

CITY OF ONALASKA MEETING NOTICE

COMMITTEE/BOARD: Board of Public Works
DATE OF MEETING: May 1, 2018 (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. Review and consideration of parking and travel restrictions along Horman Boulevard
- 6. Review and consideration of parking restriction at 2nd Avenue & Main Street and alley between 2nd Avenue and 3rd Avenue South of Main Street
- 7. Review and consideration of East Main Street traffic/speed study including roadway lane configurations
- 8. Review and consideration of amendment #1 for East Main Street traffic/speed study
- 9. Review and consideration of utilizing consultant for traffic count data collection at Green Coulee Road and East Main Street
- 10. Review and consideration of lunch/work room renovations at the City of Onalaska Public Works Facility.

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. Jim Binash
Ald. Jim Olson
Ald. Jerry Every
Ald. Diane Wulf
*Ald. Ron Gjertsen
*Ald. Kim Smith
City Attorney City Administrator
La Crosse Tribune Dept Heads.
Coulee Courier
WKTY WLXR WLAX
WKBT WXOW FOX

*Board Members ** Alternate Member

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

Onalaska Omni Center
Onalaska Public Library

Date Notices Mailed and Posted: 4-26- 18

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.

11. Review and consideration of Main Street & 12th Avenue South/Sand Lake Road traffic report
12. Review and consideration of bids received for 2018 Cemetery Fence Project
13. Review and consideration of July meeting date
14. Pay Estimates: Strand Associates, Short Elliot Hendrickson Inc., Davy Engineering and any other contractor/developer.
15. Adjournment

STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item:

#5

Project/Item Name:

Horman Boulevard travel and parking
restrictions

Location:

Horman boulevard

Requested Action:

Discussion travel and parking

Staff Report/Description:

Recently an accident occurred on Horman Boulevard due to two cars traveling in opposite directions along the narrow street with a car parked along the roadway. The street is relatively narrow and currently does not limit parking or travel. Staff is recommending the removal of parking along the center island and installing one way travel along the street. A second option would to remove all parking along the street to allow two way vehicle travel.

Attachments:

Map and pictures

**- Horman Blvd -
Proposed No Parking &
One Way Traffic Restrictions**



**Proposed:
NO PARKING
Adjacent to Boulevard Island**

HORMAN BLVD



GREEN ST



GIS Dept
Map Designer: Joe Barstow
Date: 04/24/2018

This map is to be used for reference purposes only. Every effort has been made to make this map as accurate as possible.







STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item: #6

Project/Item Name: Downtown parking restrictions

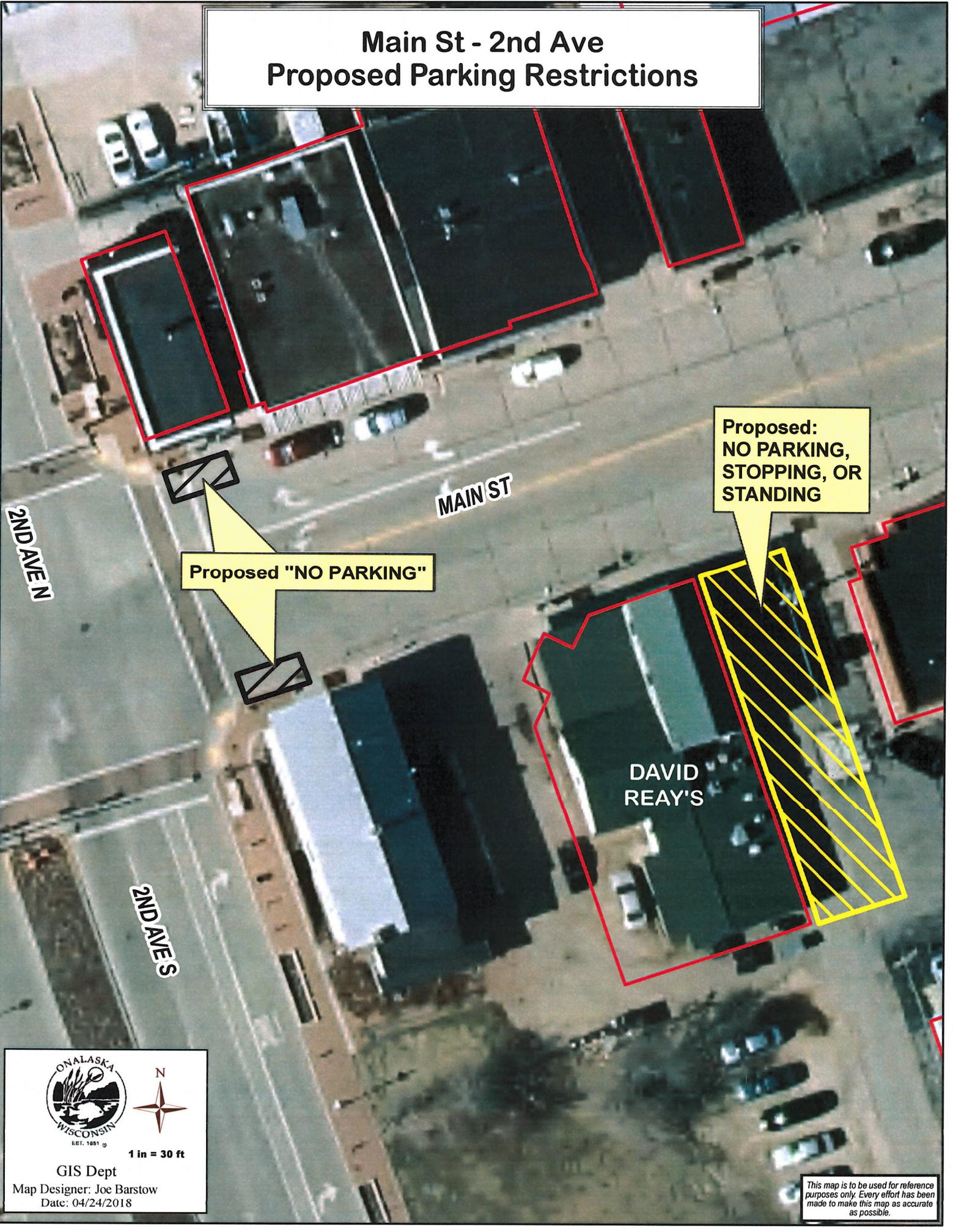
Location: Main Street and alley

Requested Action: Discussion parking restrictions

Staff Report/Description: Staff is requesting the installation of no parking along Main Street 15 feet East of the 2nd Avenue Easterly right of way. This no parking will assist with turning trucks and buses. Staff is also requesting no stopping, parking or standing in the alley between 2nd Avenue and 3rd Avenue for 100 feet South of the Southerly right of way of Main Street. Currently parking in the alley is hindering access to adjacent properties.

Attachments: Map

Main St - 2nd Ave Proposed Parking Restrictions



Proposed:
NO PARKING,
STOPPING, OR
STANDING

Proposed "NO PARKING"

DAVID
REAY'S

2ND AVE N

MAIN ST

2ND AVE S



1 in = 30 ft

GIS Dept

Map Designer: Joe Barstow
Date: 04/24/2018

This map is to be used for reference purposes only. Every effort has been made to make this map as accurate as possible.

STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item: #7

Project/Item Name: East Main Street traffic/speed study

Location: East Main Street

Requested Action: Discussion study

Staff Report/Description: SEH has completed the East Main Street Traffic Study with three recommendations listed on page four of the report. Staff also had the consultant look at the viability of changing the street to a two lane with a two way left turn lane configuration. The study will be discussed and recommendations discussed at the upcoming meeting. The City has a current project bid to replace the pavement on this section of street in the summer of 2018.

Attachments: East Main Street traffic study and lane configurations



Building a Better World
for All of Us®

MEMORANDUM

TO: Jarrod Holter, PE
FROM: Josh Woller, PE
DATE: April 16, 2018
RE: E. Main Street Traffic Study
SEH No. 145577 14.00

SEH has completed the traffic study for E. Main Street located in the City of Onalaska, La Crosse County, Wisconsin. The work consisted of conducting two spot speed studies using a laser gun to record individual vehicle speeds as well as obtaining hose count data at the same two locations in order to determine Average Annual Daily Traffic (AADT) and vehicle classifications along this section of roadway. This information was then used to determine if E. Main Street is a candidate for a road diet, whether or not the speed limit should be changed, and whether the roadway should remain a part of the City of Onalaska’s designated truck routes.

Spot Speed Studies

Speed readings were collected on Wednesday, February 14, 2018. Pavement conditions were dry to facilitate obtaining free flow vehicle speed readings under normal driving conditions. SEH obtained over 100 speed readings in each direction of travel per the Wisconsin Department of Transportation (WisDOT) traffic data collection procedures. The following data and results were obtained for your review and use.

Site #1 – E. Main Street, 850 feet west of Midwest Drive/Larkspur Lane

Direction of Travel:	West	East
Posted Speed Limit	= 40 mph	40 mph
Average Speed	= 35.2 mph	34.1 mph
50 th Percentile	= 35.3 mph	33.9 mph
85 th Percentile	= 39.3 mph	38.1 mph
10 mph Pace	= 32 to 41 mph	30 to 39 mph

Site #2 – E. Main Street, 750 feet west of Market Place/Marcou Road

Direction of Travel:	West	East
Posted Speed Limit	= 40 mph	40 mph
Average Speed	= 34.6 mph	34.6 mph
50 th Percentile	= 34.4 mph	33.8 mph
85 th Percentile	= 38.4 mph	38.5 mph
10 mph Pace	= 31 to 40 mph	30 to 39 mph

A project location map and site photographs are attached with accompanying WisDOT “Spot-Speed Field Work Sheet” forms as supplied by the Department.

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 6808 Odana Road, Suite 200, Madison, WI 53719-1137
SEH is 100% employee-owned | sehinc.com | 608.620.6199 | 800.732.4362 | 888.908.8166 fax

Traffic Counts

SEH placed TRAX Plus HS automatic traffic data recorders (ATR) at the same two sites as referenced above. The recorders were installed on Tuesday, February 13, 2018 and removed on Monday, February 19, 2018. In order to complete the counts at the same time, the hoses were stretched across all 4-lanes of travel. Due to inclement weather, the hoses installed across the roadway were hit by plow trucks. In addition, an equipment malfunction occurred at the western site rendering the count data for the location unusable. Because of these reasons, the official AADT summary for this time period only includes the eastern site and the data collected from this site from Tuesday to Friday.

In order to collect data at the western location, SEH staff installed TRAX Plus HS ATR's at the western site from Tuesday, March 27, 2018 until Saturday, March 31, 2018. With an extra ATR available, the hoses were terminated at the center line of the roadway for each direction of travel in order to reduce the potential for unclassified vehicles. The main cause of unclassified vehicles is due to vehicle arrival times. When the roadway becomes more congested or hoses are stretched over more lanes of travel, the potential for vehicles arriving at the same time increase.

Based on the collected data, Site 1 has an AADT of 9,300 vehicles per day (vpd) and Site 2 has an AADT of 6,300 vpd. Collected data has been summarized in the Wisconsin Department of Transportation Hourly Volume Report. Those reports are attached.

Lane Configuration

Generally, roadway Level of Service (LOS) is controlled by the intersections. In the case of E. Main Street, both termini of the study corridor terminate with an intersection (signalized). Intersection analysis was not included in the scope of this study, and therefore is not part this report. However, based on the collected volumes, E. Main Street is a suitable location for a lane reduction between the signalized intersections of Theater Road and Market Place.

The Wisconsin Department of Transportation provides guidance on the viability of converting 4-lane undivided roadways to 3-lane two-way-left-turn lane (TWLTL) roadways, or also known as a, "Road Diet". First of all, TWLTL's remove left turning vehicles from the through lanes, which can reduce delay to through vehicles. Second, they can lead to a reduction in rear-end and sideswipe collisions. Furthermore, TWLTL's provide spatial separation between opposing lanes of traffic, which can lead to a reduction in head-on collisions. Finally, TWLTL's can also function as a lane for emergency vehicles.

The Iowa Department of Transportation also provides guidance on TWLTL's and points out several areas where TWLTL's do not function well. When traffic volumes begin to exceed 17,000 vehicles per day, congestion can begin to be a problem. Additionally, if there is limited spacing between driveways, closely spaced intersections, heavy truck traffic, and a high percentage of commercial driveways present, TWLTL's can begin to see overall reductions in safety and level of service. Furthermore, TWLTL's are best suited for urban and suburban areas with posted speeds 45 mph or less.

WisDOT provides general guidance that a three-lane cross-section (2 thru lanes with a center TWLTL) is best suited with an average daily traffic of 15,000 to 17,500 or less. Typically, roadways that have a cross section of 2 thru lanes with a two-way left turn lane can operate at LOS C with an AADT value of up to 15,000. In the case of E. Main Street, a reduction from 4-lanes to 3-lanes, can also provide traffic calming and space for bicycle facilities. Furthermore, E. Main Street is well under the 15,000 AADT and 45 mph speed threshold, generally has well-spaced driveway and side street access, low truck volumes, and is located in a suburban area. All of which makes it a good candidate for the 3-lane section.

The true controlling areas of level of service for nearly all roadways are intersections, in particular, signalized intersections. This study did not collect any intersection traffic counts, therefore no analysis was completed at the intersections. No changes to the intersection configurations should be made.

Truck Route Analysis

According to the City's most current truck route map (December 2017), E. Main Street is a designated truck route. Balancing the needs of commerce and the trucking industry, with the desire to minimize the impacts of trucks on roadways and sensitive land uses, are factors to consider when establishing a truck route. Reviewing adjacent land uses, understanding how trucks support local and regional commerce, and review of the design features of a roadway are also important factors in determining truck routes. Limiting trucks intrusion on sensitive areas while providing adequate access to commerce is a delicate balance. As part of this study, the City asked for an evaluation of the current posted truck route and provide a recommendation on its viability.

As part of the evaluation, vehicle classification data was collected with the traffic count data to better understand the amount of trucks that currently utilize this corridor. Table 1 shows a breakdown of vehicle types at each data collection site. A full summary of the vehicle classification data is attached.

Table 1
 Vehicle Classification Summary

Site	Direction of Travel	Vehicle Type*		
		Passenger Cars	Single Unit Truck**	Multiple Unit Trucks
Site 1	EB	92.8%	2.9%	1.1%
Site 1	WB	95.6%	2.3%	0.6%
Site 2	EB	82.6%	6.0%	0.8%
Site 2	WB	88.4%	6.9%	1.0%

*Percent of vehicles is less than 100% due to unclassified vehicles not being included in table. Due to data collection layout, Site 2 has a higher percentage of unclassified vehicles.

**Includes buses

As shown above at Site 1 and Site 2, heavy vehicles (multi-unit trucks) account for less than 2 percent of the ADT during the time period in which the traffic data was collected. This percentage indicates low heavy truck usage. It is anticipated that a higher percentage of trucks utilize the short segment of E. Main Street between STH 16 & Market Place in order to make deliveries to the commercial areas on the south side of E. Main Street.

In addition to evaluating the number of trucks that utilize this route, an analysis of travel times was completed. Due to limited amounts of data available, routes were assumed to be free flow conditions. Additional delays should be expected along signalized corridors. The table below summarizes the routes that travel times were evaluated for.

Table 2
 Travel Time Analysis

Route Beginning	Route End	Route	Travel Time
STH 16 north of E. Main Street	USH 53 & E. Main Street Interchange	Via Main Street	3.43 Minutes
STH 16 north of E. Main Street	USH 53 & E. Main Street Interchange	Via IH-90	2.07 Minutes
STH 16 north of E. Main Street	E. Main Street & Theater Road	Via E. Main Street	1.65 Minutes
STH 16 north of E. Main Street	E. Main Street & Theater Road	Via STH 16 & Theater Road	3.06 Minutes

The above routes were chosen because they represent the most likely origins of heavy vehicles that will utilize E. Main Street as a truck route. Vehicles already traveling on IH 90 or coming from the east (West Salem) on STH 16 are more likely to use or continue to use the interstate. Also, due to the accessibility of the interstate in this

area, external to external truck trips are not likely to use E. Main Street. Most truck traffic in this area is expected to be external-to-internal trips. Therefore, changing the truck route designation will likely have little impact on the number of truck using E. Main Street.

Crash Analysis

Crash data from 2013 to 2017 was obtained from the Wisconsin Topslab. During this 5-year period, there were eight (8) reportable crashes along E. Main Street (excluding crashes that occurred at the STH 16 & E. Main Street intersection). Of these crashes, three were Injury Type C and the remaining five were property damage only. The crash rate for this segment of roadway is 80.85 crashes per hundred million vehicle miles travelled (crashes/HMVMT) which is well below the statewide average rate of 356.53 crashes/HMVMT for local urban roadways. All of these crashes were intersection related and none were directly attributed to speed.

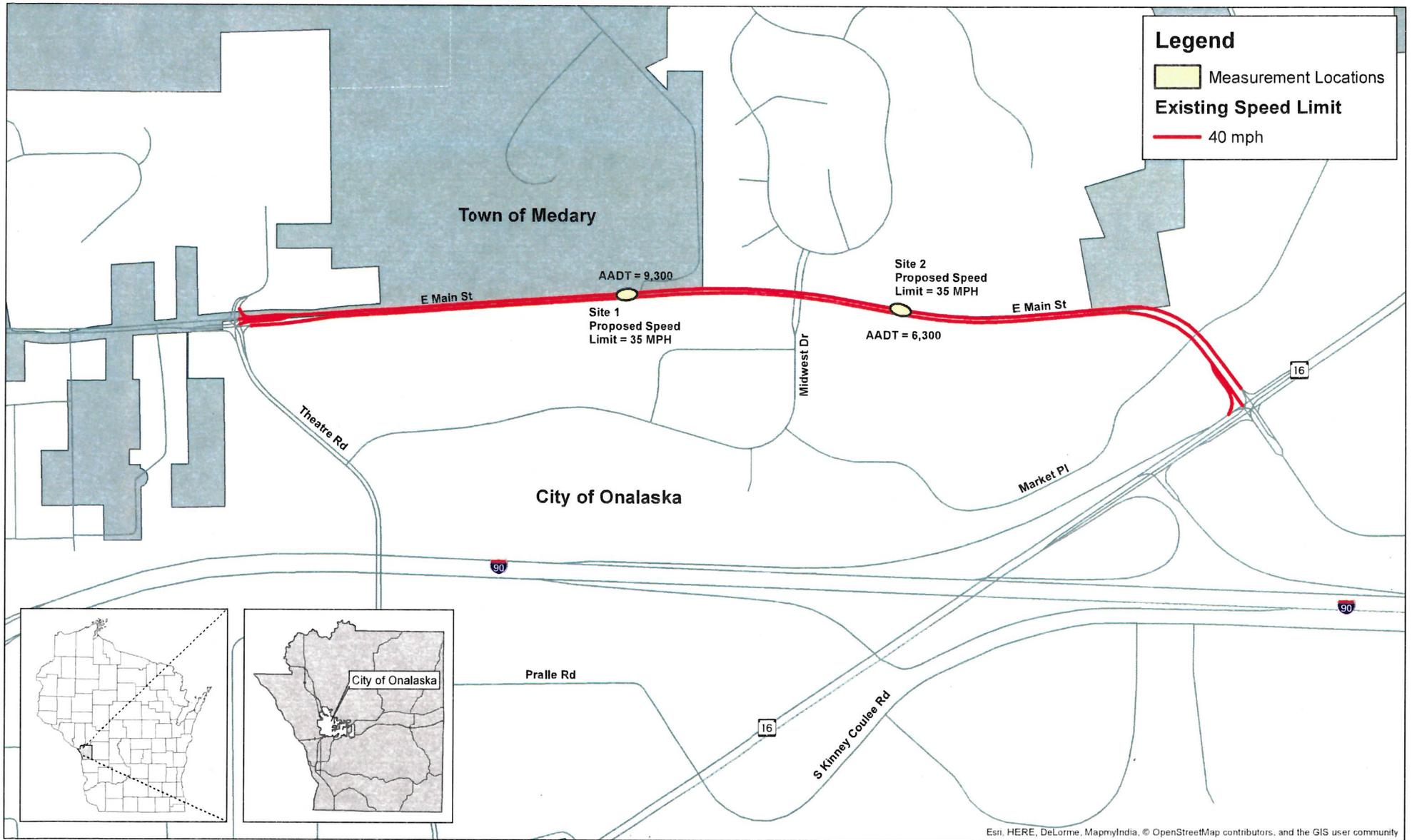
Recommendation

Based on the results of this traffic study, the following changes are recommended:

- Based on the 85th percentile speeds at both sites it is recommended to post the roadway as a 35 mph speed zone.
- It is recommended to keep E. Main Street as part of the City's designated truck route.
- It is recommended to restripe E. Main Street from 4 travel lanes to 2 travel lanes with a TWLTL. No changes should be made to the lane configurations of the signalized intersections without additional analysis.

jmw

\\seh\1\projects\kololonalal\145577\4-prelim-dsgn-rpts\traffic\18-0416_onalaska traffic study memo_jjt.docx



Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community


 6808 Odana Road
 Suite 200
 Madison, WI 53719
 (608) 520-6099

Print Date: 4/13/2018
 Map by: mfa, smorrison
 Projection: WISCRS
 La Crosse County

ONALASKA SPEED STUDY
La Crosse County, Wisconsin



EXHIBIT 2

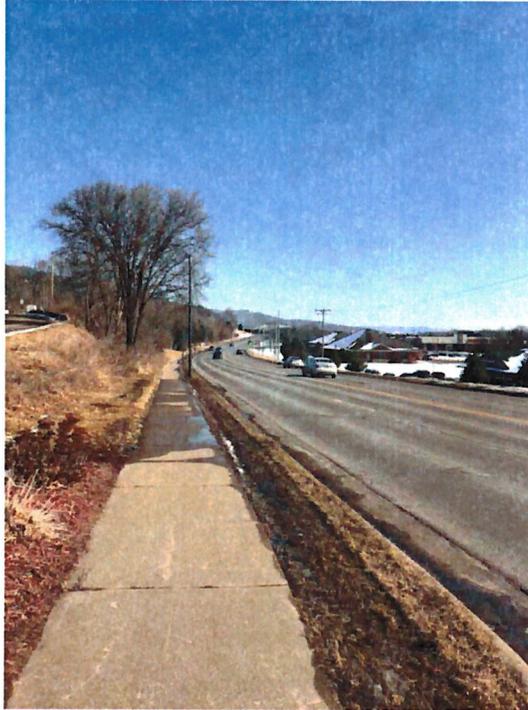


Photo 1 Looking East along Main Street, from Spot Speed Location (Site 1)

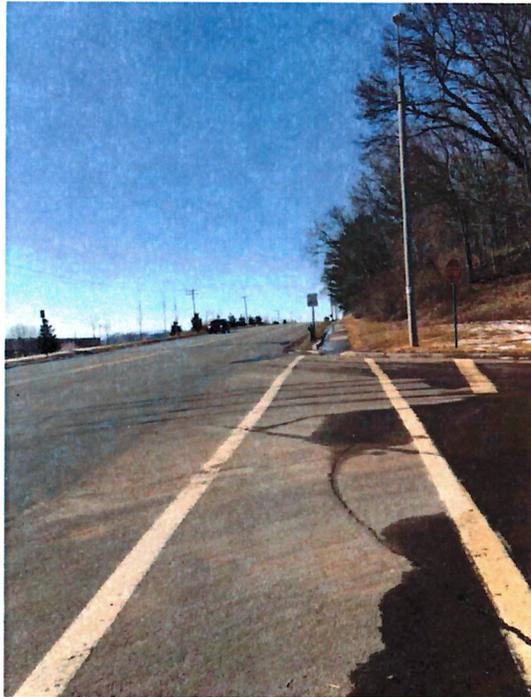


Photo 2 Looking West along Main Street, from Spot Speed Location (Site 1)



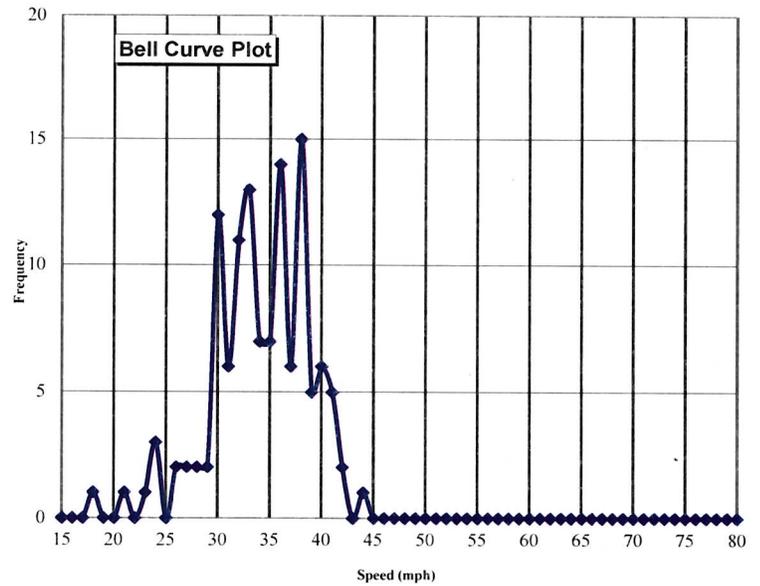
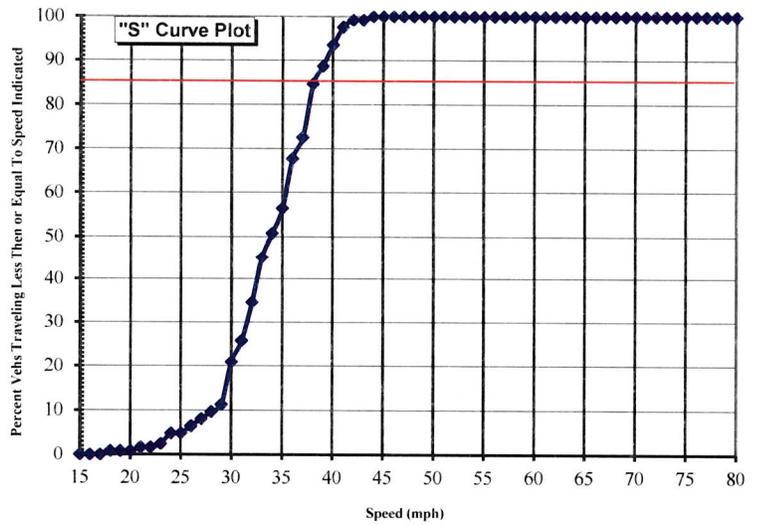
Date:	02/14/18	Hwy:	E. Main Street	Direction:	East Bound	SUMMARY OF VEHICLES BY TYPE: Passenger = 96.8% Trucks = 2.4% Buses = 0.8%	
Time:	1:00 PM	Location:		Posted Speed:	40		
Observer(s):	Ava Lombardino	County:	La Crosse	Weather:	43 Degrees and Sunny		
				Pav't Condition:	Good/Clear		

SPEED RANGE	No. VEHICLES (f)	Speed * #	CUMM No. VEHICLES	CUMM %
15	0	0	0	0.0
16	0	0	0	0.0
17	0	0	0	0.0
18	1	18	1	0.8
19	0	0	1	0.8
20	0	0	1	0.8
21	1	21	2	1.6
22	0	0	2	1.6
23	1	23	3	2.4
24	3	72	6	4.8
25	0	0	6	4.8
26	2	52	8	6.5
27	2	54	10	8.1
28	2	56	12	9.7
29	2	58	14	11.3
30	12	360	26	21.0
31	6	186	32	25.8
32	11	352	43	34.7
33	13	429	56	45.2
34	7	238	63	50.8
35	7	245	70	56.5
36	14	504	84	67.7
37	6	222	90	72.6
38	15	570	105	84.7
39	5	195	110	88.7
40	6	240	116	93.5
41	5	205	121	97.6
42	2	84	123	99.2
43	0	0	123	99.2
44	1	44	124	100.0
45	0	0	124	100.0
46	0	0	124	100.0
47	0	0	124	100.0
48	0	0	124	100.0
49	0	0	124	100.0
50	0	0	124	100.0
51	0	0	124	100.0
52	0	0	124	100.0
53	0	0	124	100.0
54	0	0	124	100.0
55	0	0	124	100.0
56	0	0	124	100.0
57	0	0	124	100.0
58	0	0	124	100.0
59	0	0	124	100.0
60	0	0	124	100.0
61	0	0	124	100.0
62	0	0	124	100.0
63	0	0	124	100.0
64	0	0	124	100.0
65	0	0	124	100.0
66	0	0	124	100.0
67	0	0	124	100.0
68	0	0	124	100.0
69	0	0	124	100.0
70	0	0	124	100.0
71	0	0	124	100.0
72	0	0	124	100.0
73	0	0	124	100.0
74	0	0	124	100.0
75	0	0	124	100.0
76	0	0	124	100.0
77	0	0	124	100.0
78	0	0	124	100.0
79	0	0	124	100.0
80	0	0	124	100.0

STUDY RESULTS

AVERAGE SPEED	50th PERCENTILE	85th PERCENTILE	PACE SPEED RANGE
34.1	33.9	38.1	30.0 to 39.0

% In Pace = 77.4%
% Over Pace = 11.3%
% Under Pace = 11.3%





WISCONSIN DEPARTMENT OF TRANSPORTATION
SPOT-SPEED FIELD STUDY

Date:	02/14/18
Time:	1:00:00 PM
Observer(s):	Ava Lombardino
Hwy Designation:	E. Main Street
County:	La Crosse
Location:	
Direction of Travel:	West Bound
Posted Speed:	40 MPH
Weather:	43 Degrees and Sunny
Pav't Conditions:	Good/Clear
Speed Detection Device Used:	Kustom Hr-12
Unit ID:	AA13156
Comments:	

Ver 4.3

SPEED (mph)	NUMBER OF OBSERVATIONS			
	PASS VEHS	TRUCKS	BUSES	TOTAL
15				0
16	1			1
17				0
18				0
19	1			1
20				0
21				0
22				0
23				0
24	1	1		2
25	1			1
26	1			1
27				0
28	6			6
29				0
30	2			2
31	5			5
32	8			8
33	5		1	6
34	11			11
35	9	1		10
36	13			13
37	13			13
38	7	1		8
39	7			7
40	9			9
41	6			6
42	1			1
43	1			1
44	2			2
45	1			1
46				0
47				0
48				0
49				0
50				0
51				0
52				0
53				0
54				0
55				0
56				0
57				0
58				0
59				0
60				0
61				0
62				0
63				0
64				0
65				0
66				0
67				0
68				0
69				0
70				0
71				0
72				0
73				0
74				0
75				0
76				0
77				0
78				0
79				0
80				0
Total Vehicles:	111	3	1	115

** Complete only the cells highlighted yellow **



Date:	02/14/18	Hwy:	E. Main Street	Direction:	West Bound	SUMMARY OF VEHICLES BY TYPE:		
Time:	1:00 PM	Location:			Posted Speed:		40	
Observer(s):	Ava Lombardino	County:	La Crosse		Weather:		43 Degrees and Sunny	Passenger = 96.5%
					Pav't Condition:		Good/Clear	Trucks = 2.6%
						Buses = 0.9%		

SPEED RANGE	No. VEHICLES (f)	Speed * #	CUMM No. VEHICLES	CUMM %
15	0	0	0	0.0
16	1	16	1	0.9
17	0	0	1	0.9
18	0	0	1	0.9
19	1	19	2	1.7
20	0	0	2	1.7
21	0	0	2	1.7
22	0	0	2	1.7
23	0	0	2	1.7
24	2	48	4	3.5
25	1	25	5	4.3
26	1	26	6	5.2
27	0	0	6	5.2
28	6	168	12	10.4
29	0	0	12	10.4
30	2	60	14	12.2
31	5	155	19	16.5
32	8	256	27	23.5
33	6	198	33	28.7
34	11	374	44	38.3
35	10	350	54	47.0
36	13	468	67	58.3
37	13	481	80	69.6
38	8	304	88	76.5
39	7	273	95	82.6
40	9	360	104	90.4
41	6	246	110	95.7
42	1	42	111	96.5
43	1	43	112	97.4
44	2	88	114	99.1
45	1	45	115	100.0
46	0	0	115	100.0
47	0	0	115	100.0
48	0	0	115	100.0
49	0	0	115	100.0
50	0	0	115	100.0
51	0	0	115	100.0
52	0	0	115	100.0
53	0	0	115	100.0
54	0	0	115	100.0
55	0	0	115	100.0
56	0	0	115	100.0
57	0	0	115	100.0
58	0	0	115	100.0
59	0	0	115	100.0
60	0	0	115	100.0
61	0	0	115	100.0
62	0	0	115	100.0
63	0	0	115	100.0
64	0	0	115	100.0
65	0	0	115	100.0
66	0	0	115	100.0
67	0	0	115	100.0
68	0	0	115	100.0
69	0	0	115	100.0
70	0	0	115	100.0
71	0	0	115	100.0
72	0	0	115	100.0
73	0	0	115	100.0
74	0	0	115	100.0
75	0	0	115	100.0
76	0	0	115	100.0
77	0	0	115	100.0
78	0	0	115	100.0
79	0	0	115	100.0
80	0	0	115	100.0

STUDY RESULTS

AVERAGE SPEED	50th PERCENTILE	85th PERCENTILE	PACE SPEED RANGE
35.2	35.3	39.3	32.0 to 41.0

% In Pace = 79.1%
 % Over Pace = 4.3%
 % Under Pace = 16.5%

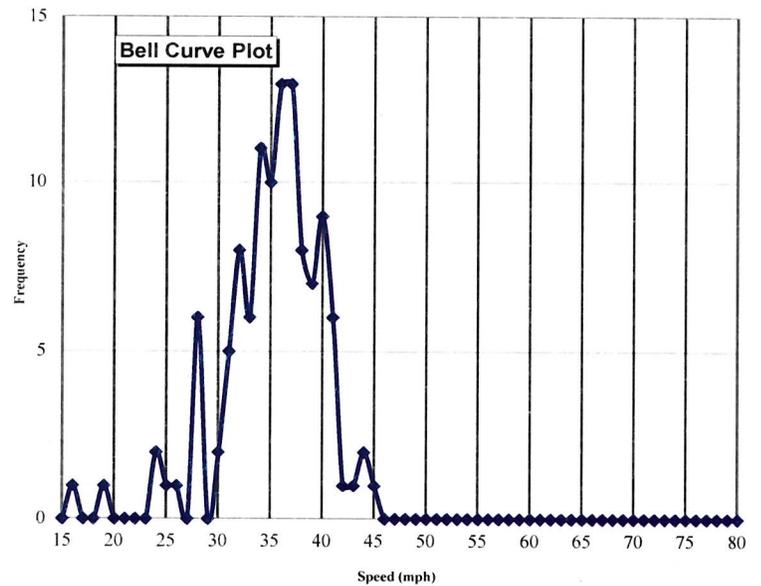
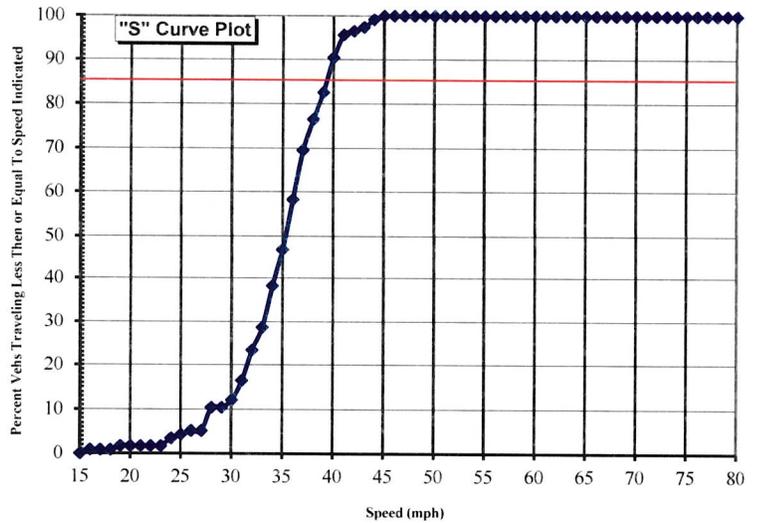


EXHIBIT 2

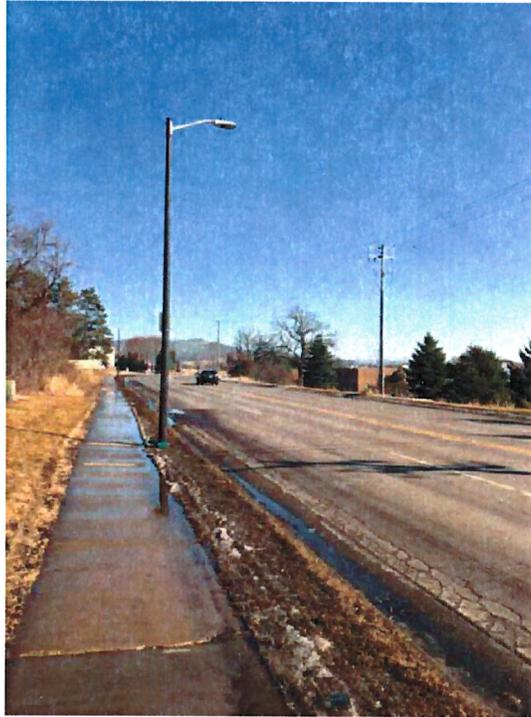


Photo 1 Looking East along Main Street, from Spot Speed Location (Site 2)

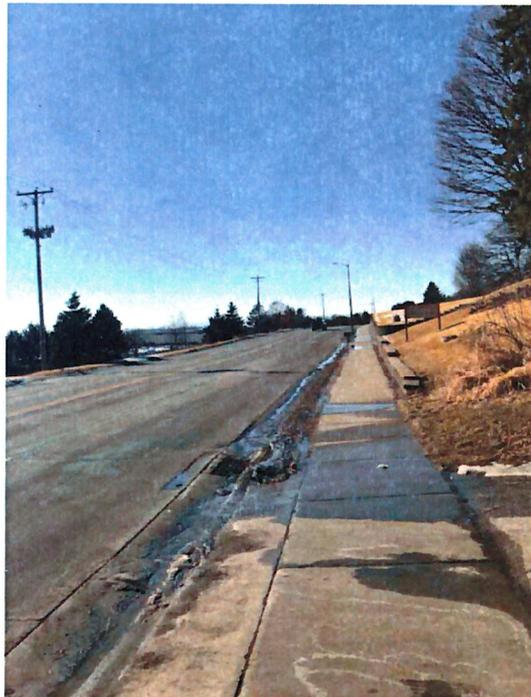


Photo 2 Looking West along Main Street, from Spot Speed Location (Site 2)



WISCONSIN DEPARTMENT OF TRANSPORTATION
SPOT-SPEED FIELD STUDY

Date:	02/14/18
Time:	2:00:00 PM
Observer(s):	Ava Lombardino
Hwy Designation:	E. Main Street
County:	La Crosse
Location:	
Direction of Travel:	East Bound
Posted Speed:	40 MPH
Weather:	43 Degrees and Sunny
Pav't Conditions:	Good/Clear
Speed Detection Device Used:	Kustom Hr-12
Unit ID:	AA13156
Comments:	

Ver 4.3

SPEED (mph)	NUMBER OF OBSERVATIONS			
	PASS VEHS	TRUCKS	BUSES	TOTAL
15				0
16				0
17				0
18				0
19				0
20				0
21		1		1
22				0
23	1	1		2
24	1	1		2
25				0
26				0
27				0
28	1			1
29	2	1		3
30	5	1		6
31	8			8
32	8			8
33	13	1		14
34	16			16
35	5			5
36	14			14
37	8			8
38	7			7
39	6			6
40	6			6
41				0
42	1			1
43	4			4
44	2			2
45				0
46				0
47	1			1
48				0
49				0
50				0
51				0
52				0
53				0
54				0
55				0
56				0
57				0
58				0
59				0
60				0
61				0
62				0
63				0
64				0
65				0
66				0
67				0
68				0
69				0
70				0
71				0
72				0
73				0
74				0
75				0
76				0
77				0
78				0
79				0
80				0
Total Vehicles:	109	6	0	115

** Complete only the cells highlighted yellow. **



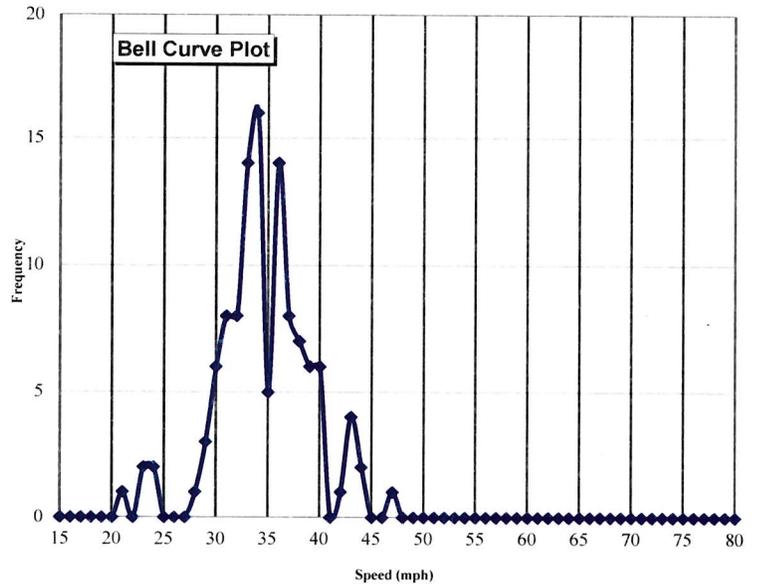
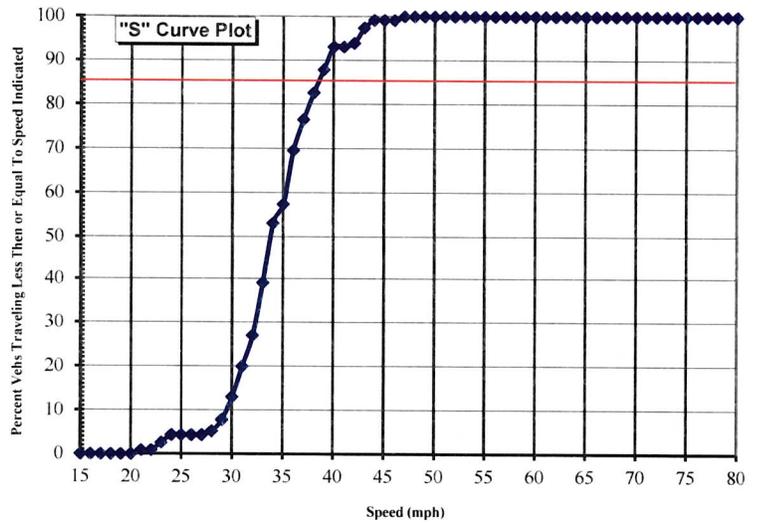
Date:	02/14/18	Hwy:	E. Main Street	Direction:	East Bound	SUMMARY OF VEHICLES BY TYPE:			
Time:	2:00 PM	Location:		Posted Speed:	40			Passenger =	94.8%
Observer(s):	Ava Lombardino			Weather:	43 Degrees and Sunny			Trucks =	5.2%
		County:	La Crosse	Pav't Condition:	Good/Clear			Buses =	0.0%

SPEED RANGE	No. VEHICLES (f)	Speed * #	CUMM No. VEHICLES	CUMM %
15	0	0	0	0.0
16	0	0	0	0.0
17	0	0	0	0.0
18	0	0	0	0.0
19	0	0	0	0.0
20	0	0	0	0.0
21	1	21	1	0.9
22	0	0	1	0.9
23	2	46	3	2.6
24	2	48	5	4.3
25	0	0	5	4.3
26	0	0	5	4.3
27	0	0	5	4.3
28	1	28	6	5.2
29	3	87	9	7.8
30	6	180	15	13.0
31	8	248	23	20.0
32	8	256	31	27.0
33	14	462	45	39.1
34	16	544	61	53.0
35	5	175	66	57.4
36	14	504	80	69.6
37	8	296	88	76.5
38	7	266	95	82.6
39	6	234	101	87.8
40	6	240	107	93.0
41	0	0	107	93.0
42	1	42	108	93.9
43	4	172	112	97.4
44	2	88	114	99.1
45	0	0	114	99.1
46	0	0	114	99.1
47	1	47	115	100.0
48	0	0	115	100.0
49	0	0	115	100.0
50	0	0	115	100.0
51	0	0	115	100.0
52	0	0	115	100.0
53	0	0	115	100.0
54	0	0	115	100.0
55	0	0	115	100.0
56	0	0	115	100.0
57	0	0	115	100.0
58	0	0	115	100.0
59	0	0	115	100.0
60	0	0	115	100.0
61	0	0	115	100.0
62	0	0	115	100.0
63	0	0	115	100.0
64	0	0	115	100.0
65	0	0	115	100.0
66	0	0	115	100.0
67	0	0	115	100.0
68	0	0	115	100.0
69	0	0	115	100.0
70	0	0	115	100.0
71	0	0	115	100.0
72	0	0	115	100.0
73	0	0	115	100.0
74	0	0	115	100.0
75	0	0	115	100.0
76	0	0	115	100.0
77	0	0	115	100.0
78	0	0	115	100.0
79	0	0	115	100.0
80	0	0	115	100.0

STUDY RESULTS

AVERAGE SPEED	50th PERCENTILE	85th PERCENTILE	PACE SPEED RANGE
34.6	33.8	38.5	30.0 to 39.0

% In Pace = 80.0%
 % Over Pace = 12.2%
 % Under Pace = 7.8%





WISCONSIN DEPARTMENT OF TRANSPORTATION
SPOT-SPEED FIELD STUDY

Date:	02/14/18
Time:	2:00:00 PM
Observer(s):	Ava Lombardino
Hwy Designation:	E. Main Street
County:	La Crosse
Location:	
Direction of Travel:	West Bound
Posted Speed:	40 MPH
Weather:	43 Degrees and Sunny
Pav't Conditions:	Good/Clear
Speed Detection Device Used:	Kustom Hr-12
Unit ID:	AA13156
Comments:	

Ver 4.3

SPEED (mph)	NUMBER OF OBSERVATIONS			
	PASS VEHS	TRUCKS	BUSES	TOTAL
15				0
16				0
17				0
18				0
19				0
20				0
21				0
22	1	1		2
23				0
24	1			1
25	1			1
26	3			3
27		1		1
28	1	1		2
29	4			4
30	5			5
31	9	1		10
32	6	1		7
33	9		1	10
34	7			7
35	7	1		8
36	9			9
37	18			18
38	5			5
39	7			7
40	6			6
41	2			2
42				0
43	1			1
44				0
45				0
46	1			1
47	2			2
48				0
49	1			1
50				0
51				0
52				0
53				0
54				0
55				0
56				0
57				0
58				0
59				0
60				0
61				0
62				0
63				0
64				0
65				0
66				0
67				0
68				0
69				0
70				0
71				0
72				0
73				0
74				0
75				0
76				0
77				0
78				0
79				0
80				0
Total Vehicles:	106	6	1	113

** Complete only the cells highlighted yellow **



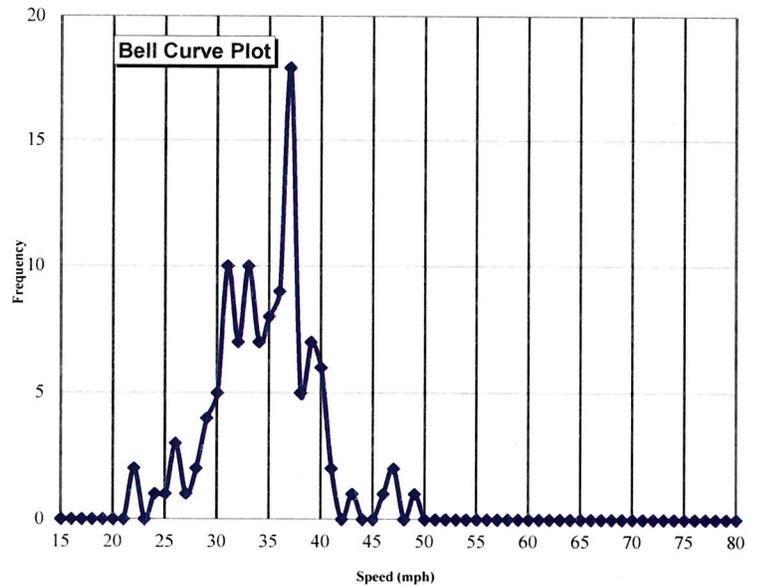
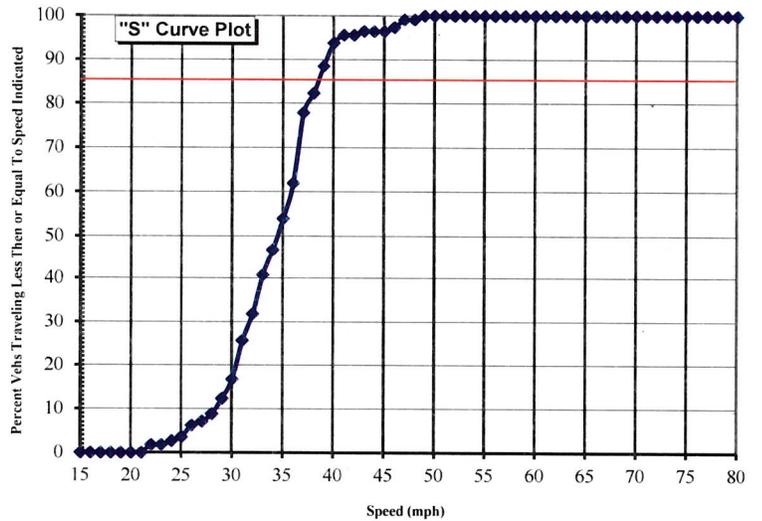
Date:	02/14/18	Hwy:	E. Main Street	Direction:	West Bound	SUMMARY OF VEHICLES BY TYPE:			
Time:	2:00 PM	Location:		Posted Speed:	40			Passenger =	93.8%
Observer(s):	Ava Lombardino			Weather:	43 Degrees and Sun			Trucks =	5.3%
		County:	La Crosse	Pav't Condition:	Good/Clear			Buses =	0.9%

SPEED RANGE	No. VEHICLES (f)	Speed * #	CUMM No. VEHICLES	CUMM %
15	0	0	0	0.0
16	0	0	0	0.0
17	0	0	0	0.0
18	0	0	0	0.0
19	0	0	0	0.0
20	0	0	0	0.0
21	0	0	0	0.0
22	2	44	2	1.8
23	0	0	2	1.8
24	1	24	3	2.7
25	1	25	4	3.5
26	3	78	7	6.2
27	1	27	8	7.1
28	2	56	10	8.8
29	4	116	14	12.4
30	5	150	19	16.8
31	10	310	29	25.7
32	7	224	36	31.9
33	10	330	46	40.7
34	7	238	53	46.9
35	8	280	61	54.0
36	9	324	70	61.9
37	18	666	88	77.9
38	5	190	93	82.3
39	7	273	100	88.5
40	6	240	106	93.8
41	2	82	108	95.6
42	0	0	108	95.6
43	1	43	109	96.5
44	0	0	109	96.5
45	0	0	109	96.5
46	1	46	110	97.3
47	2	94	112	99.1
48	0	0	112	99.1
49	1	49	113	100.0
50	0	0	113	100.0
51	0	0	113	100.0
52	0	0	113	100.0
53	0	0	113	100.0
54	0	0	113	100.0
55	0	0	113	100.0
56	0	0	113	100.0
57	0	0	113	100.0
58	0	0	113	100.0
59	0	0	113	100.0
60	0	0	113	100.0
61	0	0	113	100.0
62	0	0	113	100.0
63	0	0	113	100.0
64	0	0	113	100.0
65	0	0	113	100.0
66	0	0	113	100.0
67	0	0	113	100.0
68	0	0	113	100.0
69	0	0	113	100.0
70	0	0	113	100.0
71	0	0	113	100.0
72	0	0	113	100.0
73	0	0	113	100.0
74	0	0	113	100.0
75	0	0	113	100.0
76	0	0	113	100.0
77	0	0	113	100.0
78	0	0	113	100.0
79	0	0	113	100.0
80	0	0	113	100.0

STUDY RESULTS

AVERAGE SPEED	50th PERCENTILE	85th PERCENTILE	PACE SPEED RANGE
34.6	34.4	38.4	31.0 to 40.0

% In Pace = 77.0%
 % Over Pace = 6.2%
 % Under Pace = 16.8%



Wisconsin Department of Transportation

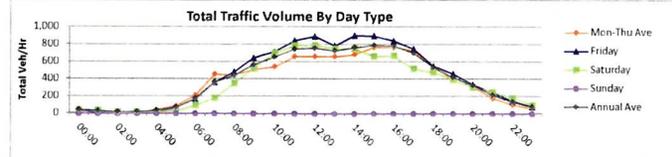
Hourly Traffic Volume Report

2018-March-27 to 2018-March-31

50 Hour Count - Averages and Graphs Do Not Include All Days

Coverage Count

Location: Main Street, between Theater Road and Midwest Drive	Segment ID:
Site # 1	Seasonal Factor Group 2
Region SW	Daily Factor Group 2
County LA CROSSE	Axle Factor Group 6
Funct. Class U Minor Arterial	Growth Factor Group:



Hour	Sun			Mon			Tues 27-Mar-18			Wed 28-Mar-18			Thur 29-Mar-18			Fri 30-Mar-18			Sat 31-Mar-18		
	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total
00:00-00:59	-	-	-	-	-	-	-	-	-	10	15	25	17	21	38	16	21	37	17	22	39
01:00-01:59	-	-	-	-	-	-	-	-	-	7	7	14	7	10	17	5	10	15	15	22	37
02:00-02:59	-	-	-	-	-	-	-	-	-	5	10	15	5	7	12	6	5	11	5	9	14
03:00-03:59	-	-	-	-	-	-	-	-	-	8	3	11	12	5	17	8	4	12	11	5	16
04:00-04:59	-	-	-	-	-	-	-	-	-	32	11	43	33	7	40	21	7	28	12	8	20
05:00-05:59	-	-	-	-	-	-	-	-	-	52	31	83	55	32	87	38	24	62	17	14	31
06:00-06:59	-	-	-	-	-	-	-	-	-	119	103	222	112	86	198	88	80	168	62	32	94
07:00-07:59	-	-	-	-	-	-	-	-	-	249	265	514	229	169	398	215	147	362	107	72	179
08:00-08:59	-	-	-	-	-	-	-	-	-	232	205	441	244	200	444	266	218	484	194	156	350
09:00-09:59	-	-	-	-	-	-	-	-	-	290	203	493	289	238	527	359	284	643	300	221	521
10:00-10:59	-	-	-	-	-	-	-	-	-	267	231	498	325	263	588	370	348	718	365	336	701
11:00-11:59	-	-	-	-	-	-	-	-	337	282	619	394	304	698	350	316	666	435	413	848	
12:00-12:59	-	-	-	-	-	-	-	-	297	304	601	329	350	679	356	352	708	431	465	896	
13:00-13:59	-	-	-	-	-	-	-	-	291	291	582	327	354	681	363	359	722	395	394	789	
14:00-14:59	-	-	-	-	-	-	-	-	289	348	637	355	353	708	329	387	716	462	444	906	
15:00-15:59	-	-	-	-	-	-	-	-	403	346	749	409	394	803	371	385	756	414	487	901	
16:00-16:59	-	-	-	-	-	-	-	-	361	404	765	377	380	757	386	400	786	388	456	844	
17:00-17:59	-	-	-	-	-	-	-	-	326	392	718	350	425	775	331	359	690	326	424	750	
18:00-18:59	-	-	-	-	-	-	-	-	234	284	518	235	286	521	254	308	562	262	288	550	
19:00-19:59	-	-	-	-	-	-	-	-	193	202	395	188	182	370	211	208	419	210	252	462	
20:00-20:59	-	-	-	-	-	-	-	-	144	157	301	168	158	326	138	172	310	148	194	342	
21:00-21:59	-	-	-	-	-	-	-	-	88	73	161	79	92	171	83	127	210	97	142	239	
22:00-22:59	-	-	-	-	-	-	-	-	39	59	98	41	58	99	52	68	120	58	88	146	
23:00-23:59	-	-	-	-	-	-	-	-	16	24	40	33	37	70	30	44	74	30	50	80	
Daily Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Hour	Mon-Thurs Average			Mon-Fri Average			7 Day Average			Estimated Annual Ave		
	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total
00:00-00:59	14	18	32	14	19	33	-	-	-	16	21	36
01:00-01:59	7	9	16	6	9	15	-	-	-	9	13	23
02:00-02:59	5	9	14	5	7	13	-	-	-	5	8	14
03:00-03:59	10	4	14	9	4	13	-	-	-	10	4	15
04:00-04:59	33	9	42	29	8	37	-	-	-	25	9	33
05:00-05:59	54	32	85	48	29	77	-	-	-	40	25	66
06:00-06:59	116	95	210	106	90	196	-	-	-	97	75	171
07:00-07:59	239	217	456	231	194	425	-	-	-	201	163	364
08:00-08:59	238	205	443	247	209	456	-	-	-	239	199	438
09:00-09:59	290	221	510	313	242	554	-	-	-	318	243	561
10:00-10:59	296	247	543	321	281	601	-	-	-	344	306	650
11:00-11:59	360	301	661	379	329	708	-	-	-	397	346	743
12:00-12:59	327	335	663	353	368	721	-	-	-	372	381	753
13:00-13:59	327	335	662	344	350	694	-	-	-	355	369	724
14:00-14:59	324	363	687	359	383	742	-	-	-	367	393	760
15:00-15:59	394	375	769	399	403	802	-	-	-	385	401	786
16:00-16:59	375	395	769	378	410	788	-	-	-	371	407	778
17:00-17:59	336	392	728	333	400	733	-	-	-	313	385	698
18:00-18:59	241	293	534	246	292	538	-	-	-	252	285	537
19:00-19:59	197	197	395	201	211	412	-	-	-	195	221	417
20:00-20:59	150	162	312	150	170	320	-	-	-	148	176	324
21:00-21:59	83	97	181	87	109	195	-	-	-	91	122	213
22:00-22:59	44	62	106	48	68	116	-	-	-	54	80	134
23:00-23:59	26	35	61	27	39	66	-	-	-	33	43	75
Daily Total	4,485	4,404	8,890	4,634	4,622	9,255	-	-	-	4,637	4,676	9,312

AM Peak	Hour																	
Hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD Peak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Daily Peak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% of Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Daily Ave	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak	Hour			Hour			Hour			Hour			Hour		
Hour	290	221	510	313	242	554	-	-	-	-	-	-	318	243	561
MD Peak	360	363	687	379	383	742	-	-	-	-	-	-	397	393	760
Hour	11:00	14:00	14:00	11:00	14:00	14:00	-	-	-	-	-	-	11:00	14:00	14:00
PM Peak	394	395	769	399	410	802	-	-	-	-	-	-	385	407	786
Hour	15:00	16:00	15:00	15:00	16:00	15:00	-	-	-	-	-	-	15:00	16:00	15:00
Daily Peak	394	395	769	399	410	802	-	-	-	-	-	-	397	407	786
Hour	15:00	16:00	15:00	15:00	16:00	15:00	-	-	-	-	-	-	11:00	16:00	15:00
% of Total	8.8%	9.0%	8.7%	8.6%	8.9%	8.7%	-	-	-	-	-	-	8.6%	8.7%	8.4%
Daily Ave	187	184	370	193	193	386	-	-	-	-	-	-	193	195	388

Seasonal Fctr				1.055	1.055	1.055	1.055	1.055	1.055	1.055	1.055	1.055	1.055	1.055	1.055
Daily Fctr				0.938	0.938	0.938	0.938	0.938	0.938	0.939	0.939	0.939	0.865	0.865	0.865
Axle Factor															
Pulse Fctr															
Overall Fctr	0.000	0.000		0.990	0.990		0.990	0.990		0.991	0.991		0.913	0.913	

Wisconsin Department of Transportation

Hourly Traffic Volume Report

2018-Feb-13 to 2018-Feb-18

Coverage Count

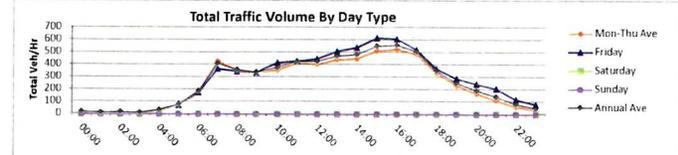
50 Hour Count - Averages and Graphs Do Not Include All Days

Location	Main Street, between Midwest Drive and Market Place	Segment ID	
Site #	2	Seasonal Factor Group	2
Region	SW	Daily Factor Group	2
County	LA CROSSE	Axle Factor Group	6
Funct. Class	U Minor Arterial	Growth Factor Group	

Hour	Sun			Mon			Tues 13-Feb-18			Wed 14-Feb-18			Thur 15-Feb-18			Fri 16-Feb-18			Sat 17-Feb-18		
	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total
00:00-00:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
01:00-01:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02:00-02:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03:00-03:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04:00-04:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05:00-05:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
06:00-06:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07:00-07:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08:00-08:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09:00-09:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00-10:59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00-11:59	-	-	-	-	-	-	184	214	398	191	238	429	183	240	423	136	293	429	-	-	-
12:00-12:59	-	-	-	-	-	-	147	212	359	222	230	452	188	226	414	147	302	449	-	-	-
13:00-13:59	-	-	-	-	-	-	184	205	389	225	245	470	211	265	476	167	344	511	-	-	-
14:00-14:59	-	-	-	-	-	-	208	235	443	241	217	458	206	248	454	155	387	542	-	-	-
15:00-15:59	-	-	-	-	-	-	234	261	495	254	272	526	247	278	525	141	478	619	-	-	-
16:00-16:59	-	-	-	-	-	-	245	277	522	281	298	579	206	275	481	140	471	611	-	-	-
17:00-17:59	-	-	-	-	-	-	258	221	479	244	264	508	198	281	479	123	400	523	-	-	-
18:00-18:59	-	-	-	-	-	-	143	169	312	154	160	314	172	213	385	82	288	370	-	-	-
19:00-19:59	-	-	-	-	-	-	82	129	211	106	117	223	105	167	272	58	232	290	-	-	-
20:00-20:59	-	-	-	-	-	-	50	85	135	78	90	168	91	121	212	49	196	245	-	-	-
21:00-21:59	-	-	-	-	-	-	44	59	103	34	67	101	59	83	142	40	167	207	-	-	-
22:00-22:59	-	-	-	-	-	-	32	26	58	26	21	47	48	41	89	26	94	120	-	-	-
23:00-23:59	-	-	-	-	-	-	14	13	27	17	21	38	21	19	40	18	62	80	-	-	-
Daily Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

AM Peak	-	-	-	-	-	-	-	-	-	224	198	422	234	206	440	176	209	385	-	-	-
Hour	-	-	-	-	-	-	-	-	-	07:00	07:00	07:00	07:00	07:00	07:00	07:00	08:00	07:00	-	-	-
MD Peak	-	-	-	-	-	-	-	-	-	241	245	470	211	265	476	167	387	542	-	-	-
Hour	-	-	-	-	-	-	-	-	-	14:00	13:00	13:00	13:00	13:00	13:00	13:00	14:00	14:00	-	-	-
PM Peak	-	-	-	-	-	-	-	-	-	258	277	522	281	298	579	247	281	525	141	478	619
Hour	-	-	-	-	-	-	-	-	-	17:00	16:00	16:00	16:00	16:00	16:00	15:00	17:00	15:00	15:00	15:00	15:00
Daily Peak	-	-	-	-	-	-	-	-	-	281	298	579	247	281	525	176	478	619	-	-	-
Hour	-	-	-	-	-	-	-	-	-	16:00	16:00	16:00	15:00	17:00	15:00	07:00	15:00	15:00	-	-	-
% of Total	-	-	-	-	-	-	-	-	-	9.7%	9.3%	9.5%	8.8%	8.1%	8.4%	8.6%	10.0%	9.1%	-	-	-
Daily Ave	-	-	-	-	-	-	-	-	-	120	133	254	117	144	261	85	199	283	-	-	-

Seasonal Fctr										1.105	1.105		1.105	1.105		1.105	1.105				
Daily Fctr										0.999	0.999		0.942	0.942		0.896	0.896				
Axle Factor																					
Pulse Fctr																					
Overall Fctr	0.000	0.000								1.104	1.104		1.041	1.041		0.990	0.990		0.936	0.936	0.000 0.000



Hour	Mon-Thurs Average			Mon-Fri Average			7 Day Average			Estimated Annual Ave		
	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total
00:00-00:59	8	10	18	5	11	17	-	-	-	5	11	16
01:00-01:59	5	3	8	4	5	8	-	-	-	4	5	8
02:00-02:59	4	8	12	5	8	12	-	-	-	5	8	12
03:00-03:59	3	3	6	3	4	7	-	-	-	3	4	7
04:00-04:59	9	17	26	12	17	29	-	-	-	12	17	29
05:00-05:59	25	48	73	27	47	74	-	-	-	27	46	73
06:00-06:59	83	104	187	79	104	183	-	-	-	78	103	181
07:00-07:59	229	202	431	211	199	410	-	-	-	210	197	406
08:00-08:59	175	188	363	163	195	358	-	-	-	162	193	354
09:00-09:59	149	194	343	149	191	340	-	-	-	147	189	336
10:00-10:59	154	207	361	154	225	379	-	-	-	152	222	374
11:00-11:59	186	231	417	174	246	420	-	-	-	178	249	427
12:00-12:59	186	223	408	176	243	419	-	-	-	179	245	424
13:00-13:59	207	238	445	197	265	462	-	-	-	201	266	467
14:00-14:59	218	233	452	203	272	474	-	-	-	207	273	481
15:00-15:59	245	270	515	219	322	541	-	-	-	225	323	548
16:00-16:59	244	283	527	218	330	548	-	-	-	224	332	557
17:00-17:59	233	255	489	206	292	497	-	-	-	212	293	505
18:00-18:59	156	181	337	138	208	345	-	-	-	141	208	350
19:00-19:59	98	138	235	88	161	249	-	-	-	90	162	251
20:00-20:59	73	99	172	67	123	190	-	-	-	68	123	191
21:00-21:59	46	70	115	44	94	138	-	-	-	45	93	138
22:00-22:59	35	29	65	33	46	79	-	-	-	34	45	78
23:00-23:59	17	18	35	18	29	46	-	-	-	18	28	46
Daily Total	2,785	3,251	6,037	2,590	3,635	6,226	-	-	-	2,626	3,635	6,260

AM Peak	229	202	431	211	199	410	-	-	-	210	197	406
Hour	07:00	07:00	07:00	07:00	07:00	07:00	-	-	-	07:00	07:00	07:00
MD Peak	218	238	452	203	272	474	-	-	-	207	273	481
Hour	14:00	13:00	14:00	14:00	14:00	14:00	-	-	-	14:00	14:00	14:00
PM Peak	245	283	527	219	330	548	-	-	-	225	332	557
Hour	15:00	16:00	16:00	15:00	16:00	16:00	-	-	-	15:00	16:00	16:00
Daily Peak	245	283	527	219	330	548	-	-	-	225	332	557
Hour	15:00	16:00	16:00	15:00	16:00	16:00	-	-	-	15:00	16:00	16:00
% of Total	8.8%	8.7%	8.7%	8.5%	9.1%	8.8%	-	-	-	8.6%	9.1%	8.9%
Daily Ave	116	135	252	108	151	259	-	-	-	109	151	261



Dial 811 or (800)242-8511

www.DiggersHotline.com

GENERAL NOTES

UNDERGROUND AND ABOVE GROUND UTILITIES ARE NOT SHOWN ON THIS PLAN. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY OWNERS TO LOCATE ALL FACILITIES.

IF UTILITY CONFLICTS EXIST, THE CONTRACTOR SHALL NOTIFY THE CITY OF ONALASKA AND COORDINATE SIGN RELOCATION.

ALL WORK SHALL BE PERFORMED WITHIN EXISTING RIGHT-OF-WAY.

ALL ROADS AND DRIVEWAYS SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES.

DESIGN CONTACT

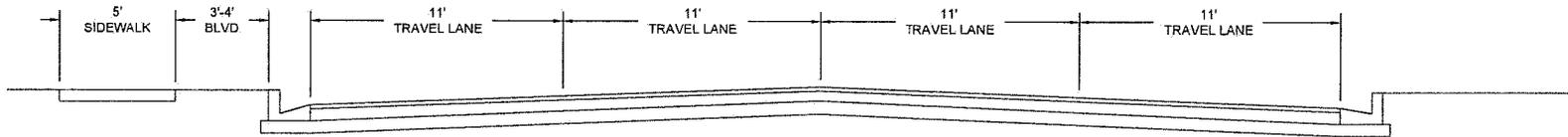
SEH INC.
ATTN: JEREMY TOMESH, PE
329 JAY STREET, SUITE 301
LA CROSSE, WI 54601
608.498.4947
JTOMESH@SEHINC.COM

MUNICIPAL CONTACT

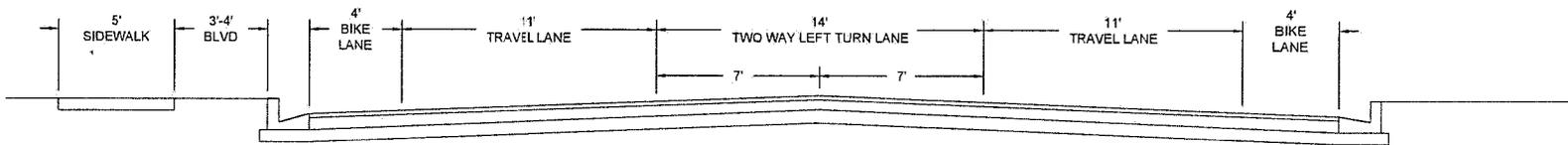
JARROD HOLTER, PE
CITY ENGINEER
608.781.9537
JHOLTER@CITYOFONALASKA.COM

LEGEND

- 4y MARKING LINE EPOXY 4-INCH (YELLOW, SOLID)
- 4yd MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW, SOLID)
- 4ys MARKING LINE EPOXY 4-INCH (YELLOW, 12.5' SKIPS)
- 4w MARKING LINE EPOXY 4-INCH (WHITE, SOLID)
- 4ws MARKING LINE EPOXY 4-INCH (WHITE, 12.5' SKIPS)
- 4ws3 MARKING LINE EPOXY 4-INCH (WHITE, 3' SKIPS)
- 8w MARKING LINE EPOXY 8-INCH (WHITE, SOLID)
- 12y MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
- 12w MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE)
- 18w MARKING STOP LINE EPOXY 18-INCH (WHITE)
- C MARKING CURB EPOXY
- IN MARKING ISLAND NOSE EPOXY
- MARKING ARROW EPOXY
- TYPE 1
- ↘ TYPE 2
- ↙ TYPE 3
- ↔ BIKE LANE ARROW
- ONLY SCHOOL MARKING WORD EPOXY ("SCHOOL" IS SINGLE LANE)
- MARKING SYMBOL EPOXY
- ↻ BIKE LANE SYMBOL
- ↻↻ BIKE SYMBOL FOR SHARED LANE



EXISTING TYPICAL SECTION



FINISHED TYPICAL SECTION

DRAWN BY	TEL			
DESIGNER	TEL			
CHECKED BY	JLT			
DESIGN TEAM	NO.	BY	DATE	REVISIONS

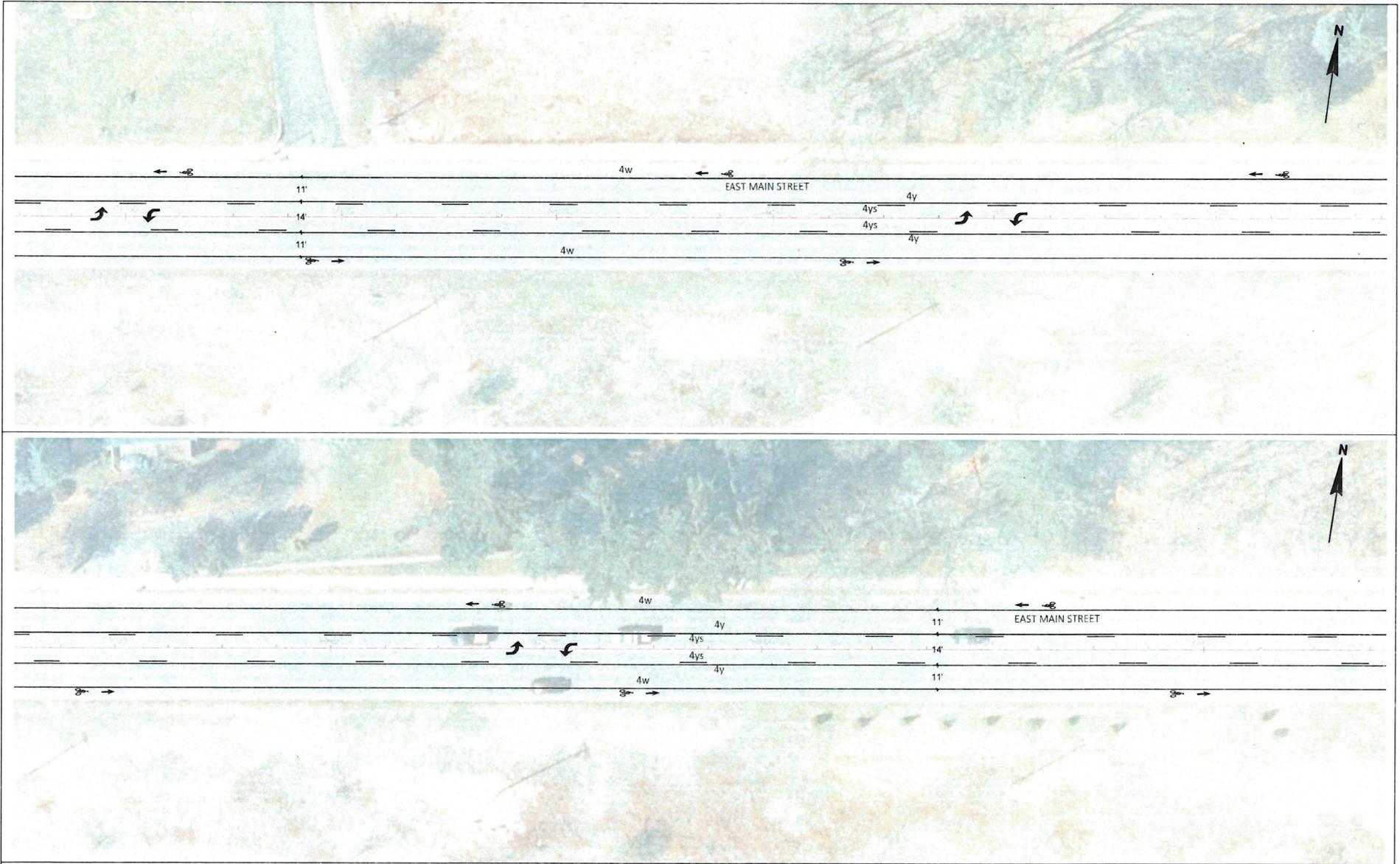


**EAST MAIN STREET
ONALASKA,
WISCONSIN**

TYPICAL SECTIONS AND NOTES

FILE NO. ONALA 145577	1
DATE 4/16/18	6

LOCAL IMPROVEMENTS DIVISION, 100 WEST MAIN STREET, ONALASKA, WI 54601



DRAWN BY	TRL				
DESIGNER	TRL				
CHECKED BY	JUT				
DESIGN TEAM					
	NO	BY	DATE		REVISIONS

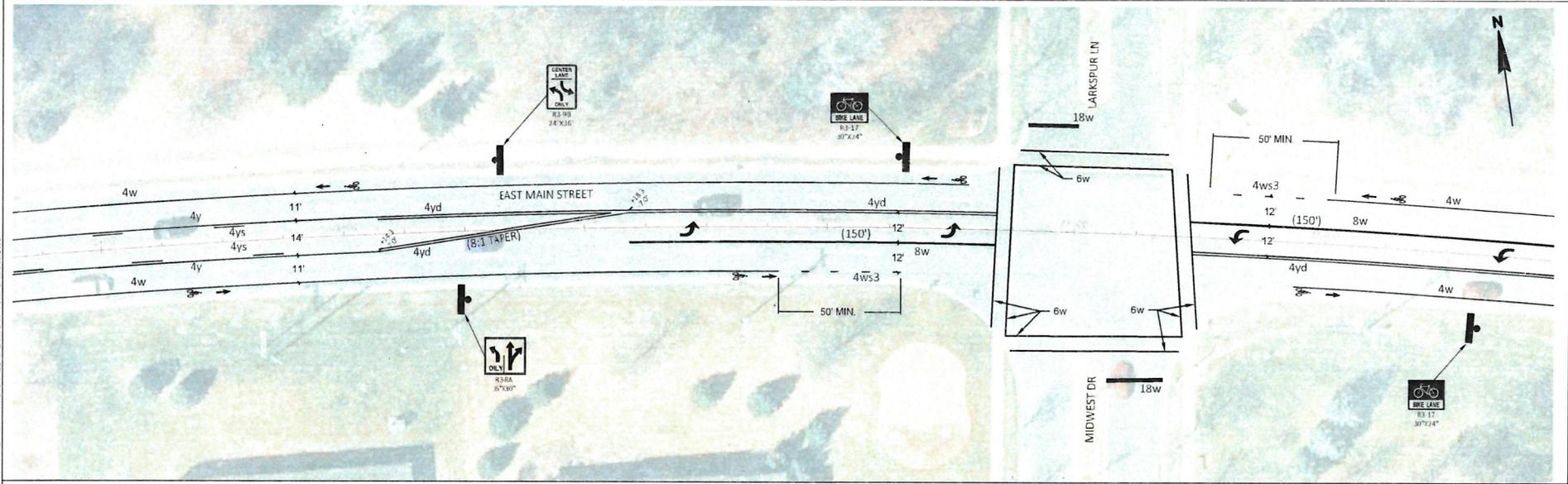
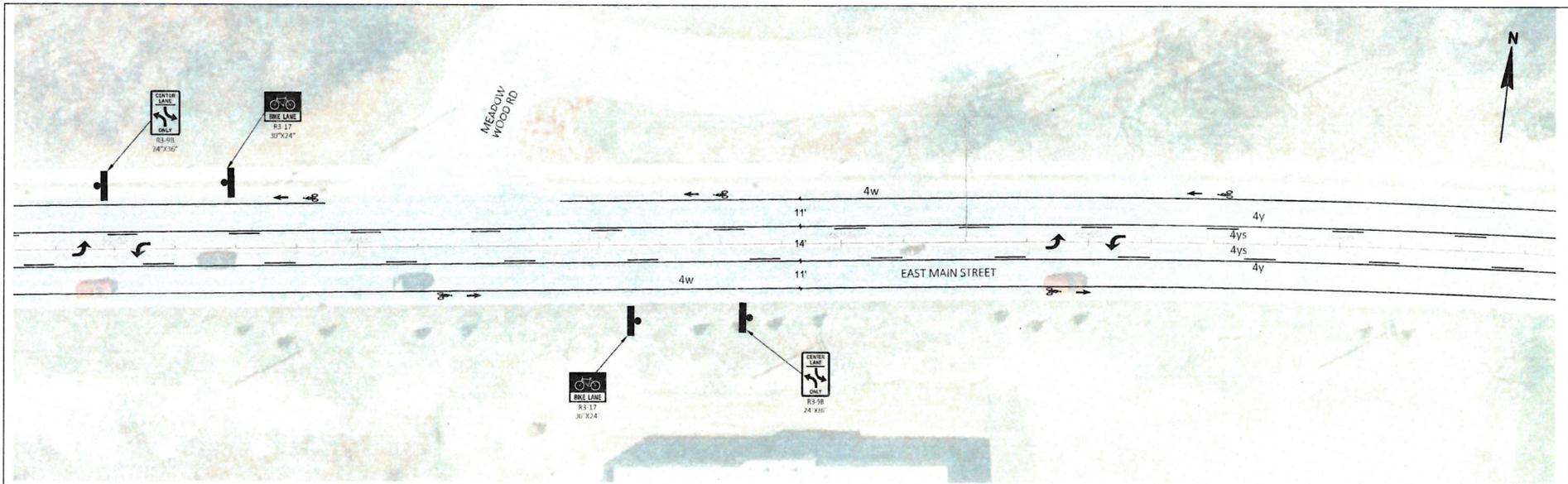


**EAST MAIN STREET
ONALASKA,
WISCONSIN**

MARKING AND SIGNING

FILE NO. ONALA 14577	3
DATE 4/16/18	6

I:\BELLA\PROJECTS\ONALASKA\14577\DWG\14577\ONALASKA\14577\MARKING\PLAN_PAVT.MARKING.DWG



DRAWN BY	TRL				
DESIGNER	TRL				
CHECKED BY	JJT				
DESIGN TEAM					
	NO.	BY	DATE		REVISIONS



**EAST MAIN STREET
ONALASKA,
WISCONSIN**

MARKING AND SIGNING

FILE NO.	ONALA 145577	4
DATE	4/15/18	6

SEH\KUPING\2018\ONALASKA\45577\001_3DR\HEETL\PLAN - PAINT MARKING.DWG

STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item: #8

Project/Item Name: East Main Street traffic/speed study

Location: East Main Street

Requested Action: Approval of amendment #1

Staff Report/Description: Upon reviewing the traffic and speed data provided by SEH, as part of the East Main Street Traffic Study City, staff recommended the analysis of changing the street into two through lanes with a TWLTL. City Engineer approved the additional work to include this analysis in the East Main Street Traffic Study due to the time sensitive nature of receiving approvals, as the paving of street will occur in summer 2018. The analysis and preliminary pavement marking plan was authorized in the amount of \$3,400 with the remaining \$2,400 dependent on the decision of a street lane configuration change.

Attachments: Amendment #1

Agreement for Professional Services – Amendment 1

This Agreement is effective as of March 26, 2018, between City of Onalaska (Client) and Short Elliott Hendrickson Inc. (Consultant).

This Agreement authorizes and describes the scope, schedule, and payment conditions for Consultant's work on the Project described as: SEH is currently providing a traffic study on E. Main Street that will include the collection of speed data, traffic volumes, crash analysis, and a review of the current truck route. At the request of the City, that agreement will be amended to include a traffic analysis to convert E. Main Street from Theater Road to Market Place to a 3-lane roadway, and provide a pavement marking and signing plan for the new configuration. The traffic analysis will be included in the technical memo, and the plans will be provided in pdf form as 11x17 inch sheets.

Client's Authorized Representative: Jarrold Holter, PE
Address: 415 Main Street
Onalaska, WI 54650
Telephone: 608.781.9537 **email:** jholter@cityofonalaska.com

Project Manager: Jeremy Tomesh, PE
Address: 329 Jay Street, Suite 301
La Crosse, WI 54601
Telephone: 608.498.4947 **email:** jtomesh@sehinc.com

Scope: The Basic Services to be provided by Consultant as set forth herein is provided subject to the attached General Conditions of the Agreement for Professional Services (General Conditions Rev. 07.14.16), which is incorporated by reference herein and subject to Exhibits attached to this Agreement.

SEH proposes the following Scope of Work for the project. The traffic analysis for the 3-lane configuration will be included in the technical memo, and the pavement marking and signing plan will be included as separate pdf as 11x17 plan sheets.

- Traffic analysis: Provide a technical review and recommendation to convert E. Main Street from Theater Road to Market Place. The analysis will not include any traffic modeling, but will instead rely on recent traffic counts and prior research on converting 4-lane undivided roadways to 3-lane roadways. *Subtotal: \$1,800*
- Preliminary pavement marking and signing plan: Provide 40 scale split plan drawings, utilizing 6-inch aerial photos to design the 3-lane configuration on E. Main Street from Theater Road to Market Place showing proposed center and edge lines, and signing. The plans will include a typical section. *Subtotal: \$1,600*
- Final pavement marking and signing plan (if authorized): Finalize plans sheets based on comments received from the City. Revise lane markings and signing and provide final plan set. *Subtotal: \$2,400*

Schedule: SEH will submit the technical memorandum and plan sheets by April 27, 2018. One electronic copy of said technical memorandum and plan sheets will be provided.

Payment: The fee is hourly estimated to be \$5,800.00 including expenses and equipment for Amendment 1. The new total project cost is estimated to be \$9,700.00 including expenses and equipment.

The payment method, basis, frequency and other special conditions are set forth in attached Exhibit A-1.

This Agreement for Professional Services, attached General Conditions, Exhibits and any Attachments (collectively referred to as the "Agreement") supersedes all prior contemporaneous oral or written agreements and represents the entire understanding between Client and Consultant with respect to the services to be provided by Consultant hereunder. In the event of a conflict between the documents, this document and the attached General Conditions shall take precedence over all other Exhibits unless noted below under "Other Terms and Conditions". The Agreement for Professional Services and the General Conditions (including scope, schedule, fee and signatures) shall take precedence over attached Exhibits. This Agreement may not be amended except by written agreement signed by the authorized representatives of each party.

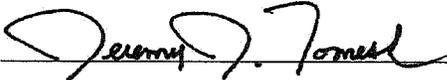
Other Terms and Conditions: Other or additional terms contrary to the General Conditions that apply solely to this project as specifically agreed to by signature of the Parties and set forth herein:

None.

\\sehix1\projects\kololonalai\145577\1-gen\10-setup-cont\02-contract\amend1\letter agreement for e. main street traffic study_amend1.docx

Short Elliott Hendrickson Inc.

City of Onalaska

By:  _____

By: _____

Title: Jeremy Tomesh, PE
Client Service Manager

Title: _____

STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item: #9

Project/Item Name: Green Coulee intersection design

Location: Green Coulee and East Main Street

Requested Action: Approval of services for traffic counts

Staff Report/Description: Request for proposals have been distributed to engineering consultants for the study of the Green Coulee and East Main Street intersection. These proposals will be acted upon at the June meeting cycle. Due to school being let out before the consultant being hired City staff has received quotes for the collection of traffic count data while school is still in session. This data will be used by the consultant chosen by the City to perform the study. Staff is recommending hiring Gewalt Hamilton Associates, INC in the amount of \$2,160 to perform the work.

Attachments: Proposals



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

Documentation

DLZ will deliver the traffic data in spreadsheet report format via email for the City's use.

FEE PROPOSAL

DLZ proposes to provide the services described above for a stipulated fee of \$4,000.00. The compensation includes labor and direct expenses. This proposal shall be governed by and construed in accordance with the attached Terms & Conditions.

DLZ appreciates the opportunity to present our qualifications for this project. We look forward to providing excellent service to the City of Onalaska.

If you have any questions regarding our proposal, our contact will be:

Charles Fawcett, P.E., PTOE
773-283-2600
cfawcett@dlz.com

Sincerely,

DLZ ILLINOIS, INC.

Gregory R. Brumm, P.E.

President

PROPOSAL ACCEPTED
CITY OF ONALASKA, WISCONSIN

SIGNATURE

PRINTED NAME

TITLE

DATE



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

April 23, 2018

Kevin Schubert, P.E.
Assistant City Engineer
415 Main Street
Onalaska, WI 54650

RE: Proposal – Traffic Data Collection for Green Coulee Road Study

Dear Mr. Schubert:

DLZ Illinois, Inc. is pleased to submit this proposal for professional traffic engineering services for the collection of traffic data for the City of Onalaska's Green Coulee Road Study.

PROPOSED SCOPE OF SERVICES

Data Collection

DLZ will install video traffic counters at the following intersections to collect turning movement vehicle classification counts at each intersection.

- 1) Green Coulee Road and Main Street (including gas station driveway)
- 2) Main Street and HWY 53 Northbound Ramps
- 3) Main Street and HWY 53 Southbound Ramps

Traffic data will be collected simultaneously at all 3 intersections for a period of 12 hours between 6:00 AM and 6:00 PM on a typical Tuesday, Wednesday or Thursday. The counts may be split between two days with the noon to 6:00 PM period counted on one day and the 6:00 AM to noon period counted the next day. Vehicles will be classified as passenger cars, single unit trucks and multi-unit trucks. Pedestrian and bicycle crossing data will also be collected. Data will be provided in 15-minute increments.

The video counters will be temporarily mounted to light or utility poles or other appropriate structures within view of the intersection for a period of no more than 2 days.

Schedule

DLZ understand that the City desires to have the counts completed either the week of May 14 or May 21. DLZ is available to collect the data either of those weeks and, weather permitting, proposes to schedule counts the week of May 14. In the event that a recount is necessary due to equipment failure or other anomaly, the week of May 21 would serve as a backup. DLZ will coordinate with the City to confirm the schedule for the installation and removal of the traffic counting equipment. Following the removal of equipment, the video will be processed and data reports submitted to the City within 2 weeks following the completion of the count.

Hourly Billing Rates
Gewalt Hamilton Associates, Inc.

The following rates will remain in effect until December 31, 2018, at which time they are subject to an annual increase.

Category	Rates
Principal	\$202.00
Civil Engineer VI	\$174.00
Civil Engineer V	\$172.00
Civil Engineer IV	\$170.00
Civil Engineer III	\$150.00
Civil Engineer II	\$140.00
Civil Engineer I	\$120.00
Land Surveyor IV	\$142.00
Land Surveyor II	\$118.00
Land Surveyor I	\$116.00
Engineering Technician V	\$170.00
Engineering Technician IV	\$126.00
Engineering Technician III	\$116.00
Engineering Technician II	\$102.00
Engineering Technician I	\$76.00
GIS Professional II	\$130.00
GIS Professional I	\$124.00
Environmental Consultant II	\$126.00
Environmental Consultant I	\$116.00
Administrative I	\$64.00

Services provided under this Agreement will be billed according to the rates in effect at the time services are rendered.

Exhibit A



April 16, 2018

Kevin Schubert, P.E.
Assistant Engineer
City of Onalaska
415 Main Street
Onalaska, WI 54650
via e-mail: kschubert@cityofonalaska.com

625 Forest Edge Drive, Vernon Hills, IL 60061
TEL 847.478.9700 ■ FAX 847.478.9701

www.gha-engineers.com

Re: Agreement for Professional Services
Traffic Data Collection –Turning Movement Counts
Onalaska, Wisconsin
GHA Proposal No. 2018.D099

Dear Mr. Schubert:

Gewalt Hamilton Associates, Inc., (GHA) is pleased to submit our proposal for traffic data collection services for the above referenced project.

Our proposal is based on GHA's understanding of the project based on our recent phone conversation with you.

If our proposal is acceptable, please sign and return one complete copy to our office. Should you have any questions or if we can be of additional assistance, please feel free to contact me at (847) 478-9700 x 6221.

Sincerely,
Gewalt Hamilton Associates, Inc.



Arthur J. Penn, P.E.
Associate/Senior Engineer
Director – Data Collection Division
apenn@gha-engineers.com

Encl.: GHA Proposal No. 2018.D099

Agreement for Professional Services
Traffic Data Collection – Turning Movement Counts
Onalaska, Wisconsin
GHA Proposal No. 2018.D099

City of Onalaska (Client), 415 Main Street, Onalaska, WI 54650 and Gewalt Hamilton Associates, Inc. (GHA), 625 Forest Edge Drive, Vernon Hills, IL 60061, agree and contract as follows:

I. Project Understanding

The Client is requesting three (3) 12-hour Turning Movement Counts (TMC's) in Onalaska, Wisconsin. The counts will consist of lights, mediums, and articulated trucks. Bicycles and pedestrians will **not** be included.

Counts will be collected on the same Typical Weekday.

II. Traffic Data Collection Services

GHA will provide the TMC's using Miovision Scout cameras at the following locations based on the email received from the Client, dated April 16, 2018. Please refer to the attached Exhibit A – Location Map:

A. TMC's

1. Main St & Green Coulee Rd
2. Main St & State Highway 53 NB Ramps
3. Main St & State Highway 53 SB Ramps

Collection Details

- Weekday (T, W, or TH)
- 6AM - 6PM
- 12 hours

Deliverables

- Studies will be shared to the Client via Miovision DataLink.

III. Project Schedule

GHA will schedule the work during the week of May 14 or May 21, 2018, weather permitting.

Data will be processed for 72-hour turn-around through Miovision and will be shared to the Client, via DataLink, as soon as it is available to GHA.

IV. Key Personnel

Mr. Arthur J. Penn, P.E., an Associate of the firm and Senior Engineer, will function as the Assistant Engineer. Mr. Penn has managed numerous similar data collection efforts. He will be assisted by additional professional and technical staff.

V. Compensation for Services

GHA proposes to complete the above work for a lump sum fee as outlined below.

<u>TMC's</u>	<u>Fee</u>
3 locations x 12 hours (\$60/hr)	\$2,160.00
Total Lump Sum Fee	\$2,160.00

The proposed fee includes all necessary equipment and deployment. Reimbursable expenses, including items such as photos, postage, messenger services, printing, mileage, etc., are included in the fee indicated above. An invoice will be submitted upon completion of the study and will detail charges made against the project and services provided.

Please note that our proposal assumes the study will be completed within one deployment. If multiple deployments are requested, an adjustment to the fee will be necessary. GHA will provide the Client a written estimate of any additional fees prior to commencing with such work.

Any required permits, if needed, from applicable regulatory agencies are to be obtained by the Client prior to the study date.

VI. Services Not Included

Should additional services be required or expanded beyond those outlined in *Section II: Traffic Data Collection Services* of this Agreement, GHA will request written authorization prior to commencing the work and the Client will be billed on a time-and-materials (T&M) basis in accordance with the attached *GHA Hourly Rates*.

VII. General Conditions

The delineated services provided by Gewalt Hamilton Associates, Inc., (GHA) under this Agreement will be performed as reasonably required in accordance with the generally accepted standards for civil engineering and surveying services as reflected in the contract for this project at the time when and the place where the services are performed.

Nothing contained in this Agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the Client or GHA. GHA's services under this Agreement are being performed solely for the Client's benefit, and no other party or entity shall have any claim against GHA because of this Agreement or the performance or nonperformance of services hereunder. In no event shall GHA be liable for any loss of profit or any consequential damages.

The Client and GHA agree that all disputes between them arising out of or relating to this Agreement or the Project shall be submitted to nonbinding mediation in Chicago, Illinois unless the parties mutually agree otherwise.

This Agreement, including all subparts and *Attachment A*, which is attached hereto and incorporated herein as the General Provisions of this Agreement, constitute the entire integrated agreement between the parties which may not be modified without all parties consenting thereto in writing.

VIII. Authorization

By signing below you indicate your acceptance of this Agreement in its entirety.

Gewalt Hamilton Associates, Inc.

City of Onalaska



Arthur J. Penn, P.E.
Associate / Senior Engineer
Director – Data Collection Division

Kevin Schubert, P.E.
Assistant Engineer

Date: _____

Encl.: Exhibit A – Location Map
GHA Hourly Rates
Attachment A

STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item: #10

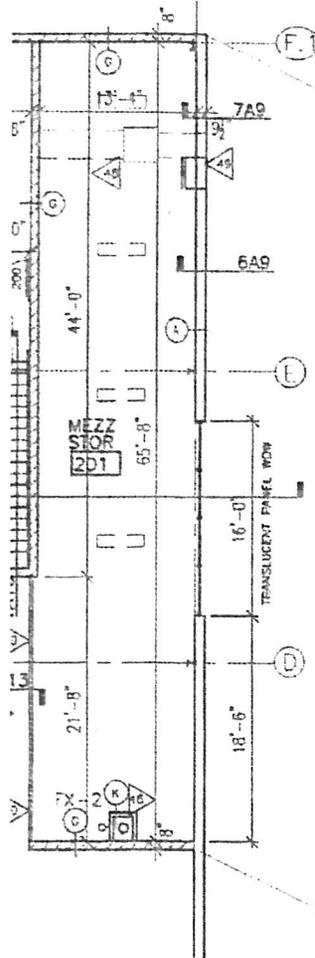
Project/Item Name: Public Works Facility lunch/work room alterations

Location: Public Works Facility

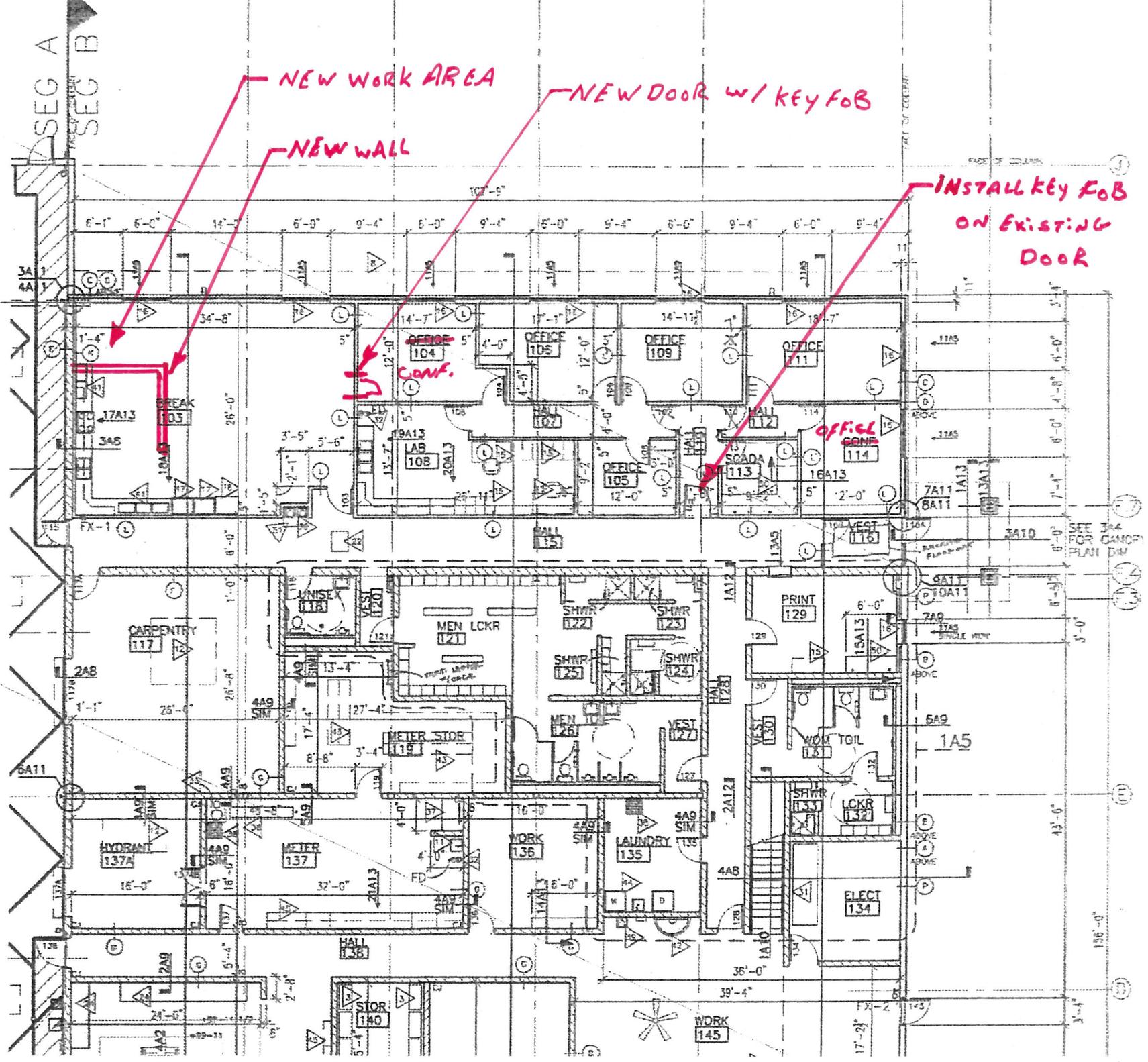
Requested Action: Approval of alterations

Staff Report/Description: Installation of a new door from the Public Works Facility office area to lunch/work room will assist with traffic flow between the two areas. Installation of key fobs will control access to the Public Works Facility office area which includes the City SCADA system that controls utility functions. The installation of the wall will allow separation of the kitchen area from lunch/work area to allow three work stations to be installed for desk/computer work by staff.

Attachments: Cost/budget spreadsheet & plan sheet



- TRENCH DRAIN -
 - SEE P.L.C.
 (TYP.) BY OWNER.
 (TYP.)
 W/ SOLID CAP BLOCK.
 (TYP.) W/ MTL. DOWN SPOUT/RAIN
 (TYP.) E-ENGINEERED BLDG. SUPPLIER.
 (TYP.)
 (TYP.) GUARDPOST - SEE SITE PLAN. (TYP.)
 (TYP.) PLUMBING.



Public Works Facility lunch room/work room alterations

Project items	Wieser Brothers	Fowler & Hammer	Gorilla Security	Kish Electric	Hoskins Electric	
Key fob two doors and provide & install new door			\$4,864.00			\$4,864.00
Install knee wall and door opening in lunch/work room	\$7,650.00	\$9,040.00				\$7,650.00
Electrical items in lunch/work room				\$2,105.00	\$1,240.00	\$1,240.00
					Total for project =	<u>\$13,754.00</u>

Project budget

2017 Equipment budget for Public Works facility doors and LED light replacement, split between Street, Water, Sanitary Sewer & Storm Sewer accounts	\$8,340.00
2018 Equipment budget for Public Works Facility security camera equipment & installation split between Water & Sanitary Sewer equipment accounts	\$3,500.00
2018 Operating budget split between Street, Water, Sanitary Sewer & Storm Sewer accounts	\$2,000.00
	Total = <u>\$13,840.00</u>

STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item: #11

Project/Item Name: Main Street & 12th Avenue South/Sand Lake Road intersection traffic report

Location: Main Street & 12th Avenue South/Sand Lake Road

Requested Action: Discussion on report

Staff Report/Description: Traffic report prepared by Strand Associates as part of the traffic signal upgrades for this intersection. Consultant does not recommend the installation of a protected left turn phase from Sand Lake Road to Main Street. Traffic report will be used for timing of new traffic signal controls.

Attachments: Traffic report

Professional

Engineering

Services

Traffic Analysis
Memorandum
City of Onalaska,
12th Avenue/Sand
Lake Road
Main Street and
12th Avenue/Sand
Lake Road
Intersection
La Crosse County

Report

City of

Onalaska, WI

April 2018



SA
STRAND
ASSOCIATES

Report for City of Onalaska, Wisconsin

Traffic Analysis Memorandum
City of Onalaska, 12th Avenue/Sand Lake Road
Main Street and 12th Avenue/Sand Lake Road Intersection
La Crosse County



Prepared by:

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April 2018



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APPENDICES

APPENDIX A–EXISTING (2018) TRAFFIC VOLUMES
 APPENDIX B–PROJECTED (2028) TRAFFIC VOLUMES
 APPENDIX C–EXISTING CONDITIONS HCM 2010 TRAFFIC REPORTS
 APPENDIX D–EXISTING GEOMETRY (2028) HCM 2010 TRAFFIC REPORTS
 APPENDIX E–SOUTHBOUND LEFT-TURN PROTECTED PHASE (2028) PM PEAK HCM 2010
 TRAFFIC REPORT
 APPENDIX F–CONSTRUCTION ANALYSIS (2028) SIMTRAFFIC REPORTS

SUBJECT

- City of Onalaska, 12th Avenue/Sand Lake Road
- Main Street and 12th Avenue/Sand Lake Road
- La Crosse County, Wisconsin

PROJECT DESCRIPTION

Strand Associates, Inc.® (Strand) performed a study on the intersection of Main Street and 12th Avenue/Sand Lake Road in the City of Onalaska (City), La Crosse County. The intersection is located approximately 2,200 feet west of US Highway 53 and approximately 1 mile north of Interstate Highway 90. The land use adjacent to the intersection is a cemetery on the southeast quadrant, a residential home on the southwest quadrant, a bank on the northwest quadrant, and a church/school on the northeast quadrant. Figure 1 shows the project location and limits.

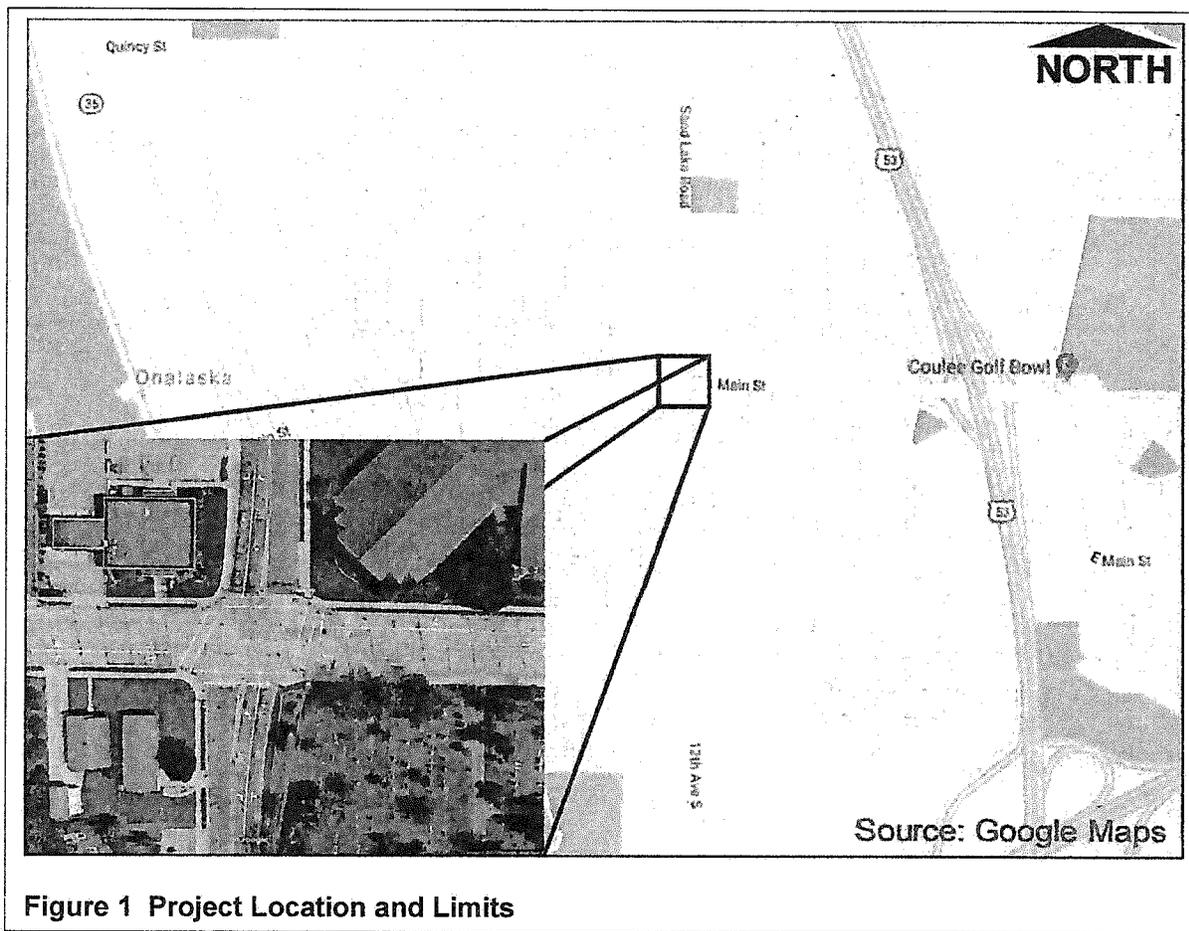


Figure 1 Project Location and Limits

Main Street is a 4-lane undivided roadway through the project area, and 12th Avenue/Sand Lake Road is a 2-lane roadway. The eastbound (EB) and westbound (WB) approaches provide one shared

through/left lane and one shared through/right lane; the northbound (NB) and southbound (SB) approaches provide an exclusive left-turn lane and one shared through/right lane.

DATA COLLECTION

Strand staff performed 12-hour intersection turning movement counts at the signalized intersection of Main Street and 12th Avenue/Sand Lake Road on Wednesday March 7, 2018, from 12 P.M. to 6 P.M., and on Thursday March 8, 2018, from 6 A.M. to 12 P.M. The traffic counts were taken while school was in session. The existing (2018) traffic volumes are located in Appendix A.

A traffic forecast was developed using a previous study by Short Elliott Hendrickson Inc. (SEH) at this intersection in 2010. In the SEH study, intersection turning movement counts were collected in 2009. Strand compared the 2009 and 2018 turning movement counts in order to calculate future (2028) turning movement counts. Based on this comparison, Strand applied a 1 percent per year linear growth rate to the 2018 turning movement counts, or a 10 percent increase. The projected (2028) traffic movement volumes are located in Appendix B.

During the data collection, Strand staff observed the northbound 12th Avenue/Sand Lake Road traffic into St. Paul's Lutheran School backed up to the Main Street intersection around 2 P.M. Strand staff also observed some of the southbound left-turn movement vehicles waiting longer than one cycle length to make their turn onto Main Street during the PM peak hour.

TRAFFIC ANALYSIS METHODOLOGY

Synchro/SimTraffic software (Version 9) was used for the intersection traffic operations analysis outputting Highway Capacity Manual (HCM) 2010 results. The following scenarios were modeled in Synchro for the AM peak hour, midday peak hour, and PM peak hour time periods:

- Existing (2018) Conditions
- Design Year (2028) Existing Geometry
- Design Year (2028) Existing Geometry Plus Southbound Left-Turn Protected Phase
- Construction Year (2018) Recommended Alternative

Traffic operations for this study were evaluated based on conditions at the intersection. An intersection's Level of Service (LOS) is based on average delay in seconds per vehicle for traffic entering the intersection. LOS A indicates travelers will experience minimal average delay at an intersection, and LOS F indicates the average delay is high. Table 1 shows the different LOS threshold use for signalized and unsignalized intersections. For unsignalized intersections, the highest delay for any yielding movement is used to report the overall intersection operations because the average delay tends to be skewed to lower delays as the through movements that receive zero delay are factored into the average.

Signalized Intersections		Unsignalized Intersections	
Level of Service	Average Control Delay (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤10	A	≤10
B	>10 to 20	B	>10 to 15
C	>20 to 35	C	>15 to 25
D	>35 to 55	D	>25 to 35
E	>55 to 80	E	>35 to 50
F	>80	F	>50

Note: sec/veh=seconds per vehicle

Table 1 Level of Service Threshold

In addition to the intersection LOS, the 95th and 50th percentile queues were analyzed during each scenario for potential queuing impacts to adjacent intersections. The 95th percentile queues represent the length exceeded during 5 percent of the peak hour. The 50th percentile queues represent the average peak hour conditions.

EXISTING CONDITIONS OPERATIONS

The signalized intersection of Main Street and 12th Avenue/Sand Lake Road operates at LOS B overall during the AM peak hour. All movements operate at LOS B or better with 95th percentile queues of 195 feet or less. The highest volume-to-capacity (v/c) ratio during the AM peak hour is on the southbound through/right movements at 0.55.

During the midday peak hour, the intersection operates at LOS B overall. All movements operate at LOS B or better with 95th percentile queues of 90 feet or less. The highest v/c ratio during the midday peak hour is on the northbound through/right movements at 0.35.

During the PM peak hour, the intersection operates at LOS B overall. All movements operate at LOS B or better with 95th percentile queues of 295 feet or less. The highest v/c ratio during the PM peak hour is on the southbound left-turn movement at 0.67.

Table 2 shows the overall existing traffic operations at the Main Street and 12th Avenue/Sand Lake Road intersection during the AM peak hour, midday peak hour, and PM peak hours. The HCM 2010 reports for the 2018 existing conditions traffic operations are located in Appendix C.

	Intersection Delay (s)	Highest Movement v/c Ratio
AM Peak Hour	LOS B (11.9)	SB through/right (0.55)
Midday Peak Hour	LOS B (10.3)	NB through/right (0.35)
PM Peak Hour	LOS B (16.2)	SB left-turn (0.67)

Table 2 Existing Conditions (2018) Traffic Operations

EXISTING GEOMETRY (2028) OPERATIONS

The existing geometry (2028) modeling assumed no improvements were made to the existing conditions geometry. The existing signal timings and phasing were slightly adjusted to improve operations for the northbound and southbound approaches. The forecasted 2028 traffic volumes were used to analyze traffic operations.

During the AM peak hour, the intersection operates at LOS B overall. All movements operate at LOS B with 95th percentile queues of 225 feet or less. The highest (v/c) ratio during the AM peak hour is on the southbound through/right movements at 0.57.

During the midday peak hour, the intersection operates at LOS B overall. All movements operate at LOS B or better with 95th percentile queues of 105 feet or less. The highest v/c ratio during the midday peak hour is on the westbound through/right movements at 0.40.

During the PM peak hour, the intersection operates at LOS C overall. The southbound left-turn movement operates at LOS D with 95th percentile queues of 235 feet. There are a few access points from businesses along Sand Lake Road starting at about 110 feet north of the Main Street intersection. The southbound left-turn 95th percentile queue would block some of these access points. All of the other movements operate at LOS B with 95th percentile queues of 360 feet or less. The highest v/c ratio during the PM peak hour is on the southbound left-turn movement at 0.83.

Table 3 shows the overall 2028 existing geometry traffic operations at the Main Street and 12th Avenue/Sand Lake Road intersection during the AM peak hour, midday peak hour, and PM peak hours. The HCM 2010 reports for the existing geometry (2028) traffic operations are located in Appendix D.

	Intersection Delay (s)	Highest Movement v/c Ratio
AM Peak Hour	LOS B (13.5)	SB through/right (0.57)
Midday Peak Hour	LOS B (10.9)	WB through/right (0.40)
PM Peak Hour	LOS C (20.3)	SB left-turn (0.83)

Table 3 Existing Geometry (2028) Traffic Operations

DESIGN YEAR (2028) ALTERNATIVES AND RECOMMENDATIONS

Strand analyzed adding a southbound left-turn protected phase to the intersection, and the impacts to other intersection movements with the 2028 forecasted traffic volumes. Adding a southbound left-turn protected phase to the intersection decreases the southbound left-turn movement delay and queue, but increases delay and queues for other movements.

With the southbound left-turn protected phase, the intersection operates at LOS C overall during the PM peak hour. The northbound through/right movement operates at LOS D with 95th percentile queues of 540 feet compared to LOS B with 95th percentile queues of 360 feet without the southbound left-turn protected phase. The Schafer Drive intersection is located approximately 700 feet south of the Main Street intersection on 12th Avenue. The southbound left-turn operates at LOS C with 95th percentile queues of 150 feet compared to LOS D with 95th percentile queues of 235 feet without a southbound left-turn protected phase. The eastbound and westbound movements operate at LOS C or better with or without the southbound left-turn protected phase with 95th percentile queues that would not reach any of the adjacent intersections along Main Street. The highest v/c ratio during the PM peak hour is on the northbound through/right movement at 0.91 compared to a v/c ratio of 0.83 on the southbound left-turn movement without the southbound left-turn protected phase.

Considering the impacts of the southbound left-turn protected phase, and based on field observations, Strand recommends keeping the same signal phasing at the Main Street and 12th Avenue/Sand Lake Road intersection with minor signal timing improvements. Table 4 shows the 2028 PM peak hour traffic movement operations with and without the southbound left-turn protected phase.

The traffic signal timing improvements that are proposed will update the vehicle clearance intervals and pedestrian intervals to current Wisconsin Manual of Uniform Traffic Control Devices (WMUTCD) standards. The intersection approach maximum green light times will also be revised and shortened to allow the traffic signal to be more responsive to serving all approaches during both peak and non-peak vehicle volume hours.

Control		Traffic Signal					
Approach	Movement	Volume	Delay (s)	LOS	V/C	95th Queue (ft)	Intersection Delay (s)
Northbound	NBL	46	19.0	B	0.14	40	20.3
	NBT	384	19.8	B	0.70	360	
	NBR	75					
Eastbound	EBL	77	19.1	B	0.48	160	Intersection LOS
	EBT	268	14.6	B	0.38	160	
	EBR	48					
Southbound	SBL	179	50.7	D	0.83	235	C
	SBT	201	15.0	B	0.45	210	
	SBR	83					
Westbound	WBL	79	16.8	B	0.55	250	Max Movement V/C
	WBT	291	16.5	B	0.55	225	
	WBR	236					
Control		Traffic Signal + Protected SBL					
Approach	Movement	Volume	Delay (s)	LOS	V/C	95th Queue (ft)	Intersection Delay (s)
Northbound	NBL	46	23.5	C	0.12	50	27.3
	NBT	384	44.4	D	0.91	540	
	NBR	75					
Eastbound	EBL	77	28.6	C	0.58	205	Intersection LOS
	EBT	268	19.8	B	0.42	205	
	EBR	48					
Southbound	SBL	179	22.6	C	0.71	150	C
	SBT	201	14.3	B	0.39	220	
	SBR	83					
Westbound	WBL	79	26.1	C	0.65	320	Max Movement V/C
	WBT	291	22.8	C	0.60	275	
	WBR	236					

Table 4 Southbound Left-Turn Protected Phase Comparison (2028)

CONSTRUCTION ANALYSIS

Strand performed a construction traffic analysis using different intersection controls and lane configurations with the 2018 existing traffic volumes. The following scenarios were evaluated:

- Alternative 1: All-Way Stop-Control Existing Lane Geometry
- Alternative 2: All-Way Stop-Control Adjusted Lane Geometry
- Alternative 3: Westbound Right-Turn and Southbound Left-Turn Free-Flow

Alternative 1 provides the same existing lane geometry, but all of the movements are stop-controlled rather than signalized. Alternative 2 provides the same existing lane geometry on the eastbound, westbound, and southbound approaches while the northbound approach will be adjusted to provide a shared through/left lane and a shared through/right lane. The north approach will be adjusted to add another receiving lane to accommodate the adjusted northbound approach. Alternative 3 provides the

same existing lane geometry and will also provide free-flow priority to the westbound right-turn and southbound left-turn movements while all of the other movements will be stop-controlled.

SimTraffic software (SimTraffic) was used to compare the three construction alternatives during the PM peak hour only since it is the controlling peak hour. All three alternatives were ran during seven different seeds, and the average results of the seven seeds were compared between alternatives.

Alternative 1 operates at LOS E overall during the PM peak hour. The northbound approach movements operate at LOS F with 95th percentile queues ranging from 150 feet to 670 feet. The Schafer Drive intersection is located approximately 700 feet south of the Main Street intersection. Table 5 shows the SimTraffic results for Alternative 1.

Intersection Alternative 1						
Approach	Movement	Volume	Delay (s)	LOS	95th Queue (ft)	Intersection Delay (s)
Northbound	NBL	41	88.2	F	150	43.0
	NBT	349	123.8	F	670	
	NBR	68				
Eastbound	EBL	70	20.1	C	135	Intersection LOS
	EBT	243	15.6	C	100	
	EBR	43				
Southbound	SBL	162	16.6	C	115	E
	SBT	182	13.3	B	110	
	SBR	75				
Westbound	WBL	71	22.4	C	150	
	WBT	264	19.8	C	160	
	WBR	214				

Table 5 Alternative 1 SimTraffic Results

Alternative 2 operates at LOS C overall during the PM peak hour. All movements operate at LOS D or better with acceptable queueing. Table 6 shows the SimTraffic results for Alternative 2.

Intersection Alternative 2						
Approach	Movement	Volume	Delay (s)	LOS	95th Queue (ft)	Intersection Delay (s)
Northbound	NBL	41	19.9	C	150	22.4
	NBT	349	34.5	D	280	
	NBR	68				
Eastbound	EBL	70	18.4	C	130	
	EBT	243	16.4	C	110	
	EBR	43				
Southbound	SBL	162	17.8	C	110	C
	SBT	182	13.4	B	125	
	SBR	75				
Westbound	WBL	71	34.6	D	180	
	WBT	264	25.1	D	195	
	WBR	214				

Table 6 Alternative 2 SimTraffic Results

Alternative 3 operates at LOS F overall during the PM peak hour. The northbound approach movements operate at LOS F with 95th percentile queues reaching up to 1,580 feet. The northbound 95th percentile queues will block the Schafer Drive, which is located about 700 feet south of the Main Street intersection. The westbound through/left movements operate at LOS F with 95th percentile queues of 1,180 feet. The 13th Avenue and 14th Avenue intersections are located about 550 feet and 800 feet east of the 12th Avenue intersection, respectively. The westbound through/left 95th percentile queues will block the 13th and 14th Avenue intersections. The eastbound left-turn operates at LOS E with 95th percentile queues of 200 feet. The southbound through/right movements operate at LOS E with 95th percentile queues of 215 feet. Table 7 shows the SimTraffic results for Alternative 3.

Intersection Alternative 3						
Approach	Movement	Volume	Delay (s)	LOS	95th Queue (ft)	Intersection Delay (s)
Northbound	NBL	41	182.4	F	150	122.5
	NBT	349	236.0	F	1580	
	NBR	68				
Eastbound	EBL	70	43.9	E	200	
	EBT	243	32.9	D	165	
	EBR	43				
Southbound	SBL	162				F
	SBT	182	37.1	E	215	
	SBR	75				
Westbound	WBL	71	237.9	F	1180	
	WBT	264				
	WBR	214				

Table 7 Alternative 3 SimTraffic Results

The traffic analysis indicates that construction Alternative 1 and Alternative 2 would be acceptable to use during the traffic signal construction. Alternative 1 has longer delays for northbound traffic than Alternative 2, but uses existing lane geometry and will be simpler to implement and easier for road users to properly use. Strand recommends Alternative 1 be used during construction of the traffic signal alternative. The contract documents will instruct the contractor to take down lane closures during the AM and PM peak hours to minimize delays at the intersection.

STAFF REVIEW SUMMARY

CITY OF ONALASKA BOARD OF PUBLIC WORKS

May 1, 2018

Agenda Item: #12

Project/Item Name: Cemetery Fence Project

Location: Cemetery

Requested Action: Approval of bid

Staff Report/Description: Three bids were received for the 2018 Cemetery Fence Project. Award of the bid is recommend to Philips Fencing in the amount of \$55,535. This project was included within the 2018 Capital Improvements budget for \$60,000.

Attachments: Bid tabulation

CITY OF ONALASKA

BID OPENING

2018 CEMETERY FENCE

April 24, 2018 @ 11:00 AM

Contractor	Bidders Proof	Bid Bond	Bid Amount
Phillips Fencing	X	X	\$55,535.00
Moe Fencing	X	X	\$93,933.00
Pember Companies	X	X	\$104,389.22

RECOMMEND AWARD BID TO: Phillips Fencing

**BOARD OF PUBLIC WORKS
MONTHLY ESTIMATES
May 1, 2018**

<u>Contractor</u>	<u>Original Contract Amount</u>	<u>Change Orders</u>	<u>Paid to Date</u>	<u>Due this Estimate</u>
1. STRAND ASSOCIATES S Kinney Coulee Lift Station Construction Estimate #14	\$ 28,300.00	\$ -	\$ 21,306.35	\$ 93.73
2. STRAND ASSOCIATES 6th & Quincy Lift Station Design Estimate #3	\$ 59,900.00	\$ -	\$ 13,175.66	\$ 5,201.70
3. STRAND ASSOCIATES 12th/Sand Lake & Main St Traffic Signal Design Estimate #2	\$ 27,900.00	\$ -	\$ 3,440.00	\$ 8,100.00
4. SEH INC. East Main Traffic/Speed study Design Estimate #1	\$ 3,900.00	\$ -	\$ -	\$ 2,645.60
5. SEH INC. Railroad Quiet Zonae study Design Estimate #1	\$ 11,900.00	\$ -	\$ -	\$ 255.16
6. Davy Engineering French Road booster station Design Estimate #1	\$ 7,500.00	\$ -	\$ -	\$ 506.25