MISSISSIPPI STATE UNIVERSITY™ EXTENSION

November 30, 2016

TO: Madison County Board of Supervisors

FROM: Ty Jones

Ty Jones, Madison County ANR Extension Agent, P.O. Box 112, Canton, MS 39046 601-859-3842 t.jones@msstate.edu

Donna Beliech

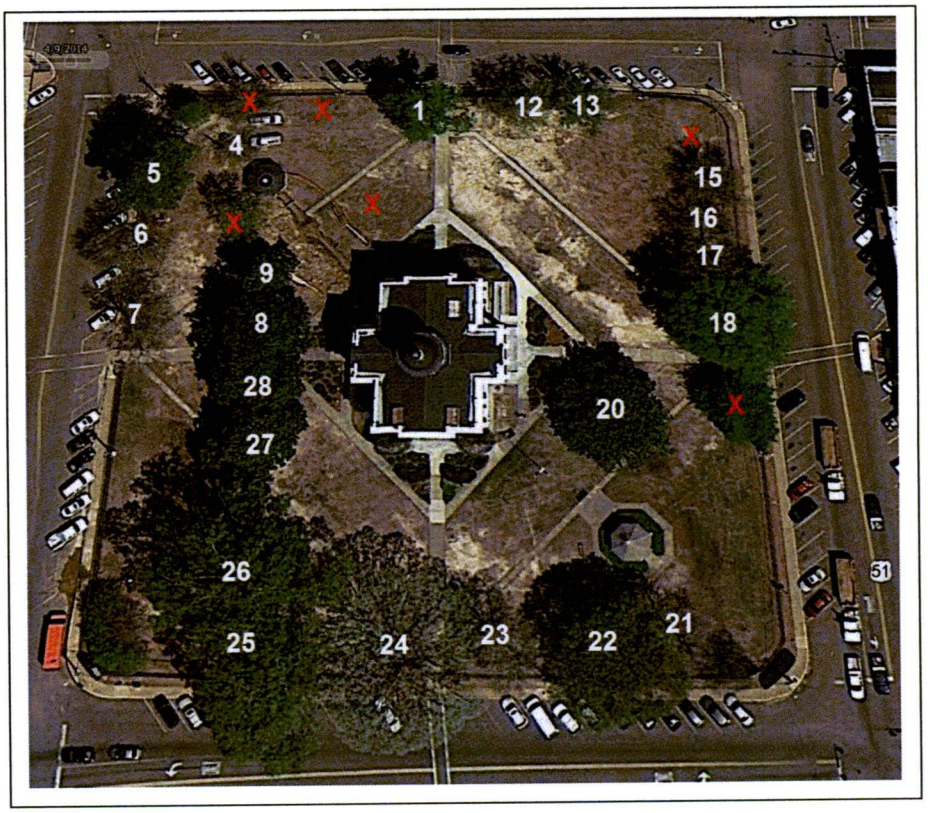
Donna Beliech, Area Extension Agent Horticulture, 601 Marquette Road, Brandon, MS 39042 601-825-1462 d.beliech@msstate.edu ISA Certified Arborist

Stephen Dicke

Stephen Dicke, Extension Professor Forestry, Central MS Research and Extension Center, 1320 Seven Springs Road, Raymond, MS 39154 601-857-2284 stephen.g.dicke@msstate.edu ISA Certified Arborist

SUBJECT: Risk Rating of Trees at Old Courthouse Square in Downtown Canton

On November 3, shade trees surrounding the old Madison County Courthouse were evaluated on their risk of failure and causing property damage or personal injury (photo right). This risk evaluation was based on a visual inspection of each tree. Our estimate of risk is based on a 1-year time period.



Tree Health: A similar tree evaluation was made in 2008 so a general trend of declining tree health could be seen. Six trees have been removed over the past 8 years which represents a 20% loss in tree canopy (red Xs in photo right). Most

of the trees that died were in the northern half of the property. This is where tree replacement is needed. If you want help deciding on species, size, installation and care we are available.

Remaining trees have numerous dying twigs and branches which are a result of declining health. A primarily causal factor is soil compaction which prevents the soil from absorbing, holding and delivering water to tree roots. The soil is in much worse shape and more compacted than it was 8 years ago. Foot traffic around these trees during biennial Canton Flea Markets and annual Christmas in Lights programs and numerous other events have taken their toll on the soil surface. Dirt patches are getting larger (photo right). The soil in these patches have been reduced to a packed fine dust that repels water and will not support life. It is a muddy mess when it rains. Soil compaction needs to be alleviated dramatically and quickly to prevent further tree health deterioration. The cost of doing nothing to combat soil compaction and improve tree health is escalating. Most the costs and effort to mitigate tree risk problems this year, ex. pruning out twig and branch dieback, are directly linked to poor soil conditions.

Therefore, our general tree health recommendation is to loosen up the soil and improve its ability to absorb and hold water. Any improvement in tree health will reduce future twig and branch dieback. So fighting soil compaction will help achieve a long-term goal of keeping the risk of tree failures to a minimum. A golf course lawn aerator has been found to be effective at loosening up the soil in lawn areas and under trees. Multiple passes of an aerator each year over many years may be needed to turn this soil around. Follow up by applying 2-4 inches of organic mulch under each tree out to at least it's dripline. Mulch will protect the newly aerated soil under trees from future compaction and aid in water infiltration. Organic mulch can be seasoned wood chips, bark, pine needles, etc. Mulch would need to be applied annually. If you wanted to contract this work out, there is a local ISA certified arborist at Madison Garden Center and Landscaping, Trey DeLoach. He may also have a better idea on how to combat soil compaction in the high foot traffic areas. He would also be a great resource for help in replacing lost trees.

Tree Risk Evaluation:

A total of 22 trees were evaluated for risk of failure and resultant damage on the Old Courthouse property. A total of 18 of these trees had twig and branch dieback in various degrees. As discussed above this dieback has been caused by compacted soils that are not able to deliver water to trees as they once did. Two trees were touching electrical lines and had the potential to be energized and shock people. And at least 3 trees needed electrical boxes, security lights, wires, etc. removed from the trees.

Below is a summary table of tree risk problems and recommendations to mitigate the risk of tree failures. By following these recommendations you can reduce tree risk ratings on all shade trees on the courthouse property to an acceptable low level.

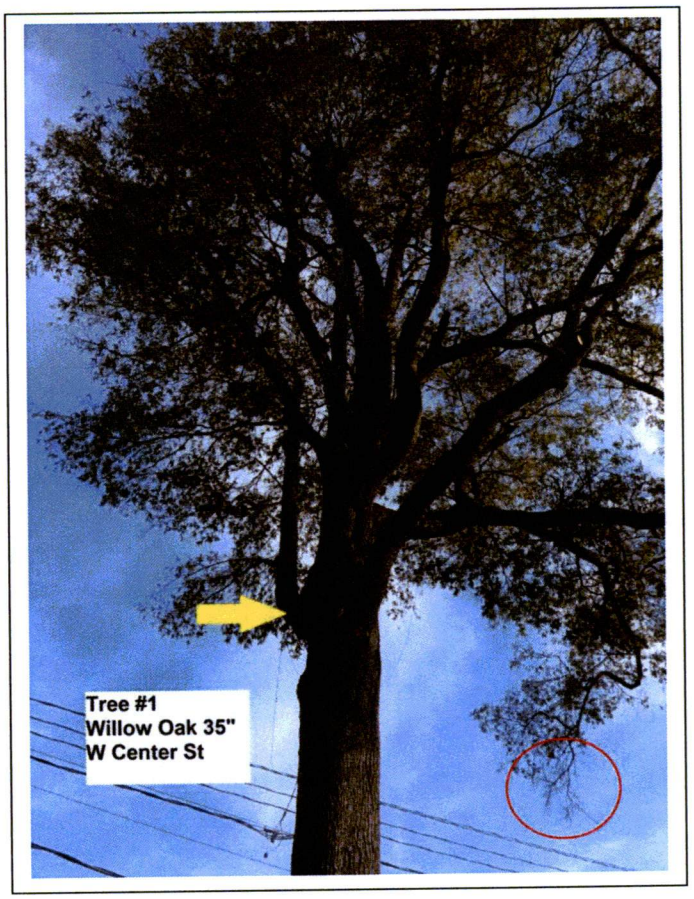
Risk Mitigation Recommendations	Tree Numbers
Prune out dead branches on 16 trees (remove deadwood).	All trees but 4, 9, 21, 28
Prune to re-establish powerline clearance.	4
Tree removal is a good option. Otherwise drastic pruning is needed to stablize and the tree will not likely survive this effort.	5
Insulate or move powerlines touching tree stem.	6
Remove electric box that is attached to tree.	12
Remove old security lights over sidewalk.	8, 28

A table detailing the risk rating for each tree is attached (pages 15-17). Tree numbers used in this evaluation are the same ones used in 2008. We also found metal tags on some of the trees, probably from an earlier inventory. These tag numbers were also recorded to help tie other information collected in the past to this evaluation effort.

One tree poses a high risk of failure (#5). Twelve trees pose a moderate risk of failure and seven trees pose a low risk. Two trees were judged to be a very low risk. Most of the risk of tree failure can be mitigated by removing dead branches. The lone high risk tree (#5) is recommended for removal.

Tree #5 should be removed by February 2017. Pruning of dead branches should be completed by April 2017. Other mitigation recommendations should be completed within a year.

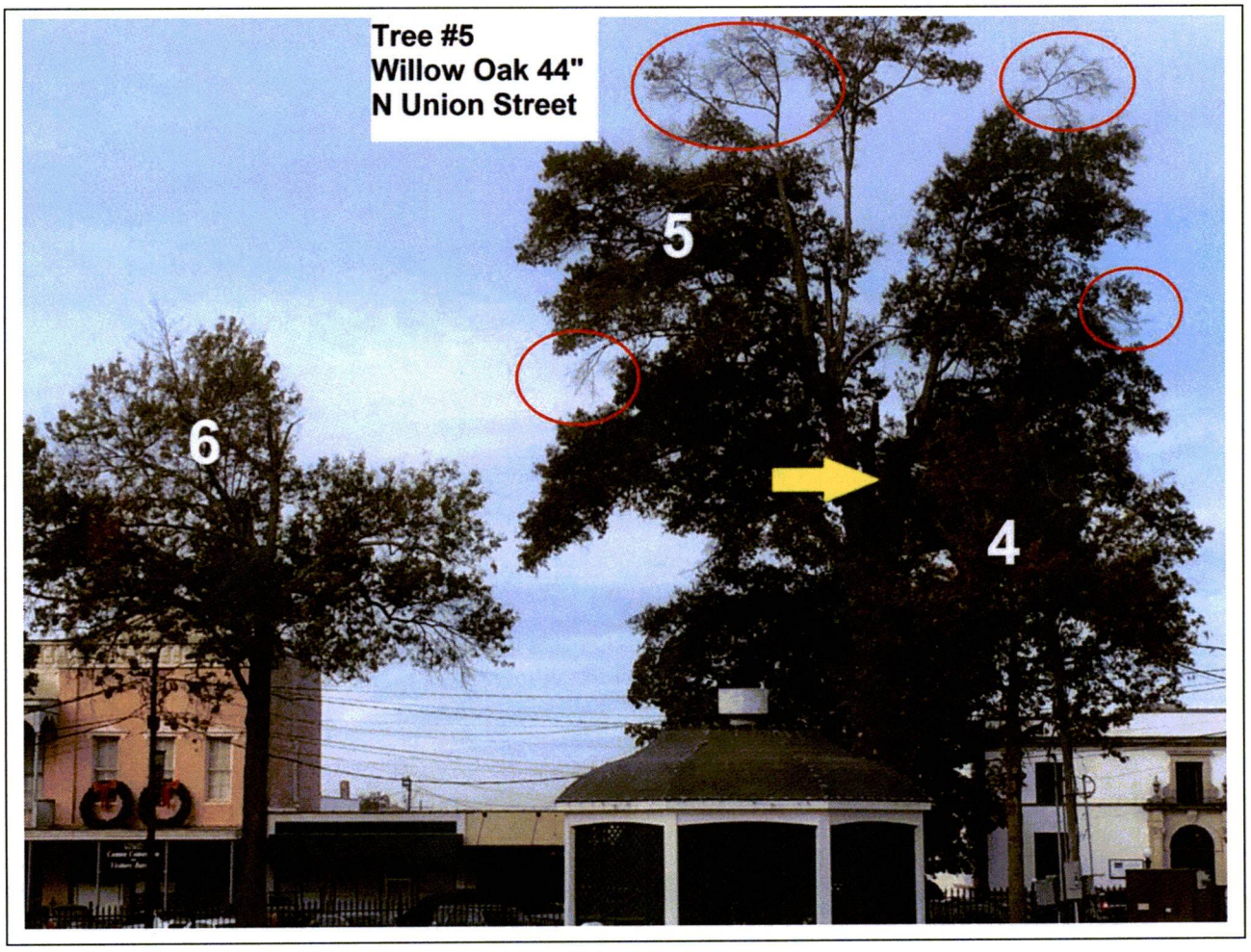
Detailed Information For Each Tree



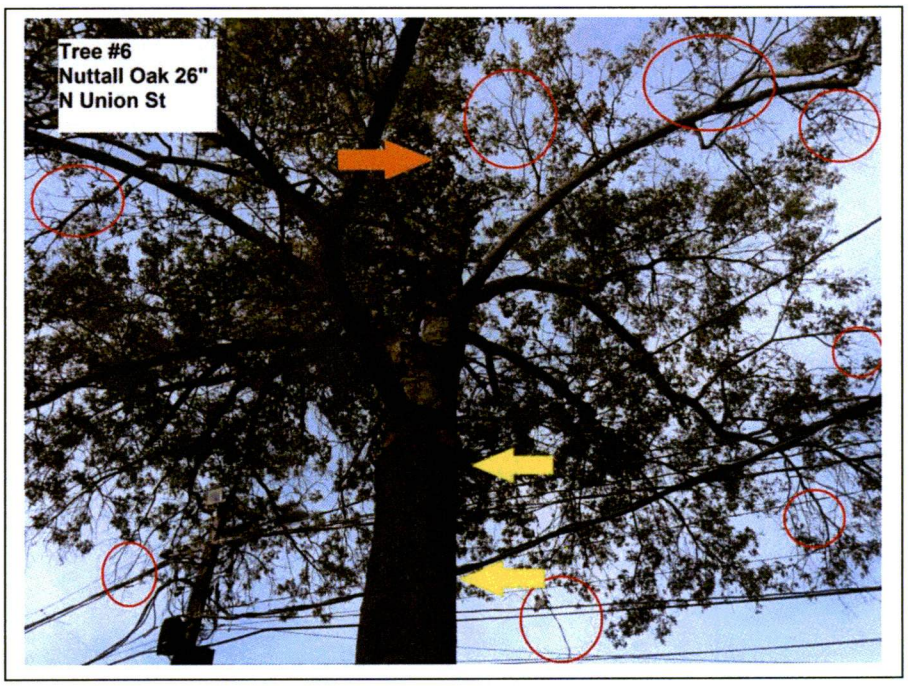
#1 is a Willow Oak with a 35-inch stem diameter that is located on W. Center Street near the center of the block. Dead branches are located over the street (red circle). A rotten area was found at base of large branch (yellow arrow). Monitor the rotten area and remove branch if it deteriorates. Remove dead branches this winter. Tree has injuries to the root collar (truck?) along with severe soil compaction caused by foot traffic.

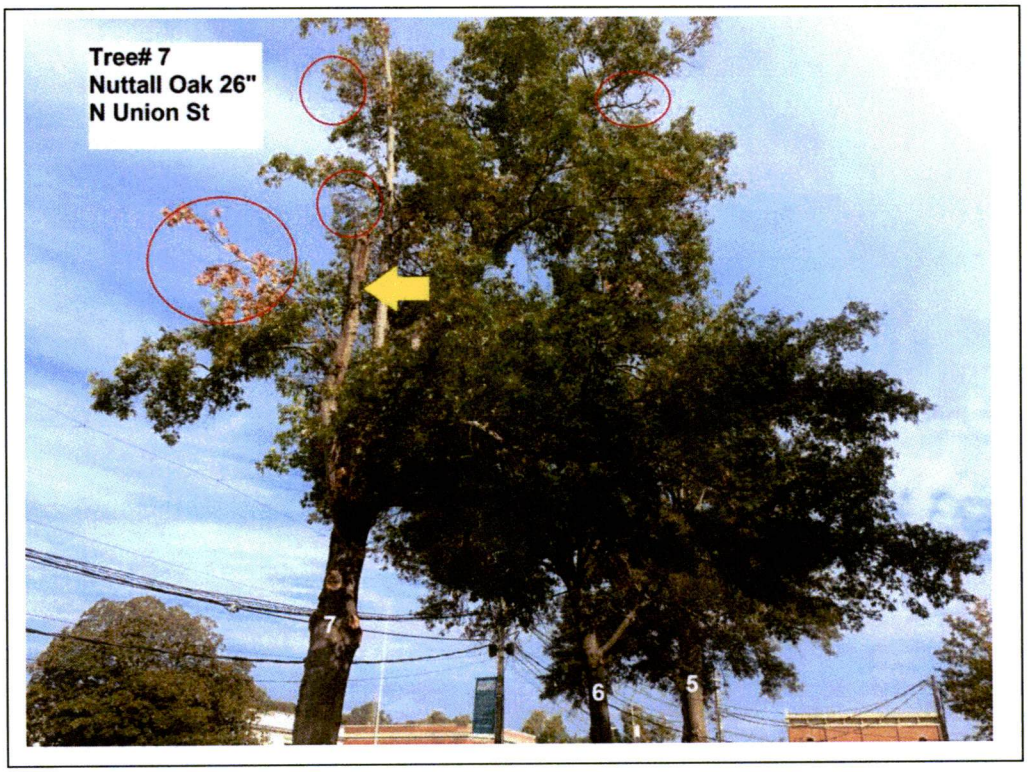
#4 is a Nuttall Oak with a 13-inch stem diameter that is located near the carousel. Branches are touching two powerlines going to the carousel (yellow arrows). Prune branches to re-establish clearance between branches and the lines. Several branches are severely damaged from below. We are not sure what could have done this damage.

#5 poses the highest risk of failure. This is a Willow oak 44 inches in stem diameter on N. Union Street (photo below). Horse carriages load directly under this tree and the carousel is nearby. Numerous dead branches (red circles) and a large scaffold branch with rot and a cavity (yellow arrow). Soil compaction and health deterioration has compounded the problems of old wind damage. Tree removal is the easiest solution to tree risk. Otherwise drastic pruning will be needed to stabilize the tree. The tree may not be able to recover from that extent of pruning. If the tree is kept, it will likely live only another 4-5 years.



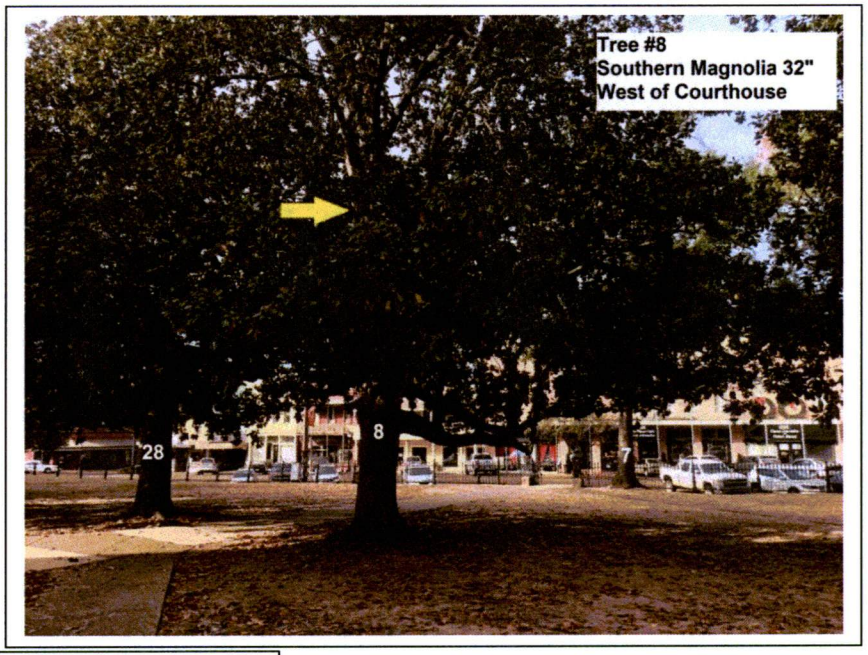
#6 is a Nuttall Oak with a 26-inch stem diameter that is located on N Union Street. Numerous dead branches are located over the street (red circles). Dead snag needs to removed (orange arrow). Two powerlines are laying directly against the stem (yellow arrows). An energized tree could shock anyone touching the tree. Remove dead branches and dead snag this winter. Insulate or move these powerlines. Foot traffic under trees #5-7 is killing them.

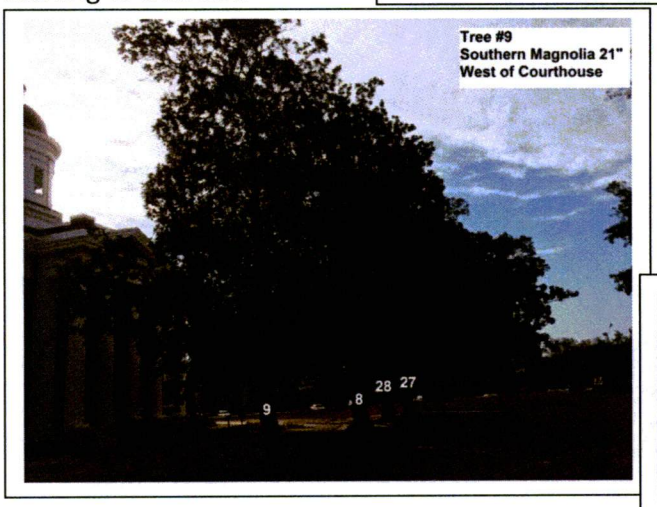




#7 is a Nuttall Oak with a 26-inch stem diameter that is located on N Union Street near the center of the block. Dead branches are located over the street (red circle). A dead snag is also located over the sidewalk (yellow arrow). Remove dead branches and dead stub this winter.

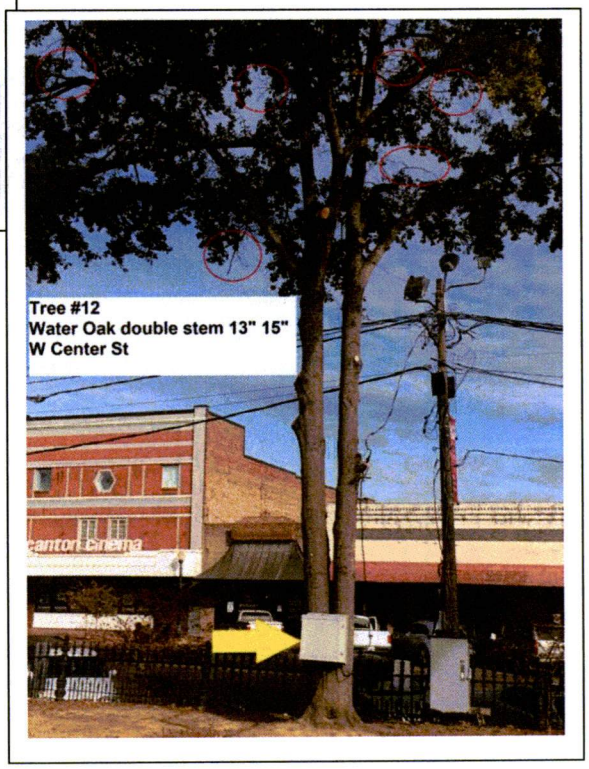
#8 is a Southern Magnolia with a 32-inch stem diameter that is located west of the courthouse. Tree is fairly solid with few problems. An old security light is still up in the tree and could fall (yellow arrow). Foot traffic has destroyed the soil on the west side of the courthouse. Magnolias seem to take this soil compaction better than any of the other trees but the leaves in their crowns are starting to thin out.



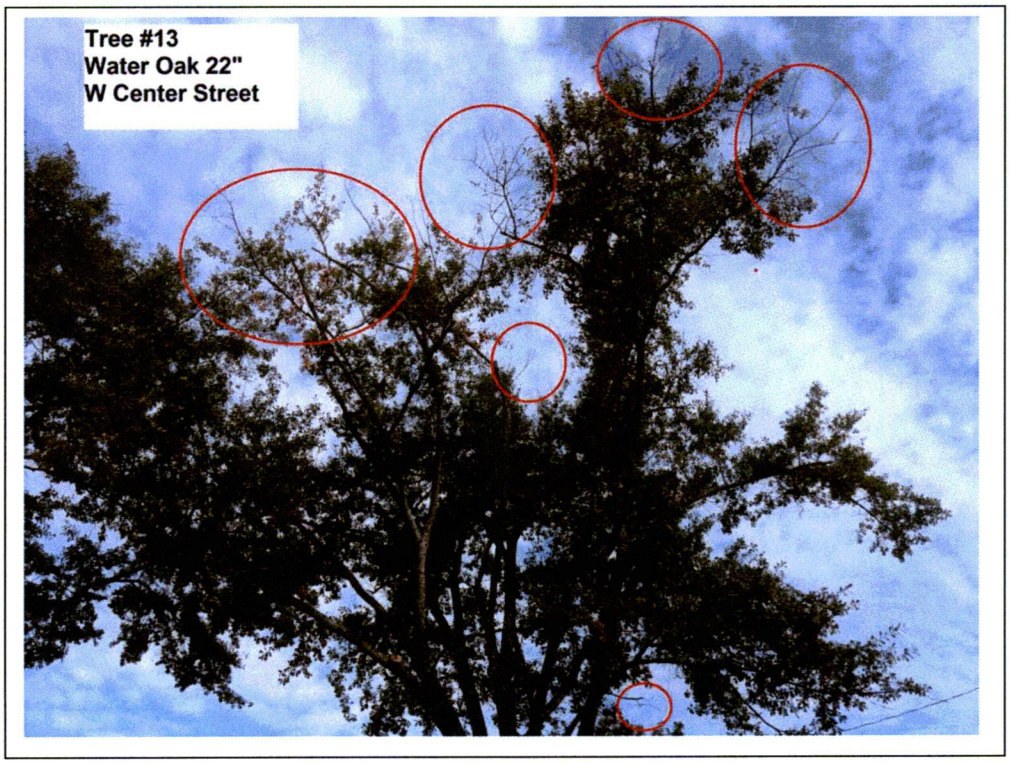


#9 is a Southern Magnolia with a 21-inch stem diameter that is located on west of the courthouse. No risk factors were found on this tree.

#12 is a Water Oak with two stems, 13 and 15 inches in diameter. It is located on W. Center Street near the center of the block. There is an electrical box attached directly to the tree, this needs to be moved to a post (yellow arrow). Plumbing work has damaged much of the root system. Not sure how tree will respond to further root damage. Dead branches are located over the street (red circles). Remove dead branches this winter.

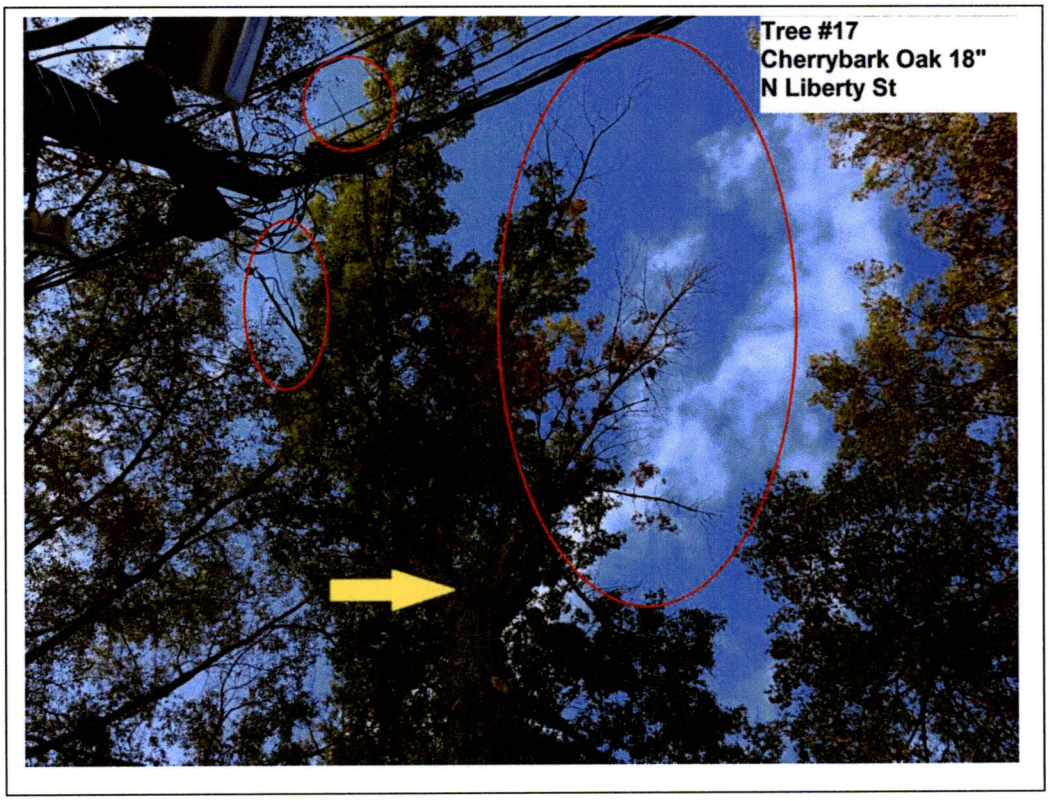


#13 is a Water Oak with a 22-inch stem diameter that is located on W. Center Street. Dead branches are primarily located over lawn area (red circles). Remove dead branches this winter.

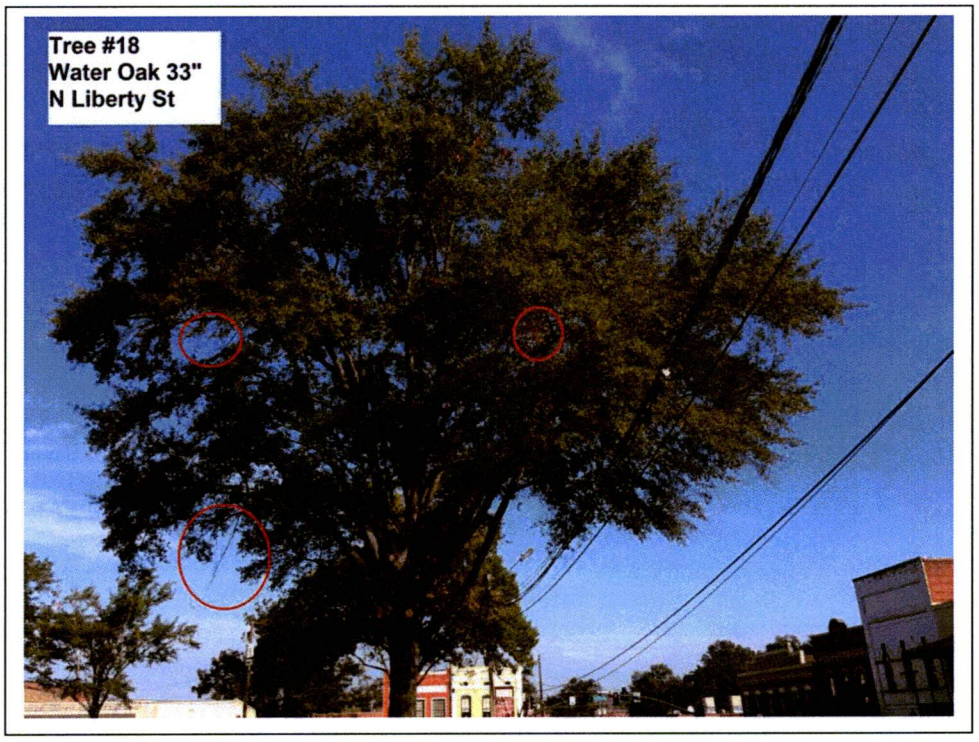


#15 is a Cherrybark Oak with a 20-inch stem diameter that is located on N. Liberty Street – Hwy 51. Dead branches are located over the street and lawn area (red circles). Remove dead branches this winter.

#16 is a Cherrybark Oak with a 19-inch stem diameter that is located on N. Liberty Street – Hwy 51. Dead branches are located over the street (red circles). Remove dead branches this winter.



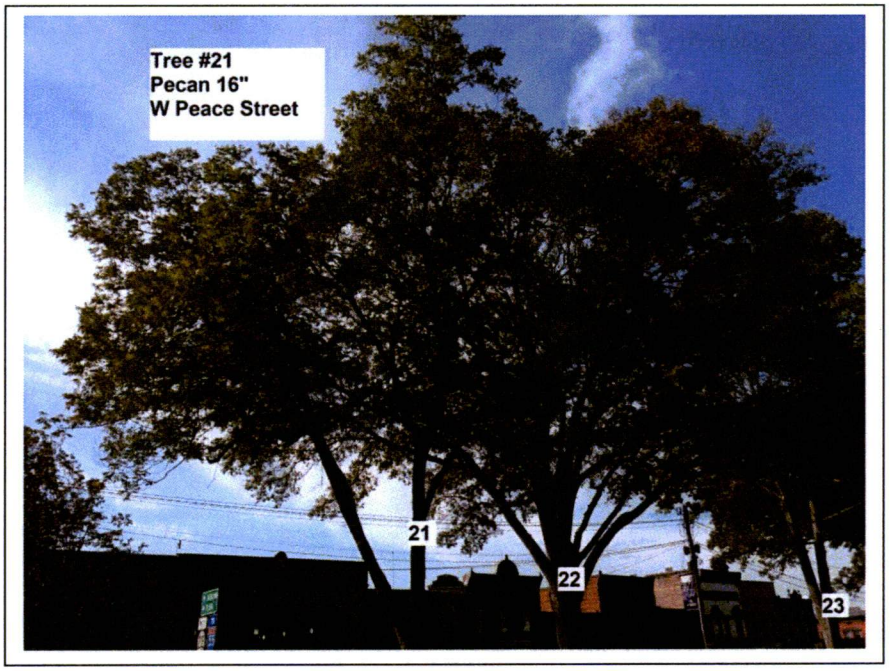
#17 is a Cherrybark Oak with an 18-inch stem diameter that is located on N. Liberty Street – Hwy 51. Nearly 25% of its branches have recently died (red circles). An old top snapped out in the past, so monitor this area (yellow arrow). Remove dead branches this winter.



#18 is a Water Oak with a 33-inch stem diameter that is located on N. Liberty Street – Hwy 51. Dead branches are located over the street (red circle). Remove dead branches this winter.

#20 is a Southern Magnolia with a 31-inch stem diameter that is located on southeast of the courthouse. Dead branches are starting to accumulate as tree health declines. Foliage is become sparse. Look at soil around tree to see why. Remove large dead branch (yellow arrow).

#21 is a Pecan with a 16-inch stem diameter that is located on W. Peace Street – Hwy 22. Tree looks healthy and no risk problems were found.



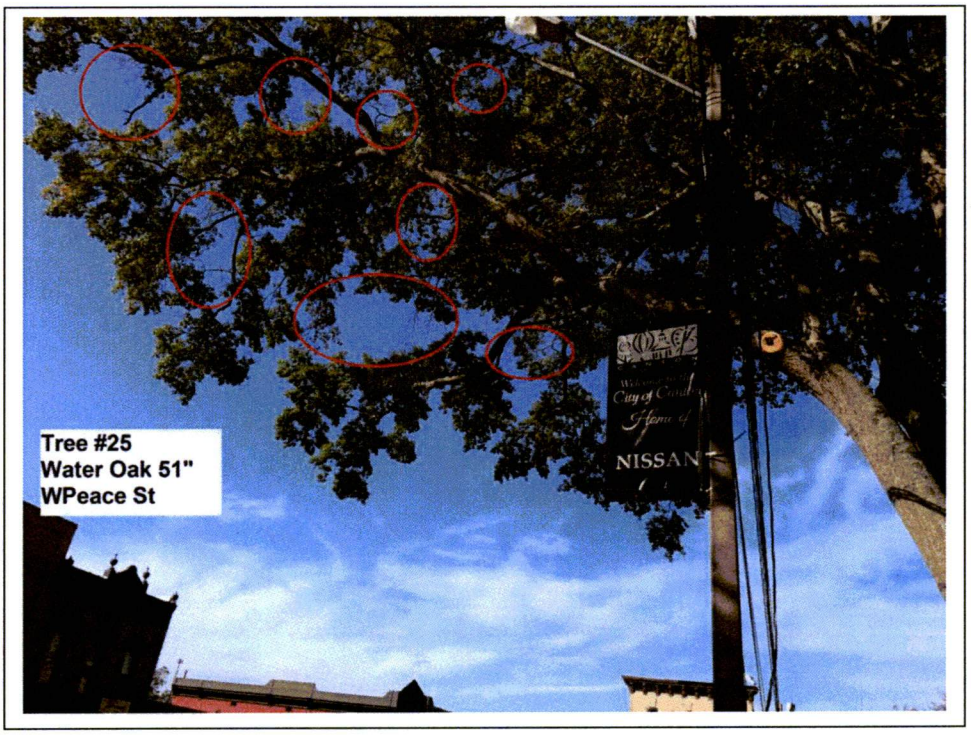
#22 is a Water Oak with a 39-inch stem diameter that is located on W. Peace Street – Hwy 22. A few dead branches are located over the lawn area (red circle). Remove dead branches this winter.

#23 is a Cherrybark Oak with a 24-inch stem diameter that is located on W. Peace Street – Hwy 22. A few dead branches are located over the street and powerline (red circle). Remove dead branches this winter.

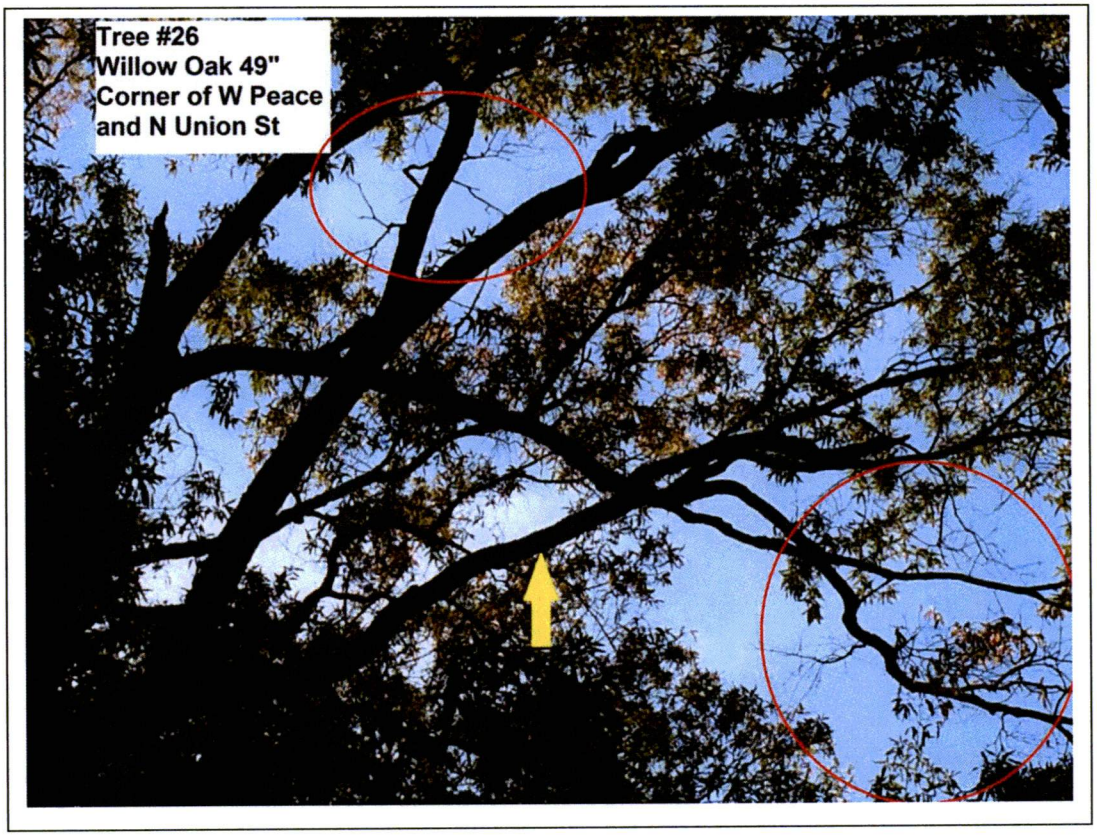
#24 is a White Oak with a 39-inch stem diameter that is located on W. Peace Street – Hwy 22. A few dead branches

are located over the street and lawn areas (red circles). Otherwise a very healthy tree. Remove dead branches this winter.

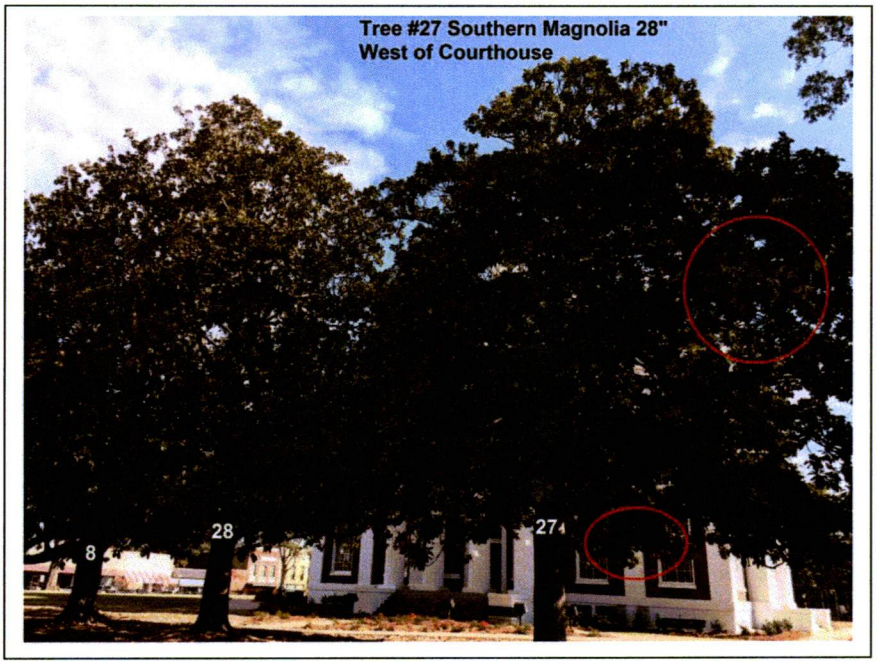
#25 is a Water Oak with a 51-inch stem diameter that is located on W. Peace Street – Hwy 22. Dead branches are located over the street (red circle). Remove dead branches this winter.



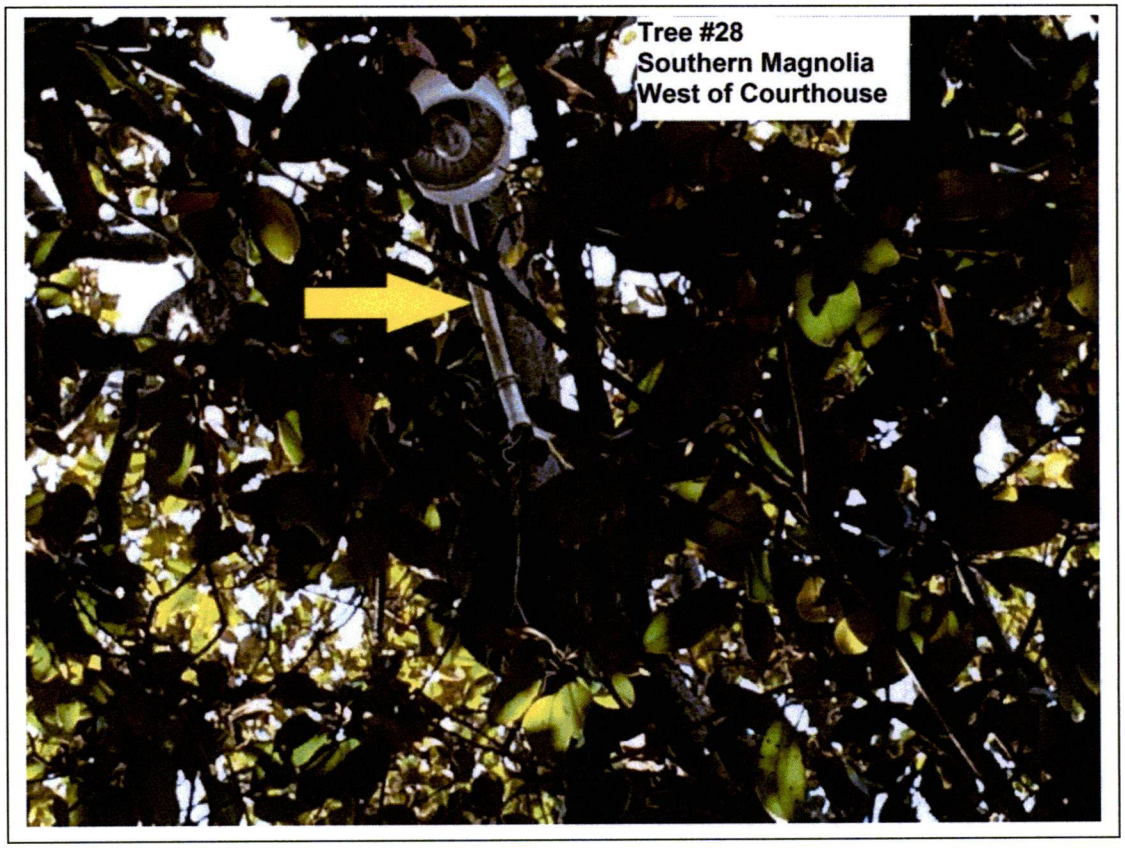
#26 is a Willow Oak with a 49-inch stem diameter that is located on N. Union Street, southwest of courthouse. Dead branches (red circles) and large dead stubs (yellow area) are located over lawn area. Remove them this winter.



#27 is a Southern Magnolia with a 28-inch stem diameter that is located west of courthouse. Dead branches are located over the lawn area (red circle). Remove dead branches this winter.



#28 is a Southern Magnolia with a 28-inch stem diameter that is located west of courthouse. The tree has a few broken branches that should be removed. Of highest concern is an old security light still stuck up in the tree. This light needs to be removed.



Risk Level is likelihood tree part will fail within 1 year and cause damage or injury to property or persons.								
2008 Tree Number	**Location**	**Tree Species - Common Name**	**Stem Diameter (inches)**	**Total Height (feet)**	**Tree Part Most Likely to Fail**	**Risk of damage/ injury**	**Risk Mitigation Recommendations**	**Tag # on tree**
1	W. Center Street	Willow Oak	35	70	Dead branches over the street.	Moderate	Remove deadwood.	408
4	W. Center Street near carousel	Nuttall Oak	13	40	Branches are touching powerlines, could energize tree.	Moderate	Remove branches to re-establish clearance with powerline.	
5	**N. Union Street where horse carriages are loaded**	**Willow Oak**	**44**	**90**	**Numerous dead branches over street,** 20-in scaffold branch on north side over street has large cavity, southern scaffold branch is decaying from old storm damage.	**High**	**1. Remove tree or 2. Remove deadwood and stabilize scaffold branches to keep tree 4-5 more years.**	403
6	N. Union Street	Nuttall Oak	26	60	Dead branches over power line. Powerlines touching tree (could energize tree). Top broken out with dead stub.	Moderate	Deadwood removal. Move powerline away from tree or insulate.	
7	N. Union Street	Nuttall Oak	26	70	Dead branches over power line.	Moderate	Deadwood removal.	401

8	West of Courthouse	Southern Magnolia	32	60	Old security light poorly attached.	Low	Remove security light.	
9	West of Courthouse	Southern Magnolia	21	55	None	Very Low	None	
12	W. Center Street	Water Oak	13 and 15, 2 stems	50	Dead limb over street, dead branch on west side over sidewalk.	Moderate	Remove deadwood. Move electric box and wires from tree.	418
13	W. Center Street	Water Oak	22	45	Dead branches over lawn area.	Moderate	Remove deadwood.	
15	N. Liberty Street - Hwy 51	Cherryba rk Oak	20	45	Dead branches.	Low	Remove deadwood.	422
16	N. Liberty Street- Hwy 51	Cherryba rk Oak	19	50	Dead branch stubs.	Low	Remove deadwood.	423
17	N. Liberty Street- Hwy 51	Cherryba rk Oak	18	60	Nearly 25% of branches are dead.	Moderate	Remove deadwood.	424
18	N. Liberty Street - Hwy 51	Water Oak	33	75	Dead branches	Low	Remove deadwood. Prune to reduce crown size.	425
20	SE corner of Courthouse	Southern Magnolia	31	45	Dead branches	Low	Remove deadwood and reduce crown size.	
21	W. Peace Street - Hwy 22	Pecan	16	50	None	Very Low	None	
22	W. Peace Street - Hwy 22	Water Oak	39	60	Dead branches over lawn area.	Moderate	Remove deadwood.	433
23	W. Peace Street - Hwy 22	Cherryba rk Oak	24	75	Dead branches over sidewalk and powerlines.	Moderate	Remove deadwood.	434

24	W. Peace Street - Hwy 22	White Oak	39	81	Dead branches over sidewalk.	Moderate	Remove deadwood.	
25	W. Peace Street - Hwy 22	Water Oak	51	85	Dead branches over street.	Moderate	Remove deadwood.	439
26	N. Union Street	Willow Oak	49	85	Dead branches	Moderate	Remove deadwood.	440
27	West of Courthouse	Southern Magnolia	28	55	Dead branches	Low	Remove dead branches.	447
28	West of Courthouse	Southern Magnolia	28	50	Broken branches and poorly attached old security light.	Low	Remove broken branches and security light.	448