Guidelines for Hazardous Tree Policy NCR

The underlying premise of arboreal management within the National Capital Region is to sustain the woody vegetative components of the environment. Thus, the decision-making attitude when inspecting a tree (s) is how can it (they) best be retained as a vital component of the ecology; not, should the tree (s) be removed.

With this in mind a major inspection process concerns hazardous or potentially hazardous-trees. Particularly in landscape management areas; visitor use areas such as interpretation centers, picnic groves and campsites; or transportation corridors (roads and trails) where the public is openly invited, some trees may pose a special risk to personal safety or property. Such trees should be construed as "hazardous trees". Technically, a hazardous tree is one that poses a recognizable threat to people or property through mechanical failure or uprooting. Of course, any tree represents a latent risk; what is meant here is a risk due to a discernable flaw in the tree (s) which, if not adequately dealt with, would place life or property in jeopardy. Just what action should be taken is a result of the comparision of the hazard potential of a tree to its virtue as an aesthetic or functional component of the environment.

The National Park Service has a well-defined obligation to protect the visitor (1975-Management Policies). There is not only a moral obligation but a legal one as well, since the Service may be held liable for failure or negligence with respect to living up to the responsibility of visitor protection (Federal Tort Claims Act-1946). Therefore, the activities of Park Service units with respect to hazardous trees should be directed toward avoiding a posture of negligence while simultaneously looking out for the public welfare.
The four elements which together constitute negligence are:

1. There must be a legal duty or obligation requiring the agency to conform to a standard of conduct to protect the visitor against unreasonable risks.
2. There must be a failure (breach of duty) to meet the standard.
3. There must be an establishable connection between the action (or inaction) and the resulting injury or damage.
4. There must be a definable injury or damage level.

The responsibility of the agency to the visitor may generally be defined "to use ordinary and reasonable care to keep the premises reasonably safe for his visit and to warn him of any hidden danger" (Smith vs. U.S., 1974). A substantial portion of this responsibility can actually be carried under the umbrella of "warning".

It should be pointed out that the Hazardous Tree Guidelines as presented here do not deal with the safety aspect of a vehicle driving into a tree—only the risk of a tree (limb) falling on a vehicle, persons or property.

The park units of the National Capital Region should carry out the following activities to fulfill their responsibilities with respect to hazardous trees.

**Park Responsibilities:**

1. Annually inspect all trees which stand within falling distance of public use areas for flaws, etc. which would constitute a hazard to the public or significant property. The nature of the inspection will depend on the type of visitor use areas (which will be defined later).
2. Where extensive risk may exist from falling trees, but the trees are not classified as hazardous in and of themselves, then some public warning/advising notification is in order (ie., drivers using Rock Creek Parkway and Beach Drive). This situation appears analogous to a falling rock zone in that even though there are no detectable flaws in the trees, any one of them could be blown on to a passing vehicle during a wind event. The concern may be due to the steep slope, slow moving traffic pattern, exposure to unpredictable wind patterns, etc. Such areas might even be closed in advance if predictions of sufficiently hazardous weather conditions exist. To reemphasize, in these situations the trees themselves are not hazardous but the nature of the area itself imparts the risk to the public from a falling tree. The warning is really in terms of a dangerous area not hazardous trees. Another example might be the risk to campers from falling trees (limbs) during an ice or snow storm. This situation normally can be dealt with in the permit process where the camper is notified that he may be asked to vacate the campsite in the advent of adverse weather conditions.

3. Any tree characterized as hazardous should be promptly cared for using best arboriculture techniques to eliminate the hazardous status of the tree. If it cannot be made safe then it may be removed.

4. Depending on the location of the tree and solidity of trunk structure, etc. the Park should well consider leaving the main trunk of the tree for wildlife habitat in areas where the wildlife is considered an important element. This means that a dead tree is not necessarily a hazardous tree and that it is possible to convert a hazardous tree into a
unit which may still be able to play a positive environmental role without any particular risk. Part of the decision-making process must include the extra manpower (time commitment) to topping a tree as opposed to dropped it.

5. Each park should have at least one designated and trained person for hazardous tree inspections. This responsibility should be explicit in the individual's performance standards. There is must to be said for having as many park personnel as possible on the lookout for hazardous trees.

The following types of inspections may be carried out with the one(s) selected depending on the nature (land use categorization) of the site.

**Types of inspections:**

1. Hand-check: all trees in the specified areas will receive a 360 degree visual inspection. This means close visual inspection with hands-on checking, including various instrument tests as warranted.
2. Walk-through: includes hand checking of suspected hazardous trees.
3. Drive-by: involves deliberate visual scans at slow speed followed by hand-checks of all trees noted or suspected of possessing hazardous characteristics.
4. Any combination of the above:

Whatever type of inspection is chosen, it is imperative that written documentation of the inspection be kept. A "hazardous tree log" should include the date(s) of inspection, the area, land use classifications, noted or suspected hazardous trees (include size and species of tree), notes on inspections of hand-checked trees, recommendations,
characterization of follow-up actions, etc. The record of inspected trees from year to year can be useful to document whether a tree is declining, stable or regaining vigor. Photographs may also be used to supplement documentation. To repeat, inspections to cover appropriate areas of each park as defined later should be performed at least annually. Park areas that are closed for a season(s) would best be inspected just prior to reopening. Such areas and possibly others should remain closed or be closed until hazardous tree conditions are eliminated.

The Regional Tree Advisory Committee may be contacted to facilitate any inspection, diagnosis, or make recommendations. However, the final decision on the disposition of a tree rests with the park unit.

It should be pointed out that once a tree has been cited to be hazardous or have flaws the Region becomes strongly liable if it fails to take prompt action to correct the situation. In terms of liability it is probably better not to have been aware of a hazardous tree condition than be aware of one and not do anything about it. This means that inspections ought to be strongly coupled with remedial action. Unsupported inspections or inspections without followup may place the system in a more tenuous posture than it deserves in the event of an accident.

It is suggested that the following listed land use types be inspected according to the given procedures, however, the park should always feel free to use its best judgement particularly if there is good cause for more thorough inspections. The categories as given are keyed for hazardous tree inspections, to the ways the areas are used and may not coincide with definitions found in Management Policy.
Inspection types keyed to use areas:

A. Natural areas
   1. Wilderness or undeveloped areas: ordinarily no inspections are called for. The visitor is expected to know how he/she is responsible for his/her own self, etc., in such areas. Certainly, public education and/or warning procedures should be considered.
   2. Trails or informal activity areas: walk through. Common sense dictates that long horse trails, bike trails or areas like the C & O Canal towpath might involve some form of inspection transportation other than by foot.

B. Developed areas.
   1. Campgrounds, picnic areas, visitor centers, interpretative areas: hand-check possibly in combination with walk-through. Certainly all trees within falling distance of marked use space should be hand-checked. In buffer, transition areas or perimeter zones, inspections might well be accomplished by walk-through procedures.
   2. Transportation corridors: drive-by. Such deliberate visual inspections should include all trees that could impact the roadway. Areas that may be screened or otherwise difficult to view from the road should be given a walk-through type inspection. It is a given that a drive-by inspection may not catch all flaws, etc., in the trees along roadways. However, it is generally recognized that it may not be realistically possible to walk by all trees along miles of roadways and under these conditions a documented drive-by inspection should be considered satisfactory. Usually the calibre of notations of suspected hazardous trees will reflect the adequacy of the drive-by inspections.
2. There may be areas along roadways where traffic may be predictably and repetitively slowed such as near controlled intersections. Such areas would best be handled by walk-through inspections.

C. Landscape and/or historic areas.
1. Trees within areas of landscape zones where the public is specifically invited to move should be hand-checked.
2. More informal areas where the public may simply feel free to wander should come under walk-through type inspections.
3. Parking lots and parking areas along roadways should be hand-checked.

D. Park boundary

Inspection of trees along park boundaries for threats and damage of adjoining properties (or people) might well be performed in conjunction with other border line activities. Seriously, since park neighbors are not invited to be neighbors as such, in most actual damage cases the park would not be held responsible. Regardless, the park always has a moral obligation and thus should periodically (every year or two) make a deliberate effort to check for hazardous trees primarily near public activity areas such as homes or roadways. Parks should be knowledgable of state and county rights of way as the basis for determining whether a park tree could fall on a non-park roadway. Whenever, the park is notified of a presumed hazardous tree by a citizen, a prompt inspection should be made and corrective action taken as warranted. Remember, once a park has been made ware of a potentially hazardous tree the likelihood of the park being held responsible for an ensuing tree failure increases dramatically.
It is not the intention of this policy paper to technically define or characterize all of the various sorts of hazardous tree conditions. Such information is to be gleamed through training, experience and references. However, the following list names many of the most common types of hazardous tree conditions to be looked for.

Types of hazardous tree conditions:

1. Decay
2. Cavities
3. Dead limbs (overhangs)
4. Splits and shakes
5. Weak crotches
6. Heavy horizontal limbs
7. Basal or crown rot; root decay
8. Termite and carpenter ant infestations
9. Wind and vehicle damage
10. Construction damage
11. Leaning trees
12. Soil slippage areas
13. Tree declines: insect pest and disease situations
14. Heavily-used areas— compacted soil and injured roots
15. Etc.
The following factors should be considered when trying to evaluate the risk of a potentially hazardous tree.

Evaluation of hazardous trees:

1. Probability of failure. Estimate the likelihood that under critical weather situations or through predictable decline that the tree (branch) will fall during the year.

2. Probability of target impact.
   a. Analyze the potential that a falling tree (limbs) will strike a given visitor use area.
   b. Estimate the likelihood (seasonal or otherwise) that a given area will be occupied.

3. Estimate the target value where property is involved or the numbers of visitors that might be injured (killed).

4. Where meaningful, derive a total risk involving combination of factors 1-3 above in terms of dollars or chance of personal injury (life).

Even though the above factors can to some extent be quantified more so in some cases than others, best emphasis should be placed on using verbal justifications based on these categories. A numerical risk should certainly be obtained whenever they are meaningful. It is to be understood that every tree represents some degree of hazard during a given period of time. The job of park personnel is to take appropriate action as justified in terms of the given categories.

An important way to avoid hazardous tree conditions is to ensure that new and replacement plantings utilize trees that will perform well on the site. The site itself may need modification to improve the opportunity for successful tree growth. This holds true whether the site is landscape, natural or otherwise.
These Hazardous Tree Guidelines are intended to provide direction to the Parks for effective tree management of their hazardous tree program. Each park is encouraged to incorporate the intent of these guidelines into their own Hazardous Tree Policy. The Regional Tree Advisory Committee should review such park plans before they are submitted to the superintendents for approval.

A vigorous Hazard Tree Program is vital to provide protection to the visitor and property while also avoiding time consuming, as well as possibly costly lawsuits. Therefore, each park must fully support the actions necessary to fulfill the obligations defined in these Guidelines or the Park's own plan.