

Muskegon Lake Vision 2020

*A public visioning process to guide the future use,
development, and stewardship of Muskegon Lake*

January 2016



Muskegon Lake Vision 2020

Prepared by the
**WEST MICHIGAN SHORELINE
REGIONAL DEVELOPMENT COMMISSION**



The WMSRDC is a federal and state designated regional planning and development agency serving 120 local governments in Lake, Mason, Muskegon, Newaygo, and Oceana counties.

The mission of WMSRDC is to promote and foster regional development in West Michigan through cooperation amongst local governments.

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MLIVE

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And...

The 150 different individuals that attended the Muskegon Lake Vision 2020 Public Forums.

THANK YOU!!!

Muskegon Lake Vision 2020

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Introduction

Muskegon Lake Vision 2020 was initiated to gather broad input from the public and private sector, interested citizens and community stakeholders of diverse interests. Through its public input process, it uncovered the perceived quality of Muskegon Lake’s economic, environmental, residential, and recreational assets. The purpose of this document is to provide information and a platform for a unified vision that will guide sustainable development and utilization of Muskegon Lake and its shoreline into the future. The document will be useful as reference material for communities, developers, natural resource managers, landowners, and the public as the community develops detailed plans to improve the quality and sustainability of Muskegon Lake’s social, economic, residential and recreational assets.

Putting Muskegon Lake in Context

Muskegon Lake, located in Muskegon County, Michigan, is 4,232-acres in size and is part of the Great Lakes Coastal Wetlands System in the Lake Michigan Watershed. It is a drowned river mouth lake, formed by dynamic interactions of the Muskegon River and Lake Michigan’s shifting sand dune shoreline. Its channel is maintained for recreational and commercial navigation. Portions of Muskegon Lake’s shoreline lie within the largest assemblage of freshwater sand dunes in the world along the shores of Lake Michigan.

Muskegon Lake connects Lake Michigan and the Muskegon River. It receives surface water flows from the Muskegon River watershed and five sub-watershed tributaries in Muskegon County: Green Creek, Bear Creek/Bear Lake, Four Mile Creek, Ryerson Creek and Ruddiman Creek. The Muskegon River encompasses 2,700 square miles and is 219 miles long, flowing from Houghton and Higgins lakes in north-central Lower Michigan to Muskegon Lake. It is the second longest river and third largest watershed in Michigan. The Muskegon River has approximately 94 tributaries, including Cedar Creek and Mosquito Creek in Muskegon County.



History

Muskegon Lake was initially utilized for navigational purposes by indigenous Indian tribes and early settlers. In the late 1800's, Muskegon Lake was heavily used for the lumber industry with 47 saw mills lining the shores of the lake. After the end of the Lumber Era, the water resources of Muskegon Lake were an important component for the emerging Industrial Era and the production practices in foundries. Both the Lumber and Industrial eras significantly altered the lake's shoreline by the filling of open water and impairment of aquatic habitat. According to the Michigan Department of Natural Resources Fisheries Division (MDNR), approximately 1,200 acres of Muskegon Lake and associated wetlands have been filled and substantial areas of lake bottom were filled by historic sawmill waste with roughly 700 acres converted for development.

Between 1941 and 1970, Muskegon Lake was partial home to the Milwaukee Clipper. The Clipper was a cross lake car ferry traveling between Muskegon and Milwaukee for 29 shipping seasons. In 2004, the Lake Express once again established a cross lake ferry service between Muskegon and Milwaukee. The Lake Express was the first high-speed car ferry to operate on the Great Lakes.

Throughout the mid to late 1900's, large foundries began to close and much of the community's new development occurred away from the lakefront. Water quality improved on the lake in the 1970's with the establishment of the Muskegon County Wastewater Management System; though it was not enough to fix the significant negative environmental impacts left on the lake. As a result, Muskegon Lake and portions of its tributaries were designated as a Great Lakes Area of Concern (AOC) in 1985 by state and federal agencies. Muskegon Lake was one of 28 U.S. AOCs identified on the Great Lakes. Shortly after receiving the AOC designation, the community began a concentrated effort to restore and remediate the lake through numerous local, state, and federal partnerships. There have been ongoing cleanup and restoration efforts underway since the AOC designation.

Muskegon Lake has always been a recreational draw for boating, swimming, fishing, and the Muskegon StatePark, to name a few. However over the past 40 years, recreational opportunities on Muskegon Lake have expanded with the cleanup of the lake. These opportunities include an increase in public access to the lake such as public boat launches, boat marinas, parks, waterfront restaurants, museums, and a bike path spanning the south shoreline of Muskegon Lake.

The north shoreline of Muskegon Lake is dominated by residential properties. On the south side, residential areas are concentrated toward the western shoreline of the lake. Near downtown Muskegon, residential areas are located in established neighborhoods further away from the lake. However, with the continued restoration of the lake, there are new residential opportunities available on and near Muskegon Lake in the downtown area.

Economic Importance

Muskegon Lake has been an economic engine for the community for centuries, and Muskegon has long been known as the “Port City.” Commercial port activity, recreational opportunities, new residential developments, and environmental cleanup efforts all contribute to the lake’s economic importance to the community and region. An economic impact study focusing on the Port of Muskegon was developed concurrently with the Muskegon Lake Vision 2020 process. This study highlights the economic impact of current commercial port activity on Muskegon Lake and the potential impact of increased economic activity through 2020. It analyzes direct and indirect economic benefits on three geographic regions including Muskegon County, the 13-county West Michigan Regional Prosperity Alliance (WMPA), and the State of Michigan.

The socio-economic benefits of a 2011 – 2013 Muskegon Lake habitat restoration project were studied by Grand Valley State University. The study determined that the softening of the Muskegon Lake shoreline would result in more than \$60 million dollars in economic benefits over a ten-year period, a 6-to-1 return on investment, an additional 65,000 visitors annually, and a \$11 million dollar increase in housing values for neighborhoods within a mile from the south shoreline.

According to the Michigan Coastal Community Working Waterfront Case Study, “The (Muskegon) harbor was ranked 27th among Great Lakes Harbors and was the 111th leading U.S. port with 2.1 million tons of material shipped or received in 2008. The harbor requires dredging on a 2-3 year cycle and structures currently require maintenance. Bulk commodities that pass through the harbor generate over \$72 million annually in direct revenue, support over 400 jobs and generate \$19 million annually in personal income. Commodities that pass through the harbor include sand, gravel, limestone, cement, concrete and coal.”

Why Conduct a Muskegon Lake Vision 2020?

A New Chapter for Muskegon Lake

Muskegon communities are preparing to embark on a new chapter for Muskegon Lake, which is largely propelled by two impending historic events. First, Muskegon Lake is approximately three to five years away from being delisted as an AOC, following more than two decades of environmental cleanup efforts. Second, the Consumers Energy BC Cobb Plant will close in April 2016, and could be dismantled by 2018. The Cobb Plant is the last of the major historic industries located on Muskegon Lake. With the closure, Muskegon Lake will lose approximately 640,000 tons of coal being moved through the port annually. With these two major events on the horizon, community leaders are contemplating the future of one of its greatest assets and seeking answers to questions such as the following:

- ◆ How can the community replace and diversify the tonnage being moved through the Port of Muskegon?
- ◆ How can the community maintain and increase commercial port activity?
- ◆ Can the community encourage future development of Muskegon Lake while maintaining and sustaining its environmental integrity?
- ◆ Is it possible to promote increased commercial port activity on the lake without jeopardizing its abundant recreational opportunities?

Synergy

There are many community groups with an interest in the future of Muskegon Lake. Two of these groups are fundamental stewards of Muskegon Lake: the Muskegon Lake Watershed Partnership (MLWP) as environmental stewards; and the Muskegon County Port Advisory Committee as commercial port stewards. Formed in the early 1990's, the Muskegon Lake Watershed Partnership is a coalition of community interests dedicated to working cooperatively for the improvement of the Muskegon Lake ecosystem, and for the delisting of Muskegon Lake as an Area of Concern. The Muskegon County Port Advisory Committee was formed by Muskegon County in 2012 for the purpose of serving Port of Muskegon partners in further development of West Michigan's international and domestic logistics services through a coordinated strategy of planning, governmental assistance, and infrastructure improvements.

West Michigan Prosperity Alliance (WMPA), formed in 2013, is part of Governor Rick Snyder’s Regional Prosperity Initiative (RPI) and represents 13 counties in the West Michigan region. The WMPA is an assemblage of public and non-profit organizations, businesses, and individuals representing a variety of interests dedicated to making West Michigan a better place through enhanced communication and collaboration. As part of the RPI process to develop a regional prosperity plan and identify regionally significant projects, the WMPA voted the Port of Muskegon as the most important regional prosperity project for the 13-county region.

With the increased local and regional focus on the Port of Muskegon and support from state and federal partners, community leaders began discussing the need for a community vision focused on Muskegon Lake. The MLWP and Port Advisory Committee both endorsed the development of a Muskegon Lake Vision 2020 document and asked the West Michigan Shoreline Regional Development Commission (WMSRDC) to coordinate the planning process and document development.

Planning Process and Community Forums

WMSRDC staff worked in partnership with the Muskegon County Port Advisory Committee and the MLWP to develop the Vision 2020 planning process and organize community forums. It was decided to hold four separate forums to focus on Muskegon Lake assets, including Natural Resources, Recreation, Commerce/Port, and Residential. The forums were held during June 2015 with between 40 and 60 attendees at each forum.



**Discover the Vision
Muskegon Lake 2020**

You are invited to participate
in 4 public forums to help
uncover the community
vision for Muskegon Lake

Share YOUR Vision

RSVP Required

All Forums will be
held at the
GVSU Michigan
Alternative and
Renewable
Energy Center

Miles

Environment / Natural Resources
Date / Time: 4:30 PM - 7:30 PM, June 10, 2015
RSVP by June 8: 231-722-7878 X 21, mseeger@wmsrdc.org

Outdoor Recreation
Date / Time: 4:30 - 7:30 PM, June 11, 2015
RSVP by June 8: 231-722-7878 X 21, mseeger@wmsrdc.org

Commerce / Port
Date / Time: 4:30 - 7:30 PM, June 23, 2015
RSVP by June 15: 231-722-7878 X 21, mseeger@wmsrdc.org

Residential
Date / Time: 4:30 - 7:30 PM, June 24, 2015
RSVP by June 15: 231-722-7878 X 21, mseeger@wmsrdc.org

Community Forums

The forums began with an icebreaker during which attendees were asked to place a note on a map of Muskegon Lake answering the question: “What do you love about Muskegon Lake?” Comments from this exercise were compiled to create the word cloud shown below. The larger words in the cloud indicate the most common responses. Comments referring to “views,” “fishing,” and “boating” were among the most mentioned Muskegon Lake attributes.



Following the icebreaker, each forum featured a presentation by a topic expert. The purpose was to provide pertinent, factual information regarding the current condition of the forum’s subject matter. Attendees were then invited to participate in a poll designed to evaluate the quantity, distribution, accessibility, and aesthetics of the asset being discussed. Lastly, attendees were divided into four breakout areas and asked to elaborate upon and discuss their responses to the polling questions. The presentations, voting results, and breakout session outcomes from each forum are included in the appendix of this document.

Muskegon Lake Vision 2020 Public Forums

June 10, 2015 – Environment & Natural Resources

Speaker: Dr. Alan Steinman
Grand Valley State University

June 23, 2015 – Commerce & Port

Speaker: Les Brand
Supply Chain Solutions

June 11, 2015 – Outdoor Recreation

Speaker: Bob Lukens
Muskegon County Convention & Visitor’s Bureau

June 24, 2015 – Residential

Speaker: Dr. Paul Isely
Grand Valley State University

Forum Outcomes

The following chapters summarize the outcomes of the forums. They define the given asset, describe the current attributes of the asset, and summarize the results of the public input process during each forum. It is important to note that polling responses and comments collected during the forums reflect the views of individuals that *volunteered to participate* in the forums. As a result, there is the possibility of bias in the responses, and the data collected should be viewed as one tool with which to gauge public opinion towards the future use and development of Muskegon Lake.





Environment/Natural Resources

Definition of Natural Resource Assets:

Surface water, fish and wildlife habitat, wetlands, the adjacent terrestrial shoreline, aquatic and riparian resources, including native fish and wildlife.

Muskegon Lake is part of the Great Lakes Coastal Wetland System, connecting Lake Michigan and the Muskegon River. The system is integral to maintaining the fisheries in the Muskegon River, Muskegon Lake and Lake Michigan, as many important sport fish need all three areas for survival. According to the Michigan Department of Natural Resources (MDNR) Fisheries Division, the primary resource concerns for

Muskegon Lake are fisheries habitat protection and restoration, and maintaining and improving public access.

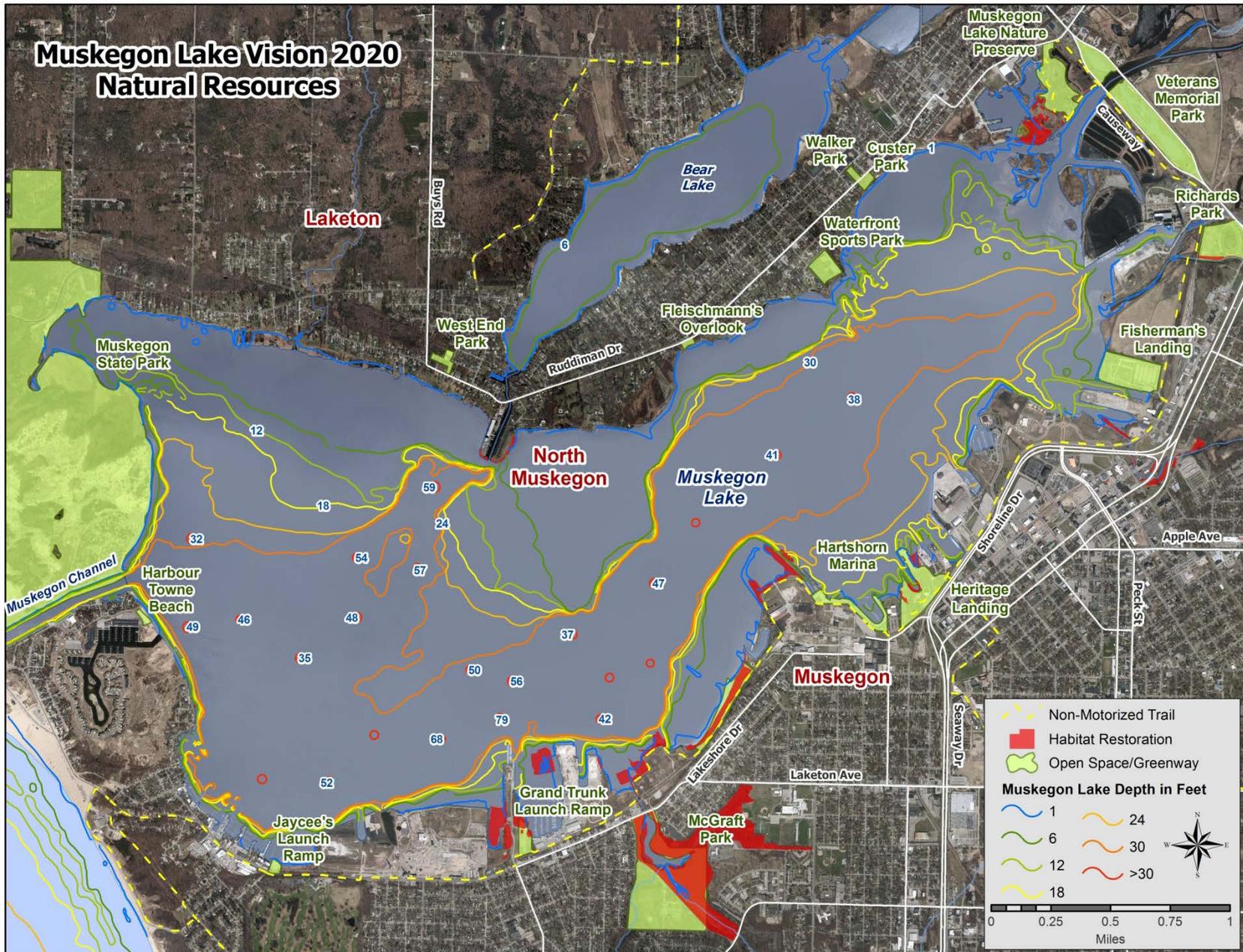
Muskegon Lake was designated a Great Lakes Area of Concern (AOC) in 1985 because beneficial uses were impaired by historic, industrial disposal practices and shoreline alterations that filled open waters and degraded aquatic habitat. Though water quality improved over the decades, ecological problems remained. Between 2006 and 2012, two large-scale contaminated sediment cleanups were completed by the U.S. EPA Great Lakes National Program Office and Michigan Department of Environmental Quality under the Great Lakes Legacy Act and the Great Lakes Restoration Initiative.

Fish and wildlife habitat restoration from 2010 – 2015 improved 42 acres of shallow wetland, 72 acres of shoreline fill and 17,000 feet of hardened shoreline. Additional fish and wildlife habitat restoration projects and contaminated sediment cleanups are currently being designed and implemented to remove unnatural fill and to restore and reconnect aquatic habitat with a more natural, restored shoreline.

Approximately \$40,000,000 in state and federal funds were invested in AOC cleanup and restoration from 2006-2015. It is estimated that, from 2015 to 2019, non-federal project partners will leverage an additional \$33 million in federal Great Lakes Legacy Act and Great Lakes Restoration Initiative funds to carry out the final restoration needed to remove Muskegon Lake from the list of Great Lakes AOCs.

Environment & Natural Resources Map

This map illustrates restored fish and wildlife habitat areas, publicly-owned parks, lake depths and jurisdictional boundaries.



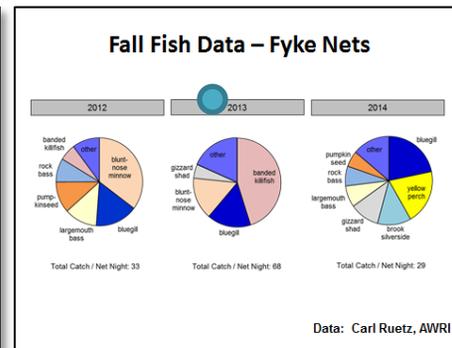
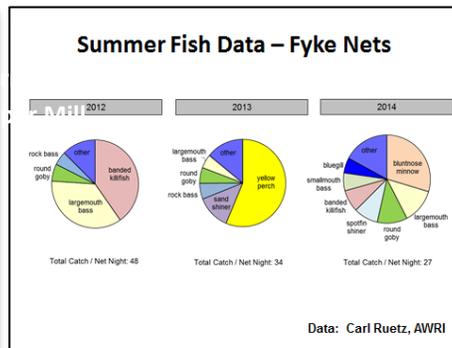
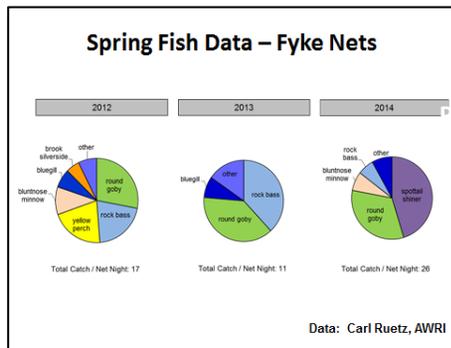
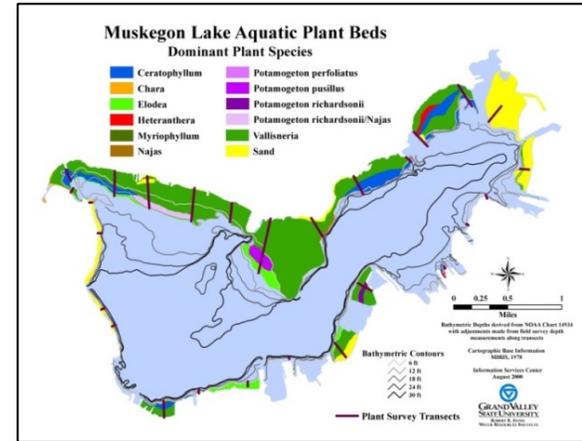
Socio-Economic Benefits

The economic benefits of Muskegon Lake fisheries are estimated and documented by the MDNR Fisheries Division. A conservative estimate of the annual economic value of the Muskegon Lake fisheries from 2002-2003 was more than \$1.3 million. Of the 108 large inland lakes in Michigan, Muskegon Lake ranks at or near the top of the list in angler-use per acre and harvest rates of fish. Muskegon Lake has very diverse fisheries (*MDNR Fisheries Division*).

Muskegon Lake Fishery

- Walleye** – Largest spawning population in Lake Michigan south of Green Bay
- Chinook Salmon** – Greatest amount of natural reproduction in Lake Michigan
- Steelhead** – Very high catch rates compared to other Michigan streams
- Lake Sturgeon** – Originally very abundant with remnant population in restoration phase
- Yellow Perch** – Good fisheries and important production of young for Lake Michigan
- Largemouth and Smallmouth Bass** – Heavily used by anglers including tournaments

In addition to the value of the fisheries, Grand Valley State University studied the socio-economic benefits of the Muskegon Lake “shoreline softening” that restored fish and wildlife habitat from 2011-2013. The study determined that the removal of unnatural fill, broken concrete and seawall along 12,000 feet of shoreline on the south side of Muskegon Lake resulted in more than \$60 million dollars in economic benefits over a ten-year period (a 6-to-1 return on the investment), an additional 65,000 visitors annually, and a \$11.0 million dollar increase in housing values for neighborhoods within a mile from the south shoreline.



Fish Data and Aquatic Bed Figures: Dr. Alan Steinman, GVSU AWRI

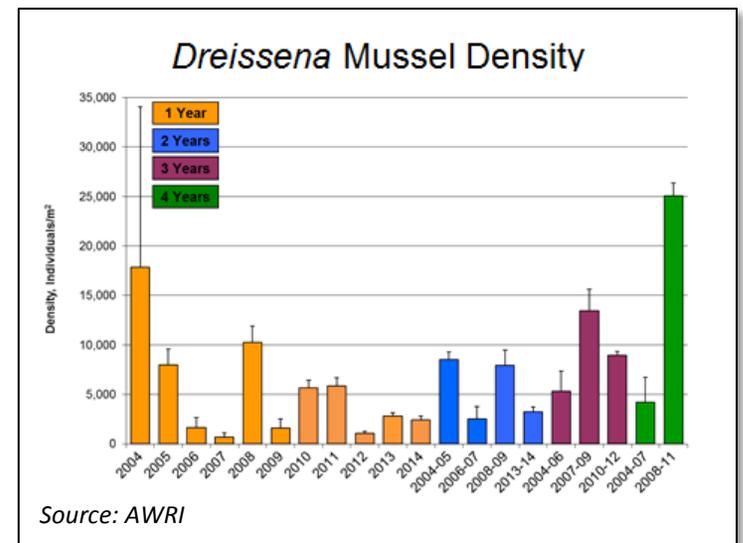
Non-Native Invasive Species

The most visible non-native invasive species in and around Muskegon Lake are *Phragmites australis*, Purple Loosestrife, Cattail, Tartarian Honeysuckle, Spotted Knapweed, Mute Swan, Round Goby, Zebra and Quagga Mussels. Others are present, but less well-known by the general public. The Muskegon Lake Watershed Partnership works with natural resource managers to involve volunteers, students and landowners in the early detection and control of *Phragmites* and other non-native invasive plants surrounding Muskegon Lake and its tributaries. The West Michigan Shoreline Regional Development Commission surveyed the Muskegon Lake and Bear Lake shorelines and ranked the severity of *Phragmites australis* in 2012 and 2015. Landowners, students and volunteers are being trained on early detection, rapid response and monitoring methods with support from the Great Lakes Restoration Initiative. These efforts are being coordinated with the West Michigan Cluster of the Stewardship Network, Michigan Invasive Species Information Network (MISIN) and the Muskegon Conservation District (MCD). Information is available at <http://wmsrdc.org/project/invasive-plant-removal-and-early-detection-in-coastal-wetlands/>.



Grand Valley State University Annis Water Resources Institute (AWRI) and the National Oceanic and Atmospheric Administration Great Lakes Environmental Research Laboratory (GLERL) carry out monitoring activities and have information regarding several non-native invasive organisms in the waters and sediment of Muskegon Lake. AWRI has also measured water quality for total phosphorus concentration, dissolved oxygen, chlorophyll and clarity since 2003. In 2014, Muskegon Lake water quality goals were met for all parameters but clarity. More information is available at <https://www.gvsu.edu/wri/director/muskegon-lake-long-term-monitoring-project-10.htm>.

Muskegon is home port to NOAA's vessels in the Great Lakes as well as the site of the National Oceanic and Atmospheric Administration (NOAA) Lake Michigan Field Station. NOAA has a very active research presence in the area. Key NOAA research activities in Muskegon Lake include the Mussel Watch program, which uses zebra and quagga mussels to gather information to determine the effectiveness of remediation and pollution regulation efforts.

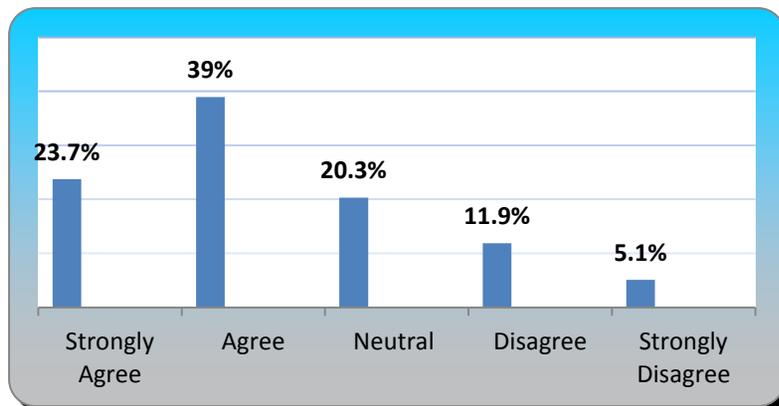


Natural Resources and Environment Forum: June 10, 2015

The Natural Resources and Environment Forum was held at the Grand Valley State University's Michigan's Alternative & Renewable Energy Center located in downtown Muskegon along the Muskegon Lake shoreline. Approximately sixty two (62) people attended the forum to provide input regarding the current and future environmental utilization of the lake. During the forum, Dr. Alan Steinman from the GVSU Annis Water Resources Institute presented on the existing environmental conditions and natural resource assets of the lake. Attendees of the forum used electronic voting equipment to share their opinions toward the accessibility, aesthetics, quantity, and distribution of Muskegon Lake's natural resource assets. Forum attendees then participated in a breakout session where they were able to ask questions, engage in discussions, and provide comments on the assets. This portion of the forum also allowed attendees to elaborate upon their electronic polling responses.

Results and Comments

Statement 1 - Aesthetics: Muskegon Lake's natural resources adequately add to the area's scenic beauty.



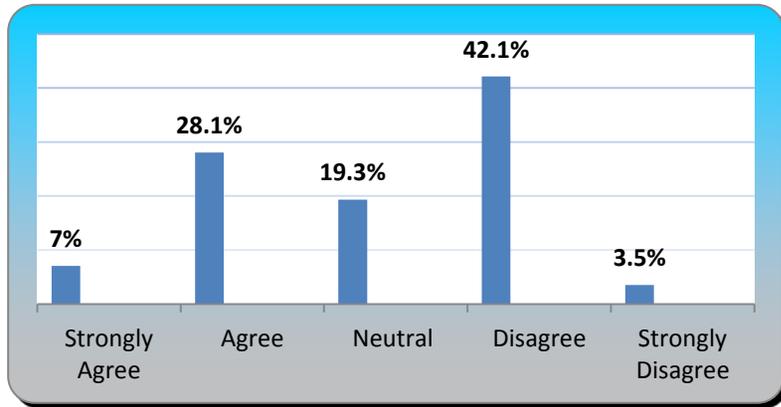
Common Reactions:

- The quality of natural resources must be improved.
- Redevelopments that incorporate scenic beauty for former industrial sites are needed (Sappi and B.C. Cobb).
- Non-native invasive plant control and landowner education is needed.
- Restoration of the Muskegon River mouth wetlands is needed. There is beauty in the wetland plants and better access is needed to enjoy them.

Analysis:

Polling indicated the majority of participants agreed that natural resources adequately add to the area's scenic beauty. Break out session discussion suggested that future development of the former paper mill and coal-burning power plant properties will be critical to the area's scenic beauty. Participants noted that recreational facilities and natural resources could be more attractive, and "picture frame" water views from the downtown and Lakeside areas should be improved by dealing with scenic "detractors," such as the former oil tank farm property in Lakeside.

Statement 2 – Amount: The abundance of natural resources in and around Muskegon Lake is sufficient.



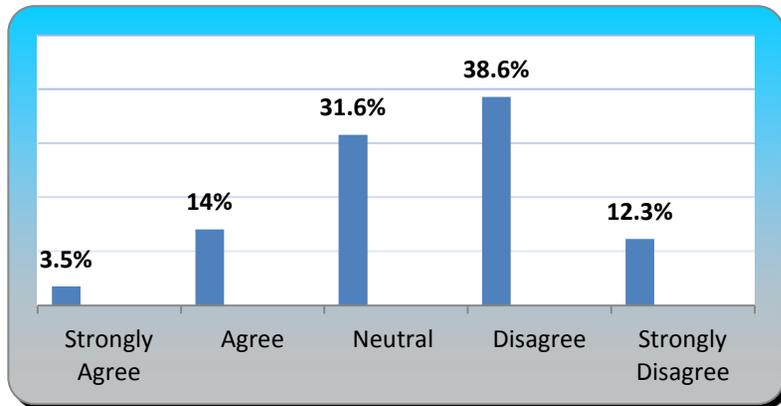
Common Reactions:

- More native plants and control of non-native invasive species is needed to bring back more native fish and wildlife.
- Habitats in tributaries need restoration to improve fish populations.
- Education about the state of the lake and its natural resources is needed for the public and for people who live along the lake.
- The amount of habitat is good, but there is too much hardened shoreline and not enough protection in place.

Analysis:

Polling indicated an even split between those agreeing and disagreeing that the amount of natural resources is sufficient. A significant number remained neutral (potentially indicating a general lack of knowledge on the subject). Break out session participants identified the need for “a place for information” on Muskegon Lake and natural resources. Many participants asked whether there is a proper percentage for hardened shorelines, a difference between residential and industrial seawalls, and if there are numbers for an appropriate amount of fish and wildlife for Muskegon Lake.

Statement 3 – Location: Muskegon Lake’s natural upland and aquatic habitat areas are sufficiently connected / contiguous.



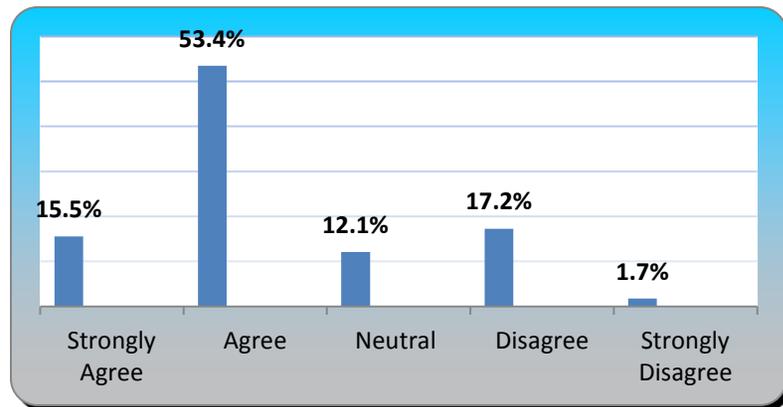
Common Reactions:

- There are too many rocks and seawalls.
- The Muskegon River mouth wetlands need to be contiguous with Muskegon Lake (in the M-120/Causeway area).
- Human needs (developments, trails, access) need to be blended and protective of the connectivity of aquatic and upland habitats.
- Funding is needed to protect, restore and reconnect aquatic and terrestrial habitats.

Analysis:

Polling indicated more than half of the participants believed that upland and aquatic habitats were not sufficiently connected. A significant number remained neutral, potentially signaling a lack of awareness about the significance of contiguous habitat types. Breakout discussions called for more "creative developmental design" for human access that preserves habitat. Participants suggested shoreline softening at the former paper mill and B.C. Cobb Plant, and clean-up of dangerous debris on the lake bottom at public access and launch sites. Education, about how hardened shorelines and marine debris harm fish and wildlife, was an identified need.

Statement 4 – Accessibility: Muskegon Lake’s natural resources are accessible to residents and visitors.



Common Reactions:

- More boat launches (and information to locate them) is needed.
- More public shore-fishing access areas are needed.
- Amenities are needed to make public access to natural resources more user-friendly.
- There is a need for more shoreline docks.

Analysis:

Polling indicated that most people believe that Muskegon Lake’s natural resources are accessible to residents and visitors. However, the most common breakout suggestions were for the development of more access amenities and secondarily, to improve the quality of existing amenities. Specific suggestions were more beaches downtown, more boardwalks, a centralized area for charter boat fishing, a water taxi, more transient boat slips and the preservation of Fisherman’s Landing whether in the existing location or another.

Natural Resources Forum Summary

A wide variety of values were noted, including Muskegon Lake's connection to Lake Michigan, its size and depth, fishing, wildlife, shoreline beauty, scenic views and all types of motorized and non-motorized boating. Strong linkages between valued natural resource assets and recreational activities were evident. Participants discussed the need for post-restoration management of the restored Muskegon Lake shoreline and the need for comprehensive coastal resiliency planning to protect water quality, natural resources and recreational amenities.

As a final question, participants were asked if they thought the sustainability of natural resources was primarily a local, state or federal responsibility. Seventy-three percent of forum participants strongly agreed or agreed the sustainability of Muskegon Lake's natural resource assets is a local responsibility (12% percent neutral).





Outdoor Recreation

Definition of Outdoor Recreation Assets:

Recreation Assets are the structural and service-related amenities that provide access or enhance experiences for water-dependent activities such as boating, swimming, fishing, scenic viewing, biking, walking, birding, hunting, etc.

Outdoor recreation associated with Muskegon Lake is comprised of an array of public and private recreation opportunities. They coexist and flourish alongside the spectrum of assets and uses of the lake. Recreation on Muskegon Lake is an attractive selling point for prospective new residents and a staple of the local tourism economy, and is a major source of leisurely activities for residents and visitors alike. It is widely assumed that recreational opportunities on and around the lake positively contribute to the local quality of life and the economy.



Waterborne Recreation

A few of the many outdoor recreation activities and opportunities provided by Muskegon Lake include:

- Sailing and Boating
- Paddling
- Ice Sailing
- Fishing and Ice Fishing
- Swimming and Diving
- Access to the Great Lakes

Fishing

The Muskegon Lake has a world-class fishery which has garnered national attention. It plays hosts to numerous local, regional, and national fishing tournaments every year. There is an amazing variety of fish species, but Muskegon Lake is especially well-known for walleye, pike, largemouth bass, and smallmouth bass fishing. In the winter months ice fishing annually attracts thousands of anglers, mainly in search of perch.

Sailing and Boating

Regarded as one of the best inland sailing lakes around, Muskegon Lake is a boater's paradise with over 4,400 acres of surface area and a natural connection to Lake Michigan. There are 10 privately-owned marinas boasting more than 3,000 boat slips around the lake. Sailing classes, regattas, and other types of boat races are a regular occurrence on the lake. Ice sailing in the winter is also gaining in popularity.

Paddling

There are at least a dozen public sites where paddlers can gain access to Muskegon Lake. Together these sites make up the Muskegon Lake Water Trail. The Muskegon Lake Water Trail is associated with a larger, more ambitious effort to promote coastal public access throughout the Great Lakes by linking regional water trails through the formation of a statewide water trail system. Additional information about the Muskegon Lake paddling opportunities, the Lake Michigan Water Trail, and Great Lakes paddling in general can be found at the following websites:

www.michiganwatertrails.org

www.lmwt.org



Recreation Facilities

Publicly Owned Recreation Assets:

- City of Muskegon Hartshorn Municipal Marina
 - 143 major boat slips
 - 30 small slips and 102 moorings
- Parks on the Muskegon Lake Shoreline
 - Lakeshore Trail Bike Path – Connecting communities from north of the Muskegon River along Muskegon Lake’s south shoreline to Lake Michigan at Pere Marquette Park
 - Muskegon Channel Walkway.
 - Muskegon County Heritage Landing - Downtown festival grounds and park on the south shoreline
 - Grand Trunk - A boat launch ramp, picnic shelter and nature park in the Lakeside Neighborhood
 - City of North Muskegon Water Park Sports Park
 - City of North Muskegon Custer Park
 - Laketon Township Horton Park (Bear Lake)
- Public Beaches on Muskegon Lake
 - Muskegon State Park’s Snug Harbor and South Campground Beach
 - City of Muskegon Harbour Towne Beach
- Public Boat Launches
 - City of Muskegon maintains 5 public launches.
 - City of North Muskegon and Laketon Township each maintain a public boat launch facility.
- Bike Trails
 - Lakeshore Trail

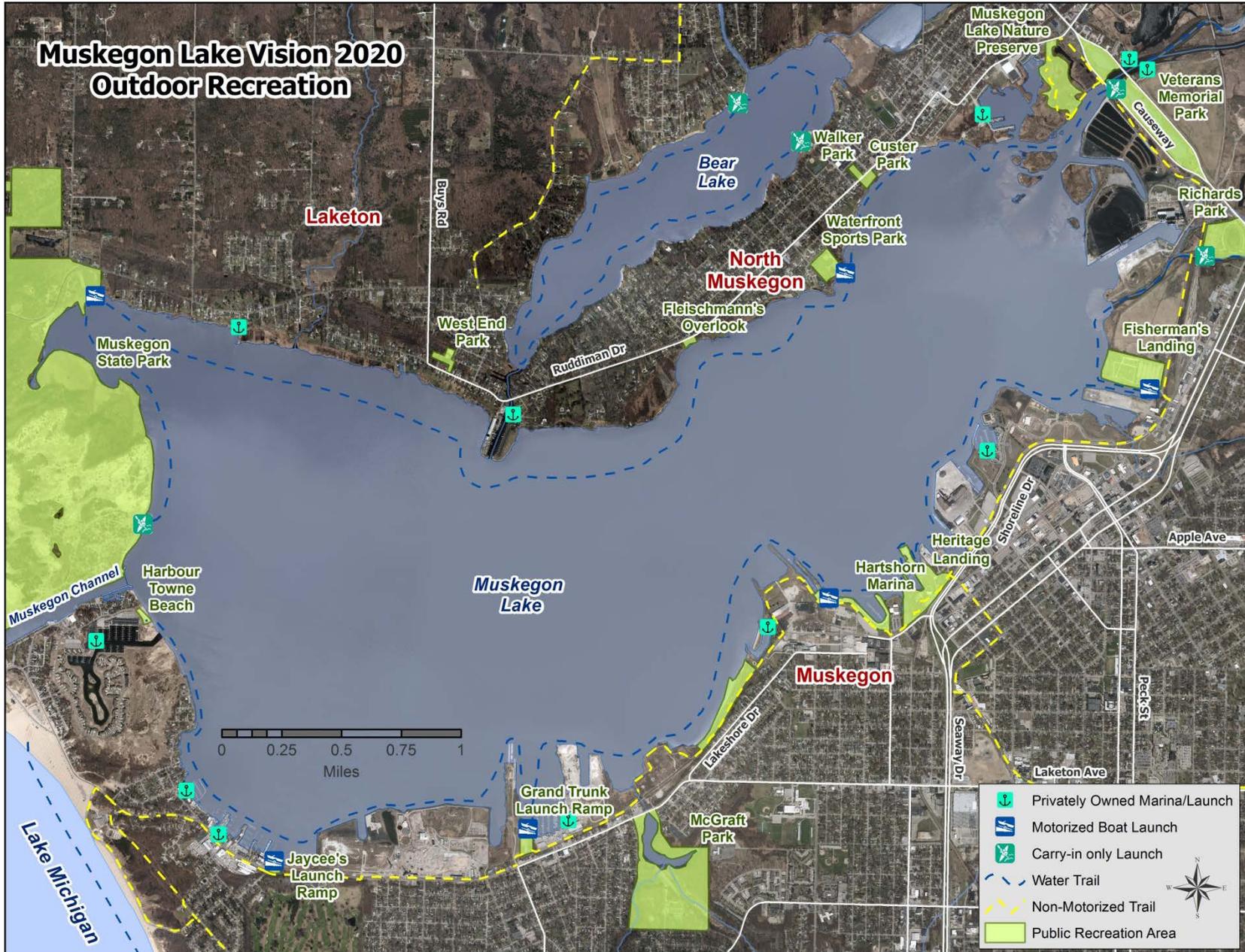
Privately Owned Recreation Assets:

- 10 privately-owned marinas with more than 3,000 boat slips, including:
 - Muskegon, Lakeshore, and Harbour Towne yacht clubs
 - Muskegon Conservation Club
 - Pointe Marine
 - Shoreline Inn/Lake House
- Annual and Periodic Recreational Events:
 - Sailing regattas, various classes
 - Queen’s Cup, Milwaukee to Muskegon, periodically
 - Bass Tournaments
 - Lake Effect activities
 - Community Paddle on Lake Michigan, Lake Michigan, and Muskegon River water trails
- Muskegon Lake Nature Preserve – Provides public access, boardwalk, and barrier free fishing at the mouth of the Muskegon River near Muskegon Lake.



Outdoor Recreation Map

This map highlights the public and privately owned access points and public parks on Muskegon Lake.

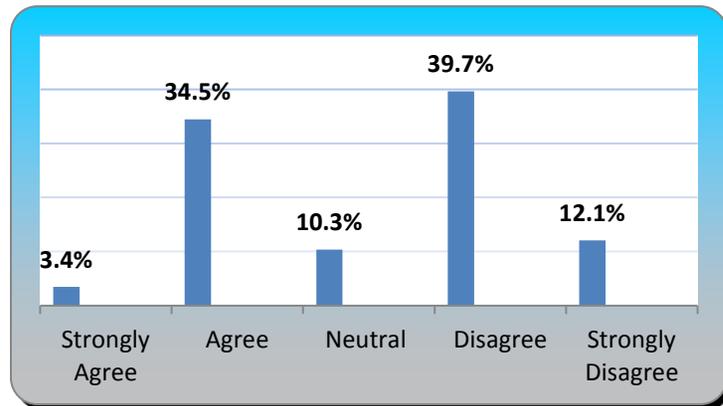


Outdoor Recreation Forum: June 11, 2015

The Outdoor Recreation Forum was held on June 11 at the Grand Valley State University's Michigan's Alternative & Renewable Energy Center located in downtown Muskegon along the Muskegon Lake shoreline. Approximately sixty (60) people attended the forum to provide input regarding the current and future recreational utilization of the lake. During the forum, Bob Lukens from the Muskegon County Convention and Visitors Bureau presented on the existing recreational assets of the lake and discussed how important the lake is to the local tourism industry. Attendees of the forum used electronic voting equipment to share their opinions toward the accessibility, aesthetics, quantity, and distribution of Muskegon Lake's recreational assets. Forum attendees then participated in a breakout session where they were able to ask questions, engage in discussions, and provide comments on the assets. This portion of the forum also allowed attendees to elaborate upon their electronic polling responses.

Results and Comments

Statement 1 - Quantity: The amount of recreational assets around Muskegon Lake is sufficient.



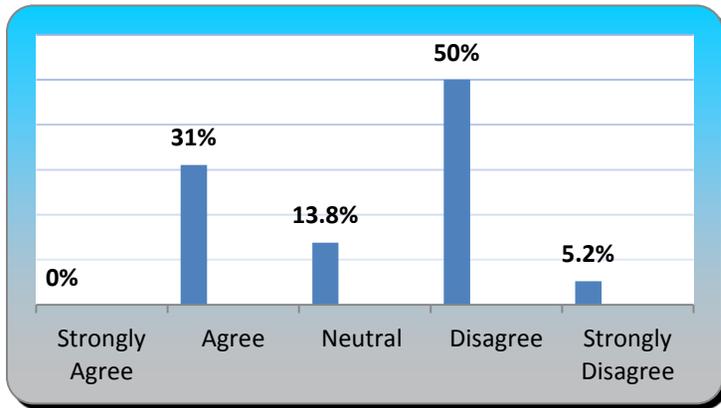
Common Reactions:

- There is the capacity to increase recreation and recreation-based businesses.
- Additional transient and seasonal boat slips are needed.
- Environmental clean-up with subsequent public access is desired at sites along the bike path.
- Improved connectivity and way-finding signage are needed for bike trails around Muskegon Lake.

Analysis:

The polling indicated a fairly even split between those agreeing and disagreeing with the statement regarding the existing quantity of recreational assets around Muskegon Lake. Discussions during the breakout session frequently revolved around opportunities for enhancing or expanding upon existing recreational assets.

Statement 2 - Distribution: The distribution of recreational assets around Muskegon Lake is appropriate.



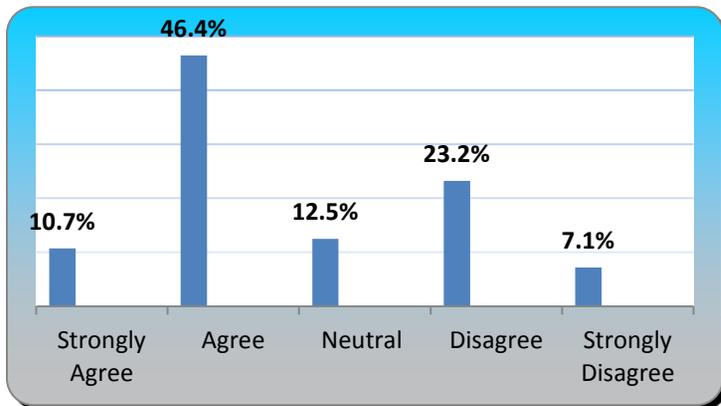
Common Reactions:

- Consistent signage around Muskegon Lake is needed.
- Additional recreation opportunities are needed in Downtown Muskegon.
- Fisherman’s Landing needs to be improved or relocated.

Analysis:

More than half of the polling participants disagreed or strongly disagreed with the statement regarding the distribution of recreation assets around Muskegon Lake. The most common aspect of this topic discussed during the breakout session was a desire for increased recreation opportunities in Downtown Muskegon. Many comments specifically identified the need for a waterfront boardwalk. Another commonly discussed aspect was a desire for signage for existing recreation opportunities, as well as interpretive markers along the lake describing local nature and history.

Statement 3 - Accessibility: Muskegon Lake’s recreational assets are accessible to residents and visitors.



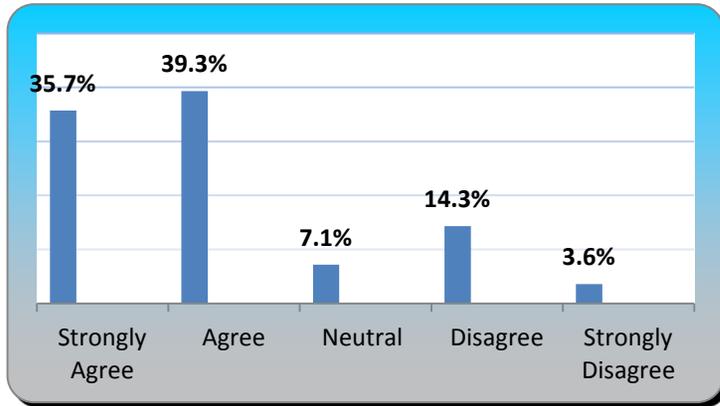
Common Reactions:

- Recreation assets and events need to be better advertised.
- Facilitate transit around the lake with more transient slips, a water taxi service, and an elevated boardwalk over the Muskegon Channel.
- Improve and promote accessibility to Downtown Muskegon via Muskegon Lake.
- Additional ADA accessible public access sites are needed.

Analysis:

More than half of the polling participants agreed or strongly agreed with the statement regarding the accessibility of recreation assets around Muskegon Lake. Once again, many breakout session remarks were focused on improving the link between Downtown Muskegon and Muskegon Lake. The term accessibility can be interpreted in a number of ways: public access points are needed for people to access the water; ADA-accessible facilities are needed to accommodate individuals with special needs; and transient docks are needed to allow boaters to access Downtown Muskegon from the water.

Statement 4 - Aesthetics: Muskegon Lake recreational activity provides a desirable community atmosphere.



Common Reactions:

- More waterfront activities are desired, such as restaurants, retail, public beaches, kayak/canoe assets, festivals, and community events.
- Improve public relations regarding all recreation opportunities.
- Clean up and redevelop old industrial sites on the lake. Incorporate public access and natural features along the immediate lakeshore.
- Improve access to downtown for boaters, including usage of Heritage Landing bathroom facilities.

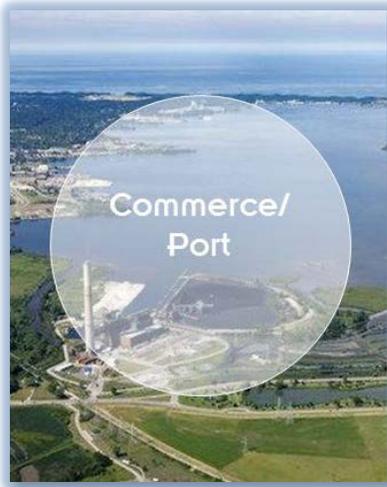
Analysis:

The chart shows that 75% of polling participants either agreed or strongly agreed that recreational activity provides a desirable community atmosphere. Even so, forum participants identified numerous opportunities for improvement to take full advantage of the Muskegon Lake waterfront.

Outdoor Recreation Forum Summary

Comments and reactions collected during this forum reflected an overall positive attitude towards Muskegon Lake’s outdoor recreation assets. Most of the discussions either focused on or implied matters along the south shoreline of the lake. The most common criticisms revolved around the underutilization of Muskegon Lake for recreation and tourism. Listed below are a few “needs” or “opportunities” for improving outdoor recreation around Muskegon Lake; all of which were commonly discussed during the breakout session.

- Lakefront dining
- Children’s parks & swimming beaches
- Downtown Muskegon waterfront access, for both pedestrians and boaters
- Information, promotion, and signage
- Kayak/canoe facilities and rentals
- Transient boat slips
- Community events and festivals

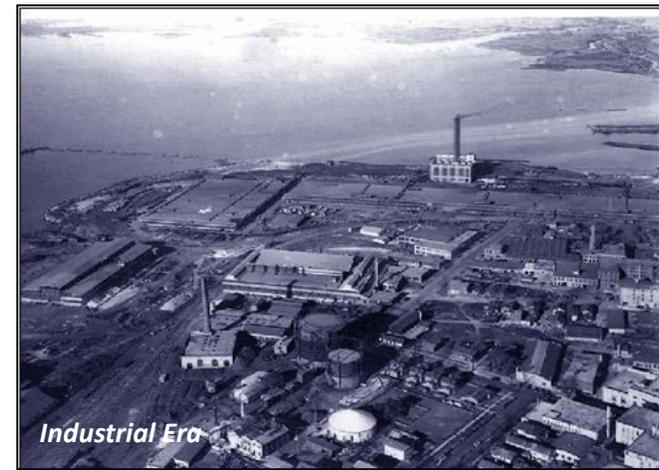


Commerce & Port

Definition of Waterfront Industrial & Commercial Assets:

Light manufacturing, marine, light industrial, logistics, aggregate shipping, foreign trade zones, container storage. Does not include retail, recreational, etc.

Muskegon Lake has been utilized as a regional economic engine and commercial port for hundreds of years. The first records of commercial use around the lake begin with fur trading between early settlers and native Indian tribes. Widespread commercial use of the port exploded with the Lumber Era in the late 1800's. During the height of the Lumber Era, 47 sawmills dotted the shoreline of Muskegon Lake, establishing Muskegon as the "Lumber Queen of the World." In the 1930's and with the beginning of World War II, the resources of Muskegon Lake were the driving force for the regional boom of the Industrial Era.



Over the past forty years, major industries and foundries located along the Muskegon Lake shoreline have come and gone, with new developments typically replacing the old. This era of major industry on the lake is scheduled to end on April 15, 2016 with the closure of the Consumers Energy BC Cobb Plant. The Cobb Plant, which was dedicated in 1949 on the eastern shore of Muskegon Lake, is the last of a long succession of major industries on the lake.

Muskegon Lake is a vital asset for commercial activity in the region for several reasons. First, Muskegon Lake is the largest and deepest port located on the east coast of Lake Michigan. The lake's navigational channel to Lake Michigan is maintained at a depth of 29 feet, deep enough to accommodate ocean-going ships. Second, Muskegon Lake is internationally accessible through established marine freight corridors utilizing the Great Lakes system. Third, intermodal connections to the port (rail, highway, and regional airport) connect regional commerce to the world from Muskegon. Finally, the Port of Muskegon hosts a number of experienced commercial port facilities engaged in commercial activity on the lake.

Intermodal Transportation Connections:

- Rail: onsite Short Line connects to CSX
- Highways: US-31 (0.1 mile); I-96 (6.5 miles)
- Airport: Muskegon (MKG); 8.2 miles from port facilities; runway length: 6501 feet

Available Port Services:

- Bulk material storage
- Bulk material transport/truck and rail
- Break bulk cargo handling and storage
- Covered storage
- Crane – up to 600 ton capacity
- Tug/Tow Assistance



Commerce & Port Map

The below map identifies the location of active port terminals along the shoreline of Muskegon Lake, the active rail line, jurisdictional boundaries, and the location of the ferry terminal.



Muskegon Lake Marine Terminals

There are several marine terminals located around Muskegon Lake with varying infrastructure assets and commercial port activities. In recent years, the Mart Dock (also known as West Michigan Dock & Market Corporation), Verplank Dock Company, and Port City Marine Services formed an alliance called the West Michigan Port Operators. The group has more than 75 years of providing marine transportation, logistics services, and material handling in West Michigan. Below is a list of all active commercial port facilities located on Muskegon Lake. <http://www.westmichiganportoperators.org/>



Andrie Inc. -

- Asphalt and fuel oil transportation, vessel & fleet management, project management, specialty cargo, general towing, ship assistance, ice breaking

West Michigan Dock & Market Corporation -

- Draft: 27 ft./8.2 m.
- Dock frontage: 2500 ft./762 m of heavy piled dock frontage
- Lay-Down Space: 20 acres
- Indoor Storage: 200,000 sq. ft.
- Transload to truck or rail

Port City Marine Services -

- Marine transportation and vessel management services.
- Cargo project logistics management services

Verplank – Salt Dock -

- Draft: 25 ft./7.62 m.
- Dock frontage: 1000 ft./762 m. of steel piled dock frontage
- Lay-Down Space: 250,000+ tons

Lafarge -

- 15,000 tons material storage
- Dock frontage: 550 ft.
- Draft: 20 ft.

G.L.V., LLC -

- Receipt and occasional shipment of dry bulk commodities, including limestone, slag, salt, coal, and coke by self-unloading vessels.
- Draft: 25 ft./7.62 m.
- Dock Frontage: 950 ft./289.56 m. natural faced dock frontage
- Lay-Down Space: 25 acres

B.C. Cobb Dock -

- Receipt of coal by self-unloading vessels for plant consumption; and handling heavy-lift items, including plant equipment and machinery.
- Draft: 27 ft./8.2 m.
- Dock Frontage: 1000 ft./762 m of steel piles dock frontage
- Lay-Down Space: 18 acres

Verplank – Cobb Dock -

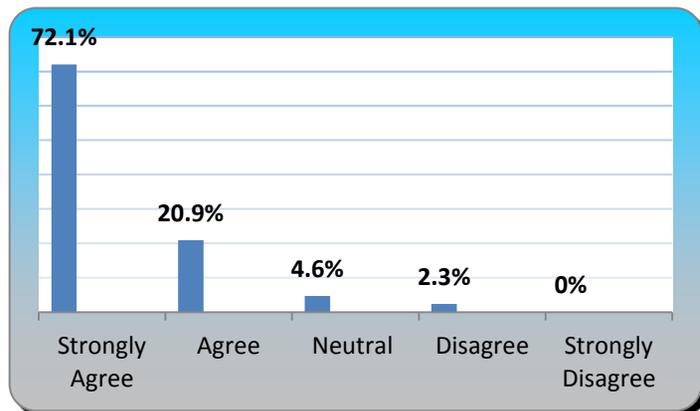
- Receipt of dry-bulk commodities by self-unloading vessels; mooring company-owned floating equipment; and handling construction materials and equipment.
- Draft: 27 ft./8.2 m.
- Dock Frontage: 1,000 ft.
- Lay-Down Space: 400,000+ tons

Commerce & Port Forum: June 23, 2015

The Commerce and Port Forum was held on June 23 at the Grand Valley State University's Michigan's Alternative & Renewable Energy Center located in downtown Muskegon along the Muskegon Lake shoreline. Approximately fifty (50) people attended the forum to provide input regarding the current and future commercial usage of the lake. During the forum, Les Brand from Supply Chain Solutions presented on the commercial assets of the lake and potential for future commercial port development on Muskegon Lake. Attendees of the forum used electronic voting equipment to share their opinion regarding the commercial assets of Muskegon Lake including quantity, location, economics, and quality. The group then participated in breakout activities where they were able to further comment on the assets and explain their answers to the electronic voting questions.

Results and Comments

Question 1 – Economics: Muskegon Lake is a valuable economic resource for the Muskegon area.



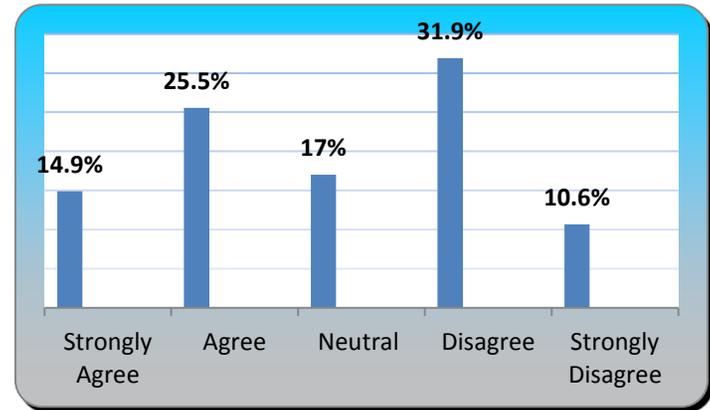
Common Reactions:

- There is a lack of public cooperation, as well as governmental agreement.
- There are weaknesses in the shipping industry, such as a short shipping season and the size of ships.
- There is a lack of communication with the public.
- There is opportunity for development in many areas, such as the B.C. Cobb plant.

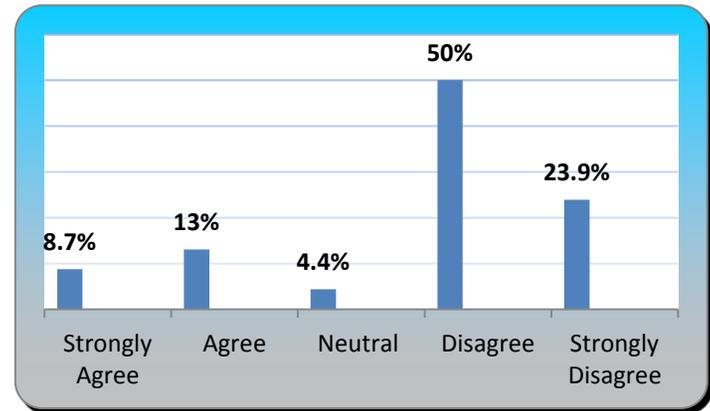
Analysis:

The chart illustrates that 93% of respondents believe Muskegon Lake is a valuable economic resource. However, the top comments from the breakout activity seem to denote the untapped economic opportunity of Muskegon Lake. Respondents believed there is a need for additional communication and cooperation to bring the port to its full economic potential.

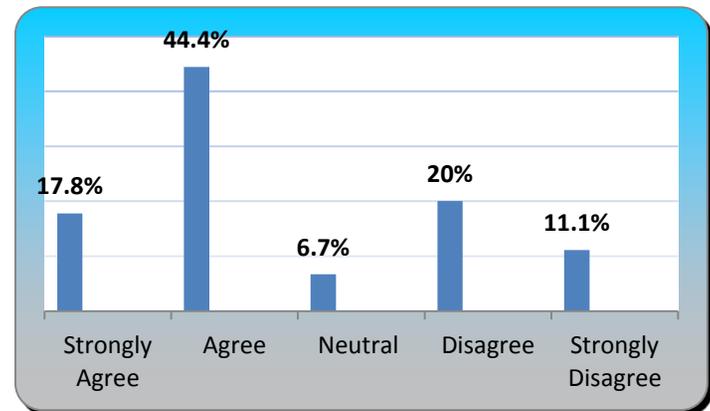
Question 2 – Quantity: The Quantity of waterfront industrial and commercial assets surrounding Muskegon Lake is appropriate.



Question 3 – Quantity: There are too many waterfront industrial and commercial assets surrounding Muskegon Lake.



Question 4 – Quantity: There are not enough waterfront industrial and commercial assets surrounding Muskegon Lake.



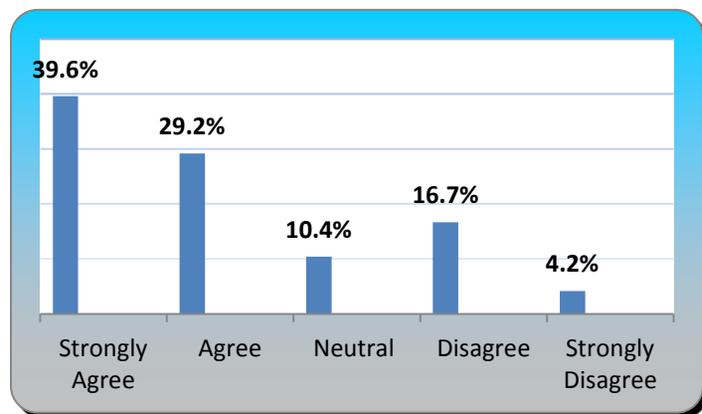
Common Reactions (Questions 2-4):

- More development is needed in terms of organization and volume. Additional funding is needed for the development to occur.
- Commercial activity threatens the scenic beauty of the lakeshore.
- There is a lack of participation among the public, as well as collaboration between various sectors (private, government, etc.).
- A vision for the shoreline and lake is needed from leaders and developers inside and outside of the region.

Analysis:

Three different, yet similar questions were asked regarding the quantity of commercial assets on Muskegon Lake. Polling responses to Question #2 were fairly evenly split regarding the quantity of commercial assets on Muskegon Lake. However responses to questions #3 and #4 reflected a majority opinion that there is a need for more waterfront industrial and commercial assets surrounding Muskegon Lake. During the breakout session, many comments expressed a need for additional commercial development that is well planned with intentional public communication and inclusive collaboration between relevant partners. A frequently noted concern is that increased commercial activity could threaten the lake’s scenic beauty, making the need for calculated future planning and development even more important.

Question 5 – Location: To the extent possible, waterfront industrial and commercial assets surrounding Muskegon Lake should be concentrated in one geographic location.



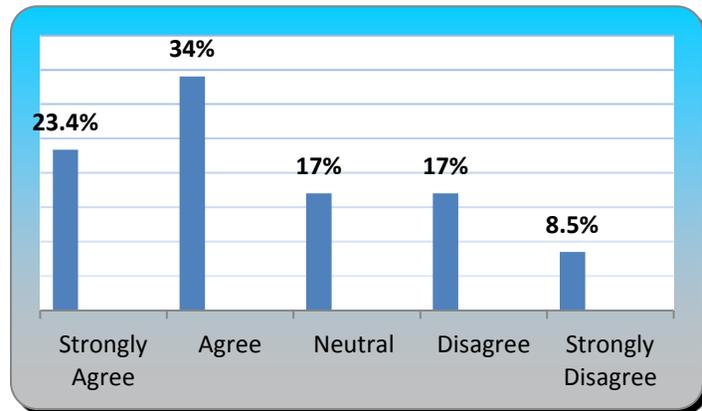
Common Reactions:

- Waterfront industrial and commercial assets surrounding Muskegon Lake should be concentrated in one geographic location in order to share infrastructure.
- Waterfront industrial and commercial assets should be distributed throughout waterfront property surrounding Muskegon Lake to look like it fits within the environment/neighborhood. Visually stimulating aesthetics is important as long as it does not restrict public access to the waterfront or lake itself.
- Keep existing commercial/port business in their current locations—do not move them.
- Introduce a viewing point for port shipping from a restaurant or other space.

Analysis:

When asked about the location of industrial and commercial assets around Muskegon Lake, nearly 69% of respondents felt that it should be concentrated in one geographic location. However, two of the top four comments from the breakout activity contradicted that response. One noted that waterfront industrial and commercial assets should be distributed throughout waterfront property. Another response stated that existing commercial businesses should continue to exist in their current location.

Question 6 – Quality: I am extremely concerned about the aesthetic impact of waterfront industrial and commercial development.



Common Reactions:

- Aesthetics will not be negatively impacted if development is planned strategically.
- Commercial development will decrease visibility to scenic views and have a negative environmental impact if the area is not well-maintained/sustained.
- Development will increase tourism, but the development needs to be more visible to tourists.
- Access to Muskegon Lake for recreational use must be maintained.

Analysis:

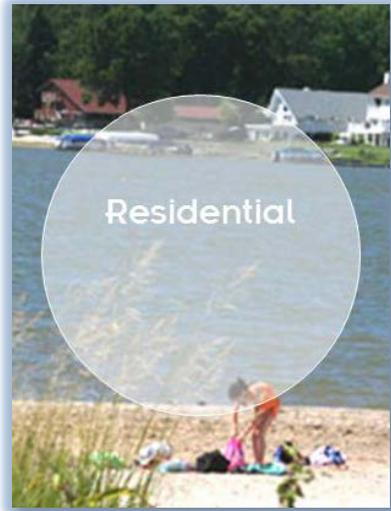
Approximately 57% of attendees were extremely concerned about the aesthetic impact of waterfront industrial and commercial development on Muskegon Lake. Although respondents were extremely concerned about the aesthetics, their responses seem to resolve that good sustainable planning which takes into consideration all uses of Muskegon Lake is essential for future industrial and commercial development on the waterfront.

Commerce & Port Forum Summary

Although only the most common reactions from the breakout activity were highlighted in the discussion above, participants shared a wide variety of ideas concerning current and future commercial port activity on Muskegon Lake. Listed below are a few of the most prevalent comments noted during the breakout session regarding needs for commercial port activity on Muskegon Lake.

- Infrastructure improvements to service a multimodal logistics hub.
- Jobs and training/education for port related jobs.
- Additional collaboration from local leaders.
- Establish a governance structure.
- Increase public relations, marketing, as well as communication efforts for the port.
- Establish a water taxi on the lake.
- Support existing port facilities while encouraging any future commercial port activities towards the east end of Muskegon Lake.

Lastly, forum attendees were asked if waterfront industrial and commercial development on Muskegon Lake positively affects the West Michigan economy. Ninety-eight percent of forum participants either agreed or strongly agreed with that statement.

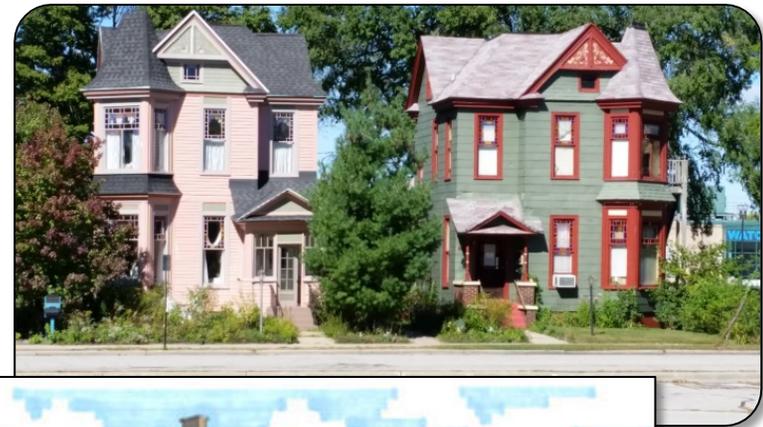


Residential

Definition of Residential Assets:

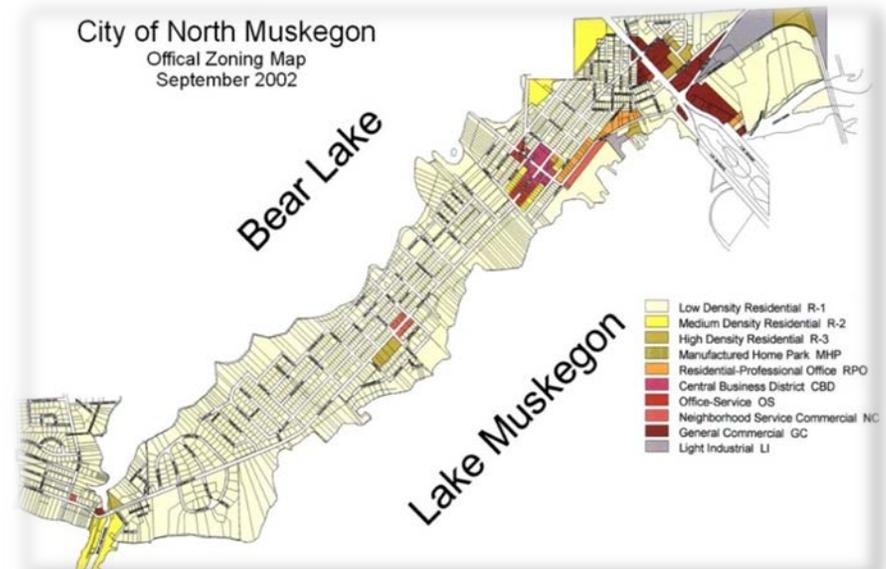
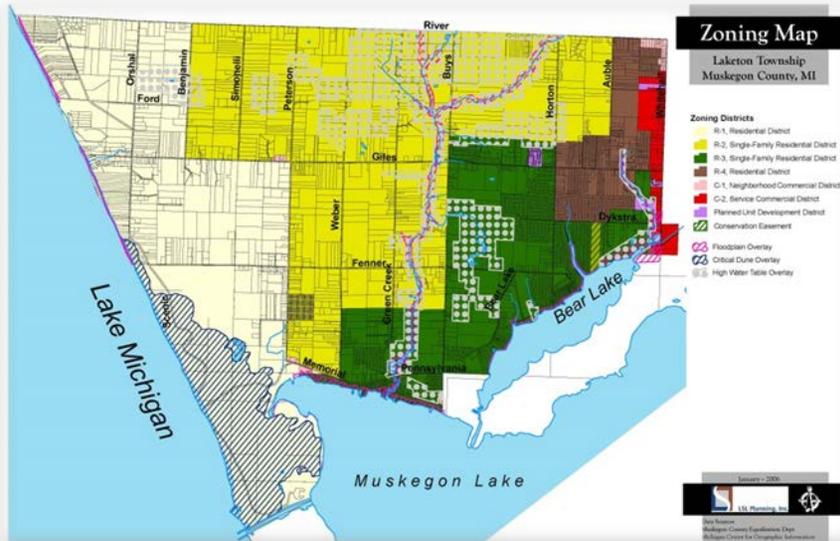
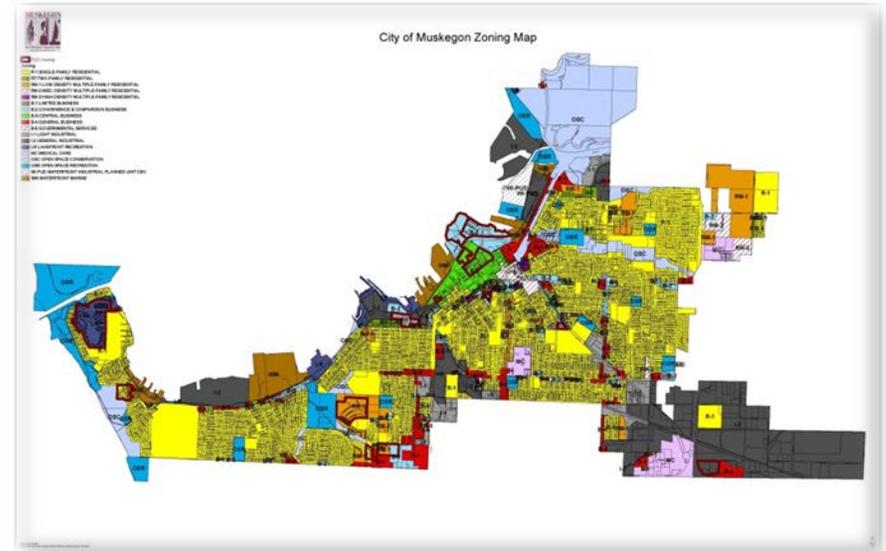
Residential assets include: single family homes, multi-family, condominiums, apartments, mobile homes, rentals, senior living and all types of residential homes.

Residential assets are an important piece of the puzzle when looking at Muskegon Lake and its multitude of uses. Residential areas around Muskegon Lake and its surrounding neighborhoods share a variety of mixed land-uses including recreational, commercial, industrial, open space. This integrated mix of uses around Muskegon Lake provide for a high quality of life for residents living in the area, as well as opportunities to build on existing commercial and industrial activities. There are also other benefits of having residential areas mixed in with other uses, including providing diversity and density, reducing travel time for work and other commutes, stronger neighborhood character, and more pedestrian and non-motorized options for transportation.



Residential Mixed Uses

Muskegon Lake is surrounded by The City of Muskegon on the south side, the City of North Muskegon on the north side, and Laketon Township on the north/west side. The portion in the City of Muskegon is unique in that there are several neighborhood Associations that meet regularly with city officials and provide input for these areas to city government. The City of North Muskegon and Laketon Township are not set up in this way, but do have several neighborhoods within their jurisdictions, as well as some of the more highly valued properties around the lake. Zoning in these areas is quite different as well, with primarily the entire north portion of the lake being dedicated to residential and light commercial. On the south side we see more of a mix of residential, commercial, and industrial uses. Several areas in the City of Muskegon have been converted from Brownfields to residential uses.



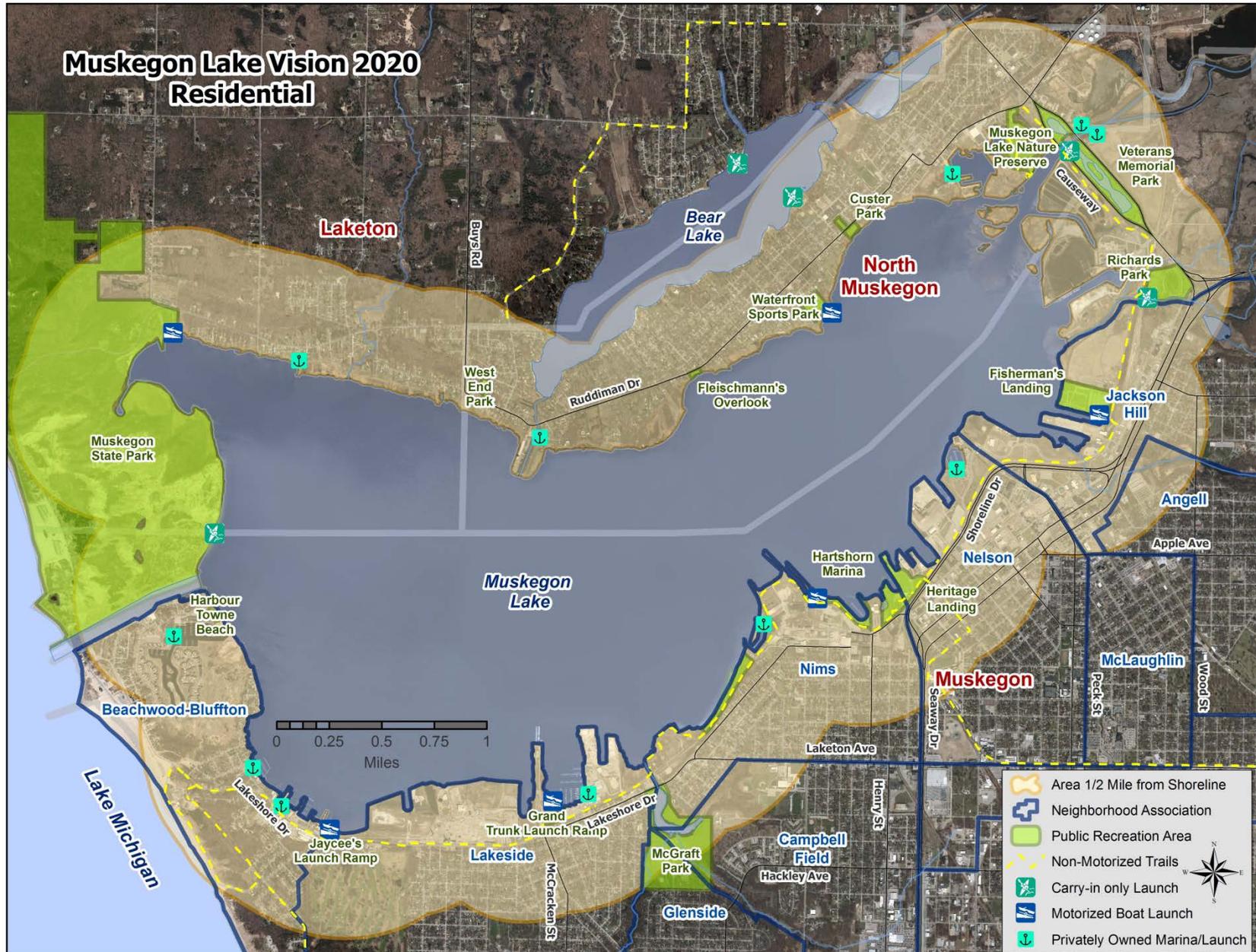
Residential Facts

- The Muskegon housing market was rated among the top 10 healthiest in the country, according to Columbus, Ohio based Nationwide, an insurance and financial services company. (Nationwide's Health of Housing Markets Report, September 2015)
- Community leaders are focused on cleaning up blighted areas throughout the county, including areas near the shoreline.
- The City of Muskegon will be investing over \$1 million through their Neighborhood Housing Program, which will offer middle income homes in the Nelson Neighborhood.
- Terrace Point Landing, a 70-lot, \$12 million residential development has infrastructure in place and several homes are under construction. This site is a former Brownfield site and is directly adjacent to port facilities.
- According to the Muskegon Market Report, countywide housing sales have increased by 25% from this time last year. Housing sale prices have also increased by 11% since September of 2014.
- Many transportation options are available including mass transit, non-motorized, and an efficient transportation road network. 2015 saw significant transportation investments in the downtown Muskegon Historical District and the Muskegon Area Transit System transfer station.
- The Muskegon housing market offers a variety of styles from contemporary to Victorian.
- There are a number of revitalized brownfield areas and industrial buildings that have been converted for residential uses.



Residential Map

This map highlights a half-mile buffer around Muskegon Lake, with residential areas and neighborhoods highlighted.

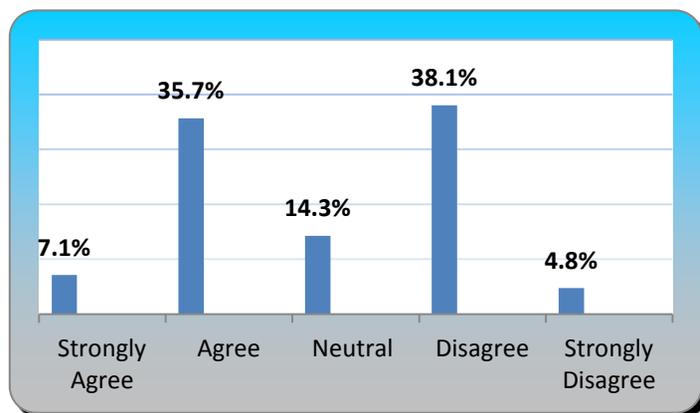


Residential Forum: June 24, 2015

The Residential Forum was held on June 24 at the Grand Valley State University's Michigan's Alternative & Renewable Energy Center located in downtown Muskegon along the Muskegon Lake shoreline. Approximately forty (40) people attended the forum to provide input regarding residential uses around the lake. Dr. Paul Isely from the Seidman College of Business at Grand Valley State University was the guest speaker for this forum. Dr. Isely discussed work that he and his staff have done regarding local housing values with relation to remediation efforts along the shoreline. Based on his discussion, the benefits of shoreline remediation and habitat work reach beyond just shoreline residents, and actually can provide benefits to far reaching neighborhoods around the lake. Dr. Isely's research focused on residential housing values within a half - mile buffer from the shoreline. Attendees of the forum used electronic voting equipment to share their opinions toward the accessibility, aesthetics, quantity, and distribution of Muskegon Lake's residential assets. Forum attendees then participated in a breakout session where they were able to ask questions, engage in discussions, and provide comments on the assets. This portion of the forum also allowed attendees to elaborate upon their electronic polling responses.

Results and Comments:

Statement 1 - Quantity: A variety of housing options exist to accommodate residential needs near Muskegon Lake.



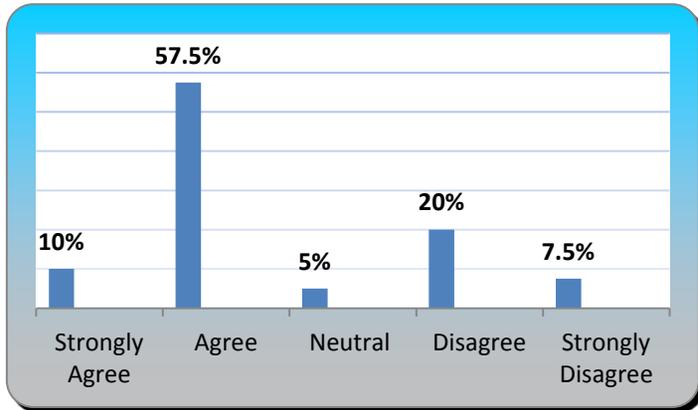
Common Reactions:

- A better balance of housing is needed.
- Better code enforcement and upkeep of rental homes is needed.
- There should be more residential development to support all housing options, i.e. low income, timeshares, senior, etc.

Analysis:

The polling indicated a fairly even split between those agreeing and disagreeing with the statement regarding the variety of housing options existing to accommodate residential needs near Muskegon Lake. Discussions during the breakout session frequently revolved around concerns of taxes increasing and the threat of mixed uses along the lakeshore.

Statement 2 - Distribution: It is possible for people with a range of income levels to live near Muskegon Lake.



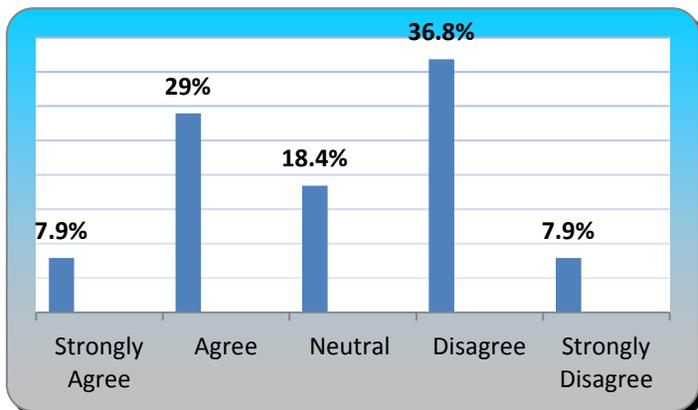
Common Reactions:

- Encourage remodeling and upgrades of existing homes to plan for housing needs of the future, not the past.
- The Shaw Walker complex problem must be resolved; take out the trailer park.
- There must be more options for senior residential housing on the lakeshore with decks, balconies, green space and elevators. The housing must also be affordable.
- There are limited “economical” housing options; this includes subsidized housing and housing options for adults with student debt load.

Analysis:

More than 67% of the polling participants agreed or strongly agreed with the statement regarding the distribution of affordable residential assets around Muskegon Lake. Improved boating access, more options for empty nesters, and more market rate and/or higher end housing options were also common themes during the breakout sessions.

Statement 3 - Accessibility: The proximity of residential assets to recreation, commercial, and natural space around Muskegon Lake is appropriate.



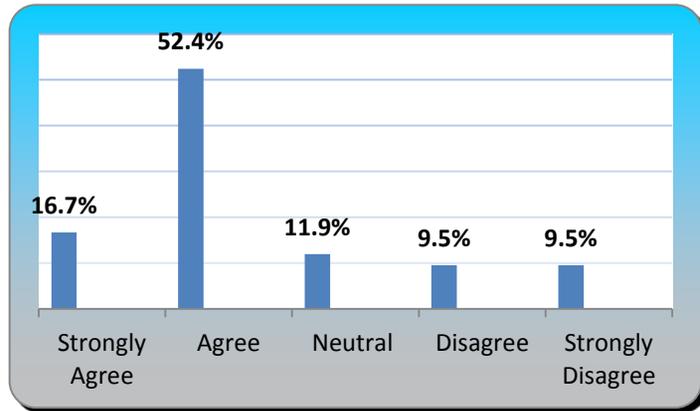
Common Reactions:

- Maintaining views of the lake for existing residential areas is important.
- There should be more publicity (signage/wayfinding) for public access areas, including the Lakeshore Trail and kayaking access.
- The bike trail needs more access points and spurs, especially at new shoreline residential development.
- The Lakeshore Trail needs to be more multi-modal, i.e. a means of which to walk to downtown Muskegon and other amenities.

Analysis:

More than half of the polling participants disagreed or strongly disagreed with the statement regarding the proximity of residential assets to recreation, commercial, and natural space around Muskegon Lake is appropriate.

Statement 4 - Aesthetics: The residential neighborhoods around Muskegon Lake add to the aesthetics of the area.



Common Reactions:

- Rental properties threaten the scenic beauty. Owner-occupied housing is better, as there is pride in owning a home.
- Old and closed buildings/industrial properties must be torn down and renovated to improve the scenic beauty.
- New housing must be done right, i.e. good building standards and enforced maintenance.
- Renovate old housing, as old housing decrease the scenic beauty around Muskegon Lake.

Analysis:

The chart shows that 69% of polling participants either agreed or strongly agreed that residential neighborhoods around Muskegon Lake add to the aesthetics of the area. With that, participants still felt that the rental housing and closed commercial building posed a threat to the aesthetic value in some of the residential areas.

Residential Forum Summary:

Comments and reactions collected during this forum reflected an overall positive attitude towards Muskegon Lake’s diverse and wide mix of housing and residential options around the lake. A majority of the participants felt that there are options for a wide range of income levels near the lake, but the variety may be somewhat limited. It was also the strong opinion of participants that the residential areas are crucial to the aesthetic value of the area surrounding the lake, with the mixed uses such as light commercial and recreation adding to this value. Listed below are additional needs and opportunities that came out of the breakout session:

- Sappi property renovation
- Code enforcement needs to be followed
- Trails and bike paths
- Preservation of existing homes and buildings
- More public access (not just boat launches)
- Public boating access downtown

A Sustainable Way Forward

The visioning process brought together community stakeholders of diverse interests and gathered input from the public sector, private sector, and interested citizens. As noted at the forums, Muskegon Lake is an extremely treasured asset to the community. Forum participants greatly value the resources of the lake, demonstrating tremendous pride in its future potential and a strong sense of responsibility towards its protection.



Intersection of Assets

The assets of Muskegon Lake are well-established and intersect regularly as citizens, visitors and businesses interact with Muskegon Lake. To facilitate a greater understanding of how the assets intersect, the next two pages provide a side by side review of common reactions recorded during the public forums.

NATURAL RESOURCES & ENVIRONMENT

Amount/Quantity

- More native plants and control of non-native invasive species is needed to bring back more native fish and wildlife.
- Habitats in tributaries need restoration to improve fish populations.
- Education about the state of the lake and its natural resources is needed for the public and for people who live along the lake.
- The amount of habitat is good, but there is too much hardened shoreline and not enough protection.

Distribution/Location

- There are too many rocks and seawalls.
- The Muskegon River mouth wetlands need to be contiguous with Muskegon Lake (in the M-120/Causeway area).
- Human needs (developments, trails, access) need to be blended and protective of the connectivity of aquatic and upland habitats.
- Funding is needed to protect, restore and reconnect aquatic and terrestrial habitats.

Accessibility

- More boat launches (and information to locate them) is needed.
- More public shore-fishing access areas are needed.
- Amenities are needed to make public access to natural resources more user-friendly.
- There is a need for more shoreline docks.

Aesthetics/Quality

- The quality of natural resources must be improved.
- Redevelopments that incorporate scenic beauty for former industrial sites are needed (Sappi and BC Cobb).
- Non-native invasive plant control and landowner education is needed.
- Restoration of the Muskegon River mouth wetlands is needed. There is beauty in the wetland plants and better access is needed to enjoy them.

OUTDOOR RECREATION

Amount/Quantity

- There is the capacity to increase recreation and recreation-based businesses.
- Additional transient and seasonal boat slips are needed.
- Environmental clean-up with subsequent public access is desired at sites along the bike path.
- Improved connectivity and way-finding signage are needed for bike trails around Muskegon Lake.

Distribution/Location

- Consistent signage around Muskegon Lake is needed.
- Additional recreation opportunities are needed in Downtown Muskegon.
- Fisherman's Landing needs to be improved or relocated

Accessibility

- Recreation assets and events need to be better advertised.
- Facilitate transit around the lake with more transient slips, a water taxi service, and an elevated boardwalk over the Muskegon Channel.
- Improve and promote accessibility to Downtown Muskegon via Muskegon Lake.
- Additional ADA accessible public access sites are needed.

Aesthetics/Quality

- More waterfront activities are desired, such as restaurants, retail, public beaches, kayak/canoe assets, festivals, and community events.
- Improve public relations regarding all recreation opportunities.
- Clean up and redevelop old industrial sites on the lake. Incorporate public access and natural features along the immediate lakeshore.
- Improve access to downtown for boaters, including usage of Heritage Landing bathroom facilities.

COMMERCIAL/PORT

Amount/Quantity

- More development is needed in terms of organization and volume. Additional funding is needed for the development to occur.
- Commercial activity threatens the scenic beauty of the lakeshore.
- There is a lack of participation among the public, as well as collaboration between various sectors (private, government, etc.).
- A vision for the shoreline and lake is needed from leaders and developers inside and outside of the region.

Distribution/Location

- Waterfront industrial and commercial assets surrounding Muskegon Lake should be concentrated in one geographic location in order to share infrastructure.
- Waterfront industrial and commercial assets should be distributed throughout waterfront property surrounding Muskegon Lake to look like it fits within the environment/neighborhood. Visually stimulating aesthetics is important as long as it does not restrict public access to the waterfront or lake itself.
- Keep existing commercial/port business in their current locations—do not move them.
- Introduce a viewing point for port shipping from a restaurant or other space.

Accessibility/Economics

- There is a lack of public cooperation, as well as governmental agreement.
- There are weaknesses in the shipping industry, such as a short shipping season and the size of ships.
- There is a lack of communication with the public.
- There is opportunity for development in many areas, such as the B.C. Cobb plant.

Aesthetics/Quality

- Aesthetics will not be negatively impacted if development is planned strategically.
- Commercial development will decrease visibility to scenic views and have a negative environmental impact if the area is not well-maintained/sustained.
- Development will increase tourism, but the development needs to be more visible to tourists.
- Access to Muskegon Lake for recreational use must be maintained.

RESIDENTIAL

Amount/Quantity

- A better balance of housing is needed.
- Better code enforcement and upkeep of rental homes is needed.
- There should be more residential development to support all housing options, i.e. low income, timeshares, senior, etc.

Distribution/Location

- Encourage remodeling and upgrades of existing homes to plan for housing needs of the future, not the past.
- The Shaw Walker complex problem must be resolved; take out the trailer park.
- There must be more options for senior residential housing on the lakeshore with decks, balconies, green space and elevators. The housing must also be affordable.
- There are limited “economical” housing options; this includes subsidized housing and housing options for adults with student debt load.

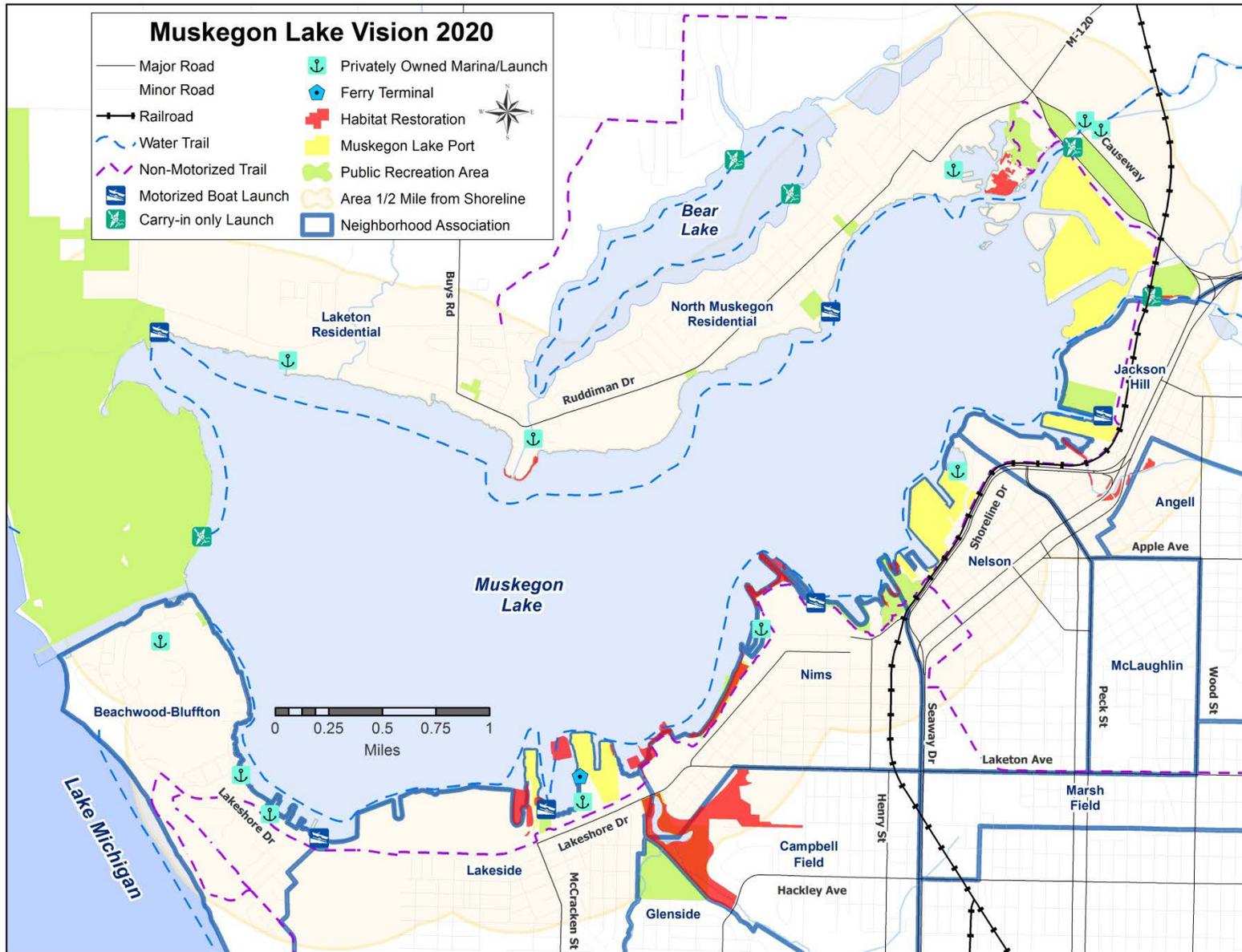
Accessibility

- Maintaining views of the lake for existing residential areas is important.
- There should be more publicity (signage/wayfinding) for public access areas, including the Lakeshore Trail and kayaking access.
- The bike trail needs more access points and spurs, especially at new shoreline residential development.
- The Lakeshore Trail needs to be more multi-modal, i.e. a means of which to walk to downtown Muskegon and other amenities.

Aesthetics/Quality

- Rental properties threaten the scenic beauty. Owner-occupied housing is better, as there is pride in owning a home.
- Old and closed buildings/industrial properties must be torn down and renovated to improve the scenic beauty.
- New housing must be done right, i.e. good building standards and enforced maintenance.
- Renovate old housing, as old housing decrease the scenic beauty around Muskegon Lake.

The following map provides a visual reference of Muskegon Lake assets to illustrate their intersection and geographic orientation.

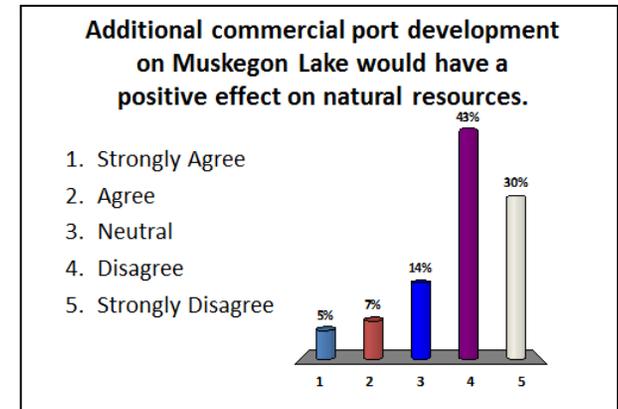
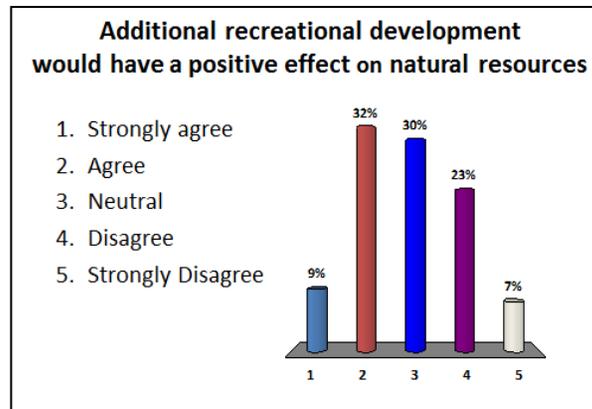
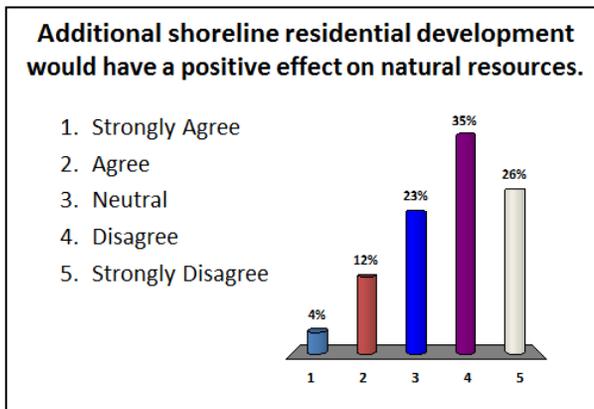


In addition to evaluating each asset individually, participants also responded to questions designed to shed light on the relationships between the assets. The following pages discuss perceptions of how Muskegon Lake assets interact, as well as their potential impacts upon each other.

Natural Resources

- 61% of forum participants disagreed or strongly disagreed that additional shoreline residential development would have a positive effect on natural resources. (23% were neutral and 16% either agreed or strongly agreed)
- 41% of participants agreed or strongly agreed that additional recreational development would have a positive effect on natural resources. (30% were neutral and 30% either disagreed or strongly disagreed)
- 73% of forum participants disagreed or strongly disagreed that additional commercial port development on Muskegon Lake would have a positive effect on natural resources. (14% were neutral and 12% either agreed or strongly agreed)

Polling data suggests that participants generally felt additional residential, recreation, and commercial port development would not have positive effects on the natural resources on Muskegon Lake. The breakout session responses clarified that the attendees believe that development of other assets has the *potential* to negatively impact the natural resources of Muskegon Lake. Furthermore, attendees suggested that future developments should incorporate and protect natural resource assets to mitigate against potential negative impacts of development.



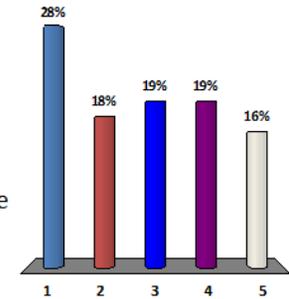
Outdoor Recreation

- 46% of forum participants agreed or strongly agreed that additional residential development around Muskegon Lake would affect recreation positively. (19% were neutral and 35% either disagreed or strongly disagreed)
- 89% of participants agreed or strongly agreed that additional natural resource enhancements would positively affect recreation. (5% were neutral and 6% either disagreed or strongly disagreed)
- 46% of forum participants disagreed or strongly disagreed that additional commercial port development on Muskegon Lake would affect recreation positively. (34% either agreed or strongly agreed and 21% were neutral)

Forum attendees overwhelmingly believe that any additional enhancements to the natural resources of Muskegon Lake would have a positive impact on recreation. Perceptions of the other assets were less decisive. One of the most commonly identified needs across the public forums was to maintain and increase public access.

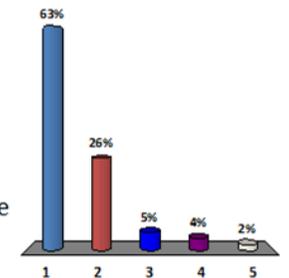
Additional **residential** development around Muskegon Lake would affect **recreation** positively.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



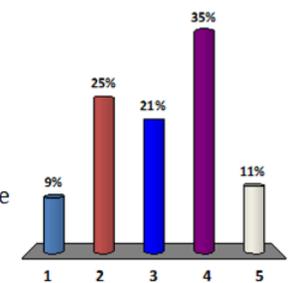
Additional **natural resource** enhancements would affect **recreation** positively.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



Additional **commercial port** development on Muskegon Lake would affect **recreation** positively.

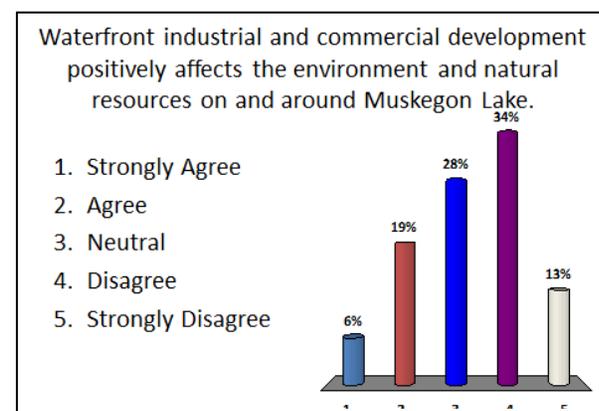
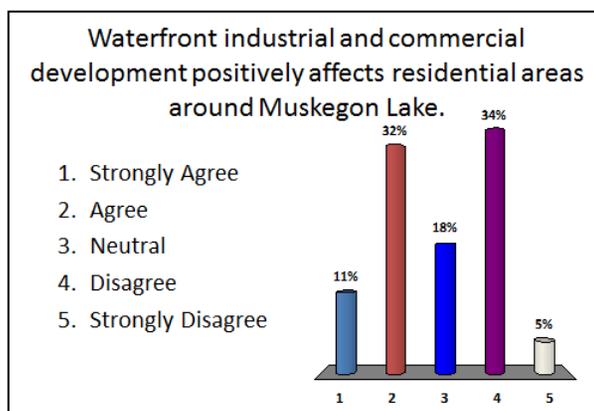
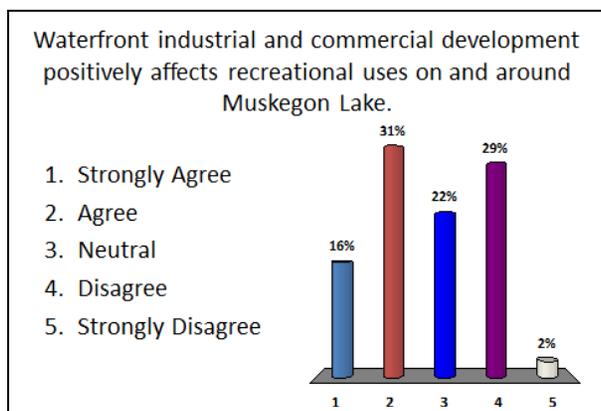
1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



Commerce/Port

- 47% of forum participants agreed or strongly agreed that waterfront industrial and commercial development positively affects recreational uses on and around Muskegon Lake. (31% either disagreed or strongly disagreed and 22% were neutral)
- 43% of participants agreed or strongly agreed that waterfront industrial and commercial development positively affects residential areas around Muskegon Lake. (39% either disagreed or strongly disagreed and 18% were neutral)
- 47% of forum participants disagreed or strongly disagreed that waterfront industrial and commercial development positively affects the environment and natural resources on and around Muskegon Lake. (28% were neutral and 25% either agreed or strongly agreed)

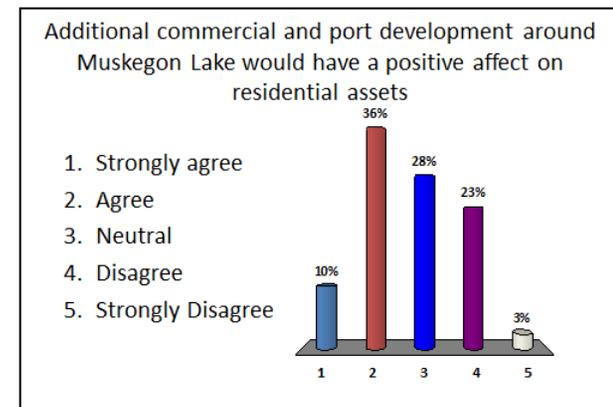
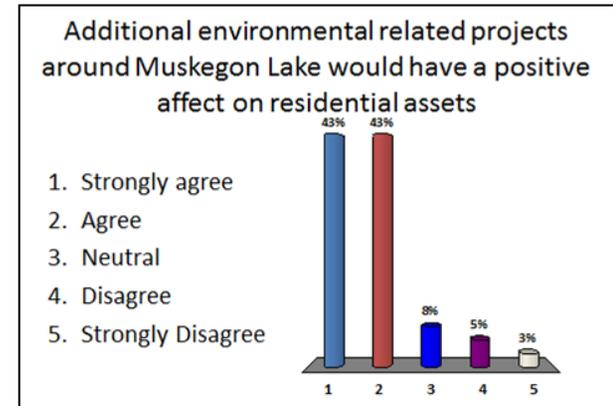
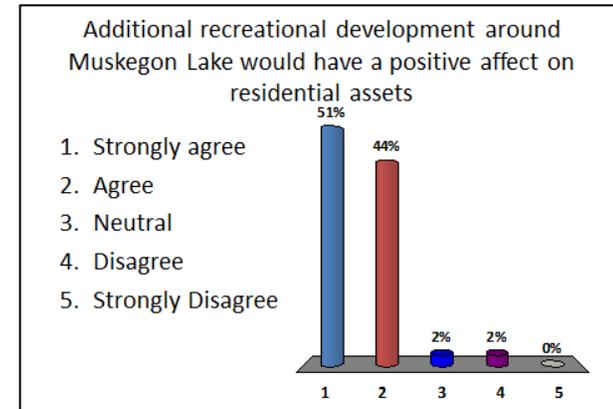
Respondents were fairly split on their beliefs regarding the impact of natural resources, recreation and residential development on commercial port uses on Muskegon Lake. A significant portion of participants remained neutral on each of the responses. Comments indicated that any potential effects of commercial development would be contingent upon the character of that development.



Residential

- 95% of forum participants agreed or strongly agreed that additional recreational development around Muskegon Lake would have a positive impact on residential assets. (2% were neutral and 2% disagreed)
- 86% of participants agreed or strongly agreed that additional environmental related projects around Muskegon Lake would have a positive effect on residential assets. (8% were neutral and 8% either disagreed or strongly disagreed)
- 46% of participants agreed or strongly agreed that additional commercial and port development around Muskegon Lake would have a positive effect on residential assets. (28% were neutral and 26% either disagreed or strongly disagreed)

Attendees overwhelmingly believed that both additional recreation and natural resources development would have a positive impact on residential assets of Muskegon Lake. Responses regarding additional commercial port development were more evenly distributed.



Common Themes & Perceptions

An analysis of forum comments uncovered a number of commonalities which fall into the following ten themes. These statements may be perceived as priorities identified by the public for the future use and development of Muskegon Lake assets.

- **Increased Promotion of Recreational Opportunities**
- **Additional Recreational Activities**
- **More Public Access**
- **Improve Signage and Wayfinding**
- **Protect/Improve Scenic Beauty and Lake “Views”**
- **Cleanup of Blighted Properties**
- **Continued Habitat Restoration, Softening of Shoreline, and Environmental Stewardship**
- **Increased Housing Options**
- **Better Communication**
- **Increased Cooperation and Collaboration**

Conclusions

The citizens of Muskegon County take great pride in Muskegon Lake and its rich history as an economic engine for the community. They remember the environmental degradation that occurred which led to the lake's designation as a Great Lakes Area of Concern. They have also witnessed the incredible transformation of the lake and surrounding community over the past thirty years as cleanup efforts and new development projects have taken place.

During the four public forums, participants shared their passion and love for Muskegon Lake, as well as their desire for it to reach its full potential as a regional economic catalyst. To realize that potential, the community must work together on future development efforts and market/promote the assets of Muskegon Lake. However, understandably, there is great concern that future development related to Muskegon Lake occurs in a sustainable manner. Maintaining the environmental integrity of Muskegon Lake well into the future was a main theme shared by attendees of all four forums.

Utilizing Muskegon Lake as a recreational draw was another common theme discussed in the forums. Public access to the lake was a priority for many attendees. Participants noted the need for additional opportunities to interact with Muskegon Lake through viewing (such as additional restaurants overlooking the lake), lakefront parcels, fishing piers, boat launches, transient boat slips, and even a water taxi to transport people to various locations around the lake.

Participants realized the economic importance of Muskegon Lake and are interested in the potential for future commercial port development. However, some concerns were raised as to the location and type of such development. Some participants wanted commercial port development to be concentrated along the eastern portion of the lake, while others wanted to make sure that existing commercial port facilities are supported in their current location. Overall, many attendees supported additional commercial port development on Muskegon Lake, so long as it (1) is conducted sustainably, (2) does not detract from the aesthetic beauty of the shoreline, and (3) is not a nuisance. Ninety-eight percent of participants at the Commerce/Port forum agreed or strongly agreed that waterfront industrial and commercial development on Muskegon Lake positively affects the West Michigan economy.

Forum participants generally had a positive attitude toward the residential assets around Muskegon Lake and the value they add to the community. Attendees expressed a desire to see blighted properties remediated and revealed a need to increase the number and variety of housing opportunities. Maintaining public access to Muskegon Lake and scenic viewsheds were also priorities.

Due to the relationships between Muskegon Lake's many assets, any future development, whether Natural Resources, Recreation, Commercial Port or Residential, must consider all other uses to maintain the sustainability of Muskegon Lake. Citizens, community leaders, elected officials, and the private sector must all work together to bring this vision to a reality.