



City of Saint Paul, Minnesota

Emerald Ash Borer Management Program 2012 Annual Report December 12, 2012

Emerald ash borer (EAB) was first discovered in Minnesota on May 13, 2009 (est. infestation of 2005) in the city of Saint Paul's South Saint Anthony (SSA) neighborhood. Management thus far has been focused on slowing the spread of EAB to other areas of the city and state along with the removal and replacement of ash trees throughout the city. 2012 was Year III of implementation of the EAB Management Program and this document summarizes the events to date along with management recommendations and budgetary concerns moving into Year IV, 2013. This document provides an update of the original management plan core strategies listed below along with a category focused on Budget:

- Monitoring/Inspection
- Inventory
- Sanitation
- Structured Removal
- Pesticide Use
- Reforestation
- Outreach

Monitoring/Inspection

The prompt removal of EAB infested trees is the first priority in the City's management plan with the goal of slowing the natural spread of EAB to other areas while providing the City an extended timeframe in which to manage its response. In order to accomplish this goal, regular monitoring and inspection for EAB is key information needed to act upon.

In 2012, the City implemented the more rigorous management strategies of an infested area including: increased inspection; removal orders and abatements of private property trees; removal and sampling (logs provided to Minnesota Department of Agriculture (MDA) for data collection) of public trees; and insecticide treatment of public trees in the Summit-Dale neighborhood.

Since the 2009 initial discovery, the following infestations in the metro have been found through monitoring:

Location	Date Discovered	Date Infested (estimate)
Minneapolis, Tower Hill Area	February 2010	2006-07
Shoreview, MN	July 2011	2008
Summit-Dale neighborhood	September 2011	2007
Fort Snelling Golf Course	August 2012	2007
Minneapolis, NE neighborhood	November 2012	2009
Saint Paul, River corridor	November 2012	Not sure at this time

The proximity of the Fort Snelling EAB find to Saint Paul led to an increase in ash tree inspection in the southernmost part of Highland Park (Planning District 15) this summer. Vigilant re-inspection of the area is important as it is highly possible that EAB is now in yet another neighborhood of Saint Paul—one with a very high percentage of boulevard ash trees.

Most recently EAB was identified in hard to access bluff-lands in the Mississippi River corridor in Saint Paul. While this discovery is not a surprise (the trees are within a half mile of infested trees in Minneapolis) it does

mean that the infestation is much more likely to spread quicker and unabated downstream to other neighborhoods of Saint Paul.

Similarly, the spread of EAB on private property is undoubtedly occurring and leading to increased population build up. While the ordinance allowing for the inspection and condemnation of private property ash trees has helped, it is still difficult to confirm much less order the removal of a suspect tree on one's private property. Many infested trees, therefore, remain in the landscape, providing food and egg-laying sites for EAB, longer than they would on public property—potentially years longer.

Unfortunately, just when more help is needed in the battle, the MDA is reducing its efforts in Saint Paul. Since the initial discovery of EAB in Saint Paul, the MDA has been a constant and invaluable partner in the fight against EAB. MDA employees have spent hundreds of hours in assisting with the annual ash tree inspections in Saint Paul. An MDA staff person discovered the Summit-Dale infestation in 2011 while in the area. Beginning this winter the MDA is no longer able to assist with the annual inspection of ash trees here in Saint Paul as their help is increasingly needed elsewhere in the state as EAB spreads. This means Saint Paul needs to handle more of the duties on its own.

The original EAB Management Plan assumed the eventual need to add more staff for monitoring and inspection as EAB spread, and with the redirection of the MDA, Saint Paul providing more Forestry staff for this work will become necessary very soon.

2013 Recommendations—Monitoring/Inspection:

- **Identify for the 2014 budget what is needed for increased inspection resources**
- **Increase inspection in infested and “high risk” areas (eg: Highland Park) to determine the spread of EAB**
- **Increase inspection for and removal orders of EAB infested private property trees**
- **Increase staff hours in terms of annual survey of ash trees**
- **Pursue potential monitoring partners in absence of assistance of MDA staff**

Inventory

Successful management of EAB requires knowledge of current conditions of the urban forest, i.e., an inventory to direct management needs. As such, the Department of Parks and Recreation/Forestry has been working on an inventory of right-of-way boulevard trees since 2009 using a web-based inventory/services management program and thus far has completed ten of the seventeen planning districts. It is imperative that the City continue its investment in finishing this inventory to allow for the best management decisions going forward.

To enhance this effort, a new program was started in 2012 using volunteers with a goal of expansion in 2013 (there are currently 6 dedicated volunteers). However, volunteers can only collect inventory data on paper at this time, thus requiring that the information be entered later by Forestry staff into the specialized Davey TreeKeeper⁷ software program. None-the-less it is a highly useful system both in terms of data collection and in community outreach as often-times volunteers are stopped by residents and conversations relating to the urban forest arise.

Again, it is of the utmost importance that the inventory is not only completed, but that future funding is allocated to the continued maintenance of this dynamic system so that an accurate picture of the urban forest is available both for management and historical purposes.

2013 Recommendations—Inventory:

- **Plan to complete street tree inventory in 4 planning districts (5, 6, 8 and 16)—bringing total to 14 of 17 completed.**
- **Expand and fine-tune the new volunteer inventory program with the goal of finding and**

training in a data-entry volunteer in 2013

- **Continue to keep current inventory information up-to-date (new plantings, removals, etc) both related to ash trees and other species**

Sanitation

As stated earlier, the prompt removal of EAB infested trees is the first priority in the City's response plan. As such, in 2012 the City removed 29 infested trees within one mile of the original SSA neighborhood and an additional 11 trees in the Summit-Dale infestation which was found in the latter half of 2011.

The City also ordered the removal of 115 trees on private property, making a grand total of 239 condemned private trees since EAB was first discovered. It comes as no surprise that the number of private versus public infested trees was 3:1 in 2012 as public trees are removed at the first sign of possible infestation while private trees are left until it is clear that they are infested.

Moving forward, the concern over infested private trees is matched by the concern for ash trees in hard to access natural areas such as the river corridor. The difficulty and cost of finding and removing these trees will likely prevent prompt attention and could lead to population growth quicker than hoped for. One promising tool for these areas is biological controls in the form of three species of parasitic wasps. These wasps are actually very tiny insects hard to see with the naked eye, and they are fatal to EAB larvae. The United States Department of Agriculture (USDA) and MDA, introduced these wasps in 2011 in Langford Park (and Minneapolis) and later in the Summit-Dale area. MDA staff did a second release of the wasps in those same areas in 2012. To be clear, experts do not predict that the wasps will be a permanent or even quick solution to EAB, but rather it may extend the time frame to manage EAB by balancing the population and prolonging the onset of EAB "explosion" that other communities have experienced and would seem to be a foregone conclusion. Biological controls may be one of the most useful tools in the river corridor where other management options are either impossible or cost-prohibitive.

2013 Recommendations—Sanitation:

- **Prepare to remove 150-200 publicly owned EAB infested trees**
- **Investigate and begin implementation of reasonable management options for infested trees in the river corridor**
- **Work with the MDA in monitoring the efficacy of biological controls (branch sampling project)**
- **Identify for the 2014 budget what is needed for increased Infested Tree removal resources, both in ROW and Parks general fund budgets**

Structured Removal

Structured Removal, the proactive, systematic removal and replacement of non-infested trees in a planned or "structured" approach, continued successfully in 2012. The program was designed to get a jump on the EAB problem by reducing the number of ash trees that would eventually become infested and effectively spread out the cost of managing the problem over a longer period and more budget allocations. Because Forestry is primarily budgeted through the City's right-of-way assessment, the vast majority of Structured Removal takes place on boulevard trees.

To date, the program has focused on pockets of declining ash trees (>30% dieback in the canopy), those with general health problems, structural defects such as old bolt/cable installations, and those beneath high power utilities. It has also focused on areas of the city that have the worst cases (highest rates or large monocultures) of declining ash trees, but it is avoided in areas of known infestations (currently Planning Districts 8, 11, 12, 13 and 16) so that energy requirements of current EAB are sustained (if they don't have food they will just fly further to

find it).

In future years the Structured Removal program may need to be further amended as more areas become infested and are rendered off-limits to this protocol and as the “worst case” trees are removed the pool of likely candidates will be further limited.

Along with individual ash removals and “opportunity-based” programs, such as RSVP street reconstruction projects, the City removed 1,111 non-infested ash trees in 2012. Most of these are along right-of-way boulevards where it is estimated there are approximately 25,000 ash trees alone. Since the beginning of the EAB program, including all types of ash removals, the City has removed a total of just over 3,600 right-of-way ash trees across the city, or approximately 14% of the total right-of-way ash population.

With the inevitable spread of EAB to more areas of the city, the priority will focus on removal of a greater number of infested trees, thus reducing the number of Structured Removals accordingly unless funding is increased to keep pace. In short, without increased funding soon, the City may fall behind in proactively reducing the large number of non-infested ash trees throughout the city.

In planning for EAB in parks (non-ROW areas), Forestry staff completed a 2012 survey of ash trees in the mown areas of the smaller “neighborhood” parks throughout the city. The surveyors found nearly 900 ash trees out of a total of 5,950 total trees (~15% ash) in these parks. This survey excluded natural areas (e.g., river corridor), the large Regional Parks, the 3 municipal golf courses, and Parkways (700 ash on Johnson Pkwy alone) all of which combined add thousands of ash trees to the total number the City will eventually need to deal with. The EAB budget was created from an increased ROW assessment, thus it cannot be spent on work performed in parks (non-ROW lands). Therefore, the City has relied upon the much smaller Parks general fund budget for work on ash trees in parks.

Using this limited funding in 2012 Forestry removed 108 non-infested ash trees from various parks including 44 from Como Park where about 340 ash trees remain. This number is woefully inadequate when considering the total number of ash that will need to be dealt with in the not so distant future.

2013 Recommendations—Structured Removal:

- **Continue Structured Removal, focused on non-infested areas of the city with high numbers of ash trees in decline, under utilities, or showing other signs of health issues.**
- **Continue to leave any ash in project areas that do not meet the criteria of a ‘declining’ or structurally defective tree**
- **Continue opportunity-based programs, such as RSVP street reconstruction, to remove and reforest areas, allowing residents to ‘opt out’ where ash trees are in reasonable condition and are not in conflict with construction**
- **Continue with the removal of 100 ash trees in city parks (turf/managed areas) annually**
- **Identify for the 2014 budget what is needed for increased Structured Removal resources, both in ROW and Parks general fund budgets**

Pesticide Use

In 2012, the City expanded the treatment of ash trees both in area and numbers. In 2011, 299 trees were treated in the SSA infested area. This year, 100 trees surrounding the SSA area were treated using the same criteria at program establishment, but further expanding the treatment area (see attached map). In the Summit-Dale infested area 300 trees were treated for a total of 400 trees treated in 2012. The same insecticide, TREE-äge®/active ingredient emamectin benzoate, was administered using the same method-trunk injection as in 2011. All treated trees have an aluminum tag attached with “EAB 2012” stamped on it.

The City’s goal for pesticide use on boulevard trees is to reduce beetle populations in infested areas, rather than

the purpose of saving trees in the long-term. These treatments must be repeated at regular intervals (every 2-3 years) for the life time of the tree in order to insure long-term survival, creating an ongoing, ever-increasing expense to the City, both in number of trees treated and amount of pesticide needed per tree.

One advantage of the treatment program is that in treating the healthiest ash trees, the city will continue to derive the many environmental and social benefits of large canopy shade trees while reforestation efforts take hold. Although concerns exist over increased use of pesticides, arguably, an even greater environmental impact exists for the loss of the many benefits provided by large canopy shade trees.

2013 Recommendations—Pesticide Use:

- **Continue use of TREE-äge® pesticide injection as one tool to slow the spread of EAB, geographically limited to areas surrounding known infestations (Planning Districts 8, 9, 10, 11, 12, 13 and 16).**
- **Prepare to treat 500 new trees in 2013 using criteria developed in 2011:**
 - ✓ **public trees in good health and structural condition**
 - ✓ **10-20 inch diameter at breast height (DBH)**
 - ✓ **in favorable locations (no overhead utilities, wide vs. narrow boulevards)**
- **That pesticide use is limited to easily accessible boulevard and park (should park funding become available) ash trees and harder to access natural areas are avoided.**
- **That the City continue issuance of free permits to residents who would like to treat their boulevard ash tree at their own expense so long as it meets permit criteria.**
- **That the City evaluate an expanded pesticide budget, if it chooses to increase the use of that management option (see table below of projected costs through 2020).**

Expense Projection Scenario for Pesticide Treatment of Ash Trees at Three Year Intervals with TREE-äge®

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	Total trees	x \$125
<u>2011</u>	300										300	\$ 30,000.00
<u>2012</u>		400									400	\$ 40,000.00
<u>2013</u>			500								500	\$ 62,500.00
<u>2014</u>	<i>300</i>			600							900	\$ 112,500.00
<u>2015</u>		<i>400</i>			700						1100	\$ 137,500.00
<u>2016</u>			<i>500</i>			800					1300	\$ 162,500.00
<u>2017</u>	<i>300</i>			<i>600</i>			900				1800	\$ 225,000.00
<u>2018</u>		<i>400</i>			<i>700</i>			1000			2100	\$ 262,500.00
<u>2019</u>			<i>500</i>			<i>800</i>			1100		2400	\$ 300,000.00
<u>2020</u>	<i>300</i>			<i>600</i>			<i>900</i>			1200	3000	\$ 375,000.00

- In this scenario, **8,400** total ash trees are in treatment program by year 2020 (bolded numbers).
- Increase in cost per tree from 2011 amount (\$100/tree) associated with rising cost of chemical as well as labor associated with locating trees that meet the criteria for treatment.
- Italicized numbers are retreated trees every third year, per guidelines using TREE-äge®.
- Costs rise with more trees treated and/or more years beyond 2020.

Reforestation

Replanting as ash trees are removed is arguably the most important part of the EAB Management Program. Reforestation with a diverse pallet of young trees is the primary objective in retaining our urban forest and reducing the chance of future wide-spread, devastating tree loss events caused by biological factors. While it is impossible to avoid the onset of pests and diseases, avoiding monocultures through diversity and mixed planting schemes can help reduce the impact.

The goal of the EAB Management Program from the beginning has been to replant a new tree for every ash tree lost. So far, we have been able keep that commitment. However, if EAB spreads rapidly and funding does not keep pace, replanting could well fall behind the number of trees removed. All the more important that both residents and officials understand the many benefits that trees provide and the financial as well as environmental impact that will occur if we do not maintain adequate reforestation as part of the program.

In 2012, the City will have planted 3,237 trees, nearly half directly related to ash removal/reforestation efforts. The remaining trees are replacements for trees lost under other circumstances. All of these trees are 2 inch minimum caliper trees planted by a private contractor. The above information does not include the thousands of trees planted in parks through the Environmental Services Unit of the Parks Department.

To maintain the commitment to replanting, in 2012, the City of Saint Paul/Forestry applied for and was awarded a DNR Bonding Grant in the amount of \$150,000 for new trees (up to 800-900) on city right-of-ways. This grant funding was secured near the end of the spring planting cycle and so very few trees were planted for the grant during the spring. However, 289 trees of various species were installed by the contractor this fall in areas covered by the grant funding (see attached map). These replacement trees do not necessarily replace an ash tree, but rather any vacant planting site in the right-of-way. Planting plans for 2013 are underway so that this funding can be used and reimbursed by late 2013.

2013 Recommendations—Reforestation:

- **Continue to plant a replacement tree for every ash tree removed on boulevards, using mixed planting schemes and a diverse palette of tree species**
- **Continue natural resource related planting projects in park spaces to off set the loss of ash trees, seeking grants and other funding opportunities**
- **Complete the planting of up to 900 additional trees using DNR monies secured in 2012**
- **Continue to develop planting goals, guidelines and policy based on the results of the Urban Tree Canopy Study, especially in areas with higher ash tree populations**

Outreach

Public meetings in regards to EAB and Structured Removal were again held in affected communities prior to the removal and replacement of trees. Direct mail postcards, information in community newspapers, up-to-date information on the website, social media, and district council offices were all utilized to inform the community of the public meetings. Information on EAB is posted at www.stpaul.gov/EAB and updated frequently. Additional information on all aspects of forestry can be found at www.stpaul.gov/forestry (new link in 2012).

Citizen forestry outreach efforts aimed at engagement of communities in planting and maintaining trees are ongoing. The goal is to have citizens actively assisting the City with public spaces, or helping neighbors plant on private property. A successful pilot demonstration project working with the Frogtown Neighborhood community took place in 2012 when 18 boulevard trees were planted in the spring and another 24 shade and edible fruit trees were planted on residential property in the fall. All work took place as a designed partnership/collaboration between City Forestry staff and community volunteers. The hope is that programs like this can be expanded in future years to other communities.

2013 Recommendations - Outreach:

- **Continue EAB public meetings for areas that will be effected by structured removal**
- **Research increased social media connections by coupling incentives, such as giveaways or “exclusive deals”, to visitors of our site, e.g., discounts to a commercial tree nursery**
- **Expand citizen forestry, including forging partnerships with other interested organizations or community groups**

- **Continue to improve and update the Forestry and EAB web sites to provide critical information that citizens need, especially regarding EAB and ash trees**
- **Expand efforts to assist citizens in dealing with private property ash trees, whether in guidance on the use of pesticides, or managing removal and planting of replacement trees**

Budget

Following is a history of EAB annual funding and budget highlights to date:

2009: \$0.00

No budget allocated to EAB as it was discovered in May. However, work was performed under a Joint Powers Agreement with the USDA enabling the City to start managing EAB while being reimbursed for much of that work.

2010: \$722,600

Outdoor Heritage Legacy Fund Grant Award + \$250,000 City Funds

- City began implementation of EAB Management Program with just under \$1 million budgeted for 2010.

2011: \$915,433

City Council passed a ROW Assessment increase to fund the EAB Management Program which averaged out to a 2% increase for property owners.

- City continued with EAB Management Program with the addition of insecticide treatment as a management tool.
- A portion of the Forest Protection Reserve funding was carried over into 2011 and spent by mid-year as required per granting agency.
- The additional monies through the ROW increase does not allow for EAB management in parks, open space or private property.

2012: \$1,049,229

- \$150,000 MN DNR Bonding Grant awarded to City for tree replacement on city boulevards. However, this money is only reimbursed upon project completion (fall 2013) so until then the EAB budget is funding replacement of extra trees in 2012.
- City continues with EAB Management Program including additional pesticide treatments and survey/inspection work in the Summit-Dale infestation.
- EAB management in parks began despite the lack of funding specific to the project. Rather the general parks budget was used to proceed with work.

2013: \$1,199,229

Assuming no reductions in funding, the 2012 budget allocation \$1,049,229 was used for 2013 with the additional DNR grant money (\$150K) from 2012 to be reimbursed assuming project completion by fall of 2013.

- Since the discovery of EAB in 2009 the Minnesota Department of Agriculture (MDA) has been an invaluable partner in the annual survey for infested trees in Saint Paul. Unfortunately, the MDA no longer has the resources available to assist with this survey work, and thus city staff will begin doing all of the survey/inspection in-house.

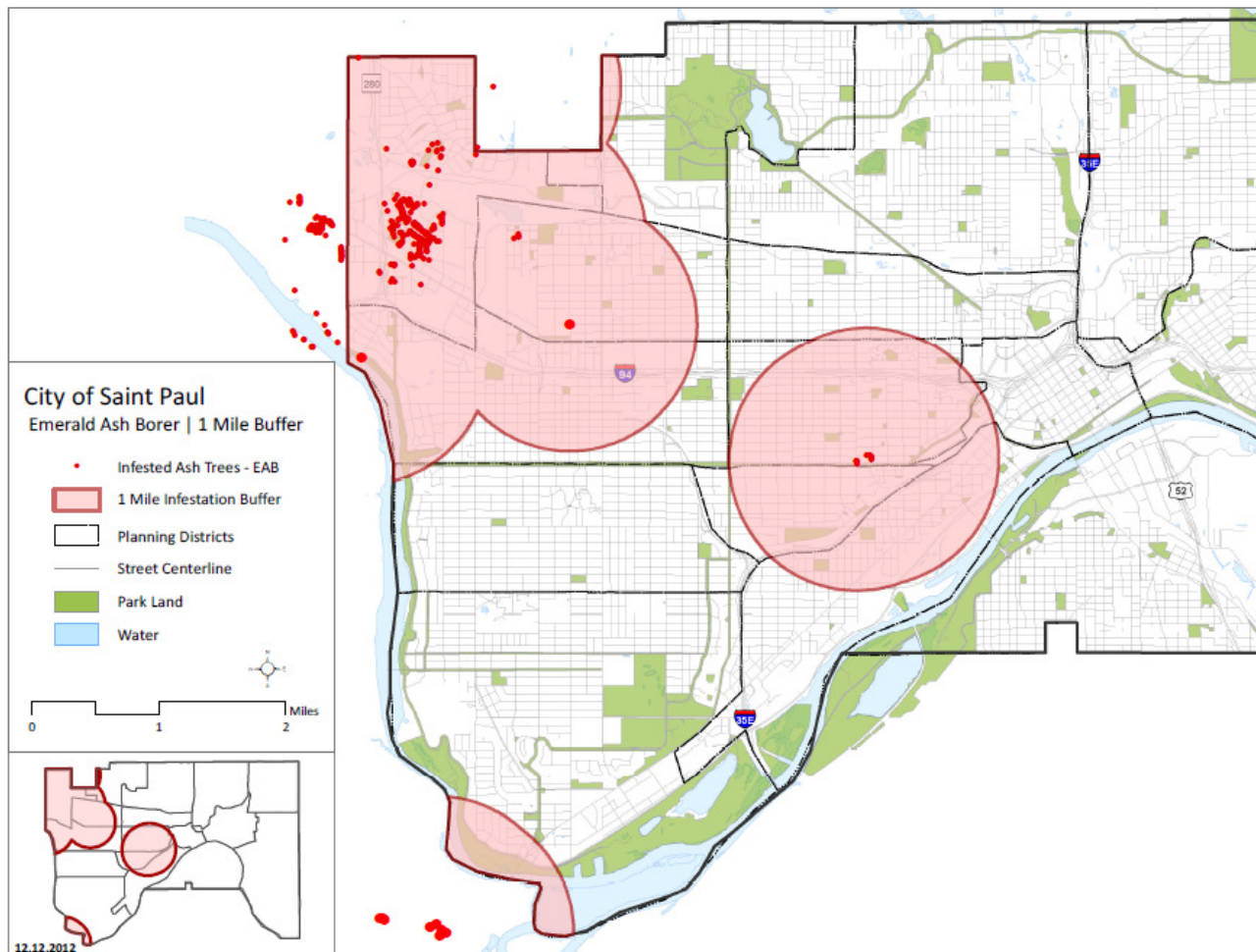
In order to continue with what is seen as an industry leader in EAB management, the City of Saint Paul needs to allocate sufficient funding to handle future demands. The EAB predicament will only become more burdensome to taxpayers as the infestation continues to expand if resources are not commensurate with need. Forestry staff numbers have remained relatively level since 2010 despite the increase in workload associated with EAB-related projects including branch sampling; pesticide treatment; an increase in maintenance of newly planted trees (water,

pruning 3x in first 10 years) due to higher planting numbers; the inevitable increase in staff hours spent working with private property owners on tree removal orders and abatements; and most recently the necessity for Forestry staff to do 100 percent of the survey work to find infested ash trees.

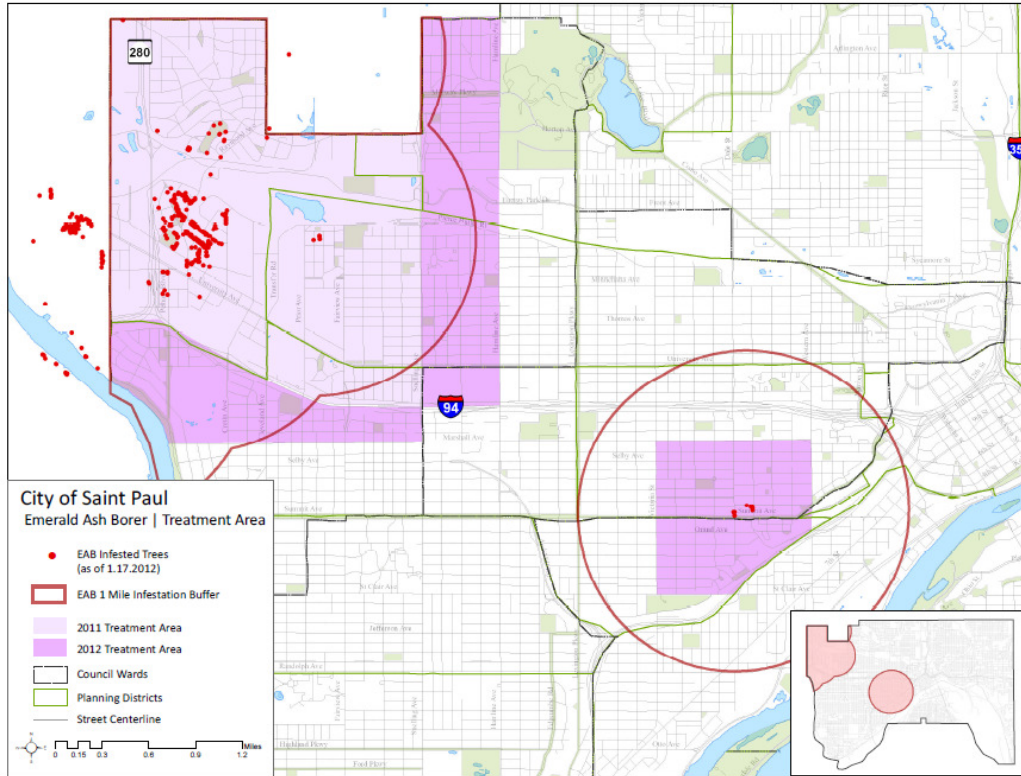
2013 Recommendations - Budget:

- **Monitor EAB management demands and prepare accordingly during the 2014 budget process for all aspects of the program, including funds for reforestation**
- **Seek funding for non-ROW parks and open space work, including outside sources such as grants**
- **Seek ways to ease the demand on private property owners with ash trees, whether through increased communication/outreach or financial incentive**
- **Provide timely supporting information and documentation to management and elected officials as needed to support the need for additional resources**

Current Infestation Map of Saint Paul



2011-12 Ash Treatment Areas Map



2012-2014 DNR Bonding Grant Planting Areas Map

