CITY OF MERRILL

Parks & Recreation Dept. - Smith Center

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MERRILL
WISCONSIN
City Of Parks

JUNE MEETING NOTICE

The Merrill Parks and Recreation Commission will have a meeting on **Wednesday, June 3, 2015**, at **4:15 p.m.**, at the Merrill City Hall.

Voting members of Commission: Dave Sukow, Jean Ravn, Brian Artac, Melissa Schroeder, Troy Pieper, Ben Debroux and Michael Willman.

The following items will be included on the agenda:

1. Approve minutes from previous meetings.
2. Approve claims.
3. Public Comment
4. Elect Vice-Chairperson.
5. Review/discuss WisDOT Bicycle & Pedestrian Facilities Planning Grant draft plan.
6. Discuss Normal Park planning initiative and ideas.
7. Discussion and recommendation on pre-emptive Ash Tree removal related to Emerald Ash Borer.
8. Monthly reports.
9. Set date for next meeting.
10. Public comment
11. Adjournment

Submitted by
Mike Willman
Mike Willman, Chairperson
Parks and Recreation Commission

The Merrill City Hall is accessible to the physical disadvantaged. If special accommodations are required, please contact City Hall at 536-5594.

PARKS AND RECREATION COMMISSION

May 6, 2015

The Merrill Parks and Recreation Commission met on Wednesday, May 6, 2015 at 4:15 p.m. at the City Hall.

Members Present: Mike Willman, Melissa Schroeder, Dave Sukow, Jean Ravn, Troy Pieper and Ben Debroux

Members Excused Absent: Brian Artac

Department Staff Present: Dan Wendorf and Dawn Smith

Visitors: Dave Johnson, Candy Peterson and Mark Burt

***Motion by Sukow, seconded by Schroeder to approve the minutes from the April 1, 2015 meeting.

***Carried unanimously.

***Motion by Sukow, seconded by Ravn, to approve the claims.

***Carried Unanimously.

Public Comment: None

The next item on the agenda was to elect Vice Chairperson. This item will be carried over to the June meeting.

The next item on the agenda was to review/approve bids for new Aquatic Center. Wendorf stated that bids were opened Monday, May 4 at the Merrill City Hall. Three bids were received. Altman Construction Company, Wisconsin Rapids had a base bid of $6,882.000.00 with a second bid including Alternatives 5 & 6 (Alternate #5, Add Pool starting platforms, Alternate #6, add night use lighting) was $$6,932,300.00. Howard Immel, Inc, Green Bay had a base bid of $3,932,000.00 with a second bid including Alternatives 5 & 6 was $3,983,040.00. Miron construction Co. Inc, Neenah, WI had a base bid of $3,605,500.00 and a second bid including Alternatives 5 & 6 was $3,643,500.00. Wendorf stated that Water Technology Inc recommend Miron Construction Co, Inc. Water Technology completed reference checks, and stated that Miron Construction Co., Inc. has worked on several swimming pool projects with Water Technology. Water Technology is confident that Miron Construction Co., Inc. will be able to complete this project on time and in a quality manner. Wendorf also stated that a contingency of 10 percent of the total construction cost should be maintained until project is complete.

***Motion by Sukow, seconded by Schroeder to accept the bid from Miron Construction Co., Inc for $3,643,500.00 which includes Alternatives #5 and #6.

Willman questioned what would happen to the rest of the 10 percent contingency if it was not all used during construction. Wendorf stated that it would be put toward the parking area or, for some landscaping, or could go towards a separate entry/exit.

***Carried Unanimously.

The next item on the agenda was monthly reports. Wendorf asked if anyone had any questions. Sukow commented about the Emerald Ash Borer. Wendorf stated that Merrill has a plan in place if anything happens. Wendorf stated that it is really exciting that the new pool is to the point of ground breaking shortly. Wendorf also invited everyone to take a look at the new improvements at Lions Park and the MARC.

***Motion by Schroeder, seconded by Sukow to approve the monthly reports.

***Carried unanimously.

The next regular meeting is scheduled for June 3, 2015 at 4:15 p.m.

No public comment

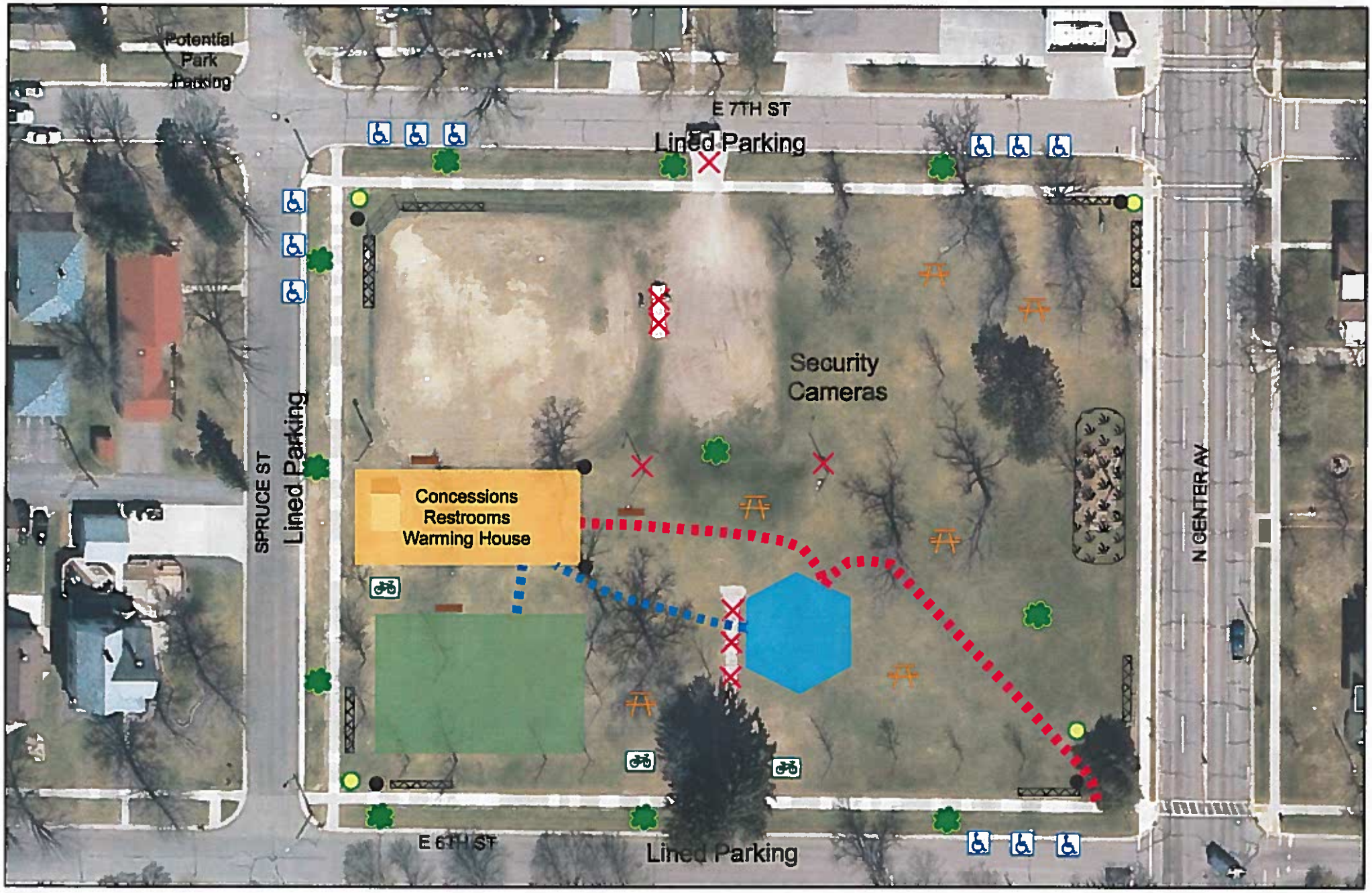
***Motion by Sukow, seconded by Ravn to adjourn at 4:50 p.m.

***Carried unanimously.

Dawn Smith
Recording Secretary

		MAY			
ABLE SIGNS AND LIGHTING	SCOREBOARD INSTALL	4/24/2015	A544117	$3,856.00	BIERMAN BASEBALL FUND
ACE HARDWARE	FAUCET	4/30/2015		$54.99	55400-03-50000
ACE HARDWARE	TOILET TANK REPAIR	5/1/2015		$32.77	55200-03-40000
ACE HARDWARE	TRASH CAN	5/4/2015		$53.97	55200-03-43000
AMERICAN WELDING & GAS	CYLINDER RENTAL	4/30/2015	3239638	$33.00	55200-02-15000
AMERICAN WELDING & GAS	CYLINDER RENTAL	4/30/2015	3240439	$45.90	55200-02-15000
ATCO INTERNATIONAL	CENTURION	5/19/2015	10433516	$266.00	55200-03-40000
BAUMGART WASTE REMOVAL	WASTE/CARDBOARD HAULING	5/1/2015		$83.00	55400-02-23600
BOB'S WEST 64	MOUNT TIRE	5/13/2015	24296	$24.70	55200-03-50000
BOB'S WEST 64	MOUNT TIRE	5/1/2015	24171	$26.23	55200-03-50000
BRITTANY SCHULTZ	SECURITY DEPOSIT	5/20/2015	VOUCHER	$50.00	10-21-7200
BURGOYNE'S TOILET RENTAL	PORTA POTTIES DELIVERY	5/1/2015	49791	$400.00	55200-02-15000
BURGOYNE'S TOILET RENTAL	PORTA POTTIES RENTAL	4/20/2015	49792	$125.00	55200-02-15000
CENTRAL WISCONSIN WHOLESALE	DIMPLE KNOBBY AHW50	5/12/2015	11797	$63.05	55200-03-50000
CENTRAL WISCONSIN WHOLESALE	QUARTS SURPREME 15W40	5/14/2015	77829	$65.76	55200-03-50000
CITY OF MERRILL STREET DEPT.	P-1/LEAKING COOLANT WATER PUMP	4/27/2015	6594	$201.24	55200-03-50000
CITY OF MERRILL STREET DEPT.	P-0/STRAIGHTEN REWELD EARS ON DOCK	4/13/2015	6579	$35.16	55200-03-50000
CITY OF MERRILL STREET DEPT.	P-0/U-JOINT SHOT/REPLACE	4/2/2015	6569	$54.76	55200-03-50000
COLLEEN SPRAGUE	SECURITY DEPOSIT	5/20/2015	VOUCHER	$50.00	10-21-7200
COUNTY MATERIALS	CULVERT FOR H2O REMOVAL	4/22/2015	2515955-00	$636.68	BIERMAN BASEBALL FUND
CRYSTAL DUWE	CANCELLATION OF PARK	5/26/2015	VOUCHER	$50.00	45200-46722
CRYSTAL DUWE	SECURITY DEPOSIT	5/26/2015	VOUCHER	$50.00	10-21-7200
DARLENE MATTSON	SECURITY DEPOSIT	5/20/2015	VOUCHER	$50.00	10-21-7200
DAWN BRISCOE	SECURITY DEPOSIT	5/12/2015	VOUCHER	$50.00	10-21-7200
DNR FINANCEE DEPT.	WATER DIV. VOLUME PERMIT	5/13/2015		$512.50	RIVERBEND TRAIL
ENVIRONMENTAL CHEMICAL ENTERPRISES	ODORLESS DRAIN LINE	5/21/2015	E342	$499.00	55400-03-50000
FASTENAL	PARTS FOR SHOP	4/28/2015	WIMER80821	$260.32	55200-08-91000
G & J CONCRETE CONST. INC.	CONCRETE WALL FOR RETAINING WALL	5/4/2015	4/15/3599	$13,802.23	BIERMAN BASEBALL FUND
G & K SERVICES	UNIFORMS JIM/JOE	4/23/2015	1016242450	$66.43	55200-03-46000
G & K SERVICES	UNIFORMS JIM/JOE	4/30/2015	1016245377	$66.43	55200-03-46000
G & K SERVICES	MAT/MOPS	5/14/2015	1016251230	$237.67	55400-02-23250
G & K SERVICES	UNIFORMS JIM/JOE	5/7/2015	1016248316	$66.43	55200-03-46000
G & K SERVICES	UNIFORMS JIM/JOE	5/14/2015	1016251238	$66.43	55200-03-46000
GREEN LAWN UNDERGROUND SPRINKLERS	ATHLETIC PARK	4/22/2015	15-14763	$227.80	HLETIC PARK IMPROVEMENTS
HEARTLAND COOPERATIVE	GRASS SEED, PERENNIAL RYE GRASS	4/24/2015	2307492	$47.98	55200-08-91000
HEARTLAND COOPERATIVE	LAWN MIX	4/27/2015	298312	$130.17	55200-08-91000
HORST DISTRIBUTING	HYDRAULIC CYLINDER	5/15/2015	46971-000	$505.11	55200-03-50000
LAMERS BUS LINES	BUS TRIP DOOR COUNTY	4/15/2015		$1,250.00	55300-03-41500
LAMERS BUS LINES	BUS TRIP MILWAUKEE ZOO	4/15/2015		$1,330.00	55300-03-41500
LAMERS BUS LINES	BUS TRIP MILWAUKEE BREWERS	4/15/2015		$1,330.00	55300-03-41500
LAMERS BUS LINES	BUS TRIP CASHTON WI	4/15/2015		$1,195.00	55300-03-41500
MARATHON COUNTY PARK COM.	SPLASH PAD RENTAL K, 1,2	5/15/2015		$103.32	55300-03-41500
MECHANICAL INCORP.	CHECK ARENA HEATING	4/24/2015	47501	$193.00	55400-02-16250
MECHANICAL INCORP.	SHUT DOWN ICE RINK CHILLER	4/24/2015	47502	$284.50	55400-02-16250
MERRILL AREA PUBLIC SCHOOL	POOL RENTAL FOR THE S.P. K,1,2	5/15/2015		$90.00	55300-03-41500
MERRILL AREA PUBLIC SCHOOL	POOL RENTAL FOR THE S.P. 3,4,5	5/15/2015		$90.00	55300-03-41500
MERRILL DISTRIBUTING	TOWELS/TOILET PAPER	5/8/2015	974956	$250.10	55400-03-40000
MERRILL DISTRIBUTING	HAND CLEANER/URINAL BLOCK/GLOVES	5/7/2015	974956	$250.10	55200-03-40000
MERRILL FOTO NEWS/COURIER	ADVERTISING	4/29/2015		$576.00	55400-03-41000
MERRILL FOTO NEWS/COURIER	ADVERTISING LADIES EXPO	4/29/2015		$1,670.50	LADIES LIFESTYLE EXPO
MERRILL HEALTH & FITNESS	REFUND PARK SHELTER	5/15/2015	VOUCHER	$50.00	45200-46722
MERRILL HEALTH & FITNESS	REFUND SECURITY DEPOSIT	5/15/2015	VOUCHER	$50.00	10-21-7200
MERRILL HIGH SCHOOL	SECURITY DEPOSIT	5/20/2015	VOUCHER	$50.00	10-21-7200
MILLER & ASSOCIATES	BLEACHERS	4/30/2015	216183	$27,385.00	BIERMAN BASEBALL FUND

NATIONAL ENVIRONMENTAL	WASP & HORNET SPRAY	5/10/2015	351	$417.93	55200-08-91000
NORTH CENTRAL WI REGIONAL PLANNING	NETWORK PLAN	5/15/2015	2015-20	$10,000.00	MERRILL BIKE PED FACILITIES
QUICKSILVER	ADVERTISING	5/1/2015	242	$246.00	55400-03-41000
ROBERT SMALLMAN	SECURITY DEPOSIT	5/12/2015	VOUCHER	$50.00	10-21-7200
RTL ELECTRIC	ELECTRICAL WORK AT LIONS	5/21/2015	60720	$4,544.47	BIERMAN BASEBALL FUND
RTL ELECTRIC	LINE TRUCK PER HOUR	5/21/2015	60719	$268.75	BIERMAN BASEBALL FUND
RTL ELECTRIC	ELECTRICAL WORK AT MARC	5/21/2015	60718	$1,045.04	BIERMAN SOFTBALL FUND
SCORETRONICS	PORTABLE SCOREBOARD	5/19/2015	8114	$2,392.60	BIERMAN SOFTBALL FUND
SECURITY FENCE & SUPPLY	FENCE AND BACKSTOP REPAIR	5/8/2015	19590-2015	$34,669.00	BIERMANS LIONS PARK
STEVE JUHLKE	REFUND PARK SHELTER	5/11/2015	VOUCHER	$60.00	45200-46722
STEVE JUHLKE	SECURITY DEPOSIT	5/11/2015	VOUCHER	$50.00	10-21-7200
SUNRISE BROADCASTING	ADVETISING LLE	5/1/2015		$289.00	LADIES LIFESTYLE EXPO
TRANTOW DO IT CENTER	TREATED PINE	4/14/2015	16448	$23.96	BIERMAN SOFTBALL FUND
TRANTOW DO IT CENTER	MOCHA COIL FULL ROLL	4/20/2015		$79.95	BIERMAN SOFTBALL FUND
U.S.CHEMICAL PROCUREMENT	WEEK KILLER	5/10/2015	934.41	$487.27	55200-08-91000
VIP OFFICE SUPPLY	TIME CARDS	5/22/2015	93797	$11.98	55400-03-10000
WALMART	OFFICE SUPPLIES	5/8/2015		$39.92	55200-03-10000
WATER TECHNOLOGY	AQUATIC CENTER	5/15/2015	R142307.01-4	$22,050.00	AQUATIC CENTER
WAVES FULL SERVICE SALON	REIMBURSEMENT FOR PROGRAM	5/15/2015	VOUCHER	$40.00	
WPS	MARC CONCESSION STAND	6/2/2015	405061701-00018	$55.61	55200-02-22000
WPS	SOCCER CONCESSION STAND	6/2/2015	405061701-00011	$200.49	55200-02-22000
WPS	MARC	6/4/2015	405061701-00003	$1,873.08	55400-02-22000
WPS	MARC SIGN	6/4/2015	405061701-00002	$32.18	55200-02-22000
Z104	ADVERTISING LLE	4/30/2015	15040125	$400.00	LADIES LIFESTYLE EXPO



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Potential Normal Park Improvements

THIS IS NOT A SURVEY

Map Produced By: Kate Drewek

0 25 50 100 Feet

Legend

- Gazeboo
- Concessions
- Playground
- Bike Rack
- Garden
- Fences
- Picnic Tables
- Light Poles
- Benches
- Trees
- Trash Bin
- Walkway
- Lighted Walkway
- Handicapped Paking
- Remove

US FOREST SERVICE NORTHERN RESEARCH STATION

Research Review

NO. 20 | SUMMER 2013

Emerald Ash Borer Research: A Decade of Progress on an Expanding Pest Problem

Beautiful, shady neighborhoods all over the Midwest and the Northeast are bare of their ash trees, cut down because of the emerald ash borer (EAB). The rapidly spreading EAB infestation has also set off a storm of scientific investigation into the ecological and social damage and the costs to affected communities. Since it was first detected in 2002 around Detroit and neighboring parts of Ontario, EAB has spread to 18 states, from Kansas City to Minneapolis/St. Paul in the Midwest, south to the Smoky Mountains National Park, and all the way north to New Hampshire and Montreal, Quebec. Since its arrival, EAB has been able to attack and kill all native species of North American ashes (genus *Fraxinus*) that it has encountered.

Much of the long-distance spread of EAB is due to human activities—people moving infested ash firewood and nursery trees out of quarantined areas. Early eradication efforts consisted of cutting and chipping or burning infested wood and prevention efforts focused on quarantines, developing detection and treatment methods for individual trees, and education efforts such as the "Don't Move Firewood" campaign. Knowledge about the EAB and how to control it, or at least slow its spread, continues to drive efforts to save ash.

Dead ash "skeletons" create openings in canopy. Photo by Kathleen Knight, U.S. Forest Service

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continued from page one

NORTHERN RESEARCH STATION WORKS TO UNDERSTAND EMERALD ASH BORER

Entomologists from the U.S. Forest Service's Northern Research Station (NRS) laboratory in East Lansing, MI, and other NRS scientists from Delaware, OH, are in the forefront of EAB research (along with their Michigan State and Ohio State University partners). Their efforts have involved studying many aspects of EAB biology and control—basic behavior, reactions to pesticides, detecting the larvae in logs and trees, and traps for detecting adult beetles. This information and technology have contributed to control efforts and slowing the spread of the beetle.

Biology

In China, where EAB is native, it is only a minor and periodic pest of Asian forest ash trees and very few research reports were available. When the Chinese literature was translated, there was the now-ominous note that North American ashes planted in China were susceptible and often killed by EAB. The NRS entomologists (**Leah Bauer, Robert Haack,** and **Therese Poland**) at East Lansing, MI, got to work characterizing the beetle's life history, working with colleagues at the Chinese Academy of Forestry. Flight tests showed that mated female EABs can fly considerable distances without food and water, certainly beyond the quarantine zones.

Insecticide Treatments

NRS entomologists evaluated insecticides for reducing EAB populations and protecting high-value urban trees, preferably by trunk injections or soil-drenches of systemic insecticides. **Therese Poland** and Michigan State University partners tested imidacloprid, dinotefuron, and emamectin benzoate and found that the first two provided some control but that emamectin benzoate provided > 99 percent control of EAB for up to 3 years.

Cold Temperatures

EAB has spread to Minnesota, a state with nearly 1 billion ash trees and very cold winters (winter lows can reach -25 to -30 °F). **Robert Venette,** an NRS researcher in St. Paul and his partners assessed the cold hardiness of EAB and its natural enemies. Although Minnesota winters killed substantial numbers of EAB larvae, some did survive. Thus, cold temperatures may slow growth of EAB populations and perhaps extend the lives of ash trees. Venette is generating a computer model to illustrate locations where EAB may not overwinter successfully.

Adult emerald ash borer feeding on leaf.
Photo by Debbie Miller, U.S. Forest Service.

Counting emerald ash borer adults on a double decker trap.
Photo by Therese Poland, U.S. Forest Service.

Traps and Monitoring

Traps are important in fighting any infestation, especially of nonnative invasive species. **Therese Poland** and partners at Michigan State University, the Canadian Forest Service, and USDA Animal and Plant Health Inspection Service (APHIS), have developed and evaluated different traps and lures for EAB. They found that EAB is attracted to volatiles from ash leaves and bark and to the colors purple and a bright shade of green. The most promising traps to date are purple "double decker" (aka "Barney") traps and green canopy traps. Male beetles in ash trees feeding and looking for mates are attracted to green canopy traps, whereas females feeding in the canopy and laying eggs on the trunks of ash trees prefer the purple double-decker traps. New trap designs that do not require trapping glue are being explored, as well as the inclusion of a newly discovered close-range pheromone.

Transport and Quarantine Issues

Robert Haack and **Therese Poland** studied various control treatments—chipping, debarking, heat, vacuum, and microwave treatment, and firewood

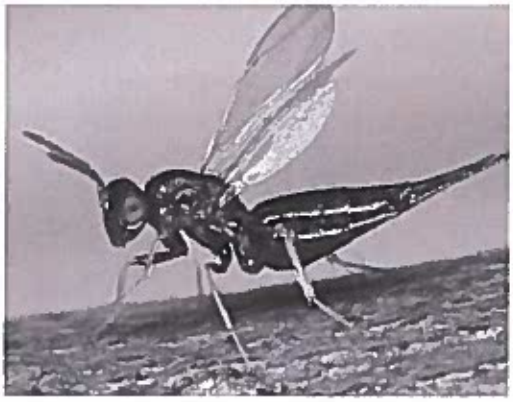
handling—that were used to develop or modify regulations that are now in place for domestic firewood and wood materials used in international commerce. In January 2013, Haack was the U.S. representative to a pest risk assessment on EAB for the European Plant Protection Organization (EPPEO). EPPO is now drafting new regulations for ash products that could harbor EAB from Asia, where EAB is native, as well as from North America and Russia, where EAB has been introduced.

LONG-TERM NRS RESEARCH FOR SAVING ASH SPECIES

Unfortunately, totally eradicating the EAB does not seem possible, and forest managers and scientists are gravely concerned about preserving the ecological and social values provided by ash trees. NRS scientists and partners have estimated costs of treatment, removal, and replacement of ash trees, which are mostly born by local governments and landowners. Others have discovered and introduced natural enemies from EAB's Asian homelands and still others are looking into modes and rates of spread. Research on ecological impacts of EAB, including how fast ash trees die and fall, what happens to EAB populations over time, and studies on methods to restore EAB-impacted forests, have been helpful to land managers planning their responses. Scientists are also hoping to save ash trees by breeding for resistance to EAB and by genetic transformation and plant tissue culture research.

Costs and Economics

Several NRS scientists are working on estimating the costs of dealing with the EAB. These numbers are useful to government program managers to justify the benefits of continued EAB research and eradication and treatment programs. **Robert Haight** of St. Paul, MN; **Andrew Liebhold** of Morgantown, WV; and partners used simulations of EAB spread and infestation to estimate the 10-year costs of ash treatment, removal, and replacement of 38 million ash trees on developed land in 25 states—around $10 billion (and this does not include reductions in property values). They estimate that preventing the establishment or slowing the growth of new EAB populations such as the one in Minneapolis/St. Paul, can slow the regional spread and delay damage, potentially saving billions of dollars over the next decade. **Matt Bumgardner**, of Delaware, OH, and colleagues surveyed community representatives with urban tree canopy responsibilities in four Midwestern states to determine potential economic losses from EAB. The total costs due to EAB for just these communities, including landscape losses, tree removals, and replacements, are estimated at $13.4 billion to $26 billion. Haight is developing a computer model to help city foresters evaluate the benefits and costs of strategies to slow EAB spread within city boundaries, including investments in ash monitoring, treatment, and removal.



Parasitoid wasp (*Tetrastichus planipennis*).
Photo by David Cappaert, Michigan State University, used with permission.

Biological Control

Integrated pest management using natural enemies or "biological control" is a long-term, sustainable method for reducing populations of EAB and saving ash trees in North America. In 2003 and 2004, **Leah Bauer,** with staff from East Lansing and research collaborators at Michigan State University (MSU) and the Chinese Academy of Forestry in Beijing, discovered two new species of small parasitoid wasps that attack and kill EAB eggs or larvae. With regular shipments from China to the MSU East Lansing quarantine laboratory, Bauer's research team studied the biology, host ranges, and rearing methods for these parasitoids and in 2007, they were approved by APHIS and Michigan for release into heavily infested ash stands. They were later released in neighboring states and are now established throughout much of Michigan as well as areas of Ohio, Indiana, Illinois, and Maryland. These early successes led to the USDA EAB Biocontrol Program in 2009 and construction of the APHIS EAB Parasitoid Rearing Facility. As of 2012, these parasitoids have been released in 14 states with known EAB infestations. Bauer works with an interagency team of scientists from FS, ARS, and APHIS, faculty from several universities, and federal, state, and city land managers to assess parasitoid spread and to evaluate their impacts on ash health and regeneration.

DID I REALLY FIND AN EMERALD ASH BORER? (LOOK-ALIKES):
www.emeraldashborer.info/files/E2944.pdf
REPORT AN EMERALD ASH BORER TO YOUR STATE AUTHORITIES:
www.emeraldashborer.info/#sthash.BDuEHYUx.dpbs

Saving Ash Species

NRS scientists are working on two different breeding approaches to develop EAB-resistant ash. One approach relies on local ash trees that have survived heavy EAB infestation. Another involves cross-breeding native ash with EAB-resistant Asian ash. The EAB-resistant Manchurian ash readily hybridizes with black ash and 10 additional Asian ash species are being tested for EAB-resistance as part of a collaborative project funded by APHIS. Partners at Ohio State and Wright State Universities are searching for biomarkers for resistance that may help speed up the breeding process.

Work at the Delaware, OH, location includes efforts by **Kathleen Knight** to search out "lingering ash"—ash trees that survive when all the others nearby have died. **Jennifer Koch** collects branches from these survivors and replicates them through grafting. In greenhouse experiments, EAB larvae (hatched from eggs supplied by **Therese Poland**) feeding on these grafted lingering ash show significant developmental differences relative to those feeding on known susceptible ash. This indicates that lingering ash may indeed contain substances toxic to EAB. These promising results will have to be verified in additional studies and field plantings. Koch and colleagues hope that by breeding surviving ash to each other, they can create ash populations that are even more resistant to EAB attack and could be used for forest restorations.

EAB eggs on an ash tree in the greenhouse.
Photo by Jennifer Koch, U.S. Forest Service.

Paula M. Pijut at the NRS Hardwood Tree Improvement and Regeneration Center in West Lafayette, IN, is conducting genetic transformation and plant tissue culture research to develop ash with EAB resistance. She has developed laboratory methods to genetically transform green, white, pumpkin, and black ash from mature seed explants; regenerate and root transgenic shoots; and acclimatize transgenic plants to the greenhouse. Pijut and her Purdue University graduate students continue to optimize these methods and are genetically transforming these ash species with a *Bacillus thuringiensis* (*Bt*) gene to impart EAB resistance. In collaboration with Ohio State University scientists, she will be inserting additional genes into ash species for resistance to the EAB and to a fungal pathogen. These novel methods also allow her to propagate non-transgenic ash species to conserve existing germplasm.

Finally, **Melody Keena,** working in the Forest Service's Ansonia (CT) Quarantine Laboratory, has developed an artificial diet for raising EAB that does not contain any ash materials. Extracts from the wood of possibly resistant ashes can thus be added to the diet to test its effects on EAB larvae. The diet is already in use by her Ohio partners and Keena and her partner at the Connecticut Agricultural Experiment Station are studying EAB reproductive behaviors and population increases for improving mass rearing techniques for EAB.

Range Expansion

Andrew Liebhold, at Morgantown, WV, has studied EAB as one of many nonnative insect species to understand the dynamics of the invasion process. The ability to predict how local habitat variation affects the expansion of new populations is essential for efficiently targeting resources. The team of **Louis Iverson, Stephen Matthews, Anantha Prasad,** and **Matthew Peters** at Delaware, OH, have used models similar to those they developed for the Climate Change Response Atlases to develop risk maps for the EAB expansion front. Their models for Ohio, Michigan, and Minnesota have been successful at predicting risk and general timing of infestations and have been used to site traps and monitoring activities.

HELPING NATIVE AMERICAN BASKET MAKERS

Black ash is found in wet and swampy areas of the North Woods, across northern New England and the upper Midwest. It is used by crafters of many tribal nations—Abenaki, Maliseet, Menominee, Meskwaki, Mic'maq, Mohawk, Passamaquoddy, Penobscot, Potawatomi, and Ojibwe, for example—in traditional basket-making. **Therese Poland** and **Marla Emery** examined the traditional methods for preparing black (aka brown) ash and found that submerging logs for 3 months killed any EAB larvae in the logs but did not lower the quality of the wood for basket making. However, EAB infestations that reach tribal locales will certainly endanger the ash trees this art form depends on, and NRS breeding efforts are specially focused on the black ash.

Tossing an infested black ash log into a river for testing.
Photo by Therese Poland, U.S. Forest Service.

BIOGRAPHIES (see www.nrs.fs.fed.us/scientists for more details)

Leah Bauer, Robert Haack, and **Therese Poland** are research entomologists in the NRS unit "Ecology and Management of Invasive Species and Forest Ecosystems" in East Lansing, MI. **Melody Keena,** a research entomologist in in Hamden, CT, and **Andrew Liebhold,** a research entomologist in in Morgantown, WV, are also members of this unit.

Matt Bumgardner is a research forest products technologist in the "Ecological and Economic Sustainability of the Appalachian Forest" unit in Delaware, OH.

Marla Emery is a research geographer and a member of the "People and Their Environments" unit stationed in Burlington, VT. **Robert Haight** is a research forester in that unit in St. Paul, MN.

Louis Iverson, Stephen Matthews, Anantha Prasad, and **Matthew Peters** are the landscape ecology team at Delaware, OH.

Kathleen Knight is a research ecologist and **Jennifer Koch** is a research biologist in the "Genetics, Biological Control, and Management of Invasive Species" group in Delaware, OH.

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Robert Venette is a research biologist in the "Biological and Environmental Influences on Forest Health and Productivity" in St. Paul, MN.

RESOURCES AND REFERENCES

Web Resources:

European Plant Protection Organization: www.eppo.int/

USDA Agricultural Research Service:
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stopthebeetle.info/
hungrypests.com/the-threat/emerald-ash-borer.php

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www.fs.fed.us/foresthealth/technology/pub_titles.shtml#E
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www.nrs.fs.fed.us/disturbance/invasive_species/eab/
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There are 135 NRS scientists working at 20 field offices, 24 experimental forests, and universities located across 20 states, from Maine to Maryland, Missouri to Minnesota.

TREATMENT OPTIONS

SLow Ash Mortality (SLAM)

The goal of the SLAM strategy is to "slow the onset and progression of ash mortality by slowing the growth of [emerald ash borer]."[3] This is a multi-tiered strategy for communities preparing for the arrival of EAB. There are several components, but ash phloem reduction (the reduction of ash trees within a community), educational awareness, and chemical treatment are the most prominent aspects. These components can be used independently or in combination.

Ash reduction is the systematic removal of ash trees. Ash reduction is best used in communities where EAB has not yet been detected. This option can be used along with chemical treatment to keep annual mortality rates at an acceptable level. By reducing the total amount of trees available for EAB larvae to consume, the population buildup is delayed and mortality is reduced.

The gradual removal of ash trees in a community prior to EAB infestation will accustom residents to tree removal in general and spread the cost of removal over time. When deciding which trees to remove, the rule should be "the worst first." Ash trees that already are declining for other reasons have a lowered value to the urban forest and should be the first to be removed.

SLow Ash Mortality (SLAM) is an overarching strategy in which reduction is one of several tactics. Another tactic is a campaign against moving firewood, which is critical to incorporate into any anti-EAB program.

Educational awareness is an ongoing task for communities. The critical pieces are workshops, meetings, videos, and outreach materials. Raising awareness can be difficult due to varying priorities, community involvement, and residential structure. Having an educated community causes fewer complications and builds support for future infestation management options.

Pesticide Options

Several pesticides can be used for EAB management. This section will not summarize all options, but instead will include some general discussion points and information. A chart has been provided with more specific information on three of the most popular and widely known types of pesticides. For more detailed information, a comprehensive document titled *Insecticide Options for Protecting Ash Trees from Emerald Ash Borer* can be found on The Morton Arboretum EAB Website.

3 McCullough, D.; Mercader, R. (2012) Evaluation of potential strategies to Slow Ash Mortality (SLAM) caused by emerald ash borer (*Agrilus planipennis*): SLAM in an urban forest. International Journal of Pest Management 58(1).

CASE STUDIES[4]

Below are brief descriptions of various communities' approaches to managing EAB. These will be useful in identifying the approach your community may wish to take. These studies were compiled from across the Midwest and do not represent all situations.

No Action

City of Windsor, Ontario, CANADA (2002)
EAB was discovered in Windsor in July 2002. The city was unable to take any proactive action at the time, due to the lack of knowledge on EAB and its management strategies. Faced with a rapid spread of the infestation, the city chose a reactionary removal of dead and dying trees as its sole course of action. A total of 6,000 hazardous public ash trees, representing 9 percent of the city's urban tree canopy, were removed and replaced at the cost of $4 million. No attempt was made to remove thousands more dead ash trees in woodland areas. Trees on private property were left to the property owner's discretion. By 2010, only an estimated 5 percent of the former population of ash trees were still alive, with most infested with EAB. More than 1 million ash trees are estimated to have died in Windsor and surrounding Essex County, including most of the population of the endangered pumpkin ash (*Fraxinus profunda*).

City of Ann Arbor, Michigan, USA (2003)
EAB was discovered in Ann Arbor in 2003. At that time, ash trees comprised 17 percent of the city's tree population. Initially, no action was taken except for some concerted tree removals. By 2005, the city had about 10,000 dead or dying ash trees in its parks and rights-of-way. A 2005 proposal to spend $4.2 million to fund tree removal failed in a referendum. The management approach since then has been focused on tree removal and wood utilization. The city's new Traverwood Library was able to use some wood from EAB-impacted ash trees to create flooring and other wood features. The infestation has now spread through Ann Arbor, with few ash trees surviving within the city's boundary. Its six-member forestry crew has spent the last three years doing nothing but removing ash trees. An estimated 7,000 dead ash trees have been removed from streets so far, with 3,000 more in parks and natural areas waiting to be removed in the coming years. The cost is expected to exceed $2 million.

Pre-emptive Management

City of Toledo, Ohio, USA (2004)
A low-level EAB infestation was discovered in Toledo in 2004. The city had an estimated 9,100 ash trees, accounting for 9 percent of its urban canopy. Since eradication was the official management strategy for the state of Ohio at the time, the city removed 1,100 trees, using federal money, to create a buffer zone. By 2005, new infestations had been found outside the buffer zone and in other parts of the state. As a consequence, eradication was abandoned as a realistic goal. By 2009, an estimated 2,600 dead or dying ash trees were still standing. No chemical treatment was carried out due to fiscal constraints and high pest populations within the city. Costs for dead tree removal are expected to increase in the coming years.

4 Case studies were collected and written up by Houping Liu from the Pennsylvania Dept. of Conservation and Natural Resources. Emerald Ash Borer Management Plan for Pennsylvania Communities. 2012. They have been edited by The Morton Arboretum for use in this publication.

City of Grand Rapids, Michigan, USA (2007)
Ash trees accounted for 15 percent of the public tree population (approximately 10,000 trees) in Grand Rapids in 2007 when the city made "proactive tree removal on a rotating basis" the primary management action. The 10-year budget for removal and replacement was estimated at $7 to $127 million. However, the discovery of EAB in a high-profile area in 2009 caused the city to shift to a reactive model until the infestation could be slowed down. About $600,000 has been spent to date to remove and replace ash trees and to save some of the remaining 6,600 ash trees with several new treatments in city parks and rights-of-way.

Selective Management

City of Fort Wayne, Indiana, USA (2009)
EAB was discovered in Fort Wayne in 2006. The City of Fort Wayne had approximately 13,500 ash trees along its streets. Ash trees on both public and private properties provided 25 percent of the urban canopy. An EAB management plan was developed in 2009 to save about 1,000 trees with imidacloprid insecticidal treatment through soil drench (for trees with a diameter of more than 15" DBH) and trunk injection (for trees with a diameter of more than 15" DBH). The city anticipates treating ash trees for the next 15 years. The city budgets $900,000 annually for tree removal, chemical treatment, and replanting.

Village of Northbrook, Cook County, Illinois, USA (2010)
EAB was confirmed in Northbrook in May 2010. Ash trees represent about 20 percent of the village's 15,130 parkway trees. The village developed a proactive, multifaceted management plan in 2010 that included surveying village-owned ash trees, treating a portion with insecticides, and removing and replacing dead or dying trees. About 730 declining ash trees will be removed and replaced and 268 ash trees will be treated with the insecticide Tree-äge (emamectin benzoate) for the next four years (2011 through 2014), with a total projected cost of $426,500. See following link for details.
http://www.northbrook.il.us/Modules/ShowDocument.aspx?documentid=2351

Aggressive Management

City of Milwaukee, Wisconsin, USA (2009)
EAB was first detected in Wisconsin in the summer of 2008. New infestations found in other communities within the state in the following year prompted Milwaukee to adopt a pre-emptive insecticidal treatment approach for EAB management. All of the city's 33,000 public ash trees were to be treated with Tree-äge (emamectin benzoate) through trunk injection within two years, at the cost of $1.6 million. However, saving ash trees in the long term is considered unrealistic for the city due to the size of the ash population and the density of the EAB population. Therefore, all 33,000 ash trees will eventually be removed and replaced at an annual rate of 5 percent for the next 20 years. The goal is not to save the ash trees, but rather to maintain a proportion of ash trees in the urban canopy while they are replaced with other species. This method will allow for Milwaukee to effectively manage public safety and schedule removals so as not to significantly disrupt important forestry operations. It is considered as a cost-effective approach when compared to the estimated cost of $25 million to remove and replace all the ash trees at the same time.

3. Minimize the impact of EAB

a. Preserve non-ash large canopy trees

When EAB starts killing your ash trees, the remaining trees that are not ash will become even more important in providing environmental, social and economic services to your community. Large canopy trees provide the most services so it will be critical to protect them while the newly planted trees grow to fill the gaps. These trees can be preserved through routine maintenance, protection during street reconstruction, home remodeling, or business redevelopment, and preservation during new development. You can accomplish this through community policies, ordinances and public education.

b. Preemptively remove uninfested ash trees in priority order

This tactic is intended to reduce the peak rate that trees are lost to EAB thereby reducing the impact of EAB on the community's budget and the long-term health of the community's urban forest. Experience in states infested with EAB shows that a community's resources quickly become overwhelmed when EAB starts killing trees. Funds have to be taken from anywhere and everywhere to deal with the public safety threat of standing dead trees. And once the trees are down, there are no funds to replace them. If replacement funding is found, diverse tree species in the quantity needed may not be available. Public pressure to fill those vacant holes with trees could lead to overplanting a few, cheap and plentiful species, setting you up for a future disaster.

The extent to which a community will need to use preemptive removal will depend on the number, size, location and condition of their ash trees and the proximity of EAB. This again shows how essential an inventory is. Communities with large numbers of ash, particularly ones in poor condition need to implement preemptive removal immediately. Communities with few ash may be able to handle the losses with existing resources and won't need preemptive removals.

Of the trees that you have NOT identified for preventive pesticide treatment, use the following in priority order to set a preemptive removal plan:

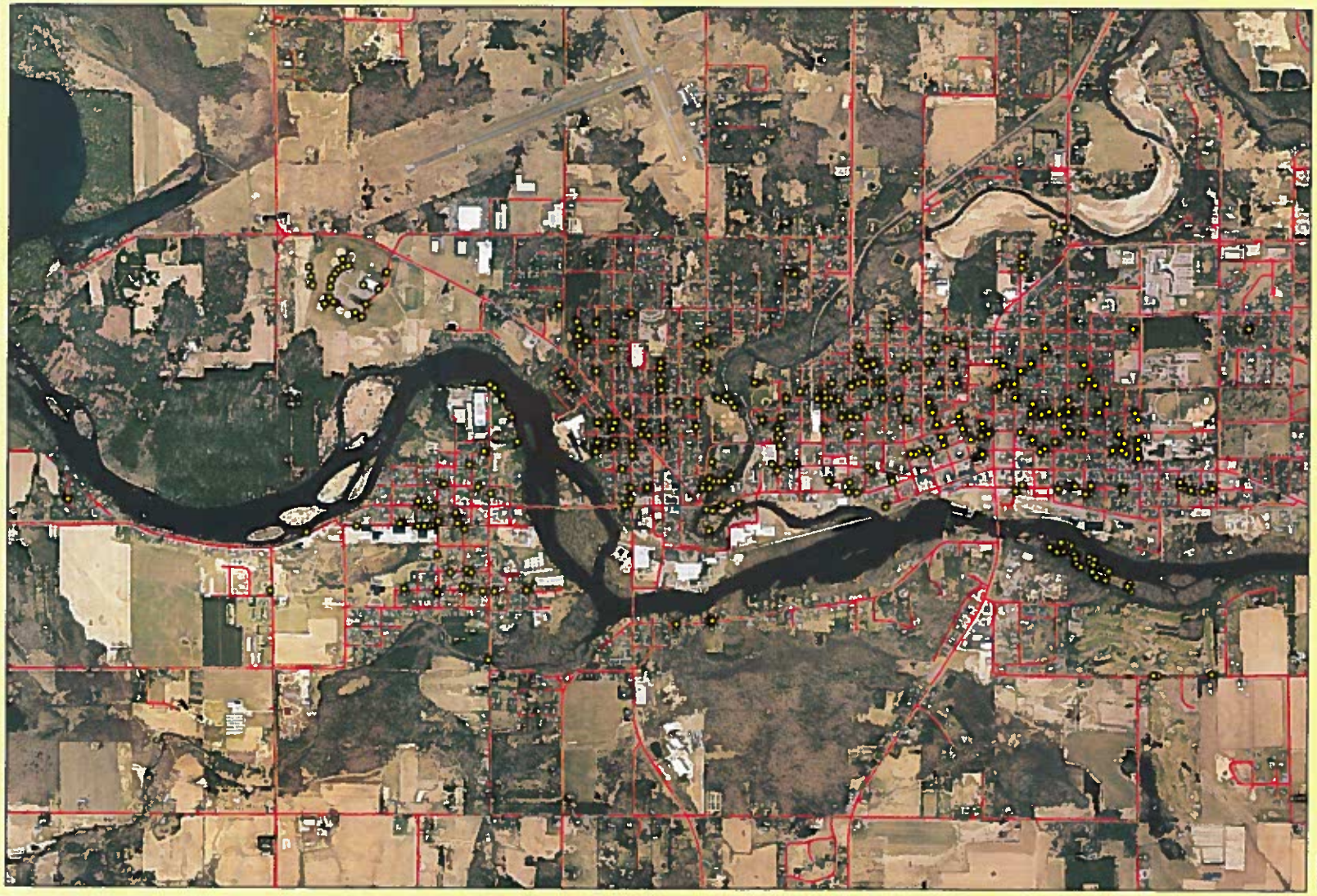
1. Large, structurally unsound ash in poor condition
2. Smaller ash in poor condition
3. Ash that are improperly placed or are interfering with other infrastructure, for example ash blocking traffic signs or under power lines.
4. Of the remaining ash trees, annually remove and replace the number of ash that your budget allows until you reach a total population number that you could handle when EAB starts killing your trees. If EAB is in your community or nearby you should either preventively treat, or remove and replace ash more aggressively, but remember, even if EAB is not yet confirmed in your area, it may already be there.

c. Identify large canopy and high value ash for preventive insecticide treatment

Healthy, properly located, large-canopy trees provide the most environmental, social and economic benefits to a community. Preserving these trees as long as possible will do the most to minimize impact of EAB on your community. To help you determine the cost/benefit of treatment versus removal and replacement use the EAB Cost Calculator developed by Purdue University at: http://extension.entm.purdue.edu/treecomputer/index.php

When to begin preventive pesticide treatments is open to debate. The official recommendation is to begin treatments when EAB is within about 15 miles of your site. However, since early detection methods are not very reliable and trees in new infestations typically don't show obvious symptoms

ASH TREE LOCATIONS



City of Merrill

Ash Tree Inventory, 2009

Ash Tree

Roads

N

0 1,900 3,800

Feet

Ash borer efforts slowing other arbor work in Champaign

Thu, 05/14/2015 - 7:00am | Johnathan Hettinger (/author/johnathan-hettinger)

CHAMPAIGN — The city is falling behind on its pruning and removal services because of the continued problem with emerald ash borer, its acting forestry supervisor says.

An outbreak of the destructive insects has led Andrew Lamoreux to revise the city's response plan, which now calls for devoting fewer resources to trying to save ash trees, and more to the removal of all 1,786 ash trees in the next six years.

Overall, 8.3 percent of Champaign's trees are ash.

Response to the outbreak will cost the city about $75,000 in fiscal year 2016, and $95,000 in 2017 and beyond. That covers the removal of trees, as well as the cost of chemicals to try to reverse the outbreak on 26 trees that have already been treated. The city will also have to plant more trees to keep up with removal.

Champaign's efforts to control the outbreak — and the pruning and removal of trees caused by the outbreak — is slowing other services the city's arborists offer.

Citizens with non-emergency requests can expect to wait 8-12 weeks, instead of 6-8, and the city's pruning cycle — the time it takes to prune all trees along the right-of-way — will increase to 15 years, 10 longer than industry recommendations.

Some Champaign homeowners can also expect to see higher heating and cooling bills because of the loss of tree cover. Lamoreux said he expects there to be more storm water because less will be absorbed by the trees.

"It's an unfortunate reality," he said. "But it does provide us with an opportunity to diversity our urban forest with a varied tree population."

The trees will be replaced with a greater diversity of different species and families of trees in order to help prevent a large outbreak like this in the future.

The city has also started a nursery of 100 trees in order to help save money on buying trees in the future and help grow a wider diversity of them.

This inventory identified 536 individually ash trees in parks and street rights-of-way. Wooded or unmaintained areas were not inventoried. Based on data from the previous complete inventory which was conducted in 1999/2000(did not include park trees) and a rough count in parks, it is estimated that Merrill's ash population accounts for approximately 7% of the overall population.

While 536 trees is a large number of trees to manage thru the EAB crisis, it is well below many similar sized communities. In Bluestem's experience, most communities have between 15-20% ash population. Species diversity guidelines recommend not more than 10% of any one species and not more than 20% of any one family. The ash population in Merrill is well within the recommended limits. A map detailing ash tree locations can be found as attachment one. Additionally a database listing each individual tree and its attributes has been provided to the City.

Of the total 536 ash trees, 524 are green ash, 8 are white ash and 4 are black/other ash. A total of 92 ash trees were identified as dead or in poor or very poor condition. The average condition of the ash tree population is fair. Forty-six ash trees have overhead power lines present. The average diameter is 11.9". It is advantageous at this point that Merrill has a small to mid-sized population rather than high numbers of large trees, simply because it is easier to remove or treat smaller diameter trees.

Riverside Park has the highest park concentration of ash trees at 109 ash individually inventoried. Riverside Park is a large park that runs along the river and is comprised of regularly maintained areas (mowed), unmaintained wooded areas and moderately maintained areas. The moderately maintained areas are comprised of groups of trees that are mowed around, but that are not maintained regularly. A count was taken of ash in these areas and there are 52 ash in such areas. The average diameter is 7". All ash that are maintained or mowed around were individually inventoried. Wooded areas were not inventoried and no count was taken. This park will be severely impacted with the loss of its high numbers of ash. Because the trees serve to anchor the ground near the river in place and help mitigate the impacts of flooding, it is critical that it receives replanting quickly after tree removal.

Riverside Park was the site of an ash sampling completed by the City and DATCP recently because the ash in this park are declining rapidly. No EAB were identified through the sampling, and the ash decline was attributed to the prolonged drought in Northern Wisconsin.

A summary of the inventory findings:

⇒ **536 ash trees identified in parks & street right-of-way (estimated to be approximately 7% of the total population)**

⇒ **524 green ash, 8 white ash, 4 black/other ash**

⇒ **92 ash in dead, poor or very poor condition (17.2% of ash population)**

⇒ **Average diameter is 11.9" at breast height**

⇒ **46 ash trees with overhead power lines present**

⇒ **138 trees 16" dbh (diameter at breast height – 4.5' above ground) and over.**

⇒ **68 trees 20" dbh and over (a list can be found as attachment 4).**

Larvae in small diameter branch. Photo courtesy of Ping Tree Service/IN DNR

Canopy Survey methods are employed when a closer look of the tree's canopy is warranted. For example, if a tree is identified thru the visual survey as exhibiting dieback and epicormic sprouting, the tree should be more thoroughly inspected. In the tree canopy, small windows on the trunk and branches can be peeled back using a drawknife, to look for EAB larvae.

The advantage of this method is that inspection occurs in the tree's canopy where EAB signs/symptoms first appear. The City does have a bucket truck and is equipped to complete this type of survey. If crew members find 2 or more symptoms of EAB on a tree they should call DATCP at 1-800-462-2803 and DATCP will assist with the inspection.

Decide to Remove or Chemically Treat Trees

The first essential question that arises when a community is making decisions regarding EAB is whether to maintain an ash component within their urban forest. Simply put, the options that exist are:

- ✓ *Remove all ash from the public urban forest*
- ✓ *Save all ash thru the use of chemical treatments*
- ✓ *Treat a portion of trees deemed significant and remove the remaining ash trees*

There are pros and cons to each choice:

Removing all ash from the public forest (and replanting):

Pro: Costs are definitive and finite	Con: High initial cost
Pro: No long term costs	Con: A unique species is lost to the forest
Pro: Wise replanting selections can be chosen	Con: Mature trees are replaced with small trees

Save all ash thru the use of chemical treatments:

Pro: Ash remains a component of forest	Con: Long term treatment costs are incurred
Pro: Public is generally supportive	Con: Additional staff needed for monitoring
Pro: Large trees continue contributing to forest	Con: The use of chemicals may be ongoing

Remove a portion of trees and treat a portion of trees:

Pro: Ash remains a component of forest	Con: Trees may always need treatment
Pro: Reduces high initial removal costs	Con: Long term treatment costs are incurred
Pro: Only trees in good condition retained	Con: Public disapproval of decision criteria

Identify Significant Ash Trees Suitable for Chemical Treatment

It is unrealistic to expect a community to chemically treat 536 ash trees for an indefinite number of years. A very rough estimate of cost of treatment using Tree-äge™ (Emamectin benzoate) via Arborjet is $10/inch of tree diameter on an every-other year basis. To treat 536 trees would roughly cost $64,000. In the long-term, it is more economical to simply remove and replant ash. It is a one-time upfront fee that is dealt with and over quickly.

However, if the city would like to maintain an ash component in its population, there are methods to target trees suitable for chemical treatment. Typically, larger trees in fair, good or excellent condition are more valuable, both from an economic and environmental standpoint. The following chart illustrates some choices the city can consider:

Size of trees to be Treated	Total #	# of Dead, Poor and Very Poor	# of Excellent, Good or Fair	Total dbh	Approximate Cost to Treat*
16" and over	138	45	93	1913	$19,000
20" and over	68	28	40	989	$10,000

*cost incurred every other year

Reduce Ash Tree Volume

Once infested with EAB, ash trees typically decline and die over a period of 2-3 years depending upon insect volume. The burden of dealing with volumes of dead and dying trees within a short period of time can place an enormous strain on community budgets, personnel and resources. The City of Merrill can take small steps now to prepare for and manage for the arrival of this pest.

Merrill should take the pro-active approach of removing non-infested, but otherwise compromised ash as a way to minimize the impacts when EAB arrives. The relative advantages and disadvantages of preemptive vs. reactive removals include:

Preemptive Removal: Removing ash trees that are not infested with EAB.

Pros:	*Cons:*
*Opportunity to spread removal costs over a longer time frame	*Immediate impacts to tree canopy and aesthetics
*Reduces issue of dealing with many dead and/or hazardous trees at one time.	*Removing healthy ash may create negative feelings within the community
*Opportunity to start replanting process immediately	*Does not factor in research that may find an effective control for ash
*Greater flexibility in organizing work schedules	
*Ability to utilize ash wood for products or use it as a local source of firewood	

Reactive Removal: Removing ash trees which are either infested with EAB or dead

Pros:	*Cons:*
*Delayed impacts to tree canopy and aesthetics	*Budget and staff impacts will be more severe once EAB arrives in Merrill
*Less negative public perceptions	*Replanting funds may not be available due to extreme removal costs
*Delayed budgetary impacts until EAB arrives	*Inability to keep up with removals increases risk from standing dead trees
*Further EAB research may offer effective control, minimizing needs for removal	*Bigger waste stream to manage

The most logical method to reduce ash volume initially is to remove ash trees identified through the inventory as in poor or very poor condition or dead. A tree identified as in very poor or poor condition is most likely considered a high risk tree regardless of EAB and therefore has an associated liability. Any tree, dead or alive, which has the potential to entirely or partially fail and impact a target, can be considered a hazard. A target can be a vehicle, building or a place where people gather (Source: Urban Tree Risk Management Guide, USDA Forest Service: www.na.fs.fed/us/spfo/pubs/uf/utrmm). Dead or dying ash trees, whether weakened/killed by EAB or not, pose a risk to public safety and therefore a potential liability for communities if left standing. There are 91 ash trees in poor or very poor condition. There is one dead ash tree.

Communities faced with EAB infestation within 1-2 years have begun removing and replanting small diameter (1-6") ash trees prior to infestation. Replanting in these locations is occurring simultaneously with the removals so that the impact of the removal on residents is lessened. The removal of small diameter ash trees is relatively easy and less expensive than large trees and it is a good opportunity to spread the expense of replanting over a longer time period. EAB infestation has been confirmed in Wisconsin in several counties and more importantly in the UP. Merrill is quite close to current, active infestations. Due to the size of the current infestations and the general philosophy that there are more infestations throughout the state that have not been found yet, it seems reasonable to begin this activity immediately following removal of poor/very poor/dead trees. There are 120 trees from 1-6" in diameter in Merrill.

The following activities are recommended for the City of Merrill.

1. **Merrill will stop all planting of ash trees on public property immediately. It will also discourage planting on private property through education.**

2. **Merrill will remove and replace the 92 ash trees that are in poor or very poor condition or are dead. The removals will begin in 2009/2010. If any tree declines to the point that it falls into the poor or very poor category, it will also be removed. All adjacent residents will be notified of any planned action. The database provided to the City of Merrill houses this list.**

3. **Merrill will remove and replant the 120 ash trees that are 1-6" in diameter.**

4. **Merrill will consider chemical treatment of ash trees when EAB is discovered in Lincoln County.**

5. **Trees in fair condition will be evaluated in early 2011 to gauge their health and vigor. If any tree in fair condition falls below the rating of fair, it will also be removed. Rating definitions can be found in the 'City of Merrill Urban Forestry Plan and Inventory Findings.'**

6. **Ash removal requests from adjacent residents will be honored. This includes residents who request removal of ash trees, as well as those that request ash trees be retained (in expectation that chemical treatments will be applied by the resident).**

7. **Protective pesticide treatments may be effective and may be applied at resident discretion. Treated trees will be removed if treatments fail.**

An annual review should be completed as new information about the borer is learned. These recommendations are subject to change as research-based guidelines are developed. The city forester is the individual ultimately responsible for implementation and he should prepare an annual report to the City Council regarding EAB activities.

An estimate has been prepared that outlines the costs of items #2 - #4 above.

Projected Removal and Replanting Budget for Ash Trees in Poor/Very Poor/Dead Condition

Year	# of removals	Man hr/cost*	# trees to be replaced	man hr/cost for planting**	cost to purchase replacement trees***	cost of stump grinding****
Beginning in 2010	92	552/$14,904****	92	240/$6,480	$16,100	$2,834

*based on estimate of 4 removals/day per 3 person crew @$27.00/hour each (including benefits) Avg tree diameter is 11.9"

**based on estimate of 10 tree plantings per day per 3 person crew @$27.00/hour each (including benefits)

***based on 1.75" caliper b&b tree @ $175/ea

****$2/inch

Projected Removal and Replanting Budget for Ash Trees 1-6" Diameter

Year	# of removals	Man hr/cost*	# trees to be replaced	man hr/cost for planting**	cost to purchase replacement trees***
after poor/ very poor	120	480/$12,960	120	n/a	$21,000

*based on estimate of 6 removals daily per 3 person crew @$27.00/hour each (including benefits)

**removals and replanting will occur simultaneously

***based on 1.75" caliper b&b tree @ $175/ea

Stumps of this size are dug, not ground

Projected Budget for Chemical Treatment of Ash 20" dbh and Greater

Year	# of trees to be treated*	cost*	treatment type**
when EAB is confirmed in Lincoln Co.	68	$10,000 (every other year)	Tree-äge™ (Emamectin benzoate) via Arborjet

*Does not include trees in poor, very poor or dead condition
**Estimate obtained from First Choice Tree Care (Junction City)

If Merrill chooses NOT to chemically treat and preserve any ash, 324 additional ash trees will remain when all of these tasks are implemented. The cost to remove and replant the remaining trees is estimated to be:

Projected Removal and Replanting Budget for Remaining Ash

# of removals	Man hr/cost*	# trees to be replaced	man hr/cost for planting**	cost to purchase replacement trees***	cost of stump grinding****
324	1,944/$52,488	324	792/$21,384	$56,700	$9,160

*based on estimate of 4 removals/day per 3 person crew @$25/hr (including benefits). Avg dbh is 15.0"

**based on estimate of 10 plantings/day per 3 person crew @$25/hr (including benefits)

based on 1.75" caliper b&b tree @ $175/ea * $2/inch

The TOTAL cost to deal with EAB is:

Cost of equipment and labor for removals = $80,352
Cost of equipment, labor and trees for replanting = $121,664
Cost of stump grinding = $11,994
Number of In-house man hours = 4,008
Cost of recurring treatment = $10,000 (biennially)

TOTAL COST = $214,010*

*Excludes chemical treatment.

The existing forestry budget is $41,000 annually.

Merrill has adequate equipment to deal with most tree removals, however, their bucket truck reaches only 45'. Larger trees will need to be evaluated to assure that they can be safely removed in-house. If they can't be safely removed by the in-house crew, the removal will need to be contracted out. Additionally, removals under power lines will need to be topped to below the lines by Wisconsin Public Service Corp. The removals completed by Wisconsin Public Service have been left in the tables above, because the City will still be responsible for removal below the power lines and stump grinding.

The above table assumes that the each tree removed will be replanted. This may not always be appropriate. The city forester will need to evaluate each site for replanting suitability.

Equipment Needs

Merrill currently has all necessary equipment for removing and replanting trees. Their significant equipment includes: chainsaws, a chipper, aerial lift truck, and misc. safety equipment. As mentioned above, the lift truck reaches only 45', which may necessitate contracting of larger

CITY OF MERRILL

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MERRILL
WISCONSIN
City Of Parks

June 2015 Parks & Recreation Director's Report

Parks: The Parks have been open for a full month now and things have been going pretty good. With the exception of the fire in the men's restroom at Stange Park, our vandalism has been very limited thus far. The police department was able to apprehend the people who started the fire by receiving a tip from someone who recognized one person. The fire was extinguished rather quickly so we were limited to damage to the paper towel dispenser, waste receptacle, and fairly extensive smoke damage/char. We have slowly been getting summer help back which is nice because we have been a little behind on grass and ball fields with the weather being so up and down. The guys have been extremely busy with all of the MAPS sports, boy's baseball, girls softball, park shelter reservations, and general maintenance. The project at Lions Park was finished in time and all that is left is for us to put the finishing touches on it. We still need time and weather to allow us to finish some grading, topdressing, and planting grass. I have heard good things from Little League thus far in regards to Lions Park and it has been working pretty good. There is a wet area in right field of diamond 1 that we need to remedy and will do so when we have some time and staff to grade the slope to train the water to run off the field. The project at the MARC still needs fencing, the extension on the Concession shelter, and the sidewalk by the concession area to be started and completed. I have been working with Girls Softball and the contractors to make sure they are finished in a timely manner as we do have tournaments coming up in the very near future. The shelters and scoreboards have turned out fantastic and everyone is very pleased with those. When our help arrives we will also be able to start doing more specialized things like topdressing, trail work, weeding, beautifying park areas, etc. Unfortunately this time of year we have time for the essentials and not much else. There are a few areas within our parks that we are planning on beautifying that I think people will really notice and it will also cut our maintenance. Perennial planting beds in hard to mow areas with mulch beds, native shrubs, and other low maintenance fixes means less hands on work and staff time.

Forestry: We received our 29th Tree City USA award again this year from our Regional Urban Forestry Coordinator. Merrill is one of the longest standing Tree City USA's in the State of Wisconsin and that is something we should be proud of. The Street Department has truly been out pruning trees and removing trees over the past few weeks. Hopefully they can get caught up with my list so we are all caught up for the next cycle. I will revisit some questionable areas now that most trees are almost all in complete foliage. This shows which trees display dieback, illness, and potential diseases. We will evaluate those and correct them accordingly. I have enclosed an article from Champaign, Illinois that was forwarded to me from our Regional Urban Forestry Coordinator that is a good read on the drain that EAB causes by ignoring it until it shows up. I would concur with Alderperson Sukow in that we should begin removing the remainder of Ash Trees on our boulevards over the next year so that we

ensure that we are ahead of the game when it arrives. We are fortunate to not have a very high number comparatively speaking but we have enough decent health ash left to make the process cumbersome.

Recreation: Our Summer Recreation Programs have been out now for a few weeks and registrations are really starting to pick up. We have a number of programs that are close to being sold out and our numbers are really looking good. Our bus trips have been very popular over the past few years and this year is no exception. They are all either full or close to being filled up. We are excited and just about ready to take on another summer of great programs for everyone. I have added a family walk to our Summer Stride, in addition to the 5K and 10K timed races. I would really like to add more numbers to this event by being more inviting to all members of the family. The family walk is going to begin at the MARC and go to the shelter in Council Grounds and back. Quite a few of our programs are slated to begin on June 8th after school has let out and we are very excited for everything to begin! We had another Bike/Ped Grant advisory group meeting last week to work on the WisDOT Bike Ped Facilities grant you have for your review. We have had some fantastic input with this grant from a very large cross section of our community. I really like how it has turned out and I do think the suggestions contained within this plan can really go a long ways into making our community more pedestrian friendly. I also think this is a great way to attract visitors to our community. It is amazing how many people look for quality of life investments within communities when deciding where to go and visit or live – and I say this with experience as I have two children under the age of 10!

Smith Center: I believe I forgot to mention last month that the new ice resurfacer has been ordered and will be here by the end of October/early November. So we will be able to utilize it for almost the entire ice season beginning this year. It will take us a bit to train on it but the transition should be pretty easy as we are still using a Zamboni product. We have hosted a number of meetings and trainings over the past few weeks and have a number of weddings and larger events coming up within the next few weeks. We also take this time of year to clean every corner of the building while we have a little time between dry floor events, as it is difficult to get the entire arena when there is ice on the floor.

Respectfully Submitted,

Dan Wendorf

Dan Wendorf
Parks & Recreation Director
City of Merrill