the tree within 1-2' of the trunk. The site has elevation gain from the road to the adjacent buildings that includes a retaining wall and handrails. The tree is the largest street tree in the immediate vicinity of the commercial corridor.

The adjacent pavement appeared new, as though it had been replaced recently. However, the new panels had already lifted unevenly creating a potential trip hazard, and eliminating ADA accessibility compliance. The pavement adjacent was within 6" of the tree trunk.

The site is not ideal for this large-stature-at-maturity tree with an aggressive root system. The ideal planter width for this species should be 8' wide.

The adjacent retaining wall and upper sidewalk should be monitored for cracking. They are currently in good condition, however, with the hillside condition, and unknown hydrology, it is possible tree roots can extend uphill if a water source and air are present.



Tree Attributes

The tree is a mature 25" DBH Liquidambar styraciflua that is 64' tall and approximately 40' wide with minor crown asymmetry. The tree has healthy vigorous foliage. The overall condition is fair.

Defects

The root flare and base are sound with no evident wounding or prior root pruning, however, pavement has been replaced in the past, so there is a possibility roots were pruned. One way to determine this is to remove the pavement and visually inspect the roots below.

This tree is an open-grown tree with two prior limb failures. One was on the south side (photo, right), toward the street several years ago, and the wound has mostly sealed over. The outer 2-3" of wood beneath the wound is spongy and delayed. Minor epicormic sprouts are present near this wound. A second wound is visible on the north side, higher in the canopy. It looks recent, within the past 3 years. These wounds are consistent with the species that tends to have moderately brittle branches, and tends to fail where included bark is present.



Benefits

The tree is mature, in fair condition, and could live for decades with a routine 3-4 year maintenance schedule. The tree provides \$151 annually in ecosystem and property value benefits, preventing approximately 2,378 gallons of stormwater runoff.



North side limb failure



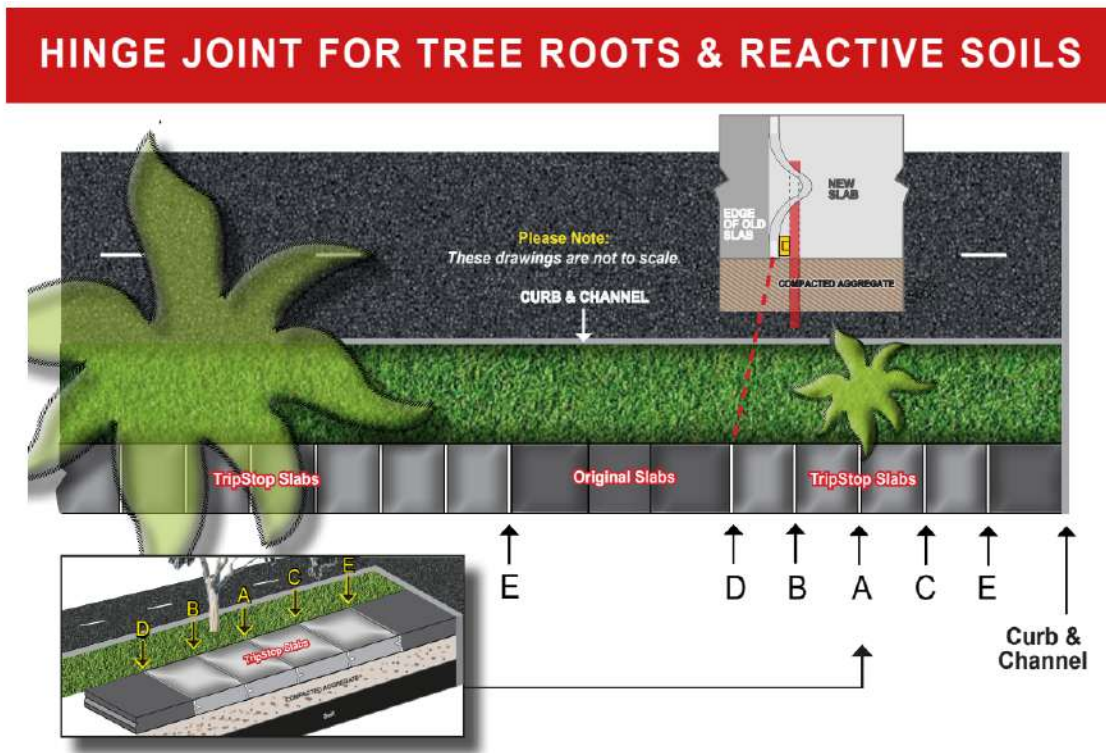
South side limb failure (close up) shows decay/splintered wood indicating prior failure, not pruning wound. Smaller pruning wound above is sealed.

Discussion

The City of White salmon plans to change the site design in the future. While site plans have not been reviewed, the option of extending the sidewalk into the road area is under consideration. Meanwhile, a temporary solution must be implemented to achieve sidewalk functionality. The first step will be to remove existing pavement carefully to avoid root damage. This requires a cement saw and pry-bars, OR a carefully maneuvered excavator claw to remove pieces of the panel. Jack hammers or sledge hammers can crack and damage roots below and are not recommended.

The following options may be considered:

1. Root pruning may be conducted under the supervision of a Certified Arborist. This is most likely possible for roots under 2". Based on the nature of the pavement disruption, a significant root over 4" is likely present. If found, root pruning will likely not be recommended as that could destabilize the tree, leading to basal failure.
2. A. Fill over the root area with clear angular gravel overlaid with geotextile, sand, and pavers, or rubberized pavement or asphalt as a temporary solution. OR
B. Pour new sidewalk panels that ramps over the roots in conjunction with hinge joints such as Tripstop(r) that maintain aligned sidewalk slab joints as roots grow. Evaluate the need for additional roadway asphalt to meet code requirements for curb height.



Risk Assessment

The tree was assessed with a Level 2 or Basic Tree Risk Assessment, the industry standard developed by the International Society of Arboriculture. This method outlines the process for evaluating tree risk that evaluates the likelihood of failure, the nature of the targets (property or people that may be impacted by tree failure), and the consequences of failure.

Risk Rating

This tree has a history of branch failure and excessive end weight. The risk rating in its current condition is moderate - and the most likely mechanism of failure is branch failure in a wind event. Pruning for end weight reduction will reduce the risk rating of this tree to low.

Timeframe

For each risk assessment, the Arborist must identify a time frame. This risk assessment considers failures that may occur within a limited time frame of 5 years.

Targets

Targets are occupants and features that may be damaged in the event trees or branches fail. In this case, the targets assigned for this assessment are the adjacent buildings with constant occupancy, parked vehicles with frequent occupancy, crosswalk and sidewalk pedestrians with occasional occupancy, drivers of vehicles in the road with occasional occupancy, landscaping, and hardscape with low likelihood of damage from tree failure.

Recommendations

Based on these findings, TCG recommends the following for this mature, fair condition, moderate risk tree:

- **Additional Assessment:** Pavement may be removed carefully to allow a visual inspection of roots. This will allow managers to have more information about the quantity and quality of roots, whether

roots were pruned before, and the actual current height required for ramping over the roots and therefore, an indicator if road (re)pavement will also be required.

OR

- Pruning: routine end-weight reduction/clearance pruning (cuts largely below 3” diameter in the upper outer ⅓ of the canopy) and aerial inspection for hidden defects every 3-5 years will decrease the likelihood of future limb failure, resulting in a residual risk rating of low. This should be conducted within the next 1-2 years. The tree must be pruned up to 8 feet above sidewalks for clearance and 14 feet above any roadways. The tree should be monitored, and an arborist consulted if changes are noticed in vigor or lean, and after significant storms. The adjacent retaining wall and upper sidewalk should also be monitored for cracking.
- Sidewalk repair with adaptive design: The costs associated with pavement repair options should be explored. Traditional concrete slab pavement installation will not achieve lasting functional results and is likely to be disrupted within 2-8 years. Therefore, an adaptive solution as described in the discussion section is strongly recommended.

OR

- Tree removal and replacement may be considered. Removal will require a traffic plan and stump grinding. It will likely require 30-40 years to grow a tree of comparable size with comparable ecosystem and property value benefits. This option should be pursued if pruning and repair options are found to be cost prohibitive.

Conclusion

The sidewalk disruption was a trigger for this tree risk assessment, leading to assessment of the remaining tree parts, and a discussion of sidewalk repair solutions. Managers were prudent in requesting this assessment and reviewing this assessment to inform decisions about maintenance/mitigation priorities.

Appendix: Photo Documentation



Photo 1. View facing east showing site, upper and lower sidewalk



Photo 2. View facing west showing site, upper and lower sidewalk



Photo 3. Close view of south trunk wound/ previous branch failure



Photo 4. DBH tape on trunk showing over 25" DBH May 20, 2022