



Tree Hazards



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Terms

- ▶ Hazard: A defect in a tree that may lead to branch or whole tree failure.
- ▶ Target: An object or person that can be struck by a falling branch or tree.
- ▶ Risk: A rating assigned to a tree based on defects, locations, targets, and consequences.
- ▶ Failure: A situation where a branch breaks off a tree, or the whole tree falls.

First, ask the history of the site

Were there previous trees that uprooted?

Was there construction in the last 5 years?

Have you previously been notified of a hazard?



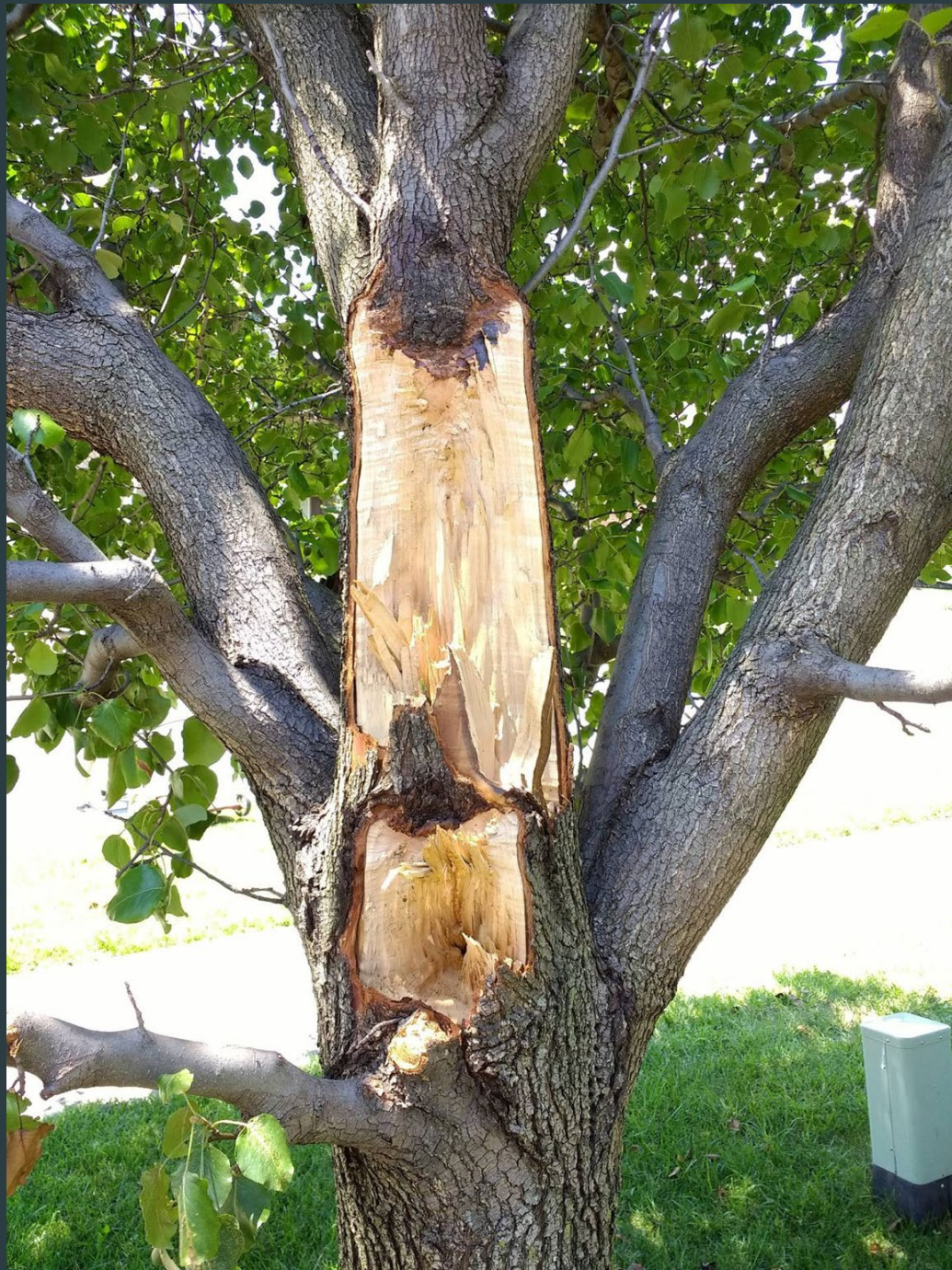
Next, what is your personal appetite for risk?

“None”



Dead or Broken Branches





Cracks in branch unions or trunk





Tree defects that undermine structural roots can lead to the whole tree falling



Fungal fruiting bodies (mushrooms) can be an indicator of interior decay in a tree



These fungi are saprophytes, which feed on dead and decaying wood. If they are found in the main stem or root flares, they can indicate that future tree failure is possible



This can occur anywhere on the trunk or at branch unions. Root flares are the most critical though



A sudden change in tree lean should be addressed as soon as possible

Trees naturally grow toward the light (phototropism), so it is not unusual for the top of a tree to lean. However, if the base of the tree (root flares) begins to lean, the tree may be actively uprooting.



Other signs of a tree beginning to uproot include soil cracking



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And soil heaving



Large cavities with poor compartmentalization
can lead to a loss of stability



Severe girdling roots can kill structural roots leading to a loss of stability



Lightning Strikes





Some Simple Diagnostics





Root flare excavation



Binoculars for looking up into canopy



An arborist can perform a Tree Risk Assessment

ISA Basic Tree Risk Assessment Form

Client _____ Date _____ Time _____
Address/Tree location _____ Tree no. _____ Sheet _____ of _____
Tree species _____ dbh _____ Height _____ Crown spread dia. _____
Assessor(s) _____ Time frame _____ Tools used _____

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1 - rare 2 - occasional 3 - frequent 4 - constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x dia.	Target within 2 x dia.			
1							
2							
3							
4							

Site Factors

History of failures _____ Topography Flat ☐ Slope ☐ _____ % Aspect _____
Site changes None ☐ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe _____
Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☐ _____ % Describe _____
Prevailing wind direction _____ Common weather Strong winds ☐ Ice ☐ Snow ☐ Heavy rain ☐ Describe _____

Tree Health and Species Profile

Vigor Low ☐ Normal ☐ High ☐ Foliage None (seasonal) ☐ None (dead) ☐ Normal _____ % Chlorotic _____ % Necrotic _____ %
Pests _____ Abiotic _____
Species failure profile Branches ☐ Trunk ☐ Roots ☐ Describe _____

Load Factors

Wind exposure Protected ☐ Partial ☐ Full ☐ Wind funneling ☐ Relative crown size Small ☐ Medium ☐ Large ☐
Crown density Sparse ☐ Normal ☐ Dense ☐ Interior branches Few ☐ Normal ☐ Dense ☐ Vines/Mistletoe/Moss ☐
Recent or planned change in load factors _____

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐ LCR _____ %
Dead twigs/branches ☐ _____ % overall Max. dia. _____
Broken/Hangers Number _____ Max. dia. _____
Over-extended branches ☐

Pruning history
Crown cleaned ☐ Thinned ☐ Raised ☐
Reduced ☐ Topped ☐ Lion-tailed ☐
Flush cuts ☐ Other _____

Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐
Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

Cracks ☐ Lightning damage ☐
Codominant ☐ Included bark ☐
Weak attachments ☐ Cavity/Nest hole _____ % circ.
Previous branch failures ☐ Similar branches present ☐
Dead/Missing bark ☐ Cankers/Galls/Burls ☐ Sapwood damage/decay ☐
Conks ☐ Heartwood decay ☐
Response growth _____

— Trunk —

Dead/Missing bark ☐ Abnormal bark texture/color ☐
Codominant stems ☐ Included bark ☐ Cracks ☐
Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐
Lightning damage ☐ Heartwood decay ☐ Conks/Mushrooms ☐
Cavity/Nest hole _____ % circ. Depth _____ Poor taper ☐
Lean _____ * Corrected? _____
Response growth _____
Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐
Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

— Roots and Root Collar —

Collar buried/Not visible ☐ Depth _____ Stem girdling ☐
Dead ☐ Decay ☐ Conks/Mushrooms ☐
Ooze ☐ Cavity ☐ _____ % circ.
Cracks ☐ Cut/Damaged roots ☐ Distance from trunk _____
Root plate lifting ☐ Soil weakness ☐
Response growth _____
Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐
Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

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Certain tree companies have additional technology for detecting decay in trees



When Hiring a Tree Contractor

Be sure that any contractor who will work on your trees is a Maryland Licensed Tree Expert (LTE). All companies performing pruning, removals, and tree healthcare treatments must be licensed by the state. This proves that they meet insurance requirements and that they have passed a knowledge test.



Questions?

