CITY COUNCIL AGENDA
AUGUST 22, 2016 – 7:00 P.M.

1. CALL TO ORDER
2. PLEDGE OF ALLEGIANCE
3. ROLL CALL
4. APPROVAL OF MINUTES
   A. Regular City Council Meeting of August 8, 2016
5. MAYOR'S COMMENTS
6. CITY MANAGER'S COMMENTS
7. AGENDA CHANGES (ADDITIONS/DELETIONS)
8. GUEST SPEAKERS: **None**
9. PUBLIC COMMENT *Agenda Items Only (Limit 3 minutes)*
10. REQUESTS FOR PAYMENT
    A. Approval of Accounts Payable
11. PUBLIC HEARINGS: **None**
12. UNFINISHED BUSINESS: **None**
13. NEW BUSINESS
    A. Invasive Species Treatment Agreement – Japanese Knotweed at Mt. Baldhead *(VOICE VOTE)*
    B. Harbor Management Plan Adoption – *(VOICE VOTE)*
    C. Consulting/Professional Services Contract -Harbor Sediment Reduction Strategy *(VOICE VOTE)*
    D. Historic District Commission Appointments *(VOICE VOTE)*
    E. Letter of Support for Douglas CMAQ Grant *(VOICE VOTE)*
    F. Schedule of Fees Adjustment (Short Term Rental) – *(VOICE VOTE)*
14. CONSENT AGENDA: **None**
15. PUBLIC COMMENTS *(Limit 3 minutes)*
16. COMMUNICATIONS:
    A. Annual MML Conference – *accept as information*
17. BOARDS, COMMISSIONS & COMMITTEE REPORTS
    A. KLSWA, Harbor Authority, Fire Board, Planning Commission
18. COUNCIL COMMENTS
19. ADJOURN

NOTICE

This facility is wheelchair accessible with accessible parking spaces available. Requests for accommodations or interpretive services must be made 48 hours prior to this meeting. Please contact Saugatuck City Clerk at 269-857-2603 or monica@saugatuckcity.com for further information.

4A

***Proposed* Minutes**
Saugatuck City Council Meeting
Saugatuck, Michigan, August 8, 2016

The City Council met in regular session at **7**:00 p.m. at City Hall, 102 Butler Street, Saugatuck, Michigan.

1. **Call to Order** by Mayor Peterson at 7:00 p.m.

2. **Pledge of Allegiance**

3. **Attendance:**
Present: Spangler, Bekken, Johnson, Hess, Verplank, Peterson & Trester
Absent: None
Others Present: City Manager Harrier, City Clerk Nagel & Zoning Administrator Osman

4. **Approval of Minutes:** A motion was made by Trester, 2nd by Hess, to approve the July 25, 2016 regular meeting minutes as amended. Upon voice vote the motion carried unanimously.

5. **Mayor's Comments:** Mayor Peterson is pleased to see town extremely busy this year; attended the Friends of Blue Star Trail meeting and will be bringing discussions to Council at an upcoming workshop.

6. **City Manager's Report:** None

7. **Agenda Changes:** *(addition)* **8(A) Brian Villmont – Prein & Newhof Engineering Firm**

8. **Guest Speakers:**
A. Brian Villmont – Prein & Newhof Engineering Firm presented Council with a proposed Blue Star Bridge reconfiguration as part of the CMAQ Grant Application submitted by the City of the Village of Douglas.

9. **Public Comment:** A motion was made by Spangler, 2nd by Trester, to suspend the rules of order to allow public comment on any item at this time due to entering into closed session later on the agenda. Upon voice vote the motion carried unanimously.

Laura Godfrey *(resident)* is concerned with speeding near the high school and would like an examination of the area to explore ways in reducing speed.

Jeff McKean *(resident)* presented Council with a project update regarding his building at 129 Griffith Street.

Mark Klungle *(resident)* has concerns with neighbors at 129 Griffith Street.

10. **Request for Payment:** A motion was made by Hess, 2nd by Verplank, to approve the accounts payable in the amount of $292,864.96. Upon voice vote the motion carried unanimously.

11. **Public Hearings:** None

12. **Unfinished Business:**
A. Special Event Application – Saugatuck Center for the Arts: Council tabled to this meeting the request from Saugatuck Center for the Arts (SCA) to reserve two (2) parking spaces in the Culver Street Parking Lot for August 13, 20, 27; September 10, 24; October 1, 15, 2016.

A motion was made by Hess, 2nd by Spangler, to approve the Special Event Application submitted by the SCA for the use of two (2) parking spaces in the Culver Street Parking Lot in consideration for the SCA allowing the City to hold a Citizen of the Year reception and a community informational meeting regarding upcoming road projects. Upon voice vote the motion carried unanimously.

13. New Business:

A. Ordinance Amendment No. 160808-1 – Recreational Fires and Incinerators: A motion was made by Verplank, 2nd by Spangler, to table Ordinance Amendment 160808-1 amending Section 92.26, Chapter 92 Title 9 and Section 94.02, Chapter 94, Title 9 of the Code of the City of Saugatuck. Upon roll call the motion carried unanimously.

B. Ordinance Amendment No. 160808-2 – Windfeather Flags: A motion was made by Verpank, 2nd by Hess, to approve Ordinance No. 160808-2 amending Sections 154.135, 154.140 and 150.130 of the Code of the City of Saugatuck prohibiting feather flag signs and windfeather signs in the right-of-way. Upon roll call the motion carried unanimously.

C. Special Event Application – Savor the Art Coast: A motion was made by Trester, 2nd by Hess, to approve the Letter of Understanding dated August 8, 2016 between the City of Saugatuck and the CVB to hold the Savor the Art Coast event in the City of Saugatuck on Sunday, August 28, 2016. Upon voice vote the motion carried unanimously.

D. Closed Session to Discuss Litigation Strategy Pursuant to Sections 8(h) of the OMA: A motion was made by Trester, 2nd by Verplank, to enter into closed session pursuant to Sections 8(h) of the Open Meetings Act, to discuss a written, attorney-client privileged communication from the City Attorney's Office, dated July 28, 2016 regarding the Dunegrass ZBA appeal and related legal issues Upon roll call the motion carried unanimously.

Council entered into closed session at 8:17 p.m.

Council reconvened into open session at 8:50 p.m.

Present: Spangler, Bekken, Johnson, Hess, Verplank, Trester & Peterson
Absent: None
Others Present: City Manager Harrier, City Clerk Nagel, City Zoning Administrator Osman

A motion was made by Hess, 2nd by Spangler, to approve the closed session minutes of August 8, 2016 as presented. Upon voice vote the motion carried unanimously.

14. Consent Agenda: None

15. Public Comment: None

16. Communications: None

17. Boards, Commissions & Committee Reports: Council received reports from the following committee(s): None

18. Council Comments: Council Member Hess noticed an Illinois license plate that said "Oval Beach."

19. Adjournment: Mayor Peterson adjourned the meeting at 8:55 p.m.

Respectfully Submitted,

Monica Nagel, CMC
City Clerk

Vendor Name	Description		Amount
1. ALLEGAN COUNTY EQUALIZATION			
	TAX MAPS		8.40
2. ALLEGAN COUNTY SHERIFF			
	RESERVE OFFICERS		832.00
	DEBT CREW		170.00
	RESERVE OFFICERS		912.00
		TOTAL	1,914.00
3. ALLEGAN COUNTY TREASURER			
	PROPERTY TAXES		145,796.16
4. BLOOM SLUGGETT MORGAN			
	LEGAL FEES		2,140.00
	LEGAL FEES		1,556.96
		TOTAL	3,696.96
5. BS&A SOFTWARE			
	PLANNING TRAINING		75.00
6. CHEF CONTAINER, LLC			
	OVAL BEACH		89.62
7. CITY OF DOUGLAS			
	3RD CAR & OVAL BEACH		3,160.79
8. CMS MEDICARE INSURANCE			
	HEALTH INSURANCE		365.40
9. COMCAST			
	TELEPHONE & INTERNET		284.60
10. CONSUMERS ENERGY			
	ELECTRIC		1,717.82
11. DIANNA MC GREW			
	ASSESSING SERVICES		2,436.64
12. FLEIS & VANDENBRINK ENGINEERING INC			
	ENGINEERING		4,839.40
	SHOPPER DOCK PERMIT		193.50
	BLUE STAR BRIDGE INSPECTION		800.00
		TOTAL	5,832.90
13. FRIS OFFICE OUTFITTERS			
	SUPPLIES		37.69
	SUPPLIES		83.47
	SUPPLIES		53.96
		TOTAL	175.12
14. GORDON FOOD SERVICE			
	CONCESSION		4,300.55
15. GREENMARK EQUIPMENT INC			
	REPAIRS & MAINTENANCE		286.79
16. H. BARBER & SONS			
	BEACH CLEANER TINES		173.00
17. IHLE AUTO PARTS			
	SUPPLIES		6.56
18. INTERURBAN TRANSIT AUTHORITY			
	PROPERTY TAXES		174.95
19. KALAMAZOO LAKE SEWER & WATER			
	WATER		2,203.66
20. MARILYN A. STARRING			
	SPEAR STREET BOAT LAUNCH		421.75
21. MERCHANTS BANCARD NETWORK			
	OVAL BEACH GATE		653.91
	OVAL BEACH CONCESSION		1,081.81
		TOTAL	1,735.72

Vendor Name	Description		Amount
22. MICHIGAN MUNICIPAL LEAGUE			
	INSURANCE		23,984.00
23. NEW URBAN HOME BUILDERS LLC			
	550 SPEAR STREET SEWER CUT		1,750.00
24. OTTAWA AREA INTERMEDIATE SCHOOL DIS			
	PROPERTY TAXES		75,029.13
25. PERMA GREEN WEED CONTROL			
	PEST CONTROL		200.00
26. PRINTING SYSTEMS, INC.			
	ELECTIONS		79.05
27. PRIORITY HEALTH			
	HEALTH INSURANCE		10,267.47
28. SAUGATUCK DOUGLAS LIBRARY			
	PROPERTY TAXES		186.18
29. SAUGATUCK FIRE			
	SHORT TERM INSPECTIONS		180.00
	PROPERTY TAXES		417.48
		TOTAL	597.48
30. SAUGATUCK PUBLIC SCHOOLS			
	PROPERTY TAXES		127,142.91
31. SEPTIC TANK SYSTEMS CO INC			
	CULVER STREET		320.00
32. SHELL			
	GASOLINE & DIESEL		226.27
33. SISTERS IN INK			
	CONCESSION		397.60
	UNIFORMS		41.10
		TOTAL	438.70
34. STANDARD INSURANCE COMPANY			
	INSURANCE		339.80
35. VALLEY CITY LINEN INC			
	SHOP TOWELS		104.90
36. WESTENBROEK MOWER INC			
	SUPPLIES		164.32
37. ZEELAND PRINT			
	SUPPLIES		119.91
TOTAL - ALL VENDORS			415,806.51

FUND TOTALS:

Fund 101 - GENERAL FUND	51,367.29
Fund 202 - MAJOR STREETS	1,567.03
Fund 203 - LOCAL STREETS	871.38
Fund 661 - MOTOR POOL FUND	13,168.79
Fund 701 - CURRENT TAX FUND	348,746.81
Fund 715 - ROSE GARDEN	85.21

Item 13A

City Council
Agenda Item Report

City of Saugatuck

FROM: Kirk Harrier, City Manager

MEETING DATE: August 22, 2016

SUBJECT: Invasive Species Treatment Agreement re: Japanese Knotweed Mt. Baldhead

DESCRIPTION
Attached is an agreement between the City of Saugatuck and the Ottawa County Conservation District to treat an invasive species known as Japanese Knotweed. The invasive species would be treated by injecting an approved herbicide into the stem of the plant. The proposed work would be completed by the Ottawa County Conservation District at no cost to the City of Saugatuck.

BUDGET ACTION REQUIRED
N/A

COMMITTEE/COMMISSION REVIEW
N/A

LEGAL REVIEW
Municipal attorney Jeff Sluggett has reviewed the proposed agreement and approves its form and content.

SAMPLE MOTION:
Motion to **approve/deny** the invasive species treatment agreement between the City of Saugatuck and the Ottawa County Conservation District dated August 22, 2016 and authorize the Mayor and City Clerk to effectuate the agreement.

Mount Baldhead Data

Location	Species	Area	Density	Treatment Status	Latitude	Longitude
Mount Baldhead	Garlic Mustard	5	3	Untreated	42.661000	-86.208010
Mount Baldhead	Japanese Barberry	2	3	Untreated	42.660980	-86.208010
Mount Baldhead	Oriental Bittersweet	2	2	Untreated	42.660990	-86.208040
Mount Baldhead	Black Locust	1	1	Untreated	42.661010	-86.208650
Mount Baldhead	Honeysuckle	1	1	Untreated	42.661020	-86.208760
Mount Baldhead	Black Locust	2	2	Untreated	42.661160	-86.209050
Mount Baldhead	Oriental Bittersweet	3	3	Untreated	42.661120	-86.209060
Mount Baldhead	Oriental Bittersweet	2	2	Untreated	42.661240	-86.209950
Mount Baldhead	Honeysuckle	1	1	Untreated	42.662770	-86.214750
Mount Baldhead	Honeysuckle	1	1	Untreated	42.662730	-86.215000
Mount Baldhead	Japanese Knotweed	1	1	Untreated	42.658500	-86.211150
Mount Baldhead	Japanese Knotweed	1	1	Untreated	42.658470	-86.211310
Mount Baldhead	Japanese Knotweed	3	4	Untreated	42.658480	-86.211850
Mount Baldhead	Japanese Barberry	2	2	Untreated	42.660500	-86.216210
Mount Baldhead	Honeysuckle	2	2	Untreated	42.661210	-86.216300

Area: 1-Individual/Few
2- < 1,000 sq. ft (half tennis court)
3- 1,000 sq ft to 0.5 acre (hockey rink)
4- 0.5 acre to 1 acre (football field w/o end zones
5- > 1 acre

Density:
1-Spare
2-Patchy
3-Dense
4-Monoculture

All Japanese knotweed observed is recorded in this data.

All other data are samplings of more common invasive species of plants that were observed. Additional individuals or populations may be found at the site.

West Michigan Cooperative
INVASIVE SPECIES
MANAGEMENT AREA
Data Provided by the West Michigan CISMA

An ***invasive*** plant is one that is ***non-native*** and ***causes harm*** or has the potential to cause harm to the environment, the economy, or human health.

Garlic Mustard

Description: A plant with two different growth forms; a first year rosette that grows close to the ground (left), and an upright second year plant (right) that gets white flowers with four petals and produces thousands of seeds.

Why it's a problem: Garlic mustard releases chemicals into the soil that suppresses native plant growth. Most affected are native wild flowers that many nature lovers seek out and look forward to seeing each spring. Trees are also affected, a heavy infestation of garlic mustard can reduce their health and prevent new tree seedlings from surviving. See the bottom left image for an understory taken over by garlic mustard.

Control: Because garlic mustard seeds can stay dormant for up to 10 years, consistent management is essential if eradication is desired. Hand pulling can be effective and is best done in the spring before the plant goes to seed. Chemical control can be helpful for large infestations that are well established; it can be done in early spring or late fall when risk to other plants is lower.

Japanese Knotweed

Description: Japanese knotweed is a very aggressive growing broadleaf plant that dies back in the winter but leaves hollow, jointed stalks, similar to bamboo.

Why it's a problem: Japanese knotweed releases chemicals into the soil the make it harder for other native plants to grow. Also, because of it's adaptation to growing in volcanic regions it has no trouble growing through concrete and can destroy home foundations and roads (bottom right). It is often unknowingly spread by ground crews and roadside mowers because each joint can produce a brand new plant.

Control: This plant is extremely difficult to get rid of completely. Multiple years of intensive control that include a combination of cutting and herbicide use is recommended.

West Michigan Cooperative
INVASIVE SPECIES
MANAGEMENT AREA

OTTAWA
CONSERVATION DISTRICT

West Michigan CISMA Coordinator
Drew Rayner - 616.402.9608
Westmi-cisma@macd.org

Ottawa Conservation District
616.842.5852 ext. 5
ottawacd@macd.org

OTTAWA CONSERVATION DISTRICT

Your Land, Your Water, Your Michigan

16 August 2016

City of Saugatuck
102 Bulter Street
P.O. Box 86
Saugatuck MI, 49453

Re: Japanese knotweed treatment

Saugatuck City Council,

The West Michigan Cooperative Invasive Species Management Area is seeking permission to treat a patch of Japanese knotweed growing in Mount Baldhead Park, on the side of Perryman Street. If left untreated, this plant has the potential to continue to grow and spread, with the possibility of causing damage to the road infrastructure.

The proposed method of treatment is using special Japanese knotweed injectors that inject a chemical, Glyphosate, directly into the stem of the plant. This treatment will take place in the fall of 2016 after the plant flowers. The timing of this treatment lines up with when the plant is most susceptible to this chemical. The reason we are choosing to inject instead of foliar spray is to reduce the potential of off target kill and chemical drift to surrounding plants.

Feel free to contact me with any questions.

Sincerely,

Drew Rayner
West Michigan CISMA Coordinator
Ottawa Conservation District
(616) 402-9608
16731 Ferris St
Grand Haven, MI 49417

AGREEMENT CONCERNING TREATMENT OF INVASIVE PLANTS

This Agreement is made this 22nd of August 2016, by and between the Ottawa Conservation District, ("OCD"), whose address is 16731 Ferris St, Grand Haven MI 49417

and the City of Saugatuck, ("Customer"), whose address is:

102 Butler St, PO Box 86, Saugatuck MI 49453

and is as follows:

1. Engagement.
Customer hires OCD, and OCD agrees to provide services, to remove certain invasive plants from Customer's property, as set forth in Paragraph 2 below.

2. Services.
OCD shall provide the services set forth below:
a. OCD will treat these invasive plant(s): Japanese knotweed identified on Perryman St, in Mount Baldhead Park.
b. OCD will treat the invasive plants Glyphosate, injecting the chemical directly into the stem. Herbicides will be applied according to manufacturer's directions for use or application.
c. OCD will document the amount of herbicide used on the property.
d. OCD will provide all equipment and herbicides necessary to complete the work.

3. Term.
OCD will begin work as needed in 2016 and will complete work by December 31, 2016 unless extended by the parties due to weather or other circumstances. Either party may terminate this Agreement by giving five days written notice to the other party. In such event, Customer shall pay OCD for all work previously authorized and performed prior to the termination date.

4. Payment.
Customer shall pay OCD $0.00 for its services. The expense for the treatment of the species listed above 2016 is covered by funding from the Department of Natural Resources and the United States Forest Service.

5. Knowledge of OCD and Obligations of OCD
OCD represents that it has the requisite training, skill and experience necessary to provide the services herein. OCD shall take precautions for the safety of its employees and agents on the work site.

6. Authority of Customer and Obligations of Customer.
Customer is the owner of the property and/or has all the requisite authority to permit OCD to perform the services hereunder and to enter into this Agreement. Customer will identify areas for treatment of invasive plants. Customer shall identify any areas that may be hazardous or dangerous for OCD's employees or agents.

7. Insurance.
a. OCD agrees to maintain commercial general liability insurance, worker's compensation insurance on its employees and automobile liability insurance covering its vehicles. If requested, a copy of OCD's commercial general liability insurance certificate will be provided.
b. Customer shall maintain property insurance.

8. Limitation of Warranties and Limitation of Liability.
OCD makes no warranties, express or implied in connection with its services rendered hereunder. OCD's liability for any damages arising hereunder shall be limited to the extent of coverage or its fee earned hereunder. OCD shall not be liable for incidental or consequential damages resulting from the services provided hereunder.

9. Indemnification.

a. OCD shall indemnify and save harmless the Customer from any and all costs, claims, judgments or awards of damages (including costs and all attorney fees) arising solely out of or in any way resulting from negligent acts, errors or omissions of OCD, its employees or agents in performing this Agreement.
b. Customer shall defend and indemnify and save harmless OCD, its officers, employees and agents from any and all costs, claims, judgments or awards of damages (including costs and all attorney fees) arising solely out of or in any way resulting from negligent acts, errors or omissions of Customer, its employees or agents in performing this Agreement. This provision shall survive the termination of this Agreement.

10. General Provisions.
This Agreement represents the entire understanding and agreement between the parties with respect to the subject matter and supersedes all prior agreements or negotiations between the parties. This Agreement may be amended, supplemented, or changed only by an agreement in writing that makes specific reference to this Agreement or the agreement delivered pursuant to it and that is signed by the party against whom enforcement of any such amendment, supplement, or modification is sought. This Agreement shall inure to the benefit of, and be binding on, the named parties and their respective heirs, successors and assigns, but not any other person. Any provision of this Agreement which has been declared invalid or illegal shall in no way affect or invalidate any other provision. In the event either of the parties defaults on the performance of any of the terms of this Agreement or either party places enforcement of this Agreement in the hands of an attorney, or files a lawsuit, each party shall pay all of its own attorney fees, costs and expenses. The venue for any dispute related to this Agreement shall be in Ottawa County, Michigan.

In witness whereof, the parties have executed this Agreement on the date set forth above.

OCD
OTTAWA CONSERVATION DISTRICT

By:
Megan Boos
District Administrator
Phone: 616.842.5852x5

CUSTOMER

Representatives Name:

Representatives Signature:

Phone:

Item 13.B

City Council
Agenda Item Report

City of Saugatuck

FROM: Kirk Harrier, City Manager

MEETING DATE: August 22, 2016

SUBJECT: City of Saugatuck Harbor Management Plan Adoption

DESCRIPTION
On April 27, 2015 the City of Saugatuck entered into a professional services agreement with Edgewater Resources to research and recommend best possible options for sediment management in Kalamazoo Harbor. The contract price for the project was $37,500. As part of Edgewater's research, they met with various regulatory agencies to determine what options would have the best chance of successfully obtaining approval through any required county/state/federal permitting agencies. The attached Plan is the culmination of their research.

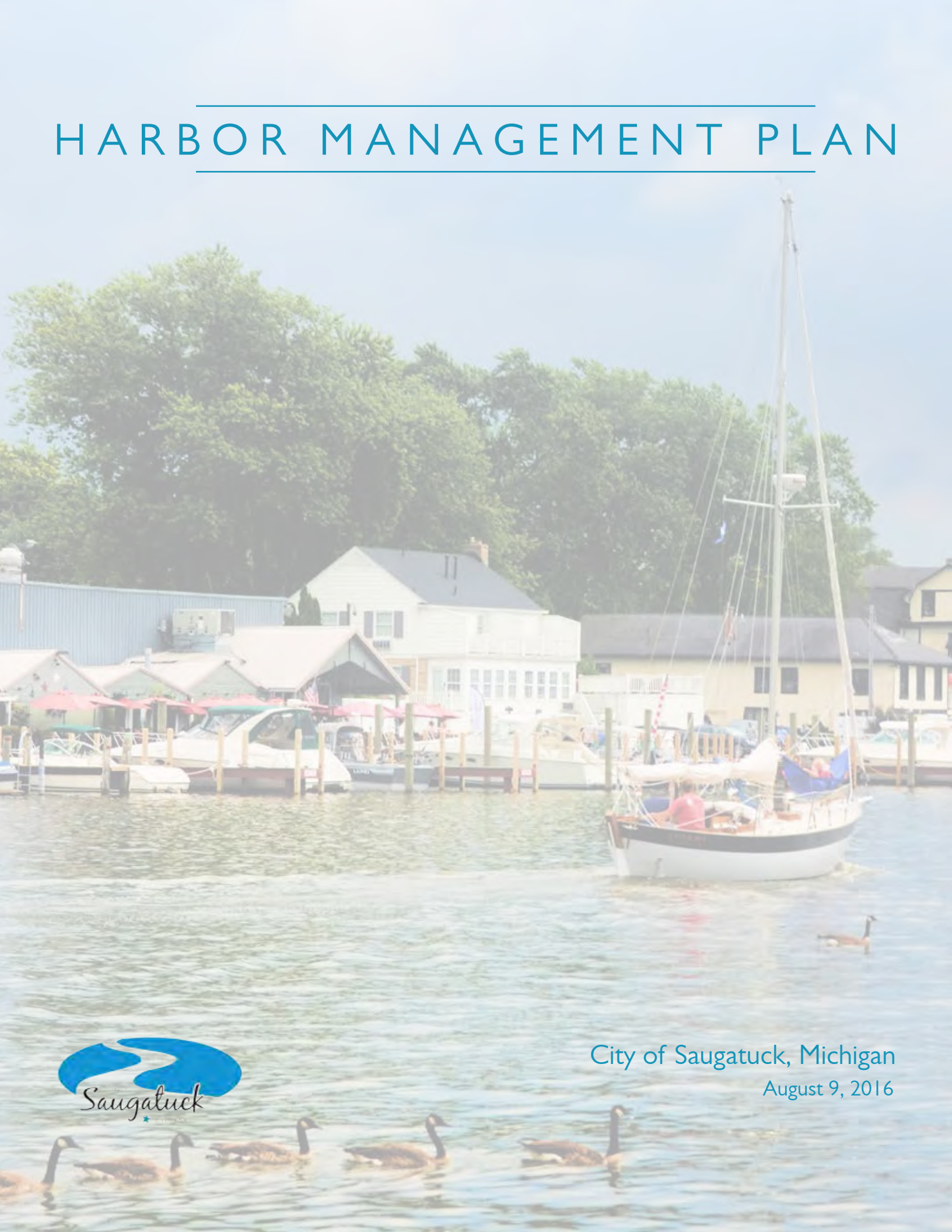
BUDGET ACTION REQUIRED
N/A

COMMITTEE/COMMISSION REVIEW
N/A

LEGAL REVIEW
Municipal attorney Jeff Sluggett recommends the City Council take action to adopt the Plan from Edgewater Resources to finalize the project.

SAMPLE MOTION:
Motion to **adopt/not adopt** the Harbor Management Plan dated August 3, 2016 submitted by Edgewater Resources.

HARBOR MANAGEMENT PLAN



City of Saugatuck, Michigan

August 9, 2016

Prepared for the City of Saugatuck, Michigan

86 West Center Street
Douglas, Michigan 49406

Prepared by:

Edgewater Resources, LLC
518 Broad Street, Suite 200
St. Joseph, MI 49085

acknowledgements

City Council
Chris Peterson, Mayor
Ken Trester (Mayor Pro-Tem)
Jeff Spangler
Jane Verplank
Mark Bekken
Barry Johnson
Bill Hess

City Manager
Kirk Harrier

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executive summary

Kalamazoo Lake has been a significant driver of the local economies of Saugatuck and surrounding communities ever since the area was first settled. Over the years, significant human intervention in the form of dredging has transformed Kalamazoo Lake from a wetland area to the more recreation-focused navigable lake that the communities have enjoyed for decades. Without ongoing human intervention, the lake will eventually revert to a shallow wetland area with a narrower river channel, which would bring significant change to the character of the community.

The result of the planning effort for the City of Saugatuck's Harbor Management Plan (the Plan) concludes that a layered approach to addressing long term sedimentation management is needed. The first step in the layered approach is to begin by reducing the number of upstream sources of non-point source sedimentation to significantly reduce the volume of sediments that settle in Kalamazoo Lake. This first step will reduce the total volume of dredging that will be required in the future, and directly addresses the cause of the problem rather than the symptoms.

Additional future layers to the plan focus on reducing the overall cost of the ongoing dredging that will be required in the future by identifying more cost effective locations for Contained Disposal Facilities (CDF), including the potential for in-water CDFs in Wade's Bayou, as well as consideration of sediment traps to further reduce the volume of sediment that reaches Kalamazoo Lake.

Other options were considered, including a proposed "Channelization" approach intended to convey sediments out into Lake Michigan. After extensive review and consideration with State permitting agencies, this alternative was determined to be infeasible, and would not be permitted due to the likely dispersion of contaminated sediments into Lake Michigan.

This Plan outlines a recommended "road map" to a successful implementation of the layered approach to sedimentation mitigation, with an emphasis on the critical first step of reducing upstream sedimentation sources. The planning team worked with various state representatives and considered existing research efforts to identify where and how efforts should be prioritized to address upstream sedimentation entering the Kalamazoo River, and the Plan defines proposed project steps, a team of partners and collaborators, and funding strategies.

01 / introduction

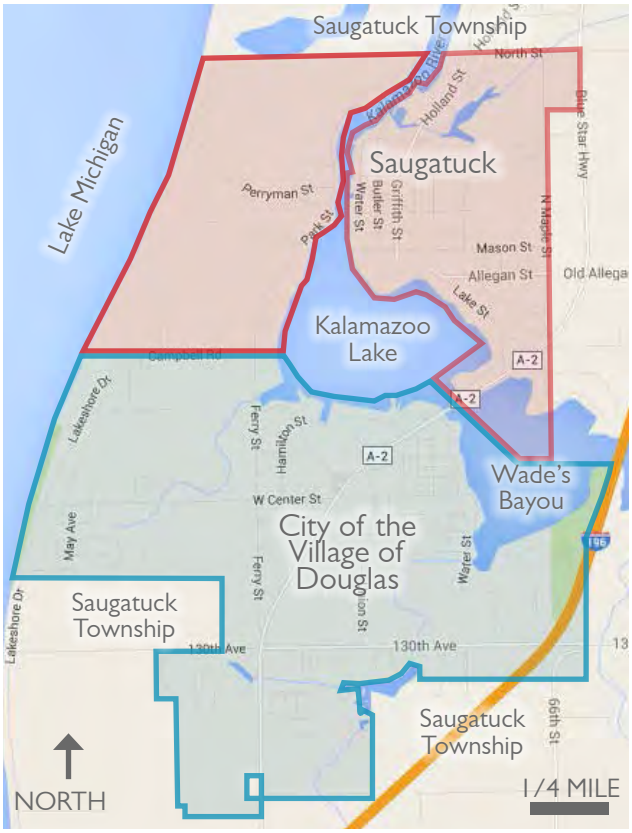
PLAN PURPOSE

The purpose of the Harbor Management Plan is to review all available alternatives to manage sedimentation in Kalamazoo Lake, evaluate the alternatives from both a feasibility and permitting standpoint, and identify the most cost effective solution to addressing long-term harbor maintenance.

Edgewater Resources has been working with the Kalamazoo Lake Harbor Authority and both communities of Saugatuck and Douglas since 2011 on identifying cost effective strategies for long-term harbor maintenance, and was asked to work with the City of Saugatuck to create this Harbor Management Plan.

PROJECT LOCATION

The City of Saugatuck, in Allegan County, Michigan, is located on the Lake Michigan shoreline. The city is surrounded by Saugatuck Township and is adjacent to the City of the Village of Douglas to the south. The population of Saugatuck is 925 full-time residents according to the 2010 census. The City has a tourism-based, seasonal economy and many summer homes are not counted as primary residences in current census data.



introduction

GOALS

The goal of the Plan is to identify a viable approach to address the sedimentation issues within Kalamazoo Lake. Specifically, the focus of the plan is to reduce the volume of sediments entering the Kalamazoo River upstream as a long- term approach in addressing this sedimentation, and identify strategies to reduce the cost of dredging. The Plan must be economically viable and outline initiatives that not only Saugatuck, but also upstream communities, will support.

The scope of the Plan is to identify a 'road map' that defines the stakeholders, communities, and partnerships that can contribute to a successful upstream management plan that will grant future generations the resources that the Kalamazoo Harbor has to offer. Future elements of the plan to reduce the cost of dredging and management of sediments that do reach Kalamazoo Lake are also identified.

OBJECTIVES

- Establish a community-supported vision for the maintenance of the harbor.
- Ensure consensus with permitting agencies.
- Provide a clear path to move forward in creating an upstream mitigation plan.
- Identify funding alternatives to support upstream sediment mitigation.
- Outline future steps and partnerships to reduce the cost of ongoing maintenance dredging.

RELATED PLANNING EFFORTS

In 2007, a plan titled the *Kalamazoo Harbor Master Plan Technical Report* was completed. Tasked by Saugatuck City Council with researching components of this report, a group called the 'Ad hoc Kalamazoo Harbor Master Plan Committee' was established. This group's objective was to make recommendations to the Saugatuck and Douglas municipalities based on research and outreach. The group held regular meetings and met with officials from regulatory agencies and state and federal elected officials. Their focus was on contamination issues and exploring options for funding dredging activities. The group found that because the harbor was listed as a US Environmental Protection Agency (EPA) Superfund site, the harbor area was disqualified for grant funds through other sources. After much discussion of the pros and cons of de-listing the area as a Superfund site and based on strong opposition to the idea from the EPA, it was determined that de-listing was not a recommended approach. The harbor is still on the EPA schedule for clean up; however, the possibility exists that Superfund monies may be depleted by the time this area is addressed.

With the cost of ongoing harbor maintenance continuing to be a significant concern to the local communities, the Ad hoc Committee was dissolved in 2011 and the Kalamazoo Lake Harbor Authority (KLHA) Harbor Committee was formed. Consisting of local community leaders and City staff from Saugatuck and neighboring Saugatuck Township and City of the Village of Douglas, the KLHA was formed to address the issue of low water levels and significant sediment in the Saugatuck-Douglas Harbor, including both Kalamazoo Lake and Wade's Bayou. The committee was initially charged with the task of reviewing, evaluating and making recommendations to each of the three municipalities regarding possible harbor dredging and maintenance issues as well as considering actions to fund these activities.

introduction

Tri-Community Comprehensive Plan (2005)
The first Tri-Community Plan was prepared in 1989. The Plan surveyed area leaders about local opportunities and challenges and administered a public opinion survey. This information helped direct planning decisions for Douglas, Saugatuck, and Saugatuck Township, with the goal of improving quality of life for all citizens. The 2005 update outlined key strategies for preserving the rural character of the area while planning carefully and appropriately for future development and growth.

Kalamazoo Harbor Master Plan (2007)
Created by the JJR, LLC with input gained through public community meetings and meetings with state and local officials to address sedimentation issues and low water levels in the harbor. The Plan was made possible through a Michigan Department of Environmental Quality (MDEQ) grant, and the communities of Saugatuck and Douglas each contributed required matching funds. The Plan provided dredging alternatives. Key recommendations/conclusions:

- More comprehensive dredging program for recreational use of Kalamazoo Lake.
- Initial Dredging of 1,000,000 cubic yards.
- More incentive for private development, day use of harbor, and economic stimulus for local economy.
- Initial Cost: $35-$45 Million.
- Dredging could be completed in stages.
- Annual maintenance dredging still required.
- "Creating an in-basin CDF is not likely to get MDEQ support, because it will fill existing lake bottom and shallow water habitat."
- Channeling the river with stone structures does not have a substantial track record in Michigan and regulators and resource experts "were skeptical as to its feasibility."
- Completion of the 2007 *Kalamazoo Harbor Master Plan Technical Report.*

MDNR Fisheries Division Response (February 2007)

- Supports development of a master plan.
- Not supportive of extensive dredging of shallow water habitats in Kalamazoo and Douglas Lakes.
- Future marina development and dredging should be limited downstream of Blue Star Highway with exception of maintenance dredging of current facilities.

Kalamazoo Lake Harbor Long Term Plan, Douglas and Saugatuck (2015)
The Kalamazoo Lake Harbor Long Term Plan includes two parallel efforts to identify the most cost effective strategies for dredging and harbor maintenance. Both the City of Saugatuck and City of the Village of Douglas engaged Edgewater Resources to prepare plans achieving this shared goal. It is important to note that both the Douglas Harbor Plan and the Saugatuck Harbor Plan have the same issues and contain consistent goals, and provide the same recommendations for addressing long term sediment management. The Plans differ only in their funding approach, which is appropriate to the specific needs of each community.

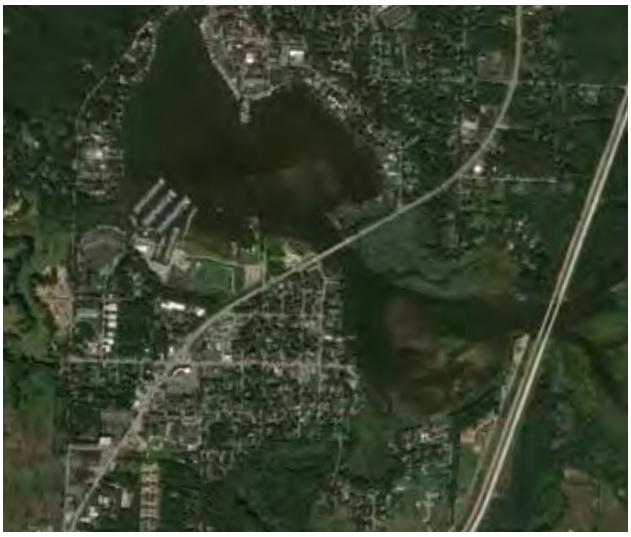
02/ site assessment

HARBOR CONDITIONS

The natural condition of the harbor is to function as a wetland and flood zone for the Kalamazoo River. Human intervention created a navigable lake between the 1880s and 1930s, with ongoing maintenance dredging required to maintain a navigable condition. The western portion of Douglas Harbor was dredged to navigable depths.

Sedimentation occurs at roughly 36,000cy/year (roughly a football field 20' deep). The primary source is erosion from upstream farmlands. The effects of sedimentation are compounded by natural fluctuations in Lake Michigan: when water levels are low, dredging is even more critical.

Aerial Photo Taken in 1997, GoogleEarth



Aerial Photo Taken in 2016, GoogleEarth

"Given the current physical constraints of the Kalamazoo watershed, it is likely that the deposition of sediment will continue to occur throughout Kalamazoo Lake, eventually reducing the lake to nothing more than a narrow river channel."

Guy A. Meadows, PhD
Professor and Graduate Program Chair, University of Michigan Naval Architecture & Marine Engineering, 3/13/2007 Letter

site assessment

PAST DREDGING SOLUTIONS

In early 2013, Lake Michigan water levels reached historic lows, and the State of Michigan implemented a $30 million emergency dredging program. Water levels in Kalamazoo Lake were so low that recreational boating was at risk, and very few deep draft vessels could use the Kalamazoo Lake. Unfortunately, as there were no public marinas within Kalamazoo Lake at that time, the harbor was not eligible for any State funding.

The Kalamazoo Lake Harbor Authority created an emergency dredging plan to maintain recreational boating at the lowest cost possible. According the study, water depths were less than 18" in the central portion of Kalamazoo Lake and the plan proposed a main center channel and two channels around the perimeter. The proposed 75' wide channels were designed to depths of 6' to 10' to serve the majority of recreational boats and allow them to reach the Federally maintained navigation channel in the river. The emergency dredging plan proposed the excavation of approximately 115,000 cubic yards of material. In the pursuit of required permits from the US Army Corps and Michigan Department of Environmental Quality (MDEQ), extensive sediment sampling/testing resulted in the presence of PCBs with a maximum concentration of 3.8 parts per million (ppm) and a few arsenic samples above the acceptable dredge project background level of 10 ppm as established by the MDEQ.

site assessment

For the disposal of the potentially contaminated dredge spoils, a potential CDF was designed on the Kalamazoo Lake Sewer and Water Authority's (KLSWA) property and is included in both the USACE and MDEQ permits. The CDF design included the creation of a 10-acre site with a berm to allow dewatering of the spoils. The return water was proposed to be monitored before returning to the Kalamazoo River southeast of the I-196 bridge.

Preliminary construction costs of this plan were estimated at $2.3M, which is driven mainly from the large dredge quantity, estimated at $1.4M. The high cost of the plan and a lack of taxpayer funding prevented its implementation, but fortunately, private dredging efforts to remove the historic Kewatin ship from Red Dock created an 8' deep channel that served Tower Marine, and a historic rise in lake levels the following year reduced the urgency to implement the plan. To date, higher water levels have created the opportunity for KLHA and both communities to prepare and implement a longer term solution.

It is important to note that discussions with MDEQ staff in September 2015 indicate that KLSWA CDF site will likely not be a disposal option, as the material will need to be moved to a regulated landfill once dewatered. The high cost of the transportation of the material to a landfill will add significant, unwanted costs. MDEQ staff has indicated that placing the dredge material near the waterbody may be the best option and the most "permittable," which should be considered during future planning phases of the dredging plan.

During a meeting with State agency representatives in February 2016, a strategic, collaborative approach to minimizing non-point source pollution and introduction of silt upstream was heavily discussed and recommended by all representatives who attended the meeting. Various funding sources were identified to assist in addressing upstream sediment entering the watershed and will be discussed in Chapter 04, Implementation.

In June of 2016, the MDEQ and Michigan Department of Natural Resources (MDNR) visited Saugatuck and determined that the Coghlin Park and Saugatuck dingy dock would qualify as a public facility, making the harbor eligible for State funding. Proposed improvements to this facility will be important not only to provide public boating access to the community, but to allow the City to be eligible for dredging funds.

Saugatuck Waterfront, Courtesy USACE Oblique Imagery

ECONOMIC IMPACTS OF RECREATIONAL BOATING IN SAUGATUCK

Recreational boating is a critical component of the broader economy of Saugatuck, and a significant driver of the financial success of the downtown shopping and dining district. Further, access to recreational boating is a key driver in local real estate values, which translates into higher local business and tax revenues. It is important to recognize that investments in maintaining the navigable waterways of Kalamazoo Lake supports and enhances the economic viability of the entire Saugatuck community, and the loss of navigable waters on the local economy would be significant.

In order to estimate the existing economic impact of recreational boating on the local Saugatuck economy, we utilized the Marina Economic Impact Calculator tool created by the University of Florida, Virginia Institute of Marine Science, and Association of Marina Industries in the spring of 2016. This tool builds on the work of an earlier Boating Economic Impact Calculator created by Michigan State University, and has been updated over the past twelve months to provide the most accurate and independent estimate of economic impacts available. The tool utilizes the total revenues generated by marina facilities to estimate economic impacts across a wide range of categories across all local businesses to help local communities understand that boating revenues support many local businesses beyond those directly offering boating services such as marinas. Please refer to the appendix for an evaluation report of the local economic impacts to the City of Saugatuck for one million dollars in boating revenues, which serves as the baseline for the analysis provided below.

As the slips located within the City of Saugatuck are found across a range of private businesses and on privately owned homes or condominium facilities, it is not possible to quantify the precise revenue of all the existing slips. In order to generate a meaningful estimate, we counted the number of existing slips within City limits by size, utilized the standard Michigan Department of Natural Resources slip rates to establish a baseline, and then compared the MDNR standard rates with local slip prices. The estimated impact was increased by 25% to respond to higher rates at local facilities.

Our survey of the current slip inventory within Saugatuck City limits, performed by counting and measuring existing slips on recent aerial photography, identified an approximate total of 630 slips, ranging in size from less than 20'-70'. Approximately 313 of these slips are available for lease through entities such as yacht clubs or privately owned marinas. Approximately 317 are located on private property associated with residences or condominium associations. 234 of them are less than 30' in length, 269 are 31'-40' in length, 115 are 41'-50' in length, six are 51'-60' in length, and six are over 60' in length.

site assessment

At standard MDNR rates, the slips located within private residences would generate just over one million dollars annually, and the slips leased from private entities would generate just under one million dollars annually. After contacting local private entities offering slips for lease, we found that local prices exceed the standard MDNR rates by approximately 25%. We then applied an average occupancy of 90% to account for existing slips that are not currently occupied due to shallow waters. In total, the economic impact baseline for our analysis would then be $1.125 million for private facilities, and $1.125 million for residential facilities, so the numbers outlined below are 2.25 times the numbers identified in the economic impact report provided in the appendix of this document.

In summary, the total economic impact on the local Saugatuck economy directly attributable to navigable waters is approximately $8,066,252, and the creation of nearly 84 jobs. Labor income is projected at $2,881,269, and state/local taxes are estimated at $428,537.

Beyond the direct, indirect, and induced impacts described above, there is a quantifiable impact on real estate values related to the presence of navigable waters. In general, an general analysis of residential properties in the Saugatuck harbor area that have a view of the water, but no direct access were selling for $200sf. A similar property with access to water, but without predictable access to deeper navigable water (4'-6'+) was selling for $400sf. Finally, a similar property with consistent and predictable access to navigable water was selling for $800sf. In other words, all things being equal, properties with access to predictable navigable water were worth twice or four times properties with unpredictable or only visual access respectively. A similar ratio is present for vacant lots, with vacant lots with predictable access to navigable water selling for twice that of vacant lots with access to shallow waters. The direct value to the overall community is that increased property values generate higher property tax values for the City of Saugatuck.

Saugatuck Marina

03 / sediment management

PLAN PROCESS

The necessary series of steps need to be identified to ensure a successful long-term sediment management strategy occurs. The "road map" contains the following steps:

1. Discovery

The consensus of the February 2016 agency meeting was to learn and study similar successful projects within the State of Michigan, such as Project Clarity, Van Buren County Drain Commissioner Pilot Study, Michigan/Indiana St. Joseph River Watershed Conservation Partnership. Project Clarity is a collaborative partnership that raised money to address the water quality issues within Lake Macatawa, including tackling the non-source pollution problem upstream. The Van Buren County Drain Commissioner Pilot Study rewards the implementation of Best Management Practices (BMPs), such as buffer zones/strips between land and drain, no mow strips, etc., with assessment breaks given by drain commissioner. St. Joseph River Watershed Conservation Partnership is a project with over 32 partners within Indiana and Michigan to implement BMPs to reduce non-source pollution of the St. Joseph River watershed.

The following is a list of contacts regarding each example project:

- Project Clarity
  - o Travis Williams – Executive Director, Outdoor Discovery Center
  - o Kelly Goward – Watershed Project Manage, Lake Macatawa Area Council
  - o Dr. Graham Peaslee – Chemistry Professor, Hope College
- Van Buren County Drain Commissioner Pilot Study
  - o Joe Parman – Van Buren County Drain Commissioner
  - o AJ Brucks – Executive Director, Van Buren Conservation District
  - o Nature Conservancy
- Michigan/Indiana St. Joseph River Watershed Conservation Partnership
  - o Marcy Colclough – Senior Planner, Southwest Michigan Planning Commission
  - o Jack Knorek – Environmental Program Manager, Michigan Department of Agriculture and Rural Development
  - o Matt Meersman – President, Friends of the St. River Association

Through the discovery meetings with the program contacts listed above, we hope to discover: where and how the project first began, which team(s) were most helpful/influential, what existing data was collected and utilized during the project initiation, how community involvement and awareness was achieved, and the successful approach in project funding.

2. Research

The next step in the road map is to utilize the information provided from the meetings in step one to determine any existing data that could be relevant to subsequent steps in the plan. Preliminary research of similar projects show that US Geological Survey (USGS) river gage information, USDA's Natural Resources Conservation Service soil map data, USGS topographic maps, land use data, and other watershed relevant reports/studies will be useful.

The goal of this step is to determine the existing watershed information to be presented/discussed with the groups outlined in the later steps. Identifying the useful information that will need to be obtained at a later stage in the planning process will be the deliverable of this step.

sediment management

3. Collaboration & Public Outreach
Meeting with upstream watershed partners to gain support and solicit feedback regarding the development of an upstream management plan is a crucial step in the road map. Watershed sediment management is a regional collaborative effort that will include discussions with upstream community leaders, Allegan Conservation District, Allegan Country Drain Commissioner, Saugatuck Township, City of the Village of Douglas, and Kalamazoo River Watershed Council.

Discussions with the aforementioned groups will gauge the level of interest in the development of a regional sediment management strategy. The main goal of reaching out to the upstream public/partners is to discover any additional community resources, funding opportunities, pre-existing sediment issues/needs within the communities, and gain valuable feedback to keep the planning process moving forward.

4. Community Brainstorm
The feedback and information obtained in the previous steps need to be discussed with the City of Saugatuck. A plan along with alternatives should be brainstormed with the City of Saugatuck to determine a logical path.

The goal of brainstorming with the City will be to determine upstream management strategies/ideas supported by the City.

5. Agency Partnership Meeting
The next step in the road map is to meet with agencies to present the recent ideas and alternatives in the planning process. The idea is to have a clearer picture of upstream sedimentation strategies, upstream community support, and planning roadblocks to discuss with agency representatives.

The list of valuable agency contacts includes:

- MDEQ
  - o Jon Allan – Director, Office of the Great Lakes
  - o Kameron Jordan – Environmental Manager, Kalamazoo DEQ Office
  - o Robert Day – Environmental Manager, Lansing DEQ Nonpoint Source Unit
  - o Janelle Hohm – Environmental Quality Analyst, Kalamazoo DEQ Office
  - o Ralph Reznick – Engineer Support, Lansing DEQ Office
  - o Julia Kirkwood – 319 and CMI Grants Management, Lansing DEQ Office
- Michigan Agriculture Environmental Assurance Program (MAEAP)
  - o Mike Ludlam – MAEAP Water Stewardship Technician
- Allegan Conservation District
  - o Ana Hedberg – Executive Director
- Michigan DNR
- US Army Corps of Engineers

The goal of this step is to utilize the valuable agency feedback to develop a viable long-term sediment management plan for the Kalamazoo River.

Saugatuck Waterfront, Courtesy USACE Oblique Imagery

sediment management

STRATEGIES

In order to establish the most viable solution for the long term maintenance of the harbor, the planning team and City of Saugatuck worked closely with representatives from the State of Michigan, including the Office of the Great Lakes, Michigan Department of Natural Resources, and Department of Environmental Quality, as well as local partners, including the City of Douglas, Kalamazoo Lake Harbor Authority, and Allegan County.

This process studied four potential strategies, including a "do nothing" approach; continuing with the current approach of dredging when necessary; and two more proactive strategies. One of the two proactive strategies includes the construction of sediment trap(s) and supporting confined disposal sites (CDFs). The other strategy includes the use of structures to channelize the flow of the Kalamazoo River, thereby flushing sediment further downstream and eventually into Lake Michigan.

Meetings were held with state officials in September of 2015 to review these approaches and to solicit feedback regarding these strategies. More specifically, the meeting was intended to assess the likelihood of and the process for permitting each of these approaches. During these meetings, the idea of addressing the regional sediment issues within the Kalamazoo River Watershed was identified as a possibility to help reduce the sediment volumes entering Kalamazoo Harbor annually.

Saugatuck's Coghlin Park with Douglas harbor in the background

sediment management

Regional Sediment Discussion

Regardless of the approach selected, it was determined that a sediment management plan should be created as the first step in a long-term strategy for overall sediment reduction. Regional sedimentation issues, specifically sediment loading from agricultural and urban sediment runoff, should be the focus of the sediment management plan. An MDEQ Staff Report published October 2013 evaluated the sediment sources to the 58 harbors targeted for the Emergency Dredging Program. According to the MDEQ Report, Saugatuck Harbor has been placed in the category with 15 of the total 58 harbors identified as "Harbors that are impacted by shoreline transport of sediment, low water levels and may have significant upland sediment sources." Specifically, the MDEQ Report estimates that approximately 50% of total watershed acreage is identified as agricultural and approximately 81 pounds of sediment per acre of the watershed enter the Kalamazoo River system. It is clear that the process of solving the Kalamazoo Lake sedimentation issues will require a cooperative effort with local and regional communities to address sedimentation issues due to adjacent runoff. This approach has been applied in other nearby watersheds such as the Lake Macatawa watershed, where Project Clarity is improving water quality through collaborative efforts with local public and private partnerships, members of the agricultural community, and local governmental entities.

The Rabbit River watershed is the first upstream watershed and contributes sediment into the Kalamazoo River watershed system. Stakeholders and local residents of the Rabbit River watershed have moved in the direction of addressing the sedimentation including studying the watershed characteristics, developing and eventually implementing long-term strategies. According to the Rabbit River Watershed Management Plan published in 2009, the 187,200-acre Rabbit River watershed is primary categorized as agricultural land use. According to the Rabbit River EPA Watershed Assessment of River Stability and Sediment Supply (WARSSS) published in 2008, recommendations included "encourage environmentally sensitive agricultural practices to reduce the potential for surface erosion and sediment delivery to streams, including conservation tillage and implementation of filter strips/riparian buffers." The report also suggested implementing a stream monitoring plan to assess the impact of best management practices (BMPs) selected. Data found in existing studies such as the 2009 Rabbit River Watershed Management Plan and 2008 Kalamazoo River Watershed Hydrologic Study will be incorporated into the Sediment Management Plan. Through recent discussions with the MDEQ, Peach Orchard Creek has been identified as an area that should be targeted for watershed planning.

sediment management

The development of a sediment management plan will also include cooperative efforts from other Kalamazoo River stakeholders. Stakeholders that need to be included on future discussions are Allegan Conservation District, Kalamazoo River Watershed Council, Allegan County Drain Office, and other regional conservation districts. In a meeting with State of Michigan representatives in February of 2016, the consensus from all MDNR, MDEQ, and State of Michigan representatives present at the meeting concurred with the analysis described above and indicated that an upstream sedimentation management strategy will be one of the most effective strategies to address the sedimentation issues in Kalamazoo Lake, given the following considerations:

A strategic, collaborative approach to minimizing non-point source pollution and introduction of silt upstream was discussed and identified as a critical first step in managing the long term sediment issues in Kalamazoo Lake and Wade's Bayou.

Multiple programs that may be helpful were identified, including:

- MAEAP (Michigan Agriculture Environmental Assurance Program) – Certify farms to implement BMPs (Best Management Practices) that will reduce sediment runoff
- RCPP (Regional Conservation Partnership Program) – A great way to document collaborative effort between communities
  - Project examples: Tri-State Western Lake Erie Basin Phosphorus Reduction Initiative, Lake Michigan Fruitbelt Conservation Partnership, Saginaw Bay Watershed Conservation Partnership, and St. Joseph River Watershed Conservation Partnership
- Van Buren County Pilot Program:
  - Reduction in drain assessments are given to landowners who allow a buffer zone to grow between the drain and the farm field (Everyone wins with this approach because of lower maintenance costs – farmers, drain commissioners, downstream communities.)
  - Working with local farmers to implement BMPs – Buffer strips, no mow zones
  - Tax breaks have been considered
  - Two stage ditches are in the planning stage

Potential partners include:

- State of Michigan
- Allegan County
  - Drain Commissioner - Identify potential financial initiatives that can encourage/ offset the cost to landowners to implement BMPs to reduce sediment loading
- Allegan County Conservation District
- Saugatuck Township
- Upstream Communities
- Individual Landowners

sediment management

"Do Nothing" Approach
According to the 2007 Kalamazoo Harbor Master Plan Technical Report, the current rate of sedimentation into Kalamazoo Lake is approximately 36,000 cubic yards per year. If this rate continues without control or dredging, it will eventually lead to the transformation of Kalamazoo Lake into a marshy area with a narrow meandering river channel. The result of this approach will be a loss of the valuable waterfront property within both communities and the loss of the harbor as it exists today. The community clearly and consistently rejected this approach due to the loss of scenic character and recreational boating opportunities.

Continue Current Approach
The current approach has been to complete maintenance dredging on an as-needed basis. While navigation depths within the lower Kalamazoo River and river mouth are maintained by the U.S. Army Corps of Engineers, access to the lower river from Kalamazoo Lake is currently left for local government (levied through taxes) and riparian owners to maintain. Regulatory processes, costs, and lack of available disposal sites make it difficult and expensive to complete dredging. During the recent 14-year period of below average Lake Michigan water levels, the need to dredge within Kalamazoo Lake became urgent. After nearly a year of permit application review, including sediment sampling/testing, surveys, and coordination with local, state, and federal agencies, permits were issued in late 2013 and early 2014 for over 100,000 cubic yards of dredging and a temporary disposal site within Kalamazoo Lake Sewer & Water Authority property (KLSWA). Shortly thereafter however, Lake Michigan water levels rose and the immediate dredging need subsided temporarily. Costs to complete the dredging were estimated to be well over two million dollars and funding for the work was not identified. In addition to the lack of funding, the identified disposal site has a high degree of challenges. Construction costs and the cost of pumping dredge spoils to the site is extremely cost-prohibitive and reduces the effectiveness of any dredge monies obtained.

This approach is a reactive strategy that is not financially viable for taxpayers and riparian owners over the long-term without a proactive funding mechanism. In addition, final authorization for temporary disposal on KLSWA property is pending and may not be gained due to environmental liability concerns. In addition, since the KLSWA disposal site is only temporary the material will need to be moved to a permanent location, which has not been identified. Recent feedback from the agencies has indicated that moving the contaminated dredge material is not ideal and will add additional costs. As described above, this approach is slow to react to conditions and could result in the loss of navigability within the harbor for extended periods of time. To implement this approach effectively, a funding mechanism must be put in place and a viable, permanent disposal site must be identified or constructed.

sediment management

Sediment Traps
The 2007 Kalamazoo Harbor Master Plan Technical Report determined that a potential solution to the long-term sedimentation issues facing the Kalamazoo Harbor is the construction of sediment traps along the Kalamazoo River upstream of the Saugatuck/ Douglas Harbor area. The sediment traps would be designed to intercept and capture sediment at strategic locations intended to minimize downstream deposition, to separate clean material if possible, and to facilitate straightforward maintenance dredging. The capacity of the traps would be optimized to minimize construction costs and to maximize the length of time between required maintenance dredging cycles. Dredge spoils removed from the traps that contain regulated materials would be permanently placed in berms or other appropriate locations. Clean dredge spoils could qualify for beneficial reuse, if they can be efficiently separated from regulated materials.

In a meeting with State of Michigan representatives in February of 2016, the consensus from all MDNR, MDEQ, and State of Michigan representatives present at the meeting concurred with the analysis described below and indicate that sediment traps are a potentially feasible approach to the sedimentation issues in Kalamazoo Lake, given the following considerations:

- Sediment Traps have significantly less impacts than channelization and are considered more potentially viable by the permitting agencies.
- Location, quantity, and final design will affect the permit-ability and effectiveness of this approach.
- Significant upstream sediment mapping, testing, and modeling will need to be performed.
- The effectiveness of sediment traps in capturing silt is dependent on many factors, and will need to be modelled and tested.
- The total area/volume of the sediment trap is more important than the length of the sediment trap in capturing sediment.
- Cost of acquiring land within the river basin with enough area to effectively capture sediment can be prohibitive.
- Cost to engineer and construct the trap is likely in the $10-15 Million dollar range based on research of Saugatuck City officials. Annual costs of approximately $400,000-800,000 are required to maintain the traps.

In order to minimize the cost of dredging, a number of strategies were proposed and discussed at the February 2016 meeting, including the following dredge material disposal strategies:
In-Water Contained Disposal Facilities (CDF)

- Agencies recommend/prefer CDF facilities be located on lands adjacent to dredge source wherever possible
- Agencies do not encourage consideration of in-water CDF, but indicated they could potentially be allowed if regulatory issues are addressed.
    - Primary issues include filling within wetland areas and impacts to fish habitat.

Schultz Park was identified as a potentially viable site for a CDF and long term storage of dredge materials, possibly as a sound barrier along I-196. This proposal was raised in a public meeting with the Douglas Community, and was very well received.

sediment management

Channelization
Another approach identified in the 2007 report and subsequent efforts includes the construction of structures and/or islands to direct flow and channelize the flow of the Kalamazoo River. Channelization of the river is intended to keep the sediments moving through Kalamazoo Lake and eventually into Lake Michigan. Moving sediment through the Kalamazoo Harbor area would be locally beneficial; however, sediment would be flushed downstream into the federal navigation channel and into Lake Michigan. This approach could lead to an increase in the need for dredging downstream and to the deposition of regulated materials within the federal navigation channel and Lake Michigan. The gradient of the river is very shallow and will not likely support the velocity required to keep sediments in suspension. However, if channelization is technically feasible, the following issues regarding contamination of Lake Michigan would need to be addressed.

- If effective, more sediment will be deposited by channelization into the Corps channel downstream of Kalamazoo Lake, which will increase the frequency and cost of maintaining the channel.

- Deposition of additional silty sediments could change the character of the dredge materials in the Corps channel, potentially removing the option of using the dredged materials for beach nourishment and significantly increasing the cost of dredging the channel.

- PCB and arsenic remain above acceptable MDEQ criteria, and could contaminate Lake Michigan beaches, as well as further distribute contaminants into Lake Michigan where future cleanup efforts would be more expensive.

- Prevention of contamination of Lake Michigan and beaches by complete removal of PCB and arsenic contaminated sediments from Kalamazoo Lake is not possible, as additional contaminated sediments continue to enter Kalamazoo Lake from upstream sources. Additionally, the cost of removal of sediments would exceed tens of millions of dollars, and other alternatives of storing contaminated sediments along nearshore areas by relocating bulkhead lines would have significant impacts on adjacent private property owners.

- Channelization would require significant reconfiguration of the Kalamazoo Lake and Wade's Bayou shorelines, and/or construction of islands and/or fixed structures to create the channel. Multiple community meetings held in Douglas throughout 2015 for the Douglas Waterfront Master Plan reviewed the potential visual impacts of such a proposal with the public, and little to no support for this type of reconfiguration was offered by the public.

- While it has been suggested that the USACE Hydraulics section has indicated that channelization may be technically feasible, it is important to note that the Engineering / Hydraulics sections are separate from the Regulatory and Operations sections of USACE. Given the potential impacts described above, in particular permitting concerns certain to be raised by USEPA, we believe it is highly unlikely that the USACE would support or permit channelization.

sediment management

In a meeting with State of Michigan representatives in February of 2016, the consensus from all MDNR, MDEQ, and State of Michigan representatives present at the meeting concurred with the analysis described above and indicate that channelization is not a feasible approach to the sedimentation issues in Kalamazoo Lake. Further, there is very little support within the community for this approach, in particular the impacts on recreational boating opportunities and the aesthetic character of the Kalamazoo Lake that the necessary structures and/or islands would create. Furthermore, the proposed extension of bulkhead lines and creation of new public lands between existing private lands and the water would create extensive legal challenges.

Based on these considerations, the channelization approach has been determined to be infeasible. This approach would be very unlikely to receive the support of any State or Federal permitting agencies, and would in fact likely be strongly opposed due to the likelihood of increasing maintenance costs and spreading contaminated sediments beyond their current location into Lake Michigan.

Consultant Meeting / Site Tour of Wade's Bayou and Kalamazoo Lake

sediment management

Dredge Material Management
Regardless of how effective the upstream sediment management strategies and potential sediment trap solutions are, they will not be 100% effective in eliminating all sediment accumulation in Kalamazoo Lake and the need for ongoing maintenance dredging of the navigable harbor channels will continue. The plan recommends implementing a number of strategies for reducing the cost of this dredging by focusing on locating CDFs as close to the Kalamazoo Lake as possible, including the potential for in-water CDFs in both Wade's Bayou and potentially along the Douglas shoreline of Kalamazoo Lake. The US Army Corps of Engineers continues to provide ongoing maintenance of the Federal Navigation Channel by utilizing hydraulic dredging strategies to provide beach nourishment, which is an approach generally used only by USACE.

Should the USACE stop providing maintenance dredging for the City of Saugatuck, or additional dredging outside of the Federal Navigation Channel but within Saugatuck City limits be required in the future, the City of Saugatuck will need to either identify a CDF location within City limits or collaborate with one of the neighboring communities to create a shared facility by partnering in the funding of a nearby facility, potentially outside of the Saugatuck City Limits. This plan recommends the collaborative development of larger, more cost efficient shared facilities rather than more numerous smaller facilities.

The worst case solution would be to truck the spoils off site, which would likely be prohibitively expensive, easily double the cost of a local CDF facility serviced by hydraulic dredge methods.

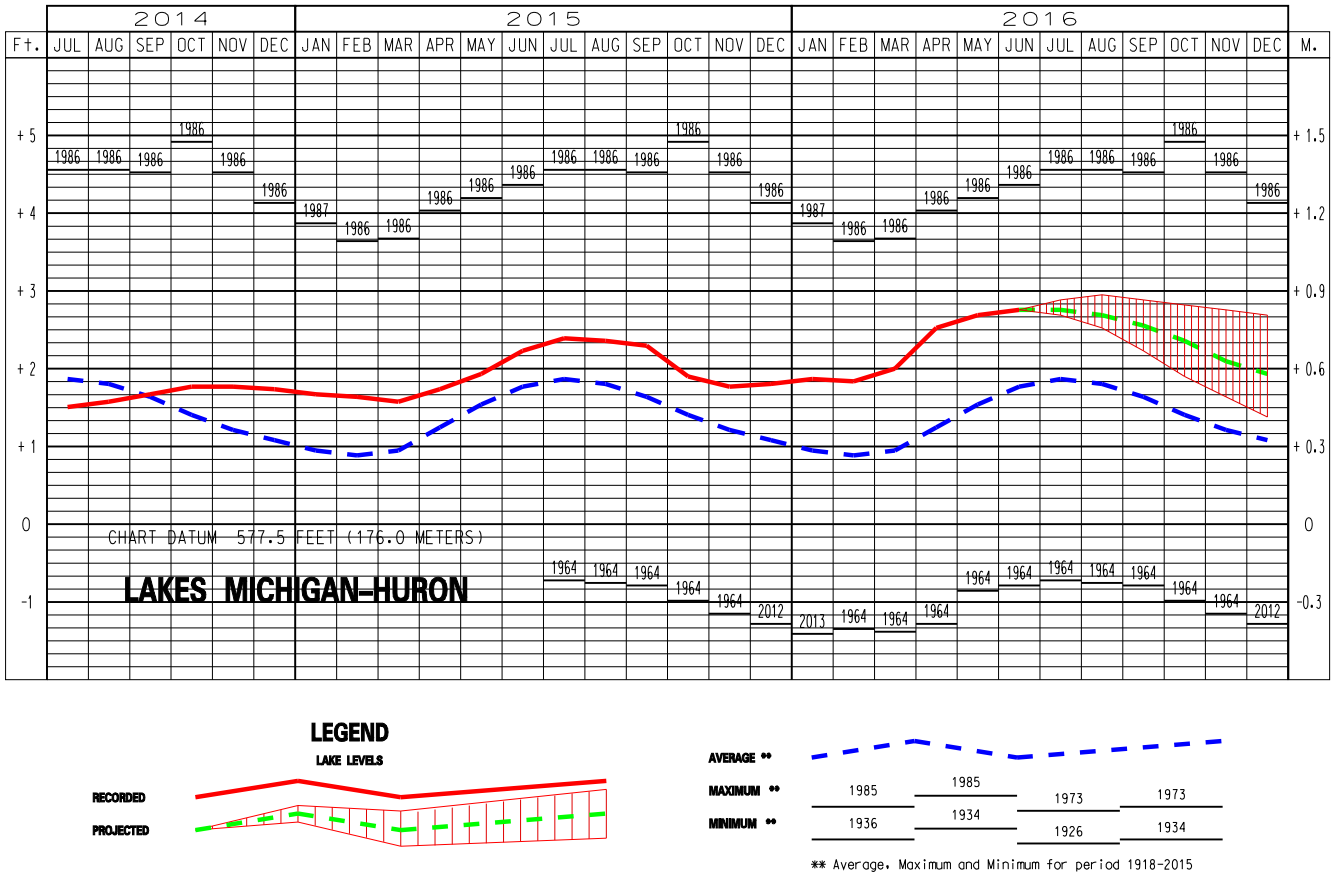
As with all elements of this plan, the best approach is a collaborative, multi-jurisdictional approach that leverages the strengths of each participating community and reduces the costs for all involved.

sediment management

Maintenance of Navigable Access to Kalamazoo Lake
As outlined above, there is very clear community support for maintaining the current visual appearance of Kalamazoo Lake as well as maintaining and enhancing navigable waterways to support recreational boating activities. While current lake levels have reduced the immediate need for dredging within the City limits of Saugatuck, lake levels are cyclical and will inevitably return to lower levels – possibly as low or lower than the historic lows experienced in 2012.

The chart below documents recent water levels, as well as historic highs and lows over the last 100 years. The red line identifies actual measured levels from July of 2014 through today, as well as projected levels over the next six months. The blue dashed line represents that long term historic average water level during the month indicated along the top of the chart. The black lines along the top and bottom of the chart with years identified list the historic high and low levels, along with the year they occurred. Lake Michigan has a secondary typical yearly cycle, with water levels peaking in late summer and bottoming out in winter.

LAKES MICHIGAN–HURON WATER LEVELS – JULY 2016



** Average, Maximum and Minimum for period 1918-2015

sediment management

The chart indicates that water levels have ranged from +1.5 to +2.75 currently, and have been above the long term average since September of 2014. Water levels would need to rise an additional two feet to reach the historic all-time high, and they are currently nearly three feet above the historic low experienced in 2012. Long term (decades) predictions generally suggest lower water levels becoming more prevalent due to the impacts of climate change, with warmer temperatures increasing evaporation during the summer, and more importantly during winter due to reduced ice cover. However, these are hypothetical projections and there are no models that have been shown to accurately predict future water levels with any consistency.

It is safe to assume that water levels will continue to fluctuate within the historic highs and lows (-1.3 up to +4.8) for the foreseeable future, and therefore we will need to continue actively managing Kalamazoo Lake to maintain navigable waters. This will require active dredging to address accumulation that has occurred since the last major dredging effort. The 2007 study and 2012 emergency dredging study explored solutions for maintaining navigable waters, and indicate that there is little support at the State of Michigan permitting agencies for dredging all of Kalamazoo Lake to historic depths. In addition to being prohibitively expensive, dredging to that extent would have significant negative impacts on fish habitat.

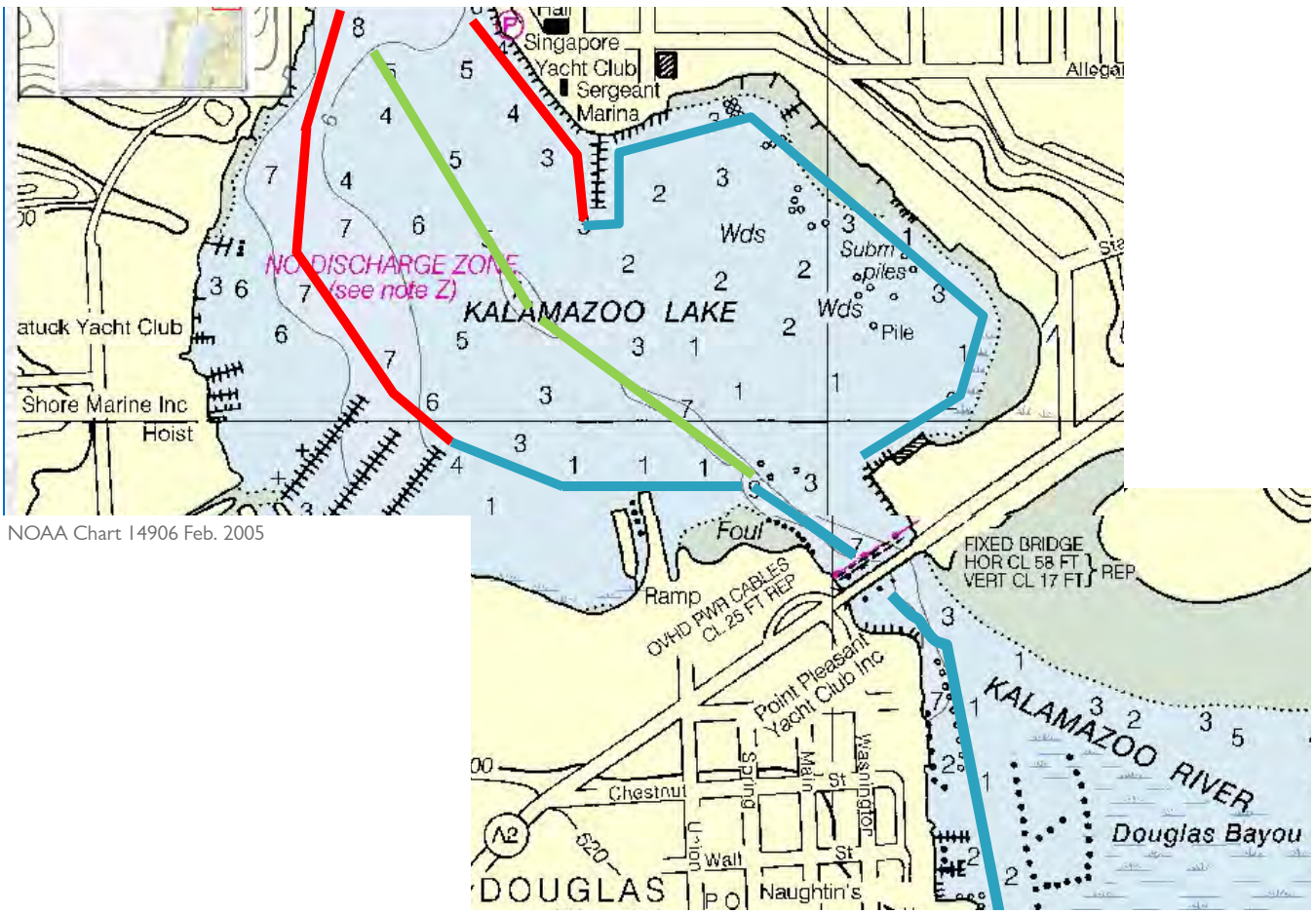
sediment management

The 2012 emergency dredging study identified a series of channels along the east, center, and west sides of Kalamazoo Lake intended to provide maximum access to shoreline properties at the lowest dredging cost and minimum impact on habitat. This plan was submitted to the State of Michigan, and permits to complete the dredging identified were issued in 2013 and 2014. The plan below indicates the locations and proposed depths of the various channels.

This plan recommends implementation of the 2012 dredging plan as needed to maintain navigable depths within the City of Saugatuck. We recommend that this dredging be coordinated with the City of the Village of Douglas if possible to achieve the most efficiency and lowest costs for all involved. It may be most effective for these projects to be managed through the Kalamazoo Lake Harbor Authority.

Phase 1 Plan

Red: 10' Deep, 75' Wide Channel
Blue: 6' Deep, 75' Wide Channel
Green: 6' Deep, 75' Wide Channel



NOAA Chart 14906 Feb. 2005

04/ implementation

FUNDING STRATEGIES

Grant Funding / Public Partnerships

There are many State and Federal grant programs that could potentially contribute to funding portions of the Harbor Management Plan through Public Partnerships.

At the State of Michigan level, there may be funds available to support additional coordination and regional cooperation with the County to address upstream sedimentation, and additional funds through MDEQ Coastal Zone Management and the Great Lakes Legacy Act may be available, although there may be complications due to the Superfund designation, which unfortunately can limit some funding opportunities.

Also at the State level, there are a number of programs that may be complementary to the goals of the Harbor Management Plan. The Michigan Natural Resources Trust Fund (MNRTF) provides grants to acquire and protect public lands in perpetuity. MNRTF provides some funding for project development activities to construct improvements on public lands. The Michigan Waterways Commission oversees grants intended to support public recreational boating. The Michigan Economic Development Corporation provides funds through its Community Revitalization Program, which benefits projects associated with mixed use and residential components.

At the Federal level, the US Fish and Wildlife Service offers the Boating Infrastructure Grant Program, which is intended to expand transient boating infrastructure for transient vessels 26' and longer. Another Federal Program being explored is the RCCP program (See memo in Appendix for details) which may help fund coordinated upstream efforts to reduce sedimentation and indirectly help reduce the long-term cost of dredging.

While generally at the very end of the list, it is also possible to fund dredging or other improvements through general funds, taxes, or special assessment districts. We do not recommend special assessment districts related to docks or boaters, as they are very difficult to collect and/or enforce, and they reinforce the misconception that navigable water depths only benefit boaters, where the truth is that the long term economic viability of the entire community of Saugatuck relies in large part on an active recreational harbor.

Finally, many communities benefit from significant private and corporate philanthropy, and most communities are happy to recognize donors for their contributions through naming of public facilities in honor of donors. Challenge grants can engage donors at all levels, down to individual donation of trees, benches, or bricks, and philanthropic donations communicate solid public support for projects that can help secure additional grant funding.

Should the strategies outlined above provide insufficient funding to achieve the necessary dredging efforts to maintain the navigable waterways the community relies on, the most likely source of funding would then be revenues generated through some form of millage or tax increase. It is important to recognize that the aesthetic character of the harbor has been identified as a key driver in Saugatuck's tourism-based economy, and the presence of navigable waters creates significant economic benefits to the community from visiting and local boaters, as well as substantial increases in property values that also generate increased revenues for the City of Saugatuck.

implementation

NEXT STEPS

Following adoption of this Harbor Management Plan, we recommend the following actions be taken to begin implementing the plan:

- Work with Local and State partners to begin implementation of an upstream sediment management plan

- Work with the State of Michigan on:
  - Broader Sedimentation Issues
  - Regional Sedimentation Strategies
  - Permitting Considerations
  - Functional Considerations

- Expand public docking on Kalamazoo Lake
  - The lack of publicly owned recreational boating facilities within Kalamazoo Lake has prevented State of Michigan funds from being invested in the harbor in the past. The creation of a new publicly owned facility could potentially allow the City to qualify for Michigan Department of Natural Resources grants for both construction and ongoing maintenance, including dredging.
  - Coghlin Park has recently been identified as the site of a potential docking facility for dinghies and recreational vessels up to 30' in length, and the site has been reviewed with officials from MDNR who have indicated that it could potentially qualify for grant funding.
  - Investment in this under-utilized waterfront site by the City of Saugatuck to expand public boating opportunities has the potential to facilitate funding and broader implementation of this harbor management plan.

View of Saugatuck Waterfront from Mt. Baldhead

UF UNIVERSITY of FLORIDA

VIMS WILLIAM & MARY
VIRGINIA INSTITUTE OF MARINE SCIENCE

Marina Economic Impact Calculator

This calculator tool estimates the economic impacts of marinas using regional economic multipliers.

State: Michigan | Region: Central | Year: 2016 | Revenue: $1,000,000

Total Economic Impacts by Effect and Type of Impact

Impact Effect/Type	Output	Employment (Jobs)	Value Added	Labor Income	Tax on Prod. & Imports
Direct	$1,000,000	16.6	$415,866	$349,188	$66,678
Indirect	$685,454	5.8	$373,019	$237,668	$31,708
Induced	$1,899,547	14.9	$1,113,140	$693,708	$79,477
Total Impact	$3,585,001	37.3	$1,902,025	$1,280,564	$177,862

Economic Impacts by 2-digit NAICS sectors

2-Digit NAICS Sector Impacts	Output	Employment (Jobs)	Value Added	Labor Income	Tax on Prod. & Imports
Agriculture, Forestry, Fisheries	$19,781	0.1	$9,372	$5,348	$271
Mining	$39,744	0.1	$26,843	$13,810	$3,417
Utilities	$68,119	0.1	$25,142	$8,142	$5,457
Construction	$174,911	1	$66,392	$59,210	$1,159
Manufacturing	$208,992	0.3	$47,467	$23,204	$1,739
Wholesale Trade	$89,991	0.4	$57,214	$29,746	$11,340
Retail Trade	$214,062	2.9	$133,055	$88,486	$27,998
Transportation	$81,053	0.6	$42,739	$31,330	$2,197

Information and Communications	$101,863	0.3	$49,613	$20,236	$3,708
Finance and Insurance	$240,425	1.3	$116,453	$67,906	$5,738
Real Estate and Rentals	$335,063	1.2	$247,481	$25,097	$24,263
Professional and Technical Services	$153,364	1.2	$91,732	$77,419	$1,917
Management of Companies	$38,332	0.2	$22,164	$18,609	$615
Administrative and Waste Services	$102,139	1.5	$72,087	$61,581	$1,282
Education	$19,289	0.3	$11,295	$10,395	$552
Health Care and Social Services	$193,602	2.1	$118,511	$111,372	$2,810
Arts, Entertainment and Recreation	$1,093,810	18.1	$457,551	$381,533	$73,605
Accommodation and Food Services	$81,294	1.5	$44,493	$32,176	$5,731
Other Services	$92,899	1.4	$58,805	$52,963	$6,277
Government and non-NAICS	$236,258	2.7	$203,619	$162,000	$-2,212

Jobs represents both full and part-time jobs

Total State and Local Tax Impacts

Description	Amount
Dividends	$296
Social Ins Tax- Employee Contribution	$720
Social Ins Tax- Employer Contribution	$1,393
Tax on Production and Imports: Sales Tax	$86,611
Tax on Production and Imports: Property Tax	$54,197
Tax on Production and Imports: Motor Vehicle Lic	$1,666
Tax on Production and Imports: Severance Tax	$6,532
Tax on Production and Imports: Other Taxes	$6,943
Tax on Production and Imports: S/L NonTaxes	$1,086
Corporate Profits Tax	$3,793

Personal Tax: Income Tax	$19,808
Personal Tax: NonTaxes (Fines- Fees)	$4,511
Personal Tax: Motor Vehicle License	$1,428
Personal Tax: Property Taxes	$440
Personal Tax: Other Tax (Fish/Hunt)	$1,037
Total State and Local Tax	$190,461

Total Federal Tax Impacts

Description	Amount
Social Ins Tax- Employee Contribution	$71,120
Social Ins Tax- Employer Contribution	$55,940
Tax on Production and Imports: Excise Taxes	$13,708
Tax on Production and Imports: Custom Duty	$5,676
Tax on Production and Imports: Fed NonTaxes	$1,443
Corporate Profits Tax	$31,670
Personal Tax: Income Tax	$84,381
Total Federal Tax	$263,938

Edgewater resources

518 Broad Street, Suite 200
St Joseph, Michigan 49085
269 932 4502

Meeting Summary

Date: 9/22/2015
To: City of Saugatuck City Council
From: Greg Weykamp
Subject: KLHA Harbor Planning – State Agency Meeting Memo

Distribution: Kirk Harrier, City of Saugatuck Council members, KLHA board members

This memo is intended to summarize the key points discussed during our state agency meeting for the KLHA Harbor Planning Project on 9/15/2015 in Lansing, MI:

- Project background:

  The communities of Saugatuck and Douglas are defined by their access to the navigable waters of Kalamazoo Lake. The Lake is constantly undergoing the natural process of sedimentation, both from upstream sources and from sand of Lake Michigan washing upstream, and requires human intervention to maintain channels with navigable depths. USACE is responsible for dredging only to the mouth of the Kalamazoo River.

- Ongoing upstream projects:

  Kalamazoo River EPA Superfund site and Area of Concern near Otsego and Allegan City due to high levels of PCBs. Calkins Dam and Allegan City Dam are currently undergoing improvements and sediment clean-up. Multiple other dams within Allegan County (Trowbridge, Otsego Township, Otsego City) are currently outdated and due for removal, and these dams are holding back significant amounts of contaminated sediment. If the DNR can fund the dam removal, it is likely the EPA will prioritize clean-up of sediments at these sites. However, these dams are not planned for immediate removal, but sometime in the next 10 years. The superfund clean-up will work downstream, so Kalamazoo Lake is at the tail-end of these efforts.

- Previous planning studies for Kalamazoo Lake:

  Options studied include channelization of Kalamazoo Lake by constructing islands to direct flow, and creating an upstream sediment trap that would limit the area requiring dredging.

- Channelization discussion:

  Positives
  - Channelization would keep sediments moving downstream (as naturally happens with rivers emptying into Lake Michigan) and reduce the need for dredging.
  - Would potentially reduce dredging costs.
  - Dredging spoils could be used to form the islands, reducing need for confined disposal facilities (CDFs).
  - Islands could serve as recreation sites.

  Negatives
  - Sediment testing in Kalamazoo Lake continues to show PCB contamination. Although there is evidence to show that levels are falling due to upstream clean-up efforts, contaminated sediments cannot be used for beach nourishment, which could increase the cost of disposal.
  - Moving sediments will shift the burden of removal and clean-up to USACE.

  General Consensus
  The State indicated that a highly engineered system to move sediment downstream will be challenging to obtain support/approval, especially from the US Army Corps (USACE). DEQ would not be likely to approve a plan that shifts dredging and clean-up responsibilities and moves contamination into Lake Michigan.

- Sediment trap discussion:

  Positives
  - DEQ acknowledges that a short-term plan for sediment removal is necessary, and dealing with dredging on site is preferable to moving it downstream.
  - This plan would require less disruption of Kalmazoo Lake habitat.
  - A sediment trap and CDF near Schultz Park, upstream of I-196 would be a potentially suitable location. This is where sediments are shown to accumulate historically.

  Negatives
  - DEQ mentioned that sediment traps in past projects have seen limited results. More research would be needed.
  - Future CDFs for the sediment dredged from the sediment trap solution were discussed, specifically; CDFs located in water are not an ideal solution. These tend to
  - Who pays for regular dredging of the sediment trap?

  General Consensus
  The State indicated that removal of sediment on-site is preferable to shifting the burden elsewhere, so this strategy has merit. It was also indicated that a short-term plan for sediment removal would have better success if paired with a long-term plan for upstream sediment reduction.

- Sediment reduction discussion:

  Positives
  - Reduction of sediment upstream would benefit the entire watershed by preserving topsoil, reducing non-point source contamination, and would reduce the need for dredging in the future.
  - State and Federal programs exist that may be able to assist in remediation of the contaminated soil upstream or within the KLHA area.
  - Drain Commissioner implemented tax savings or lower assessments to upstream farmers who implement best management practices (BMPs) to reduce sediment transport into the watershed would encourage participation.
  - The Regional Conservation Partnership Program (RCPP) is a potential funding source to assist efforts in reducing sediment runoff from farms.

  Negatives
  - It can be difficult convincing farmers upstream to change behavior.
  - Incentives don't always work if extra paperwork is required.
  - Partnerships would be necessary between various groups, complicating efforts.

  General Consensus
  The State indicated that this solution should be paired with short-term sediment removal plans as a more holistic approach. Looking at the big-picture of the entire Kalamazoo River watershed would deal with the source of the problem, instead of dealing with the symptoms.

- Next steps:

  1. Initiate discussions with the USACE to obtain feedback of both options
  2. Initiate discussions with the EPA regarding the project and potential solution options.
  3. Provide letter identifying the potential steps to providing a solution to the sediment issue at Kalamazoo Lake
  4. Meet with state agencies at a later date to discuss findings/research
  5. Contact Bob Day for Rabbit River data
  6. Follow up loop w USACE, both RJ's civil guy and Reg. Start w regulators we talked to back in 2013
  7. 3 tease out process to eventually do channels
  8. 4 tease out process to do traps and CDF
  9. 5 incl cost est's
  10. 6 talk to wagner about epa input
  11. 7 research BMP - Minnesota/other
  12. 8 NECS grant app
  13. 9 how much does state and fed fund dredge here
  14. 10 how often does corps dredge inner harbor - pull report

15. 11 MI - how do drain commishes handle
16.

- Potential Partnerships:

Local

1. Kalamazoo River Watershed Council – efforts to deal with PCB contamination at dams
2. Tower Marine – funding strategies
3. Fishing organizations
4. USACE, Center for Contaminated Sediments Department. They likely will not accept a plan th increases their dredging costs/responsibilities, what options would they support?
5. Allegan County and City of Allegan: currently have two dam improvement projects on K.zoo River, and Trowbrige Dam which requires removal
6. Otsego Township, City of Otsego – prioritize two dam removals
7. Holland's 'Project Clarity' group

Regional/State

8. DNR – dam removal and habitat restoration efforts.
9. Regional Conservation Partnership Program (RCPP) through the Natural Resources Conservation Service (USDA) – provides conservation assistance, encourages partners to increase restoration and sustainable use of soil, water, wildlife and related natural resources on regional or watershed scales. Successful grant obtained for St. Joseph River.
10. Western Michigan University
11. Farming organizations
12. EPA – Michigan Nonpoint Source Program, give them a plan with PCB control component
13. Nature Conservancy

- Conclusions:

The best course of action would be to propose a multi-tiered approach with short-term strategies for dredging and disposal, and long-term strategies for overall sediment reduction. It was suggested that th long-term strategy could be in the form of a Sediment Management Plan.

Edgewater resources

518 Broad Street, Suite 200
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269 932 4502

Date: 12/9/2015
To: Kirk Harrier/Bill LeFevere
From: Greg Weykamp
Subject: Draft Report – Strategies for Addressing Sedimentation of Kalamazoo Harbor

Distribution: City of Saugatuck, City of the Village of Douglas, Kameron Jordan

The harbor communities of Saugatuck and Douglas are vibrant waterfront communities that thrive on Kalamazoo Lake. Collectively referred to as Kalamazoo Harbor, both water bodies experience severe sedimentation issues due to the size of the Kalamazoo River watershed. The Harbor is part of the Superfund Site contaminated with PCBs, complicating the future planning of long-term sedimentation management. The communities have invested considerable effort over the last ten years to help create a master plan for the harbors that will lead to a viable long-term solution.

Four primary approaches have been discussed, including a "do nothing" approach; continuing with the current approach of dredging when necessary; and two more proactive strategies. One of the two proactive strategies includes the construction of sediment trap(s) and supporting confined disposal sites (CDFs). The other strategy includes the use of structures to channelize the flow of the Kalamazoo River, thereby flushing sediment further downstream and eventually into Lake Michigan.

A meeting was held with state officials on 9/15/15 to review these approaches and to solicit feedback regarding these strategies. More specifically, the meeting was intended to assess the likelihood of and the process for permitting each of these approaches. During the 9/15/15 meeting, the idea of addressing the regional sediment issues within the Kalamazoo River Watershed was identified as a possibility to help alleviate the high sediment volumes entering Kalamazoo Harbor annually.

REGIONAL SEDIMENT DISCUSSION

Regardless of the approach selected, a sediment management plan should be created as a long-term strategy for overall sediment reduction. Regional sedimentation issues, specifically sediment loading from agricultural and urban sediment runoff, should be the focus of the sediment management plan. A MDEQ Staff Report published October 2013 evaluated the sediment sources to the 58 harbors targeted for the Emergency Dredging Program. According to the MDEQ Report, Saugatuck Harbor has been placed in the category with 15 of the total 58 harbors identified as "Harbors that are impacted by shoreline transport of sediment, low water levels and may have significant upland sediment sources." Specifically, the MDEQ Report estimates that approximately 50% of total watershed acreage is identified as agricultural and approximately 81 pounds of sediment per acre of the watershed enter the Kalamazoo River system. It is clear that the process of solving the Kalamazoo Lake sedimentation issues will require a cooperative effort with local and regional communities to address sedimentation issues due to adjacent runoff. This approach has been applied in other nearby watersheds such as

the Lake Macatawa watershed, where Project Clarity is improving water quality through collaborative efforts with local public and private partnerships, members of the agricultural community, and local governmental entities.

The Rabbit River watershed is the first upstream watershed and contributes sediment into the Kalamazoo River watershed system. Stakeholders and local residents of the Rabbit River watershed have moved in the direction of addressing the sedimentation including studying the watershed characteristics, developing and eventually implementing long-term strategies. According to the Rabbit River Watershed Management Plan published in 2009, the 187,200-acre Rabbit River watershed is primary categorized as agricultural land use. According to the Rabbit River EPA Watershed Assessment of River Stability and Sediment Supply (WARSSS) published in 2008, recommendations included "encourage environmentally sensitive agricultural practices to reduce the potential for surface erosion and sediment delivery to streams, including conservation tillage and implementation of filter strips/riparian buffers." The report also suggested implementing a stream monitoring plan to assess the impact of best management practices (BMPs) selected. Data found in existing studies such as the 2009 Rabbit River Watershed Management Plan and 2008 Kalamazoo River Watershed Hydrologic Study will be incorporated into the Sediment Management Plan. Through recent discussions with the MDEQ, the Peach Orchard Creek has been identified as an area that should be targeted for watershed planning.

The development of a sediment management plan will also include cooperative efforts from other Kalamazoo River stakeholders. Stakeholders that need to be included on future discussions are Allegan Conservation District, Kalamazoo River Watershed Council, Allegan County Drain Office, and other regional conservation districts.

I. "DO NOTHING" APPROACH

According to 2007 Kalamazoo Harbor Master Plan Technical Report, the current rate of sedimentation into Kalamazoo Lake is approximately 36,000 cubic yards per year. If this rate continues without control or dredging, it will eventually lead to the transformation of Kalamazoo Lake into a marshy area with a narrow meandering river channel. The result of this approach will be a loss of the valuable waterfront property within both communities and the loss of the harbor as it exists today.

II. CONTINUE CURRENT APPROACH

The current approach has been to complete maintenance dredging on an as-needed basis. While navigation depths within the lower Kalamazoo River and river mouth are maintained by the U.S. Army Corps of Engineers, access to the lower river from Kalamazoo Lake is currently left for local government and riparian owners to maintain. Regulatory processes, costs, and lack of available disposal sites make it difficult to complete dredging. During the recent 14-year period of below average Lake Michigan water levels, the need to dredge within Kalamazoo Lake became urgent. After nearly a year of permit application review, including sediment sampling/testing, surveys, and coordination with local, state, and federal agencies, permits were issued in late 2013 and early 2014 for over 100,000 cubic yards of dredging and a temporary disposal site within Kalamazoo Lake Sewer & Water Authority property (KLSWA). Shortly thereafter however, Lake Michigan water levels rose and the immediate dredging need subsided temporarily. Costs to complete the dredging were estimated to be well over two million dollars and funding for the work was not identified.

This approach is a reactive strategy that is not financially viable for local government and riparian owners over the long-term, without a proactive funding mechanism. In addition, final authorization for temporary disposal on KLSWA property is pending and may not be gained due to environmental liability concerns. In addition, since the KLSWA disposal site is only temporary the material will need to be moved to a permanent location, which has not been identified. Recent feedback from the agencies has indicated that moving the contaminated dredge material is not ideal and will add additional costs. As described above, this approach is slow to react to conditions and could result in the loss of navigability within the harbor for extended periods of time. To implement this approach effectively, a funding mechanism must be put in place and a viable, permanent disposal site must be identified or constructed.

III. SEDIMENT TRAP(S)

The 2007 Kalamazoo Harbor Master Plan Technical Report determined that a potential solution to the long-term sedimentation issues facing the Kalamazoo Harbor is the construction of sediment trap(s) along the Kalamazoo River upstream of the Saugatuck/Douglas Harbor area. The sediment traps would be designed to intercept and capture sediment at strategic locations intended to minimize downstream deposition, to separate clean material if possible, and to facilitate straightforward maintenance dredging. The capacity of the trap(s) would be optimized to minimize construction costs and to maximize the length of time between required maintenance dredging cycles. Dredge spoils removed from the trap(s) that contain regulated materials would be placed in confined disposal areas (CDFs). Clean dredge spoils could qualify for beneficial reuse, if they can be efficiently separated from regulated materials.

Process

This approach will require several intermediate steps including planning, studies/surveys, land acquisition, engineering design, and permitting. The following is a general outline of steps from initiation to implementation and the order may change to address comments/obstacles as they arise.

1. *Review Available Data*
   All available data, including the 2007 report, 2013 bathymetric survey, 2013 sediment testing results, and other existing studies such as the Rabbit River Watershed Management Plan would be reviewed to ensure that subsequent efforts maximize the use of previously completed work.

2. *Preliminary Engineering*
   The preliminary engineering study will first identify potential sediment trap & CDF locations. Potential sediment trap locations include areas adjacent to the I-196 bridge or upstream along the Kalamazoo River. Three potential areas for placement of upland confined disposal facilities (CDF) of the "trapped" sediments include City of Saugatuck "airport" site (northeast of Kalamazoo Lake Sewer & Water Authority property), Schultz Park property, and land adjacent to the I-196 Bridge. Another option under consideration is the "in-water CDF" concept, which would require significant additional study and permitting, but could potentially be most cost effective over time.

The result of this step would be several potential sediment trap locations/sizes and several potential CDF locations/sizes.

3. *Community Approvals*
Planning efforts currently underway are establishing the level of community support for each of the various options. To implement any solution, ongoing community outreach will be required. When the community gets behind one or more approaches, the project can move forward collectively and effectively.

4. *Agency Coordination*
Before permit applications, the next step would be coordination with the Michigan Department of Environmental Quality (MDEQ), U.S. Corps of Engineers (USACE), Michigan Department of Natural Resources (MDNR), the Environmental Protection Agency (EPA) and local agencies to identify the best available strategy/design and the most likely to be permitted. The Kalamazoo River is a navigable waterway regulated by Section 10 of the Rivers & Harbors Act of 1899 and Section 404 of the Clean Water Act. Coordination with MDEQ/USACE/EPA will be essential to ensure the future success of the project. In addition, a list of permit requirements would be developed, to ensure that all required studies, modeling, and other needs are addressed prior to submittal of a joint application.

5. *Special Studies & Modeling*
After meeting with the agencies, special studies and modeling would be completed. These special studies might include performing detailed survey(s), sediment sampling/testing, threatened and endangered species studies, modeling, archaeological studies, floodway/floodplain studies, wetland delineation, among others. If needed, some of this task might be completed during preliminary engineering.

6. *Permit Application & Process*
The next step in the permitting process will include preparing and submitting the Joint Permit Application to the agencies containing project quantities, project vicinity map, existing site plan, proposed plan view and cross-section drawings. Depending upon the final proposed plan and CDF location(s), the MDEQ Water Resources Division will review the permit application with respect to Part 301, Inland Lakes and Streams; Part 303, Wetlands Protection; Part 201, Environmental Remediation; and Floodplain Regulatory Authority found in Part 31, Water Resources Protection. While working with the MDEQ, the USACE will need to issue a 404 permit for the project.

7. *Land Acquisition*
The trapped contaminated sediment will require dredging on a regular basis and will be placed at the identified CDF(s), which will require additional agency permits/approvals. If selected CDF locations are not on city owned property, acquisition of the land will be required, likely before permits are issued by the MDEQ and USACE. The location of the CDFs may require additional coordination with adjacent landowners, land use covenants, use agreements, or other steps.

8. *Final Design & Bid Set*
   Preparation of the project bid set and final design should be advanced only after permits are received or, in some cases, when the permit process is close to completion. In many cases, the permit process results in modification to the design and when final design is completed prior to permit issuance, there is a risk that redesign could be required.

9. *Construction & Maintenance Plan*
   Once the project has been awarded, construction of the project can occur. By this time, the maintenance plan will have been developed and the mechanisms to ensure the sediment traps are properly monitored and maintained must be implemented, as well.

The project process/approach listed above will occur in parallel with state and federal funding opportunities such as NCRS Farm Bill, MDEQ Coastal Zone Management Program grants, and others mentioned below.

Challenges

The complexity and potential impacts of the project will result in challenges. During the review process, the agencies will likely require a number of special studies, as identified above. The special studies required to support the sediment trap approach are relatively straightforward, but will likely need to cover significant geographic areas. For instance, if 3-4 sediment trap locations are identified, each may need to be studied in order to identify the best locations.

The success rate of a sediment trap is difficult to determine without a detailed study of the flow conditions and sediment transport within the region. The Saginaw River was the source of a 2001 USACE study to determine sediment trap efficiencies of varying sizes and locations. In the 2001 study, the USACE proclaimed that the success rate of a sediment trap is based primarily on trap dimensions and incoming grain sizes. The study identified two trap locations, one for capturing coarse and medium silt and the other for capturing sand.

Government financing and bonding of sediment trap construction projects has been identified as a significant obstacle to overcome. Until precise and detailed modeling of the Kalamazoo River is completed, it is difficult to determine if the implementation of sediment traps would be not only successful, but also feasible.

**Estimated Costs - Sediment Trap(s)*

The estimated costs of this project approach are:

1.	Preliminary Engineering	$ 25,000 – 50,000
2.	Permit Process	$ 75,000 – 100,000+
3.	Special Studies:	$ 50,000 – 200,000+
		$ 150,000 – 350,000+
4.	Land Acquisition	$ 500,000 – 1,000,000,+
5.	Construction – Dredging, Disposal, CDF	$ 5,000,000 –15,000,000+
		$ 5,500,000 –16,000,000+

6. Long-term Maintenance Dredging (20 years) $5,000,000-12,000,000+

**Please note that these are conceptual cost estimates for general information only.*

IV. CHANNELIZATION

Another approach identified in the 2007 report and subsequent efforts includes the construction of structures and/or islands to direct flow and channelize the flow of the Kalamazoo River. Channelization of the river is intended to keep the sediments moving through Kalamazoo Lake and eventually into Lake Michigan. Moving sediment through the Kalamazoo Harbor area would be locally beneficial; however, sediment would be flushed downstream into the federal navigation channel and into Lake Michigan. This approach could lead to an increase in the need for dredging downstream and to the deposition of regulated materials within the federal navigation channel and Lake Michigan.

Process

Like the sediment trap approach, channelization will require several intermediate steps including planning, studies/surveys, land acquisition, engineering design, and permitting. The following is a general outline of steps from initiation to implementation and the order may change to address comments/obstacles as they arise.

1. *Review Available Data*
   All available data, including the 2007 report, 2013 bathymetric survey, 2013 sediment testing results, and other existing studies such as the Rabbit River Watershed Management Plan would be reviewed to ensure that subsequent efforts maximize the use of previously completed work.

2. *Preliminary Engineering*
   The channelization approach would rely upon accurate, extensive modeling of the Kalamazoo River. Preliminary engineering would include technical studies such as hydraulic computer modeling, hydrologic modeling, and initial geotechnical investigations. The process would allow the preliminary design of several channelization alternatives to maximize flow and minimize cost. Channel structure alternatives would be evaluated to determine which designs would optimize cost, design life, maintenance needs, and function. Due to the potential downstream impacts of channelization, early coordination with the USACE and MDEQ must determine if the approach will be allowable before costly studies and modeling are undertaken.

   This step would result in several channel design alternatives and one recommended plan. Modeling results and reports would serve as valuable background information once permit applications are assembled.

3. *Community Approvals*
   Planning efforts currently underway are establishing the level of community support for each of the various options. To implement any solution, ongoing community outreach will be required. When the community gets behind one or more approaches, the project can move forward collectively and effectively.

4. *Agency Coordination*
   Before permit applications, the next step would be to coordination with the Michigan Department of Environmental Quality (MDEQ), U.S. Corps of Engineers (USACE), Michigan Department of Natural Resources (MDNR), the Environmental Protection Agency (EPA) and local agencies to identify the best available strategy/design and the most likely to be permitted. The Kalamazoo River is a navigable waterway regulated by Section 10 of the Rivers & Harbors Act of 1899 and Section 404 of the Clean Water Act. Coordination with MDEQ/USACE/EPA will be essential to ensure the future success of the project. Because channelization could affect the maintenance of the federal navigation channel, coordination with the USACE is critical to determining if the approach will be viable. In addition, a list of permit requirements would be developed, to ensure that all required studies, modeling, and other needs are addressed prior to submittal of a joint application.

5. *Special Studies & Modeling*
   After meeting with the agencies, special studies and modeling would be completed. These special studies might include performing detailed survey(s), sediment sampling/testing, threatened and endangered species studies, modeling, archaeological studies, floodway/floodplain studies, wetland delineation, among others. While some of this work might be completed during preliminary engineering, it's likely that additional efforts will be identified after agency coordination. Because channelization will modify portions of the Kalamazoo River watershed, fully evaluating all impacts will be required.

6. *Permit Application & Process*
   The next step in the permitting process will include preparing and submitting the Joint Permit Application to the agencies containing project quantities, project vicinity map, existing site plan, proposed plan view and cross-section drawings. Depending on the final proposed plan, the MDEQ Water Resources Division will review the permit application with respect to Part 301, Inland Lakes and Streams; Part 303, Wetlands Protection; Part 201, Environmental Remediation; and Floodplain Regulatory Authority found in Part 31, Water Resources Protection. While working with the MDEQ, the USACE will need to issue a 404 permit for the project.

7. *Land Acquisition*
   While minimal land acquisition is anticipated for channelization, staging areas, bottomland rights, land use covenants, use agreements and other variables will need to be addressed before the project can be implemented.

8. *Final Design & Bid Set*
   Preparation of the project bid set and final design should be advanced only after permits are received or, in some cases, when the permit process is close to completion. In many cases, the permit process results in modification to the design and when final design is completed prior to permit issuance, there is a risk that redesign could be required.

9. *Construction & Maintenance Plan*
   Once the project has been awarded, construction of the project can occur. A maintenance plan for the channelization structures and for access to the channel from shore (dredging) will need to be identified prior to this stage.

Challenges

The complexity and potential impacts of the project will result in challenges. During the review process, the agencies will likely require a number of special studies, as identified above. The special studies required to support the channelization approach are complex and will likely need to cover significant geographic areas.

Initial feedback during the September 15, 2015 agency meeting indicated that the USACE and MDEQ might contest the idea of moving contaminated sediment into the navigation channel downstream of Kalamazoo Lake. In addition, while the USACE was not represented at the meeting, channelization would likely result in an increased dredging burden on the agency and therefore, would likely result in opposition. Lastly, by pushing regulated materials downstream into the federal navigation channel, the USACE may need to diverge from its current practice of using dredge spoils as beach nourishment, resulting in additional costs to maintain the channel.

Lastly, after channelization is complete, the communities and riparian owners will still be left to determine how to maintain navigation from the shorelines to the high-flow channel, likely by additional dredging. So, while the approach may solve some problems, the need for dredging will not be completely eliminated.

According to the 2007 Kalamazoo Harbor Master Plan Technical Report, the success of this approach is difficult to determine without a comprehensive sedimentation model. MDEQ initial feedback questions whether channelization through Kalamazoo Lake will be worthwhile as the channel may represent a giant sediment trap, thus requiring significant maintenance dredging. As stated below, the required hydraulic and sedimentation modeling will be a significant cost to determine the effectiveness of the channelization approach. Long-term maintenance dredging of the channel will need to occur to ensure safe navigation within the channel.

As with the sediment trap approach, government financing and bonding of a channelization approach will be a significant obstacle to overcome.

Anticipated Costs - Channelization

The estimated costs of this project approach are:

1.	Preliminary Engineering	$ 50,000 – 75,000
2.	Hydraulic/Hydrologic Modeling	$ 50,000 – 150,000
3.	Geotechnical Investigation	$ 25,000 – 50,000
4.	Permit Process	$ 75,000 – 100,000+
5.	Special Studies:	$ 50,000 – 150,000+
		$ 250,000 – 525,000+
6.	Land Acquisition	$ 100,000 – 500,000+
7.	Construction	$15,000,000 – 30,000,000+
		$15,100,000 –30,500,000+
8.	Long Term Maintenance Dredging (20 years)	$ 2,000,000 – 5,000,000+

**Please note that these are conceptual cost estimates for general information only.*

FUNDING OPPORTUNITIES

In addition to previously identified sources, the following potential funding sources have been recently identified as funding opportunities:

Great Lakes Restoration Initiative (GLRI)

State and Federal grants exist to help with the sediment management efforts. Recently, in an effort assist Saugatuck/Douglas with the sedimentation issue the Delta Institute and Public Sector Consultants (PSC) has applied for a $410,000 grant through the Great Lakes Restoration Initiative to help remediate upstream agricultural runoff. The plan now underway will address the sedimentation issues facing marinas and harbors to implement a policy framework addressing best management practices throughout the regional watershed. According to the Delta Institute, the proposed plan focuses on a mechanism that allocates a small portion of funds to reduce sedimentation at its source, similar to the Federal Moving Ahead of Progress in the 21st Century Act (MAP-21) which allocates funds to "transportation alternatives" such as environmental mitigation, recreational trails, and historic preservation. An infographic published by Delta Institute and PSC indicates that through the implementation of BMPs within several upstream watersheds could reduce the annual sediment by 13.3% in Saugatuck/Douglas Harbor.

Coastal Zone Management Program (CZM)

The MDEQ Coastal Zone Management Program (CZM) is offering grants to qualified projects within one of the five focus areas: public access, coastal habitat, coastal hazards, coastal water quality, and coastal community development. According to the CZM Request for Proposals announcement, examples of projects eligible for support include the development of ordinances, policies, and/or plans addressing the management of coastal

nonpoint source pollution. This program is applicable due to the ongoing problem of nonpoint pollution (agriculture and urban runoff) within the Kalamazoo River watershed. CZM grant amounts range from $10K to $100K and require a 1-to-1 non-federal match. The deadline to apply is December 18, 2015 for an anticipated project start date of October 1, 2016.

USDA Environmental Quality Incentives Program

The U.S. Department of Agriculture NRCS 2014 Farm Bill offers the Environmental Quality Incentives Program (EQIP), which participants receive financial and technical assistance to implement conservation practices. Another funding source provided by the NCRS is the Regional Conservation Partnership Program (RCPP), which is a cooperative opportunity to identify and address natural resources objectives to benefit soil, water, wildlife and related natural resources locally, regionally, and nationally. The Sediment Management Plan for the Kalamazoo River will implement these programs as an incentive for farmers and other residents within the watershed area to implement BMPs to reduce sediment loads entering the watershed.

NOAA Great Lakes Regional Habitat Restoration Partnerships

The National Oceanic and Atmospheric Administration (NOAA) recently released a federal funding opportunity for habitat restoration in Great Lakes Areas of Concern. NOAA seeks to award funding for multi-year Great Lakes Regional Habitat Restoration Partnerships. These Partnerships will result in the implementation of a wide-range of engineering, design, and on the ground implementation of individual habitat restoration projects. The Great Lakes Initiative will provide typical Partnership awards ranging from $1,000,000 to $5,000,000 per year for up to three years. The Kalamazoo River is listed as a Great Lakes Area of Concern, thus projects involving habitat restoration will be eligible for the funding.

Edgewater resources

518 Broad Street, Suite 200
St Joseph, Michigan 49085
269 932 4502

Meeting Summary

Date: March 31, 2016
To: Greg Weykamp
From: Lindsey Mathus
Subject: KLHA Harbor Planning – RCPP Discussion Summary

Distribution:

This memo is intended to summarize the key points discussed during the meeting with Allegan Conservation District, MDEQ Representatives, and MDARD representative for the Kalamazoo Lake Harbor project on March 25, 2016 in Allegan, MI:

I. Allegan Conservation District
   - Does not have a lot of funding – Ana Hedberg only works part-time (20 hrs/wk)

II. MAEAP (Michigan Agriculture Environmental Assurance Program)
   - A voluntary program that helps farms of all commodities voluntarily prevent or minimize agricultural pollution risks
   - MAEAP Technician (Mike Ludlam) at the meeting discussed:
     - Farms get certified by program though the implementation of Best Management Practices (BMPs) such as buffer strips, cover crops, and other environmentally friendly practices
     - MAEAP certified farms can receive discounts on fertilizers, etc.
     - Program employs technicians and could be used to leverage RCPP funding – Need to clarify this

III. RCPP Program
   - Federal funds available and awarded annually
   - Requested funds must be matched
   - Funding is not available for administration – Biggest problem
     - Who will put together application without funding?

- Who will continue the future monitoring and reporting that is required without funding?

IV. Key Comments/Questions Raised by MDEQ staff:

- Need to determine critical areas of watershed to possibly include these in scope of the project
- Allegan Count y is one of the top agricultural counties in Michigan – should leverage on how much BMPs could impact the Kalamazoo River
- Contact DNR to ask whether wildlife habitat restoration could be a part of the project
- Contact Allegan County Drain Commissioner

V. Next Steps

- Lisa Greenwood to setup meeting with Travis from Outdoor Discovery Center to discuss Project Clarity
- Kirk Harrier to contact Van Buren County to learn about pilot program with communities and the reduction of drain assessments due to the use of BMPs
- Review the Pre-Proposal submitted for the St. Joseph River Watershed Conservation Partnership that was forwarded by Jack Knorek from MDARD

Edgewater resources

518 Broad Street, Suite 200
St Joseph, Michigan 49085
269 932 4502

Meeting Summary

Date: April 21, 2016
To: Kirk Harrier, Bill LeFevere
From: Greg Weykamp
Subject: KLHA Harbor Planning – Follow-Up State Agency Meeting Memo

Distribution:

This memo is intended to summarize the key points discussed during our state agency meeting for the Kalamazoo Lake Harbor project on February 19, 2016 in Douglas, MI:

1. **Review Draft Report Dated December 9, 2015**
    - Channelization Approach
        - The gradient of the river is very shallow and will not likely support the velocity required to keep sediments in suspension. However, if channelization is technically feasible, the following issues regarding contamination of Lake Michigan would need to be addressed.
        - If effective, more sediment will be deposited by channelization into the Corps channel downstream of Kalamazoo Lake, which will increase the frequency and cost of maintaining the channel.
        - Deposition of additional silty sediments could change the character of the dredge materials in the Corps channel, potentially removing the option of using the dredged materials for beach nourishment and significantly increasing the cost of dredging the channel.
        - PCB and arsenic remain above acceptable MDEQ criteria, and could contaminate Lake Michigan beaches, as well as further distribute contaminants into Lake Michigan where future cleanup efforts would be more expensive.
        - Prevention of contamination of Lake Michigan and beaches by complete removal of PCB and arsenic contaminated sediments from Kalamazoo Lake is not possible, as additional contaminated sediments continue to enter Kalamazoo Lake from upstream sources. Additionally, the cost of removal of sediments would exceed tens of millions of dollars, and other alternatives of

storing contaminated sediments along nearshore areas by relocating bulkhead lines would have significant impacts on adjacent private property owners.
  - Channelization would require significant reconfiguration of the Kalamazoo Lake and Wade's Bayou shorelines, and/or construction of islands and/or fixed structures to create the channel. Multiple community meetings held in Douglas throughout 2015 for the Douglas Waterfront Master Plan reviewed the potential visual impacts of such a proposal with the public, and little to no support for this type of reconfiguration was offered by the public.
  - While it has been suggested that the USACE Hydraulics section has indicated that channelization may be technically feasible, it is important to note that the Engineering / Hydraulics sections are separate from the Regulatory and Operations sections of USACE. Given the potential impacts described above, in particular permitting concerns certain to be raised by USEPA, we believe it is highly unlikely that the USACE would support or permit channelization.
  - The consensus from all MDNR, MDEQ, and State of Michigan representatives present at the meeting concurred with the analysis described above and indicate that channelization is not a feasible approach to the sedimentation issues in Kalamazoo Lake.

- Sediment Trap Approach
  - Sediment Traps have significantly less impacts than channelization and are considered more potentially viable by the permitting agencies.
  - Location quantity, and final design will affect the permit-ability and effectiveness of this approach
  - Significant upstream sediment mapping, testing, and modeling will need to be performed
  - The effectiveness of sediment traps in capturing silt is dependent on many factors, and will need to be modelled and tested
  - The total area/volume of the sediment trap is more important than the length of the sediment trap in capturing sediment

II. Upstream Sedimentation Mitigation Strategies

- A strategic, collaborative approach to minimizing non-point source pollution and introduction of silt upstream was discussed and identified as a critical first step in managing the long term sediment issues in Kalamazoo Lake and Wade's Bayou
- Multiple programs that may be helpful were identified, including:
    - MAEAP (Michigan Agriculture Environmental Assurance Program) – Certify farms to implement BMPs (Best Management Practices) that will reduce sediment runoff
    - RCPP (Regional Conservation Partnership Program) – A great way to document collaborative effort between communities
        - Project examples: Tri-State Western Lake Erie Basin Phosphorus Reduction Initiative, Lake Michigan Fruitbelt Conservation Partnership, Saginaw Bay Watershed Conservation Partnership, and St. Joseph River Watershed Conservation Partnership
    - Van Buren County Pilot Program:
        - Reduction in drain assessments are given to landowners who allow a buffer zone to grow between the drain and the farm field
        - Everyone wins with this approach because of lower maintenance costs – farmers, drain commissioners, downstream communities
        - Working with local farmers to implement BMPs – Buffer strips, no mow zones
        - Tax breaks have been considered
        - Two stage ditches are in the planning stage
- Potential partners include:
    - State of Michigan
    - Allegan County
        - Drain Commissioner - Identify potential financial initiatives that can encourage/offset the cost to landowners to implement BMPs to reduce sediment loading
    - Allegan County Conservation District
    - Saugatuck Township
    - Upstream Communities
    - Individual Landowners

III. Dredge Material Disposal Strategies

- In-Water Contained Disposal Facilities (CDF)
    - Agencies recommend/prefer CDF facilities be located on lands adjacent to dredge source wherever possible

- Agencies do not encourage consideration of in-water CDF, but indicated they could potentially be allowed if regulatory issues are addressed.
  - Primary issues include filling within wetland areas and impacts to fish habitat
- Schultz Park was identified as a potentially viable site for a CDF and long term storage of dredge materials, possibly as a sound barrier along I-196.

IV. Opportunities for Funding/Partnerships

- A number of potential funding sources were discussed, including:
  - RCCP – Significant funds potentially available through USDA
  - EPA 319 Grants – Less funds potentially available, but is an option to address non-point source pollution (sediment)
  - MAEAP – Michigan Agriculture Environmental Assistance Program
  - Great Lakes Protection Fund

V. Other Community Issues

- Why is Saugatuck Douglas Harbor not recognized by DNR Waterways Program?
  - No publicly owned marina exists
  - A publicly owned marina of any size that meets a demonstrated unmet demand for transient boating could potentially qualify the Harbor for additional support from the State of Michigan

VI. Other Agency Comments

- Development of a "Roadmap" to assist in gaining regional support and applying for grant funding to address sedimentation issues would be very helpful
- Work with regional agencies such as Allegan County, Allegan County Conservation District, Allegan County Drain Commissioner, Saugatuck Township, and other non-for-profit organizations
- Contact other successful programs within the state to understand how to move forward with a successful collaborative effort

VII. Next Steps

- Create "Roadmap" to initiate regional collaborative strategy
- Meet with Allegan County Conservation District
- Obtain feedback regarding GLRI Grant denial – identify reasons why
- Explore beneficial reuses of dredge material and if it is viable
- Identify next steps in upstream sediment testing and mapping of sources


Edgewater
resources

Item__13.C__

City Council
Agenda Item Report

City of Saugatuck

FROM: Kirk Harrier, City Manager

MEETING DATE: August 22, 2016

SUBJECT: Contract for Consulting/Professional Services

DESCRIPTION
The Saugatuck City Council has identified implementing a "harbor sediment reduction strategy" as a priority project in the adopted FY 16/17 Budget and appropriations were made for such expenditure. A recommended harbor sediment reduction strategy has been identified in the Harbor Management Plan dated August 9, 2016 completed by Edgewater Resources. It is anticipated the Saugatuck City Council will adopt this Plan at the August 22, 2016 regular meeting. The attached proposed contract for consulting/professional services, if approved, would engage the consultant to administer and implement shared goals/strategies identified in the City of Saugatuck's Harbor Management Plan and the City of Douglas' Management Plan; both of which were prepared by Edgewater Resources. The Harbor Authority would be the body in charge of overseeing the progress of this contract and supply City Council with regular progress reports through its council liaison. The cost of the contract would be shared between the City of Saugatuck and City of Douglas.

BUDGET ACTION REQUIRED
Funds for this expenditure were appropriated in the FY 16/17 Budget

COMMITTEE/COMMISSION REVIEW
Harbor Authority reviewed the agreement at the August 16, 2016 meeting and recommend it be presented to the two governing bodies for approval of budgeted funds.

LEGAL REVIEW
Municipal attorney Jeff Sluggett has prepared the language of the agreement and approves its form and content.

SAMPLE MOTION:
Motion to **approve/not approve** the contract for consulting/professional services (document #09805-004-00060955.2) as presented.

CONTRACT FOR CONSULTING/PROFESSIONAL SERVICES

This Contract ("Contract") is made as of the _____ day of _____, 2016 ("Effective Date") by and between the Kalamazoo Lake Harbor Authority, the principal office of which is located in Saugatuck, Michigan ("KLHA") and William Boik, whose principal office is located in Leslie, Michigan (hereinafter "the CONSULTANT")(the KLHA and CONSULTANT referred to herein jointly as the "Parties" or individually as a "Party").

WHEREAS, KLHA desires to retain the CONSULTANT, and the CONSULTANT desires to be retained, pursuant to the scope of services attached hereto as Exhibit "B" and incorporated herein in its entirety;

NOW, THEREFORE, in consideration of the mutual promises contained herein, KLHA and the CONSULTANT agree as follows:

ARTICLE 1 - SERVICES

The services to be rendered by CONSULTANT under this Contract are set forth in Exhibit "B" attached hereto.

ARTICLE 2 – PROGRESS REPORTS

All services provided by the CONSULTANT are to be documented by monthly progress reports which shall be submitted with invoices for payment as further provided for in Article 3 and Exhibit "A", which is incorporated herein by reference.

ARTICLE 3 - PAYMENTS TO CONSULTANT

Subject to Article 4, payment by KLHA under this Contract shall be governed by attached Exhibit A.

ARTICLE 4 - TERMINATION

This Contract shall terminate one year after the Effective Date subject to subsequent renewal periods as mutually agreed to between the Parties and subject to appropriations by the City of Saugatuck and the City of the Village of Douglas. Notwithstanding the foregoing, this Contract may be terminated, for any reason or cause or for no reason or cause, by either Party, at any time upon 30 days written notice. Upon receipt of a termination notice and except as otherwise directed by KLHA, the CONSULTANT shall:

A. Stop work on the date and to the extent specified consistent with this Contract; and

B. Transfer all work in process, completed work, and other materials related to the terminated work to KLHA.

ARTICLE 5- PERSONNEL

The CONSULTANT is, and shall be, in the performance of all work, services and activities under this Contract, an independent contractor, and not an employee, or agent of the KLHA. The CONSULTANT shall be solely responsible for all local, state and federal tax or other payroll

withholdings as required by law and shall not be entitled to any remuneration or other benefits except as expressly set forth in Exhibit A. All persons engaged in any of the work or services performed pursuant to this Contract shall at all times, and in all places, be subject to the CONSULTANT's sole direction, supervision, and control. The CONSULTANT shall exercise control over the means and manner in which it and its employees perform the work, and in all respects the CONSULTANT's relationship and the relationship of its employees to KLHA shall be that of an independent contractor and not as employees or agents of KLHA.

The CONSULTANT represents that it has, or will secure at its own expense, all necessary personnel required to perform the services under this Contract. Such personnel shall not be employees of or have any contractual relationship with KLHA, nor shall such personnel be entitled to any benefits of KLHA including, but not limited to, health and workers' compensation benefits.

The CONSULTANT warrants that all services shall be performed by skilled and competent personnel consistent with applicable technical and professional standards in the field.

ARTICLE 6 - INSURANCE REQUIREMENTS

The CONSULTANT will be required to provide certificates of insurance showing that it carries, or has in force, automobile liability insurance and general liability insurance in such minimum amounts, and in such forms, as reasonably acceptable to the KLHA. Such coverages shall name the KLHA and the City of Saugatuck and the City of the Village of Douglas as additional insureds. If the general liability insurance coverage is on a claims-made basis, the CONSULTANT will maintain coverage in force for a period of two (2) years following the termination of the Contract at the limits specified by the Parties. The CONSULTANT is responsible for the payment of any deductibles or self-insured retentions.

The CONSULTANT agrees to indemnify, hold harmless, and defend KLHA, the City of Saugatuck and the City of the Village of Douglas, and their officials, representatives, agents, servants, and employees from and against any and all claims, actions, lawsuits, damages, judgments, liability and expenses, of any kind or nature, in whole or in part arising out of, connected with, or in any way associated with the activities of the CONSULTANT, its employees, or its sub-contractors in connection with the services to be provided under this Contract.

ARTICLE 7 - SUCCESSORS AND ASSIGNS

KLHA and the CONSULTANT each binds itself and its partners, successors, executors, administrators and assigns to the other party and to the partners, successors, executors, administrators and assigns of such other party, in respect to all covenants of this Contract. Except as stated above, neither KLHA nor the CONSULTANT shall assign, sublet, convey, or transfer its interest in this Contract without the written consent of the other. Nothing herein shall be construed as giving any rights or benefits hereunder to anyone other than KLHA and the CONSULTANT.

ARTICLE 8 - LAW GOVERNING THIS CONTRACT

The Contract shall be governed by the laws of the State of Michigan. Any and all legal action necessary to enforce the Contract will be held in Allegan County. No remedy herein conferred upon any party is intended to be exclusive of any other remedy, and each and every such remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing at law, in equity, by statute or otherwise. No single or partial exercise by any party of any right, power, or

remedy hereunder shall preclude any other or further exercise thereof. All work shall be completed with due care to the standards typical of professional consultants in this line of work. The CONSULTANT shall keep itself fully informed of and shall at all times comply with all local, state, and federal rules and regulation applicable to this Contract and the work to be done and the goods to be provided.

Dispute Resolution

In case of a dispute regarding the interpretation of any part of this Contract, the Parties shall use their best efforts to arrive at a mutually acceptable resolution. The Consultant shall proceed diligently with its performance of the work under this Contract pending the final resolution of any dispute arising or relating to this Contract or halt all work at the sole discretion of KLHA.

ARTICLE 9 - CONFLICT OF INTEREST

The CONSULTANT represents that it has no interest and shall acquire no interest, either direct or indirect, which would conflict in any manner with the performance of services required.

CONSULTANT and its employees, or subcontractors may undertake outside professional activities provided such activity and involvement does not conflict or interfere with this Contract. In addition, employees, consultants, or subcontractors will not directly or indirectly, alone, or with others, engage in or have any interest in any person, firm, or entity that engages in any business activity that is competitive with the business performed under this Contract.

ARTICLE 10 – CONTACT

The principal contact for the CONSULTANT's communications with the KLHA regarding this Contract or the services to be provided hereunder shall be the Chairperson of the KLHA's Board.

ARTICLE 11 - DISCLOSURE AND OWNERSHIP OF DOCUMENTS

All written and oral information not in the public domain or not previously known, and all information and data obtained, developed, or supplied by KLHA or at its expense will be kept confidential by the CONSULTANT and will not be disclosed to any other party, directly or indirectly, without KLHA's prior written consent unless required by a lawful order. All drawings, maps, sketches, programs, data base, reports, and other data developed, or purchased, under this Contract for or at KLHA's expense shall be and remain KLHA property and may be reproduced and reused at the discretion of KLHA.

All covenants, agreements, representations, and warranties made herein, or otherwise made in writing by any party pursuant hereto, including but not limited to any representations made herein relating to disclosure or ownership of documents, shall survive the execution and delivery of this Contract and the consummation of the transactions contemplated hereby.

ARTICLE 12 - NONDISCRIMINATION

The CONSULTANT warrants and represents that all of its employees are treated equally during employment without regard to race, color, religion, disability, sex, age, national origin, ancestry, marital status, or sexual orientation.

ARTICLE 13 - ENFORCEMENT COSTS

If any legal action or other proceeding is brought for the enforcement of this Contract, or because of an alleged dispute, breach, default or misrepresentation in connection with any provision of this Contract, the successful or prevailing party will be entitled to recover reasonable attorney's fees, court costs and all expenses (including taxes) even if not taxable as court costs (including, without limitation, all such fees, costs and expenses incident to appeals), incurred in that action or proceeding, in addition to any other relief to which such party may be entitled.

ARTICLE 14 - SEVERABILITY

If any term or provision of this Contract, or the application thereof to any person or circumstances shall, to any extent, be held invalid or unenforceable, the remainder of this Contract, or the application of such terms or provision, to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected, and every other term and provision of this Contract shall be deemed valid and enforceable to the extent permitted by law.

ARTICLE 15 - ENTIRETY OF CONTRACTUAL AGREEMENT

KLHA and the CONSULTANT agree that this Contract together with the Exhibits hereto, sets forth the entire agreement between the Parties, and that there are no promises or understandings other than those stated herein. None of the provisions, terms, and conditions contained in this Contract may be added to, modified, superseded, or otherwise altered, except by written instrument executed by the Parties hereto and in accordance with the terms hereof. In the event of any conflict or inconsistency between this Contract and the provisions in the incorporated Exhibits, the terms of this contract will supersede and prevail over the terms in the incorporated Exhibits.

ARTICLE 16 – NO WAIVER

No failure or delay on the part of a party in exercising any right, power, or privilege under this Contract shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege under this Contract preclude any other or further exercise of it or the exercise of any other right, power or privilege. The rights and remedies provided in this Contract are cumulative and not exclusive of any rights or remedies provided by law.

ARTICLE 17 – THIRD PARTY BENEFICIARIES

The Parties intend that the City of Saugatuck and the City of the Village of Douglas are third-party beneficiaries of this Contract for which the services to be rendered hereunder are to benefit those communities as well as the KLHA.

ARTICLE 18 – AMENDMENT

This Contract may not be amended without the written consent of the Parties and approval of any amendment by the City of Saugatuck and the City of the Village of Douglas.

ARTICLE 19 - NOTICE

All notices given under this Contract shall be sent by certified mail, return receipt requested, and if sent to the KLHA shall be mailed to:

Saugatuck City Hall
PO Box 86
Saugatuck, MI 49453

and if sent to the CONSULTANT shall be mailed to:

William Boik
1414 Barnes Road
Leslie, Michigan 49251

IN WITNESS WHEREOF, the Parties hereto agreed to all that is written herein and included within Exhibit "A" and Exhibit "B."

KLHA

By: _____
SIGNATURE
Print Name: _____
Date: _____

WILLIAM BOIK

By: _____
SIGNATURE

Print Name: _____

Date: _____

Approved:

CITY OF SAUGATUCK

By: _____
Its: _____
Date: _____

CITY OF THE VILLAGE OF DOUGLAS

By: _____
Its: _____
Date: _____

EXHIBIT A

Payment and Fees Schedule

CONSULTANT will provide all of the services set forth in Exhibit B in exchange for monthly payments of $1,200; provided, however, that payment to the CONSULTANT shall be contingent on his submitting an invoice and progress report, in such reasonable detail as required by the KLHA, to the KLHA with copies to the City of Saugatuck and the City of the Village of Douglas.

In addition, CONSULTANT shall be reimbursed reasonable and actual travel expenses including food, lodging (as necessary) and mileage in accordance with IRS rules. Such expenses may not, in the aggregate, exceed $1,000 annually without the prior written approval of the KLHA, which shall also be subject to appropriations by the City of Saugatuck and the City of the Village of Douglas.

In addition, where the administrative and management of a grant is beyond that provided for herein (e.g., if an inordinate number of hours are required to oversee a grant), then the CONSULTANT shall be entitled to additional remuneration as mutually agreed between the Parties and subject to appropriations of the City of Saugatuck and the City of the Village of Douglas.

EXHIBIT B

Scope of Services:

The purpose of this effort is to administer implementation of shared goals/strategies identified in the Harbor Management Plan dated August 9, 2016 prepared by Edgewater Resources, and adopted by the City of Saugatuck and the (INSERT NAME OF PLAN dated _____, 2016) adopted by the City of the Village of Douglas, copies of which are on file with the KLHA and hereby incorporated by reference.

1. Dredging and Sediment Reduction

A. Seek consensus and/or approval from state agencies for more economical solutions for local sediment disposal.

B. Coordinate efforts that will: (1) identify up stream sources of sediment loading that can be targeted for reduction and (2) assist with the implementation of selected reduction strategies such as the Smart Assessment Program in Van Buren County.

2. Agency Liaison

A. Serve as the liaison between the KLHA and the DNR, DEQ, Army Corp., Soil Conservation and Watershed Districts, Regional planning and philanthropic organizations and local media so the KLHA message, progress and goals are regular and consistent.

3. Grants

A. Identify grant opportunities and supplement/assist local resources with grant writing as needed and approved by individual local units.

Item 13D

City Council
Agenda Item Report

City of Saugatuck

FROM: Kirk R. Harrier, City Manager

MEETING DATE: August 22, 2016

SUBJECT: Historic District Commission Appointments

DESCRIPTION
Per the City Ordinance Section 152.06 appointments shall be made by the Mayor subject to the confirmation/approval of the City Council. The Mayor's appointments are as follows:

Historic District Commission with said term expiring August 1, 2019
Jennifer Davenport
Nicholas Leo

BUDGET ACTION REQUIRED
N/A

COMMITTEE/COMMISSION REVIEW
N/A

LEGAL REVIEW
N/A

SAMPLE MOTION:
Motion to **approve/deny** the Mayor's appointments as presented.

Item 13. E

City Council
Agenda Item Report

City of Saugatuck

FROM: Kirk Harrier, City Manager

MEETING DATE: August 22, 2016

SUBJECT: Letter of Support for Douglas CMAQ Grant

DESCRIPTION:
The City of Douglas is submitting a grant application to receive funds through the Congestion Mitigation and Air Quality (CMAQ) Program and the Michigan Department of Transportation (MDOT) in order to make bike/pedestrian facility improvements along Blue Star Highway from Center Street in Douglas to Lake Street in the City of Saugatuck. It is my understanding this proposed project also links with the Blue Star Trail project currently underway in the area that is part of a regional non-motorized system. Attached to this memo is the information sent by the City of Douglas to the City of Saugatuck for review. The work being proposed in the grant is in the jurisdiction of the City of Douglas; except for the portion from the middle of Blue Star Bridge to Lake Street which is in the City of Saugatuck's jurisdiction.

MDOT has a schedule for the grant submittal process. Douglas officials have stated this is the preliminary stage of the grant process where detailed drawings/plans are not needed but letters of support for the project from adjacent communities are. During the August 8, 2016 Saugatuck City Council meeting, City Council members expressed concerns about the project due to the possible reconfiguration of traffic lanes on Blue Star bridge and requested additional information and review form the Saugatuck Township Fire District and the City of Saugatuck's engineering firm (Fleis and Vandenbrink).

The City of Douglas has asked the City of Saugatuck for a letter of support regarding the project as required by the CMAQ/MDOT application. A draft letter of support is attached for Council consideration. Also attached to this report are the preliminary drawings and CMAQ application details, communications from the City of Saugatuck's engineering firm (Fleis and Vandenbrink), and the Saugatuck Township Fire District as requested.

COMMISSION/STAFF REVIEW
N/A

LEGAL REVIEW:
N/A

SAMPLE MOTION:
Motion to **approve/deny** the attached letter of support dated August 18, 2016 as presented and authorize the Mayor to sign on behalf of the Saugatuck City Council.

DRAFT

August 18, 2016

Mr. Todd Kauffman, CMAQ Program Manager
MDOT Bureau of Transportation Planning
KauffmanT@michigan.gov

RE: City of Douglas CMAQ Non-Motorized Trail Project

Dear Mr. Kauffman:

On September 13, 2010 the Saugatuck City Council passed a Resolution to endorse the Saugatuck-South Haven Blue Star Trail concept for further development and supported exploration of funding and other methods of implementation of the proposed idea. The Saugatuck City Council still supports the interconnectivity of this trail in and through our neighboring jurisdictions. The support is contingent on all traffic, safety, esthetic and landscape concerns at the Lake Street/Blue Star Highway intersection and Blue Star Bridge be addressed to the satisfaction of the Saugatuck City Council; all AASHTO requirements are met; and all short/long term costs to the City of Saugatuck are provided to Saugatuck City Council and approved prior to the commencement of the project.

Sincerely,

Christine Z. Peterson
Mayor City of Saugatuck

CC: Saugatuck City Council

From: Paul Galdes <pgaldes@fveng.com>
Sent: Wednesday, August 17, 2016 5:07 PM
To: Kirk Harrier
Subject: Douglas CMAQ Application

Kirk,

As City Engineer, we have reviewed the draft CMAQ Grant Application the City of Douglas has prepared for the Blue Star Trail along Blue Star Highway through Douglas and Saugatuck. The application proposes to utilize roughly half the existing Blue Star roadway width between Lake Street in Saugatuck and Center Street in Douglas as either non-motorized pathway or a median strip separating the non-motorized pathway and the roadway. This is a significant change to the Blue Star Highway which will require some careful consideration. At this point, only some general concepts have been prepared in order to apply for the grant. If grant funding is achieved, many issues will need to be worked out in the detailed design. Below is a summary of some of the issues and concerns that should be resolved prior to Saugatuck accepting the plan:

The Lake Street intersection is a difficult one as it stands due to the angle (non 90 degree) the roads meet at, the distance from the Blue Star Bridge and the existing roadway widths.

- The proposed plan in the application shows Blue Star roadway widening northeast of the intersection but it is not clear whether the grant project improvements include that work or if it is part of the "Future Non-Motorized Path" noted on the drawing. This should be clarified.

- The proposed plan shows elimination of the outer SW bound lane of Blue Star. The revised pavement markings the City installed several years ago to designate that outer lane for right turns from Lake onto Blue Star helped reduce traffic backups on Lake Street by providing more opportunity to make those turns. Under the proposed plan, all Blue Star SW bound traffic will use one lane as it does now but all right turn traffic onto Blue Star will need to find gaps in that traffic before turning. We recommend a traffic study be completed to outline the affects this change will have on the intersection.

- The plan also indicates a proposed sidewalk widening by the City of Saugatuck on Lake Street. The application narrative describes the project intent as providing non-motorized opportunity between the two City's shops, restaurants, etc. Making that connection to the Saugatuck Downtown on Lake Street is a

significant undertaking. Widening the sidewalk on Lake Street will likely be met with disappointment if the non-motorized path ends at the Lake Street intersection. A two way non-motorized path on one side of the street however would require a minimum 10' pavement with either a barrier or 5' minimum buffer between the existing back of curb and path and a 2" clear area on each side of the path. This would require 16 to 19 feet of space on the west side of Lake Street (some in easements) to construct. Given the proximity of some of the buildings and parking along Lake Street, this will be a significant task with many impacts.

All of these items can be dealt with but will have impact on traffic and associated costs to the City that you should be aware of before fully endorsing the proposed plan.
Please give me a call with any questions.
Paul

Paul Galdes, PE
Vice President of Operations

FLEIS & VANDENBRINK
2960 Lucerne Drive SE, Suite 100 | Grand Rapids | MI | 49546
O: 616.977.1000 | D: 616.942.3614 | C: 616.299.0329 | F: 616.977.1005
www.fveng.com

Saugatuck City Council
City of Saugatuck
102 Butler Street
Saugatuck, MI 49453

Re: Blue Star Trail Project – Blue Star Bridge

Dear Council Members,

Thank you for the opportunity to conduct a preliminary review of the proposed project known as Blue Star Trail, located in Saugatuck and Douglas. The review was conducted on August 16, 2016 by eight Saugatuck Township Fire District Fire Officers and myself, Chief Gregory Janik. The results of the review are as follows.

We reviewed the project from an apparatus emergency response perspective to the southern portion of our fire district. As you may be aware, the southern part of our fire district represents a large portion of our emergency response area, so serious consideration was given to deployment of services.

We are very concerned with the proposed project as submitted, the bridge area in particular. Currently there is a center lane on the bridge that acts as an emergency lane, with traffic capabilities in both directions. The proposed project would change the lane availability to one lane southbound and one lane northbound. This change would eliminate our ability to transverse the bridge quickly resulting in delayed emergency response. Considering the large response area to the south, we need a center lane, in both directions, to get over the bridge.
The same conditions would occur at Blue Star & Union, and Blue Star & Main Street. Flow of traffic would be restricted and traffic backup would result.

Other concerns expressed by all Fire Officers are the disruption of the flow of traffic, eliminating the center "escape route" for emergency vehicles, the ability to handle the increased volume of traffic, not only from the tourist season, but traffic detours from I-196 highway shutdowns. Considering the number of I-196 highway shutdowns in recent years, we are very concerned the proposed project will severely congest the Blue Star Highway corridor.

I would like to suggest that a meeting be scheduled with stakeholders, including Prein & Newhof Project Engineers, Allegan County Road Commission, Douglas City Manager & Mayor, Saugatuck City Manager and Saugatuck Township Fire District. The meeting would be beneficial to understanding the project needs as well as taking into consideration our experience with emergency vehicle response.

We look forward to meeting with stakeholders and discussing viable options for the Blue Star Trail project.

Sincerely,
Greg Janik
Fire Chief / Fire Marshal
Saugatuck Township Fire District

MDOT
Michigan Department of Transportation

CMAQ Application

Applicant Information

Application Number:	2016-029
Agency Name:	Allegan County Road Commission
Application Preparer:	Scott Post
Status:	Open

Project Description

Project Title:	Blue Star Trail
Proposed Improvement:	Non Motorized cycle track and lane arrangement along Blue Star Highway from Lake Street to Center Street in the City of Douglas.
Project Category:	Bike/Pedestrian Facilities and Improvements
Project Design Life:	20
Length of Improvement:	0.8

Project Location

County:	Allegan
MDOT Region:	Grand
Prosperity Region:	West Michigan Prosperity Region
City/Village or Township:	Douglas
MPO (Metropolitan Plannning Organization):	Rural
Route/Street Name/Facility Name:	Blue Star Highway
Project Limits (use nearest cross streets):	Lake Street to Center Street

Physical Road Number(s):

Physical Road #	Beginning Mile Point	End Mile Point
782207	3.535	4.243

Project Narrative and Additional Comments

The Blue Star Trail project is part of the regional non-motorized master plan put together by the Southwest Michigan Planning Commission. The Route for the Blue Star Trail will connect the communities of the City of Douglas, City of Saugatuck and Saugatuck Township south to South Haven. A section of pathway north of South Haven is approved for construction in 2017.

The land use that surrounds this path is commercial and residential.

This project is a section of the US BR35 (Bike Route). US BR35 is the section of the nationwide non-motorized pathway network that runs from Indiana to northern Michigan.

This project will reduce vehicular traffic and congestion on Blue Star Highway. Some large motivators behind this project are:

a. This project will provide non-motorized commuting opportunities for residents and tourists in the City of Douglas to ride their bicycles two and from work, restaurants, beaches and shopping in Douglas as well as non-motorized traffic to and from the City of Saugatuck and Saugatuck Township to access the many parks, farm markets, shopping, offices and residences in these communities. Currently Blue Star Highway Bridge is the only crossing between the Cities. Per community input, it is acknowledged that non-motorized crossing of the existing bridge is a very intimidating undertaking and it is anticipated that when this facility is built, a large number of residents of both communities will use it as their primary route to the destinations described above in lieu of vehicles. Note that there is a strong culture of non-motorized use in the communities of Douglas and Saugatuck. For the emissions calculations we estimated 3% bicycle and pedestrian travel, however, anecdotally, this percentage could be much higher.

b. This project will be part of the US BR35 (Bike Route). This is a national designation for bike routes across the country. The goal is encourage local and visiting groups and families coming to the area to use their bicycles instead of cars as their means to travel across Michigan. The goal of this project is to implement this section of BR35 with a safe, separated facility.

c. Upon completion of this section of pathway, residents and tourists living in and visiting Douglas will have continuous non-motorized access on existing non-motorized facilities to Saugatuck and the City of Holland, then north to Grand Haven, Muskegon and Whitehall, or east to Grand Rapids and Cadillac. This piece of pathway is also a section of the Blue Star Trail project that will eventually connect to the City of South Haven and east to Kalamazoo.

MDOT
Michigan Department of Transportation

CMAQ Application

Application Details - CMAQ • 2016-029 • Allegan County Road Commission • Blue Star Trail • Open

Budget

Federal CMAQ Amount Requested $350,000.00

Participating

Description of Work	Total Cost	Federal Cost	Match
Preliminary Engineering (Design)	$0.00	$0.00	$0.00
Right-of-Way	$0.00	$0.00	$0.00
Construction	$437,500.00	$350,000.00	$87,500.00
Operations	$0.00	$0.00	$0.00
Transit	$0.00	$0.00	$0.00
Other	$0.00	$0.00	$0.00
Total:	$437,500.00	$350,000.00	$87,500.00

Participating Match Details

Source	Type	Amount	Match Percentage
City of Douglas	Municipality	$87,500.00	20.00%
Total:		$87,500.00	**20.00%**

Non-Participating Details

Description	Amount
Total:	

Comments

Project Summary		**Request Summary**		
Participating Items:	$437,500.00	Funds:	$350,000.00	80.00%
Non-Participating Items:	$0.00	Match:	$87,500.00	20.00%
Project Total:	**$437,500.00**	**Participating Costs:**	**$437,500.00**	**100.00%**

Application Details - CMAQ • 2016-029 • Allegan County Road Commission • Blue Star Trail • Open

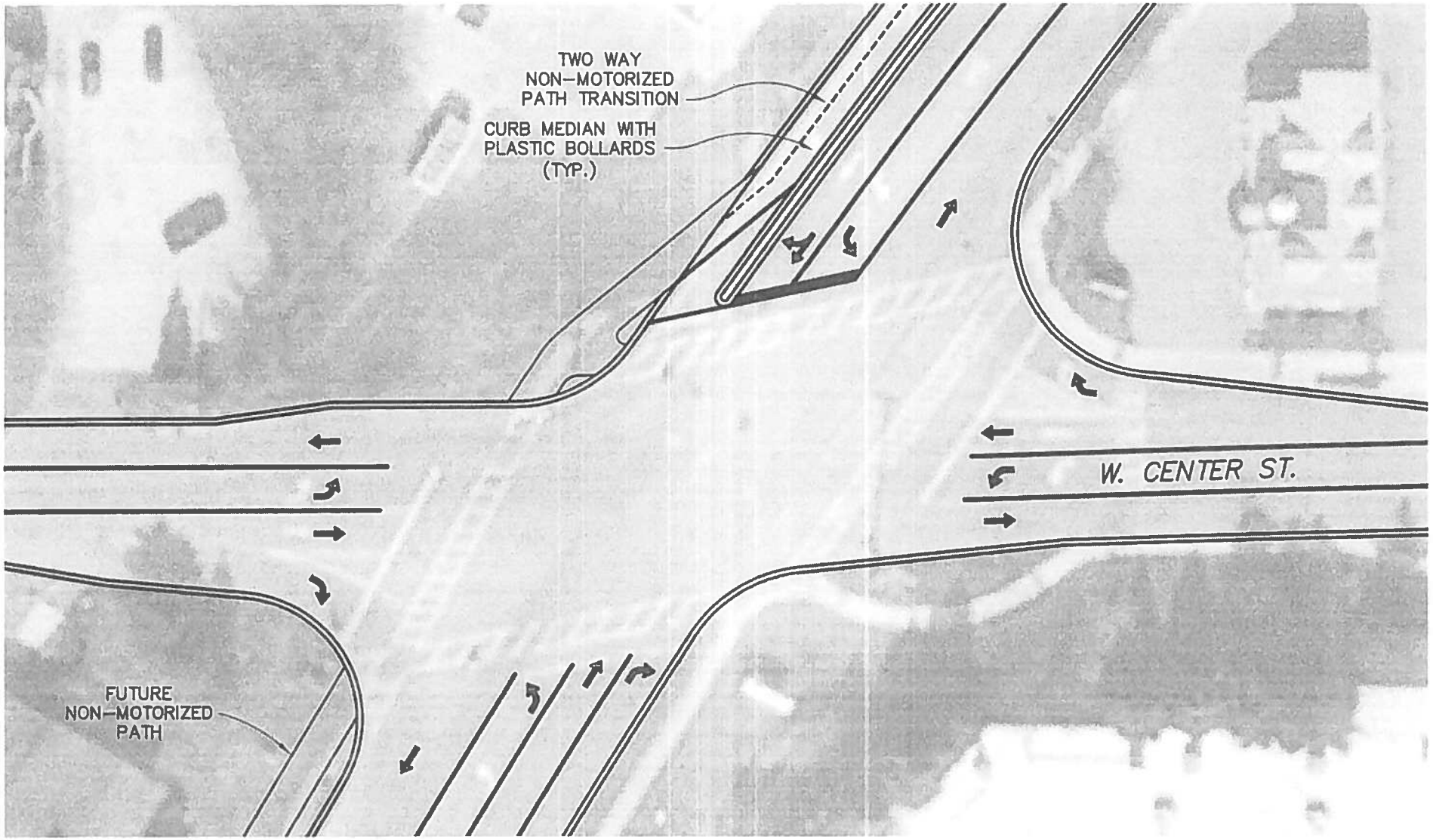
Schedule

Project Type: Construction

Milestones	Date
1. Design Phase Start Date:	08/01/2016
2. Design Phase End Date:	03/01/2017
3. Right of Way Phase Start Date:	08/01/2017
4. Project Listed on Approved TIP/STIP:	02/01/2016
5. Scheduled Let Date:	04/01/2017
6. Construction Start Date:	05/01/2017
7. Construction End Date:	08/01/2017

Will this project be paired with any future construction projects? No

Additional comments about the project schedule:



W. CENTER ST. & BLUE STAR HIGHWAY

North

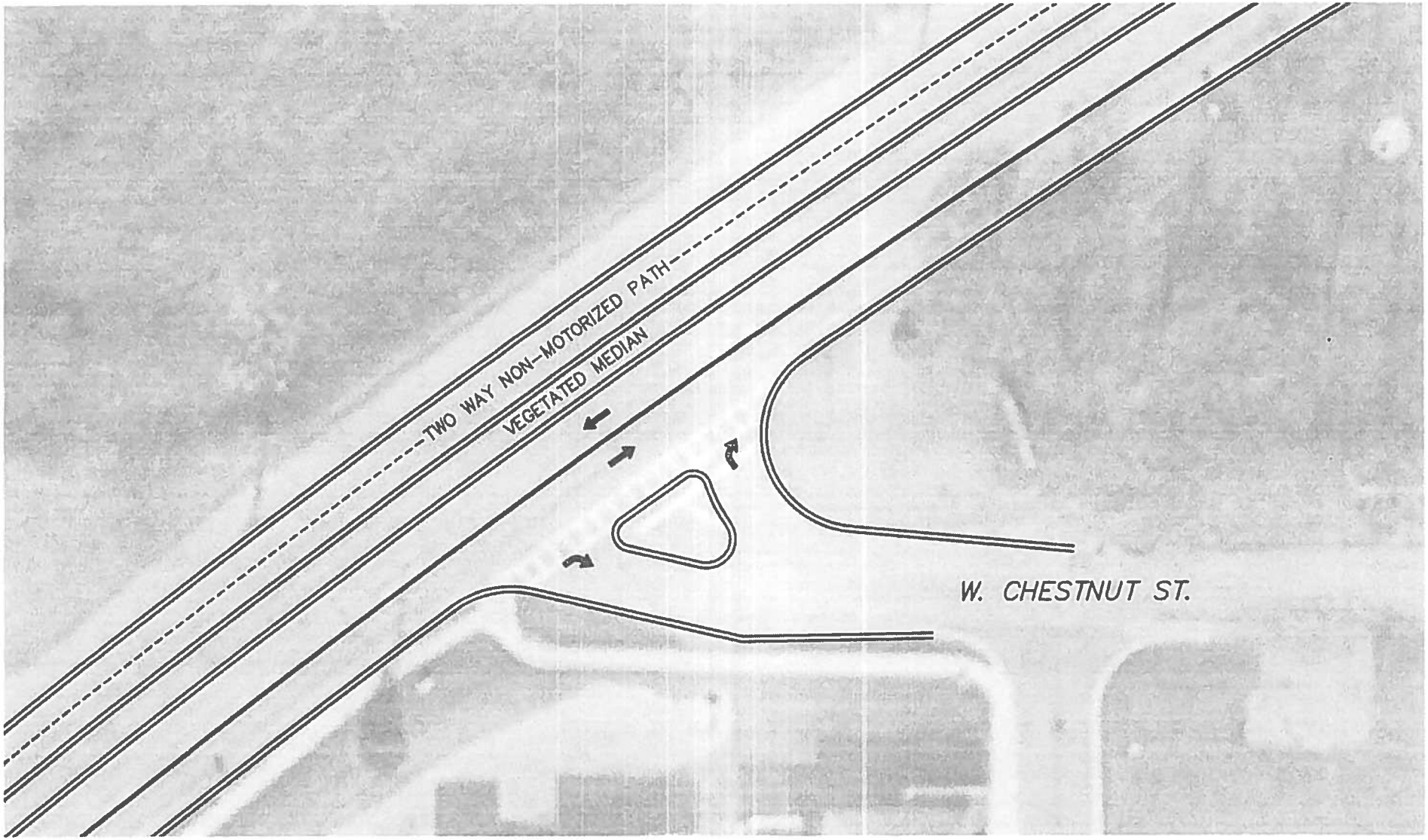
SCALE : 1" = 40'

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

SHEET 1 OF 8
PROPOSED
INTERSECTION
DATE : JUNE 2016



W. CHESNUT ST. & BLUE STAR HIGHWAY

North

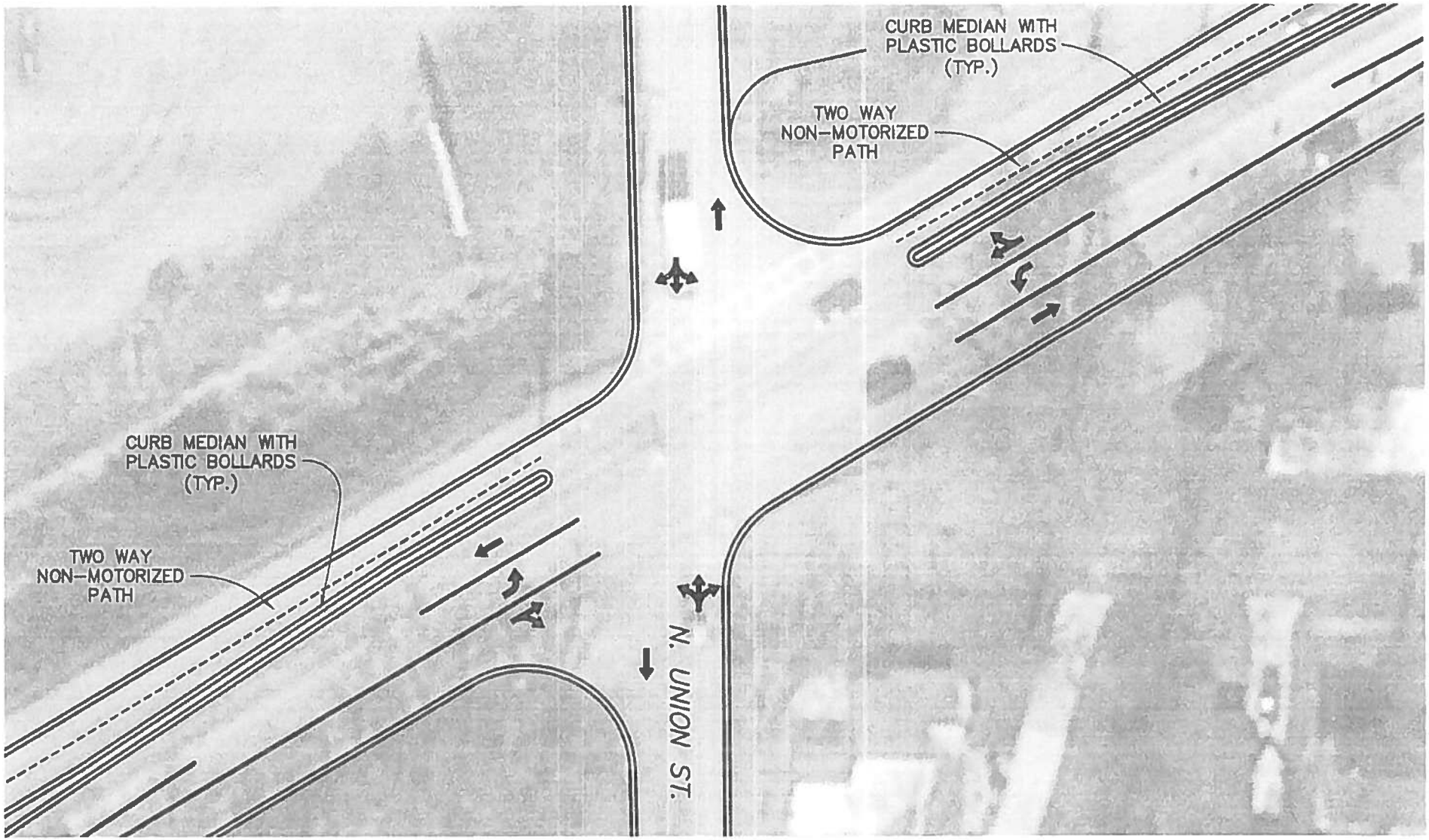
SCALE : 1" = 40'

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

SHEET 2 OF 8
PROPOSED INTERSECTION
DATE : JUNE 2016



N. UNION ST. & BLUE STAR HIGHWAY

North

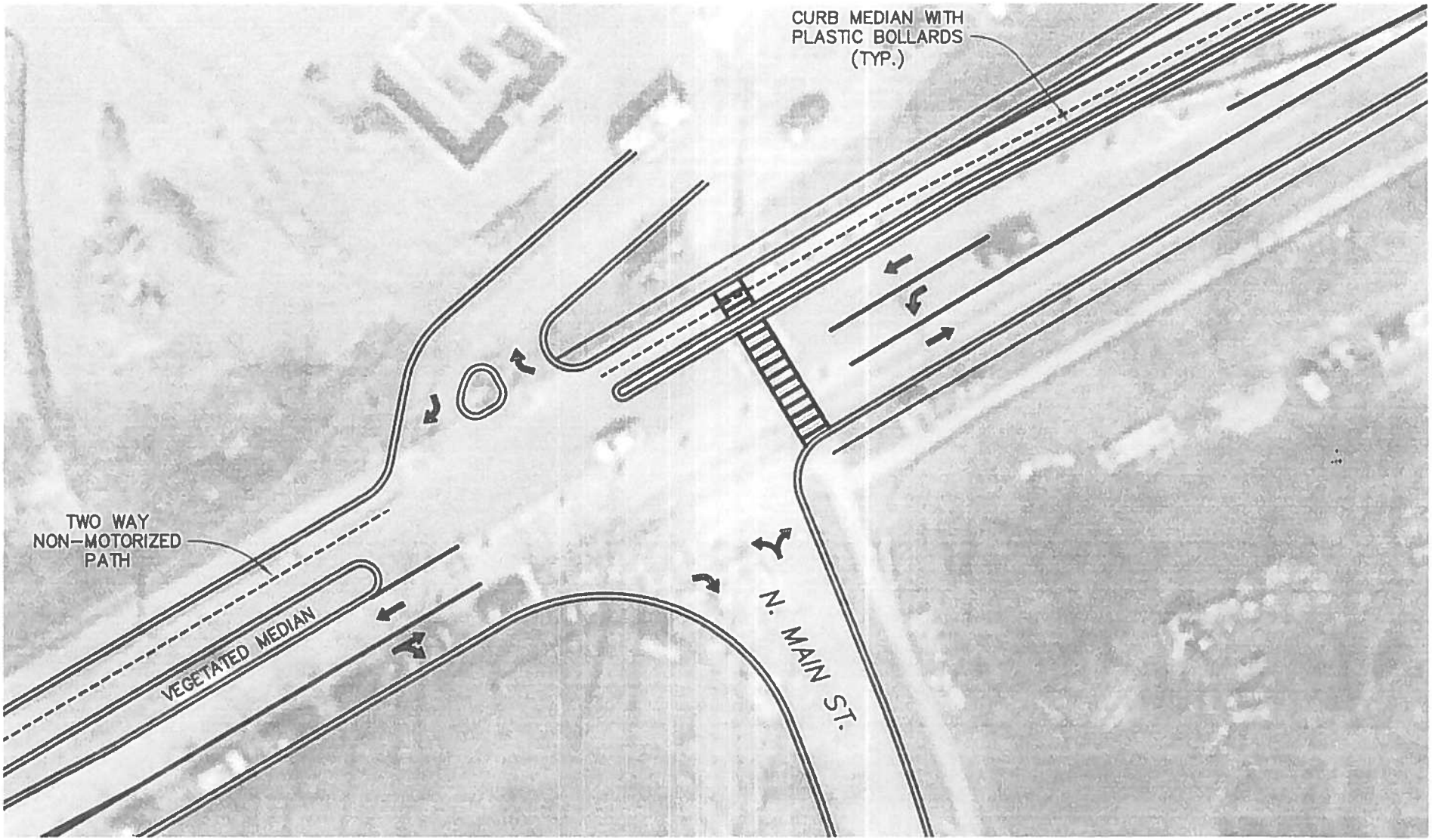
SCALE : 1" = 40'

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

SHEET 3 OF 8
PROPOSED
INTERSECTION
DATE : JUNE 2016



N. MAIN ST. & BLUE STAR HIGHWAY

North

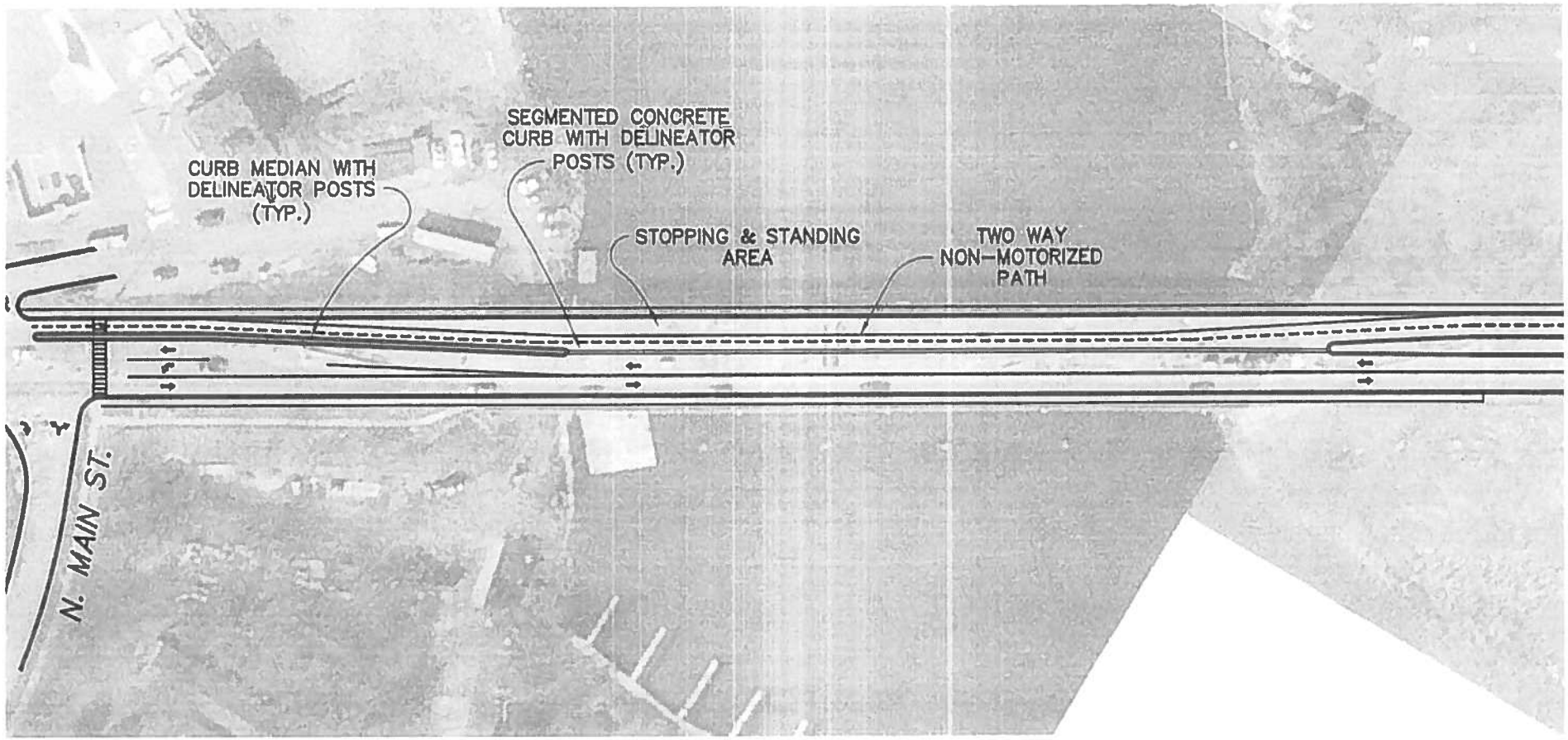
SCALE : 1" = 40'

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

SHEET 4 OF 8
PROPOSED
INTERSECTION
DATE : JUNE 2016



BLUE STAR HIGHWAY BRIDGE

SCALE : 1" = 100'

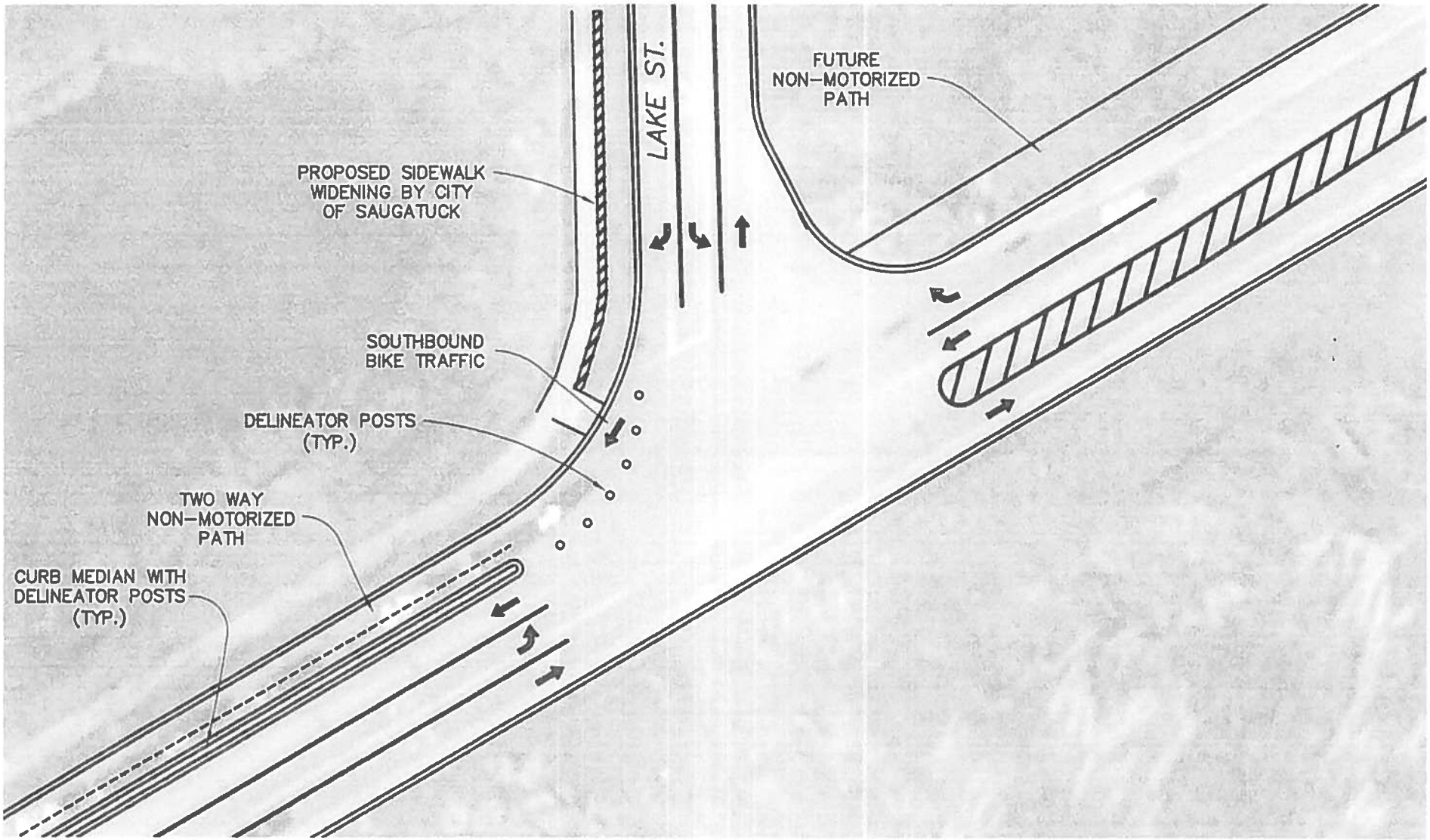
North

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

SHEET 5 OF 8
PROPOSED BRIDGE CONFIGURATION
DATE : JUNE 2016



LAKE ST. & BLUE STAR HIGHWAY

North

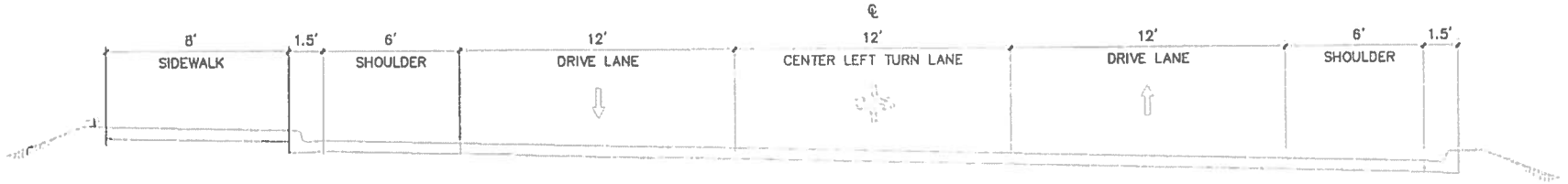
SCALE : 1" = 40'

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

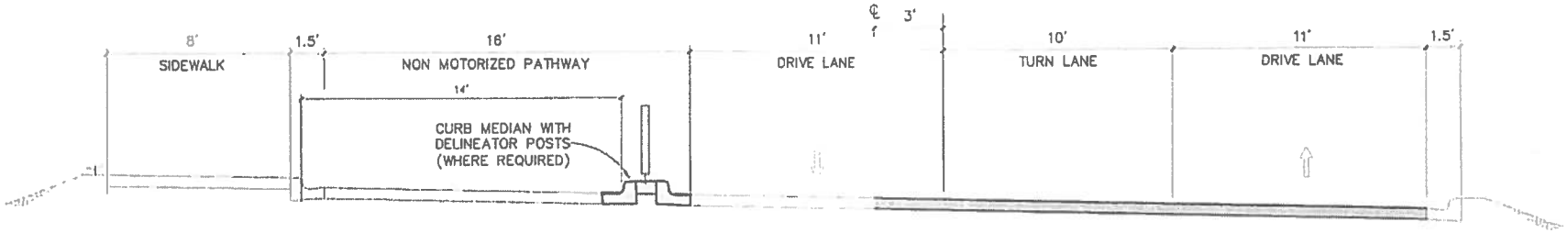
Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

SHEET 6 OF 8
PROPOSED INTERSECTION
DATE : JUNE 2016



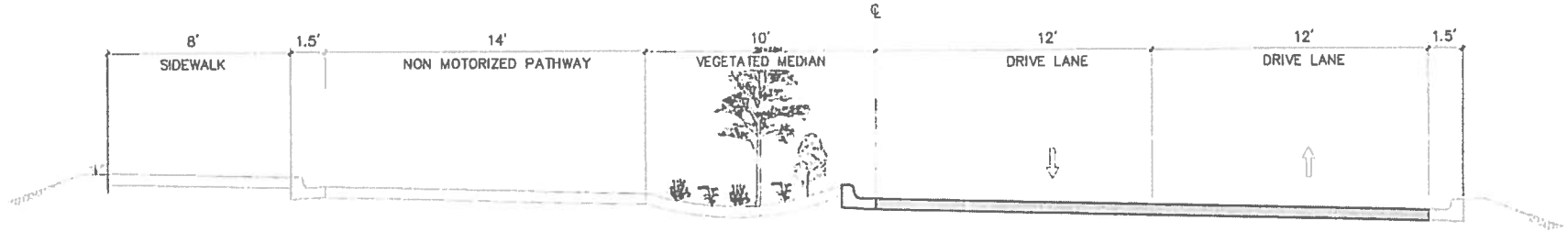
EXISTING TYPICAL CROSS SECTION

BLUE STAR HIGHWAY (LOOKING NORTH) CENTER STREET TO KALAMAZOO RIVER
SCALE : NONE



PROPOSED TYPICAL CROSS SECTION WITH TURN LANE

BLUE STAR HIGHWAY (LOOKING NORTH) CENTER STREET TO KALAMAZOO RIVER
SCALE : NONE



PROPOSED TYPICAL CROSS SECTION WITH NO TURN LANE

BLUE STAR HIGHWAY (LOOKING NORTH)
SCALE : NONE

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

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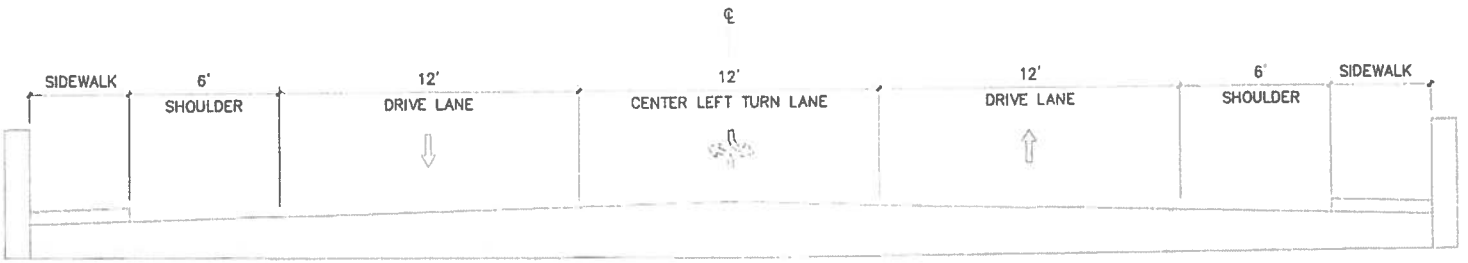
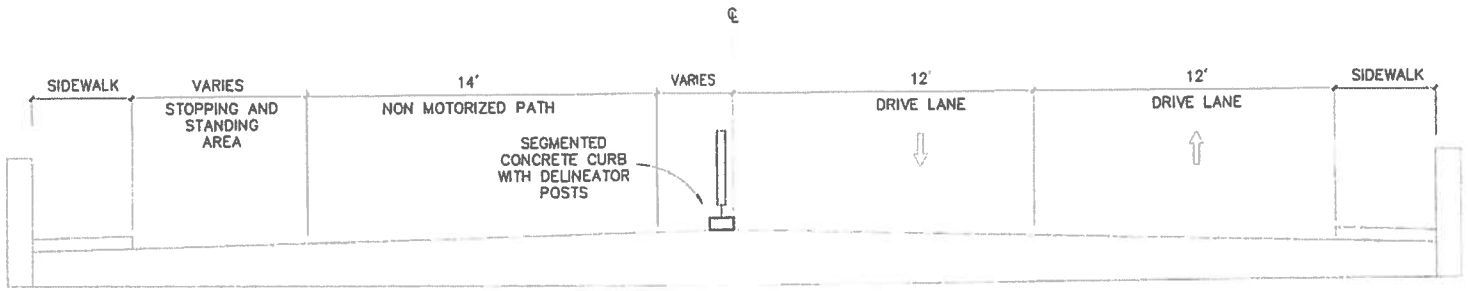
SHEET 7 OF 8
TYPICAL CROSS SECTIONS
DATE : JUNE 2016



EXISTING TYPICAL CROSS SECTION

BRIDGE OVER THE KALAMAZOO RIVER (LOOKING NORTH)
SCALE : NONE



PROPOSED TYPICAL CROSS SECTION

BRIDGE OVER THE KALAMAZOO RIVER (LOOKING NORTH)
SCALE : NONE

CITY OF DOUGLAS
ALLEGAN COUNTY, MICHIGAN

CMAQ GRANT APPLICATION

Prein&Newhof
Engineers • Surveyors • Environmental • Laboratory

SHEET 8 OF 8
TYPICAL CROSS SECTIONS
DATE : JUNE 2016

P.O. Box 86, Saugatuck, MI 49453
Phone: 269.857.2603 Fax: 269.857-4406
Website: www.saugatuckcity.com

APPLICATION FOR APPOINTMENT TO BOARDS/COMMISSIONS/COMMITTEES

Name: Nicholas LEO Home Phone: _____

Home/Mailing Address: 419 ST Joseph po#47

E-mail Address: NICO. LEO@CbgreatLAKES.com

Employer: Self Employed Occupation/Position: CONSTRUCTION / REAL ESTATE

Business Phone: _____ Business Reference: _____

Are you a Saugatuck City resident? YES Are you a registered Saugatuck City voter? YES

Do you or your employer have any business dealings with the City which might present a conflict of interest? NO If yes, explain _____

Serving on a Board or Commission can be time-consuming. Are you committed to attending all regularly scheduled meetings? YES

On which Boards and/or Commissions would you be willing to serve?

Planning Commission	Historic District Commission	Zoning Board of Appeals
Board of Review	Harbor Commission	Township Fire Board
Twp. Recreation Comm.	Kalamazoo Lake Sewer & Water	Library Board
Interurban Transit Auth	Peterson Nature Preserve	Construction Board

Please describe any qualifications, expertise or special interests that relate to your possible appointment: - I have A strong interest in design AND historic preservation.

You may wish to submit a cover letter with your application. Please return the original to the City Clerk's office at the above address for processing. The City of Saugatuck recognizes and supports the concept of balanced representation in regard to filling vacancies on Boards and Commissions. To this end, every effort is made to appoint members who represent Saugatuck's diverse community, including citizens of all ethnic groups as well as people with disabilities. Reasonable accommodations and equal access to communication are provided upon request.

Signature: _____ Date: 12/3/15

***Disclaimer: Per the City of Saugatuck's retention schedule this application will be kept on file for twelve months, unless you are chosen to serve on a board, then this application is kept on file for the duration of your term.*

COPY: Mayor City Council City Clerk

City of Saugatuck
P.O Box 86, Saugatuck, MI 49453
Phone: 269.857.2603 Fax: 269.857-4406
Website: www.saugatuckcity.com

APPLICATION FOR APPOINTMENT TO BOARDS/COMMISSIONS/COMMITTEES

Name: Jennifer Davenport Home Phone: - -

Home/Mailing Address: 233 Francis Saugatuck 49453

E-mail Address: jenn@judsonhealth.com

Employer: Judson Health Colonial Inn Occupation/Position: Innkeeper

Business Phone: _____ Business Reference: Stephen Sage

Are you a Saugatuck City resident? yes Are you a registered Saugatuck City voter? yes

Do you or your employer have any business dealings with the City which might present a conflict of interest? no If yes, explain _____

Serving on a Board or Commission can be time-consuming. Are you committed to attending all regularly scheduled meetings? yes

On which Boards and/or Commissions would you be willing to serve?

Planning Commission	Historic District Commission	Zoning Board of Appeals
Board of Review	Election Inspector	Township Fire Board
Twp. Recreation Comm.	Kalamazoo Lake Sewer & Water	Library Board
Interurban Transit Auth	Peterson Nature Preserve	Construction Board

Please describe any qualifications, expertise or special interests that relate to your possible appointment:
Historic preservation is a passion for me. We are restoring 607 Butler St. I have restored residential and commercial projects in historic districts in Chicago. I am a licensed attorney (20+ yrs) with a focus on business and administrative law.

You may wish to submit a cover letter with your application. Please return the original to the City Clerk's office at the above address for processing. The City of Saugatuck recognizes and supports the concept of balanced representation in regard to filling vacancies on Boards and Commissions. To this end, every effort is made to appoint members who represent Saugatuck's diverse community, including citizens of all ethnic groups as well as people with disabilities. Reasonable accommodations and equal access to communication are provided upon request.

Signature: _____ Date: 7/25/16

COPY: Mayor City Council

I have served on several boards including Lincoln Foundation architectural review committee (Lincoln Park, Chicago) where I chaired the

Item 13. F

City Council
Agenda Item Report

City of Saugatuck

FROM: Cindy Osman, Planning and Zoning Administrator

MEETING DATE: August 22, 2016

SUBJECT: Schedule of Fees Adjustment (Short Term Rental)

DESCRIPTION:
Increase short term rental registration fee from $45.00 to $250.00 (three year registration). Increase the re-inspection fee from $30.00 to $60.00.

The short term rental fees have not been modified since the beginning of the short term rental program. Saugatuck Township has adopted a $250 3 year registration and $60 re-inspection fee. The City of Douglas has also adopted the same registration and re-inspection fee structure.

Currently inspection and administrative services shortfalls in the City of Saugatuck for this program are paid through general fund monies. The proposed adjusted fee rate will move the program closer to self-sufficiency. There are currently about 160 registered short term rentals in the City of Saugatuck. If approved the fee will increase annual revenue to operate the program from $2,400 to an estimated $13,000

BUDGET ACTION REQUIRED
N/A

COMMISSION/STAFF REVIEW
N/A

LEGAL REVIEW:
N/A

SAMPLE MOTION:
Motion to **approve/deny** amending the City of Saugatuck Fee Schedule as follows effective August 22, 2016:

Adjust short term rental (three year) registration fee from $45 to $250;
Adjust short term rental re-inspection fee from $30 to $60;

16A

michigan municipal league

1675 Green Road
Ann Arbor, MI 48105-2530

T 734.662.3246
800.653.2483
F 734.662.8083
mml.org

August 4, 2016

Michigan Municipal League Annual Meeting Notice

(Please present at the next Council, Commission or Board Meeting)

Dear Official:

The Michigan Municipal League Annual Convention will be held on Mackinac Island, September 14-16, 2016. The League's **"Annual Meeting"** is scheduled for 1:30 pm on Wednesday, September 14 in the Terrace Room at the Grand Hotel. The meeting will be held for the following purposes:

1. Election of Trustees. To elect six members of the Board of Trustees for terms of three years each (see #1 on page 2).

2. Policy. A) **To vote on the Core Legislative Principles document.**
In regard to the proposed League Core Legislative Principles, the document is available on the League website at http://www.mml.org/delegate. If you would like to receive a copy of the proposed principles by fax, please call Monica Drukis at the League at 800-653-2483.

   B) **If the League Board of Trustees has presented any resolutions to the membership, they also will be voted on.** (See #2 on page 2.)
In regard to resolutions, member municipalities planning on submitting resolutions for consideration by the League Trustees are reminded that under the Bylaws, they must be submitted to the Trustees for their review by August 15, 2016.

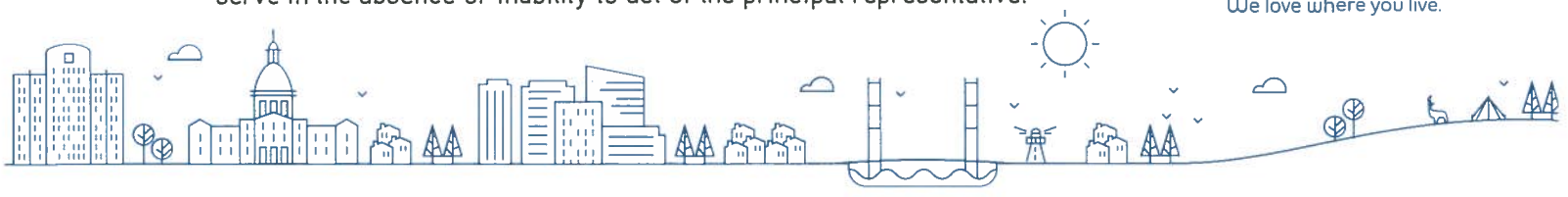
3. Other Business. To transact such other business as may properly come before the meeting.

Designation of Voting Delegates

Pursuant to the provisions of the League Bylaws, you are requested to designate by action of your governing body one of your officials who will be in attendance at the Convention as your official representative to cast the vote of the municipality at the Annual Meeting, and, if possible, to designate one other official to serve as alternate. Please submit this information through the League website by visiting http://www.mml.org/delegate no later than August 15, 2016.

Regarding the designation of an official representative of the member to the annual meeting, please note the following section of the League Bylaws:

> "Section 4.4 - Votes of Members. Each member shall be equally privileged with all other members in its voice and vote in the election of officers and upon any proposition presented for discussion or decision at any meeting of the members. Honorary members shall be entitled to participate in the discussion of any question, but such members shall not be entitled to vote. The vote of each member shall be cast by its official representative attending the meeting at which an election of officers or a decision on any proposition shall take place. Each member shall, by action of its governing body prior to the annual meeting or any special meeting, appoint one official of such member as its principal official representative to cast the vote of the member at such meeting, and may appoint one official as its alternate official representative to serve in the absence or inability to act of the principal representative."



1. Election of Trustees

Regarding election of Trustees, under Section 5.3 of the League Bylaws, six members of the Board of Trustees will be elected at the annual meeting for a term of three years. The regulations of the Board of Trustees require the Nominations Committee to complete its recommendations and post the names of the nominees for the Board of Trustees on a board at the registration desk at least four hours before the hour of the business meeting.

2. Statements of Policy and Resolutions

Regarding consideration of resolutions and statements of policy, under Section 4.5 of the League Bylaws, the Board of Trustees acts as the Resolutions Committee, and "no resolution or motion, except procedural and incidental matters having to do with business properly before the annual meeting or pertaining to the conduct of the meeting, shall be considered at the annual meeting unless it is either (1) submitted to the meeting by the Board of Trustees, or (2) submitted in writing to the Board of Trustees by resolution of the governing body of a member at least thirty (30) days preceding the date of the annual meeting." Thus the deadline this year for the League to receive resolutions is **August 15, 2016.** Please submit resolutions to the attention of Daniel P. Gilmartin, Executive Director/CEO at 1675 Green Rd., Ann Arbor, MI 48105. **Any resolution submitted by a member municipality will go to the League Board of Trustees, serving as the resolutions committee under the Bylaws, which may present it to the membership at the Annual Meeting or refer it to the appropriate policy committee for additional action.**

Further, "Every proposed resolution submitted by a member shall be stated in clear and concise language and shall be accompanied by a statement setting forth the reasons for recommending the proposed resolution. The Board shall consider the proposal at a Board meeting prior to the next annual meeting and, after consideration, shall make a recommendation as to the advisability of adopting each such resolution or modification thereof."

3. Posting of Proposed Resolutions and Core Legislative Principles

The proposed Michigan Municipal League Core Legislative Principles and any new proposed Resolutions recommended by the Board of Trustees for adoption by the membership will be available on the League website, or at the League registration desk to permit governing bodies of member communities to have an opportunity to review such proposals and delegate to their voting representative the responsibility for expressing the official point of view of the member at the Annual Meeting.

The Board of Trustees will meet on Wednesday, September 14 in the Terrace Room in the Grand Hotel for the purpose of considering such other matters as may be requested by the membership, in addition to other agenda items.

Sincerely,

John B. O'Reilly, Jr.
President
Mayor of Dearborn

Daniel P. Gilmartin
Executive Director & CEO