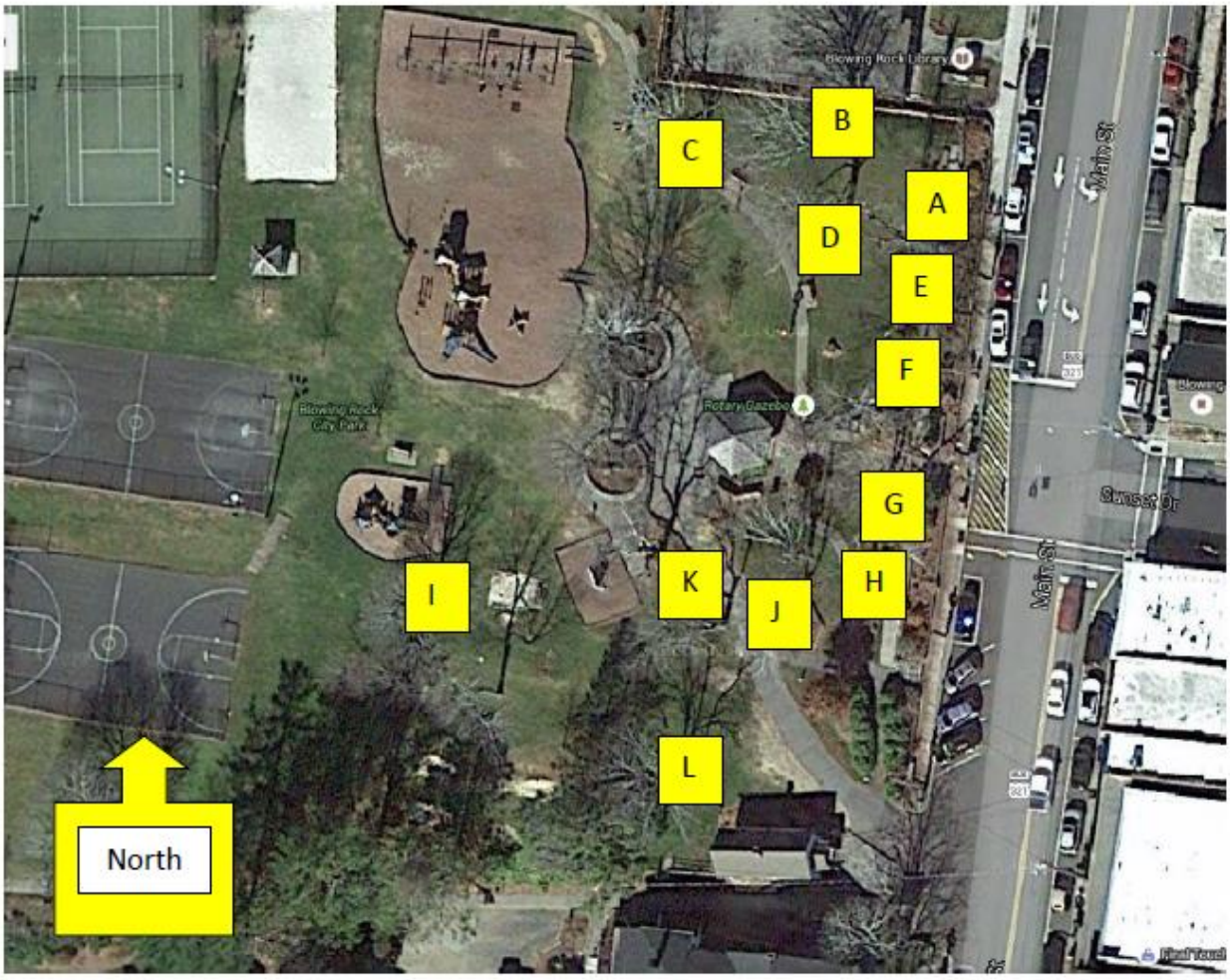
BLOWING ROCK

MEMORIAL PARK

NCFS Review and Resistograph

Visit: 18 September 2017

Submitted: 13 October 2017



NOTE: This re-inspection was done to assess any changes to the trees using a resistograph in several places, and also observing annual fruiting bodies on several trees. This re-inspection did not assess all trees with the resistograph, nor were additional annual fruiting bodies observed on 18 September 2017. Trenching for the installation of electrical boxes for tree lights was also noted. The recommendations are made with the concerns of the municipality in mind, as well potential liability issues. Observations and recommendations from September 2017 are in red.

Tree A is a 33" dbh (diameter at breast height) red maple. The tree has root decay and a hollow on the west side. The canopy is unbalanced with the weight of the crown toward the street. The tree has co-dominant stems (stems of equal size originating from the same area). Due to branch dieback, it has been tip pruned in the past. Tip pruning is the removal of dead tips back to a living side branch and results in a zig-zag pattern. It is in poor condition.

Main concern – 24" dead lead on the West side of the tree. Risk = Moderate
Main concern – Inonotus fungus on trunk. Risk = Low

Mitigation 1 – Prune out the dead lead. The residual risk would be Low. The tree will continue to decline structurally due to the fungus, increasing risk, and removal will be required in the near future.
Mitigation 2 – Remove the tree. The residual risk would be Low.

Observations:

1) Trenching for electrical connections installed on west side of tree – cutting of roots both reduces availability of nutrients to tree and can decrease structural stability.
2) Several fruiting bodies were noted at the base and on the lower trunk – Inonotus is a serious decay fungi.
3) Resistograph readings indicate some wound wood at the base of the tree towards the street but no sound wood at all at the back of the tree.

Recommendation:
Removal of the tree due to loss of roots and internal decay evident.

Tree B is a 34" red maple. It has a dead lead full of hollows from woodpecker activity. It is in fair to poor condition. The dead lead should be removed.

Main concern – 8" dead lead with woodpecker holes, and other deadwood. Risk = Low

Mitigation – Have deadwood pruned out of the tree. Monitor and maintain until removal is necessary. Residual risk would be Low.

Observations:

1) The tree is declining and will require removal in the future crown as dieback continues and as more deadwood requires removal.
2) There is also an old break with decay towards the town hall building. It is not an issue for the building but is for picnickers or other public users.
3) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:
As recommended previously, remove deadwood. Tree should be inspected and pruned as needed in the spring, prior to seasonal public use. Deadwood, even what seems small in size, can cause damage or injury when falling from a height. Monitor.

Tree C is a 35" red maple with a trunk cavity and root dieback. The tree also has crown decline. It is in poor condition due to the structural decay.

Main concern – Deadwood in the crown and branches. Risk = Moderate
Main concern – Decay in the trunk. Risk = Low

Mitigation 1 – Have deadwood pruned out of the tree. Monitor and maintain until removal is necessary. Residual risk would be Low.
Mitigation 2 – Remove the tree. The residual risk would be Low.

Observations:

1) The crown of the tree appears to be in better condition than some of the trees, but it is also declining.
2) The visible decay at the base of the tree and in the center of the tree appears to meet, through the middle of the trunk. Resistograph readings confirm this observation.
3) Annual conks are visible in the decayed seam.

Recommendation:

Based on the location of the tree, close to the paved walkway, and the extent of decay, this tree should be removed. However, the Town may choose to hire a certified arborist who is experienced in cabling and bracing to inspect the tree. If the arborist finds that there is sufficient sound wood on the sides of the tree, that would allow several brace screws to be installed, and the tree were monitored and inspected yearly to assess the advancement of decay and crown dieback; removal could be postponed.

Tree D is a 29" red maple with girdling roots and some root damage. It is in fair to poor condition (and possibly the best tree in this evaluation).

Main concern – Girdling root at the base of the tree. Risk = Low

Mitigation – Monitor and maintain the tree until crown decline and deadwood increases. Then, removal will be necessary. Residual risk would be Low.

Observations:

1) The tree appears to be in better condition that the surrounding trees at this time.
2) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.
3) Trenching for electrical connections installed on east side of tree – cutting of roots both reduces availability of nutrients to tree and can decrease structural stability. This is a concern since this tree retains a wide crown and a decent leaf canopy. The loss of roots will speed up its decline.

Recommendation:

Monitor this tree for excess movement under wind conditions due to the loss of roots on its east side. Remove deadwood and any hangers. Monitor.

Tree E is 20" red maple with an unbalanced crown with all the weight going toward the benches/road. There is damage and decay at the base of the tree. The unbalanced crown is creating a load at an awkward bend. The bend in the tree has internal decay issues from previous pruning. The tree is in fair to poor condition.

Main concern – End weight of branches could cause failure if extra load (wind, rain, snow or ice) is applied to the branches. Risk = Moderate
Main concern – Decay in the trunk at the point where all the load of the canopy is focused could lead to failure. Risk = Moderate

Mitigation 1 – Crown reduction pruning could reduce the likelihood of branch failure and the stress on the trunk decay. Residual risk would be Low.
Mitigation 2 – Remove the tree. The residual risk would be low.

Observations:

1) Trenching for electrical connections installed on west side of tree – cutting of roots both reduces availability of nutrients to tree and can decrease structural stability.
2) The tree is not particularly large but the weight of what remains of the crown is unbalanced and over the sidewalk and street.
3) Decay at the base and at the point where the load of the crown bends creates 2 weak points in the tree.
4) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:

While it is possible to reduce the weight of the crown over the street, there would be little remaining crown left – both from an aesthetic perspective and from a growth sustaining perspective. And the weak points in the trunk and base would remain. Decline would be expected to be even more rapid due to the loss of the roots from trenching. Removal is recommended.

Tree F is a 28" red maple. It exhibits stub decay, co-dominant stems and decay in the co-dominant attachment area. It is in fair to poor condition.

Main concern – There is a large dead stub and significant deadwood. Risk = Moderate
Main concern – The trunk splits into 2 co-dominant stems. Risk = Low

Mitigation – Prune for deadwood and crown reduction. Cable and Brace the tree until it declines to the point where removal is necessary. Residual risk would be Low.

Observations:

1) Trenching for electrical connections installed on west side of tree – cutting of roots both reduces availability of nutrients to tree and can decrease structural stability.
2) There are multiple cavities throughout this tree, including where at the attachment of the codominant stems.
3) The tree is declining.

4) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:

The previous report suggested cabling and bracing. This should be assessed by a certified arborist experienced with installation, monitoring and upkeep of these mitigation measures. They do not solve the structural issue, but they provide additional support. Consideration of the likelihood of increased decline due to root cutting should be taken into account when determining the most appropriate course of action.

NOTE: In general, it may be better to remove trees A and E and F along the street so that the growing area could be amended/remediated in order to invest in the future streetscape as effectively as possible. For example, adding a low wall (e.g. 2') on the edge of the park and installing electrical connections there; amending the soil and adding soil and a slope into the park and mulching the area along the wall, to protect new tree roots and signal to users to not walk in that area.

Tree G is a 25 inch red maple with girdling roots. It is in fair to poor condition.

Main concern – this tree is in decline and will not return to being a healthy tree. Risk = High

Mitigation – This tree should be a high priority removal. Residual risk would be Low.

Observations:

1) The tree is in decline and in poor condition as noted previously.
2) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:

Removal as previously recommended.

Tree H is a 28" red maple with damage/decay in the trunk and an unbalanced crown. It has previously been cabled. Cables add supplemental strength and require monitoring. If left unchecked, they can fail when the tree structure fails. This tree is in poor condition and should be considered for removal.

Main concern – Deadwood in the crown. Risk = Moderate
Main concern – Decay in the trunk. Risk = Low

Mitigation 1 – Prune out the deadwood. The residual risk would be Low. The tree will continue to decline structurally due to the fungus, increasing risk, and removal will be required in the near future.
Mitigation 2 – Remove the tree. The residual risk would be Low.

Observations:

1) Armillaria fruiting bodies (also called honey mushroom) was noted at the base of the tree. This is a root rot of serious concern.

2) The resistograph was used and found that the wood at the base of the tree was sound, but the buttress roots were not tested, which would be expected to show decay.
3) The tree is in poor condition, making no aesthetic contribution and surrounded by utilities.
4) The tree shows evidence of carpenter ants, which live in decayed areas of trees, indicating internal decay.

Recommendation:

Removal is recommended as the cost of cabling and bracing, and monitoring, would not be a good use of available funds, besides the fact that the tree has a serious root rot. At removal, efforts should be made to remove as much of the stump as possible as Armillaria will remain on site as long as there is wood available for decay, and is known to remain viable for as long as 50 years after a tree has been removed. The fungus also produces rhizomorphs which are long black stands (and is also known as shoestring root rot) which can spread to adjacent trees (typically in leaf litter or duff).

NOTE: It is suggested that a variety of trees be planted in the park to also avoid root grafting, which can occur among trees of the same species or cultivar. That way, should any future trees become infected with any decay fungi it would not spread through shared contact. The presence of such decay fungi also makes it extremely important that trees be mulched properly and mechanical injury be avoided, to reduce the chance of spreading the diseases.

Tree I is a 25" red maple with trunk decay. It is in poor condition and near the playground. This tree should be considered for removal.

Main concern – this tree is in decline and will not return to being a healthy tree. Risk = High

Mitigation – This tree should be a high priority removal. Residual risk would be Low.

Observations:

1) As noted in previous report.
2) The high traffic area and proximity to the playground is a concern.
3) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:

Removal as previously recommended.

Tree J is a maple tree with a central leader that has previously failed.

Main Concern – Failure of the central lead again. Risk = Moderate

Mitigation – Remove central lead. Residual risk would be Low.

Observations:

1) The tree is in a landscape bed with a buried base and is declining.

2) There appears to be some decay in the upper part of the tree and in the trunk.
3) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:
Prune deadwood, decay and central leader with prior failure. Monitor.

Tree K is a maple in decline.

Main Concern – Continued decline will require removal. Risk = Low

Mitigation – Remove tree. Residual risk would be Low.

Observations:
1) As noted in previous report.
2) Some tiny fungi at base in decay pocket, not identified as of immediate concern.
3) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:
Removal as previously recommended.

Tree L is a cherry tree in decline.

Main Concern – The amount of deadwood. Risk = Moderate

Mitigation – Remove tree. Residual risk would be Low.

Observations:
1) As noted in previous report.
2) Carpenter ant activity noted.
3) Decay at the base of the tree.
4) The resistograph was not used on this tree, so no observations about the inside of the tree can be made.

Recommendation:
Removal as previously recommended.

NOTE: The trees located inside the stone enclosures have been managed to reduce climbing and foot traffic. This, along with the extensive hardscape installed outside the enclosures, has affected the trees and they also show indications of decline. Deadwood should be pruned and the trees monitored. When it comes time for these trees to be removed, select a suitable species, amend the enclosure to provide root egress into the remaining turf area, maintain mulch and add additional signage to encourage respect.

FINAL COMMENTS:

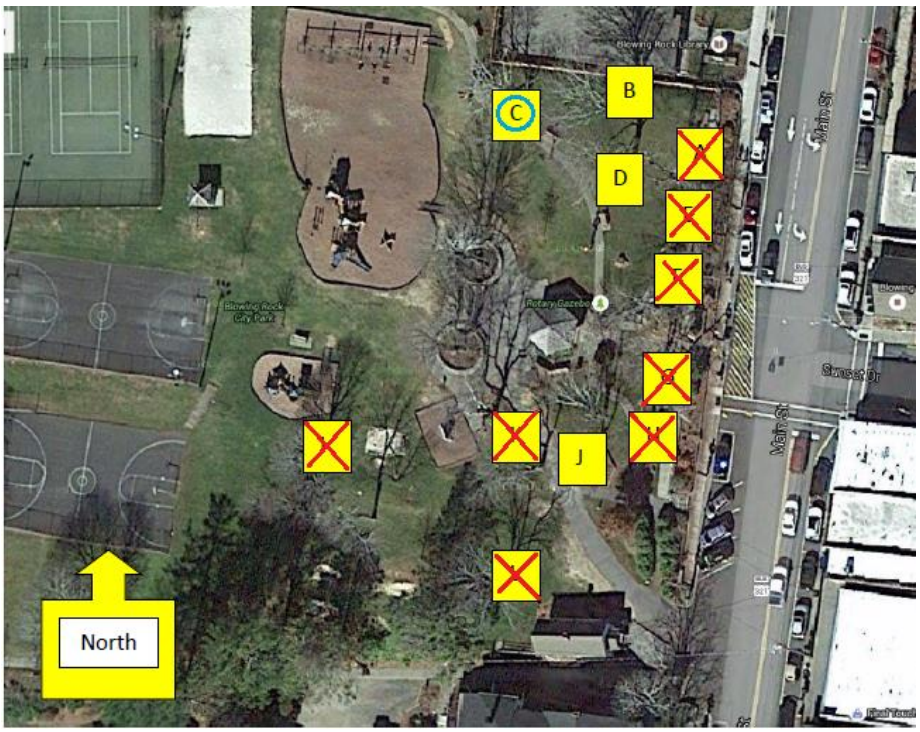
The number of trees recommended for removal may seem high to the many people who love the park and are concerned about the loss of the trees.

1) The love and high use of the area has contributed to the stress and decline of the trees:
    a. Soil compaction from foot traffic
    b. Maintenance to maintain and encourage turf
    c. Trenching for the installation of electrical boxes
    d. Mowing and weed trimming damage
    e. Poor maintenance and pruning practices

2) The Town has a responsibility to mitigate risk on public property. Tree conditions that indicate risk of failure have been observed and documented, and recommendations made. The Town must act in a responsible manner to address these concerns.

3) The opportunity to plan for the future in a comprehensive way is a positive aspect of this painful situation. Tree species selection, site remediation, proper planting and pruning practices, as well as mulching and protection, can be incorporated into the future of Memorial Park.
    a. Selection of trees from the nursery with good form and carrying out training pruning and proper maintenance will benefit trees and reduce breakage or failure concerns.
    b. Planting a variety of species with different characteristics: faster growing and slower growing, different responses to stressors like compaction, different growth patterns.

4) The opportunity to develop realistic expectations of the park trees and the need for periodic removal and replacement.
    a. Complete replacement of trees along Main Street and site improvement could allow trees to be onsite in decent condition for a longer period of time. The goal should be 75-100 years.
    b. With the high use and maintenance needs of the park, trees inside the park area may require replacement 35-50 years, shorter if other damage or disease occurs.



Town of Blowing Rock

Request for Council Action

FROM: Teresa Buckwalter
SUBJECT: Sunset Gateway Update
TO: Council
DATE: November 14, 2017
REQUESTED BY: Manager Evans

Public Hearing ☐ Yes ☐ No ☐ Not required ☒ NA
Properly Advertised ☐ Yes ☐ No ☐ Not required ☒NA

BACKGROUND:
Teresa Buckwalter from Destination by Design will present the Sunset Gateway Survey Report.

ATTACHMENTS:

STAFF RECOMMENDATION: