

Community Tree Risk Assessment

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US Forest Service

Urban Natural Resources Institute

Presented at:

Massachusetts Tree Wardens & Foresters Association

Professional Development Series

March 28, 2012

Community Tree Risk Assessment

Today's PowerPoint Presentation



www.unri.org/research-documents

Overview of Today's Presentation



- **Urban Risk Management Manual**
- **Establishing Levels of Risk**
- **Prioritization**
- **Systematic Approach**
- **Model Template**
- **Sample Exercises**
- **Wrap-up**

Urban Tree Risk Management:

A Community Guide to Program Design and Implementation



USDA Forest Service
Northeastern Area
Nature and Private Forestry

1992 Fulwell Ave.
St. Paul, MN 55108

NA-TP-03-03

CHAPTER 3 - How to Detect and Assess Hazardous Defects in Trees

Since this chapter contains many photographs, it is represented in eight manageable and downloadable sections.

Section 1

Defects and Their Risk of Failure

Section 2

The Seven Defect Categories
Decayed Wood

Section 3

Cracks

Section 4

Root Problems

Section 5

Weak Branch Unions
Cankers

Section 6

Poor Tree Architecture
Dead Tree, Top, or Branch

Section 7

Tree Risk Inspections and Use of Specialized Diagnostic Tools

Root Collar and Stem Girdling Roots Assessments

Decay Detection Assessments

Examples of Decay Detection Devices Commonly Used in the United States

Metal Rod

Rubber Mallet

Increment Borer

Penetrometers

Electrical Conductivity Meters (Shigometer/Vitalometer)

Sonic and Ultrasonic Detectors

Fractometer

A Final Word About Decay Detection Devices

Formulating Tree Risk Ratings

A 7-Step Process Using the Minnesota DNR system

Step 1. Locate and Identify Trees to be Inspected

Step 2. Inspect Individual Trees and Assess Their Defect(s)

Step 3. Estimate the Risk Rating for Each Tree

Step 4. Prioritize Highly Defective Trees for Treatment

Step 5. Conduct a Public Review Before Implementing Corrective Actions

Step 6. Take Corrective Action as Soon as Possible on the Highest Risk Trees

Step 7. Document the Process: Inspection Results, Actions Recommended and Actions Taken

A 7-Step Process Using the USDA Forest Service Community Tree Risk Rating System

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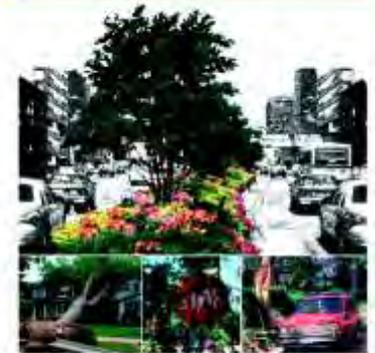
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CHAPTER 4 - Prevention of Hazardous Tree Defects

Section 1

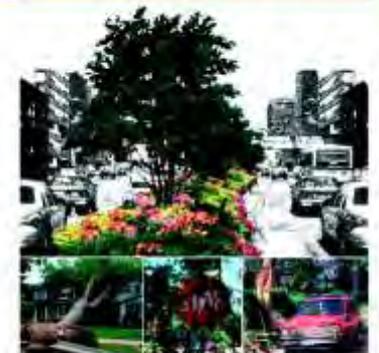
- Introduction
- Designing a Species-Diverse, Uneven-Aged Urban Forest
- Matching Tree Species to Site Conditions
- Site Characteristics That Affect Tree Species Selection
 - Soil pH
 - Soil Compaction
 - Soil Drainage
 - Low Light Situations
 - Exposure to Sun and Wind
 - Susceptibility to Ice, Snow, and Wind Damage
 - De-icing Salt Damage
 - Human Use of the Area
 - Space Limitations
 - Urbanization of Woodlands
- Purchasing High Quality Nursery Stock
 - What Determines Tree Quality?
 - Inspect Nursery Stock to Verify Quality

Section 2

- Proper Tree Planting Techniques
 - Basic Planting Guidelines for All Tree Types
 - Planting Guidelines For Special Situations
- Proper Tree Pruning Techniques
 - Pruning Schedules
 - Pruning Young Trees
 - Basic Pruning Methods
 - Wound Dressings
 - Timing of Pruning
- Protection of Trees From Construction Damage
 - Protect Healthy, Structurally Sound Trees – “Save the Best – Chip the Rest”
 - Protect Trees from Direct Injury
 - Protect the Structural Integrity of Trees
 - Protect the Overall Health of Trees Throughout Construction
 - Street Trees and Construction Damage
- Authors
- Acknowledgements
- Literature Cited
- General Reference

Urban Tree Risk Management

A Community Guide to Program Design and Implementation



CHAPTER 5 - Correction of Hazardous Defects in Trees

Section 1

- Introduction
- Strategies for Corrective Action
 - Moving the Target
 - Correcting the Tree
 - Pruning
 - Cabling and Bracing

Section 2

- Converting Hazardous Trees Into Wildlife Trees
 - How Trees Benefit Wildlife
 - Wildlife Cycle of a Tree
 - Criteria for Selecting Wildlife Trees
 - When to Consider Converting a Defective Tree into a Wildlife Tree
- Closing the Area
- Removing the Tree
- Implementing Corrective Actions
- Authors
- Literature Cited

APPENDICES

- APPENDIX 1 - Summary of Survey Responses
- APPENDIX 2 - California Tree Failure Report Form
- APPENDIX 3 - HOW to Prune Treesx

- Introduction
- Reasons For Pruning
- Pruning Approaches
 - The most common types of pruning are:

1. Crown Thinning (Fig. 2)
2. Crown Raising (Fig. 4)
3. Crown Reduction (Fig. 5)

Pruning Cuts

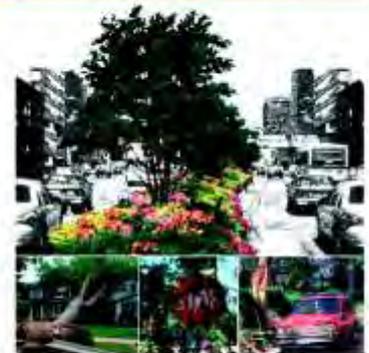
1. Pruning living branches (Fig. 6)
2. Pruning dead branches (Fig. 6)
3. Drop Crotch Cuts (Fig. 6D)

- Pruning Practices That Harm Trees
- When to Prune
- Pruning Tools
- Treating Wounds
- Pruning Guidelines
- Glossary
- Authors
- References
- Northeastern Area State and Private Forestry Offices

- Glossary
- Index

Urban Tree Risk Management

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www.uctr.org

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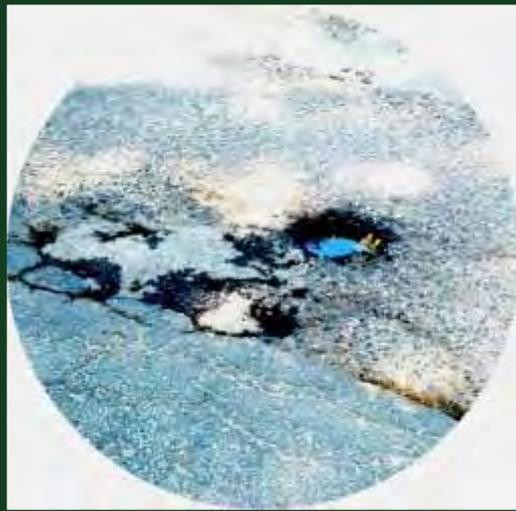
Urban Infrastructure and Levels of Risk

Levels of risk are associated with most urban infrastructure, including:

- sidewalks
- streets
- playgrounds
- utilities
- transportation

Prioritizing “Levels of Risk”

- Some need “**immediate**” attention
- Some placed on the “**back burner**”
- Some regarded as “**acceptable,**” e.g.,



Pot Holes



Uneven
Sidewalks



Bridges

A Systematic Approach is Necessary

To accurately assign levels of risk, managers need to be guided by a systematic approach:



- Observe
- Monitor
- Evaluate
- Prioritize
- Take Action

Reduce Personal or Property Damage



And, Many Potential Problems are

Predictable and Preventable



Levels of Risk Can be Assessed

Urban Forest Managers Must be Trained and Experienced in Risk Detection:



Monitor for Indicators:

- Decay



Monitor for Indicators:

- Poor Branch Attachments



Monitor for Indicators:

- Site condition changes, such as root loss



Monitor for Indicators:

- Exposure to Wind



Urban Forest Managers

Need Training and Experience to Determine Best Treatment Options:

- Move the Target
- Treat the Tree
- Convert to Wildlife Tree
- Close the Site
- Remove the Tree

Treatment Options:

- Move the Target



Treatment Options:

- Prune/treat the Tree



Treatment Options:

- Convert to a “Wildlife Tree”
[reduce the tree risk]



Treatment Options:

- Close the site
[often not practical in urban settings]



Treatment Options:

- Remove the Tree



Reasonable Care

“Reasonable Care” is most achievable when risk management is part of the design and planning of all aspects of the urban infrastructure: green and gray

Knowledge Gained

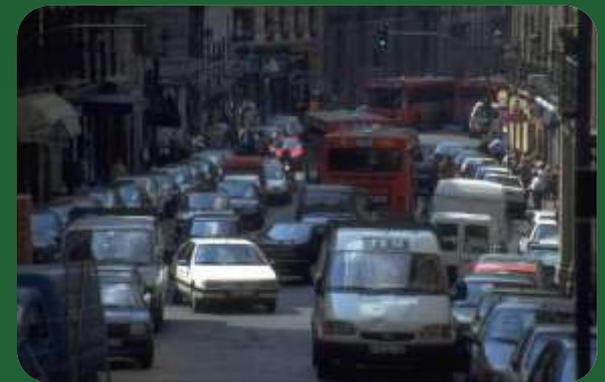
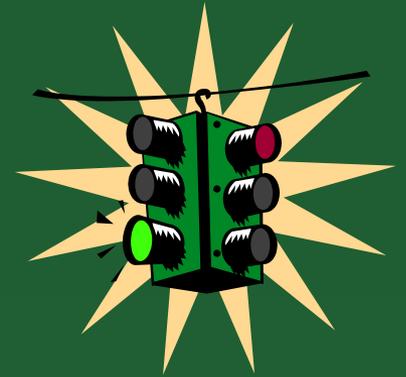


An investment that reduces the catastrophic impact of future storms on the health of the urban forest.

Knowledge Gained

Tree risk management is an issue critical to public safety, similar in importance to other essential public services such as:

- Traffic Signal Maintenance & Repair
- Roadway construction & repair
- Sewage disposal
- Safe drinking water



Urban Tree Risk Management:

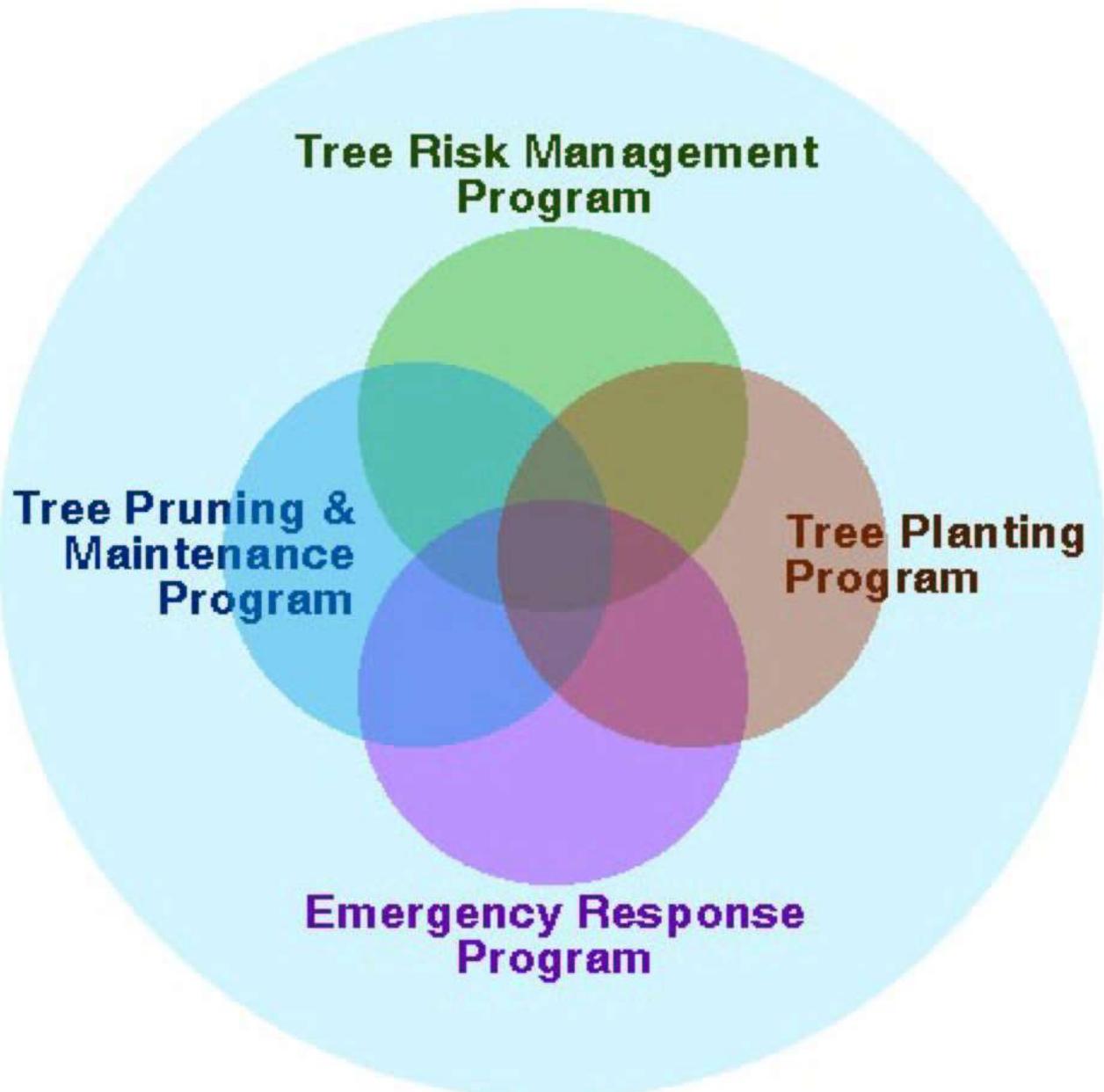
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Tree Risk Management Program

Tree Pruning & Maintenance Program

Tree Planting Program

Emergency Response Program

THE PLANNING PROCESS



What
Do You
Have?



Are You
Getting What
You Want?

What
Do You
Want?



How Do You
Get What
You Want?



Program Planning and Design

Strategic approach to prioritize tree risk inspections and corrective actions:

- Divides the community into tree risk zones

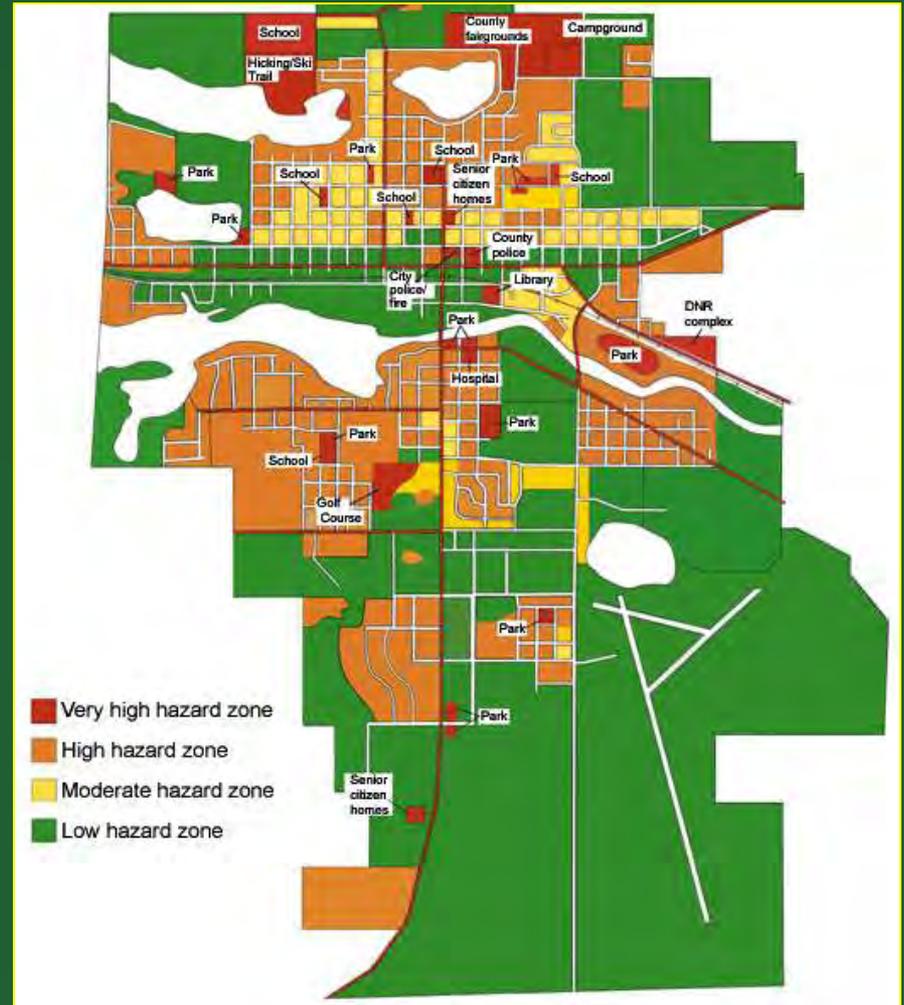
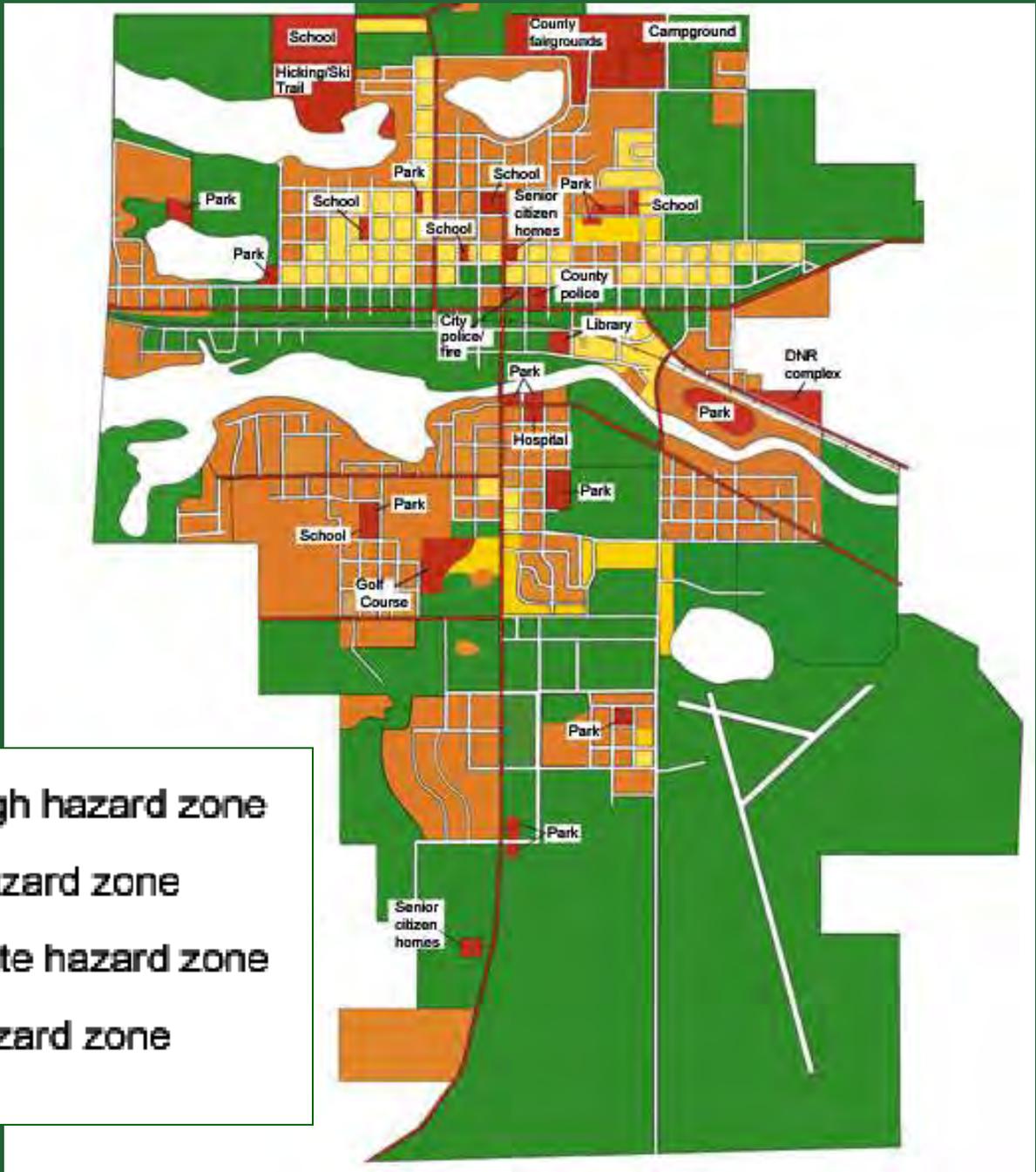
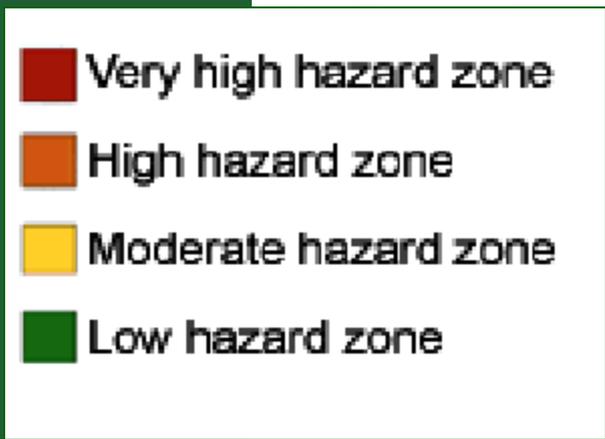


Table 2.1. Tree risk zone categories; color codes; and examples of roadways, public buildings and use areas, and tree characteristics that pertain to each tree risk zone.

Hazard Zone Categories	Color Codes	Examples
Very High Hazard	Red	<ol style="list-style-type: none"> 1. Emergency access routes 2. Medical and emergency facilities and shelters, handicap access areas 3. School playgrounds 4. In high-use parks/public areas: permanent structures and drive-in campsites 5. Individual trees or neighborhoods with very high-risk tree characteristics such as : <ul style="list-style-type: none"> • standing dead trees or those with very poor condition class ratings • severely storm-damaged trees • trees that visually obstruct traffic signs, stop lights, or security lights • tree roots causing severe sidewalk buckling
High Hazard	Orange	<ol style="list-style-type: none"> 1. Main thoroughfares: congested intersections and visually obstructed traffic signs and stoplights 2. High-use parks, playgrounds, and picnic areas 3. Golf courses 4. Parking lots adjacent to high-use public areas 5. Bus stops along high-use thoroughfares 6. Individual trees or neighborhoods with high-risk tree characteristics such as: <ul style="list-style-type: none"> • old growth trees • high density of large diameter, mature, or "problem" tree species • root injury caused by sidewalk or road construction • storm-damaged trees
Moderate Hazard	Yellow	<ol style="list-style-type: none"> 1. Secondary roadways: congested intersections and visually obstructed traffic signs and stoplights 2. Neighborhoods with a moderate density of large diameter, mature or "problem" tree species 3. Moderate-use parks, playgrounds and picnic areas 4. Parking lots adjacent to moderate-use areas
Low Hazard	Green	<ol style="list-style-type: none"> 1. Low-use roads and public areas with dispersed recreation 2. Open areas, woods, riparian zones, and peripheral areas with limited use or access 3. Neighborhoods with a low density of large diameter, mature, or "problem" tree species

Community Tree Risk Management

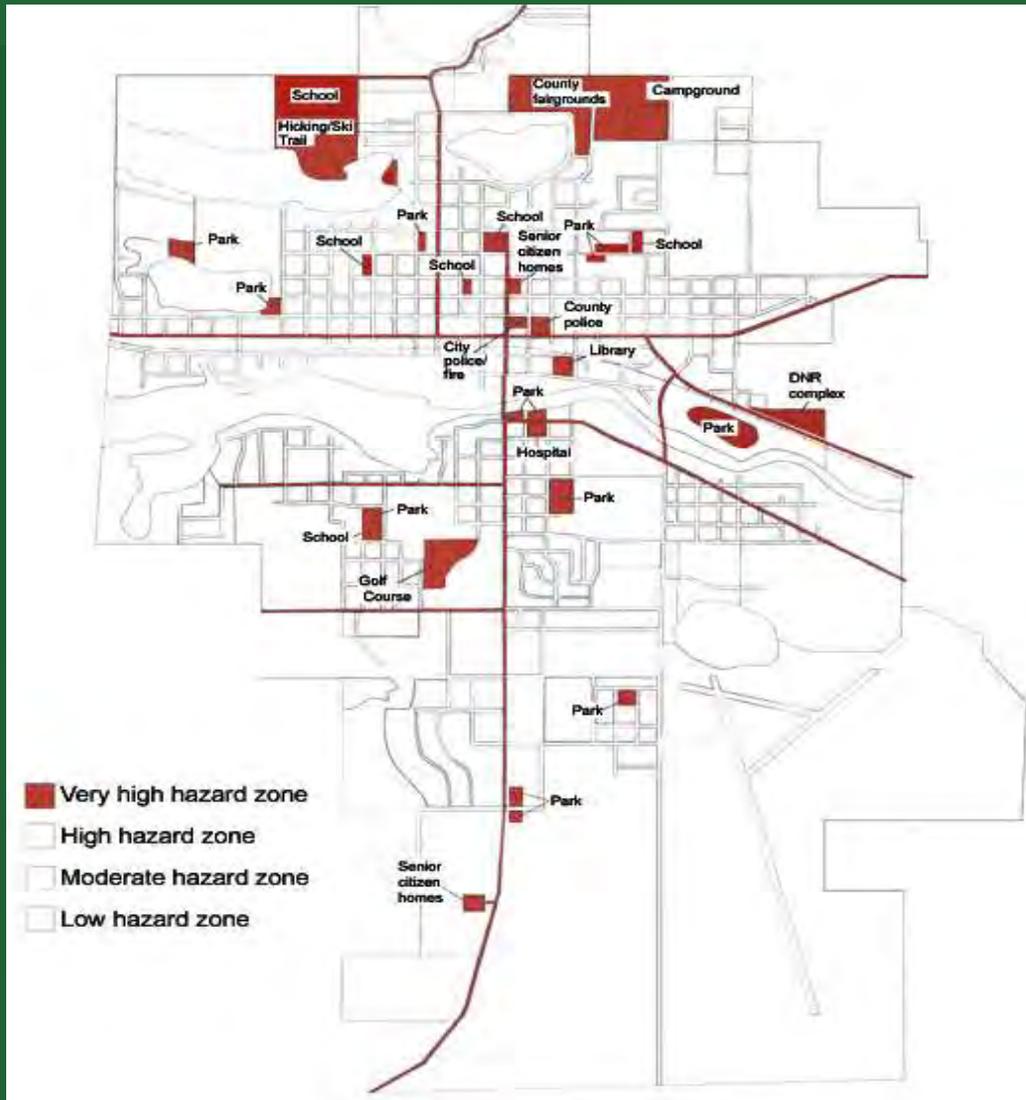


Prioritize Inspection and Corrective Action Needs

Divide the community into tree risk zones

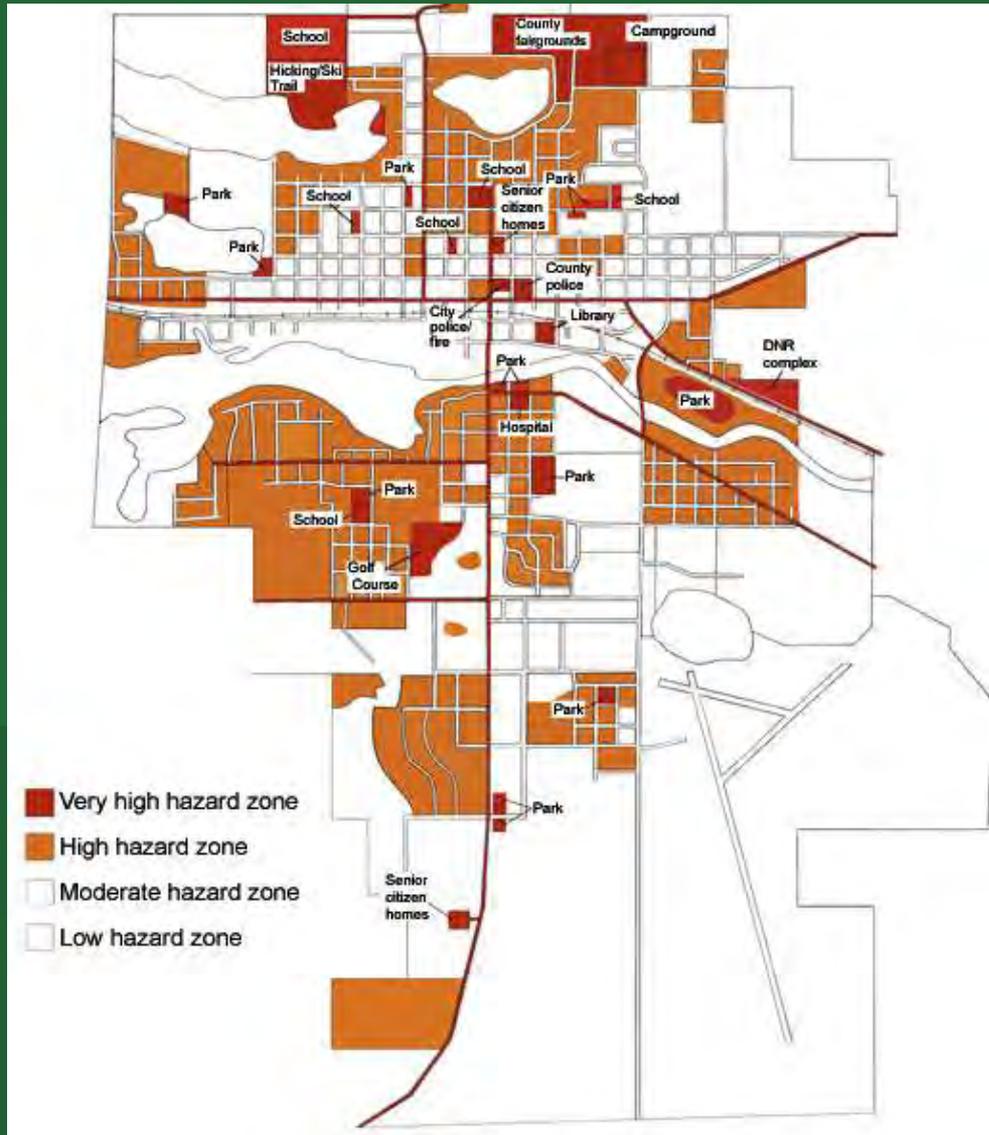
-  Very high hazard zone
-  High hazard zone
-  Moderate hazard zone
-  Low hazard zone

Very High Hazard Zones



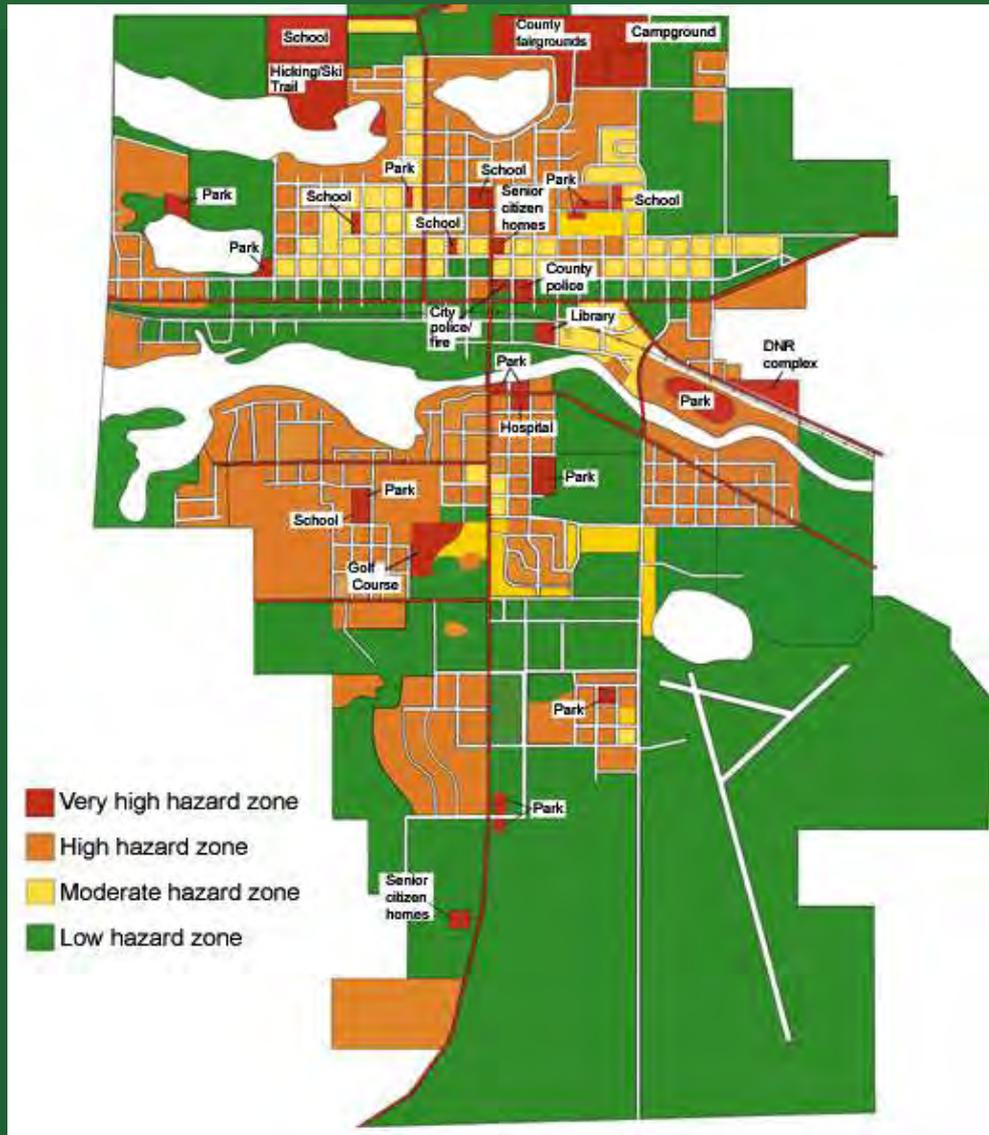
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2. Medical and emergency facilities and shelters,
3. School playgrounds
- 4 High-use parks/public areas: permanent structures and drive-in campsites
5. Individual trees or neighborhoods with very high-risk trees
 - standing dead trees
 - severely storm-damaged trees
 - trees that visually obstruct traffic signs, stop lights, or security lights
 - tree roots causing severe sidewalk buckling

High Hazard Zones



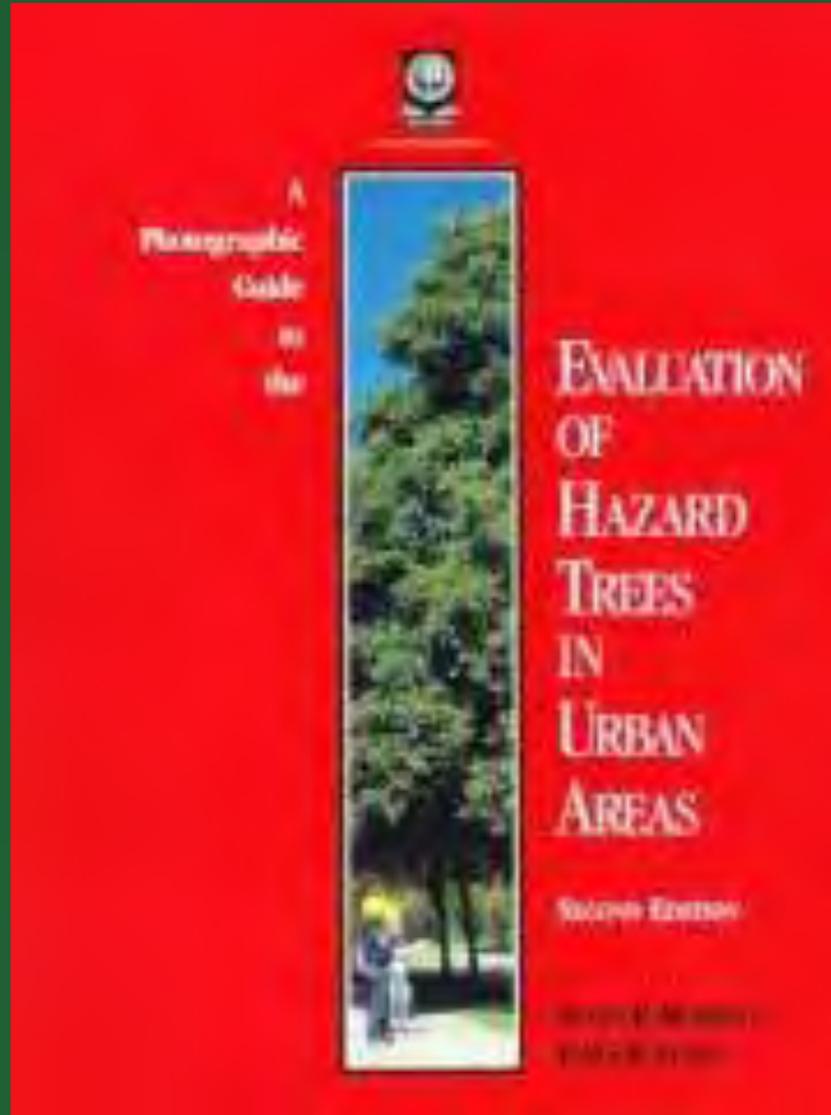
1. Main thoroughfares:
congested intersections
visually obstructed traffic
signs and stoplights
2. High-use parks,
playgrounds, and picnic
areas
3. Golf courses
4. Parking lots adjacent to
high-use public areas
5. Bus stops along high-use
thoroughfares
6. High-risk trees
 - old growth trees
 - high density of large
diameter, mature, or
“problem” tree species
 - root injury caused by
sidewalk or road
construction

Low Hazard Zones



1. Low-use roads and public areas with dispersed recreation
2. Open areas, woods, riparian zones, and peripheral areas with limited use or access
3. Neighborhoods with a low density of large diameter, mature, or “problem” tree species

Tree Inspection and Risk Ratings



Tree Inspection and Risk Ratings



A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas
TREE HAZARD EVALUATION FORM 2nd Edition

Site/Address: 1108 S. McKinley Dr.
 Map/Location: 632 H3
 Owner: public private unknown other
 Date: 3/16/10 Inspector: Luis Torres WC 6518A
 Date of last inspection: 1/12/10

HAZARD RATING:						
4	+	3	+	4	=	11
Failure Potential		Size of part		Target Rating		Hazard Rating
<input checked="" type="checkbox"/> Immediate action needed <input type="checkbox"/> Needs further inspection <input type="checkbox"/> Dead tree						

TREE CHARACTERISTICS

Tree #: 1 Species: American elm Ulmus americana
 DBH: 19" # of trunks: 1 Height: 40' Spread: 30'
 Form: generally symmetric minor asymmetry major asymmetry stump sprout stag-headed
 Crown class: dominant co-dominant intermediate suppressed
 Live crown ratio: 90 % Age class: young semi-mature mature over-mature/senescent
 Pruning history: crown cleaned excessively thinned topped crown raised pollarded crown reduced flush cuts cabled/braced
 none multiple pruning events Approx. dates: _____
 Special Value: specimen heritage/historic wildlife unusual street tree screen shade indigenous protected by gov. agency

TREE HEALTH

Foliage color: normal chlorotic necrotic Epicormics? Y
 Foliage density: normal sparse Leaf size: normal small
 Annual shoot growth: excellent average poor Twig Dieback? Y
 Woundwood development: excellent average poor none
 Vigor class: excellent average fair poor
 Major pests/diseases: Slime Flux

Growth obstructions:
 stakes wire/ties signs cables
 curb/pavement guards
 other side-walk

SITE CONDITIONS

Site Character: residence commercial industrial park open space natural woodland/forest
 Landscape type: parkway raised bed container mound lawn shrub border wind break
 Irrigation: none adequate inadequate excessive trunk wetted
 Recent site disturbance? Y construction soil disturbance grade change line clearing site clearing
 % dripline paved: 0% 10-25% 25-50% 50-75% 75-100% Pavement lifted? Y
 % dripline w/ fill soil: 0% 10-25% 25-50% 50-75% 75-100%
 % dripline grade lowered: 0% 10-25% 25-50% 50-75% 75-100%
 Soil problems: drainage shallow compacted droughty saline alkaline acidic small volume disease center history of fail
 clay expansive slope _____ * aspect: _____
 Obstructions: lights signage line-of-sight view overhead lines underground utilities traffic adjacent veg.
 Exposure to wind: single tree below canopy above canopy recently exposed windward, canopy edge area prone to windthrow
 Prevailing wind direction: S/W Occurrence of snow/ice storms: never seldom regularly

TARGET

Use Under Tree: building parking traffic pedestrian recreation landscape hardscape small features utility lines
 Can target be moved? Y Can use be restricted? Y
 Occupancy: occasional use intermittent use frequent use constant use

The International Society of Arboriculture assumes no responsibility for conclusions or recommendations derived from use of this form.

Tree Inspection and Risk Ratings

TREE DEFECTS _____

TOT DEFECTS:

Suspect root rot: Y N Mushroom/cock/bracket present: Y N ID: _____

Exposed roots: severe moderate low Undetermined: severe moderate low

Root pruned: _____ distance from trunk Root area affected: _____% Buttress wounded: Y N Whorl: _____

Restricted root area: severe moderate low Potential for root failure: severe moderate low

LEAN: _____ deg. from vertical natural unnatural self-corrected Soil heaving: Y N

Decay in plane of lean: Y N Roots broken: Y N Soil cracking: Y N

Composing factors: _____ Lean severity: severe moderate low

CROWN DEFECTS: Indicate presence of individual defects and rate their severity (s = severe, m = moderate, l = low)

DEFECT	ROOT CROWN	TRUNK	SCAFFOLDS	BRANCHES
Poor taper				
Bow, sweep				
Codominants/forks				
Multiple attachments				
Included bark				
Excessive end weight				
Cracks/splits				
Hangers				
Girdling				
Wounds/scar				
Decay				
Cavity				
Corks/mushrooms/bracket				
Bleeding/sap flow				
Loose/cracked bark				
Nesting hole/bee hive				
Deadwood/stubs				
Borers/termites/ants				
Cankers/galls/burls				
Previous failure				

HAZARD RATING _____

Tree part most likely to fail: _____ Failure potential: 1 - low; 2 - medium; 3 - high; 4 - severe

Inspection period: _____ annual _____ biannual _____ other _____ Size of part: 1 - d^2 (15 cm); 2 - 6-18" (15-45 cm);
3 - 18-30" (45-75 cm); 4 - >30" (75 cm)

Failure Potential + Size of Part + Target Rating = Hazard Rating Target rating: 1 - occasional use; 2 - intermittent use;
3 - frequent use; 4 - constant use

_____ + _____ + _____ = _____

HAZARD ABATEMENT _____

Prune: remove defective part reduce end weight crown clean thin raise canopy crown reduce restructure shape

Cable/Brace: _____ Inspect further: root crown decay aerial monitor

Remove tree: Y N Replace? Y N Move target: Y N Other: _____

Effect on adjacent trees: none evaluate

Notification: owner manager governing agency Date: _____

COMMENTS _____

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Can target be moved? Y N Can use be restricted? Y N

Occupancy: occasional use intermittent use frequent use constant use

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Root pruned: _____ distance from trunk Root area affected: _____% Buttress wounded: Y N When: _____

Restricted root area: severe moderate low Potential for root failure: severe moderate low

LEAN: _____ deg. from vertical natural unnatural self-corrected Soil heaving: Y N

Decay in plane of lean: Y N Roots broken Y N Soil cracking: Y N

Compounding factors: _____ Lean severity: severe moderate low

CROWN DEFECTS: Indicate presence of individual defects and rate their severity (s = severe, m = moderate, l = low)

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Cracks/splits				
Hangers				
Girdling				
Wounds/seam				
Decay				
Cavity				
Conks/mushrooms/bracket				
Bleeding/sap flow				
Loose/cracked bark				
Nesting hole/bee hive				
Deadwood/stubs				
Borers/termites/ants				
Cankers/galls/burls				
Previous failure				

HAZARD RATING

Tree Inspection and Risk Ratings

HAZARD RATING

Tree part most likely to fail: _____

Inspection period: _____ annual _____ biannual _____ other _____

Failure Potential + Size of Part + Target Rating = Hazard Rating

_____ + _____ + _____ = _____

Failure potential: 1 - low; 2 - medium; 3 - high; 4 - severe

Size of part: 1 - <6" (15 cm); 2 - 6-18" (15-45 cm);
3 - 18-30" (45-75 cm); 4 - >30" (75 cm)

Target rating: 1 - occasional use; 2 intermittent use;
3 - frequent use; 4 - constant use

HAZARD ABATEMENT

Prune: remove defective part reduce end weight crown clean thin raise canopy crown reduce restructure shape

Cable/Brace: _____ **Inspect further:** root crown decay aerial monitor

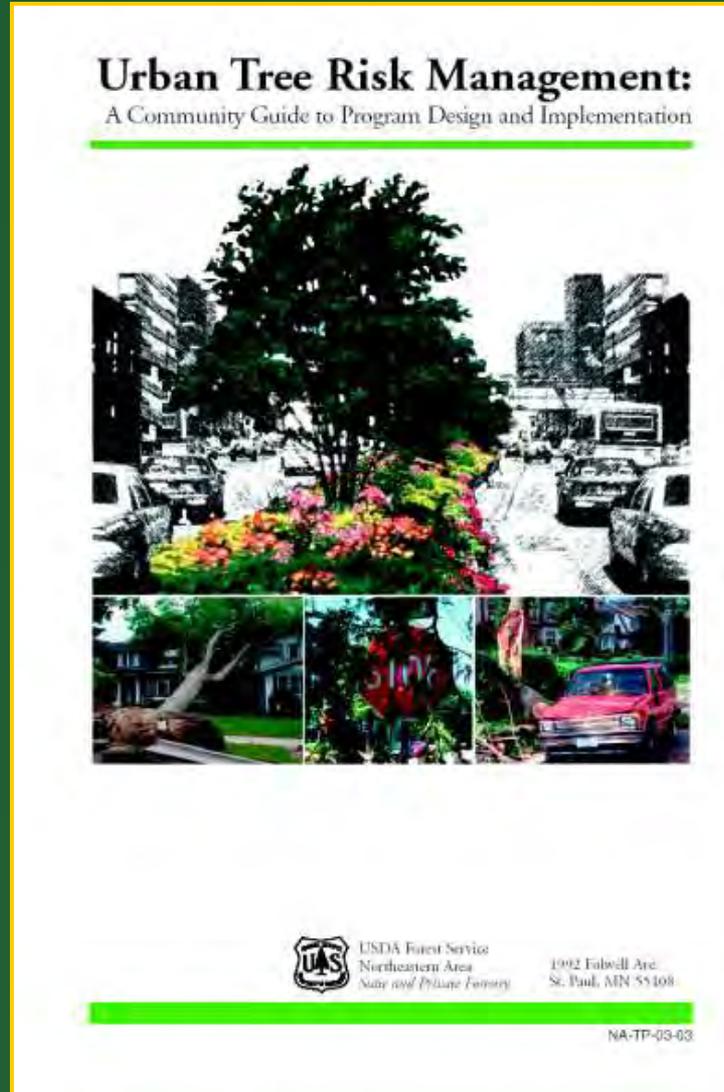
Remove tree: Y N **Replace?** Y N **Move target:** Y N **Other:** _____

Effect on adjacent trees: none evaluate

Notification: owner manager governing agency **Date:** _____

COMMENTS

Tree Inspection and Risk Ratings



Systematically Inspect Trees

Parts of the tree to inspect

- Crown
- Branch
- Branch unions
- Stem or trunk
- Root flare
- Rooting zone

Examine all sides of the tree

- From a distance
- Close-up
- Use binoculars and diagnostic tools as needed.

Risk of failure ratings

Low = Tree has defect that currently does not affect structural integrity.

Medium = Tree has defect that may develop, but currently does not warrant action.

High = Tree is in imminent danger of failing or has already partially failed due to the presence of defects.

Risk rating concept

$$\frac{1-4}{\text{Prob. of Failure}} + \frac{1-3}{\text{Size of Part(s)}} + \frac{1-3}{\text{Prob. of Target Impact}} = \frac{3-10}{\text{Risk Rating}}$$

1 - low

2 - medium

3 - high

4 - extremely high

1 - <4"

2 - 4-20"

3 - >20"

1- occasional use

2 - intermittent use

3 - frequent use

Probability of Failure

- 1 - Low: some minor defects
- 2 - Moderate: one to several moderate defects
- 3 - High: multiple or significant defects
- 4 - Extremely High: any combination of high defects

Probability of Failure

1 - Low: some minor defects present

- minor branch dieback
- minor wounds or defects

2 - Moderate: one to several defects present

- stem decay or cavity within safe shell limits
- crack(s) without decay
- major branch with weak union and included bark
- defect(s) affecting $< 40\%$ of tree's circumference or roots within CRR

Probability of Failure

3 - High: multiple or significant defects present

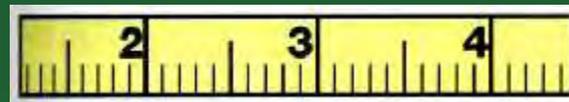
- stem decay or cavity at or approaching shell safety limits
- cracks, particularly if in contact with the soil
- weak union with crack or decay
- defect(s) affecting $> 40\%$ of tree's circumference or roots in the CRR
- leaning tree with recent root lifting or soil mounding, crack or decay
- dead tree without other significant defects

Probability of Failure

4 - Extremely high: any combination of high defects

- stem decay or cavity exceeding shell safety limits and severe crack
- multiple deep cracks or a single crack which goes completely through stem
- weak union with crack and decay
- defect(s) affecting $> 40\%$ of tree's circumference or roots within CRR and decay present
- leaning tree with recent root lifting or soil mounding and other significant defects
- dead branches: broken (hangers) or cracked
- dead trees with other significant defects

Size of Defective Part



- 1 - Parts less than 4 inches in diameter
- 2 - Parts from 4 to 20 inches in diameter
- 3 - Parts greater than 20 inches in diameter

Probability of Target Impact

- 1 - Occasional Use
- 2 - Intermittent Use
- 3 - Frequent Use



Probability of Target Impact

1 - Occasional Use:

- low use roads and park trails, natural areas, riparian zones, industrial parks

2 - Intermittent Use:

- moderate to low-use parks
- dispersed campgrounds and picnic areas
- secondary roads with congested intersections
- bus stops along moderate-use roads

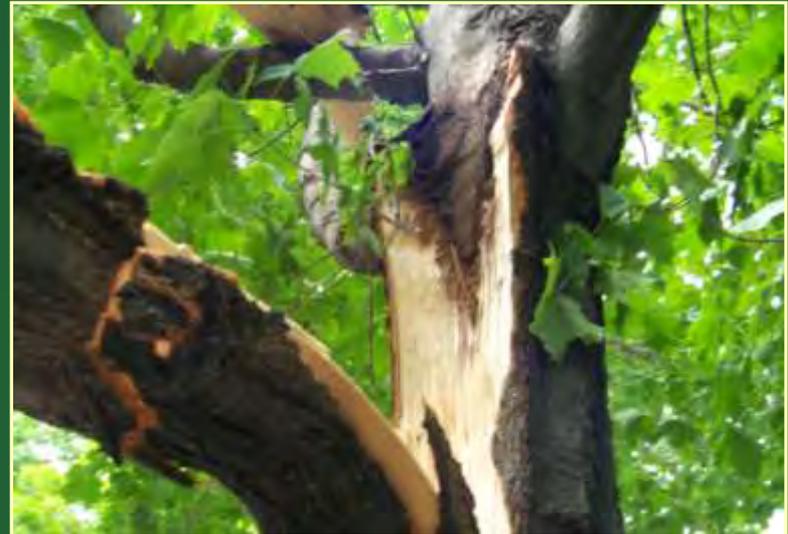
Probability of Target Impact

3 - Frequent Use:

- Emergency access routes
- Medical and emergency facilities
- High-use public buildings
- High-use school playgrounds and parks
- Primary roads: congested intersections and bus stops
- Drive-in campsites in high-use parks

Subjective/Other Rating (0-2 points)

- **No numeric rating system can accommodate all situations**
- **Subjective hazard rating builds flexibility into a numeric system and allows for professional judgement**



Subjective Rating Example

- **Can be used if professional judgement suggests the need to increase the risk rating and invoke immediate corrective action.**
- **Especially helpful to use when tree species characteristics become a factor in determining risk. For example, some tree species are:**
 - **poor decay compartmentalizers**
 - **shed branches readily**

Subjective Rating **Example**

- **Based on Species Type**

0 - Durable Species - not prone to failure

1 - Average Species - moderate strength

2 - Weak Species - prone to failure





Probability of Failure

3

- stem with cavity and crack.
- 2 inch rule: just meets shell limit

Size of Defective Part

2

- part from 4 - 20" diameter

Probability of Target Impact

2

- open area without fixed picnic tables

Risk Rating

7



Probability of Failure 3

- weak union with included bark
- narrow crack is present

Size of Defective Part 2

- 4 - 20'' in diameter

Probability of Target Impact 2

- parking lot adjacent to moderate-use park area

Risk Rating 7



Probability of Failure

4

- crack with extensive decay and cavity
- outer shell width below shell safety limits (min. ratio: 2": 6" stem diameter)

Size of Defective Part

3

- greater than 20" in diameter

Probability of Target Impact

3

- high-use area

Risk Rating

10



Probability of Failure 4

- Silver maple with multiple deep cracks
- decay and woodpecker damage

Size of Defective Part 3

- from 4-20" in diameter

Probability of Target Impact 3

- High-use area

Risk Rating 10

Inspection Form



Municipal Evaluation Sheet

Inspection Form

Hazard Tree Evaluation

Location: _____ Date: _____

Inspector(s): _____

Tree #	Sp.	DBH	Location (Street Address)	Defect Code(s)	1	2	3	4	Description of Other Risk Factors	Risk Rating	Corrective Action Code(s)	Action Completed	
					Probability of Failure (1-4 points)	Size of Defective Part(s) (1-3 points)	Probability of Target Impact (1-3 points)	Other Risk Factors (0-2 points)				Date	Initials

USDA Forest Service, J. Pokorny June 1998
 Modified June, 1999. D. Bloniarz, USDA Forest Service, D. Ryan, Univ. of Mass./Amherst, with input from New York State DEC and Massachusetts DEM personnel.
 Modified, October 2003

Risk Ratings

					Inspector(s): _____
	1	2	3	4	
	Probability of Failure	Size of Defective Part(s)	Probability of Target Impact	Other Risk Factors	
e(s)					Desc
	(1-4 points)	(1-3 points)	(1-3 points)	(0-2 points)	

Inspection Form



Municipal Evaluation Sheet

Inspection Form

Hazard Tree Evaluation

Location: _____ Date: _____

Inspector(s): _____

Tree #	Sp.	DBH	Location (Street Address)	Defect Code(s)	1	2	3	4	Description of Other Risk Factors	Risk Rating	Corrective Action Code(s)	Action Completed	
					Probability of Failure (0-4 points)	Size of Defective Part(s) (1-3 points)	Probability of Target Impact (1-3 points)	Other Risk Factors (0-2 points)				Date	Initials
										Sum of Columns 1-4			

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Defect Codes

		1	S
		Probability of Failure	De F
	Defect Code(s)		
		(1-4 points)	(1-3

DEFECT CODES

Code	Defect
D	Decay
CR	Crack
Root Problems	
RSG	Stem Girdling
RS	Severed
RPD	Planting Depth (too deep)
RGC	Grade Change
RSB	Sidewalk Buckling
WBU	Weak Branch Union
CA	Canker
PTA	Poor Tree Architecture
PTA:LT	Leaning Tree
PTA:TT	Topped Tree
EE	Excessive Epicormics
DEAD	DEAD tree, tops or branches
VO	Visible Obstruction
PO	Physical Obstruction

Inspection Form



Municipal Evaluation Sheet

Inspection Form

Hazard Tree Evaluation

Location: _____ Date: _____

Inspector(s): _____

Tree #	Sp.	DBH	Location (Street Address)	Defect Code(s)	1	2	3	4	Description of Other Risk Factors	Risk Rating	Corrective Action Code(s)	Action Completed	
					Probability of Failure (1-4 points)	Size of Defective Part(s) (1-3 points)	Probability of Target Impact (1-3 points)	Other Risk Factors (0-2 points)				Date	Initials

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Corrective Action Codes

		Sheet #: _____		
			Action Completed	
Risk Factor	Risk Rating	Corrective Action Code(s)	Date	Initials
	Sum of Columns 1-4			

CORRECTIVE ACTION(S) CODES

Code	Defect
Prune	
PD	Deadwood
PW	Weakwood (defective part(s))
PC	For Clearance
PT	To Thin crown/ reduce crown weight
PR	To Reduce crown height
Target	
TM	Move
TEV	Exclude Visitors from Target Area
CB	Cable/Bracing
CWT	Convert to Wildlife Tree
RT	Remove Tree
Monitor	Monitor Regularly
NA	No Action Required

Community Tree Risk Assessment

Today's PowerPoint Presentation



www.unri.org/research-documents

Urban Tree Risk Assessment

David V. Bloniarz

US Forest Service

Urban Natural Resources Institute

Presented at:

Massachusetts Tree Wardens & Foresters Association

Professional Development Series

March 28, 2012