C4

Urban Forest Management Plan and EAB Plan Overview

DNR's Recommendations: Sustainable Tree Grant Inventory Findings

This "Plan" was developed to assist Hiawatha with the management, budgeting and future planning of their urban forest.

1. Across the state, forestry budgets continue to decrease with more and more of that money spent on tree removal.
2. With the anticipated arrival of Emerald Ash Borer (EAB), an invasive pest that kills native ash trees, it is time to prepare for the increased costs of tree removal and replacement planting.
3. With proper planning and management of the current canopy in Hiawatha, these costs can be extended over years and public safety issues from dead and dying ash trees mitigated.

Trees are an important component of Hiawatha's infrastructure and one of the greatest assets to the community.

1. The benefits of trees are immense:
   - Trees provide the community with improved air quality, storm water runoff interception, energy conservation, lower traffic speeds, increased property values, reduced crime, improved mental health and create a desirable place to live, to name just a few benefits.
   - It is essential that these benefits be maintained for the people of Hiawatha and future generations through good urban forestry management.

An essential part of developing management strategies is a comprehensive public tree inventory. The inventory supplies information that will be used for maintenance, removal schedules, tree planting and budgeting.

Inventory

In 2016, a tree inventory was conducted that included 100% of the city owned trees on both streets and parks.

1. The tree data was collected using a handheld Global Positioning System (GPS) receiver.
2. The data collector gives Geographic Information Systems (GIS) coordinates with an accuracy of 3 meters, which can be used in Arc GIS as an active GIS data layer. Because the inventory is a digital document the data can be updated with new information and become a working document.

*Over the next year our City GIS employee (Kyla) will be helping us use our own City GIS software so we can continue updating the information whenever we plant, maintain or remove a tree. This will allow us to be self-sufficient and know what is going on at all times.

Inventory Results

Below are some key findings of the 2,961 trees inventoried.

- Hiawatha's trees provide $240,066 of benefits annually (energy, storm water, air quality, carbon, and aesthetics) an average of $81 a tree.
- There are over 60 species of trees, but only 10 species count for 61% of the public trees
- The top three genera are: Maple 25%, Apple (Crabapple) 14%, and Ash 13%
- 28% of trees are in need of some type of management
- 93 trees are recommended for removal **AND** 17 are of critical concern.
- A total of '697' trees need some sort of crown maintenance.

Species Distribution

Hiawatha has over 60 different tree species along city streets and parks.

The top 10 distributions of trees by genera is as follows:

Maple	742	25%
Apple (Crabapple)	408	14%
Ash	385	13%
Oak	186	6%
Honeylocust	156	5%
Broadleaf Deciduous Small	144	5%
Callery Pear/Pear	128	4%
Linden/Basswood	109	4%
Black Walnut	88	3%
Conifer/Evergreen Large	72	2%

Management Needs

The following outlines the specific management needs of the street and park trees by number of trees and percent of canopy.

Crown Raising	537	18%
Crown Cleaning	147	5%
Crown Reduction	13	<1%
Crown Maintenance	697	
Tree Removal	109	4%
Tree Staking	28	1%

Risk trees

Hiawatha has 17 trees that need removal considered critical concern, plus there are another 76 that need to be considered for removal.

1. It is recommended to start with the large diameter trees first. There are 12 trees over 24 inches in diameter at 4.5 ft that should be addressed immediately.
2. After all of the trees within the next year are removed, there will be follow up on the trees marked as needing maintenance.

Planting

Most of the planting over the next 5 years will replace the trees that are removed.

1. It is recommended to plant 1.2 trees for every tree removed, since survival rates will not be 100%.
2. It is not essential that the new trees be planted in the same location of the trees being removed. However, maintaining the same number of trees helps ensure continuation of the benefits of the existing forest in Hiawatha.

It is important to plant a diverse mix of species in the urban forest to maintain canopy health, since most insects and diseases target a genus (ash) or species (green ash) of trees.

1. Current diversity recommendations advise that a genus (i.e. maple, oak) not make up more than 20% of the urban forest and a single species (i.e. silver maple, sugar maple, white oak, bur oak) not make up more than 10% of the total urban forest.
2. All trees planted must meet the restrictions in city ordinance. You can see from above that the City is already at 25% maple.

Continual Monitoring

Due to the threat of EAB **and the fact it is just north in Toddville**, it is important to continuously check the health of ash trees.

- It is recommended that ash trees be checked with a visual survey every year for tree decline and for the following signs and symptoms: canopy dieback, epicormic shoots, bark splitting, D-shaped borer exit holes, and wood pecker damage.

Six-year Ash tree removal and maintenance plan: **(Based on info we provided to DNR last year without current inventory info)**

Year 1

- Tree Removal: $8,000 @ ~$600 to $800/tree can remove 13 to 10 trees
- Tree Maintenance: $6,200
- EAB Management: $0 currently
- Planting & Care: $5,000 @$100/tree can plant 50 trees
- Management: $6,840
  Total Cost: $26,040.00

Year 2

- Removal: Up to 13 trees/year @~600/tree
- Planting and Replacement: Up to 50 trees @$100/tree
- Young Tree Pruning & Maintenance:
  1. Routine trimming: Contract to trim 1/3 of the city trees up to $6,200 annually
- Visual Survey for signs and symptoms of EAB
  Total Cost: $19,200.00

Year 3

- Removal: Up to 13 trees/year @~600/tree
- Planting and Replacement: Up to 50 trees @$100/tree
- Young Tree Pruning & Maintenance: Begin developmental pruning when needed
- Routine trimming: $6,200
- Visual Survey for signs and symptoms of EAB
  Total Cost: $26,040.00

Year 4

- Removal: Up to 13 trees/year @~600/tree
- Planting and Replacement: Up to 50 trees @$100/tree
- Young Tree Pruning & Maintenance: Begin developmental pruning when needed
- Routine trimming: Contract to trim 1/3 of the city trees up to $6,200 annually
- Visual Survey for signs and symptoms of EAB
  Total Cost: $19,200.00

Year 5

- Removal: Up to 13 trees/year @~600/tree
- Planting and Replacement: Up to 50 trees @$100/tree
- Young Tree Pruning & Maintenance: Begin developmental pruning when needed
- Visual Survey for signs and symptoms of EAB
  Total Cost: $26,040.00

Year 6

- Removal: Up to 13 trees/year @~600/tree
- Planting and Replacement: Up to 50 trees @$100/tree
- Routine trimming: Contract to trim 1/3 of the city trees
- Young Tree Pruning & Maintenance: Begin developmental pruning when needed
- Visual Survey for signs and symptoms of EAB
  Total Cost: 19,200.00

Budget Concerns:

- Today our budget for EAB is $0
- Using the current estimated tree removal budget at $600 / tree it would take ~29 years to remove the existing public ash trees (385).
- This would not include cost of removing the 89 non-ash tree species listed to be removed.
- To remove all ash trees within 6 years, the budget needed is $38,500 per year.
- If our budget is $10,000 annually all ash could be removed in 24 years, if we include all other species needing removal (89 trees) could be removed in 28 years.
- Inevitably the EAB will kill all ash trees in the area within the next 4 to 15 years; We know there are reports that have identified the EAB in Linn County along 1-380/80 and in close proximity to Toddville.

Staff Recommended Budget:

- Ash Tree removal: $10,000 for trees bigger than 20". Staff will remove 20" or smaller.
- Replanting: $5,000. This will be additional to grant opportunities.
- Ongoing care (chips, pruning, staking, tree wrap, watering, etc): $5,000 for materials with staff or contractor doing the labor.
- Tree Trimming (crown work): $15,000(every other year forever) ¼ to 1/3 of city.

Three years ago, before the inventory was complete, the City set aside $30,000.00 (LOSST) for 3 years to plan for the EAB. Based on the DNR report $90,000 would only cover 150 trees out of the 385.

- This funding starts in FY19. With the tree removal budget staff will start by removing critical concern trees while monitoring EAB signs and symptoms.
- It is also worth noting that the size of EAB populations in a specific area will change over time. Populations initially build very slowly, but later increase rapidly as more trees become infested.
- As EAB populations reach peak densities, a high proportion of the untreated ash trees in a given area will decline and die, usually over a 3-5 year period. Once untreated ash trees in the area succumb, however, the local EAB population will decrease substantially.
- If Hiawatha becomes fully infested, more funds will be needed to remove Ash trees.

Future Infestations:

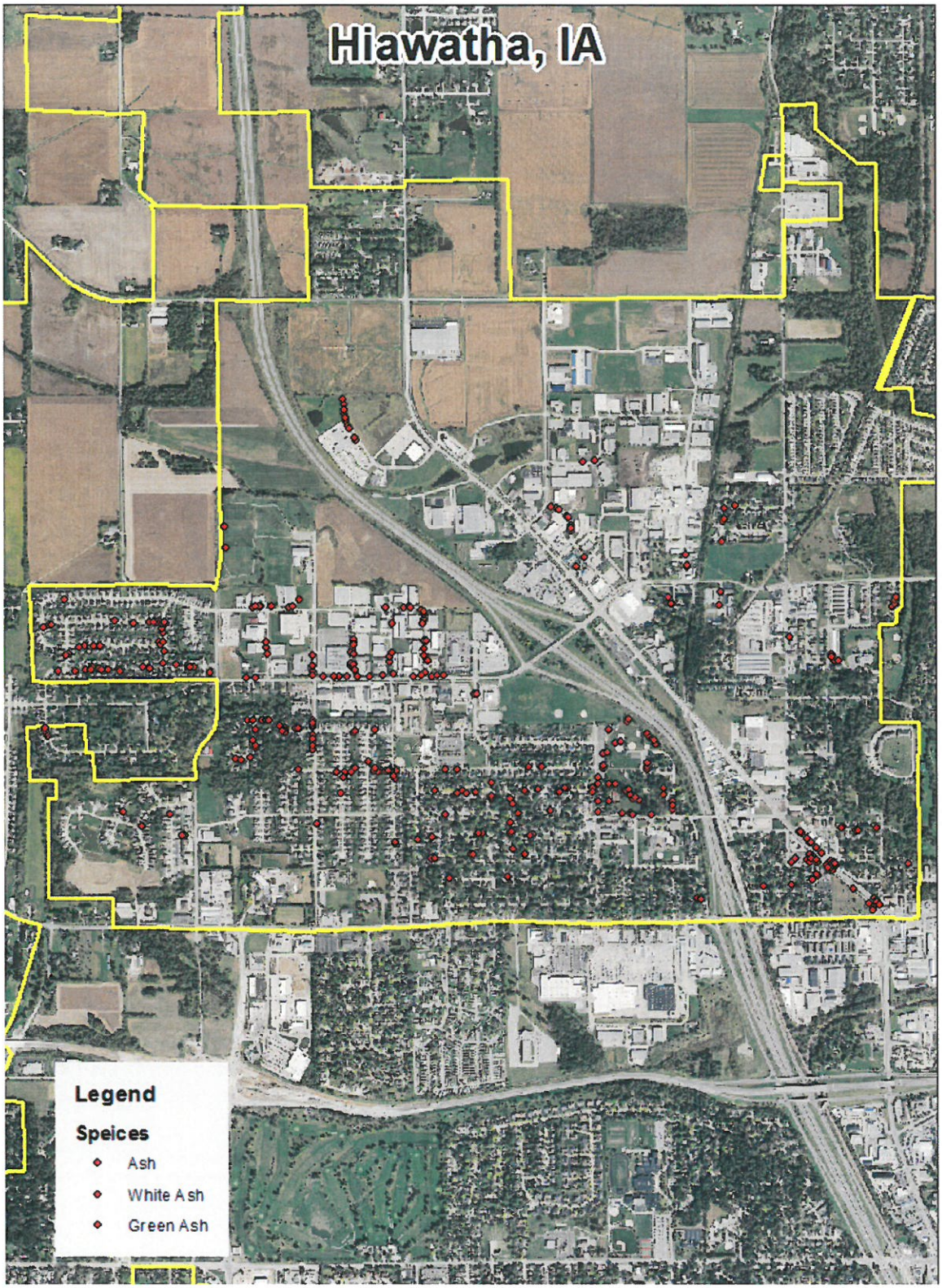
- The Asian long horned beetle (ALB) has been discovered attacking trees in the United States. Tunneling by beetle larvae girdles tree stems and branches.
- Repeated attacks lead to dieback of the tree crown and, eventually, death of the tree. ALB probably travelled to the United States inside solid wood packing material from China. The beetle has been intercepted at ports and found in warehouses throughout the United States.
- This beetle is a serious pest in China, where it kills hardwood trees in roadside plantings, shelterbelts, and plantations. In the United States the beetle prefers maple species, including

boxelder, Norway, red, silver, and sugar maples. Other preferred hosts are birches, Ohio buckeye, elms, horsechestnut, and willows. A complete list of host trees in the United States has not been determined. Which basically means Maple trees are next!

What our neighborhoods could look like if we don't take an active approach.

Current Ash Trees in Wolf Creek Trail

Map of Ash Trees in Hiawatha



Hiawatha Emerald Ash Borer Management Plan Draft

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1. Introduction

1.1 Purpose

- The intent of this management program is to mitigate the damage and cost associated with infestation of the Emerald Ash Borer (EAB).
- This cooperative effort by the Public Works Department and the Parks and Recreation Department is a proactive approach and enables the City to address public and private needs in an efficient and effective manner.
- The City will attempt to distribute the costs of this plan over a manageable time period.
- It is anticipated that no State or Federal assistance will be made available to local governments to deal with the impacts of the EAB.

1.2 Applicability

- This program is applicable to ash trees located on any public property, right-of-way, or Parks and Trails.
- This program does not apply to private properties unless such trees are deemed a nuisance and may negatively impact public right-of-ways, other properties, or pose a threat to public safety.

1.3 Administration

- The Public Works Department and Parks Dept. will be responsible for implementation of this plan for trees located in the right-of-way, in City owned property, in the City's parks and along the City's trails.

2. Background

2.1 Emerald Ash Borer (EAB)

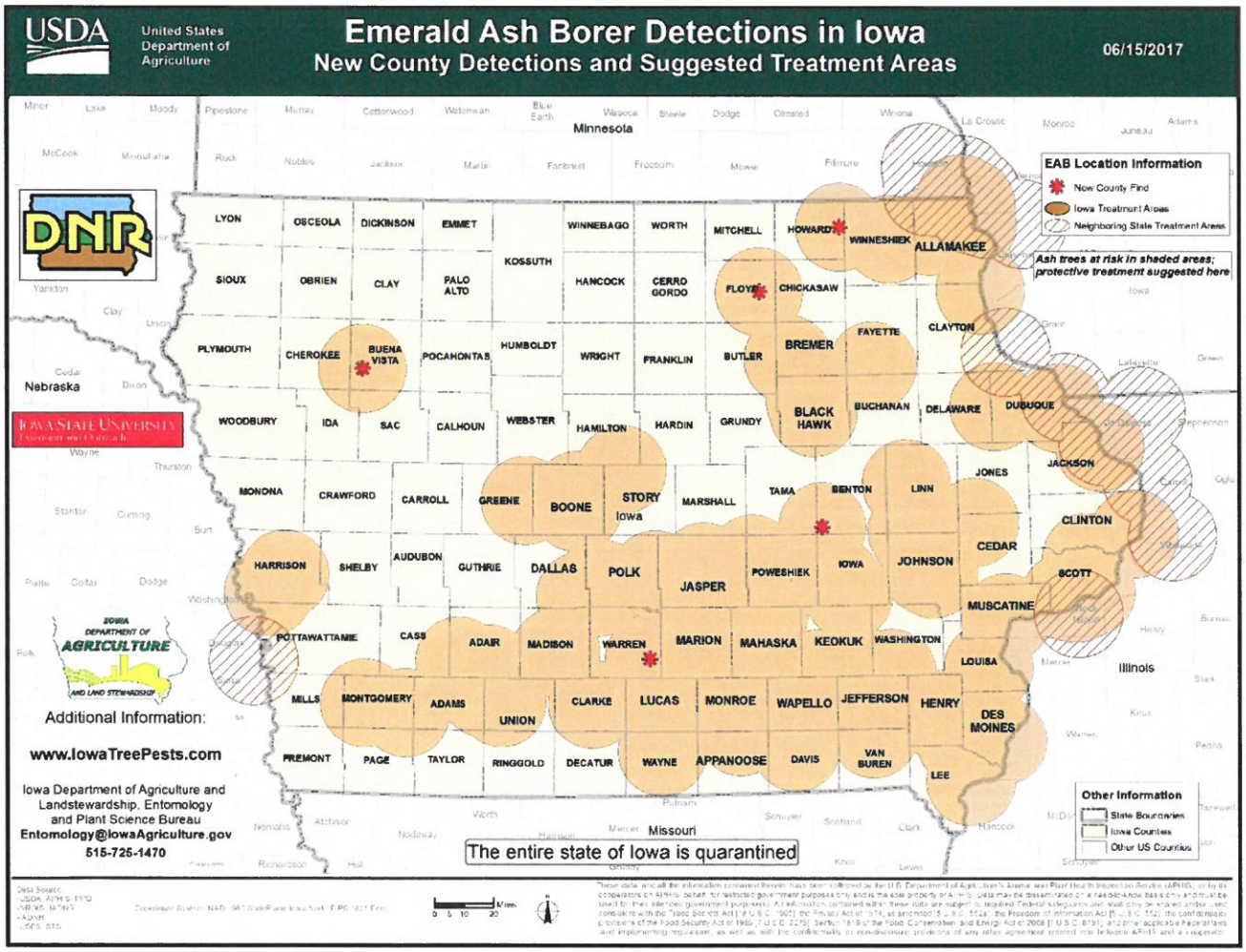
The emerald ash borer (EAB) is a small green invasive wood-boring beetle that attacks and kills ash trees.

- The adults live on the outside of ash trees feeding on the leaves during the summer months. The larvae look similar to white grubs and feed on the living plant tissue (phloem and cambium) underneath the bark of ash trees.
- The trees are killed by the tunneling activity of the larvae under the trees bark, which disrupts the vascular flow. The metallic green beetle is native to Asia and was transported to the United States on wood pallets and crates.

Originally discovered in the Detroit, Michigan area in 2002; the pest has also been found in Illinois, Ohio, Pennsylvania, Wisconsin, Minnesota, Iowa, Missouri, Colorado and two Canadian Provinces.

- Since its discovery, the EAB has been responsible for killing millions of ash trees throughout these infested areas of the country.
- Research continues with insecticide treatments. Some success has been noted in insecticide treatments protecting ash trees from EAB prior to infestation.
- As this pest continues to spread, additional damage to ash trees can be expected.
- Trees that have been attacked by EAB can die in as little as two years.

2.2 Location



2.3 State Readiness Plan

Due to the potentially catastrophic impact of EAB, the State of Iowa has developed the Iowa Emerald Ash Borer Readiness Plan that can be found on the Department of Natural Resources website.

- This plan outlines the roles and responsibilities of State agencies in dealing with EAB as well as the procedures for ongoing monitoring and investigating suspected infestations.
- The plan does not outline the specifics of regulatory requirements following a confirmed infestation, nor does it identify any State assistance other than technical expertise.

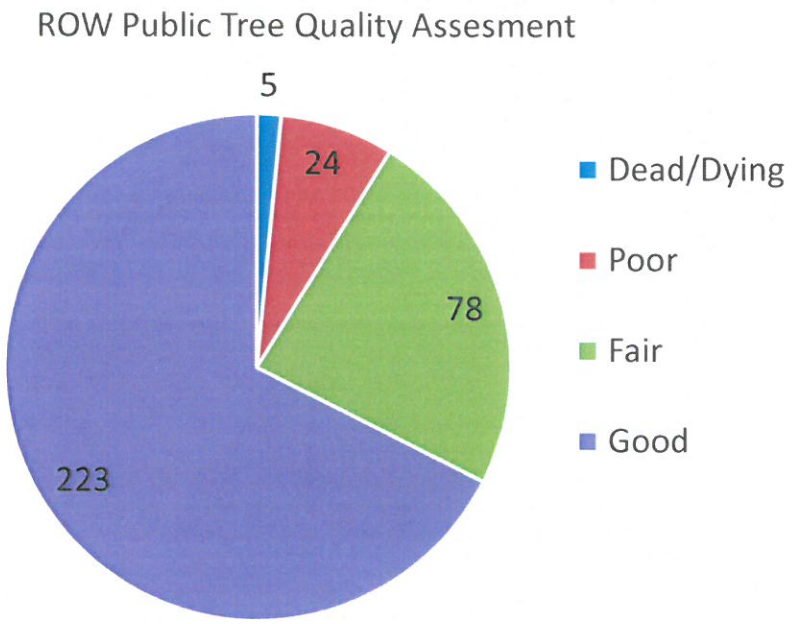
3. Inventory and Assessment

3.1 Public Tree Inventory

In the summers of 2013 and 2016, City staff and IDNR conducted a tree inventory on public property, right-of-ways, and parks and trails.

- A total of 2,961 trees were inventoried, 385 were identified as Ash trees. Using the field GPS unit, the location of each tree and the perceived general condition of each tree was noted and has been stored in a database for easy retrieval.
- There were 330 ash trees located within the right of way for which the City will have responsibility for removal. 55 are in our parks.
- 29 ash trees were identified as being in poor condition. Staff continues to monitor all ash trees and their conditions on an annual basis.

3.2 Public Tree Assessment



3.3 Private Trees

The City recognizes that there are numerous ash trees on private property. Currently, the City has no reliable inventory for ash trees on private property.

- Property owners are urged to monitor the EAB movement.
- The decision to remove or treat ash trees on private property rests with the property owner.
- Property owners are encouraged to do their own research on EAB before making any decisions.

4. Management Plan

As EAB continues to spread throughout Iowa, State and Federal resources are expected to be limited.

- Therefore, it is necessary that the City has its own strategy to complement State efforts to manage the effects of EAB.
- The proposed EAB management strategy includes: Monitoring, Wood Utilization and Disposal, Infested Tree removal, and Tree Planting.

4.1 Monitoring

Staff will complete an annual assessment of public owned ash trees.

- Staff training on EAB identification and its signs and symptoms will be an ongoing effort.
- Some of the signs and symptoms include: canopy dieback, epicormic shoots, bark splitting, D shaped borer exit holes, and wood pecker damage.

4.2 Pre-Emptive Removal

The City does not plan to do any pre-emptive removal or insecticide treatments of any trees with in the right-of-way or Parks at this time.

- City staff will monitor trees each year and will remove any tree that is deemed dead or a safety concern.
- If a citizen wishes to treat or remove an Ash tree in the ROW, they are required to notify (get a permit?) the City in writing before any such treatment takes place?

4.3 EAB Infestation

In 2016 an EAB was positively identified in Linn County at a rest stop right outside of Cedar Rapids. In 2017 it was found in Cedar Rapids and Toddville.

- City staff will be utilized as much as possible to effectively manage the response to an EAB infestation.
- Staff from all departments may have duties reassigned to assist with this effort as determined by the level and nature of the infestation.
- Contractors may also be utilized as needed to assist with the workload and in particular instances where the City's equipment is inappropriate to safely address a specific tree removal or insecticide treatment.

4.4 Disposal of Debris

Since the entire state of Iowa was quarantined in February of 2014, there are no restrictions on the transport of ash wood debris within state borders.

- Standard methods of disposal will be utilized for ash trees that are removed with much of the wood being chipped for use as mulch throughout the park system.

4.5 Planting and Restoration

Trees that are removed will be replaced with a variety of landscape trees at a rate of 2 trees planted for every tree removed in parks.

- Ash trees within the right-of-way will be replaced at the sole discretion of the Public Works Director. Every effort will be made to replace at a rate of 1:1.
- If we replace the trees in residential ROW will they become ours to fully maintain? Today the adjacent property owner is asked to maintain their tree until it needs total removal. City has taken on the removal at the owners request.

5. Communication and Outreach

5.1 Community Education

Community outreach will play an important role in educating the public and raising awareness of EAB.

- Residents will be encouraged to have their trees inspected if they suspect EAB. EAB information and links to other web sites will continue to be available on the City website, Insights and social media pages. This information will be updated as more information becomes available.
- Residents can participate in the Linn County RELEAF program in the fall and spring through Alliant Energy.

We will continue to explore grants and tree programs for residents to take part in.

Ordinance changes based on our findings:

151.06

- The Council shall inspect or cause to be inspected any trees or shrubs in the City reported or suspected to be infected with or damaged by any disease or insect or disease pests, and such trees and shrubs shall be subject to removal as follows.....

ACTION: We would like to take out 'Council' AND INSERT "City Staff" so that the staff have the authority to report issues to property owners.

that such action be taken within five (5) days. If such action is not taken within that time, the City may perform the required action and assess the costs against the abutting property for collection in the same manner as a property tax. The City reserves the right to exempt, by resolution of the Council, specific and identified areas in which the City has invested in streetscape and landscaping enhancements. In areas exempted by the City, it shall specify in a written notice to the abutting property owner who shall maintain the area. This section shall be interpreted consistently with Section 135.10 of this Code of Ordinances. ***(Ord. 606 – Aug. 07 Supp.)***

(Code of Iowa, Sec. 364.12[2c, d & e])

151.04 TRIMMING TREES TO BE SUPERVISED. Except as allowed in Section 151.03, it is unlawful for any person to trim or cut any tree in a street or public place unless the work is done under the supervision of the City.

151.05 DISEASE CONTROL. Any dead, diseased or damaged tree or shrub which may harbor serious insect or disease pests or disease injurious to other trees is hereby declared to be a nuisance.

151.06 INSPECTION AND REMOVAL. The Council shall inspect or cause to be inspected any trees or shrubs in the City reported or suspected to be infected with or damaged by any disease or insect or disease pests, and such trees and shrubs shall be subject to removal as follows:

1. Removal from City Property. If it is determined that any such condition exists on any public property, including the strip between the curb and the lot line of private property, and that danger to other trees within the City is imminent, the Council shall immediately cause such condition to be corrected by treatment or removal so as to destroy or prevent as fully as possible the spread of the disease or the insect or disease pests. The Council may also order the removal of any trees on the streets of the City which interfere with the making of improvements or with travel thereon.

2. Removal from Private Property. If it is determined with reasonable certainty that any such condition exists on private property and that the danger to other trees within the City is imminent, the Council shall immediately notify by certified mail the owner, occupant or person in charge of such property to correct such condition by treatment or removal within fourteen (14) days of said notification. If such owner, occupant or person in charge of said property fails to comply within fourteen (14) days of receipt of notice, the Council may cause the nuisance to be removed and the cost assessed against the property.

(Code of Iowa, Sec. 364.12[3b & h])