

# Tree Risk Assessment Overview & Options



What is tree risk assessment? Why are tree risk assessments recommended and conducted? Put simply, tree risk assessment is the systematic process used to identify, analyze, and evaluate tree risk. Tree risk assessments are recommended and conducted to assist the tree owner in understanding the risk their trees pose so they can make management decisions to reduce or minimize those risks. In this context, the risk is the likelihood of a tree or tree part failing, impacting a target (e.g., a person, building, vehicle, utilities, etc.), and the consequences of that failure and impact (e.g., a person could be severely injured, a building could be significantly damaged, a vehicle could have minor damage, etc.).

Tree risk assessments focus on evaluating the structural integrity of the tree crown, branches, trunks, roots, and root collar. They require special expertise and should only be performed when risk information is required to help make a management decision. They can be performed on a single tree, several trees, a large population of trees, and/or in combination with a tree inventory and management plan. These assessments range from visual to advanced, where specialized equipment may be required. Consulting Arborists who are ISA Certified and Tree Risk Assessment Qualified are utilized for these assessments.

The three tree risk assessment levels described by the International Society of Arboriculture and the American National Standards Institute are detailed below.

## Level 1 Limited Visual Assessment

Level 1 limited visual assessments can provide managers with a cost-effective way to help them begin to understand the risk their trees pose. This level of assessment is typically used to



**Figure 1:** Assessors look for trees that meet the defined criteria.

quickly assess large areas and tree populations (e.g., campuses, municipalities, property borders, etc.) to prioritize higher-risk trees. A Level 1 limited visual assessment is conducted from a defined perspective (e.g., from the sidewalk, street, or aerial view) to assess risk to specified targets from obvious defects or specified conditions. Typically, the assessor will record the location of trees that meet your defined criteria (e.g., significant defects or other conditions of concern) (Figure 1), evaluate the risk, identify trees requiring a higher level of assessment (Level 2 or Level 3) and/or prompt action, and submit risk mitigation options and/or a report.

It is important to understand that Level 1 assessments are the least thorough means of assessment. Some defects or conditions will not be visible, and not all higher-risk trees will be accurately identified. Depending on your management and tree risk goals, this level of assessment may not provide enough information to assign a risk rating, make a risk mitigation recommendation, or determine residual risk.

## Level 2 Basic Assessment

When managers or tree owners need more information on the risk their tree(s) poses, a Level 2 basic assessment is a logical next step. Level 2 basic assessments are commonly performed for individual residential trees, specified trees throughout a campus, or for trees identified in a Level 1 limited visual assessment as needing a higher level of assessment.

A Level 2 basic assessment is a detailed visual inspection of a tree and its surrounding site, and a synthesis of the information collected. It requires a 360° ground-based inspection around a tree, including the site conditions, visible buttress roots, trunk, branches, and crown. The assessor may use tools such as binoculars, mallets, or probes to gather more information (Figure 2).

At this level, the assessor records all observations and analyzes the data to determine the likelihood of failure, likelihood of impact, and consequences of failure to evaluate the degree of risk in a written report. The report provides mitigation options, including recommending a Level 3 advanced assessment(s) if necessary, estimating the residual risk for each mitigation option, and recommending a re-assessment interval.

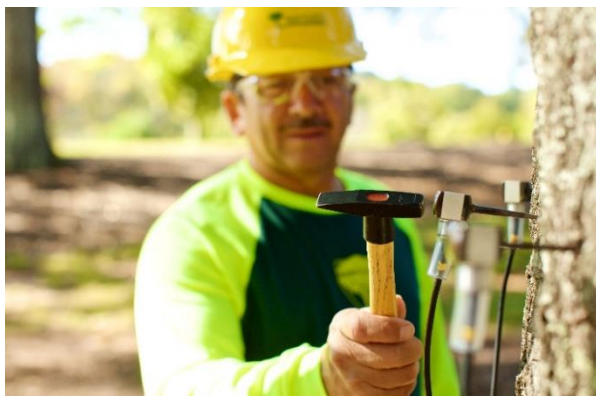
Although a Level 2 assessment has greater detail than a Level 1, it is important to understand that only those conditions and defects that can be detected visually from the ground at the time of the assessment can be included. Below-ground, internal, or upper-crown conditions, decay, and defects may not be detected.



**Figure 2:** Assessors may use tools, like a mallet, to gather more information.

## Level 3 Advanced Assessment

At times, a high level of detail is needed before a tree-related decision can be made. When historic or significant trees may need to be removed, when all avenues are required to be exhausted before arriving at a removal recommendation, or when more detailed information than a Level 2 assessment can provide is needed, a Level 3 advanced assessment may be performed.



**Figure 3:** Assessors may use specialized technology to provide more detailed information.

These assessments are performed to provide detailed information about specific tree parts, defects, targets, or site conditions. These are usually conducted in conjunction with or after a Level 2 assessment with owner/client approval. Specialized equipment, data collection and analysis, and/or expertise are usually required for Level 3 assessments.

Sonic tomography, resistance drilling, and aerial inspections are common tools and techniques used for these assessments. While these are valuable, each technology may have uncertainty, require qualified estimations, and exact measures may not be feasible. Assessors use the information gained from the specialized technology in combination with their experience and knowledge to arrive at their mitigation options.

Please contact the Consulting Advisor team at [consulting@bartlett.com](mailto:consulting@bartlett.com) to find out more information or to schedule a conference call or webinar presentation. You can also visit [www.bartlett.com/bartlett-consulting.cfm](http://www.bartlett.com/bartlett-consulting.cfm) to learn more about the Bartlett Consulting team.

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