CITY OF ONALASKA MEETING NOTICE

COMMITTEE/BOARD: **Board of Public Works**

DATE OF MEETING: May 6, 2014 (Tuesday)

PLACE OF MEETING: City Hall – 415 Main Street (Common Council Chambers)

TIME OF MEETING: 6:30 P.M.

PURPOSE OF MEETING

1. Call to Order and roll call.

2. Approval of minutes from the previous meeting.

3. Public Input: (limited to 3 minutes/individual)

Consideration and possible action on the following items:

4. Election of:
   A. Chair
   B. Vice Chair

5. Delivery and possible acceptance of updated Pralle Center Drive extension traffic study

6. Review and consideration of water and sanitary sewer charges for 2210 Franklin Street

7. Review and consideration of Emerald Ash Borer Plan with presentation by Bluestem Forestry Consulting, Inc.

PLEASE TAKE FURTHER NOTICE that members of the Common Council of the City of Onalaska who do not serve on the Board may attend this meeting to gather information about a subject over which they have decision making responsibility.

Therefore, further notice is hereby given that the above meeting may constitute a meeting of the Common Council and is hereby noticed as such, even though it is not contemplated that the Common Council will take any formal action at this meeting.

Notices Mailed To:

* Mayor Joe Chilsen
Ald. Erik Sjolander
Ald. Jim Olson
* Ald. Jim Bialecki
*Ald Jack Pogreba
**Ald. Harvey Bertrand
Ald. Bob Muth
City Attorney Dept Heads
La Crosse Tribune Charter Com.
Onalaska Holmen Courier Life
WIZM WKTY WLXR WKBH
WLSU WKBT WXOW

*Board Members ** Alternate Member

*Jarrod Holter, City Engineer
*Fred Buehler, Financial Services Director/Treasurer

Brady & Bonne Harding

Onalaska Public Library

Date Notices Mailed and Posted: 5/1/14

In compliance with the Americans with Disabilities Act of 1990, the City of Onalaska will provide reasonable accommodations to qualified individuals with a disability to ensure equal access to public meetings provided notification is given to the City Clerk within seventy-two (72) hours prior to the public meeting and that the requested accommodation does not create an undue hardship for the City.

8. Review and consideration of Railroad Crossing Quiet Zone Report including application for quiet zone at 2nd Avenue Southwest

9. Review and consideration of 2014 paving project bid

10. Review and consideration of downtown parking regulations

11. Review and consideration of parking restrictions along Eagle Bluff Court

12. Review and consideration of Green Coulee Road and East Main Street intersection improvements

13. Review and consideration of building removal and associated costs at 111 Irvin street

14. Review and consideration of Professional Archeological Services for building removal at 111 Irvin street

15. Review and consideration of purchasing flashing speed limit sign for 2nd Avenue and Poplar Street

16. Review and consideration of single axle dump truck equipment bids

17. Pay Estimates: Strand Associates, Short Elliot Hendrickson Inc., Mathy Construction, St. Joseph's Construction, Winona Mechanical, A-1 Excavating, Wapasha Construction, State of Wisconsin Department of Transportation and any other contractor/developer.

Adjournment

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #5

Project/Item Name:	Pralle Center Drive access study
Location:	Pralle Center Drive
Requested Action:	Discussion on study and alternatives
Staff Report/Description:	Access study outlines impacts of proposed Farm & Fleet access to Pralle Center Drive. Left turn lane on STH 16 must be closed to satisfy outstanding TEA grant obligations. Staff is requesting direction on which option to proceed to final with plans, specifications and estimates.
Attachments:	Pralle Center Drive access study

SEH

Building a Better World
for All of Us®

April 30, 2014

RE: City of Onalaska
Farm and Fleet Study Update
SEH No. 126700 14.00

Jarrod Holter, PE
City Engineer
City of Onalaska
415 Main Street
Onalaska, WI 54650

Dear Mr. Holter:

As requested, we have prepared an update to the original study dated March 19, 2012. The purpose of the update is to further evaluate the impacts eliminating the left-turn in the Farm and Fleet site off WIS 16, keeping the right-in/right-out access on WIS 16 and include an access to the rear parking area on Pralle Center Drive. The project area is shown in Figure 1.

The project area is shown in Figure 1.

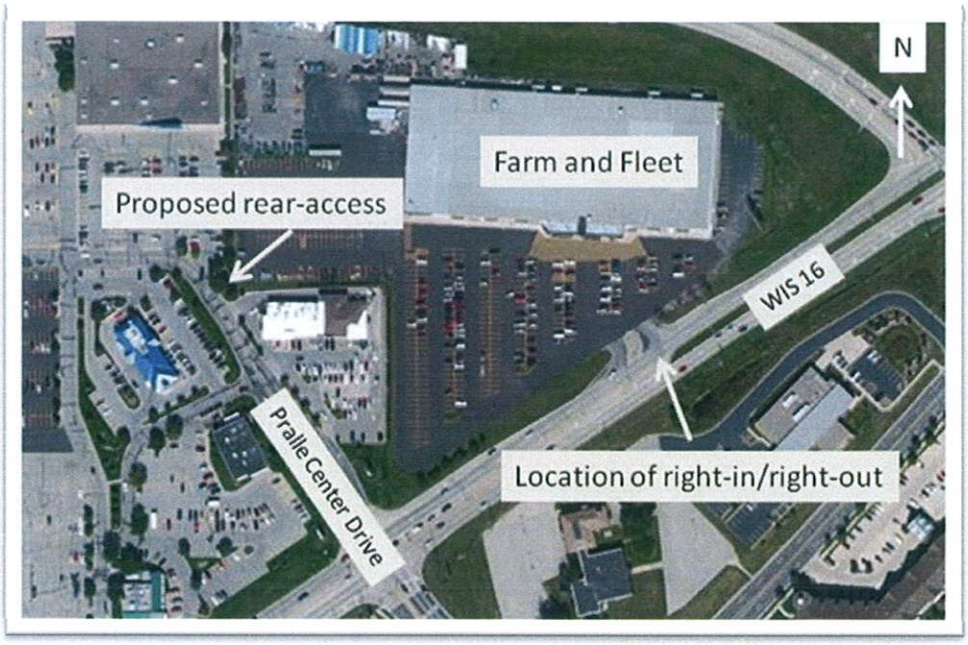

Figure 1

Traffic Analysis of Access Use Scenarios

The Synchro/SimTraffic model of the surrounding arterial system was updated for several traffic volume scenarios (year 2021 PM Peak Hour). The following conditions were modeled:

- Existing with left-turn in
- Right-in/right-out only (100% out)
- Right-in/right-out with 75% out and 25% out at new rear access
- Right-in/right-out with 50% out and 50% out at new rear access
- Right-in/right-out with 25% out and 75% out at new rear access

Each of the scenarios with the new rear access was run with sub-scenarios. The turn distribution of the traffic exiting the rear access was run for 25%, 50%, and 75% left turns onto Pralle Center Drive. The other traffic was assumed to turn right to head towards Theater Road.

Based on the findings, the queue on Pralle Center Road at WIS16 should not grow beyond the driveways of Burrachos and Culver's (300 feet) unless 75% of the Farm and Fleet traffic exits the new Farm and Fleet driveway on Pralle Center Road and if more than 50% of traffic exiting Farm and Fleet via Pralle Center Road turns left to access WIS16. The analysis also assumes that the current Farm and Fleet development does not grow significantly producing additional traffic demand. Table 1 shows the results of the analysis. The scenario on the left (50% out of the new access) shows reasonable levels of service and 95th percentile queues within the 300 feet to the first driveway. The scenario on the right (75% out of the new access) shows a 95th percentile queue beyond the driveway (total queue of 644 feet).The entire output is attached to the end of the memorandum.

Intersections	Approach	Scenario									
		Right in/ Right out - 50% Out of New Access					Right in/ Right out - 75% Out of New Access				
		LOS	Delay	95th % Queue			LOS	Delay	95th % Queue		
				LT	Thru	RT			LT	Thru	RT
I-90 EB Ramps & STH 16	I-90 EB Ramps	21.8	C	163	179	78	21.5	C	160	174	64
	STH 16 EB	7.9	A	0	205	29	7.7	A	0	208	30
	STH 16 WB	8.1	A	64	162	0	8.4	A	61	159	0
	Intersection	**10.8**	**B**				**10.8**	**B**			
Farm Fleet & STH 16	Driveway SB	1.0	A	0	0	47	0.8	A	0	0	27
	STH 16 EB	2.7	A	0	0	0	2.7	A	0	88	0
	STH 16 WB	7.5	A	0	0	0	7.7	A	0	0	0
	Intersection	**4.7**	**A**				**4.9**	**A**			
Pralle/Kinney Coulee & STH 16	Kinney Coulee NB	22.0	C	207	82	164	24.6	C	224	81	174
	Pralle SB	38.1	D	233	277	0	76.9	E	254	644	0
	STH 16 EB	21.4	C	238	232	66	20.1	C	222	224	84
	STH 16 WB	19.2	B	158	216	62	19.3	B	166	207	73
	Intersection	**23.2**	**C**				**29.8**	**C**			

Table 1

While impossible to tell until after the driveway is constructed, due to the parking lot configuration, it is unlikely that more than 50% would use the rear access to exit the Farm and Fleet property. It is more likely that more motorists would use the exit during heavy congestion periods such as the pre-holiday season to avoid WIS 16. In those cases, traffic would likely choose to use the exit, turn right, and travel west through the parking areas to Theater Road. Therefore, it isn't likely that Farm and Fleet traffic exiting from the rear access would be the cause of a significant increase in delay or queue length. Based on

this, I can conclude the new access will not have significant adverse affects on the operation of the traffic signal at WIS 16 and Pralle Center Drive.

Analysis of Re-use of Farm and Fleet Property

An analysis was performed on the area if the Farm and Fleet property was sold and/or re-developed. The methodology from the latest version ITE's Trip Generation Manual was used to determine the traffic volumes generated by assumed likely re-use of the property. While the specific new uses of the property are unknown, it was assumed for this analysis to include a supermarket, a high turnover restaurant, and a fast food restaurant with a drive-thru. Table 2 below includes the values from the Trip Generation Manual. In addition, the table includes the current traffic demand from the existing Farm and Fleet property. The net PM Peak Hour demand is shown with the latest traffic counts at the left-in, right-in/right-out access onto WIS 16. Also, the current use was projected using the Trip Generation Manual to compare projected with the actual traffic volumes generated by the site.

Year 2014 PM Peak Hour								
Replacement Development	**ITE Land Use**	**ITE Code**	**Units**	**Quantity**	**Rate**	**Total**	**Enter**	**Exit**
Projected Re-use of Farm and Fleet Property								
Supermarket	Supermarket	850	1000 SF GFA	100	11.85	1185	628	556
Restaurant	High Turnover Restaurant	932	1000 SF GFA	5	18.49	92	50	42
Restaurant	Fast Food with Drive-thru	934	1000 SF GFA	4	46.14	84	44	40
Total	-	-	-	-	-	1361	772	638
Current Conditions								
Farm and Fleet – ***actual***	Actual Values	-	1000 SF GFA	121	3.34	404	183	221
Farm and Fleet - ***projected***	Specialty Retail	814	1000 SF GFA	121	6.84	828	464	364

Table 2

The current generated demand is approximately half of what ITE projected for a similar use (Specialty Retail). The reason is likely a combination of the limited access to the property and possibly competition from other similar retailers such as the Home Depot on Midwest Drive and Menards on Sand Lake Road. If the property would be sold and/or re-developed, it's likely that the developer would find tenants that would have less competition in the area. However, the access would still be limited to the proposed right-in/right-out driveway onto WIS 16 and the access onto Pralle Center Drive.

The Synchro/SimTraffic model was revised to account for the new traffic demand generated by the assumed re-use of the property. The traffic was factored by 0.75 to account for pass-by and internal site trips. The additional traffic results in increased delay and extends the queue beyond the driveways to Burrachos and Culver's (300 feet) (assuming 50% of the exiting traffic uses the rear access and 50% turns left onto Pralle Center Drive). Table 2 shows the results of the analysis. In addition to increased delay and unreasonable level of service, the 95th percentile queues resulting from the additional traffic extend beyond the driveways to Burrachos/Culvers. If the assumptions used in the analysis are close to what actually develops, you can expect there to be operational problems at the intersection.

Intersections	Approach	Right in/ Right out - 50% Out				
		LOS	Delay	95th % Queue		
				LT	Thru	RT
I-90 EB Ramps & STH 16	I-90 EB Ramps	22.0	C	159	165	117
	STH 16 EB	6.3	A	0	150	23
	STH 16 WB	9.3	A	70	184	0
	Intersection	10.6	B			
Farm Fleet & STH 16	Driveway SB	2.4	A	0	0	96
	STH 16 EB	2.5	A	0	0	0
	STH 16 WB	8.8	A	0	0	0
	Intersection	5.4	A			
Pralle/Kinney Coulee & STH 16	Kinney Coulee NB	32.5	C	252	117	217
	Pralle SB	680.8	F	217	625	0
	STH 16 EB	39.7	D	651	622	61
	STH 16 WB	27.9	C	159	319	207
	Intersection	118.8	F			

Table 2

It's possible that any redevelopment of the site may include the current strip mall with Burrachos and Starbucks. If so, the entire parking area could be reconfigured to provide improved circulation and driveway spacing. However, increasing the development intensity would result in problems with the traffic signal operations (increased delay, unacceptable levels of service, etc). While the intersection of WIS 16 and Pralle Center Drive operates acceptably today and through 2021 without increases in traffic, it is expected to fail beyond 2021 with normal traffic growth. Without expansion of WIS 16, it would be difficult to increase the capacity enough to result in acceptable operations.

Alternative Driveways into Farm and Fleet Parking Area

Three different alternatives where developed to provide additional access into the Farm and Fleet development from Pralle Center Drive. The alternatives were developed as part of a previous design contract. This study provides comments on the pro's and cons of each alternative.

Alternative 1

The concept for Alternative 1 is shown on Figure 2. It provides a two-way driveway just northwest of the driveway into Burrachos. This alternative provides the best sight lines of the three. The driveway is located close to horizontal curve on Pralle Center Drive which enables traffic approaching the intersection to view oncoming traffic from the west. The driveway is somewhat on a skew but was designed that way to run parallel with the parking lanes. One issue is the close proximity to the driveway to Burrachos immediately to the east which could cause operational problems.

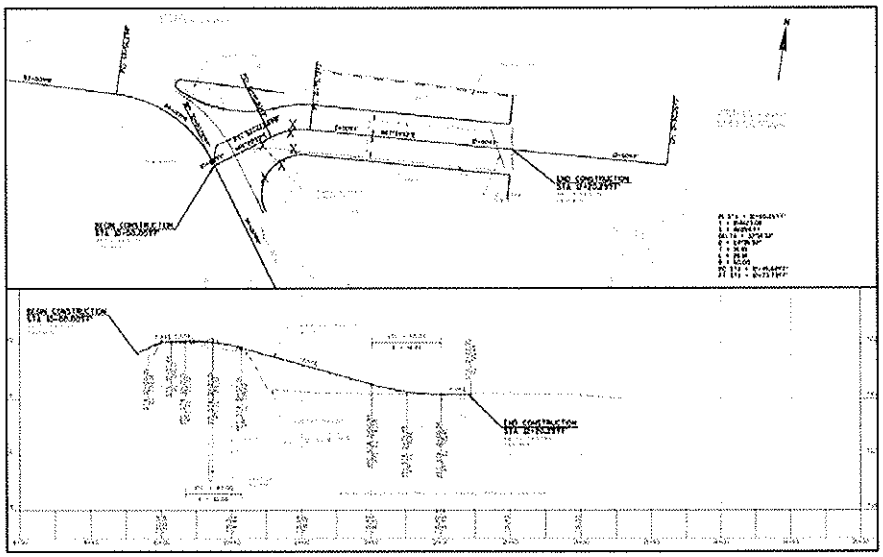

Figure 2

Alternative 2

The concept for Alternative 3 is shown in Figure 3. It provides a two-way driveway just northwest of the driveway into Burrachos. This option squares up the approach to Pralle Center Drive and eliminates the driveway to Burrachos. Alternative 2 also includes an additional one-way access into the Farm and Fleet parking area behind the Burrachos building.

The one-way access into the Farm and Fleet parking area appears to be tight. It is intended for both drive-thru patrons as well as service vehicles (trucks). Both the trucks and service vehicles could make a left turn onto the two-way driveway onto Pralle Center Drive however, this would add some confusion to motorists, increase the volume of the driveway, and increase vehicle conflicts. Snow removal may also be a problem as well as conflicts with dumpsters and unloading of supplies.

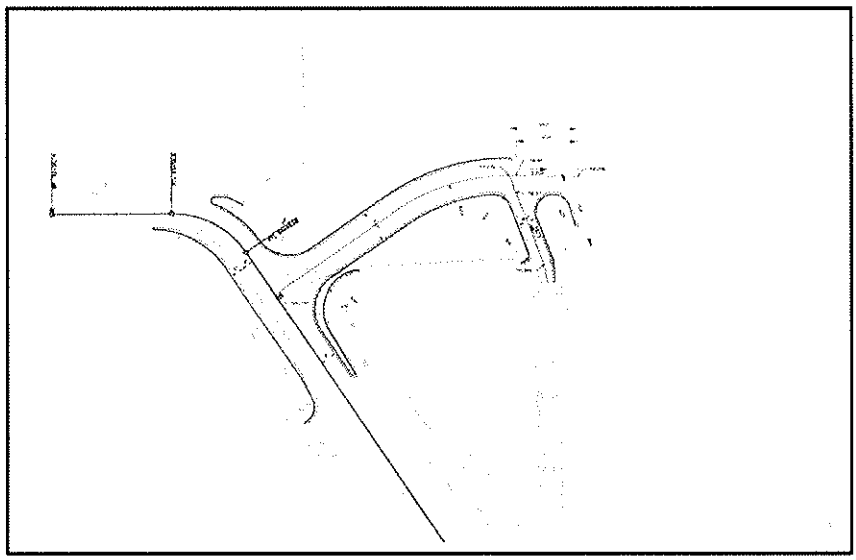

Figure 3

Alternative 3

The concept for Alternative 3 is shown in Figure 4. It provides a right turn-in prior to the Burrachos property and one-way exit just beyond Burrachos. Like Alternative 2, this concept eliminates the driveway to Burrachos on the northwest end of their property and includes a one-way driveway along the north end of the building onto the exit driveway to be used for service vehicles (trucks) and drive thru patrons.

This option squares up the approach to Pralle Center Drive and eliminates the driveway to Burrachos. While the traffic flow concept would work well, the location of the one-way in is too close to WIS 16. While in the same location as the current one-way in to the Burrachos parking area, this new driveway would likely have much higher traffic volumes. In addition, both driveways would be a challenge for snow removal.

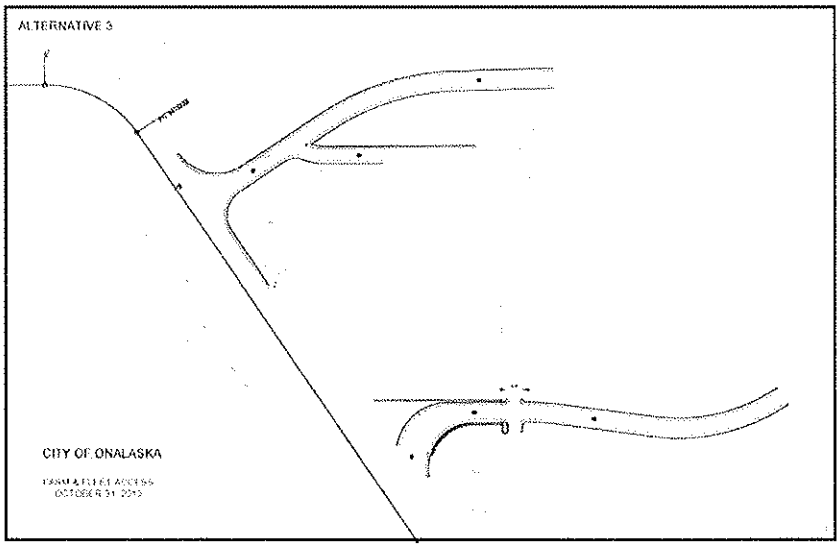

Figure 4

Alternative 4 - Entrance Only

We looked at a 4th alternative that includes an entrance only to the Farm and Fleet property. Alternative 4 is shown in Figure 5. The location would need to be in the same location as Alternative 1 to avoid the need for an additional access into parking area behind Burrachos as well as to provide enough distance downstream from WIS 16 so not to disrupt the operations of the traffic signal. The driveway would be accessible for westbound Pralle Center Drive traffic and designed to prohibit traffic from exiting the Farm and Fleet parking area.

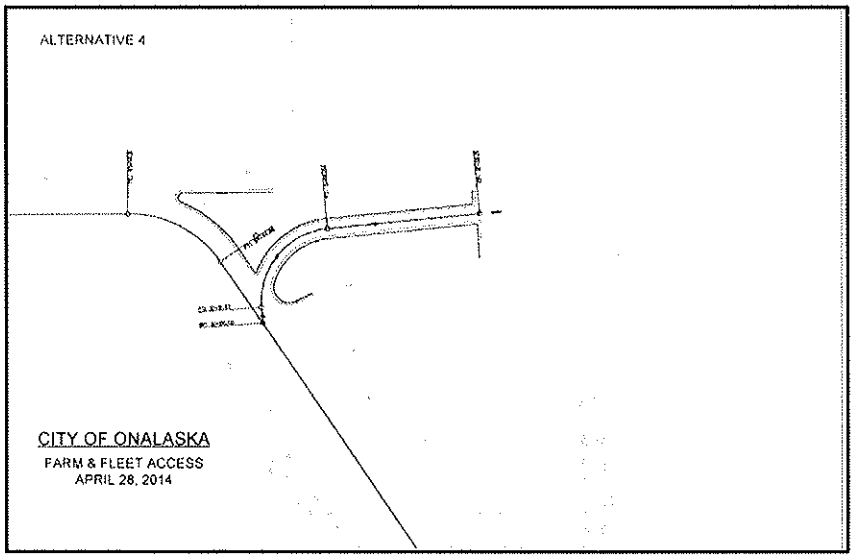

Figure 5

Conclusions and Recommendations

The proposed Alternative 1 (see Figure 1) with right-in/right-out access to Farm and Fleet on WIS 16 and a new full access driveway into their back lot will operate acceptably through 2021 for the weekday PM peak hour. Based on the findings, the queue on Pralle Center Road at WIS16 should not grow beyond the driveways of Burrachos and Culver's (300 feet) unless 75% of the Farm and Fleet traffic exits the new Farm and Fleet driveway on Pralle Center Road and if more than 50% of traffic exiting Farm and Fleet via Pralle Center Road turns left to access WIS16. The analysis also assumes that the current Farm and Fleet development does not grow significantly producing additional traffic demand.

Redevelopment of the current Farm and Fleet site or adding other uses to the site will result in increased delays and poor levels of service at the intersection of WIS 16 and Pralle Center Drive. While the intersection operates acceptably today and through 2021 without increases in traffic, it is expected to fail beyond 2021 with normal traffic growth. Without expansion of WIS 16, it would be difficult to increase the capacity enough to result in acceptable operations.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

James D. Hanson

James D. Hanson, PE
Transportation Director

jdh

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STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #6

Project/Item Name:	Utility bill 2210 Franklin Street
Location:	2210 Franklin Street
Requested Action:	Discussion on utility bill
Staff Report/Description:	Owner is requesting utility bill be lowered. Readings taken show unusually high consumption. Previous meter reading history shows prior negative reads. Owner has reported his bill to the Wisconsin Public Service Commission, it is hoped correspondence on this matter will be received for meeting.
Attachments:	Utility bill, reading history, meter performance report, and PSC rules.

CITY OF ONALASKA
415 Main St.
Onalaska, WI 54650
(608) 781-9543

Account Number	Amount Due
1-10084-01	$3,548.07
Due Date	**After Due Date Pay**
04/20/2014	$3,648.24
Account Name	
BRADY & BONNE HARDING	
Service Address	
2210 FRANKLIN ST	
Amount Enclosed	

BRADY & BONNE HARDING
2210 FRANKLIN ST
ONALASKA WI 54650

There will be a charge on all returned checks.
Please return this portion with your payment.
When paying in person please bring both portions of this bill.

CUSTOMER ACCOUNT INFORMATION - RETAIN FOR YOUR RECORDS

Name	Service Address	Account Number
BRADY & BONNE HARDING	2210 FRANKLIN ST	1-10084-01

Status	Service Dates From	Service Dates To	# Days	Bill Date	Penalty Date	Due Date
ACTIVE	12/09/2013	03/13/2014	94	04/01/2014	04/20/2014	04/20/2014

CURRENT DATE	CURRENT READING	PREVIOUS DATE	PREVIOUS READING	USAGE		
03/13/2014	3670	12/09/2013	3980	99690	WTR CONSMPT	781.23
					WTR FLAT FEE	14.25
					SWR FLAT FEE	6.50
				1960.00	SWR TREATMNT	1,226.19
				1960.00	SWR TRANSMT	1,295.97
					STRM WTR ERU	15.13

PREVIOUS BALANCE	205.80
PENALTIES	3.00
PAST DUE AMOUNT	**$208.80**
CURRENT BILL	**$3,339.27**
AMOUNT DUE	**$3,548.07**
AMOUNT DUE AFTER 04/20/2014	$3,648.24

2210 Franklin (Meter Readings)
Brady 792-3821

DATE	READING	CUBIC FEET	GALLONS
12-Dec	96780		
13-Jan	97090	310	2318.8
13-Feb	98970	1880	14062.4
13-Mar	98740	-230	-1720.4
13-Apr	99290	550	4114
13-May	930	1640	12267.2
13-Jun	410	-520	-3889.6
13-Jul	NO READING		0
13-Aug	1590		0
13-Sep	2230	640	4787.2
13-Oct	2510	280	2094.4
13-Nov	2800	290	2169.2
13-Dec	3980	1180	8826.4
14-Jan	3200	-780	-5834.4
14-Feb	3430	230	1720.4
14-Mar	3670	240	1795.2

Sensus Metering Systems

METER PERFORMANCE REPORT

SERIAL #: 48432246 SIZE: 5/8" TYPE: SR II

CUSTOMER: BRADY HARDING

METER LOCATION: 2210 FRANKLIN ST ONALASKA WI 54650

READING (BEFORE): 3920.68 READING (RETURN TO SERVICE): 3932.68

☐ GALLON ☑ CUBIC FEET ☐ IMPERIAL GAL ☐ CU. MTR. ☐ OTHER UNITS:

TEST RATE (GPM)	METER UNDER TEST VOLUME STOP	(minus) START	(=) VOLUME	Tester Volume	Gross Accuracy (div) Vol (=)	TESTER % from TAG (x)Tag(=)	TESTED METER ACCURACY
15	3930.68	3920.68	10	10	100.00%		100.0%
2	3931.68	3930.68	1	1	100.00%		100.0%
0.25	3932.68	3931.68	1	1	100.00%		100.0%

REPAIR NOTES:

☐ ADJUSTING VANE ANGLE (BEFORE TEST): ☐ CHANGED ADJ. VANE ANGLE TO:

DRIVER / DRIVEN GEARS DRIVER / DRIVEN GEARS

☐ CHANGE GEARS LOW FLOW SIDE ☐ RE-GEARED LOW FLOW SIDE

HIGH FLOW SIDE HIGH FLOW SIDE

RE-TESTED ACCURACY AFTER CHANGES / REPAIRS

Revenue Loss =100.0 minus avg.tested %, divide 100, X avg.mo.bill = $ Loss/Gain/Mo. X 12(mo) = YEARLY $ LOSS/GAIN
(- indicates an overcharge to the customer)

ESTIMATED REVENUE LOSS:$ PER MONTH LOSS PER YEAR: $

TESTING PERFORMED BY: Frank Fischer DATE: 3/31/2014

REPAIRS PERFORMED BY: DATE:

Unofficial Text (See Printed Volume). Current through date and Register shown on Title Page.

(2) Positive displacement meters shall have a percent registration between 98.5 and 101.5 within the range of normal test flow limits before being placed in service. In addition, new meters shall have a percent registration at the minimum test flow between 90 [95] and 101.5. In all other cases, the percent registration shall be between 90 and 101.5 before being placed in service. These requirements, in addition to flow, are shown in the table below.

Note: It is the intent of the commission that new meters have an accuracy limits percent between 95 and 101.5.

Summary of Test Conditions and Accuracy Requirements for Positive Displacement Meters

Size in.	Maximum Rate: Rate of Flow	Maximum Rate: Test Quantity		Maximum Rate: Accuracy Limits	Intermediate Rate: Rate of Flow	Intermediate Rate: Test Quantity		Intermediate Rate: Accuracy Limits	Minimum Rate: Rate of Flow	Minimum Rate: Test Quantity*		Minimum Rate: Accuracy Limits Percent	
	gpm	Gal.	Cu. Ft.	Percent	gpm	Gal.	Cu. Ft.	Percent	gpm	Gal.	Cu. Ft.	New Meters	Repaired Meters
5/8	15	100	10	98.5–101.5	2	10	1	98.5–101.5	1/4	10	1	95–101.5	90–101.5
3/4	25	100	10	98.5–101.5	3	10	1	98.5–101.5	1/2	10	1	95–101.5	90–101.5
1	40	100	10	98.5–101.5	4	10	1	98.5–101.5	3/4	10	1	95–101.5	90–101.5
1 1/2	80	1,000	100	98.5–101.5	8	100	10	98.5–101.5	1 1/2	100	10	95–101.5	90–101.5
2	120	1,000	100	98.5–101.5	15	100	10	98.5–101.5	2	100	10	95–101.5	90–101.5

* Section PSC 185.73 (3) provides that at this flow rate the test quantity may be reduced to that equivalent to one–half revolution of the test dial. For the typical 5/8–inch meter the minimum test quantity would, therefore, be 5 gal. or 1/2 cu. ft.

(3) Compound meters shall have a percent registration between 97 and 103 throughout the range of normal test flow limits. At flows within the change–over flow range, the percent registration shall not be less than 90%.

(4) Turbine meters shall have a percent registration between 97 and 103 throughout the range of normal test flow limits and a percent registration of at least 95% at the minimum test flow.

(5) For meter installations with remote reading devices the above accuracy requirements apply to the metering accuracy of the complete installation.

History: Cr. Register, January, 1997, No. 493, eff. 2–1–97.

Subchapter VII — Meter Testing

PSC 185.71 Meter testing facilities and equipment. **(1)** Each utility furnishing metered water service shall own or provide, through contract or otherwise, adequate equipment and facilities to provide for testing all of its water meters in compliance with this chapter.

(2) The meter testing facility shall, to the extent practical, simulate the actual service condition of inlet pressure and outlet pressure. It shall be provided with the necessary fittings, including a quick–acting valve for controlling the starting and stopping of the test, and a device for regulating the flow of water through the meter under test within the requirements of this chapter.

(3) The overall accuracy of the test equipment and test procedures shall be sufficient to enable the testing of service meters within the requirements of this chapter and regulations. In any event, the inherent overall accuracy of the equipment shall permit tests with an overall error of not to exceed 0.5 % at normal test flows and 1.0 % at the stated minimum test flow.

History: Cr. Register, January, 1997, No. 493, eff. 2–1–97.

PSC 185.72 Calibration of meter testing equipment. **(1)** Volumetric standards shall be accompanied by a dated certificate of accuracy from an approved laboratory or agency. For any weight standard used, the scales shall be tested periodically by an approved agency and a record maintained of the results of the test.

(2) A reference meter used for testing domestic or larger meters may be used only if the referenced meter has been tested and calibrated during the preceding 6 months. A record shall be kept of the 2 latest tests of any reference meter. (See also s. PSC 185.73 (1).)

History: Cr. Register, January, 1997, No. 493, eff. 2–1–97.

PSC 185.73 Testing of customer meters. **(1)** The test of any customer meter shall consist of a comparison of its accuracy with that of a standard of known accuracy. Where the test standard consists of a previously calibrated reference or service meter, the test results for the customer meter shall be adjusted to compensate for the inaccuracies of the reference meter at the particular flow rates.

(2) Meters shall be tested before repair (As Found) and after repair (As Left). (See s. PSC 185.46 for exceptions.)

(3) The volume of water through the meter at each test flow point shall be sufficient to produce at least one revolution of the test dial except at the "minimum test flow" point when said volume of water shall produce at least one–half revolution of the test dial.

(4) Meters not meeting the accuracy or other requirements of s. PSC 185.61 or 185.65 shall be repaired or rebuilt to meet those requirements before further use.

History: Cr. Register, January, 1997, No. 493, eff. 2–1–97.

PSC 185.74 Test flows. **(1)** TESTS. The minimum test flow and "normal test flow limits" as used herein refer to those listed in s. PSC 185.65. The stated test flows apply for both As Found and As Left tests.

(2) POSITIVE DISPLACEMENT METERS. (See s. PSC 185.65 (2).) For each test, the percent registration shall be determined at each of the following test flows:

(a) The minimum test flow;

(b) Two test flows within the normal test flow limits, one to be approximately at the maximum registration and the other to be at a flow as high as practicable within the normal test flow limits.

(3) COMPOUND METERS. For each test it shall be determined whether or not the by–pass unit operates at the minimum test flow and, in addition, the percent registration shall be determined at each of the following test flows as determined from accuracy curves for the particular type and size of meter:

(a) The flow for maximum registration of the by–pass unit;

(b) A flow near the point of minimum registration within the change–over range;

(c) At least 3 flows within the normal test flow limits of the current unit, one of which is to be at the flow for maximum registration, one at approximately 50 % of such flow but above the change–over range, and one at as high a flow as practicable.

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #7

Project/Item Name: Emerald Ash Borer Plan

Location: Citywide

Requested Action: Discussion on recommendations included within plan

Staff Report/Description: Bluestem Forestry Consulting will be giving a presentation on the updated Emerald Ash Borer Plan. Items to be discussed include treatment by property owner of City owned boulevard trees, City treatment of specimen boulevard trees, when to remove existing Ash trees, and replanting of trees within boulevards. Cost are outlined in the report and will be discussed. As the report states Emerald Ash Borer has been found in the City of Onalaska and it is anticipated that all Ash trees will perish within the next few years.

Attachments: Emerald Ash Borer Plan.

City of Onalaska
Emerald Ash Borer Plan

Source: David Cappaert, Michigan State University, Bugwood.org

Prepared by:
Bluestem Forestry Consulting, Inc.
Kelli Tuttle, President
49910 South Loop Road
Drummond, WI 54832
(715)739-6831

April 16, 2014

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INTRODUCTION & EXECUTIVE SUMMARY

Emerald ash borer (EAB) was confirmed in Onalaska on December 6, 2013. The goal of this plan is to outline activities that will manage the public ash tree population within the City. This plan will identify the essential personnel, resources, procedures and cost to manage the emerald ash borer on city properties based on scientific findings, public comment and staff advice.

Some findings/recommendations of this plan include:

- ≈ The effects of EAB appear quickly once an infestation is confirmed within a community. Infested trees can quickly become public safety hazards and increase risk. EAB was confirmed in Onalaska on December 6, 2013.
- ≈ There are no "silver bullets" to eradicate this pest. However, effective chemical treatments will preserve trees if applied prior to or shortly after infestation.
- ≈ Based on public tree inventory data collected in 2009 there are 1,820 ash trees on public properties in Onalaska. Areas inventoried included parks, street rights-of-way and the city cemetery. A map can be found as Attachment 1.
- ≈ Ash trees total 25.7% of the total inventoried public tree population. All of these ash trees are susceptible to EAB.
- ≈ 1,346 ash trees are located on street rights-of-way, 434 in city parks and 40 in the city cemetery.
- ≈ The most common species of ash within Onalaska is green ash (1,614 trees) followed by white ash (153 trees) and black ash (53 trees). Mountain ash is not a true ash and is therefore not susceptible to EAB.
- ≈ The average ash diameter is 8.4" at breast height (4.5' above ground). This is a relatively small diameter.
- ≈ The most common method of chemical treatment used to prevent EAB infestation in ash trees is TREE-age®. This chemical is injected into the trunk of the tree using the Arborjet system by a certified pesticide applicator. Onalaska has both the Arborjet injection system and a certified pesticide applicator.
- ≈ Public open house sessions were held in February and March, 2014 and a survey form was posted on the municipal website to determine public opinion regarding removals vs. chemical treatment and replanting. Based on comment, it was determined that the public greatly favors replanting ash that have been removed and there is concern regarding chemical use and its effects on the larger environment.
- ≈ Bluestem recommends chemically treating healthy ash with diameters greater than or equal to 14". Chemical treatments are very effective, but must be applied biannually (every other year). 172 trees are recommended for preservation using treatments. The bulk of these trees are found in parks.
- ≈ Chemical treatment is only recommended for 9.4% of the population due to public concerns about chemical usage. Only the largest, healthiest trees were selected for preservation with the intention that the treatment program be re-evaluated prior to each application.
- ≈ It will require a 5 person crew approximately 165 days to complete the tree removals. This is 33 weeks with a 5 person crew.
- ≈ The cost to replant each ash removed (planted by contractor) is $494,400.

Significance of Emerald Ash Borer

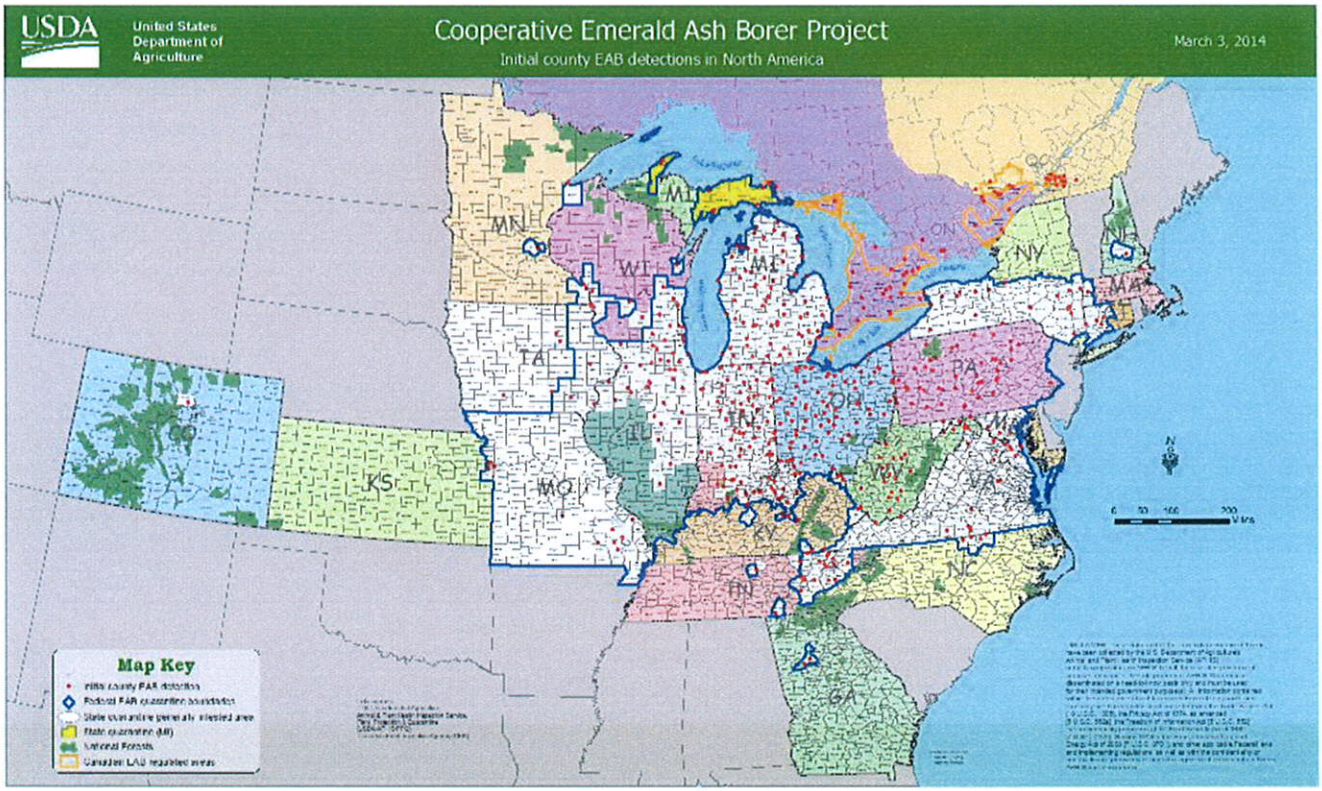
The Emerald Ash Borer (Agrilus planipennis) is an exotic pest native to Asia that was identified in southeastern Michigan near Detroit in the summer of 2002. The adult beetles munch on ash foliage but cause little damage. The real damage is caused by the EAB larvae that feed on the inner bark of ash trees, disrupting the tree's ability to transport water and nutrients. It is suspected that the insect was initially introduced to the United States via solid wood packing material carried in cargo ships or airplanes originating in its native Asia. Thousands of dead and dying ash trees were infested indicating the EAB had been introduced several years prior to 2002. Before it was detected, EAB spread to several other states unchecked by regulation or control. Efforts to eradicate EAB have been unsuccessful in part because infestations are usually well established before they are detected. Additional information can be found as Attachment 2.

No North American ash species have been found to be resistant to EAB. Nearly all untreated, infested ash trees die within a few years of infestation. Twenty counties in Wisconsin are under a quarantine that restricts the movement of certain items such as hardwood firewood that could transport the pest.

Emerald Ash Borer Quarantined Counties

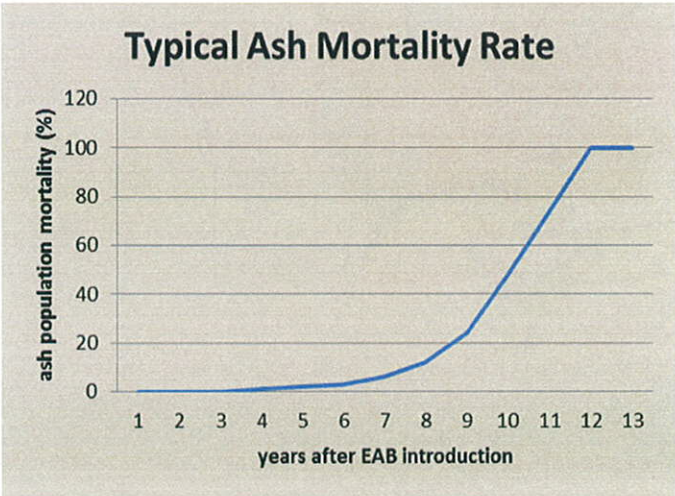
Wisconsin Department of Agriculture, Trade and Consumer Protection map of quarantined counties in Wisconsin as of 11-26-2014.

Nationwide detections as of March 3, 2014.



USDA APHIS map of national EAB detections as of 3-3-2014.

Because EAB is already confirmed and established in Onalaska, actions need to take place quickly. The graph below illustrates the ash mortality rate beginning at infestation until death. While the timeline may seem to stretch over many years, it is estimated that Onalaska is at year five or six. Ash mortality begins to greatly increase between years six and seven. Onalaska can expect ash mortality to increase dramatically in the next year or two.



Waiting to begin activities is not an option for three primary reasons.

First, public safety is paramount. To wait and tackle this issue when 1,820 ash trees are standing dead in parks/cemetery areas and on street rights-of-way creates an enormous public safety issue. Allowing ash trees, or any tree for that matter, to remain dead or with major dieback in a municipality is an unacceptable public safety risk. Removals and treatments should begin immediately to avoid this scenario.

Second, tree removal time and equipment maintenance cost is greatly affected by the degree of deadwood or condition of a tree. Experience has shown that dead ash trees dry more quickly than a typical tree due to the damage caused by the insect. Dead ash dull saw blades much more quickly than green trees resulting in increased equipment costs. Dead ash trees shatter upon impact with the ground resulting in increased removal cleanup time. Removing the tree prior to death will reduce time and cost.

Third, treatment is an option only when trees are still relatively healthy and experiencing only minor deadwood. Treatment is not effective when trees have dieback greater than approximately 25%. Ideally, treatment would begin prior to any branch death. Treatment will *not* bring dead branches and limbs back to life, it will, however, protect trees that are still living. To be effective, treatment needs to begin throughout the City immediately. Once started, treatment will need to continue in perpetuity or the tree will become infested and begin to die. EAB will remain as long as untreated ash trees remain at any level. Because ash are native and grow throughout the region in natural areas, some level of ash will always be present. This means that once treatment on any tree is stopped, EAB will likely travel from natural-area ash trees to municipal ash trees.

Administration

The City of Onalaska works cooperatively between departments and this plan will be administered by the elected mayor as well as the Planning/Zoning Department, Parks & Recreation Department and the Street Department.

Current contacts include:

Joe Chilson, Mayor
Brea Grace, Land Use & Development Director, Planning/Zoning/Inspection Departments
Jarrod Holter, City Engineer, Street Department and Utilities
Dan Wick, Director, Parks & Recreation Department

415 Main Street
Onalaska, WI 54650
(608) 781-9590

Tree Preservation

One of the first questions that arise when a community is making decisions regarding EAB is whether to maintain an ash component within their public urban forest. Any untreated tree can be expected to die. The options that exist are:

- ✓ *Remove all ash from the public urban forest*
- ✓ *Save all suitable 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
Pro: No long term chemical treatment costs
Pro: Diverse # of species replanted

Con: High initial cost
Con: A unique species is lost to the forest
Con: Mature trees are replaced with small trees
Con: Public sentiment against removal

Save suitable ash thru the use of chemical treatments:

Pro: Ash remains a component of forest
Pro: Public is generally supportive
Pro: Large trees continue contributing to forest

Con: Long term treatment costs are incurred
Con: Potential environmental effects of chemicals unknown

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

Pro: Ash remains a native component of forest
Pro: Reduces high initial removal costs
Pro: Only trees in good condition retained
Pro: Large trees continue contributing to forest

Con: Long term treatment costs are incurred
Con: Public disapproval of decision criteria
Con: Potential effects of chemicals unknown

An open house on EAB was held at City Hall on February 11, 2014 and a comment form was posted online so that people unable to attend the open house could also comment. The open house was intended to gather public opinion and educate attendees about the ash population in Onalaska and the effects of EAB. Feedback gathered indicates that the public:

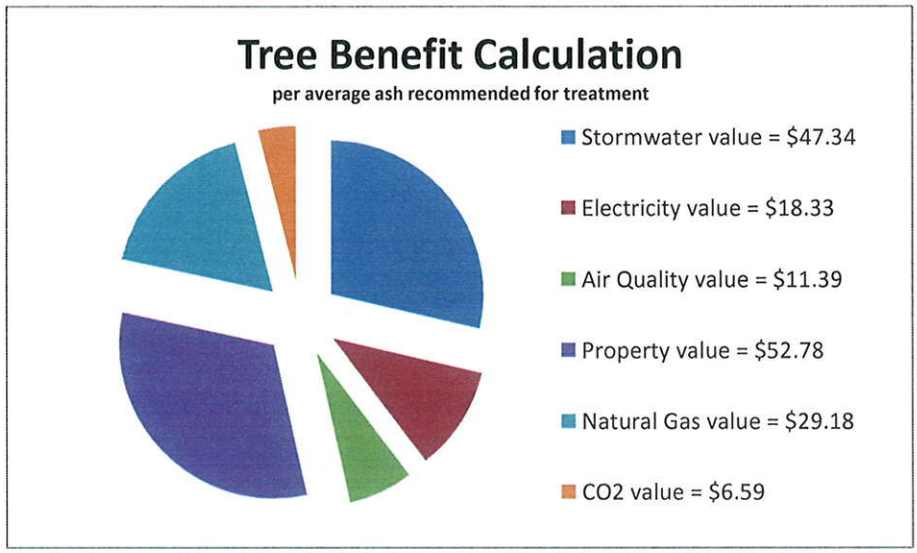
- ≈ Supports replanting ash trees lost with a diverse new tree population even if this means a slight increase in municipal funds
- ≈ Understands that most of the 1,820 ash trees in the public tree population will be removed due to EAB
- ≈ Is hesitant to use chemical treatments to preserve ash on a widespread scale due to environmental concerns

Based on this feedback and information gathered from interviews with City staff and conversations with City Council members it is recommended that only healthy, large trees be preserved. This plan recommends using chemical treatments to save 172 ash in fair to excellent condition with diameters greater than or equal to 14 inches. The average diameter tree in this category is 16.5". Of these trees, 65 can be found in parks, 101 on street rights-of-way and 6 in the City cemetery. A budget has been identified for each recommendation and can be found on page 12. The process of tree removal and preservation is meant to be fluid. It may be advantageous to

save some trees that are less than 14" in diameter if they are in particularly important locations. For instance, the ash trees at the Omni Center are not quite 14" but provide a good deal of shade during the hot summer months. The City may choose to treat some of these trees while new trees are becoming established. Each tree and circumstance should be evaluated based on relevant criteria.

Some communities are choosing to remove all public ash because it appears that chemical applications need to be continued indefinitely. Meaning, when treatments are stopped on a tree it is likely to become infested with EAB and subsequently die as a result of the insect. The treatments are meant to save the biggest and best trees in Onalaska that are providing the greatest public benefit. The benefits provided by these large trees outweigh the potential risks of using chemicals and the small cost incurred over time.

Using the National Tree Benefit Calculator developed by Casey Trees and Davey Tree Expert Co. it is estimated that one green ash in Onalaska that is recommended for preservation, with the average diameter of 16.5" provides the following environmental services:



This single average tree provides a great deal of environmental services. Multiply that by 172 ash that are recommended for treatment and the benefits are significant enough to warrant an investment in preservation. While there is likely to be some risk to using chemicals in the environment, the environmental service that these larger, healthy trees provide is pronounced and that cannot be marginalized.

The two most common treatments are soil applied and injected. The soil applied insecticide must be applied annually and are not recommended for trees over 16" in diameter. The trunk injected insecticides must be applied every-other year, can only be applied by a certified applicator and are effective are larger diameter trees. Both treatments are effective, but procedures for application including rate and timing must be followed closely. Onalaska currently has the equipment used for trunk injections and a Parks Laborer is a certified applicator. Because of this and the fact that trunk injections are the preferred method of treatment for large diameter trees, this is the best method of application for the City. More information about insecticide treatment options are discussed in Attachment 5 and additional information can be found at: http://www.emeraldashborer.info/files/multistate_eab_insecticide_fact_sheet.pdf.

Treatments are meant to be evaluated after each treatment cycle (2 years) to determine if City policy has changed. It is not envisioned that treatments continue for 20 or 30 years, they are a way to allow larger trees to provide environmental benefits while new trees are being established and can begin providing services.

Tree Removal

After tree preservation, 1,648 trees will remain that need removed. The average diameter of these trees is 7.5 inches at breast height. Once an infestation has been confirmed it is assumed that many trees are infested or are likely to become infested within a short period of time. As a result, it is recommended that these 1,648 public ash trees be removed within three years.

How to determine which ash trees to remove first is somewhat simplified by an infestation. Ash in poor or very poor condition are already suffering from a significant defect or health concern and need to be removed first to reduce risk. There are 62 public ash in one of these conditions. From there, the remaining trees can be removed based on efficiency and cost. It is most efficient to remove trees by zone. This will eliminate the need to jump from one part of town to another resulting in higher productivity and reduced transportation costs. Start in one zone and complete all ash removals in that zone before moving to the next. All ash trees should receive at the minimum, a windshield survey to determine if different areas of the City are experiencing dieback more quickly than others. Removal activities should be moved to these areas if that is the case.

When resources are combined, the Street & Parks/Recreation Departments will be able to remove most trees in-house. As always, each tree will need to be evaluated for removal safety and some may need to be contracted to a qualified tree removal firm. These Departments, combined, have 10 employees who are able to complete forestry activities and adequate equipment to remove most trees. Trees under utility lines need to be 'topped' to below the utility lines by the utility company at which point the City crews can remove the boles and grind the stumps. Some of the City crew received training on tree pruning and removal about two years ago. This should be updated prior to large scale removals and kept up to date during the EAB process.

While the City does have staff, it will take an enormous amount of time to complete these removals. *Time that is currently being dedicated to other activities.* A minimal amount of time is spent on forestry related activities at present. With an average diameter of 7.5" and a five person crew, approximately 10 tree removals and stump grindings can be completed daily. This means removals will take a five person crew 33 weeks of constant work. Using the goal of removing 1,648 ash over the course of three years means that a five person crew will need approximately 3 months each in years 2015-2017 dedicated to public ash tree removal. The best time to complete most forestry removal and pruning activities is in the winter months (November – March).

Similarly, the City does have adequate equipment, but the removal of 1,648 ash trees will significantly reduce the lifespan of equipment and parts. A thorough evaluation of equipment needs should be completed annually and increased equipment budgeting will be necessary to ensure equipment remains in good working order. Replacement schedules for tree removal equipment will be shortened. While the lifespan of an average chainsaw may be five years with average use, that lifespan when used in this capacity will likely be halved or more.

A definitive process for identifying trees that will be removed needs to be established. The following policy has worked well in other communities.

Step 1: mark trees selected for removal with pink paint (week 1)
Step 2: send postcard with removal information (dates, replanting plans, stump removal info, contact, etc.) to property owners (week 3)
Step 3: remove tree (week 5)
If homeowners wish to treat a tree that is less than 14" in diameter at their own expense they should be allowed to do so. Cover up the pink paint with grey paint and add the tree to the treated tree list. A reminder should be sent to the homeowner when treatment is due again.

The City should also consider hiring a forester in-house or via consultant to manage this crisis as well as the lengthy repercussions that can be expected, particularly replanting. At present, three departments manage forestry duties. The Planner/Zoning Inspector handles most public relations and customer issues and enforces ordinances pertaining to trees on private property. The Director of Parks & Recreation cares for park trees and supervises the employee who is providing treatments. The City Engineer (Street Department) supplies most of the staff and cares for street right-of-way trees. While all three work together well, there will be a great increase in expertise needed in all of these areas and a very large time commitment can be expected as EAB runs its course over the next few years. A forester is critical during this crisis.

After this immediate crisis, there will still be many forestry duties that cause a forester to be necessary. Onalaska has a tree population nearing 7,000 trees and they all require proper care. Nearly 1,700 trees will be removed that will need replanted. Hiring a forester would free up time for other job duties for the Planner/Zoning Inspector, City Engineer and Director of Parks & Recreation. Forestry duties will vary depending upon whether an individual is hired in-house or a consultant is utilized. An in-house forester would complete all of the following activities, but a consultant would complete only the items in **bold** text. Activities include:

- **Oversight of forestry program**
- **Negotiating contracts for tree planting and other services**
- Conducting and **updating tree inventories**
- Completing EAB treatments or **supervising their application**
- **Diggers hotline locates**
- **Providing training for staff**
- **Supervising and assisting with tree planting**
- **Watering new tree plantings**
- **Pruning newly planted trees (every 3rd year for approximately 10 years from planting date)**
- **Tracking treatment schedule**
- **Fielding questions from the public**
- **Updating City administration and council members**
- **Public and media outreach**
- **Education of public**
- **Enforcement of ordinances**
- **Coordination with state and local officials**
- Purchase equipment as needed
- **Produce templates and investigate contracting/mutual aid agreements with other communities and local utilities**
- **Investigate and arrange for wood utilization options**

Overhead costs have not been quantified for either forester option, but should be a consideration when making this important decision.

Wood Waste Disposal

Wood waste disposal continues to be a challenge for most communities. Fortunately, Onalaska is in a better position to dispose of ash wood waste than most communities due to the nearby French Island Xcel Energy biomass fuel plant. Xcel contracts with a local firm to provide wood chips to the plant. Today's Tree Service (608-780-1604) supplies wood chips to the Xcel plant and will accept chipped wood at no cost. Onalaska is responsible for transport to the tree service site. Onalaska has a newer chipper that will accept wood diameters nearing 14 inches. Today's Tree Service also accepts un-chipped logs, but there is a yet-to-be-determined fee for this.

Communities that are able to dispose of wood at no charge consider that a success. There are some potential markets for urban wood for higher value products such as milled wood, but in this instance, based on the fact that EAB has been confirmed, it seems most logical to chip and dispose of wood for use at the biomass plant.

Tree Planting

The public open houses indicated considerable support for tree planting. Responses indicated that some citizens would support a slight increase in funding for tree planting. Trees should always be included in capital improvement projects, and tree planting grants are available from Xcel Energy, but a sizeable sum needs to be budgeted for tree planting in the next budget cycle.

Based upon the greatly increased work load already being shouldered between the Street and Parks Department, tree planting would be more effective and timely if contracted out to a qualified tree care firm. Not all 1,648 will need replaced. For a tree to be replanted, it should meet the following criteria:

1. Planting on street rights-of-way should only occur on boulevards without sidewalks or boulevards with sidewalks that are a minimum of five feet in width.
2. Plant only small-growing trees under utility lines.
3. Stay recommended distances away from hydrants, intersections, driveways and other obstacles.
4. Do not plant conifers on street rights-of-way.

An extensive list of trees and cultivars suitable for planting can be found as Attachment 3. A short list by common name is found below. Maples far exceed the recommended species limits and should be planted only when special circumstances dictate. As always, match the tree size with planting site. Some suitable species include:

Good **large** selections include:
swamp white oak (Quercus bicolor)
hackberry (Celtis occidentalis)
bur oak (Quercus macrocarpa)
American linden (Tilia americana)
elm (Ulmus spp.)

American Liberty elm (Ulmus americana 'Liberty')
Kentucky coffeetree (Gymnocladus dioica)
ginkgo (Ginkgo biloba)
honeylocust (Gleditsia triacanthos)
Turkish filbert (Corylus colurna)

Good **medium** selections include:
Amur cork tree (Phellodendron amurense)
river birch (Betula nigra)
amur chokecherry (Prunus maackii)
horsechestnuts (Aesculus spp.)
amur maackia (Maackia amurensis)

Smaller sites can be filled with:
Japanese tree lilac (Syringa reticulata)
serviceberry (Amelanchier x grandiflora)
hophornbeam (Ostrya virginiana)
American hornbeam (Carpinus caroliniana)
crabapple (Malus spp.)
Hawthorn (Crateagus spp.)

Miscellaneous Concerns

Ordinances. Ordinances are being revised as a portion of this project. It is recommended that they be adopted and enforced.

Private Trees. While private trees are not expressly a problem managed by the City, there will be impacts. Wood waste from private trees may become a problem and policies should be developed to manage the wood waste flow. Additionally, the City will need to monitor private trees for nuisances as defined by ordinances and issue notices. This is another duty the forester can complete. The City will also need to be prepared to respond to public questions about their tree and neighbor complaints about nuisance trees.

Line Item Budget. It is strongly recommended that a forestry line item budget be established. This will eliminate the need to campaign for forestry each year and assure that trees are being properly cared for.

Inventory Update. The last full inventory was completed in 2009. Typically, inventories are updated once every five years. Considering the large amount of tree work that is being performed, a complete re-inventory should be completed in 2016.

Estimated Time and Costs

Each activity identified in this plan has an associated cost and these appear in the following tables.

YEAR 2015

2015: Hire Forester (Yearly)

OPTION 1:

TOTAL Cost (Annual Expense)	Forestry Tech Position (City): $63,000

OPTION 2:

TOTAL Cost (Annual Expense)	OPTION B: Consulting Forester (estimated 2 days/week for 30 weeks): $48,500

2015: Remove 549 ash and stumps

OPTION 1:

2015: Remove 549 ash & stumps beginning with poor & very poor conditions using in-house staff

DBH	# of Trees Removed Daily by 5 person crew (includes stump grinding)	Total # of Trees	Total # of Days required for a 5 person Crew to Remove 549 Trees
1-13"	10	549	55 days

OPTION 2:

2015: Remove 549 ash beginning with poor & very poor conditions using in-house staff. Use contractor to grind stumps.

DBH	# of Trees Removed Daily by 5 person crew	Total # of Trees	Cost of Contracted Stump Grinding of 360 Stumps (1-3" pulled with tree removal) based on $2.50/inch	Total # of Days required for a 5 person Crew to Remove 549 Trees
1-13"	12	549	$29,460	45 days

2015: Replant 549 trees using contracted services

DBH	Estimated Cost of Replanting per Tree	Estimated # of Trees	Total Contract Cost
1.75"	$300	549	$164,700

2015: Chemical Treatment of 172 Ash* with in-house Staff

DBH	# of Trees	Estimated Staff Hours per Tree (1 person crew)	Total Cost of Chemicals & Plugs (based on average diameter of 16.5 inches)	Total # of Days Required to Treat Trees
≥14"	172	1 hour	$6,142	22 days

*based on using TREE-äge on an everyother year cycle

YEAR 2016	
2016: Hire Forester (Yearly)	See options 1 & 2 above
2016: Remove 549 ash using in-house staff	See options 1 & 2 above
2016: Replant 549 trees using contracted services	See cost above
2016: Complete Tree Inventory	
TOTAL Cost (completed by consultant)	$27,000

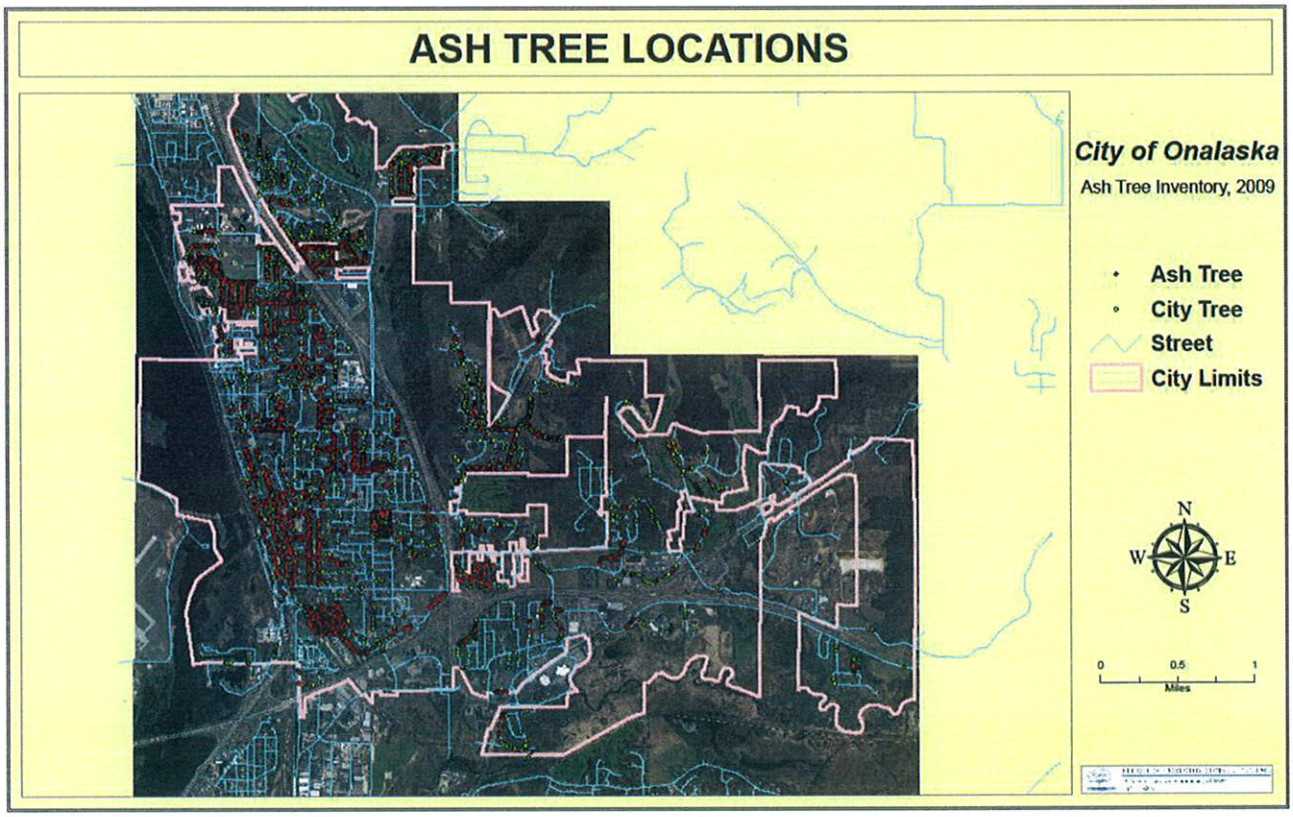
YEAR 2017	
2017: Hire Forester (Yearly)	See options 1 & 2 above
2017: Remove 550 ash using in-house staff	See options 1 & 2 above
2017: Replant 550 trees using contracted services	See 2015 cost
2017: Chemical Treatment of 172 Ash* with in-house Staff	See 2015 cost

Summary

The City of Onalaska is facing a serious urban forestry crisis and can expect the death of 1,820 public ash trees if action is not taken immediately. City Administration and Elected Officials need to understand the greatly increased workloads that are expected of staff members and the increased budget needs associated with equipment and replanting. Onalaska's ash population is manageable and has the advantage of easy wood waste disposal, a relatively small diameter sized ash population and experienced staff. These advantages will work together to make this unfortunate EAB infestation a practicable operation.

Attachment 1:

Map highlighting ash locations in Onalaska



Attachment 2:

Additional EAB/Ash Tree Information Including:

Description and Lifecycle of EAB

Ash Tree Identification

Host Tree Signs and Symptoms

Description and Lifecycle of EAB

The Emerald Ash Borer adults are dark metallic green in color and belong to a group of wood boring beetles known as Buprestidae. Adults are approximately 1/2" long and 1/8" wide with very short antennae. The larvae are white in color with flattened segmented bodies and may grow to a length of one inch.

Adults emerge through the bark of ash trees in early summer, creating a D-shaped exit hole in the process. Adult emergence is thought to be staggered, beginning in May and peaking in late June. Adults live approximately 3 weeks and have been observed into August. Adults are most active during the daytime under warm, sunny conditions and have been seen feeding on the ash tree leaves. Mating occurs soon after emergence and females will begin to lay eggs about 2 weeks after emergence. A single female will lay between 60 and 90 eggs in her lifetime.

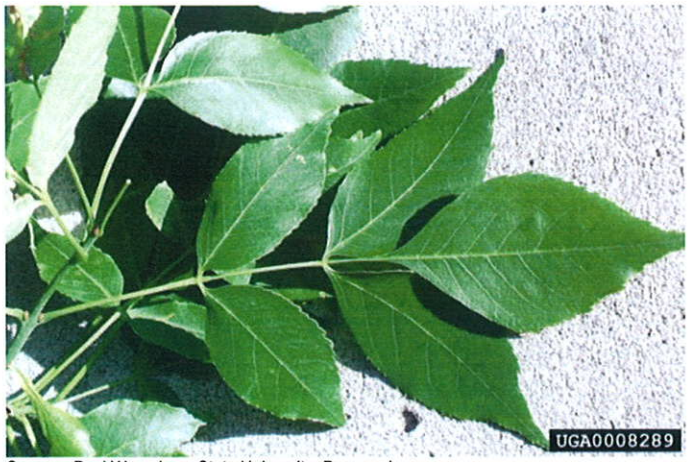
Eggs hatch in 1-2 weeks, and the tiny larvae bore through the bark and into the cambium - the area between the bark and wood where nutrient levels are high. As the larvae feed they wind back and forth, creating characteristic S-shaped or serpentine galleries in phloem and outer sapwood. The larvae feed under the bark for several weeks, usually from late July or early August through October. As mature larvae complete feeding they create a pre-pupal chamber in the outer bark or in the outer inch of wood and overwinter in this small chamber. Pupation occurs in spring and the new generation of adults will emerge in May or early June, to begin the cycle again. At low levels of infestation, the insect can take two years to complete development and females will continue to lay eggs on the same tree they emerged from until that tree's food source is depleted.

Unaided, the beetle is thought to move slowly through the landscape, approximately one mile annually, though the rate of spread varies by insect and host tree abundance. However, humans greatly accelerate the spread of the insect by moving infested nursery stock, firewood and logs to un-infested areas. Emerald ash borer movement into parts of Michigan outside of the Detroit area, Ohio, and Indiana has been the direct result of moving these ash products.

Ash Tree Identification

In North America, the emerald ash borer feeds exclusively on ash trees. Green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana) and black ash (Fraxinus nigra) are all found within Onalaska's public urban forest. An ash tree is most easily identified by its opposite branching pattern (the leaves grow opposite one another at the same spot on the branch/twig) and compound leaves with 5-11 leaflets each. The leaflets will have minor serration (teeth) along their margins. The following photographs are representative of white ash bark and green ash leaves.

Source: Paul Wray, Iowa State University, Bugwood.org



Source: Paul Wray, Iowa State University, Bugwood.org

Signs and Symptoms

The symptoms associated with EAB infestations are very similar to those of other common ash pests or diseases including other wood boring insects that attack ash trees. It is important to look for a combination of at least 2 or more symptoms before concluding that the borer may be present. EAB is extremely difficult to detect at low populations and by the time severe symptoms are evident the trees are generally heavily infested. Tree death is not instantaneous; it generally takes 4 to 5 years for a tree to die.

Local governments and residents are not expected to be able to diagnose EAB. They should call the Department of Agriculture and Consumer Trade Protection (DATCP) and DATCP will determine whether follow-up is necessary. The DATCP hotline number is 1-800-462-2803. This number can also be found on the cover of this plan and at the bottom of each page.

Source: Daniel Herms, The Ohio State University, Bugwood.org

Crown dieback: Trees begin to show dead branches throughout the canopy beginning at the top. Foliage at top of tree is thin and sickly. This photo represents severe, late-stage infestation most likely 4-5 years after infestation.

Source: Michigan Department of Agriculture, Bugwood.org

Epicormic sprouting: Sprouting at the base or along the trunk of the tree. This is often referred to as suckering. This photo represents severe, late-stage infestation most likely 4-5 years after infestation.

D-shaped exit holes: As adults emerge from within the tree they create an exit hole approximately 1/8" in diameter that looks distinctly like a capital 'D.'

Increased woodpecker damage: Some older infestations have increased woodpecker activity as the birds try to feed on the EAB larvae. This usually occurs in the upper portions of the tree and may be accompanied by branch dieback.

Photo of serpentine larval galleries. Source: Toby Petrice, USDA Forest Service, Bugwood.org

Serpentine larval galleries: The larvae feed just underneath the bark of the ash tree. As the insect larvae feed they wind back and forth creating serpentine or s-shaped larval galleries. Various other insects form larval feeding galleries beneath ash tree bark; the distinctive s-shaped pattern is unique to EAB.

Bark splitting: Vertical splits in the bark appear and are caused by callus tissue that forms around larval galleries. Larval galleries can often be seen beneath the splits.

Presence of larvae or adults: The actual presence of the adult insect or of EAB larvae is confirmation of an infestation. Again, there are similar-looking wood boring insects and DATCP will need to confirm an infestation.

Attachment 3:

Recommended species for planting

Onalaska will be replanting large numbers of trees in a short time frame. It is important to diversify the forest as much as possible to help mitigate the effects of disease and insects. The general population guidelines are to plant not more than 10% of any one genus and not more than 5% of any one species. One illustration is to plant not more than 10% oak and not more than 5% of bur oak. This will help assure that if there is a population crash, large portions of the tree canopy will not be lost.

Native species are a good choice in certain circumstances and should be encouraged. However, not all native species are hardy to urban settings and may be better suited to park situations than street settings. Many of our urban street soils are not native and native species can be difficult to establish and grow in these situations. Consider all available species for the site and choose the one that will thrive and provide the most benefit to Onalaska.

Onalaska has a USDA hardiness zone rating of 4b.

The following are some species recommended for planting in the City of Onalaska (partially compiled from: Alternative to Ash Trees: Commercially Available Species and Cultivars by Dr. Laura G. Jull, Department of Horticulture, University of Wisconsin-Madison).

Maple trees should be planted only in special circumstances as they are beyond the WI DNR recommended limit of not more than 10% of any one genera. No ash of any kind should be planted.

Some of these trees are suitable for street/boulevard planting sites and some are better suited to park sites. Each site should be evaluated for tree suitability.

Large to medium-sized Trees

Acer* × *freemanii: Freeman maple, Zone 3b-4 (depends on cultivar), native hybrid of red and silver maple, oval to rounded form, ascending branches, 40-60' tall, 35-40' wide, moderate to fast growth rate, yellow, orange to red fall color, smooth, light gray bark when young, red samaras in spring, not fall, adaptable to most soils and pH, some cultivars can get chlorotic at very high pH, tolerant to wet soils, drought and urban conditions, moderate salt tolerance, can get verticillium wilt and leaf hoppers, some cultivars prone to included bark formation and narrow branch crotch angles, dioecious (separate male and female flowers produced on separate plants)

- 'Armstrong': narrow, fastigiate form, 45' tall, 15' wide, yellow fall color, female, produces seeds
- 'Celzam' (Celebration®): upright to oval form, 45' tall, 25-30' wide, better branch angles and straight central leader, yellow fall color, fast grower, male, seedless, drought tolerant
- 'DTR 102' (Autumn Fantasy®): broadly oval form, upright branches, 50' tall, 40' wide, bright to dark red fall color, female, produces seeds
- 'Indian Summer' or 'Morgan': broadly oval to rounded form, 45' tall, 40' wide, early, bright rosy-red fall color, vigorous, female, produces seeds, very sensitive to flooded soils

'Jeffersred' (Autumn Blaze®): broadly oval form with upright branches, 50' tall, 40' wide, bright orange-red to red fall color that is longer lasting, male, seedless, drought tolerant, tends to develop narrow crotch angles, included bark, and multiple leaders

'Marmo': upright, oval form, 55' tall, 45' wide, early, fair, mottled blend of deep red and green fall color starts at leaf tips and gradually works its way down leaf, good branching with straight central leader, male, seedless, slower grower

'Scarsen' (Scarlet Sentinel®): upright form becoming oval, 40' tall, 20' wide, yellow-orange to orange-red fall color, fast grower, male, seedless

'Sienna' (Sienna Glen®): pyramidal form, 50' tall, 35' wide, rusty orange to burgundy fall color, male, seedless, wider branch angles, from northern seed source, less susceptible to frost crack, hardy to zone 3

Acer rubrum: red maple (in acidic soils (pH below 7) only or else very chlorotic), hardy to zone 3b-5b (depends on cultivar), native to eastern and central U.S., Canada, and Wisconsin, oval to rounded to irregular form, 40-60' tall, 25-35' wide, moderate to fast grower, yellow, orange to bright red fall color, smooth, light gray bark when young, reddish flowers in early spring, red samaras in spring, not fall, dioecious (separate male and female flowers produced on separate plants), adaptable to most soils, requires acid pH or else develops serious chlorosis due to lack of manganese, not iron, easy to transplant, tolerant to wet soils (some cultivars), sensitive to salt and air pollution, susceptible to verticillium wilt, leaf hoppers, frost crack, girdling roots, prone to included bark formation and narrow, branch crotch angles, shallow roots

Autumn Flame®: dense, rounded with spreading branches, 40' tall, 35' wide, early, bright red fall color, male, seedless, slower grower

Autumn Radiance®: rounded, open, symmetrical form, 60' tall, 40' wide, early red-orange fall color

'Autumn Spire': narrow to oval form, 40-50' tall, 30' wide, bright red fall color, male, seedless, from a northern seed source, newer cultivar, Zone 3

'Bailcraig' (Scarlet Jewell™): upright form, 60' tall, 30' wide, early, deep crimson-red fall color, from a northern seed source, Zone 3, new cultivar

'Bowhall': upright, very narrow form, 40-50' tall, 15' wide, yellowish-orange to reddish fall color, female, produces seed, prone to included bark formation

'Brandywine': oval form 40' tall, 30' wide, deep red fall color for a longer period, male, seedless, newer cultivar

Fairview Flame™: good branching, 45' tall, fast growing, later, orange-red fall color

'Frank Jr.' (Redpointe™): broadly pyramidal form, 45' tall, 30' wide, bright red fall color, faster growing, straight central leader, better branch crotch angles, new cultivar

'Franksred' (Red Sunset®): upright, dense, oval form, symmetrical form, bright red to orange fall color, fast grower, 45-50' tall, 35' wide, female, produces seeds, dark green, glossy leaves, older cultivar

Karpick®: narrow, oval, dense form, 40' tall, 20' wide, yellow to orange fall color, male, seedless, prone to included bark formation

'Magnificient Magenta' (Burgundy Belle®): oval to rounded form, 45' tall, 40' wide, bright red fall color that changes to burgundy, symmetrical form, heat tolerant, prone to leafhoppers and witches' broom

'New World': upright, narrow-oval form, 40' tall, 20' wide, orange-yellow to orange-red fall color, male, seedless

'Northwood': symmetrical, broadly oval to rounded form, ascending branches, 40' tall, 35' wide, early orange to reddish fall color, male, seedless, from a northern seed source, Zone 3

'Olson' (Northfire®): oval form, 50' tall, 35' wide, early, bright red fall color, northern seed source, Zone 3

'PNI 0268' (October Glory®): not hardy, zone 5b-6a, broadly oval to rounded form, 40' tall, 35' wide, red fall color for a longer period, female, produces seeds, old cultivar

'Polara' (Ruby Frost™): upright, dense, broad oval form, 45' tall, 40' wide, ruby-red fall color, selected in NW Wisconsin, Zone 3

'Red Rocket': narrow, columnar form, 35' tall, 8' wide, red fall color, northern seed source, tolerant to leaf hopper

'Schlesinger': broadly vase-shaped to rounded, 45' tall, 35' wide, very early orange to purplish-red fall color, female, produced seed

'Somerset': broadly oval to rounded form, 45' tall, 35' wide, red fall color, leaf hopper resistant newer cultivar
Summer Red®: dense, broad oval form, 20' tall, 10' wide, burgundy red new leaves that turn purplish-green, yellow to orange to purple fall color, leaf hopper resistant, Zone 5
'Sun Valley': oval, symmetrical form, densely branched, 40' tall, 35' wide, bright red fall color

Acer saccharum: sugar maple, hardy to zone 3a-5 (depends on cultivar), native to eastern U.S., Canada, and Wisconsin (our state tree), upright, oval to rounded form, 60-75' tall, 35-50' wide, showy, bright yellow to orange-red fall color, prefers a fertile, moist, well-drained soil, will not tolerate heavy clay, poorly drained, or dry soils, sensitive to drought, salt and air pollution, susceptible to leaf tatter and leaf scorch, verticillium wilt, basal rot, girdling roots, leaf hoppers

'Astis' (Steeple®): narrow oval form, 45' tall, 20' wide, yellow-orange fall color
'Autumn Splendor': broadly oval to rounded form, 45' tall, 40' wide, glossy leaves, orange-red fall color, resistant to heat drought and leaf tatter, Zone 5, newer cultivar
'Bailsta' (Fall Fiesta®): broadly ovate to rounded form, 50' tall, 40' wide, glossy, leathery leaves, yellow-orange to red fall color, leaf tatter and leaf hopper resistant, faster grower, newer cultivar
'Barrett Cole' (Apollo®): symmetrical, narrow, columnar form, 35' tall, 10' wide, yellow-orange to red fall color
Bonfire™: broadly oval form, 50' tall, 40' wide, orange to red fall color, more heat tolerant, fast grower
Commemoration®: oval to rounded, dense form, 50' tall, 35' wide, thick, glossy, dark green leaves, yellow-orange to red fall color, vigorous, faster grower, resistant to leaf tatter
'Endowment': broad columnar form, 50' tall, 20' wide, bright yellow fall color, no leaf scorch
'Heartland' (Autumn Faith™): oval to vase-shape, dense form, 35' tall, 20' wide, new leaves are bronze opening to dark green, bronze fall color, slow grower
'Flax Mill' (Majesty®): broadly oval, symmetrical form, 50' tall, 40' wide, thicker leaves, orange to reddish fall color
'Jefcan' (Unity®): upright, oval form, 50' tall, 30' wide, yellow to orange-red fall color, selected for harsh prairie climate, from Canada, slower grower, resistant to frost crack, newer cultivar, zone 3
Legacy®: oval to rounded, dense form, 50' tall, 35' wide, glossy, thick, dark green leaves, later reddish-orange to red fall color or none, leaf scorch and leaf tatter resistant, faster grower, heat tolerant,
'Morton' (Cresendo™): broadly oval form, 45' tall, 40' wide, orange-red to red fall color, heat tolerant
'PNI 0285' (Green Mountain®): broadly oval form, 45-50' tall, 35' wide, reddish-orange to red fall color, leathery leaves less subject to leaf scorch, faster growing, more heat tolerant
'Wright Brothers': oval form, 50' tall, 35' wide, yellow-orange to red fall color, resistant to leaf scorch and frost crack, faster growing

Celtis occidentalis: common hackberry, zone 3b, native to eastern and central U.S., Canada, and Wisconsin, vase-shaped when young becoming rounded with drooping branches, moderate to fast growth rate, 50-70' tall, 40-60' wide, corky, warty looking bark, small, pea-sized, purplish-black fruit in fall, adaptable to most soils and pH, tolerates dry, sandy, rocky, and compact, heavy clay soils, slow to establish, plant in spring, drought, urban, wind, and wet soils tolerant, but sensitive to salt, susceptible to hackberry nipple gall on leaves, witches' brooming of twigs, resistant to DED, sensitive to Dicamba herbicides used near tree, branches tend to break in storms, prone to included bark formation, need to train to develop good branch structure

'Chicagoland': broad pyramidal form with upright branches, 55' tall, 40' wide, forms a straight central leader, rich green leaves, yellow fall color, warty bark
'Windy City': upright, spreading form, straight, central leader, fast grower

Corylus colurna: Turkish filbert, hardy to zone 4b, native to southeastern Europe and western Asia, broad, pyramidal form, formal looking even with age, dense, coarse texture, 40-50' tall, 20-25' wide, no fall color, scaly to corky, gray-brown bark, long, pendulous catkins in early spring are showy, may produce nuts, difficult to transplant, heat, urban, and drought tolerant, once established, sensitive to salt

Ginkgo biloba: ginkgo, maidenhair tree, hardy to zone 4b, native to eastern China, living fossil, found in fossil records dating back 150 million years ago, deciduous gymnosperm, pyramidal when young, becoming wide-spreading with age to upright, slow grower, 50-80' tall, 30-60' wide, very interesting, fan-shaped leaves, golden-yellow fall color, dioecious (separate male and female flowers produced on separate plants), female trees produce smelly, messy fruit, but not until 20 years old, so plant male cultivars only, tolerant to most soils and pH, prefers a sandy, deep soil, difficult to transplant, plant in spring, heat, salt, urban, and drought tolerant, no pests

'Autumn Gold': broadly pyramidal, symmetrical form, 45' tall, 35' wide, golden yellow fall color, male, no fruit, good, uniform branching
'Fairmount': dense, upright, pyramidal form, straight central leader, male, no fruit
'Halka': broadly pyramidal becoming oval, 45' tall, 40' wide, bright yellow fall color, male, no fruit
'Golden Globe™': broad, rounded form, 60' tall, 40' wide, slightly faster growth rate, male, no fruit, dense form, golden yellow fall color, Zone 5
'Magyar': upright form, 50' tall, 30' wide, bright yellow fall color, male, no fruit
'PNI 22720' (Onalaska Sentry®): narrow pyramidal, upright form, 50' tall, 20-30' wide, bright yellow fall color, male, no fruit
'Saratoga': compact, dense, rounded form, with straight central leader, 20-30' tall, 15-20' wide, pendulous leaves, soft yellow fall color, slower and smaller than other ginkgos, male, no fruit
Shangri-La®: moderately pyramidal form, 45' tall, 25' wide, slightly faster growth rate, bright yellow fall color, male, no fruit
'Windover Gold®: upright, oval form, 40-60' tall, 30-40' wide, golden yellow fall color, strong grower, male, no fruit
'Woodstock' (Emperor™): uniform, oval form, strong, central leader, good branching, male, no fruit

Gleditsia triacanthos* var. *inermis: thornless honeylocust, hardy to zone 4a, native to central U.S. and southern Wisconsin (thorny type native, not var. *inermis*), fine texture, fast growing, vase-shaped form becoming flat-topped, spreading branches, open, 50-70' tall, 40-50' wide, early, bright golden-yellow fall color, no thorns, dioecious (separate male and female flowers produced on separate plants), female plants produce long, twisted, black pods that make a slippery, litter mess, tolerant to most soils and pH, tolerant to compacted, heavy clay soil, drought, salt, and urban tolerant, tolerant to periodic flooding, susceptible to leaf hoppers, plant bug, cankers, sunscald on trunk, high maintenance pruning, tends to develop co-dominate branches, can break in storms

'Christie' (Halka™): broad, oval to rounded form, 40' tall, 40' wide, horizontal branches, some pods, fast growing, yellowish fall color
'Emerald Kascade': irregular, weeping form with pendulous branches, grafted, 16' tall, male, no pods
'Harve' (Northern Acclaim®): symmetrical, upright, spreading form, 45' tall, 35' wide, yellow fall color, male, no pods, developed in North Dakota, hardy to zone 3b
'Impcole' (Imperial®): rounded form, symmetrical, wide-spreading, with good branching, 35' tall, 35' wide, seedless but can throw a few pods, susceptible to leaf hoppers and plant bug
'Moraine': uniform, rounded crown with vase-shaped branching, male, no pods, older cultivar
'PNI 2835' (Shademaster®): vase-shaped to rounded, irregular form, 45' tall, 35' wide, uniform, ascending branches, occasionally, some trees may produce pods
'Skycole' (Skyline®): broadly pyramidal form, ascending branches with wider crotch angles, 45' tall, 35' wide, develops a strong, central leader better than any other cultivar, male, no pods, bright golden yellow fall color
'Suncole' (Sunburst®): irregular, oval form, 40' tall, 35' wide, 8" of new leaves are bright yellow then fades to green, yellowish fall color, susceptible to leaf hoppers, plant bug, and canker, male, no pods
True Shade®: broadly oval form, 40' tall, 35' wide, wider branch angles, yellow fall color, faster grower, male, no pods
'Wandell' (Perfection™): develops a good crown at a younger age, 35' tall, 30' wide, dark green leaves, male, no pods

Gymnocladus dioica: Kentucky coffeetree, hardy to zone 4a, native to central U.S., southern Ontario, and Wisconsin (scattered distribution), vase-shaped form with upright branches becoming irregular and open, 50-75' tall, 40-50' wide, slow to moderate grower, coarse texture in winter with sparse branching when young, lacy texture when in leaf, yellow fall color, large, bluish-green leaves, ashy-gray, deeply furrowed bark with exfoliating plates, dioecious (separate male and female flowers produced on separate plants), females produce thick, sausage-like, pendulous pods, that can be a litter problem along with the leaf rachis in fall, adaptable to most soils and pH, slow to establish, tolerates compacted, heavy clay soil, salt, drought, periodic flooding, and urban conditions, no pests, can look a bit "gauntly" when young due to sparse branching

'Espresso': oval to vase-shaped form with arching branches, 50' tall, 35' wide, large, blue-green leaves, yellowish fall color, male, no pods, newer cultivar
'J.C. McDaniel' (Prairie Titan™): oval to vase-shaped form, 50' tall, 35' wide, large, blue-green leaves, yellowish fall color, male, no pods, newer cultivar

***Phellodendron amurense* 'Macho'**: Macho Amur corktree, hardy to zone 3b, native to northern China and Japan, broadly vase-shape, upright form, 40' tall, 30' wide, ascending branches, thick, dark green leaves, yellowish-green fall color, male, no fruit, corky bark when older, adaptable to most soils and pH, slow to establish, urban tolerant, moderate salt tolerance, no pests, shallow roots, low branching, avoid female trees as they produce invasive seeds

Quercus bicolor: swamp white oak, hardy to zone 4a, native to eastern U.S. and Wisconsin, pyramidal when young, becoming broad, rounded, wide-spreading with age, 50-60' tall, 50-60' wide, slow to moderate growth rate, easier to transplant than bur oak, prefers acidic to neutral pH, but will tolerate a bit higher, but at very high pH, it will get chlorotic, adaptable to most soils including heavy clay, tolerant to wet soil, drought, and urban conditions

Quercus macrocarpa: bur oak, hardy to zone 3a, native to eastern and midwestern U.S. and Wisconsin, pyramidal when young, becoming very wide-spreading, rounded, 70-80' tall, 60-80' wide, slow growing, coarse texture, deeply furrowed bark, no fall color, adaptable to most soils and pH, drought and urban tolerant, difficult to transplant

***Quercus* × *macdenielli* 'Clemon's'**: Heritage® oak, hardy to zone 4, hybrid of *Q. robur* × *Q. macrocarpa*, broadly pyramidal becoming oval form, 60-80' tall, 40-50' wide, dark green, glossy leaves, no fall color, mildew resistant, vigorous, zone 4

Quercus* × *schuettei: swamp bur oak, hybrid of *Q. bicolor* × *Q. macrocarpa*, broad, rounded form, 75' tall, 70' wide, faster growing, better tolerance to high pH and easier to transplant, may be susceptible to leaf/twig galls, zone 3b

Tilia americana: American linden, basswood, hardy to zone 3a, native to northeast and central U.S., Canada, and Wisconsin, pyramidal when young becoming upright-oval with age, 60-80' tall, 40-50' wide, fragrant, pale yellow flowers in early summer, small nutlet fruit attached to bract, large, heart-shaped leaves, prefers a deep, fertile soil, pH adaptable, easy to transplant, tolerant to wetter soils, sensitive to salt and air pollution, susceptible to Japanese beetle, linden borer, gypsy moth, basal and stem rots, sunscald on bark, tends to sucker at base, can break in storms, prone to included bark formation and narrow, branch crotch angles, girdling roots

'Bailyard' (Front Yard®): broadly pyramidal when young becoming rounded and dense, symmetrical form, 60-75' tall, 40' wide
'Boulevard': narrowly pyramidal form, 50' tall, 25' wide, ascending branches, yellow fall color
'DTR 123' (Legend®): broadly pyramidal form, 40' tall, 30' wide, well-spaced branches, thicker leaves, single leader, yellow fall color
'Lincoln': pyramidal, compact, dense form, 40' tall, 25' wide, upright branches, dark green leaves, yellow fall color

'Mcksentry' (American Sentry™): symmetrical, pyramidal form with straight central leader, 45' tall, 30' wide, better branch angles, lighter gray bark, yellow fall color

***Tilia* 'Redmond'**: Redmond linden, hardy to zone 4, hybrid of *T. americana* × *T.* × *euchlora*, pyramidal to oval form, upright branches with terminal leader above the foliage, reddish stems and buds, can sucker at base, 50-70' tall, 30-40' wide, fragrant, pale yellow flowers in early summer, small nutlet fruit attached to bract, large, heart-shaped leaves

Tilia tomentosa: silver linden, hardy to zone 4b, native to southeastern Europe and western Asia, broad-pyramidal form becoming upright-oval, formal looking, dark green leaves with silvery-white undersides, pale yellow flowers in summer, small nutlet fruit attached to a bract, no fall color, prefers a deep, fertile soil, but is adaptable, pH adaptable, easy to transplant, more heat, drought, and urban tolerant than other lindens, does not tolerate poorly-drained, compacted soils, same pests as American linden

'PNI 6051' (Green Mountain®): broadly pyramidal to oval form, 50' tall, 35' wide, dark green leaves with silvery undersides, yellowish fall color, prone to included bark formation
'Wandell' (Sterling®): broadly pyramidal form, 45' tall, 35' wide, green leaves with silvery undersides, yellowish fall color, prone to included bark formation

Ulmus americana: American elm (DED resistant cultivars), hardy to zone 3a, native to eastern and central U.S., Canada and Wisconsin, all have vase-shaped form with pendulous branches, 70-80' tall, 60-70' wide, yellow fall color, adaptable to most soils and pH, tolerant to compacted, heavy clay soils, easy to transplant, tolerant to periodic flooding, salt, urban, air pollution, and drought tolerant, pest prone

'New Harmony' (from U.S. National Arboretum): broad, vase-shaped form, arching branches, good form, easier to grow
'Valley Forge' (from U.S. National Arboretum): broad, vase-shaped form with arching branches, 70' tall, 70' wide, wild looking form and branching, vigorous, needs training

***Ulmus* hybrids**: hybrid elms, most are hardy to zone 4-5, all Dutch elm disease resistant, needs pruning in nursery to develop good form, adaptable to most soils and pH, tolerant to compacted, heavy clay soils, moderate salt tolerance, drought, urban, and air pollution tolerant

'Cathedral' (UW-Madison intro): hybrid of *U. japonica* × *U. pumila*, broadly vase-shaped, spreading form, 40-50' tall, 40-60' wide, prone to elm leaf beetle, zone 4
'Frontier' (from U.S. National Arboretum): hybrid of *U. carpinifolia* × *U. parvifolia*, broadly oval form, 35' tall, 25' wide, ascending branches, glossy, small, dark green, glossy leaves, late, burgundy fall color, can get elm leaf beetle, Zone 5
'Homestead' (from U.S. National Arboretum): hybrid of *U. pumila* × (*U.* × *hollandica* × *U. carpinifolia*), upright, narrow to oval form, 55' tall, 35' wide, upright, arching branches, prone to elm leaf beetle, fast growing, Zone 4b
'Morton' (Accolade®) (from Morton Arboretum): hybrid of *U. japonica* × *U. wilsoniana*, vase-shaped form with arching branches, 70' tall, 60' wide, resistant to elm leaf beetle, vigorous, resistant to elm leaf beetle, dark green, glossy leaves, zone 4
'Morton Glossy' (Triumph™) (from Morton Arboretum): hybrid of *U.* 'Morton Plainsman' × *U.* 'Morton', upright oval to vase-shape, 55' tall, 45' wide, very glossy, dark green leaves, good form, some elm leaf beetle, excellent drought tolerance, zone 4
'Morton Plainsman' (Vanguard™) (from Morton Arboretum): hybrid of *U. japonica* × *U. pumila*, rounded, vase-shaped form, 45' tall, 40' wide, glossy, dark green leaves, prone to elm leaf beetle, zone 4
'Morton Red Tip' (Danada Charm™) (from Morton Arboretum): complex hybrid of (*U. japonica* × *U. wilsoniana*) × *U. pumila* vase-shape form with arching branches, 70' tall, 60' wide, reddish new leaves, new leaves, prone to elm leaf beetle, zone 4
'Morton Stalwart' (Commendation™) (from Morton Arboretum): complex hybrid of *U.* 'Morton' × (*U. pumila* × *U. carpinifolia*), upright, oval form, 60' tall, 50' wide, zone 5

'New Horizon' (UW-Madison intro): hybrid of *U. japonica* × *U. pumila*, upright, compact form, 50' tall, 25' wide, dark green leaves, wide crotch angles, susceptible to verticillium wilt, zone 3b

'Patriot' (from U.S. National Arboretum): complex hybrid of *U. wilsoniana* × *U. pumila* × *U. carpinifolia* × *U. glabra*, stiffly upright branches, narrow, vase-shape form, 50' tall, 40' wide, dark green leaves, straight central leader, zone 5

'Pioneer' (from U.S. National Arboretum): hybrid of *U. glabra* × *U. carpinifolia*, rounded form, 50' tall, 50' wide, dark green, glossy leaves, prone to elm leaf beetle, zone 5

'Regal' (UW-Madison intro): complex hybrid of *U. carpinifolia* × (*U. pumila* × *U.* × *hollandica*), upright, pyramidal form, 50-60' tall, 30' wide, prone to double leaders and narrow crotches, stiff branches, zone 4

***Ulmus japonica* 'Discovery'**: Discovery Japanese elm, hardy to zone 3, native to Japan and Asia, upright, vase-shape, compact form, 35-40' tall, 35-40' wide, resistant to DED and elm leaf beetle, yellow fall color

Small Sized Trees

Acer tataricum* subsp. *ginnala: Amur maple, Zone 3a, native to China, Manchuria, and Japan, very invasive, do not plant near any natural areas, multi-stemmed, rounded form, low branches, 15-18' tall and wide (smaller cultivars are available), dagger-shaped leaves, orange to bright red fall color, red samaras in summer turn brown in fall, adaptable to most soils and pH, easy to transplant, drought, salt, and urban tolerant, very susceptible to verticillium wilt

'Compactum' or 'Bailey Compact': dense, compact, rounded, shrubby form, 6-8' tall, 6-8' wide, slower grower, orange to scarlet fall color

'Embers': rounded form, 15-20' tall, 15' wide, bright red samaras, scarlet fall color

'Emerald Elf': compact, rounded, dense, shrubby form, 5-6' tall and wide, scarlet to purple fall color

'Flame': multi-stemmed, spreading, irregular form, 15-20' tall, 20-25' wide, bright orange-red to deep red fall color

'JFS-UGA' (Red November™): multi-stemmed, low, rounded form, 18' tall, 24' wide, later, bright red fall color, heat tolerant, Zone 5

Amelanchier* × *grandiflora: apple serviceberry, hardy to zone 3a, native hybrid of downy and Allegheny serviceberry, multi or single-stemmed tree to large shrub, upright to irregular form, no suckers, 15-30' tall, 15-25' wide, produces bronze to purplish-red, fuzzy leaves in spring that turn smooth and green, white flowers in early spring, edible fruit in June, smooth, gray bark, yellowish-orange to red fall color, can develop chlorosis at high pH, prefers loamy soil, does poorly in poorly drained soils, difficult to transplant, plant in spring

'Autumn Brilliance': upright, spreading form, 20-25' tall, 15' wide, orange-red fall color, leaf spot resistant, multi-stemmed

'Cole's Select': upright, spreading form, 15-20' tall, 15' wide, multi-stemmed, orange-red fall color, leaf spot resistant, thicker, glossier leaf

'Forest Prince': oval form, 20' tall, 15' wide, red-orange fall color

'Princess Diana': wide spreading form, 15-20' tall, 15' wide, multi-stemmed, red-orange fall color, leaf spot resistant

'Robin Hill': upright, open form, 20-30' tall, 15-20' wide, flowers pink in bud open to pale pink fading to white, red fall color, single-stemmed

Amelanchier laevis: Allegheny serviceberry, hardy to zone 4a, native to eastern and central U.S., Canada, and Wisconsin, upright form, single or multi-stemmed tree, 15-25' tall, 15-20' wide, can sucker, produces white flowers in early spring, bronze to purplish-red new leaves in spring that turn green, edible fruit in June, orange to reddish-bronze fall color, prefers moist, loamy soils, does poorly in poorly drained soils, difficult to transplant, plant in spring

Cumulus®: upright, open form, 20-30' tall, 15' wide, orange-red fall color, minimal suckering, single-stemmed
'JFS-Arb' (Spring Flurry®): upright, oval form, 30-35' tall, 20' wide, orange fall color, single-stemmed, straight central leader, newer cultivar
'Rogers' (Lustre®): upright, open form, 20-30' tall, 15-20' wide, orange-red fall color, minimal suckering, single-stemmed
'Snowcloud': upright, oval form, 25' tall, 15' wide, scarlet fall color, single-stemmed

Cornus mas: Corneliancherry dogwood (more of a boulevard tree), hardy to zone 4b, native to Europe and western Asia, bright yellow flowers in early spring, long lasting, fruit is in summer and is bright red changing to dark purple and becoming edible, but tart, adaptable to most soils, but prefers rich soils, pH adaptable, easy to transplant, tolerates partial shade, straight species is sensitive to drought, but cultivars are more tolerant, sensitive to salt, no pest problems, hardy to zone 4b

'Golden Glory': narrow, upright form, 20-25' tall, 10' wide, much better form and darker green, glossy, thicker leaves, more flowers and fruit, good substitute to invasive tallhedge buckthorn!
'Pyramidalis': upright, pyramidal to upright form, 20' tall, 10-15' wide, dark green leaves

Crataegus crus-galli* var. *inermis: thornless cockspur hawthorn, hardy to zone 4a, native to eastern and central U.S., Canada, and Wisconsin, multi-stemmed tree, broad, spreading, horizontal, low branches, flat-topped crown, 20-30' tall, 20-35' wide, adaptable to most soils and pH, difficult to transplant, plant in spring, drought, salt, and urban tolerant, susceptible to cedar quince rust (on fruit) or cedar hawthorn rust (leaves), this variety has no thorns, white flowers in late spring, deep red fruit in early to mid fall that drops creating a litter problem, bronzish-orange to reddish fall color, dark green, leathery, spoon-shaped leaves

'Cruzam' (Crusader®): rounded form, 15' tall, 15' wide, thornless, bright red fruit, orange fall color

Crataegus phaenopyrum: Washington hawthorn, hardy to zone 4b, native to eastern U.S. and Canada, multi-stemmed tree, vase-shaped to broadly oval form, horizontal, low branches, 20-30' tall, 20-25' wide, adaptable to most soils and pH, difficult to transplant, plant in spring, tolerant to poor, sandy soils, drought and urban tolerant, moderate salt tolerance, susceptible to cedar quince rust (on fruit) or cedar hawthorn rust (leaves), has long, sharp thorns, white flowers in late spring to early summer, showy, persistent, glossy, bright-orange-red fruit fall to winter

'Westwood I' (Washington Lustre®): rounded, upright form, 20-25' tall, 20-25' wide, has fewer thorns than species, vigorous

***Crataegus viridis* 'Winter King'**: Winter King hawthorn, hardy to 4b, native to eastern U.S., vase-shaped to rounded, wide-spreading form, horizontal, low branches, adaptable to most soils and pH, difficult to transplant, plant in spring, drought and urban tolerant, moderate salt tolerance, less susceptible to cedar hawthorn rust but can get cedar quince rust on fruit, white flowers in late spring, very showy, bright orange-red, persistent fruit from mid fall to winter, silvery-gray bark that exfoliates on the trunk revealing orange inner bark, has few if any thorns, yellowish-purple fall color

Maackia amurensis: Amur maackia, hardy to zone 4a, native to Manchuria, vase-shaped to rounded form, upright, arching branches, 20-30' tall, 20-30' wide, slow grower, silvery and fuzzy leaves in spring turn olive-green and smooth, coppery-green to bronzish-brown, slightly exfoliating bark, off-white flowers in summer, small pods in fall, tolerant to most soils and pH, roots fix atmospheric N, tolerant to poor, infertile soils, urban and salt tolerant, prone to included bark formation, needs pruning when young, no pests, not invasive

'Starburst': upright, vase-shaped form with rounded crown, 25-30' tall, 20' wide, dark green leaves
Summertime®: upright, rounded form, 18-20' tall, 12-15' wide, white flowers in summer

***Malus* spp.**: flowering crabapple, most are hardy to zone 4a and are hybrids with parents originating from Asia, Europe and U.S., size and form are quite variable, adaptable to most soils and pH, prefers low nitrogen to decrease disease susceptibility, drought and urban tolerant, apple scab resistant species and cultivars listed below and have smaller fruit, some cultivars prone to suckering and watersprouts on branches

White Flowers/Red Fruit

'Adirondack': narrow, upright form, 18' tall, 10' wide, persistent fruit
'Guinzam' (Guinevere®): rounded form, 8-10' tall, 10' wide, persistent fruit
'Jewelcole' (Red Jewel®): upright, pyramidal form, 15' tall, 12' wide, persistent fruit, can get fireblight
'Kinarzam' (King Arthur®): upright, rounded form, 12' tall, 10' wide, can sucker from base
'Sutyzam' (Sugar Tyme®): upright, spreading, oval form, 18' tall, 15' wide, persistent fruit
Malus baccata 'Jackii': Jackii crabapple, hardy to zone 3, rounded form, 20' tall, 20' wide, glossy leaves, zone 3
Malus sargentii: Sargent crabapple, low, spreading form, 8' tall, 12' wide, alternate bearing, persistent fruit
- 'Select A' (Firebird®): rounded, spreading form, 7' tall, 9' wide, persistent fruit, bears annually, persistent fruit
- 'Tina': small, rounded, dwarf form, 5' tall, 6' wide, slow growing

Malus × zumi var. *calocarpa*: redbud crabapple, rounded, spreading form, 20' tall, 24' wide, persistent fruit

White Flowers/Yellow Fruit
'Bob White': dense, rounded form, 20' tall, 20' wide, persistent fruit, but is a watersprouter
'Cinzam' (Cinderella®): dwarf, rounded to upright form, 8' tall, 5' wide, persistent fruit
'Excazam' (Excalibur™): upright form, 10' tall, 8-10' wide, good form
'Hargozam' (Harvest Gold®): upright, oval form, 22' tall, 18' wide, persistent fruit, may get some scab
'Lanzam' (Lancelot®): compact, upright, dense form, 8-10' tall, 8' wide, persistent fruit
'Ormiston Roy': broad, rounded form, 20-25' tall, 25' wide, furrowed, orangish bark, yellow fruit with a rosy blush turn orange-brown after a hard frost

Pink or Reddish Flowers/Red to Purplish-Red Fruit
'Camzam' (Camelot™): rounded form, 10' tall, 8' wide, pinkish-white flowers, burgundy-green leaves, persistent fruit
Malus sargentii 'Candymint': low, spreading, horizontal form, 10' tall, 15' wide, purple tinted foliage becoming bronze-green
'Canterzam' (Canterbury™): rounded, compact form 10' tall, 8-10' wide, light, pinkish- white flowers
'Cardinal': irregular, spreading form, 16' tall, 22' wide, dark purplish-red, glossy leaves
'JFS-KW5' (Royal Raindrops®): upright, spreading form, 20' tall, 15' wide, cutleaf, purple leaves, orange-red fall color, persistent fruit
'Orange Crush': spreading form, 12-15' tall, 12-15' wide, bronze to purplish-green leaves
'Parrsi' (Pink Princess®): low, spreading form, 8' tall, 12' wide, purple leaves become bronze-green
'Prairifire': upright, spreading to rounded form, 20' tall, 20' wide, slower growing, purple leaves become reddish-green
'Prairie Maid': rounded to spreading form, 20' tall, 25' wide, burgundy tinged leaves in spring, but is a watersprouter
'Purple Prince': rounded form, 20' tall, 20' wide, purple leaves become bronzish-green,
'Coral Cascade': semi-weeping form, 15' tall, 20' wide, white flowers, coral fruit,
'Louisa': graceful weeper, 15' tall, 15' wide, pink flowers, fruit are yellow turning orange-brown, not showy or persistent
'Luwick': graceful, low weeper, 7' tall, 14' wide, deep pink buds open to light pink to whitish flowers, bright red fruit
'Manbeck Weeper' (Anne E.®): wide spreading, horizontal weeper, 10-12' tall, 10-12' wide, white flowers, cherry-red fruit, persistent fruit, is difficult to find, but is one of the nicest crabs
'Molazam' (Molten Lava®): broadly weeping form, 14' tall, 20' wide, white flowers, bright red fruit

Pyrus calleryana: callery pear, hardy to zone 4b, native to China and Korea, upright, pyramidal to oval form, 25-35' tall, 20-30' wide, adaptable to most soils and pH, drought, urban, and salt tolerant, can get fireblight, fast grower, dark green, glossy, leathery leaves, late, reddish-orange to purple fall color, white flowers in mid spring, small, brown, rounded fruit

- Aristocrat®: pyramidal form with open branching, 35' tall, 25' wide, yellow to red fall color but is inconsistent for fall color, wider branch crotch angles
- 'Autumn Blaze': rounded form, 30' tall, 25' wide, earlier, bright red to purplish fall color, wide crotch angles, less prone to included bark formation
- 'Cambridge': upright, narrowly pyramidal form, 35' tall, 15' wide, bright orange fall color
- 'Capital': narrow, columnar form, 30' tall, 12' wide, reddish-purple fall color, susceptible to limb breakage in storms, susceptible to fireblight, zone 5
- 'Cleveland Select' or 'Glenn's Form' (Chanticleer®): formal, upright, narrowly pyramidal form, 25-30' tall, 15' wide, late orangish to reddish fall color, not as good as other cultivars for fall color, rarely produces fruit
- 'Redspire': pyramidal, dense, symmetrical form, 35' tall, 25' wide, yellow to reddish fall color or none at all, susceptible to fireblight, slower grower
- 'XP-005' (Trinity®): broadly oval to rounded form, 30' tall, 25' wide, glossy, lighter green leaves, orange-red fall color

Syringa reticulata: Japanese tree lilac, hardy to zone 3a, native to Japan and Manchuria, upright with a rounded to oval form, 20-25' tall, 15-20' wide, no fall color to yellowish, reddish-brown, shiny bark, creamy-white, large flowers in early summer that do not smell like lilacs but rather like a privet, tends to flower heavily every other year, adaptable to most soils and pH, easy to transplant, salt and urban tolerant, susceptible to bacterial blight and verticillium wilt, resistant to mildew

- 'Elliott' (Snowcap™): upright, more compact form, 15-20' tall 10-12' wide, uniform branching, thick, dark green leaves, good form
- 'Golden Eclipse': upright, compact form, 18-24' tall, 8-14' wide, new leaves in spring emerge green with a darker center, the edge of the leaf gradually turns bright gold with the dark green center remaining
- 'Ivory Silk': over used, upright, spreading becoming oval to rounded, 20' tall, 15' wide, susceptible to bacterial blight
- 'Summer Snow': broad, rounded, compact form, 20' tall, 15' wide, good form, glossy, dark green leaves
- 'Williamette' (Ivory Pillar™): upright, pyramidal, narrower form, 20-25' tall, 10-15' wide

Attachment 4:

Sources of Information

Additional sources of information include:

www.emeraldashborer.wi.gov/ - EAB portal for the state of Wisconsin
www.emeraldashborer.info/ - EAB web page administered by Michigan State University
www.dnr.state.wi.us/org/land/Forestry/Ash/index.htm - WI-DNR EAB web site
www.entomology.wisc.edu/emeraldashborer/ - UW-Extension, Dept of Entomology EAB website
www.datcp.state.wi.us/arm/environment/insects/emerald-ash-borer/index.isp - WI DATCP EAB website
http://dnr.wi.gov/forestry/uf/eab/ - EAB toolkit developed by the WI DNR
http://dnr.wi.gov/forestry/fh/pdf/WIEABResponsePlan.pdf - State of Wisconsin EAB response plan
www.entomology.wisc.edu/emeraldashborer/ - University of Wisconsin Cooperative Extension Entomology website describing pesticide treatments for EAB
http://dnr.wi.gov/forestry/UF/index.htm - WI DNR tree planting guidelines
www.woodindustry.forest.wisc.edu/apps/search.asp - Wisconsin Primary Wood Using Facilities

Attachment 5:
Homeowner's Guide to EAB Treatment

Emerald Ash Borer: Homeowner Guide to Insecticide Selection, Use, and Environmental Protection

Before Using an Insecticide Consider the Following

✓ Identify if EAB is Near

Start insecticide treatments only when your property is within 15 miles of an EAB infestation, or if you are within a county that is quarantined for EAB. Check MDA's Interactive EAB Survey Map for current infestations in Minnesota.

✓ Remove and Replace Ash Trees on Your Property

It may be more cost effective to replace a small or struggling ash tree than to pay the cost of ongoing treatments. In addition, trees in poor health are not likely to respond well to treatments. Do not treat trees showing more than 50 percent canopy decline; these ash trees are unlikely to recover even if treated.

✓ Treatment Requires a Long-Term Commitment

Once EAB arrives in an area, it will remain a constant threat to ash trees. It is likely that protective insecticide treatments will be needed for the rest of the tree's life at a potentially significant cost.

✓ Check Your Calendar – Timing is Everything

To ensure the insecticide is in the leaves by the time adults emerge to feed in early June, products are most effective when applied mid-April until the end of June.

RECOMMENDED TREATMENT DATES ARE SHADED

APRIL						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

MAY						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	21					

JUNE						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

✓ Contact a Certified Arborist or City Forester to Evaluate Treatment Options

When contacting a professional, consider the following:

- Your city or township may have requirements or prohibitions related to the treatment of EAB, especially for ash trees located on city property, which may include trees planted on or near boulevards or sidewalks. Check with your city's park and recreation or forestry departments.
- Many effective products are best administered by professionals. If hiring a professional, check to make sure that they are licensed in Minnesota as a Commercial Pesticide Applicator for category "E: Turf and Ornamentals."

✓ Have a Professional Treat Large Ash Trees

There are homeowner treatment options for small ash trees, though these require careful application to avoid unintended environmental impacts. Homeowners wishing to protect trees larger than 48 inches in circumference (as measured 4½ feet above ground level) should have their trees professionally treated.

MINNESOTA DEPARTMENT OF AGRICULTURE

UNIVERSITY OF MINNESOTA EXTENSION

Insecticide Treatment Options

Professionals have access to some products that are not available to homeowners.
This document does not endorse the listed insecticide products over other options.

Products Marketed to Professionals and Arborists				
Insecticide Active Ingredient	Examples of Products	Treatment Frequency	Application Methods	Environmental Profile
Emamectin benzoate	• TREE-age Restricted Use Pesticide *Any person using this product is required to be a licensed or certified pesticide applicator.*	Every 2 years	Trunk injection	• Persistent in tree tissue, relatively immobile in the environment.
Azadirachtin, (neem tree seed oil)	• TreeAzin	Once per year	Trunk injection	• Classified as a biopesticide, minimal or no exposure or risk to non-target organisms, habitats or water.
Dinotefuran	• Safari • Transtect	Once per year (bark spray) 1 – 2 times per year (other methods)	Bark spray, soil injection, soil-applied drench	• Strong potential to leach to shallow groundwater. • Potential exposure to adjacent water bodies through spray drift and runoff events.
Imidacloprid	• Merit products • Xytect 2F • Ima-jet	1 - 2 times per year	Trunk injection, soil injection, soil-applied drench	• Highly toxic to aquatic life. • Potential to leach to shallow groundwater or be transported in runoff when using soil injection or drench.

Products Marketed to Homeowners				
Insecticide Active Ingredient	Examples of Products	Treatment Frequency	Application Methods	Environmental Profile
Dinotefuran	• Green Light Tree and Shrub Insect Control with Safari	Once per year	Granular soil-applied product	• Strong potential to leach to shallow groundwater. • Potential exposure to adjacent water bodies through runoff events.
Imidacloprid	• Bayer Advanced Tree and Shrub Insect Control • Bonide Tree and Shrub Insect Control • Ferti-lome Systemic Insect Drench • Ortho Max Tree and Shrub Insect Control	Once per year [1]	Soil-applied drench	• Highly toxic to aquatic life. • Potential to leach to shallow groundwater or be transported in runoff.
Imidacloprid	• Bonide Systemic Insect Spray	Check with an arborist, may not be practical for trees > 20-25 ft. in height [2]	Insecticide spray to tree canopy or bark	• Highly toxic to aquatic life. • Tree canopy (foliar) sprays can lead to drift, posing risks to surface water, children, pets and nearby flowering plants (with potentially toxic affects to bees and other pollinators).

1. Recommended only for trees less than 48 inches in circumference (as measured 4½ feet above ground level)
2. Due to the chances of insecticide drift to other areas during a canopy or bark spray, they are best applied by professionals. Additionally, there is little research to support the efficacy of canopy spray products.

Follow These Recommendations to Protect Water Quality

Generally, professionally applied tree injections have significantly fewer concerns for water quality.

For soil-applied products, bark sprays or sprays applied to tree canopies, the following considerations are important:

- Do not use within 25 feet of water bodies; such as, streams, lakes, ponds, wetlands or conduits to surface water or groundwater such as street curbs, storm drains, sumps, or well heads.
- Do not apply when heavy rainfall is expected within 24 hours of the planned treatment.
- Do not allow sprays to drift. Avoid spraying trees when there is wind. These sprays pose exposure risks to surface water, children, pets and nearby flowering plants (with potentially toxic affects to bees and other pollinators).

Avoid situations that could cause insecticides to wash away or leach, potentially contaminating water resources

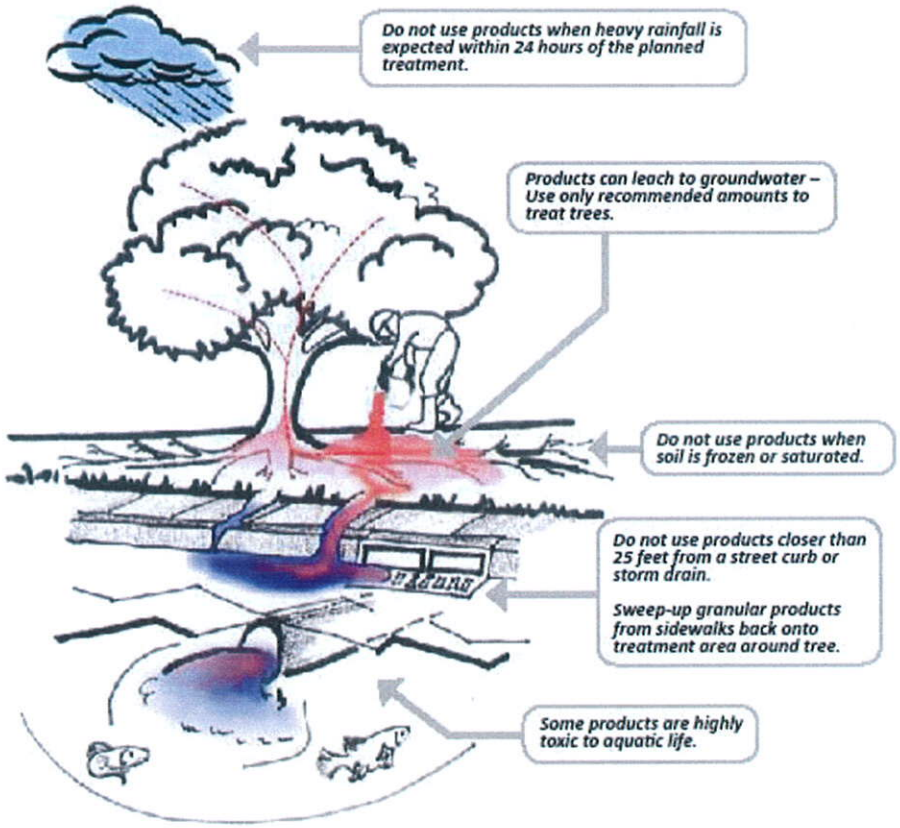


Illustration adapted from Dreistadt, S.H., J.K. Clark, M.L. Flint. 2004. Pests of Landscape Trees and Shrubs, An Integrated Pest Management Guide. Publ. 3359. Page 13.; and, Flint, M.L. 2009. Lawn and Residential Landscape Pest Control, A Guide for Maintenance Gardeners- Workbook. Publ. 3510. Page 44.

Making Sense of EAB Insecticide Labels

Read the Label! It is your legal responsibility to read, clearly understand, and follow all current label directions for the specific insecticide product being used.

Selecting an Insecticide:

- Look for products marketed to control emerald ash borer (see table in this guide).
- Read the *Environmental Hazard Statements* on the insecticide label. Products applied as a canopy spray are likely to result in a considerable amount of insecticide drift, even when conditions are ideal.

Using an Insecticide:

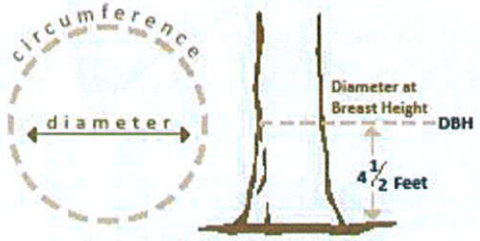
- To facilitate uptake, soil-applied insecticides should be applied when the soil is moist but not saturated or excessively dry.
- For soil drenches remove or rake any mulch or dead leaves, then pour the insecticide solution directly onto soil.
- Do not allow children and pets to re-enter treatment area until sprays or drenches have dried.
- Store insecticides where children cannot reach them.
- Many homeowner products only allow one soil drench application per year.

Disposing an Insecticide:

- When using the last of a liquid insecticide container, triple-rinse before disposal, then apply the rinse water as you would apply the insecticide.
- Unusable and unwanted insecticides must be disposed of according to the label directions, or at a county household hazardous waste disposal event.
- It is illegal to bury or burn a insecticide.

Measure your Ash Trees

Soil-applied insecticide treatments available to the general public are most effective on smaller trees, less than 48 inches in circumference.



trunk circumference X 0.32 = trunk diameter

CONVERSION TABLE
Tree Measurements at 4½ Feet Above Ground Level

Circumference – Inches	Diameter at Breast Height (DBH) – Inches
15	5
20	6
25	8
30	9.5
35	11
40	13
45	14
> 48 inches STOP	> 15 inches STOP

Large trees should be treated by a professional

Additional Resources

For more information on this publication, contact the "Arrest the Pest" Hotline at 651-201-6684 or 888-545-6684.

Pesticide Disposal

For more information about disposing of unusable or unwanted pesticides, visit MDA online at www.mda.state.mn.us/chemicals/spills/wastepesticides/schedule.aspx or 651-201-6562.

Reporting and Investigating Pesticide Spills and Misuse

Complaints can be reported to the Minnesota Duty Officer at 800-422-0798.
MDA staff will evaluate the information provided and if a pesticide misuse is suspected, an MDA inspector will be assigned.
More information is available online at www.mda.state.mn.us/chemicals/pesticides/complaints.aspx

Emerald Ash Borer Online Resources

- Minnesota Department of Agriculture – http://www.mda.state.mn.us/eab
- University of Minnesota Extension – www.extension.umn.edu/issues/eab
- USDA-APHIS – www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b
- Minnesota Department of Natural Resources – www.dnr.state.mn.us/invasives/terrestrialanimals/eab
- City of St. Paul – www.stpaul.gov/index.aspx?NID=2495
- Minneapolis Park and Recreation Board – www.minneapolisparks.org/default.asp?PageID=1059
- EAB Multi-State Site – www.emeraldashborer.info

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #8

Project/Item Name:	Railroad quiet zone
Location:	2nd Avenue Southwest
Requested Action:	Discussion on applying for quiet zone
Staff Report/Description:	Staff is recommending applying for alternate safety measure for the 2nd Avenue Southwest intersection. The necessary paperwork will cost approximately $2,500 for SEH to prepare. This application is not guaranteed approval.
Attachments:	Sections of quiet zone report.

Holter, Jarrod

From: Dave McKenzie <dmckenzie@sehinc.com>
Sent: Tuesday, April 15, 2014 12:26 PM
To: Holter, Jarrod
Cc: Randy Sanford
Subject: Re: City of Onalaska quiet zone

Jarrod,

The $6,344 was a percentage of the nonrailroad work. for construction plans. The $2,500 is for the formal quiet zone process which is 2 formal submittals. To submit an ASM for 2nd, a revised exhibit should be okay. An ASM request to FRA would be in the $2,500 range and if you got approval, we would need to finalize construction plans at that time.

We can give a formal proposal but would need to discuss the scope more with you.

Dave McKenzie, PE | Project Manager
SEH | 3535 Vadnais Center Drive | St Paul, MN 55110
651.490.2042 direct | 612.910.9571cell |888.908.8166 fax
www.sehinc.com
SEH--Building a Better World for All of Us™

From: "Holter, Jarrod" <jholter@cityofonalaska.com>
To: "Dave McKenzie (dmckenzie@sehinc.com)" <dmckenzie@sehinc.com>,
Cc: Randy Sanford <rsanford@sehinc.com>
Date: 04/15/2014 11:43 AM
Subject: City of Onalaska quiet zone

Dave,

In your report you include that the city could apply for ASM at the 2nd avenue crossing with medians but not to the required length for SSM(and also driveway approach staying). In the table you say it will cost $6,344 for engineering and $2,500 for quiet zone paperwork submittal. My question is does all of the $6,344 in engineering work need to be done to apply for the ASM. Can a lower level of plan be done and submitted and then if approved get to biddable construction documents? Committees are trying to decide if it is worthwhile to at least try to apply to this lower cost option. I have been informing them that we have a chance for approval but do not count on it but it is not just a rubber stamp NO.

Can you give me some more information?

Thank you,

C. Jarrod Holter, P.E.
City Engineer

Road Authority will be responsible for the installation and maintenance of the loop detectors and the two additional gates.

Detailed cost estimates to upgrade are not available at this stage of a project but typical project cost will be around $350,000 to $450,000 plus the maintenance costs of $2,000 to $3,000 per year per crossing. Complete new signals systems may be required.

3.3 Crossing Closure

Permanent closure of a crossing is the removal of the crossing surface and roadway approaches.

There are also provisions in the rules for temporary closures, usually based on time of day. The rules require that a positive indication to the railroad is required that the crossing barricades are in place. The Irvin Street crossing has a potential to use this provision.

3.4 Stationary Horns

Wayside or stationary horns are a relatively new technology that has recently been approved for general installation. The wayside horn replaces the train mounted horn with a horn mounted at the crossing. The wayside horn is activated by the crossing signal system. The Road Authority is generally responsible for installation and maintenance of the system. The noise level is comparable to a train horn, but it decreases the noise impact area. The stationary horn works well in non- residential areas, because the immediate area near the crossing is subjected to the full noise of the horn for 25 seconds, rather than a gradual increase as the train approaches. The wayside horn was authorized in the quiet zone regulations but it is technically not in a quiet zone. It is considered the same risk level as a train mounted horn. Stationary horn costs range from $75,000 to $125,000, plus a monthly maintenance cost (see Appendix D).

4.0 Crossing Analysis and Alternatives

The following is an analysis of both crossings. Table 1 is a preliminary opinion of cost for each option can be found in Table 1A and 1B. A drawing of each proposed improvement can be found in Appendix C.

4.1 2nd Avenue SW

2nd Avenue SW is a two lane urban street with an average daily traffic count of 1,200. The BNSF has three tracks across the roadway, and is near the end of the yard. The roadway crosses the BNSF tracks at a skew. Areas on both sides of the roadway are fully developed with difficult terrain on each side that creates challenges to providing alternate access points. The existing railroad signals meet the minimum requirements for a quiet zone.

Complicating the access issues is the lumber industry located on both sides of the crossing that operate forklifts on the roadway.

The three basic options studied were raised center medians, four quadrant gates and closing the crossing. Below is a detail list of the issues:

4.1.1 Option 1 – Install Center Medians

Raised center medians can be used as a supplemental safety measure and must be 60 feet long when an intersection or driveway is present. The length of the median is measured from the railroad gate back to the end of the median.

The 100 foot long median on the south side fits the roadway well, except for the commercial driveway on the west side. There are two driveways into this business. The north driveway will need to be closed or relocated 150 feet to the south.

The median on the north side is a challenge. The driveway on the west side would need a slight modification. The driveway on the east side serves several industries and the building locations restrict options.

A median only supplemental safety measure would require the removal of the building on the east side to allow for relocation of the driveway. (Option 1)

The potential Alternative Safety Measure (ASM) would be to restrict the movement on the east side to a right in/right out access. **This requires concurrence by the FRA and may not be accepted.** The Risk Index computation would allow for a partial reduction in risk and may reduce the QZRI number to below the NSRT. The actual computation is done by the FRA and depends on many site specific circumstances. A right in/right out option is shown as Option 1A would cause traffic circulation issues with the current land uses. (Option 1A)

4.1.2 Option 2 – Four Quadrant Gates

Four quadrant gates provide two additional gates on the exits lanes prohibiting vehicles to go around the entrance gates. In the case of 2nd Avenue, 5 gates would be needed plus medians, to protect the northbound movement out of northeast driveway.

4.1.3 Option 3 – Close the Crossing

Closing a crossing in an urban area is difficult but there may be an opportunity at 2nd Avenue. The Wisconsin Department of Transportation (WisDOT) has started the process of redesigning the I-90/Hwy 53 interchange. The preliminary design would allow for a full access intersection at Hwy 53 and George Street. The existing configuration does not allow for a northbound movement from George Street. Additional studies are needed to determine if a full intersection would function properly. Construction is expected in 2017 or 2018. WisDOT is not supportive of a full Hwy 53/George Street intersection.

If the new Hwy 53/George Street intersection is approved, 2nd Avenue would not be needed as a thru street and could be closed. A cul-de-sac would be installed on each side of the crossing. The public access would be abandoned across the BNSF tracks. To accommodate the lumber traffic, a private crossing would remain and the existing signals would be modified to accommodate a narrow private road.

4.2 Irvin Street

Irvin Street is a local street used to access a City park and the river. There currently is a gate on the west side of the tracks that limit access to the park by City employees only. Irvin Street is also in the area of a proposed new City visitor center. This project is currently undergoing environmental review and is expected to begin design and construction in 2014.

The concept plan shows acquisition of additional parcels north of Irvin Street, which would allow for elimination of the private driveway on the north side of the roadway. The driveway on the south is a secondary access into the maintenance facility which would also close.

It is also expected that the park access would change. Limited private vehicles would be allowed across the tracks, but pedestrian's access would be permitted. Vehicle access across

Table 1A – Preliminary Opinion of Cost

Item	U/M	Unit Price	Option 1 Medians only		Option 1A* Medians only		Option 2 4-Quad gates		Option 3** Close crossing	
			Quantity	Total	Quantity	Total	Quantity	Total	Quantity	Total
2nd Avenue SW										
Mobilization	LS	$5,000	1	$5,000	1	$5,000	1	$5,000	1	$5,000
Bituminous	TON	$100	50	$5,000	25	$2,500	0	$0	240	$24,000
Remove driveway	LS	$2,000	1	$2,000	1	$2,000	$1	$2,000	0	$0
Signs	EA	$150	4	$600	4	$600	4	$600	2	$300
30" concrete curb and gutter	LFT	$18	550	$9,900	640	$11,520	220	$3,960	600	$10,800
Raised median	SQ FT	$8	1,200	$9,600	1200	$9,600	230	$1,840		$0
Barricades	LS	$500	1	$500	1	$500	1	$500	1	$500
4 Quad Gates	LS	$425,000	0	$0		$0	1	$425,000		$0
6' chain link fence	LFT	$20	220	$4,400		$0		$0		$0
Building Demolition	LS	$100,000	1	$100,000						
Right of Way	LS	$250,000	1	$250,000						
Subtotal				$387,000		$31,720		$438,900		$40,600
Contingency	%			$96,750		$7,930		$43,890		$10,150
Engineering	%			$77,400		$6,344		$43,890		$8,120
QZ paperwork submittal	LS	2500	1	$2,500	1	$2,500	1	$2,500	1	$2,500
Total				**$563,650**		**$48,494**		**$529,180**		**$61,370**

*Needs FRA approval because of northeast quadrant is not in compliance
**Does not include costs for changes to the Hwy 53 intersection

4. How are the crossings spaced?
   Spacing of the crossings is important since the quiet zone boundary is ¼ mile either side of a crossing, so if another crossing is within that zone, it also must be included in the same quiet zone.

As these questions are answered, the following options for phasing are outlined below:

1. The City could consider each crossing as a separate quiet zone. Because of the spacing this option would work except that the overflow of noise from the other crossing may not give the level of comfort that the City desires. It also may be confusing for the train crews.
2. One large quiet zone.

7.0 Recommendations

Based on the detailed preliminary costs and risk numbers, to make the two grade crossings fully compliant with the rules, the improvements are expensive. The 2nd Street geometry makes it a difficult crossing to use traditional SSM improvements. The three options would be:

1. Do not implement a quiet zone.
2. Implement a quiet zone at Irvin Street only. Final decision on which option would be decided in collaboration with the proposed Visitor Center and Park Improvements.
3. Prepare an Alternative Safety Measure (ASM) request to the FRA. The request would ask the FRA to individually review the crossings and risk numbers, with only a median on the south side of the crossing. This may allow for approval, but would be at the FRA discretion.

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item:	#9
Project/Item Name:	2014 Paving Project
Location:	Citywide
Requested Action:	Approval of bid
Staff Report/Description:	Bids were received for the 2014 Paving Project. Staff is recommending award to Mathy Construction. Bids are within budgeted amounts.
Attachments:	Bid Tabulation

CITY OF ONALASKA BID OPENING
For

2014 PAVING PROJECT

Due Date / Opening: Tuesday, March 18th, 2014 @ 11:00 AM

Company	***Bidders Proof***	***Bid Bond***	***Bid Amount***
MATHY CONSTRUCTION	X	X	$610,900.50

RECOMMEND AWARD BID TO: _____

MW: vb/eng-bidopenmarcourdsw

STAFF REVIEW SUMMARY

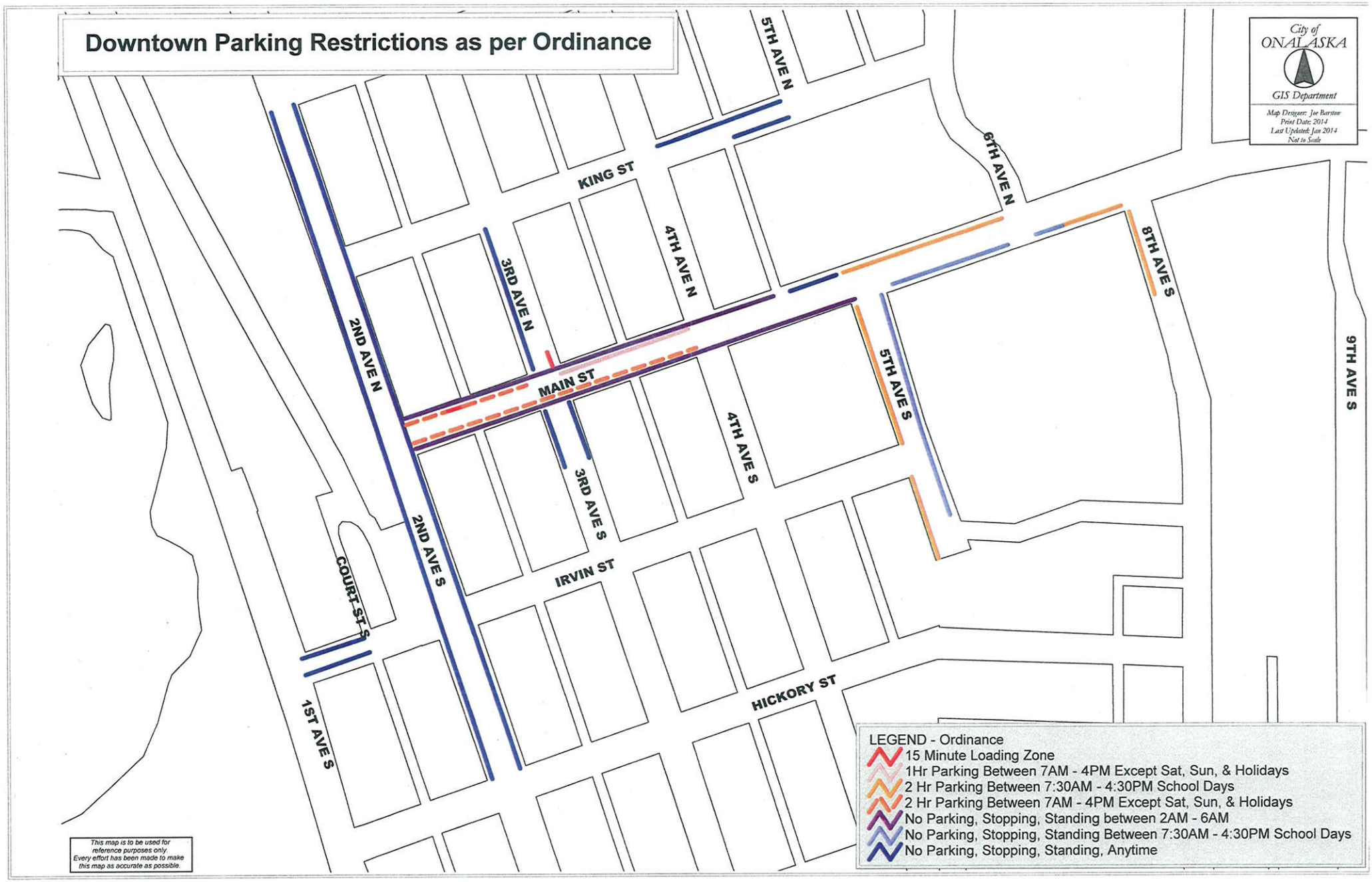
CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

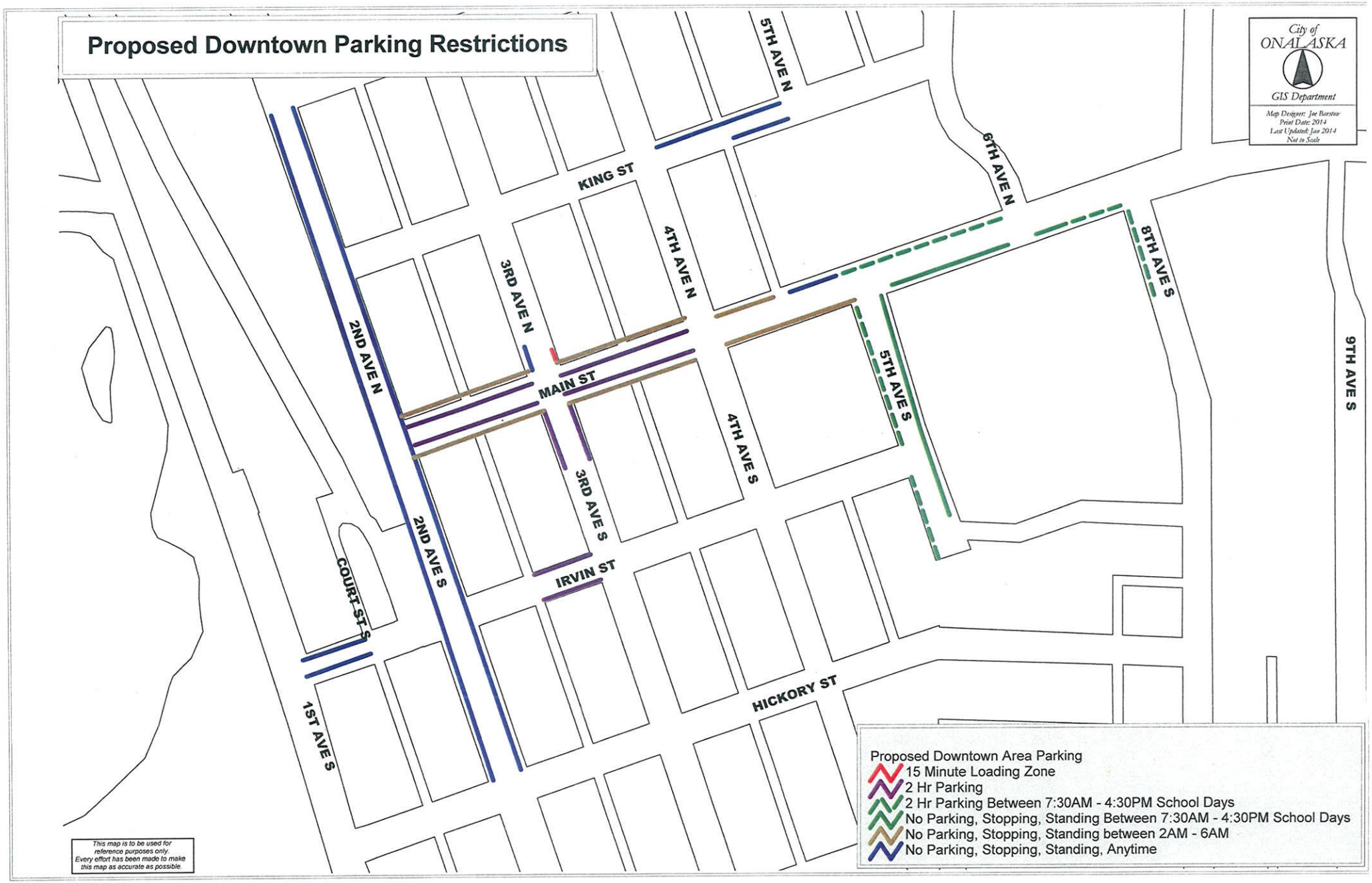
Agenda Item: #10

Project/Item Name:	Downtown parking regulations
Location:	3rd and Main Street
Requested Action:	Discussion of revised parking regulations
Staff Report/Description:	Staff is recommending changing a variety of 2 hour parking restrictions to all 2hour parking at all times. Ordinance would be updated to reflect new 2 hour parking and any other discrepancies between the signage and ordinances.
Attachments:	Existing signed parking restrictions, existing parking restrictions by ordinance, proposed parking restrictions.

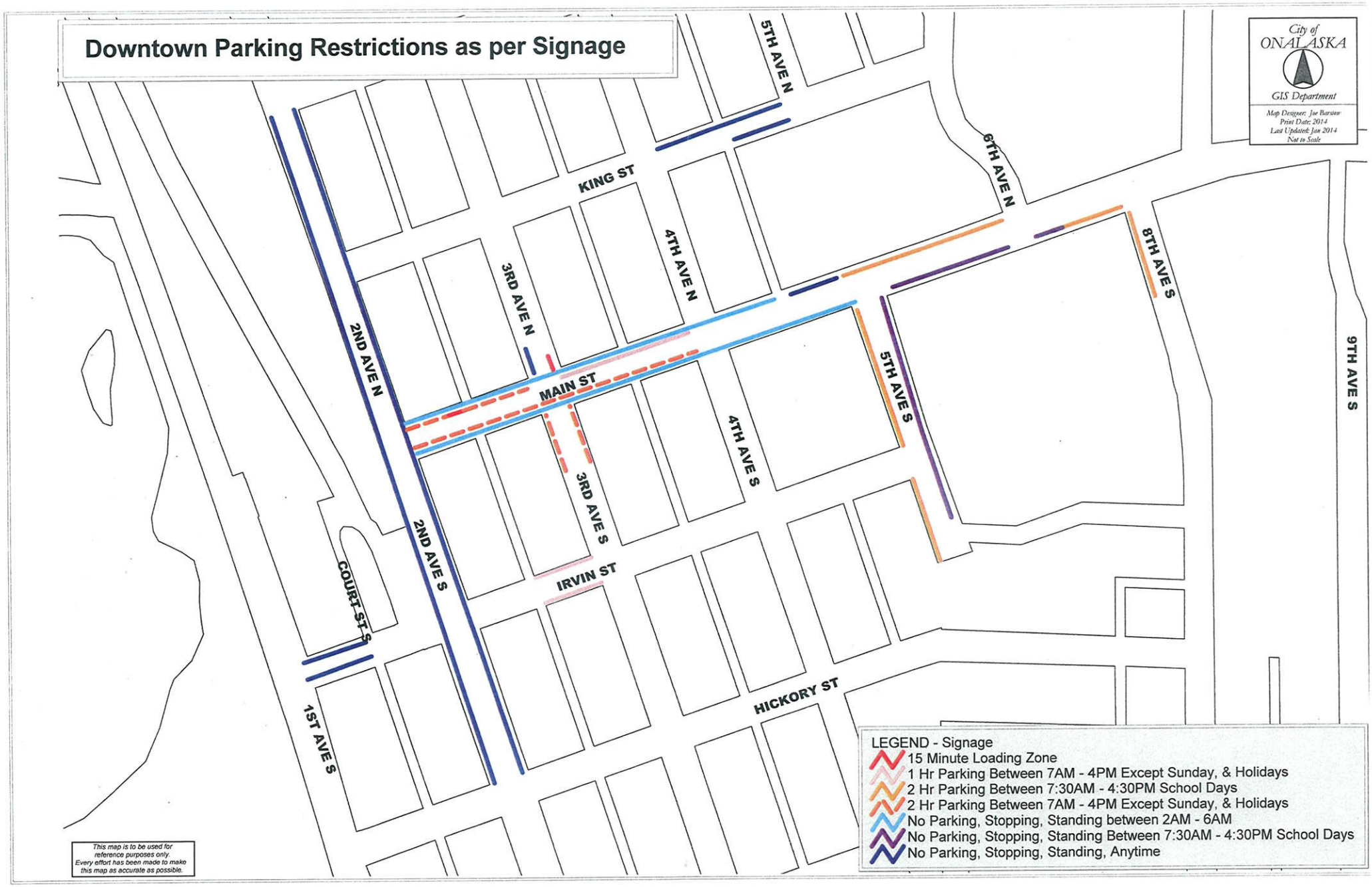
Downtown Parking Restrictions as per Ordinance



Proposed Downtown Parking Restrictions



Downtown Parking Restrictions as per Signage



STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #11

Project/Item Name:	Parking restrictions along Eagle Bluff Court
Location:	Eagle Bluff Court
Requested Action:	Discussion of parking regulations
Staff Report/Description:	Conflicting parking ordinances on Eagle Bluff Court should be corrected. Staff is recommending keeping no parking for first 300 from East Main/OS to North.
Attachments:	Parking ordinance

(d) **Domke Street**

(1) There shall be no parking, standing or stopping on the south side of Domke Street from the intersection of Domke Street and Oak Avenue South to a point six hundred fifty (650) feet east of such intersection, except when funerals are in progress.

(e) **Eagle Bluff Court**

(1) There shall be no parking, standing or stopping on either side of Eagle Bluff Court from the north right-of-way line of CTH OS north a distance of three hundred (300) feet.

(f) **Gilster Street**

(1) There shall be no parking, standing or stopping on either side of Gilster Street from the northerly right-of-way of West PH north two hundred (200) feet.

(g) **Greens Coulee Road**

(1) There shall be no parking, standing or stopping on either of Greens Coulee Road from the north right-of-way line of Ironwood Place to the south right-of-way line of Maplewood Place.

(2) There shall be no parking, standing or stopping on that part of the easterly side of Greens Coulee Road north of the intersection of Greens Coulee Road and Clear Water Drive. On that part of the westerly side of Greens Coulee Road from the intersection of Greens Coulee Road and East Main Street north three hundred (300) feet.

(3) There shall be no parking, standing or stopping on that part of the westerly side of Greens Coulee Road from the intersection of Greens Coulee Road and East Main Street north three hundred (300) feet.

(h) **Green Street**

(1) There shall be no parking, standing or stopping on either side of Green Street from 4th Avenue South to Oak Avenue South.

(i) **Heather Court**

(1) There shall be no parking, standing or stopping on the south side of Heather Court (including the cul-de-sac) for its entire length.

(j) **King Street**

(1) There shall be no parking, standing or stopping on the north side of King Street between 4th and 5th Avenues North.

(2) There shall be no parking, standing or stopping except Fire Department Personnel on the south side of King Street between 140 Feet East of 4th Avenue North and 5th Avenue North.

(l) **Main Street**

(1) <u>No Stopping, Standing or Parking At Any Time.</u>

(d) **Eagle Bluff Elementary School.**

(1) There shall be no parking, stopping or standing on both sides of Theater Court from County Highway OS North to the end of Theater Court.

(e) **St. Patrick's Elementary School.**

(1) There shall be no parking on the West side of 11th Avenue North from Monroe Street to the North property line of St. Patrick's Elementary School from 7:30 a.m. until 4:30 p.m. on days when school is in session.

(f) **Pertzsch Elementary School.**

(1) There shall be no parking, standing or stopping on the South Side of Main Street from 5th Avenue South to the driveway of Pertzsch Elementary School from 7:30 a.m. until 4:30 p.m. on days when school is in session.

(2) There shall be two (2) hour parking on the South side of Main Street from the driveway of Pertzsch Elementary School to 8th Avenue South from 7:30 a.m. until 4:30 p.m. on days when school is in session.

(3) There shall be two (2) hour parking on the North side of Main Street from 5th Avenue to a point one hundred (100) feet Easterly of 6th Avenue from 7:30 a.m. until 4:30 p.m. on days when school is in session.

(4) There shall be two (2) hour parking on the West side of 5th Avenue South from Main Street to the end of 5th Avenue South from 7:30 a.m. until 4:30 p.m. on days when school is in session. This restriction shall not apply when funeral services at the church on 5th Avenue South are being conducted.

(5) There shall be two (2) hour parking on both sides of 8th Avenue South from Main Street to a point one hundred seventy-five (175) feet South thereof from 7:30 a.m. until 4:30 p.m. on days when school is in session.

(6) There shall be two (2) hour parking from 7:30 a.m. until 4:30 p.m. on days when school is in session on the north side of Main Street from 6th Avenue west to the emergency vehicle entrance to City Hall.

(7) There shall be two (2) hour parking from 7:30 a.m. until 4:30 p.m. on days when school is in session on the south side of Main Street from 8th Avenue west to the 100 feet.

(8) There shall be no parking, standing or stopping at anytime from 7:30 a.m. until 4:30 p.m. on days when school is in session on the south side of Main Street from 5th Avenue east to a point that is 100 feet west of 8th Avenue.

(9) There shall be no parking, standing or stopping at any time on the East side of 5th Avenue South between points 75 feet and 115 feet south of the south right-of-way line of Irvin Street.

(10) There shall be no parking, standing or stopping at any time from 7:30 a.m. to 4:30 p.m. on days when school is in session on the south side of Main Street from 5th Avenue east to a point that is 100 feet west of 8th Avenue.

(g) **St. Paul's Elementary School.**

(1) There shall be no parking, stopping or standing on both sides of Main Street from Sand Lake to the East property line of St. Paul's Elementary School.

(2) There shall be no parking, stopping or standing on the West side of Sand Lake from Main Street to a point one hundred (100) feet North thereof.

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #12

Project/Item Name:	Green Coulee Road intersection
Location:	Green Coulee Road and East Main Street
Requested Action:	Discussion on future intersection improvements
Staff Report/Description:	Staff has produced very preliminary sketches of possible intersection alterations. A request has been made to the Wisconsin Department of Transportation if they would support alterations to the intersection. Staff has estimated preliminary cost at $4,200,000.
Attachments:	Maps

CITY OF ONALASKA

415 MAIN STREET
ONALASKA, WISCONSIN 54650-2953
www.cityofonalaska.com

Engineering/Public Works Dept.
PHONE: (608) 781-9537
FAX: (608) 781-9506

April 24, 2014

Wisconsin Department of Transportation
Attn: Mr. Dale Oestreich
3550 Mormon Coulee Road
La Crosse, WI 54601

Dear Mr. Oestreich:

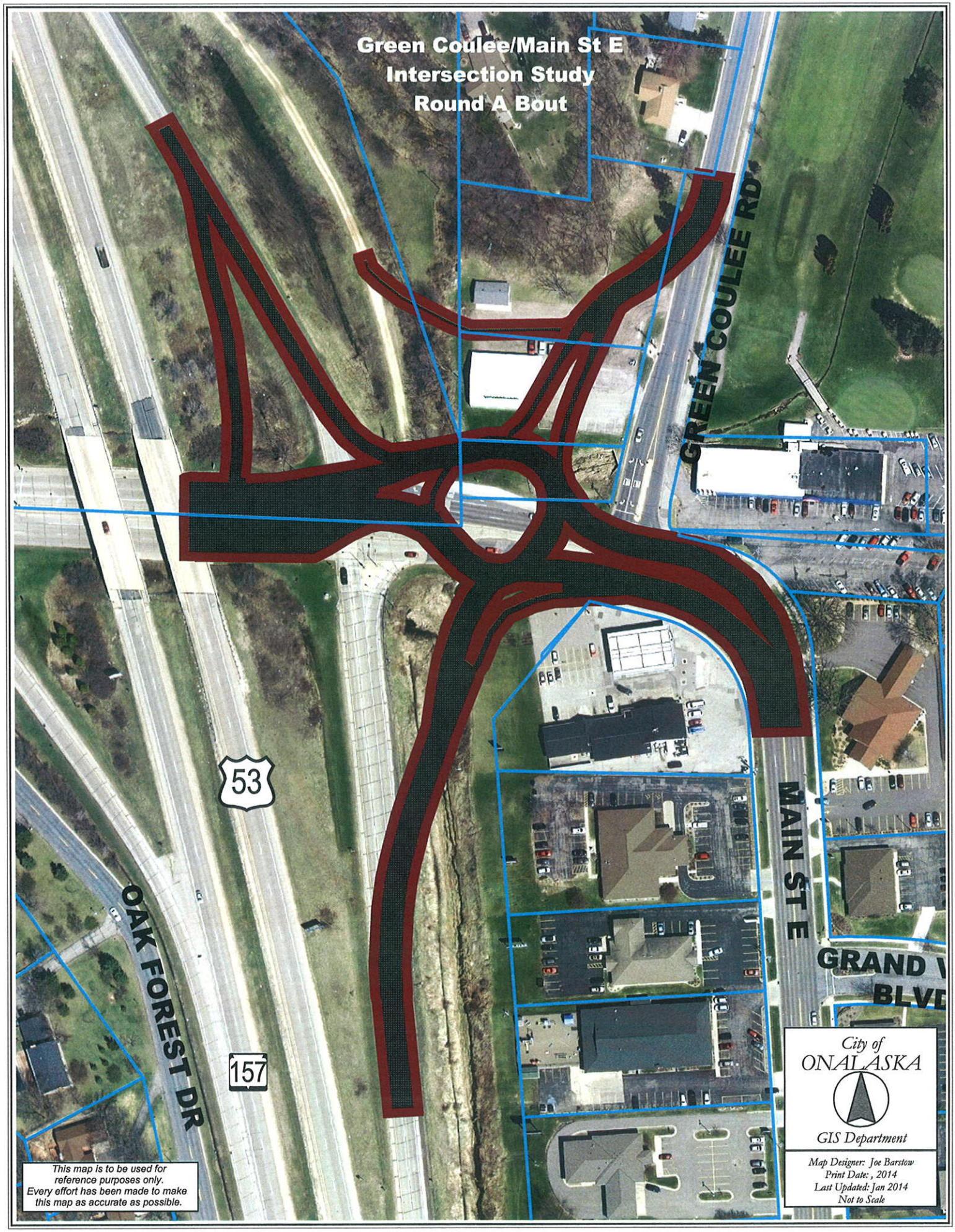
Attached are two (2) preliminary layouts of a revised Green Coulee Road and USH 53 northbound off-ramp configuration. The layouts depict a very rudimentary signalized intersection versus a roundabout for your review.

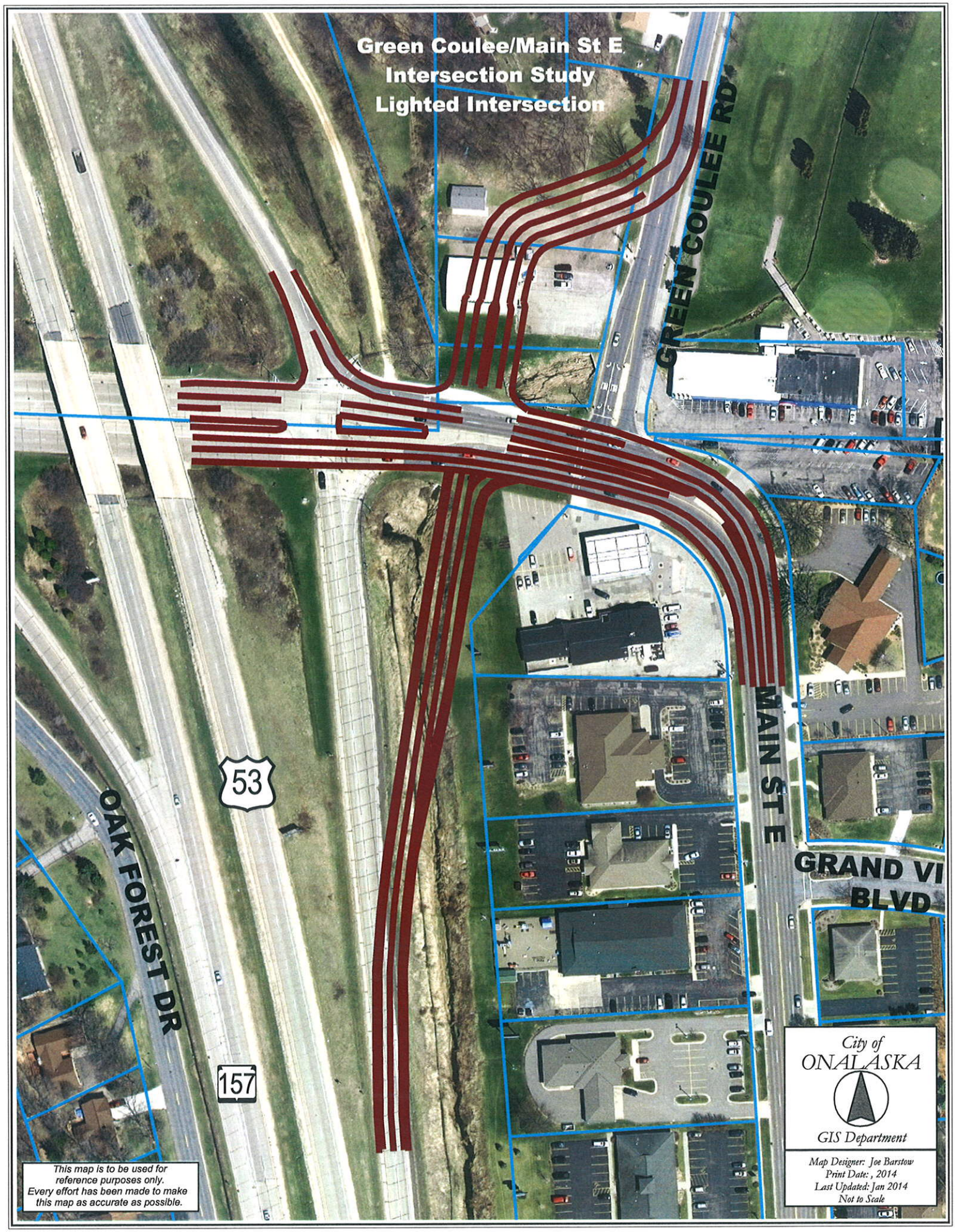
The City of Onalaska is requesting an opinion whether the Wisconsin Department of Transportation could conceptually support the installation of either of these reconfigured intersections. The City does not wish to invest resource in further planning of the intersection without Wisconsin Department of Transportation concurrence on the project.

If you have further questions or wish to discuss this please contact me at (608) 781-9537 or jholter@cityofonalaska.com.

Sincerely,

C. Jarrod Holter, P.E.
City Engineer


Green Coulee/Main St E
Intersection Study
Round A Bout
GREEN COULEE RD
MAIN ST E
GRAND
BLVD
OAK FOREST DR
53
157
This map is to be used for reference purposes only. Every effort has been made to make this map as accurate as possible.
City of
ONALASKA
GIS Department
Map Designer: Joe Barstow
Print Date: , 2014
Last Updated: Jan 2014
Not to Scale


Green Coulee/Main St E
Intersection Study
Lighted Intersection
GREEN COULEE RD
MAIN ST E
GRAND VI
BLVD
OAK FOREST DR
53
157
This map is to be used for reference purposes only. Every effort has been made to make this map as accurate as possible.
City of
ONALASKA
GIS Department
Map Designer: Joe Barstow
Print Date: , 2014
Last Updated: Jan 2014
Not to Scale

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #13

Project/Item Name:	Bait shop demolition
Location:	2nd Avenue and Irvin Street
Requested Action:	Approval of building demolition and associated costs
Staff Report/Description:	Staff is proposing to remove buildings using City Street Department. City staff is proposing the rental of a backhoe to assist with removal.
Attachments:	Map, estimated costs.

AVE N
MAIN ST
2ND AVE S
Structures
to be Removed
IRVIN ST
COURT ST S
1ST AVE S
HICK
City of
ONALASKA
GIS Department
Map Designer: Joe Barstow
Print Date: , 2014
Last Updated: Jan 2014
Scale: 1" = 100'
This map is to be used for
reference purposes only.
Every effort has been made to make
this map as accurate as possible.

Bait Shop building demolition costs

• Backhoe rental	$1,500
• Dumpster rental/hauling	$1,000
• Landfill charges	$4,000
• Recycling concrete	$0
• Archeological investigation	$6,000
• Preliminary underground storage tank removal consultant costs	$1,000
Total	$13,500

Note: City staff wages, fuel and City owned equipment not included into costs above. Depending on what is found during underground storage tank investigation further costs will be incurred for underground storage tank removal.

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #14

Project/Item Name:	Bait shop demolition
Location:	2nd Avenue and Irvin Street
Requested Action:	Approval of archeological work
Staff Report/Description:	Staff is proposing to remove buildings using City Street Department. City staff is proposing the rental of a backhoe to assist with removal.
Attachments:	Estimated costs, request to disturb a burial site, Data Recovery Plan.

Holter, Jarrod

From: Katherine Stevenson <kstevenson@uwlax.edu>
Sent: Monday, April 14, 2014 10:11 AM
To: Holter, Jarrod
Cc: Wendy Holtz-Leith
Subject: RE: building demolition monitoring

Jarrod,
We're revised our figures and reduced Wendy's hours to 16, which drops the not-to-exceed total to $5,948.
Regards,
Kathy

From: Holter, Jarrod
[mailto:jholter@cityofonalaska.com<mailto:jholter@cityofonalaska.com>]
Sent: Friday, April 11, 2014 4:28 PM
To: 'Katherine Stevenson'; Grace, Brea
Cc: Wendy Holtz-Leith
Subject: RE: building demolition monitoring

Kathy,

I appreciate you getting this over to me. I know this is the hot bed of archeological finds but do we need both you and Wendy on site to start?
It will be the City crew doing the removals so if we would find something we can quit for the day and give you time. The site is not that big or spread out. If you advise we need both then we go with that. Of course if anything is found especially any human remains I would expect at least both of you there and the scope and costs would change. Let me know your thoughts.

I appreciate the assistance,

Thank you,

C. Jarrod Holter, P.E.
City Engineer

City of Onalaska
(608)781-9537
jholter@cityofonalaska.com<mailto:jholter@cityofonalaska.com>

From: Katherine Stevenson [mailto:kstevenson@uwlax.edu]
Sent: Friday, April 11, 2014 3:29 PM
To: Holter, Jarrod; Grace, Brea
Cc: Wendy Holtz-Leith
Subject: building demolition monitoring

Jarrod and Brea,

I spoke with Sherman Banker today and verified that adapting the Data Recovery Plan and Burial Contract from last year's Locust St. sewer monitoring will be fine.

Wendy and I discussed the project and generated a not-to-exceed estimate of $7,585. It includes:

Stevenson: 44 hours-- 4 days (32 hrs) monitoring, plus 4 hrs prep (data recovery plan etc.) and 8 hrs write-up
Holtz-Leith: 36 hours-- 4 days (32 hrs) monitoring, plus 4 hrs assisting with prep and write-up Business Manager: 1 hr for accounting and invoicing
Curation: $100

Given the sensitivity of the area, it seems safer to have both of us out there during the monitoring. This amount would cover monitoring and basic finds, but if we encounter human remains or significant discoveries that would require additional time, we would need to work with you to reassess the situation and adjust the budget as appropriate.

Please let me know if you have any questions or concerns, and let me know when we have the OK to proceed with the data recovery plan etc.

Thanks,
Kathy

Katherine Stevenson
Projects Director
Mississippi Valley Archaeology Center
University of Wisconsin-La Crosse
1725 State St.
La Crosse, WI 54601
Office: (608) 785-8451
Cell: (608) 386-9823
kstevenson@uwlax.edu<mailto:stevenso.kath@uwlax.edu>
http://www.uwlax.edu/mvac/

WISCONSIN HISTORICAL SOCIETY

Request to Disturb a Burial Site

Smithsonian Code 47LC-288, 47LC-736 Burial Site Number BLC-0104, BLC-123
Town 16 Range 7W Section 8 Quarter Sections SW, NE, NE
Civil Town City of Onalaska County Onalaska

Cataloging Status:

- [x] Proposed disturbance is in an **uncatalogued** burial site, or is in the uncatalogued portion of a site that contains catalogued burials.
- [ ] Proposed disturbance will impact a **catalogued** site and/or the catalogued buffer contiguous to a catalogued burial site.

Nature of Work:

Briefly describe the **reason** for the proposed ground disturbing activities: Removal of two abandoned buildings and an abandoned underground tank

Briefly describe the **nature** of the proposed ground disturbing activities: Exploratory trenching to assess tank; remove building foundations and cap utilities in place; remove tank; refill disturbed areas with clean fill, and seed

Size of area to be disturbed ca. 60 x 20 m

Supporting Documentation

- [x] I have enclosed a set of scaled project plans showing the relationship of the proposed ground disturbance to the boundaries of any catalogued areas and the boundaries of the burial site as a whole (**REQUIRED**).
- [ ] I have enclosed documents attesting to prior ground disturbance of the parcel, including aerial photos, plat maps, etc. (OPTIONAL).
- [ ] I have enclosed affidavits or testimony from owners or agents regarding the potential for intact burials in the area to be disturbed (OPTIONAL).

If Requesting to Disturb a Catalogued Burial Site (Choose One)

- [ ] I am requesting that the Director of the Wisconsin Historical Society consider this request to disturb a catalogued burial site, per the provisions of Wis. Stats. 157.70. I understand that the Wisconsin Historical Society will provide me with the materials necessary to notify members of the Registry of Interested Persons (RIP) and that I will personally be responsible for notifying the RIP and initiating their review. I understand that the full review process may take between 60-90 days to complete and that my request may be denied based on the objections of the Director or members of the RIP. I understand that I, the Director, and members of the RIP have the right to request that an administrative law judge consider this request rather than the Director of the Wisconsin Historical Society. I understand that I, the Director, or the RIP may appeal the Director or administrative law judge's decision to the Burial Sites Preservation Board or a court of competent jurisdiction.
- [ ] I am requesting that the Director of the Wisconsin Historical Society proceed directly to an administrative hearing in order to determine whether my request should be permitted or denied. I understand that asking for an administrative hearing may substantially increase the time required to review this request, and that my request may be denied by the administrative law judge. I understand that I, the Director, and members of the RIP have the right to appeal the judge's ruling to the Burial Sites Preservation Board or a court of competent jurisdiction.

Signed _____ **Date** _____

Return completed form to:

Sherman Banker
Wisconsin Historical Society
816 State Street
Madison, Wisconsin 53706

(608) 264-6507
Fax (608) 264-6504
Sherman.Banker@wisconsinhistory.org

(Attachment)
Request to Disturb a Burial Site

Applicant: Jarrod Holter, City Engineer
City of Onalaska
415 Main Street
Onalaska, WI 54650
Phone: (608) 781-9537
E-mail: jholter@cityofonalaska.com

Project: 2014 Building Demolition and Underground Tank Removal. Location: North of Irvin Street, east of Court Street, City of Onalaska, La Crosse, Wisconsin (Figures 1 and 2).

The City of Onalaska is requesting permission to disturb an area within the boundaries of two uncatalogued burial sites in order to remove two abandoned buildings and an abandoned underground storage tank. The buildings are in poor condition and must be removed, and the tank is a potential environmental hazard and must be removed. As shown in Figure 2, the area of ground disturbance will be the minimum necessary to remove the building foundations and the tank. The overall project area is slightly larger, to allow for equipment staging and operation. Ground disturbance is expected to occur in two stages. The first stage will consist of removal of the building foundations (with utilities capped in place) and exploratory trenching to identify the location, size, and nature of the tank. The second stage, after appropriate permits and arrangements are in place (expected to take about 60 days), will consist of removal of the tank. The removal locations will be refilled as needed with clean fill, and seeded. More information is provided in the attached Data Recovery Plan (with appended burial contract), prepared for the State Historic Preservation Office (SHPO) because of the archaeological sensitivity of the area.

Uncatalogued Burial Sites: The project is within the boundaries of two uncatalogued burial sites, described in more detail in the attached Data Recovery Plan. The **Onalaska Village and Cemetery site (47LC288/BLC-0104)** is an Oneota village and burial site that was initially defined based on historic records. Extensive data recovery operations for the reconstruction of adjacent STH 35 in 2012 documented intact archaeological deposits, including human remains. The **Boat Ramp Mound Group (47LC736/BLC-0123)** is a mound group that included at least one effigy, documented in the late 1800s. Although scattered Woodland artifacts have been found in the area, no remnants of the mound group have been identified to date.

Proposed Actions: As in the case of the STH 35 reconstruction, the proposed building demolition and tank removal project is not well suited to traditional archaeological field methods in advance of construction. Therefore, the City of Onalaska proposes to have a qualified archaeologist from the Mississippi Valley Archaeology monitor any ground-disturbing activities during the project. The monitoring will be conducted by a "qualified archeologist" as specified under Wis. Stats. § 157.70 (1) (i) and Wis. Admin. Code § HS 2.04 (6). We understand that if human remains or burial features are encountered at any time during construction, all work must cease and we must contact the Wisconsin Historical Society at 1-800-342-7834 or 608-264-6507 to ensure compliance with Wis Stat. § 157.70, which provides for the protection of human burial sites.

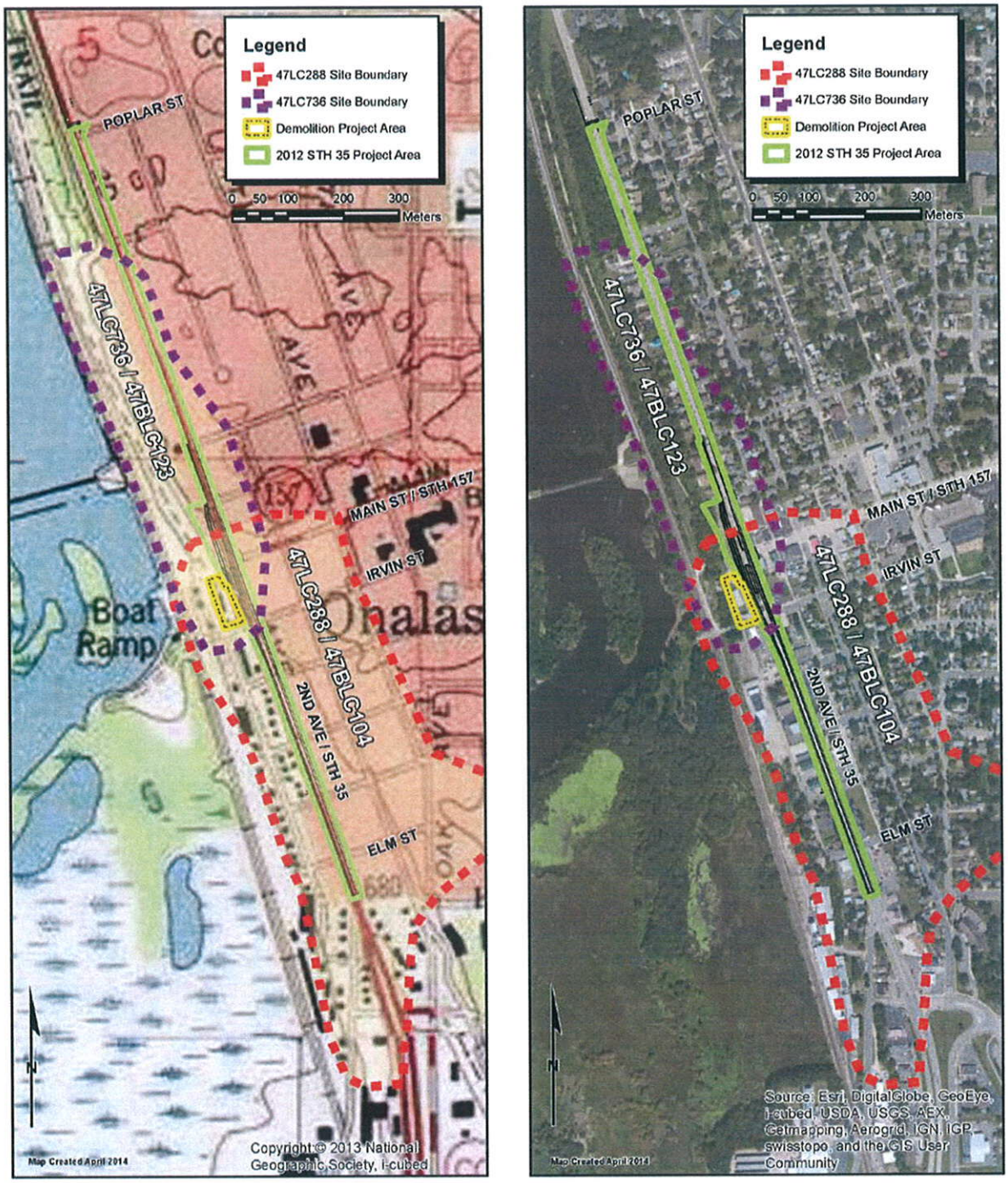


Figure 1. Project area (yellow) for the proposed building demolition and tank removal project, shown in relation to the two uncatalogued burial sites and the adjacent project area for the 2012 STH 35 reconstruction project.

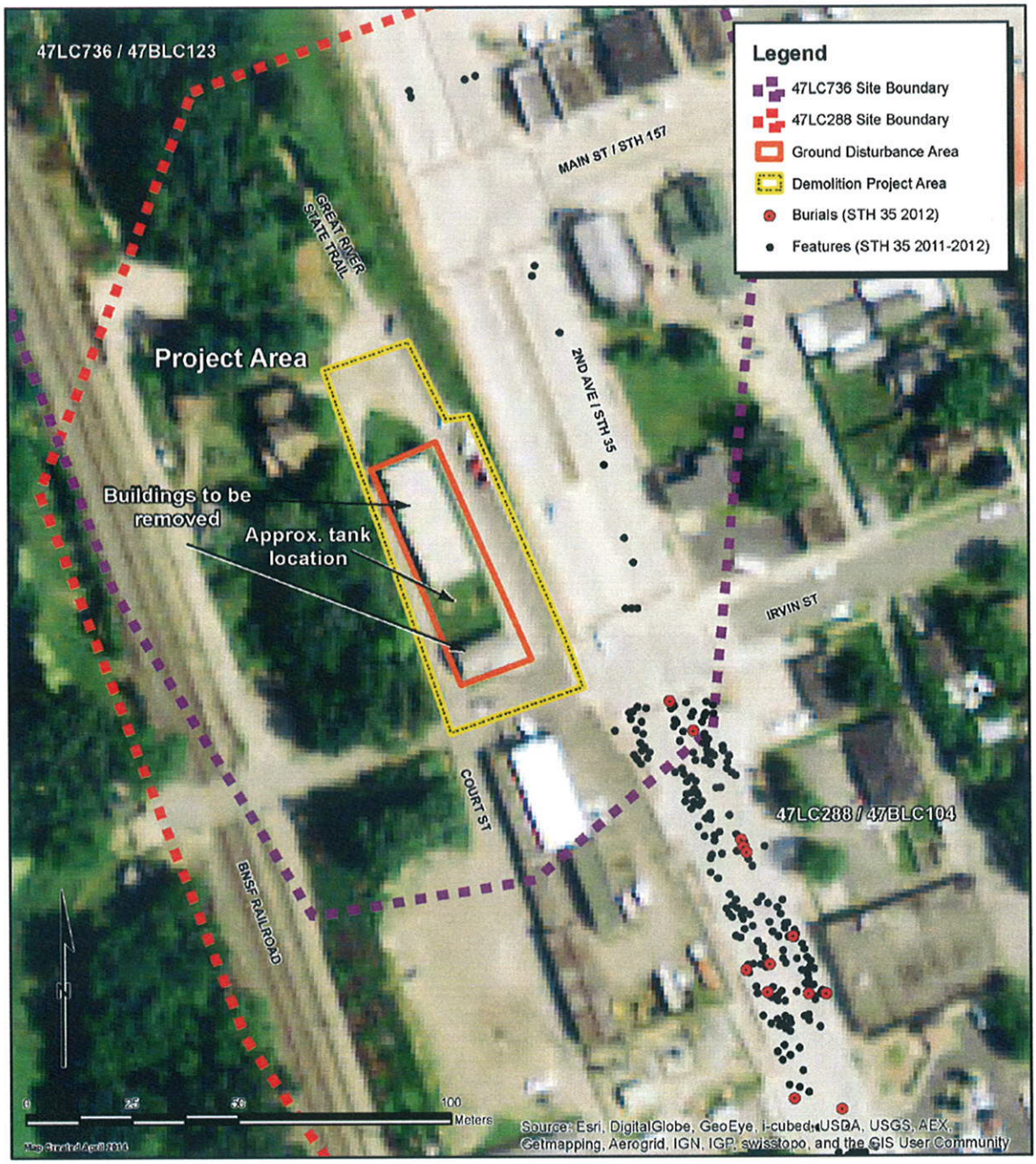


Figure 2. Close-up of proposed project in relation to uncatalogued burial site boundaries and locations of nearby finds from the 2012 STH 35 reconstruction project. The underground tank is in the grassy strip between the two buildings. All staging and equipment operation will be within the yellow project area boundary, and ground disturbance will be within the orange boundary.

Data Recovery Plan

for the Onalaska Village and Cemetery (47LC288/BLC-0104) and Boat Ramp Mound Group (47LC736/BLC-0123) Sites in the City of Onalaska, La Crosse County, Wisconsin

Prepared for the City of Onalaska

Regarding:
2014 Building Demolition and Underground Tank Removal near Irvin and Court Sts.

Prepared by
Katherine P. Stevenson

Mississippi Valley Archaeology Center
at the University of Wisconsin–La Crosse

April 2014

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Introduction

The City of Onalaska, Wisconsin, proposes to remove two abandoned buildings and an abandoned underground tank in downtown Onalaska, La Crosse County, between Court St. and 2nd Avenue (STH 35), north of Irvin Street (Figures 1 and 2). The work will involve exploratory trenching to assess the tank, removal of the structures and associated foundations, and removal of the tank, followed by refilling with clean fill and seeding. Wis. Stats. § 157.70 requirements are in effect because the project overlaps the boundary of two uncatalogued burial sites: the Onalaska Village and Cemetery site (47LC288/BLC-0104, hereafter referred to as 47LC288); and the Boat Ramp Mound Group (47LC736/BLC-0123, hereafter referred to as 47LC736).

The proposed project is adjacent to the project area for the reconstruction of STH 35, completed in 2012 (WisDOT ID #7190-05-00/71). Because extensive archaeological deposits were discovered during the STH 35 project, the State Historic Preservation Office (SHPO) has requested the preparation of a data recovery plan (DRP) and burial contract (Appendix A) for ground-disturbing projects in this general site area. In June 2008 the Wisconsin SHPO concurred with a DRP for the STH 35 reconstruction entitled, "A Recovery Plan for Archaeological Remains at the Proposed Reconstruction of STH 35 Oak Forest Drive to Poplar Streets, Onalaska, Wisconsin" (Boszhardt 2008). This DRP was developed to mitigate effects on 47LC288, which was treated as NRHP eligible pursuant to 36 CFR 800.4(c), and to address Wis. Stats. § 157.70 burial site requirements for both 48LC288 and 47LC736. Because of the proximity and similarity of the two adjacent project areas, the similarity of the planned construction activities, and the fact that the same archaeological sites are involved, the DRP implemented for the STH 35 project also represents the most effective data recovery strategy for the proposed building demolition and tank removal project. Thus this DRP for the building demolition and tank removal project incorporates mitigation strategies from the June 2008 DRP for STH 35. This current DRP is also similar to one approved for a sewer project completed on nearby Locust St. in 2013 (Stevenson 2013).

Summary of ground disturbance: Ground-disturbing activities for the building demolition and tank removal project are expected to occur in two stages, with archaeological monitoring planned for both stages. In the first stage, the tank between the two buildings will be exposed to determine its size, type, and condition, and the foundations of the two buildings will be removed, with existing utilities capped in place. About 60 days later, after appropriate permits and arrangements are in place, the second stage will consist of removal of the underground tank. The disturbed areas will be refilled with clean fill, and seeded. The City of Onalaska has arranged for a qualified archaeologist from the Mississippi Valley Archaeology Center to monitor ground-disturbing activities during the project.

Environmental Setting

The following information on the environmental setting is summarized from previous reports on the STH 35 and former Great River Cultural and Tourism Center (GRCTC) projects, particularly Boszhardt (2006), Stevenson and Holtz-Leith (2011a, 2011b), and the STH 35 DRP (Boszhardt 2008).

Current and past land use. The building demolition and tank removal project area lies west of STH 35 and north of Irvin Street, in Onalaska's historic downtown. The two abandoned structures to be removed are adjacent to Court Street, and the underground tank is in a small grassy area between the two buildings. Court Street is paved, as is a parking area just to the east. On the north side of the northern building is a small, unpaved access area. Both buildings were examined for the previous projects and did not meet NRHP eligibility criteria.

The southern structure, 111 Irvin St., was the original office for the C. M. Nichols lumber company and was built sometime before 1887. It was substantially modified for later uses and has a partial basement. The northern structure is a one-story concrete-block building that sits on a cement slab and has no basement, and was probably built before 1936. Sanborn fire insurance maps from the late 1800s show small buildings that overlapped the north end of this location. Sanborn maps from the same

period also show a small warehouse in what is now the grassy strip between the two current buildings, in the approximate location of the underground tank. Nothing is known about the tank itself.

Geology and geomorphology. The project area lies near the western edge of the Onalaska Terrace, along the east side of the Mississippi River valley, where the Black River flows into the Mississippi. This area is within the "Driftless Area" (Martin 1965) of southwest Wisconsin, southeast Minnesota, northeast Iowa, and northwest Illinois. The Driftless Area contains older landforms that were not reshaped by Pleistocene glaciation, but instead have eroded to form dendritic drainage systems and a rugged landscape of steep ridges and deeply incised valleys. This area is also within the Western Upland geographic province, a thoroughly dissected upland (Martin 1965).

Although glaciation did not shape the Driftless Area uplands, the Mississippi trench was scoured repeatedly by catastrophic floods caused by the release of glacial meltwater from lakes formed by dammed-up sediment or moraines. After each flood episode, sediment was deposited in the valley bottom when the flow of meltwater decreased. The exposed sediments were prone to wind erosion, leading to formation of dunes on the terraces and a thick mantle of loess along the nearby Wisconsin bluffs. Following the last glacial flooding about 9,500 years ago, erosion processes sculpted channels through the sediments, leaving a system of terraces. La Crosse, Onalaska, and other towns in this section of the Mississippi Valley are located on these sand-and-gravel terraces, which once were part of the river bed during the meltwater floods.

In his Phase I report on the STH 35 corridor, Boszhardt (2006) discussed the formation and surroundings of the Onalaska Terrace in detail. This terrace formed through infilling during the late Pleistocene, after catastrophic flooding between about 20,000 and 14,000 B.P. (before present). Like the other terraces, it is made up of outwash deposits of sand and gravel, with dunes on the surface. The building demolition and tank removal project area is near the western edge of the terrace, overlooking the mouth of the Black River and the Mississippi floodplain.

Exposed bedrock in the Driftless Area consists of Cambrian sandstone or Ordovician limestone or dolomite. To the east of the Onalaska Terrace, the bedrock is Ordovician dolomite, which contains Prairie du Chien chert. The Cambrian sandstone below that sometimes contains silicified sandstone. In precontact times, local peoples used both materials as raw materials for chipped-stone tools.

Soils. An earlier La Crosse County soil survey (Beatty 1960) showed no specific types within developed portions of Onalaska but a mosaic of soil types for nearby areas of the Onalaska Terrace. Most common were Plainfield, Sparta, and Dakota soils. Current online soils maps (NRCS 2010) now show the area primarily as "Urban lands, valley trains," which is "land mostly covered by streets, parking lots, buildings, and other structures of urban areas. Soil textures and colors and the thickness of the individual soil layers vary greatly as a result of disturbance caused by urban development" (NRCS 2006:77). Pockets of typed soils in this area and nearby to the north are primarily Chelsea fine sands, a type not used by Beatty. In 2010, Strata Morph Geoexploration, Inc., conducted a geomorphological analysis (Kolb 2010) for another proposed project (Great River Cultural and Tourism Center [GRCTC]) that included the present project area. Kolb found that the Dakota and Rasset series were most similar to those found in their coring of the GRCTC project area. Both are typic argiudolls that form in loamy and sandy deposits. Archaeological monitoring during the reconstruction of STH 35 included a gas main trench that extended into the eastern parking area within the proposed building demolition and tank removal area. Soils in that trench were found to be previously disturbed.

Flora and Fauna. In precontact times, the Onalaska Terrace would have supported prairie-savanna vegetation communities (Finley 1976) maintained by accidental or intentional burning (Curtis 1959). These communities would have had scattered oak trees and fewer food resources for humans than the neighboring floodplains and uplands; however, they would have been well drained, desirable areas for habitation. The plant and animal resources of the Mississippi and Black River floodplains were varied and abundant, and accessible primarily during the warm season. The rivers, sloughs, marshes, and bottomland

forests would have provided fish, turtles, freshwater mussels, waterfowl, deer, beaver, muskrat, and many other species, plus a range of plant resources, including wild rice. The uplands would have supported primarily prairie or oak savanna on the drier, warmer south- and west-facing slopes, with some upland forests on the moister, cooler north- and east-facing slopes.

Archaeological Context

Cultural History. The cultural history presented here focuses on those cultures and time periods that are most pertinent for this project, and discusses other time periods and cultures more briefly. More detailed discussions and references are available in the Phase I survey report for the GRCTC project area (Stevenson and Holtz-Leith 2011a), and the DRP and the initial discovery report for the STH 35 data recovery (Boszhardt 2008; Stevenson and Holtz-Leith 2011b).

Paleoindian tradition. Climatic changes between 18,000 and 11,500 B.P. marked the end of the Pleistocene (Ice Age) and the beginning of the postglacial Holocene. By about 13,000 B.P. the glaciers retreated from the Upper Midwest, and the region became habitable for humans. The first occupants, termed Paleoindians by archaeologists, date to perhaps 13,500–10,000 B.P. and are thought to have been mobile hunter-gatherers who hunted Pleistocene megafauna such as mammoths and mastodons. Megafauna remains are sometimes found in the Onalaska/La Crosse area, including a mastodon bone found in Long Coulee just a few miles from the project area. Earlier Paleoindian sites are recognized by the presence of fluted projectile point types, including Clovis or Gainey types, while later Paleoindian sites are characterized by various lanceolate forms, including Agate Basin. The base of a Late Paleoindian point was found in disturbed soil during the 2012 data recovery on STH 35.

Archaic tradition. By the beginning of the Holocene (ca. 10,000 B.P.), most of the megafauna had become extinct, and the region's peoples adapted to the warmer, drier postglacial environment and vegetation communities more similar to those of today. Projectile point types from this period include stemmed and notched lanceolate types such as Eden, Scottsbluff, Hardin Barbed, and Thebes. The climate grew drier with the Altithermal period, which reached its maximum about 7,000 B.P. and was associated with the expansion of prairie areas, but by 4,000 B.P. moisture levels were once more similar to those of today. Middle Archaic peoples of this time still followed a hunter-gatherer lifestyle but with more diverse resource use and adaptation to specific environments. They probably congregated in larger groups (macrobands) along major rivers during the warm season, using extensive floodplain resources, and dispersed into interior locations for the cold season, focusing on hunting deer and elk. Use of rockshelters is well documented for this time, and side-notched Raddatz points are a common type. Beginning about 3,000 B.P. Late Archaic peoples had begun cultivating some crops, including squash. Complex burial practices and long-distance exchange are also evident in some Late Archaic manifestations.

Woodland tradition. The best-known hallmarks of the Woodland tradition are pottery, burial of the dead in earthen mounds, and horticulture, although these three developments did not occur in all areas or all at the same time. The first pottery in the Driftless Area dates to about 2,500 B.P. and consists of thick-walled Early Woodland types such as La Moille and Marion Thick. Early Woodland projectile points include straight or contracting stemmed types such as Kramer and Waubesa. The Middle Woodland period of about 1,800 years ago is best known for complex mortuary behavior, construction of large conical mounds with elaborate tombs and exotic goods, and long-distance exchange. These traits were associated with Hopewell-related manifestations that were centered in southern Ohio and central Illinois but influenced a broad area of the Midwest. Middle Woodland artifacts include corner-notched points such as Snyders and Manker, and Havana pottery with tool-impressed decorations. Even after the end of Hopewell around 1,600 years ago, late Middle Woodland peoples continued to bury their dead in conical mounds, although without the exotic goods. They also produced corner-notched projectile point types such as Steuben, and thinner-walled Linn ware pottery. By about 1,300 to 1,500 B.P., regional sites

show evidence of bow-and-arrow technology, Lane Farm cord-impressed pottery, and then the construction of animal-shaped earthen mounds characteristic of the Late Woodland Effigy Mound culture. Late Woodland peoples still displayed a hunting-gathering economy, congregating along major rivers during the warm season and dispersing into the interior during the cold season. Use of wild resources was supplemented by corn horticulture. Most of the Driftless Area shows a general lack of sites from the end of the Late Woodland Effigy Mound culture until ca. A.D. 1300, when Oneota cultures appeared in the area. A small number of Woodland ceramic sherds and projectile points have been found scattered in or near the project area, including in Oneota features along the STH 35 corridor, but no evidence of intact deposits has been discovered.

Middle Mississippian tradition. Before the end of the Late Woodland period, cultures of this region were visited and no doubt influenced by Middle Mississippian peoples associated with well-known chiefdom-level societies of Cahokia and the American Bottom. Evidence of trade and direct contact is present at Stoddard and Trempealeau, and at Sand Lake Coulee on the east edge of the Onalaska Terrace. Mississippian cultures of the American Bottom declined by about 800 B.P., as did their influence.

Oneota tradition. The Oneota tradition is the final pre-European culture found in most of the Midwest, occurring in parts of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, South Dakota, and Wisconsin. Oneota manifestations show broad similarities in economic and material culture: reliance on agriculture supplemented by hunting, fishing, and gathering; occupation of semipermanent villages and smaller seasonal campsites; seasonal movement to exploit diverse resources; and non-complex sociopolitical organization. Diagnostic artifacts include globular, shell-tempered pottery vessels, small Madison Triangular arrow tips, end scrapers, and bison scapula hoes.

The Oneota occupation of the La Crosse and Onalaska terrace system dates to around A.D. 1300–1625 and is represented by numerous sites and site complexes. After A.D. 1625 Oneota-related peoples on the western side of the Mississippi are associated with European trade goods. To the west, Oneota peoples have been linked to historically known tribes such as the Ioway, Otoe, and Missouri, who are linguistically related to the Ho-Chunk. The local occupation has been divided into three phases (Boszhardt 1994):

The earliest *Brice Prairie phase* (A.D. 1300–1400) may reflect a population shift from the Red Wing/Lake Pepin locality at about A.D. 1300. Brice Prairie phase components tend to be on terrace edges overlooking the Mississippi floodplain. Local ceramic types include Perrot Punctate and Brice Prairie Trailed. Brice Prairie phase sites components have been found on the Brice Prairie outlier terrace (47LC76); in the Trempealeau locality (47TR44 and 47TR157); at the southern edge of the La Crosse Terrace (47LC59 and 47LC20); in the Sanford Archaeological District (SAD) near downtown La Crosse; and most recently, at 47LC288 during the STH 35 data recovery.

The subsequent *Pammel Creek phase* (A.D. 1400–1500) was a period of transition. Occupations were situated back from the river, but riverine resources remained important. Pammel Creek phase site complexes include Midway/Tremaine (47LC19/LC95) near Holmen, Sand Lake Coulee (47LC44) northeast of Onalaska, and Pammel Creek (47LC61) in south La Crosse. The locations of these sites near fertile bottomlands, together with the existence of ridged agricultural fields at Sand Lake, highlight the importance of agriculture, even though floodplain resources continued to be important.

During the final *Valley View phase* (A.D. 1500–1625), occupations were generally farther from the river, at or near the bluff base. The Valley View type site (47LC34) was on a defensible peninsula along the La Crosse River and was also palisaded, suggesting a perceived need for defensive capabilities.

At about A.D. 1625, Oneota peoples evidently abandoned La Crosse for the interior valleys of southwest Minnesota and northeast Iowa for reasons that are not well understood. European contact in other regions probably had impacts in the La Crosse locality well before Europeans actually arrived, and contact-related impacts such as disease, population displacement, and conflict might have contributed to Oneota abandonment of the area. Like the palisade at the Valley View site, the apparent move to small secluded valleys west of the Mississippi River might also have had a defensive component. Other

potential factors could have included the shorter growing season of the Neoboreal or "Little Ice Age" climatic episode from A.D. 1550 to 1850, or increased interest in bison hunting.

Three major Oneota site complexes have been documented for the Onalaska Terrace. One is the Sand Lake Archaeological District at the mouth of Sand Lake Coulee, northeast of the city of Onalaska. Pleistocene sediments that formed the Mississippi Valley terraces also blocked the outlet of Sand Creek, forming a several-hundred-acre floodplain. The fertile soils of this trapped floodplain were used for Oneota ridged field systems, with settlements on the surrounding sandy dunal terraces and loess hills. This site complex dates primarily to A.D. 1300–1500. The second is the Midway/Tremaine complex near the outlet of Halfway Creek, a tributary that managed to cut through the sediments of the Mississippi River terraces. The Midway/Tremaine complex has produced evidence of structures and cemetery areas and dates to A.D. 1300–1600. The third is the Onalaska Village and Cemetery site (47LC288), which was known only through historic accounts of finds until the STH 35 data recovery confirmed the presence of hundreds of features and numerous locations with human remains. Analysis of the recovered materials is just beginning, but so far Brice Prairie phase materials seem most common, although materials from the two later phases are present as well. Another relevant site complex is the Sanford Archaeological District in south La Crosse, which is on a different terrace but in a comparable urban setting. This complex covers 26 city blocks, and multiple projects have found intact features, midden remnants, and human burials. This site is also dominated by Brice Prairie phase materials, with later materials also represented.

Historic Era. Native Americans have occupied the Upper Mississippi Valley nearly continuously through the Early and Late Historic Periods and into the present day. Tribes that maintained a presence in the Upper Mississippi Valley include the Ho-Chunk (formerly known as the Winnebago), Huron, Illini, Mesquakie (Fox), Ioway, Kickapoo, Miami, Mascouten, Ojibwe, Santee Dakota, and Sauk. The Ho-Chunk maintained a strong presence in the La Crosse and Onalaska area throughout the historic era, despite repeated government removal attempts in the mid- to late 1800s, and they form a major part of the region's communities today.

Euro-American settlement of the Onalaska area began in the 1840s with the growing lumber industry. Early settlers built small houses and temporary lodging while they harvested timber along the Black River. The village of Onalaska was founded by Thomas Rowe in 1851. By 1856 the town had three sawmills and two more under construction, as well as a sash factory, a brewery, a bakery, two blacksmith shops, a cooper shop, eight stores, and 40 dwellings. Also in 1856, C. M. Nichols and N. J. Tomkins bought Onalaska's first lumber mill, built in 1852–1853. This mill was just west of STH 35, at Irvin Street and STH 35, as well as in the floodplain to the west. The southern of the two buildings to be removed in the current project originally served as the mill office; subsequently, it was used for other purposes and was substantially modified. The first railroads reached the area by the 1860s, and by the 1870s, railroads had taken over much of the freight and passenger traffic formerly carried by riverboats. With the decline of lumbering by about 1900, new businesses such as the Onalaska Woolen Manufacturing Co. (later the Wisconsin Spinning Mills) and a pickle canning factory helped keep Onalaska alive.

Previously Recorded Sites and Previous Archaeological Investigations

The Archaeological Site Inventory (ASI) in the Wisconsin Historic Preservation Database (WHPD) lists 22 sites within one mile of the project area, 16 of them prehistoric and 6 historic. They have been discussed previously (Stevenson and Holtz-Leith 2011a, 2011b), and only two that overlap the project area will be discussed here. Initially, the WHPD mapped these two sites as non-overlapping and much smaller than their current boundaries. Information on both sites was refined and updated during work for the STH 35 corridor (Boszhardt 2006; Stevenson and Holtz-Leith 2011b) and the Phase I study for the GRCTC (Stevenson and Holtz-Leith 2011a), resulting in the current boundaries (Figure 1).

47Lc288/BLC-0104, Onalaska Village and Cemetery. Overall, the boundaries of this site are arbitrary and poorly known, and are based on historical accounts and information from local residents. The initial boundaries were based on Brown (1913): "Burial places have been disturbed in various places along and back from the river bank from the northern limits of the city to as far south as the Onalaska brewery" (which was on the extreme southern end of the town, in a location later used by the JS Gedney Pickle Company). Boszhardt (2006) compiled a list of 13 find locations that led to an expanded boundary. The 2010 Phase I study for the GRCTC (Stevenson and Holtz-Leith 2011a) corrected the locations of some of those finds and added others, resulting in another boundary expansion.

Several archaeological field investigations have taken place within the site. In 2003 MVAC shovel tested two lots on the east side of STH 35 in the first block south of Main Street, where a restaurant had burned to the ground. Three shovel tests produced historic refuse, and two of them also produced prehistoric artifacts, including debitage and an Oneota end scraper (MVAC files).

In 2005 MVAC's Phase I survey for the STH 35 reconstruction (Boszhardt 2006) consisted of coring, augering, or shovel testing in the few available green spaces, including narrow strips of grassy boulevard. Prehistoric artifacts were found in tests and auger holes, all in contexts that were previously disturbed, probably by utility trenches. More extensive excavation or Phase II testing was impractical. The site was evaluated as potentially NRHP eligible based on the results of the Phase I investigation and comparison with the Sanford Archaeological District in south La Crosse. The SHPO concurred with this interpretation, and WisDOT and the Federal Highway Administration (FHWA) agreed to treat the property as eligible, leading to the preparation of a MOA and DRP (Boszhardt 2008). The DRP called for archaeological monitoring of ground-disturbing activities such as building demolition, pavement removal, and utilities work, and also contained provisions related to the discovery of human remains.

In 2010 MVAC conducted Phase I investigations for the GRCTC as the project area was then defined, before the southern end was moved north of Irvin Street, and before the northern end was extended north of Main St. The eastern portion of the project area was on the sandy Pleistocene terrace, and the western portion encompassed the steep, geomorphically active terrace-edge slope. The investigation was limited by existing pavement, structures, and disturbances but included archival research, extensive GeoProbe coring (Kolb 2010), and limited hand probing and shovel tests (Stevenson and Holtz-Leith 2011a). Shovel tests on the terrace-edge slope found prehistoric artifacts, including Oneota pottery, in disturbed contexts. No artifacts or features were found in the GeoProbe coring, but in some eastern portions of the project area, the coring showed apparently intact soils, typically truncated (i.e., missing the uppermost A horizon but containing the underlying B horizon), under historic fill.

In 2011, monitoring of building demolition prior to the reconstruction of STH 35 identified intact remnants of two Oneota storage or refuse pits underneath a commercial building on the west side of STH 35 just north of Main St. (Stevenson and Holtz-Leith 2011b). In 2012, monitoring of the STH 35 reconstruction led to the discovery and excavation of approximately 500 Oneota pit features and over thirty locations with human remains. Also in 2012, after the GRCTC project area was expanded north of Main St., MVAC conducted additional Phase I investigations of the additional area (Stevenson and Holtz-Leith 2013), with negative results.

The only archaeological work that has been done where the two buildings and underground tank are to be removed was the GeoProbe coring done for the initial GRCTC Phase I survey (Kolb 2010). A single core placed near the southeast corner of the northern building dropped through a void that indicated the presence of an underground tank. Surface indications of an underground tank were also visible near the southwest corner of the same building.

47Lc736 (BLC-0123), Boat Ramp Mound Group. This site was reported in 2002 from scant information provided in 1889 records of Theodore H. Lewis, who mapped a mound group that included a "panther" mound. Despite uncertainties regarding its location, it is likely that this mound group did exist, and according to Boszhardt (2006), the most likely location is that shown in the ASI (Figure 1).

Archaeological investigations within the Boat Ramp Mound Group boundaries include Boszhardt's 2005 survey for the STH 35 corridor (Boszhardt 2006), the 2011 building demolition

monitoring for STH 35 (Stevenson and Holtz-Leith 2011a), the 2012 construction monitoring along STH 35 (report in preparation), the Phase I survey work for the GRCTC in 2010 and 2012 (Stevenson and Holtz-Leith 2011a, 2013), and archaeological monitoring for the Locust Street sewer project in 2013 (Stevenson 2013). A small number of Woodland ceramic sherds and projectile points have been found scattered throughout the general area, but no traces of the mounds have been identified.

Justification for Data Recovery and Application of STH 35 DRP

Archaeological Significance. As noted above, both 47LC288 and effigy mound site 47LC736 are considered to have the potential to contain human burials under Wis. Stats. § 157.70. For the STH 35 reconstruction project, which was also subject to Section 106 requirements, Oneota site 47LC288 was treated as eligible for the NRHP pursuant to 36 CFR 800.4(c). The potential for intact archaeological deposits and human burials at 47LC288 was confirmed during the data recovery for the STH 35 reconstruction.

No Alternative. The two buildings within the project area are abandoned and in poor repair and are in need of removal. The underground tank just south of the northern building is a potential environmental hazard and also requires removal. To minimize impacts to the site, ground disturbance will be limited to removal of the buildings and their foundations, and removal of the underground tank. These areas are expected to be previously disturbed from the original building construction and tank installation. The areas will be refilled with clean fill and seeded.

Area of Potential Effect (APE). The APE for the building demolition and tank removal project is shown in Figures 1 and 2. It includes the buildings to be removed, the underground tank between them, and sufficient surrounding area for staging and heavy equipment operation. Figure 2 identifies the buildings and the tank location and the area of actual ground disturbance. Wis. Stats. § 157.70 permission requirements apply to the entire project area. The SHPO has requested a DRP for the project. Adoption of the research questions and methodology already developed in the DRP for the STH 35 project (Boszhardt 2008) provides the most effective approach for this adjacent, related demolition project area.

Research Questions

The DRP for STH 35 (Boszhardt 2008) included a detailed presentation of research questions related to NRHP-eligible Oneota site 47LC288. Briefly summarized, these research questions included:

(1) Chronology: Where did the site fit within the ca. 300-year Oneota occupation of the La Crosse locality?
(2) Settlement patterns and community settlement plan: What is the site's location and role within the larger settlement patterns related to the La Crosse Oneota occupation? What internal spatial patterning is evident?
(3) Site taphonomy: What site formation processes are evident, and how does the site relate to the original terrace landforms?
(4) Feature taphonomy: What information is available on feature formation and internal stratigraphy?
(5) Subsistence: What sorts of subsistence patterns and practices are evident?
(6) Exchange: What can be learned about exchange of lithic raw materials and other types of materials?

If intact portions of 47LC288 are found during the building demolition and tank removal project, they could provide additional information on the actual extent of the site and its relationship to the original terrace landforms. This information would complement and enhance the data set from STH 35 that is being used to address the research questions listed above. In addition, there is a potential for encountering human remains, based on findings from the adjacent STH 35 data recovery project.

For site 47LC736, if any evidence of this site is found during the building demolition and tank removal project, it would be the first tangible confirmation of the site's presence. Since nothing is known about this mound group beyond Lewis's initial sketch map, any further information would enhance knowledge and understanding of the site.

Field Methods and Techniques

As in the case of the STH 35 reconstruction, the proposed building demolition and tank removal project is not well suited to traditional archaeological field methods in advance of construction. The DRP for STH 35 called for archaeological monitoring of ground disturbing activities. Excavation methods described for non-burial features and midden areas followed a general protocol well established for Oneota sites in the La Crosse area. The building demolition and tank removal project is best suited to the same approach: in this case, archaeological monitoring of all ground-disturbing activities, which will consist of removal of building foundations and the underground tank, and excavation of any exposed burial or non-burial features or midden areas as outlined in the STH 35 DRP.

Features, if found, will be treated as they were in the STH 35 data recovery project. If possible, they will be mapped in plan view after exposure, with their locations plotted by GPS. The first half of each feature will be excavated by arbitrary levels (or depositional zones if apparent), followed by documentation of the cross-section profile and excavation of the remaining half by depositional zones. This approach provides 100 percent sampling of features to locate human remains. Soil samples will be taken for fine-screen flotation to recover plant and animal remains and other small-scale materials. All bags will be labeled before transportation to the laboratory.

The project will be overseen by a "qualified archeologist" as specified under Wis. Stats. § 157.70 (1) (i) and Wis. Admin. Code § HS 2.04 (6). Human remains, if encountered, will be treated with respect, and in accordance with the Wisconsin Burial law (Wis. Stats. 157.70) and the project MOA. All construction in the area of the discovery will cease, and the designated City of Onalaska representative and the Wisconsin Historical Society (WHS) will be notified. The area will be protected pending further direction from WHS. A draft burial contract is included (Appendix A) to facilitate the coordination process in case human remains are discovered.

Laboratory Procedures and Analysis

Laboratory processing and cataloguing will follow the same procedures used for the STH 35 data recovery, and MVAC standard procedures. Analysis will include all ceramics, lithics, plant and animal remains, and other artifact categories.

All recovered remains will be curated at the Mississippi Valley Archaeology Center at the University of Wisconsin–La Crosse. MVAC is a federally approved curation facility with an extensive collection of Oneota remains from the La Crosse locality. Disposition of any human remains will be in accordance with Wis. Stats. § 157.70.

Project Schedule

The first stage of the project (exploratory excavation to assess the tank, and removal of the building foundations) will commence as soon as possible after the City receives permission from WHS to conduct the work. The second stage is expected to take place later in the summer of 2014, after permits and arrangements for the tank removal are in place.

Consultation and Reporting

Before and during the field work, the archaeologist will work with the City of Onalaska to coordinate archaeological monitoring of ground-disturbing activities. The results of the investigations will

be presented in a technical report to be submitted to the City of Onalaska and WHS. If no archaeological deposits or human remains are found, report submission will be within 90 days of project completion. If archaeological deposits or human remains are found, the schedule for report completion will be coordinated with the City of Onalaska and WHS.

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Stevenson, Katherine P.

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Stevenson, Katherine P., and Wendy K. Holtz-Leith

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2011b *Report on Initial Findings during Archaeological Monitoring of Building Demolition–Related Ground Disturbance Associated with Reconstruction of STH 35 within the City of Onalaska, La Crosse County, Wisconsin, WisDOT Project ID #7190-05-00.* Reports of Investigations No. 876. Mississippi Valley Archaeology Center, University of Wisconsin–La Crosse.

2013 *Additional Phase I Archaeological Investigations for the Great River Cultural & Tourism Center, City of Onalaska, STH 35, La Crosse County, Wisconsin, WisDOT ID#: 7190-0505 and 5991-02-49.* Reports of Investigation No. 829A (Addendum to Reports of Investigation No. 829). Mississippi Valley Archaeology Center, University of Wisconsin–La Crosse.

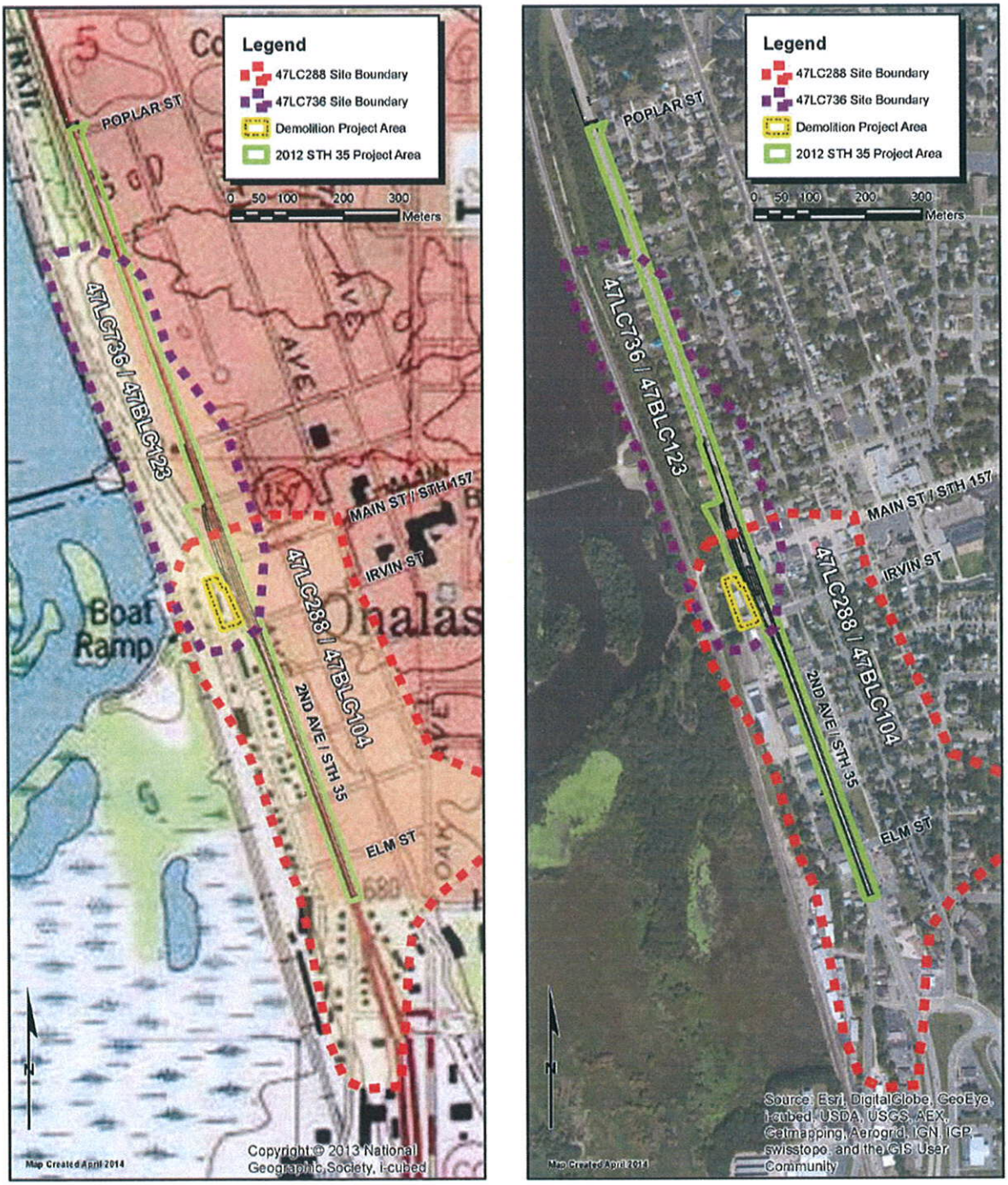

Figure 1. Project area (yellow) for the proposed building demolition and tank removal project, shown in relation to the two uncatalogued burial sites and the adjacent project area for the 2012 STH 35 reconstruction project.

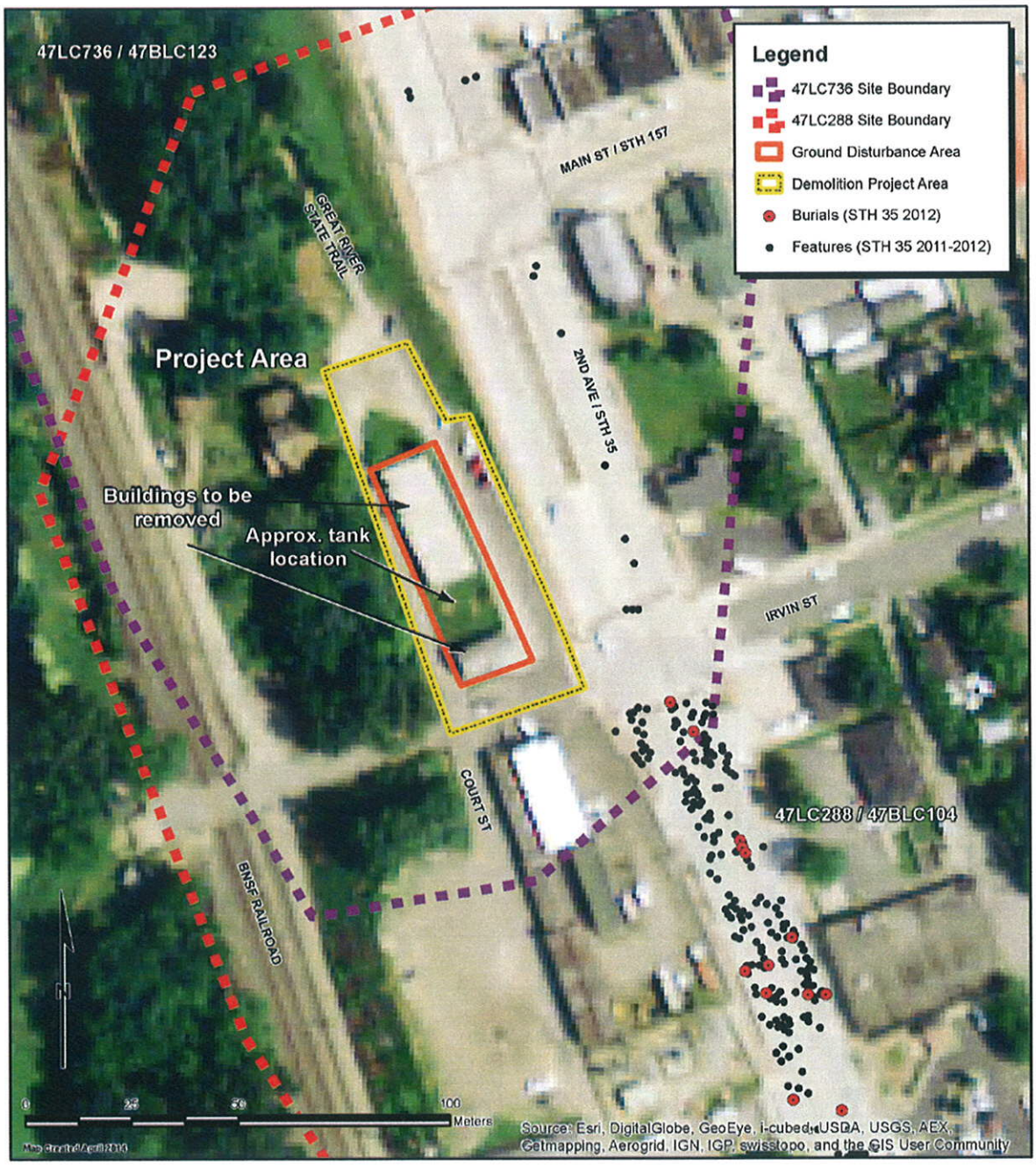

Figure 2. Close-up of proposed project in relation to uncatalogued burial site boundaries and locations of nearby finds from the 2012 STH 35 reconstruction project. The underground tank is in the grassy strip between the two buildings. All staging and equipment operation will be within the yellow project area boundary, and ground disturbance will be within the orange boundary.

APPENDIX A

BURIAL SITE(S) CONTRACT

Burial Site(s) Contract
Regarding
Building Demolition and Tank Removal Project
City of Onalaska, La Crosse County, Wisconsin

This agreement is made with ***City of Onalaska, 415 Main St., Onalaska WI 54650***, the Wisconsin Historical Society (WHS), and ***Mississippi Valley Archaeology Center at the University of Wisconsin–La Crosse, 125 Graff Main Hall, 1725 State S., La Crosse WI 54601***, for archaeological and analytical services to be performed at ***Mississippi Valley Archaeology Center at the University of Wisconsin–La Crosse, 1725 State S., La Crosse WI 54601***. The purpose of this Contract is to ensure that the excavation and analysis of human remains and associated objects are performed and completed in a timely manner and that sufficient information is provided to the Director of the Wisconsin Historical Society to allow for a disposition decision per Wis. Stat. §157.70(6) and HS 2.05(1) following the completion of the excavation and skeletal analysis.

Deliverables include:

1. The professional archaeological excavation and removal of human remains and any associated objects.
2. The determination of either direct kinship, or the cultural, tribal or religious affiliation of the remains by a "Qualified Skeletal Analyst" as defined in HS 2.02(12) and HS 2.04(6)(b) as well as the minimum and maximum number of individuals identified, including their age, and sex, if possible. To the extent necessary to make the determination, the analysis may also include documentation and description of trauma, evidence for cultural and/or medical intervention, the presence and documentation of pathology, as well as any relevant taphonomic factors. Refer to "Standards for data Collection From Human Skeletal Remains" by J. E. Buikstra and D. H. Ubelaker
3. Soil removed from the bones during cleaning must be retained with the remains for future disposition.
4. It is the responsibility of the archaeological contractor to retain the services of a "Qualified Skeletal Analyst." A current listing of those individuals is appended to this contract and may be found at http://www.wisconsinhistory.org/hp/burialsites/about/bs_skeletalanalyst.pdf.
5. The preparation of an overall site map that references the location of the burial(s) relative to a permanent datum point as well as the preparation of an *in-situ* plan view and profile drawings of the excavation and each burial.
6. Scaled photometric documentation of the disturbance, the excavation and any associated objects.
7. The completion and submittal of an archaeological site inventory (ASI) form to the State Archaeologist's office at the WHS.
8. The archaeological contractor shall be responsible for submitting two copies of his/her report to the director of the WHS for review once the excavation and analysis are completed. The report must include information on the context of discovery and any associated cultural information that would aid in determining the antiquity and direct kinship, or the cultural, tribal or religious affiliation of the remains.

9. The archaeological contractor shall be responsible for transferring all reports generated and copies of field notes, maps, and photographs related to the burial site to the Wisconsin Historical Society, under HS 2.04(10).

A complete literature search and interviews with local residents should be undertaken prior to beginning the excavation. No bone samples may be harvested for study without the expressed permission of the director under HS 2.04(9) and particular care should be taken to follow pages 84-102 of the 1997 Wisconsin Archaeological Survey "Guidelines for Public Archaeology in Wisconsin, as Revised," during the excavation and recording of the human remains and associated objects. It is the responsibility of the archaeological contractor to secure a field permit under Wis. Stat. §44.47(4) from the State Archaeologist prior to initiating fieldwork on state, county or municipal land. No images, pictures, or video of the burial, or work on the human remains, may be used in any public presentation or report. Drawings and illustrations based upon the above and the field notes are appropriate.

The terms of payment shall be arranged between ***City of Onalaska, 415 Main St., Onalaska WI 54650***, and ***Mississippi Valley Archaeology Center at the University of Wisconsin–La Crosse, 125 Graff Main Hall, 1725 State S., La Crosse WI 54601***, but in no case shall more than 50% of the total agreed upon payment shall be paid to the archaeological contractor until the report is received and approved by the director of the WHS. An 'archaeologist qualified to excavate burials' shall be on-site at all times during the excavation and the archaeological contractor will hold temporary custody of the remains and any associated artifacts in a secure facility until such time as a disposition decision is made by the Wisconsin Historical Society.

The excavation will be completed no later than November 15, 2014. The analysis will be completed by March 15, 2015 and the report will be submitted to the director of WHS no later than June 30, 2015. It is understood by all parties that inadvertent discoveries during the course of the excavation may result in unforeseen delays; such delays must be immediately communicated to and coordinated with the Program Coordinator, Mr. Sherman Banker (608-264-6507), at the Wisconsin Historical Society so that a new field completion date may be negotiated. Results of the analysis may not be published or presented in a public forum prior to the acceptance of the final report by the Wisconsin Historical Society.

Signed Katherine P. Stevenson Dated: 4/17/2014
(Mississippi Valley Archaeology Center, University of Wisconsin–La Crosse)

Signed_____ Dated: _____
(City of Onalaska)

Signed_____ Dated: _____
(Wisconsin Historical Society)
Date: April 17, 2014

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #15

Project/Item Name:	Speed limit signage
Location:	2nd Avenue and Poplar Street
Requested Action:	Approval of speed limit sign purchase
Staff Report/Description:	Staff is recommending the purchase of a flashing speed limit sign for this location. Funding from the STH 35 enhancement project would be used. Police Department has received numerous requests for enforcement.
Attachments:	Speed sign estimates.

Holter, Jarrod

From: Miller, Troy
Sent: Thursday, April 10, 2014 12:41 PM
To: Holter, Jarrod
Cc: Trotnic, Jeffrey
Subject: RE: Speed Limit Signs

I think that is awesome and will also further show that we are trying to address the speed complaints up there by other means as well. Would it be possible to do one sign like this and outline the other?

From: Holter, Jarrod
Sent: Thursday, April 10, 2014 11:20 AM
To: Miller, Troy
Cc: Trotnic, Jeffrey
Subject: RE: Speed Limit Signs

Troy,

I am checking on prices for a solar powered blinking 25 mph speed sign. Should have money left in the capital improvements for the project enhancements to purchase it. Do you think it would be beneficial?

Flashing Speed Limit LED Sign (R2-1) - BlinkerSign® | Traffic & Parking Control Co., Inc.

Thank you,

C. Jarrod Holter, P.E.
City Engineer

City of Onalaska
(608)781-9537
jholter@cityofonalaska.com

From: Miller, Troy
Sent: Tuesday, April 08, 2014 11:05 AM
To: Holter, Jarrod
Cc: Trotnic, Jeffrey
Subject: Speed Limit Signs

Jarrod:

Is it possible and would the state allow for some sort of reflective border (like they are now putting on traffic lights) to be put around speed limit signs?? I am specifically thinking about the "Reduced Speed Ahead – 25 MPH" sign and the first 25MPH sign coming Southbound on Hwy 35 from the 40 zone (Poplar St). We get a lot of complaints there and from my personal observations the problem is that first block when vehicles are still slowing down when they should already be going 25. I am just looking for a way to draw some attention to the two signs so drivers are more aware. Any thoughts on it? I know you have a lot going on right now with construction season starting to get into full swing so whenever you have a chance.

Thank you

Troy A. Miller

Troy A. Miller
Assistant Chief
Onalaska Police Department
415 Main Street
Onalaska, WI 54650
(608) 781-9550 ext 274
(608) 781-9556 fax

Coulee Region Children's Internet Protection Task Force

CITY OF ONALASKA — PRICE QUOTE

415 MAIN STREET
ONALASKA, WISCONSIN 54650-2953
www.cityofonalaska.com

Street Department
PHONE: (608) 781-9539
FAX: (608) 781-9507

ONALASKA WISCONSIN EST. 1851

SHIP TO:

Name: Street Department

Name: City of Onalaska

Address: 252 Mason Street

City: Onalaska State: WI Zip: 54650

VENDOR:

Name: TAPCO

Name: Laurel Stringfellow

Address:

City: State: Zip:

Qty	Code #	Size	Description	Unit Price	Total
1	2180-00285	24x30	(R2-1) SPEED LIMIT 25 white LED'S	1,600.00	1,600.00
			Laurel Stringfellow 4/14/2014		
			Laurel – Please send me a quote for this blinker sign. Thanks Dan Meyer		

DECKER SUPPLY CO., INC.

Quotation

Date: 4/15/2014

1115 O'Neill Ave
PO Box 8008
Madison, WI 53708

PROPOSED BY:	
Name	John Bogues
Phone	608-577-0900
Email	jbogues@deckersupply.com

SOLD/PROPOSED TO:	SHIP TO:	
City of Onalaska		Account
		Address
		City, ST, Zip
608-781-9537		Phone
jholter@cityofonalaska.com		Email
Jarrod Holter		Attention

P. O. NUMBER	TERMS	DESCRIPTION	VIA	F.O.B.
	Net 30 days			Alpharetta, GA

LINE #	QTY	PART #	DESCRIPTION	PRICE EACH	TOTALS
1	1	TC-500A	**AC Power Radar Sign - 12" Display Area**	$2,695.00	$2,695.00
			12" LED display area - superbright amber with est. 100,000 hour life	Included	
			24" w x 26" h YOUR SPEED faceplate	Included	
			Bashplate™ (provides the ultimate in vandal protection of sign)	Included	
			Bluetooth™ wireless transmitter	Included	
2	1	RW002	**Two year warranty (includes parts & labor)** Turnaround time to repair after receipt, 10 business days	Included	
3	0	RW005	**Optional Extended Warranty for 3rd Year-TC500A**	$144.00	$0.00
4	1	SS002	**StreetSmart™ Data Collection software license** (per sign) Provides weekly, daily, hourly, and 1/2 hour data on # of vehicles, # of speeders, average speeds, peak speeds, 50th & 85th percentile	$275.00	$275.00
5	1	SH500A	**Ground Shipping for TC-500A**	$110.00	$110.00
				Subtotal:	**$3,080.00**
			OR		
6	1	TC-1000A	**AC Power Radar Sign-17" Display**	$3,595.00	$3,595.00
			17" LED display - superbright amber with est. 100,000 hour life	Included	
			36" w x 44" h YOUR SPEED faceplate, 6" lettering	Included	
			Bashplate™ (provides the ultimate in vandal protection of sign)	Included	
			Bluetooth™ wireless transmitter	Included	
7	1	AC026 or AC027	Sign mounting clamp set (**specify 2.5" to 4.5"OD with order**)	Included	
8	1	RW002	**Two year warranty (includes parts & labor)** Turnaround time to repair after receipt, 10 business days	Included	
9	0	RW009	**Optional Extended Warranty for 3rd Year-TC-1000A**	$189.00	$0.00
10	1	SS002	**StreetSmart™ Data Collection software license** (per sign) Provides weekly, daily, hourly, and 1/2 hour data on # of vehicles, # of speeders, average speeds, peak speeds, 50th & 85th percentile	$275.00	$275.00
11	1	SH1000A	**Ground Shipping for TC-1000A**	$150.00	$150.00
				Subtotal:	**$4,020.00**
				TOTAL	**TBD**

* Quote valid for 45 days. Pricing does not include applicable sales tax.

ACCEPTANCE

Authorized Signature

Print Name/Title

Date

CONFIDENTIAL

STAFF REVIEW SUMMARY

CITY OF ONALASKA
BOARD OF PUBLIC WORKS

May 6, 2014

Agenda Item: #16

Project/Item Name:	Dump truck box, plow, wing and spreader
Location:	Citywide
Requested Action:	Approval of equipment purchase
Staff Report/Description:	Staff is recommending the purchase of equipment from Universal Truck Equipment. Purchase is within amount budgeted in 2104 Capital Improvements buddget.
Attachments:	Bid tabulation.

CITY OF ONALASKA BID OPENING
For

Dump Box, Hydraulics, Wing
Plow and Lights
Per City Specifications

Due Date / Opening: Tuesday, April 29th, 2012 @ 11:00 AM

Company	***Base Bid Amount***		***Options***
UNIVERSAL TRUCK EQUIPMENT	$83,948.00	⟹	$83,948.00
		A.	$1,390.00
		B.	$1,390.00
		C.	$8,375.00
		D.	$440.00
	TOTAL:		$95,543.00

RECOMMEND AWARD BID TO: UNIVERSAL TRUCK EQUIPMENT

MW: vb/eng-bid pro/equipfortandemtrk

CITY OF ONALASKA
BID PROPOSAL

DUMP BOX, PLOW, WING AND EQUIPMENT FOR SINGLE AXLE TRUCK PER CITY SPECIFICATIONS

		Net Bid
I.	Dump Box, Plow, Wing and Equipment for Single Axle Truck as specified:	$83,948.00
II.	Options (may be deleted at City's discretion):	
	a) Snow plow to have Joma rubber/carbide blades installed in lieu of carbide cutting edges	$1,390.00
	b) Ssc5100ex spreader control with wiring to retrofit to existing equipment (each)	$1,390.00
	c) Varitech Critical Spot Sprayer Anti-Ice System, Model LDS AI500-DAS/SC (535 gallon)	$8,375.00
	d) Add electric start for Honda engine in lieu of manual pull start for Varitech Critical Spot Sprayer Anti-Ice System (Option C above)	$440.00
	TOTAL BID F.O.B. ONALASKA:	$95,543.00

Delivery Date Promised: 90-120 Days after we receive the truck

The City of Onalaska reserves the right to reject any or all bids or any part thereof, and to accept whichever bid deemed to be in the best interest of the City and waive any bidding technicalities and/or irregularities.

Bids must be sealed, marked "BID ON DUMP BOX, PLOW WING AND EQUIPMENT FOR SINGLE AXLE TRUCK" and delivered to the Onalaska Engineering Department no later than 11 a.m. on Tuesday, April 29, 2014.

Universal Truck Eq.
Submitted By:

N15921 Schubert Rd. Galesville WI 54630
Address:

608-539-4600
Telephone:

Donnie Byorge
Signature of Authorized Representative

4-28-14
Date

BOARD OF PUBLIC WORKS
MONTHLY ESTIMATES
May 6, 2014

Contractor	Original Contract Amount	Change Orders	Paid to Date	Due this Estimate
1. **SEH INC.** (01375) STH 16 - Left Turn Lane Design Estimate #10	$ 49,738.23	$ 13,557.26	$ 51,717.92	$ 5,245.02
2. **SEH INC.** (01375) Railroad Quiet Zone Study Estimate #9	$ 14,200.00	$ -	$ 12,533.82	$ 1,666.18
3. **STRAND ASSOCIATES** (01321) Storm Lift Electrical Troubleshooting Estimate #5	$ -	$ -	$ 2,309.68	$ 99.86
4. **STRAND ASSOCIATES** (01321) Theater Road Traffic Signal Construction/Engineering Estimate #3	$ 8,500.00	$ -	$ 4,517.46	$ 390.81
5. **MUNICIPAL WELL & PUMP** Well #7 & #8 Pump Repairs Construction Estimate #3	$ 41,519.00	$ -	$ 28,996.00	$ 17,683.00
6. **STRAND ASSOCIATES** (01321) Scada Upgrade Design Estimate #12	$ 30,000.00	$ -	$ 29,391.54	$ 81.66
7. **ST JOSEPH CONSTRUCTION** Theater Road Traffic Signal Construction Estimate #1	$ 747,906.54	$ -	$ -	$ 132,891.37
8. **BLUE STEM FORESTRY CONSULTING** Emerald Ash Borer Study Estimate #1	$ 3,700.00	$ -	$ -	$ 4,400.00

BOARD OF PUBLIC WORKS
MONTHLY ESTIMATES
May 6, 2014

Contractor	Original Contract Amount	Change Orders	Paid to Date	Due this Estimate
9. **SEH INC.** (01375)				
Pralle Center Drive Study Update Study				
Estimate #1	$ 13,000.00	$ -	$ -	$ 1,105.00
10. **WAPASHA CONSTRUCTION**				
2013 Reservoir Improvements Construction				
Estimate #4	$ 294,991.99	$ -	$ 75,410.46	$ 9,105.75