The Economic Benefits of the Grand River Waterway

Prepared by:
Anderson Economic Group, LLC
Cristina Benton, Director of Market and Industry Analysis
Sara Bowers, Senior Analyst

Commissioned by:
Grand River Waterway
## Table of Contents

**Executive Summary** .................................................. 1  
  Purpose of Report .......................................................... 1  
  Approach ............................................................................ 2  
  Overview of Findings ....................................................... 2  
  About Anderson Economic Group ...................................... 5  

**Grand River Waterway Project Overview** ............... 6  
  About Grand River Waterway ........................................... 6  
  The Grand River ............................................................... 7  
  River Dredging ................................................................. 9  
  Comparable River Dredging Projects ............................. 9  

**Current Conditions in the Project Area** ............... 12  
  Current Use of the River in the Project Area ................ 12  
  Boating in West Michigan .............................................. 12  
  West Michigan Economy ............................................... 13  
  Tourism in the Project Area ............................................. 14  

**Economic Impacts of the Dredging Project** .......... 17  
  Economic Impact Defined ............................................... 17  
  Economic Impact of Dredging and Maintenance ........ 17  
  Economic Impact of Net New Visitors ......................... 18  
  Impact of Dredging on Residential Property Values .. 20  

**Additional Benefits from the Project** .................. 23  
  Sources of Additional Benefits ...................................... 23  
  Changes in Future Land Use ......................................... 25  

**Assets and Challenges** ............................................. 27  
  Assets ............................................................................. 27  
  Challenges ...................................................................... 28  

**Appendix A. Methodology** ................................. A-1  

**Appendix B. Similar Projects** ................................. B-1  

**Appendix C. Sources of Data** ................................. C-1  

**Appendix D. About AEG** ........................................ D-1
I. Executive Summary

PURPOSE OF REPORT

The Grand River Waterway organization was formed to pursue the Grand River Waterway (GRW) project. The project covers the 23-mile section of Grand River between the Bass River Inlet near Eastmanville and the Fulton Street Bridge in Grand Rapids. The main goal of this project is to return safe navigation for recreational boating on the Grand River. To this purpose, the State of Michigan completed a dredging feasibility study in 2017, and provided grant funding for a soils analysis and an analysis of the economic benefits of the project. The Grand River Waterway organization retained Anderson Economic Group to conduct an in-depth study of the economic benefits of the Grand River Waterway project on West Michigan.¹

FIGURE 1. Grand River Waterway Overview

1. For our analysis, we defined the West Michigan region as Kent and Ottawa Counties.
EXECUTIVE SUMMARY

To assess the economic benefits that are likely to be realized in Ottawa and Kent Counties if the Grand River Waterway project is undertaken, we took the following steps:

1. Documented baseline economic, land use, and river usage conditions in Kent and Ottawa County, as well as the proposed scope of the dredging project;
2. Conducted a market visit and interviews with local stakeholders and marina operators;
3. Identified and reviewed similar river dredging projects and related analyses that have occurred in other communities;
4. Estimated economic impacts and benefits of the dredging project and increased recreational users on Kent and Ottawa counties;
5. Analyzed residential property sales data to estimate effects on property values stemming from a dredged river; and
6. Assessed other benefits, including the more difficult to quantify economic benefits that are expected to stem from new and enhanced uses of the river in Kent and Ottawa Counties.

Our methodology focuses on net new economic activity. This conservative approach accounts for substitution of economic activity so as not to include spending or activity that would happen in the absence of the project. See “Appendix A. Methodology” on page A-1 for more information.

OVERVIEW OF FINDINGS

1. Boating and water-related recreation are popular activities in West Michigan, as evidenced by over 77,000 registered boats in Kent and Ottawa Counties.

   • There is a high level of interest in boating in the West Michigan region and the vast majority of registered boats are used for recreational purposes. Additionally, the penetration rate of registered boats to households is higher in this region than across the state overall.

   • Boating is a very popular recreational activity in Michigan. Boater surveys show that 33.7 percent of Michigan households participate in recreational boating, and individual participation rate in Michigan is 37.0 percent.

   • Michigan has the third largest marine market in the country, with over 900,000 registered watercraft and a reported economic impact of $7.4 billion annually.

See “Boating in West Michigan” on page 12.
2. This investment in dredging brings important economic benefits to the West Michigan region, including a $3.6 million impact from the initial dredging and an economic impact of up to $5.7 million annually from increased visitor spending.

- The initial dredging project will result in a one-time economic impact of about $3.6 million, and the annual maintenance would increase output by $282,000 annually.

See “Economic Impact of Dredging and Maintenance” on page 17.

- Increased recreational opportunities and the improved water quality may generate up to 49,000 net new visitor days annually, spending of $3.3 million, and an annual net new economic impact of up to $5.7 million.¹

See “Economic Impact of Increased Recreational Spending” on page 19.

- We estimate that the property value premium associated with dredging could add 16.9 percent, or about $54.4 million, among the hundreds of residential properties along the Grand River, resulting in increased property tax collections of about $614,000 for municipalities along the river.

See “Impact of Dredging on Residential Property Values” on page 20.

### TABLE 1. Summary of Economic Impacts

<table>
<thead>
<tr>
<th>Component</th>
<th>Output</th>
<th>Earnings</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Dredging</td>
<td>$3.6 million</td>
<td>$1.0 million</td>
<td>20</td>
</tr>
<tr>
<td>Ongoing Dredging</td>
<td>$282,000</td>
<td>$79,000</td>
<td>2</td>
</tr>
<tr>
<td>Visitor Spending</td>
<td>$5.7 million</td>
<td>$1.7 million</td>
<td>56</td>
</tr>
</tbody>
</table>

Source: Anderson Economic Group, LLC

3. The Grand River Waterway project will bring additional long-term benefits and recreational opportunities to the West Michigan region.

- Dredging the river and removing obstructions and built-up sediments in the channel will open up the river to more boats and larger boats, increasing recreational opportunities for residents and visitors. Increased opportunities may lead to visitors extending their stay if they come for purposes other than river recreation, or inviting additional travelers to take advantage of the expanded river recreation. This may also encourage residents to stay in the region for recreation rather than traveling to other destinations.

- The Grand River Waterway project, combined with other river restoration efforts, will help return the river to its original state and expand recreational opportunities for residents and all types of visitors. The Grand Action Asset Study recognizes the need to leverage the Grand River to grow the city as a convention destination.

---

¹ We note that the net new visitor days represent new visitors from outside of the West Michigan region.
Executive Summary

- The dredging of the Grand River will likely lead to the development of more boating-related businesses in the West Michigan region, such as marinas and restaurants, and provide more opportunities to keep recreation spending in the region.

- Potential changes in land use could help make the river more accessible and provide opportunities for residential and commercial development in the project area. In some communities including Grandville, residents want to make increased access to the river an priority.

See “Additional Benefits from the Project” on page 23.

4. The West Michigan region has critical assets that could contribute to the success of the Grand River Waterway project, as well as challenges that can be addressed to benefit the project.

- In terms of assets, the West Michigan region already has a strong pull for attracting tourists, which could be beneficial in increasing the visibility of the project. Improving access to the river would add to the available activities in the region, and could increase the length of stay and amount of spending from tourists. There are also opportunities for private residential and commercial development which could increase employment and property values in the two counties.

See “Assets” on page 27.

- In terms of challenges, the available visitor attractions as well as boating and recreation-related businesses are concentrated in Grand Rapids and Grand Haven. There are opportunities to add destinations between these cities; a lack of a destination between the cities may inhibit visitors from boating along the river between Grand Rapids and Lake Michigan. More boat launches and marinas are needed to provide access to the river, especially in the Grand Rapids area. Additionally, some community members and river users have expressed concerns about conflicting interests between river users.

See “Challenges” on page 28.
ABOUT ANDERSON ECONOMIC GROUP

Anderson Economic Group, LLC is a boutique research and consulting firm, with offices in East Lansing, Michigan; Chicago, Illinois; and New York, New York. Our team has a deep understanding of advanced economic modeling techniques and extensive experience in multiple industries in multiple states and countries. We are experts in estimating economic impacts of a variety of projects, initiatives, and policies across Michigan and the United States.

Past clients of Anderson Economic Group include:

- **Nonprofit organizations:** Convention and visitor bureaus of Lansing, Washtenaw County, Traverse City, Detroit, and Grand Rapids; higher education institutions including Michigan State University, Wayne State University, and University of Michigan; trade associations such as the Michigan Manufacturers Association, Service Employees International Union, Experience Grand Rapids, Automation Alley, the Michigan Chamber of Commerce, and Business Leaders for Michigan.

- **Governments:** The federal government of Canada; the states of Michigan, North Carolina, Wisconsin, Kentucky, and Tennessee; the cities of Detroit, Cincinnati, and Sandusky; counties such as Oakland County, and Collier County; and authorities such as the Detroit-Wayne County Port Authority.

- **Corporations:** Ford Motor Company, First Merit Bank, Lithia Motors, Relevant Sports, Spartan Stores, Meijer, Nestle, and InBev USA; automobile dealers and dealership groups representing Toyota, Honda, Chrysler, Mercedes-Benz, General Motors, Kia, and other brands.

See “Appendix D. About AEG” on page D-1.
II. Grand River Waterway Project Overview

In this section, we provide a description of the project, define dredging, and summarize similar dredging projects.

ABOUT GRAND RIVER WATERWAY

The Grand River Waterway is an initiative to improve safety and accessibility of the Grand River, specifically in the 23-mile stretch between the Bass River Inlet in Ottawa County and the Fulton Street Bridge in downtown Grand Rapids.

Scope of the Project

The Grand River Waterway (GRW) project involves returning safe navigation for shallow-draft recreational boating on a 23-mile stretch of the Grand River. The portion of the river planned for dredging will begin in Ottawa County at the Bass River inlet and continue upstream to the Fulton Street bridge in downtown Grand Rapids, in Kent County. See Figure 2 below.

FIGURE 2. Overview of Grand Rapids Waterway Project Area

The area from the Bass River inlet to Grand Haven and Lake Michigan is regularly dredged, so the GRW project will allow recreational boaters to travel from
Grand River Waterway Project Overview

Lake Michigan all the way to Grand Rapids. The U.S. Army Corps of Engineers considers the entire portion of the Grand River from Grand Haven Harbor to Fulton Street to be a navigable waterway; however, the current conditions from the Bass River inlet to Fulton Street are hazardous to most vessels.

Currently, this area of the river is scattered with abandoned pilings, structures, and areas of shoaling. Removing materials from the river channel and maintaining an average channel depth of seven feet will make the river safer for recreational boating. The initiative also aims to create a catalyst for the development of new businesses along the river, including marinas, restaurants, lodging, and residential units. Lastly, the project will help protect and improve water quality and wildlife habitats.

The Organization

Grand River Waterway was founded to spearhead this initiative. In particular, Grand River Waterway is working to complete the necessary studies, secure support from local and state leaders, and secure funding to support the project. An environmental study will be conducted to ensure that effects of the dredging on wildlife will not be harmful in the long run. GRW secured a grant in May 2017 to fund environmental and economic studies for the project.

THE GRAND RIVER

The Grand River is Michigan’s longest river, at 270 river miles. It has been, and continues to be, an important resource and travel route through Michigan. In the mid 19th century, the city of Grand Rapids became a major lumbering center and the Grand River was used to transport logs from elsewhere in the region, leading to the development of one of the city’s biggest industries: wood furniture. The Grand River also provided a travel route for steamboats that carried passengers and raw materials along the river. Flooding on the river in the late 19th and early 20th centuries sparked improvements on the river, including floodwalls to protect the city. Beautification efforts on the river began in the 1920s and five dams were added to the river in an effort to keep water levels higher during summer months. Recently, there has been interest in renewing and revitalizing the river. The city of Grand Rapids invested $400 million to

2. Note that efforts to clean and maintain the river will be focused on the channel and not the entire width of the river.
renovate the city’s storm water system, helping the river to recover in many ways such as eliminating raw sewage spills into the river.6

Grand River Dredging Studies

The 1978 Study. In 1978, the Army Corps of Engineers released a preliminary feasibility study on dredging a section of the Grand River. The study concluded that existing conditions on the river restricted safe navigation and only non-motorized shallow-draft watercraft were considered safe to use in this section of the Grand River.7

The 2017 Study. A feasibility study was commissioned by the State of Michigan and completed by Edgewater Resources LLC in 2017. Results showed that the cost will be significantly lower than the similar study conducted in the late 1970s.

Grand Rapids Whitewater Project

Grand Rapids Whitewater, a non-profit organization, is dedicated to removing dams on the Grand River through downtown Grand Rapids. The riverbed will be restored to its natural form, including revealing a limestone bed and adding reefs and boulders to increase spawning habitats for native fish species. Boulders and rock formations will also create whitewater rapids for paddlers to enjoy. Parks, pathways, and boat launches will be added to the areas directly adjacent to the river.8 The project has been in the works for several years and is currently in an early implementation phase. The Grand River Waterway project will go hand-in-hand with the Grand Rapids Whitewater project to help restore the river to its original state.

Grand Action Destination Asset Study

The Grand Action Committee is tasked with identifying revitalization projects in downtown Grand Rapids, building public support for the projects, and implement funding strategies for the projects. In a recent Destination Asset Study, the Grand River was identified as an important asset to leverage and develop, as it is a unique feature in an urban setting. Signage, personal storage space, and access points could be useful in encouraging more city visitors to use the river.


It will be important for public and private leaders to continue to lead the development of this asset.9

RIVER DREDGING

“Dredging” is the process by which sediments and debris are removed from the bottom of lakes, rivers, harbors, and other water bodies.10 Natural processes in rivers and water bodies wash sand and silt downstream, which can gradually fill channels and harbors. This can make rivers dangerous or impossible for boats to navigate. Dredging can play an important economic role when rivers and lakes provide shipping routes for industries or are a big draw for tourism and supporting industries.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) dredges waterways throughout the country to support the movement of critical commodities and provide recreational opportunities, and issues permits for the disposal of dredged materials.11 The USACE also issues permits for dredging projects in navigable waterways by balancing benefits and pitfalls of proposed projects, as well as by recognizing the value of the waterways to the general public.12 The USACE currently maintains 66 harbors and rivers in Michigan, of which 40 are recreational projects, 22 are commercial projects, and 4 are used for recreational and commercial purposes.13 In 2017, the USACE spent about $43 million on Michigan projects.14

COMPARABLE RIVER DREDGING PROJECTS

In this section, we describe four comparable river dredging projects to identify benefits stemming from the dredging projects on river usage, recreational opportunities, and boating-related industries. These comparable projects inform our analysis of potential impacts of the Grand River Waterway on the surrounding area. They also help us identify necessary assets and potential pitfalls in completing the project. The waterway projects we identified include:

• Grand River from Bass River Inlet to Lake Michigan, Michigan
• Inland Route-Indian River Area, Michigan
• Dania Cutoff Canal, Florida
• Ottawa River, Ohio

**Grand River from Bass River Inlet to Lake Michigan.** This section of the Grand River covers 17 miles and it is maintained regularly by the USACE. Recreational boating is a popular recreational activity for residents and visitors alike in the Grand Haven and Spring Lake area. Numerous marinas and other businesses supporting boating are located along the river. Users have access to the river through a number of county, township, and municipal boat launches.

**Inland Route-Indian River Area.** The Inland Route is a series of interconnected lakes and stream stretching across the northern tip of Lower Peninsula in Michigan, for a total of 38.2 miles. The USACE maintains the route to support recreational boating. The area around Indian River is a popular motor-boating destination. The local infrastructure to support boating is relatively limited along the waterway, with some marinas, lodging, restaurants, and shopping available mainly in Indian River and Cheboygan.

**Dania Cutoff Canal.** The Dania Cutoff Canal is located in Dania Beach, Florida and connects the City of Dania Beach to the Intracoastal Waterway. The area is popular for recreational boating, and was dredged in 2013 to promote increased yacht activity and related boat yard services. It is also an important corridor to maintain for wildlife traveling through the region. The canal has several marinas that offer hundreds of wet slips, dry storage, and a variety of maintenance and other related services. Commercial shipping businesses in the area also use the canal for their business operations.

**Ottawa River, Ohio.** The Ottawa River was dredged in 2010 for environmental purposes, to clean runoff and discharges from landfills and industrial facilities, and is already seeing improvements in the water quality. A second phase of dredging has been proposed to enhance and preserve aquatic habitat and to improve navigation for boaters. The Ottawa River area is home to 16 marinas and yacht clubs, two boat launch ramps, and 60 additional businesses that serve recreational boaters. When the second phase is completed, slips will be able to be safely used for more and larger boats.
See “Appendix B. Similar Projects” on page B-1 for more information on these dredging projects.

### TABLE 2. Summary of Comparable Dredging Projects

<table>
<thead>
<tr>
<th>River</th>
<th>Length</th>
<th>Location</th>
<th>Date Last Dredged</th>
<th>Use of Dredging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand River</td>
<td>17 miles</td>
<td>Grand Haven to Bass River Inlet, Michigan</td>
<td>2017</td>
<td>Recreation</td>
</tr>
<tr>
<td>Inland Route</td>
<td>38.2 miles</td>
<td>Northern Lower Peninsula, Michigan</td>
<td>2010</td>
<td>Recreation</td>
</tr>
<tr>
<td>Dania Cutoff Canal</td>
<td>2 miles</td>
<td>Dania Beach, Florida</td>
<td>2013</td>
<td>Recreation and Commercial</td>
</tr>
<tr>
<td>Ottawa River</td>
<td>5.5 miles</td>
<td>Toledo, Ohio</td>
<td>2010</td>
<td>Environment</td>
</tr>
</tbody>
</table>

*Source: AEG analysis of sources listed in Appendix C.*
III. Current Conditions in the Project Area

In this section, we assess the current conditions in the project area to provide a baseline for our economic impact estimates and economic benefit discussion.

CURRENT USE OF THE RIVER IN THE PROJECT AREA

The Grand River in the GRW project area is used by small and non-motorized boats. Pilings and shoaling in the river channel make it difficult for larger boats to navigate safely without extensive knowledge of the river features. Canoeing, kayaking, and fishing are common activities on the Grand River. Some pontoon boats and small power boats are also currently used in the project area.

Currently, from the Bass River Inlet to Fulton Street, there are no marinas, country clubs, or sailing clubs directly on the river. There are six boat launches, mainly in the public parks along the river: Millennium Park; Grandville; Grand River Park in Georgetown Township; Deer Creek Park in Coopersville; Eastmanville; and the Bass River Recreation Area.

The Bass River Recreation Area is a state recreation area with three miles of frontage on the Grand River. The Eastmanville Boat Launch allows access on the Grand River or the Eastmanville Bayou for fishing or recreational boating. Deer Creek Park is a two-acre Ottawa County park with space for fishing and picknicking, and the boat launch accommodates small boats and canoes. Grand River Park is an Ottawa County park with a boat launch for small boats and an accessible launch for canoes and kayaks. Millennium Park is a 1,400-acre Kent County park with six miles of frontage on the Grand River and a boat launch for small and non-motorized boats. The City of Grandville’s boat launch offers access to the Grand River for small and medium-sized watercraft. Downtown Grand Rapids has several parks from which residents and visitors may access the Grand River for fishing and limited boating.

BOATING IN WEST MICHIGAN

Statewide Boating. Boating is a popular recreational activity because anyone can participate, regardless of age or physical ability. A recent survey of recreational boating in the United States showed that 33.7 percent of Michigan households participated in recreational boating. The boat ownership rate among Michigan households was 29.2 percent. In Michigan, the individual participation rate in recreational boating was 37.0 percent. In the Midwest, the age group with the highest recreational boating participation rate was the 16 to 24 group, at 34.9 percent. Participation dropped off substantially after the age of 64. According to the survey, the most popular type of boat used recreationally in the Midwest was a power boat. Pontoons were the second most popular type of boat. The most popular activities that boaters participated in while boating were relaxing alone or with friends, socializing, and cruising.15
As the Michigan economy continues to grow, so does interest in boating. Fishing and pontoon boats have become increasingly popular options in recent years. In 2015, boat sales in Michigan were the third highest in the nation, behind only Florida and Texas.

**West Michigan Watercraft Ownership.** As of May 2018, the Western Michigan area (Kent and Ottawa Counties) had a total of 77,023 watercraft registrations, or 8.5 percent of Michigan’s watercraft registrations. The Western Michigan area had an average of 0.22 registered watercraft per household, compared to 0.21 in Michigan overall. Assuming the same distribution of types of watercraft as the state level, 96.8 percent or about 74,560 registered watercraft are for recreational or pleasure uses.

See Figure 5 on page A-14 for more information on registered boats by county in Michigan.

**Recreation Spending.** In the West Michigan region, the average household spends about $2,800 annually on entertainment and recreation, or about 4.5 percent of total annual household expenditures. This spending may include recreational lessons, payments or rental fees for boats, recreational vehicles, or similar items; or equipment for camping, fishing, or hunting, among other things.

The Grand Rapids area has one of Michigan’s strongest economies. It is home to a variety of industries, with businesses in health care, manufacturing, finance, and law-related fields. There are also a number of businesses that are complimentary to a vibrant recreation economy, including restaurants, hotels, sporting goods stores, boat dealers, and water transportation businesses. These water recreation-related businesses employed over 7,700 workers in 2017 and had about $538 million in sales.

---


18. Michigan Department of State, May 2018. Total registrations include pleasure, commercial, livery, and other watercraft. Pleasure watercraft make up 96.8 percent of total watercraft registrations in Michigan. 48,215 registered watercraft in Michigan, or 5.3 percent, are registered to owners outside of the state.

19. Note that this does not include watercraft that the state does not require registration on, including canoes, kayaks, and other small non motorized vessels not for commercial use.

Current Conditions in the Project Area

In the West Michigan region, there are a number of businesses that support river-based recreation and depend, in part, on continued outdoor recreation and use of the Grand River. Within Kent and Ottawa Counties, there are about 36 businesses with the main purpose of storing boats and recreational watercraft, including marinas, boat repair and marine service businesses, storage centers, and boathouses. These businesses employ over 200 people in the area and generate over $46 million in sales annually. The region is also home to nearly 60 boat dealers and support businesses, which together employ over 500 people and generate about $139 million annually. See Figure 3 below for a map of businesses in the project area.

FIGURE 3. Boating and Water Recreation-Related Businesses in Project Area

TOURISM IN THE PROJECT AREA

Grand Rapids is one of the most popular tourist destinations in Michigan. It was named one of the New York Times “52 Places to Go in 2016,” is known as

22. Infogroup Business Listings via ESRI, Inc.
“Beer City USA,” and is home to one of the world’s top five festivals. Millions of tourists visit the Grand Rapids area each year for concerts, conferences, or to visit museums, Frederik Meijer Gardens, or a number of other attractions.

There are three major event centers in downtown Grand Rapids that attract thousands of visitors for a variety of purposes: DeVos Place convention center, DeVos Performance Hall, and Van Andel Arena. Several hotels and a variety of restaurants in the downtown area provide the capacity for overnight visitors who wish to visit the region for multiple purposes.

**FIGURE 4. Attractions in the Project Area**

---

**Master Plans and Land Use**

**Kent County.** Along the project area in Kent County, including Grand Rapids and Grandville, land uses directly adjacent to the river are primarily industrial and highway or other transportation land uses. The cities acknowledge these

Current Conditions in the Project Area

limitations, and the Master Plans for both cities call for changes in future land uses. The Grand Rapids Master Plan calls for expanding the visibility and accessibility of the river, and changing the pattern of land use to encourage open space and mixed-use development along the river instead of industrial development and highways.24 The Master Plan for Grandville calls for improving pedestrian connections, especially across the river. This, along with creating riverfront recreation amenities, were high priorities to respondents in a community input survey. To increase access to the river, a non-motorized watercraft launch combined with trailhead and picnic area and ADA accommodations has been proposed.25 Currently, a main road runs along/near river so there is not much space for riverside activity.

In Walker, Millennium Park occupies most of the city’s river frontage. The park has a boat launch to the Grand River as well as walking and biking trails. There is some land along the river that could be redeveloped to support the GRW project.

**Ottawa County.** The Grand River Greenway Initiative recognizes the Grand River as one of the most important economic features in West Michigan, offering diverse natural resource features and recreation potential. Through this initiative, Ottawa County is working to connect the Grand River with a pedestrian-oriented trail system that will link Grand Rapids with Grand Valley State University, Grand Haven, and the lakeshore. This effort to create a connected network of parks and open space along the river may help to increase opportunities for outdoor recreation along the Grand River.

In communities along the project area of the Grand River in Ottawa County, most of the land is used for agricultural or rural residential uses and is in the floodplain, which limits development potential. Georgetown Township has some commercial frontage on river.26

24. City of Grand Rapids Master Plan, adopted February 2005
26. Georgetown Township Master Plan 2015-2020
   Allendale Charter Township 2013 Master Plan, adopted July 2013
   Polkton Charter Township Official Zoning Map, July 2013
   Tallmadge Township Zoning Map, May 2013
IV. Economic Impacts of the Dredging Project

In this section, we examine the economic impacts of the Grand River dredging project. The sources of economic impact would stem from:

- Spending on initial dredging and ongoing dredging maintenance;
- Increases in spending by visitors who would otherwise not spend money in Kent or Ottawa County in the absence of the dredging project; and
- Increases in home values occurring as a result of the dredging project.

ECONOMIC IMPACT DEFINED

The economic impacts of the project would result in increased output (sales by businesses), household earnings, and employment in Kent and Ottawa Counties. In our analysis, we identify the economic impacts that would occur in the region because of project. We do this by comparing the total economic activity in the region as it currently is, to the total economic activity in the region under a scenario in which the river is dredged. The additional economic activity that would happen under the dredging scenario is referred to as the “net new” economic activity in the region.

Our net new estimates take into account two factors: the amount of money spent in the region, and the amount of substitution that occurs. With regards to geography, only money that is spent in Kent and Ottawa Counties has an economic impact.

Substitution occurs when spending in the study area crowds out spending that would have occurred in the absence of the dredging project. For example, the dredging firm that wins project may choose to forego other work in order to take on the project. Therefore, not all dredging expenditures are considered net new. We estimate that the substitution rate for this project is relatively small given the availability of labor in the area. For a detailed explanation of our economic impact model assumptions, see “Economic Impact Analysis” on page A-1.

ECONOMIC IMPACT OF DREDGING AND MAINTENANCE

The dredging project would have a one-time impact when the river is initially dredged and new buoys and signage are purchased and installed. It will also have an ongoing impact due to maintenance dredging and buoy maintenance. Based on the feasibility study completed by Edgewater Resources in 2017, we estimate that the total one-time project costs would be $2.2 million, and that ongoing project costs would be $168,300 annually. We estimate that nearly all of this spending would be net new to the Kent-Ottawa region, save for a small amount of substitution.

Output. Initial dredging activity would result in increased output (sales) of almost $3.6 million. Ongoing dredging and maintenance would increase output by about $282,000 annually, as shown in Table 3.
Economic Impacts of the Dredging Project

**Earnings.** Initial dredging activity would result in increased household earnings for Kent and Ottawa County households of almost $1.0 million. Ongoing dredging and maintenance would increase household earnings by $79,000 annually, as shown in Table 3.

**Employment.** Initial dredging activity would result in 20 new jobs in Kent and Ottawa County. Ongoing dredging and maintenance would result in 1-2 jobs annually, as shown in Table 3.

### TABLE 3. Grand River Dredging Project Economic Impact

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>$3,557,735</td>
<td>$281,710</td>
</tr>
<tr>
<td>Earnings</td>
<td>$987,654</td>
<td>$79,152</td>
</tr>
<tr>
<td>Employment</td>
<td>20.3</td>
<td>1.6</td>
</tr>
</tbody>
</table>


**ECONOMIC IMPACT OF NET NEW VISITORS**

We expect that this project would benefit primarily those who live in the region and regularly use a boat or participate in other river-based activities. Second, access for a variety of boats, and the unique opportunity to travel on the Grand River between Grand Haven and Grand Rapids, may increase the number of visitors from outside of the region as well. Below we estimate new visitors from outside the region due to the project and their economic impact on the region.

**Estimating Net New Recreation Visitors**

We reviewed tourism data from Longwoods International on Kent County, including the number of trips, visitor traffic, purpose of trips, and activities on trips.27 We also researched reported visitor numbers for Ottawa County based on Smith Travel Research hotel data; conducted interviews with marinas in the Grand Haven/Spring Lake area; and researched marina market and feasibility studies.28 Based on these sources, research on available activities in the region, estimates of potential new transient slips in downtown Grand Rapids, and tourism growth rates over the past several years, we estimate that up to about 33,000 new visitors annually will come to the region due to the GRW project. We esti-

mate that visitors will spend 1.5 days in the West Michigan region, on average, resulting in about 49,000 net new visitor days. We note that the number of net new visitors would likely start at lower rate and build as news about the project spreads outside the region and the boating infrastructure develops more in the newly-dredged area.

Visitor Expenditure Estimates

Boaters who visit the West Michigan region and rent marina slips contribute to the local economy through spending on boating trips, including marina services, at local restaurants, on boat fuel, and other purchases. Visitors may also spend money on equipment purchases or rentals, groceries, parking, lodging, or other trip-related expenses. Studies of recreational boaters indicate that daily trip spending for boating trips varies depending on a number of factors, including the type and size of the boat, length of the trip, and purpose of the trip. Based on these studies and tourism spending data from Kent County, we estimate that net new visitors would spend, on average, about $125 per day. We expect that a share of this spending will occur outside of the region as visitors prepare for their boating trips on the Grand River.

See references in “Appendix C. Sources of Data” on page C-1 for studies on boating trips and related expenditures.

Economic Impact of Increased Recreational Spending

We used our estimates of net new visitors and their spending in the region to estimate the net economic impacts from increased recreational usage. Impacts from new visitors would likely increase incrementally and not be maximized until at least several years after the completion of the project. We estimate that spending from net new visitors would increase output by $5.7 million annually. This spending would result in increased household earnings for Kent and

31. This spending is trip-related spending and does not include costs of owning a boat, such as insurance, loan payments, regular maintenance, registration fees, etc.
Economic Impacts of the Dredging Project

Ottawa County households of $1.7 million, and support 56 new jobs in the two counties. See Table 4 below.

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Net New Visitor Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>$5,661,473</td>
</tr>
<tr>
<td>Earnings</td>
<td>$1,701,481</td>
</tr>
<tr>
<td>Employment</td>
<td>56.6</td>
</tr>
</tbody>
</table>

Source: Anderson Economic Group analysis of marina and boating studies. U.S. Bureau of Economic Analysis RIMS II Multipliers. See Appendix C.

IMPACT OF DREDGING ON RESIDENTIAL PROPERTY VALUES

An investment made to dredge the Grand River would likely substantially increase residential property values along the river where the dredging occurred. This increase could arise through both direct and indirect means.

Direct Means of Property Value Increases

The dredging of the Grand River would provide the reasonable potential for further private investment along the dredged portion of the river. This includes creating the option for residences to build boating amenities such as boat houses. This option is likely to attract families with higher means to pay for residences, as there are numerous costs associated with recreational boating. These costs can include the purchase of the boat itself, boat maintenance, winter storage, the construction and maintenance of a boat house, and an associated increase in property taxes due to additional structures on the property.

Indirect Means of Property Value Increases

The addition of a meaningful amount of boating activity in an area can have indirect effects on property values. The dredging of the Grand River would increase recreational boating opportunities by allowing for safe navigation from Grand Rapids to Lake Michigan. This qualitative change could allow for new types of recreation and tourism to occur along this entire stretch of the river. Such activity could make the Grand River more desirable generally, and subsequently lead to increased property values.

Another effect is the creation of demand for new types of businesses along the river, such as marinas and restaurants that have river access. The increase in economic activity associated with new businesses can make an area more desirable, and result in increased property values.


Estimating Property Value Increases from Dredging

We used the principles of hedonic regression to estimate the effect that dredging has on property values in two sections the Grand River.32 Hedonic regression is used to create an asset pricing model that assigns portions of an asset’s price to different attributes of the asset. For residential housing, these attributes could include characteristics such as: sale year, the number of bathrooms, school district, square feet, lot acreage, whether the parcel is adjacent to the water, and if the parcel is along a dredged portion of the river.

Results

We found that dredging the Grand River is a highly significant factor in increasing residential properties’ sales prices.33 Dredging was significant even after controlling for various attributes of the properties we analyzed, including structural attributes, sale year, school district, median household income, and whether the property was along the water or not.34

Not only is dredging significant in increasing residential property values, but we found that the property value premium that results from dredging is substantial. In particular, we estimate that dredging added 16.9 percent to a residential property’s sale price for properties in Ottawa County within 2,000 feet of the Grand River.

Applied across the project area in Kent and Ottawa Counties, this results in a potential increase of $27.2 million in state equalized value for a true cash value estimate of about $54.4 million, and an increase of about $614,000 in tax collections.35 36 Most of the collections will occur in municipalities in Ottawa County.37

32. For our analysis, we separated the property sales data by whether properties were in the already-dredged section from Lake Michigan to the Bass River Inlet, or in the non-dredged section from the Bass River Inlet to the county line.

33. The results of our analysis are statistically significant. The \( p \)-value of the dredging regression coefficient was less than 0.001 in our regression model.

34. We analyzed residential properties in Ottawa County within 2,000 feet of the Grand River that were sold between January 2013 and April 2018. We assume the premium would also apply to residential properties in the project area within Kent County as they are in the same area and have similar characteristics.

35. The premium we observed is evident in sales prices, which are directly correlated with taxable values. This premium would be reflected when properties are sold or new homes are built. New home construction is not included in our analysis. This would be a one-time increase in the property values, not an annual increase.
See “Property Values Analysis” on page A-8 for more about our process for modeling residential property sales prices.

36. We conducted our analysis on residential properties that have been sold in the last several years. We assume that the premium we observed will apply to the remaining residential properties in the project area as they have similar characteristics and are located in the same municipalities.

37. Most of this will be collected by municipalities in Ottawa County due to the majority (81.7 percent) of relevant parcels being located in Ottawa County.
V. Additional Benefits from the Project

The Grand River Waterway Project is expected to bring a number of benefits to the West Michigan region. In this section, we outline these benefits.

**Increased Recreational Opportunities**

The current state of the Grand River makes it safe for shallow draft boats, including pontoons, kayaks, canoes, and small motorized boats, in some areas. Pilings in the river make it dangerous for larger boats if the owner is not familiar with the river bottom and location of pilings. Fishing from the shore or from small boats is common in the project area.

Dredging the river and removing obstructions and built-up sediments in the river channel will open up the river to larger boats. This ability to use a wider variety of boats on the river may encourage more residents to purchase boats in the region. Increased recreational opportunities may lead to visitors extending their stay in the region, or bringing additional travelers. For example, someone who comes to Grand Rapids for a conference may stay an extra day to make use of recreational opportunities, or they may bring a spouse and children who take part in river-related recreation during the day.

Dredging the river could also lead to a more favorable opinion of the river to residents or those less familiar with the water quality. The perception of a cleaner river may help drive up usage by boaters, fishermen, and other recreational users. Residents may be more likely to use their boats and spend their leisure time on the Grand River instead of in Northern Michigan or other regions with river or lake access.

Studies show that outdoor recreation provides personal and social benefits as well as economic ones. Investments in outdoor recreation infrastructure and programs could reduce crime rates, improve educational outcomes for school-aged students, and reduce long-term healthcare costs.38

**Marina Development**

The dredging of the Grand River may lead to the development of more boating-related businesses in the West Michigan region, and would provide more opportunities to keep recreation spending local. For example, in order for visitors to put in boats or dock them in downtown Grand Rapids, a marina would need to be built. Based on the number of slips available to boaters in Grand Haven, we estimate that about 250 to 500 slips could be leased in a short timeframe in

Grand Rapids upon the completion of the dredging project. Another 500 slips, or more, could be built over time depending on the demand. While information on the exact scope of a marina or marinas, such as the sites, rental rates, construction costs, or services to be offered, is not currently available, there is information available to illustrate the potential economic benefits of such a development. For example:

- As previously mentioned, boating is a popular activity in Michigan. On average, more households own registered boats in the West Michigan region than in Michigan overall.\(^39\)
- Michigan’s boating industry and boat sales have grown over the last several years, and visitors with boats need somewhere to dock them in order to explore and enjoy riverside communities.\(^40\)
- According to a recent surveys of marinas and boat yards across the country, the majority of facilities made a gross profit in 2017. In the midwest, transient slip revenues increased from 2016 to 2017.\(^41\)
- A marina will likely serve both residents and visitors, so a combination of transient and long-term slips should be available.
- The construction of 500 to 1,000 slips built over the next 10 to 15 years could generate between $7.5 million and $60 million in construction spending.\(^42\)
- According to boat owner surveys, owners could spend between $5,000 and $7,000 per boat per year for boats under 40 feet, and between $20,000 and $30,000 per boat per year for boats over 40 feet.\(^43\)

---

43. Ed Mahoney, Dan Stynes, and Yue Cui, “Boating Economic Impact Calculato,” Marine Research Center, Michigan State University, April 2011.
**Additional Benefits from the Project**

**Other Business Development**

Other boating-related businesses could see increased sales due to more residents and visitors needing to purchase gasoline, boat accessories, and take advantage of repair and maintenance services. There may be an increased need for storage facilities as well, if residents and visitors choose to store boats in the area. Tourist-related businesses could see increases in sales as well, including hotels and restaurants, if visitors choose to take longer trips from Grand Haven to downtown Grand Rapids. Increasing opportunities for river-based recreation in the region could increase sales at a number of existing businesses, including sporting goods stores, dealers, maintenance services, and other related businesses.

Lastly, a wider navigable channel in the river could open up the river for commercial purposes, including shipping, tour boats, or water taxis. In the mid- to late-19th century, steamboats were common on the Grand River and were used for transporting passengers and goods. Commodities that could be transported on the Grand River include limestone, sand and gravel, salt, cement, manufactured goods, and other general cargo. Further widening the channel could create opportunities for further economic diversity in the region and for additional economic benefits. These benefits are beyond the scope of this study, but should be considered as potential for long-term developments.

**CHANGES IN FUTURE LAND USE**

In order to accommodate increased usage of small boats, more boat launches may be needed along the project area. Boat launches could be a good use of public land and a good way to connect the waterways with public biking and hiking trails. The location of wetlands in the project area may limit potential marina sites.

In the area near Grand Rapids, land directly adjacent to the river in the project area is mainly zoned for industrial or transportation land uses. According to the city’s Master Plan, Grand Rapids plans to expand the visibility and accessibility of the river, and encourage open space and mixed-use development along the river instead of industrial development and highways. The City of Grandville conducted a community input survey to guide the most recent Master Plan update, and two of the highest priorities for respondents was creating riverfront amenities including a kayak launch, and improving pedestrian connections, especially across the river.

---


Additional Benefits from the Project

There are some opportunities for private development along the river within the project area. However, most townships currently plan for limited residential uses on the river in order to preserve agricultural lands and wetlands.
VI. Assets and Challenges

The West Michigan region has a number of important assets that will help make the Grand River Waterway project a success. Some of the assets described below could be developed to support the GRW project further. There are also a number of challenges that should be addressed to help benefit the Grand River Waterway project. Many of the potential benefits of the project may not be fully realized if these challenges cannot be addressed. In this section, we describe assets and challenges for the GRW project.

ASSETS

Below we outline the assets and their contribution to the GRW project.

Tourism Destination. Grand Rapids is a popular destination in West Michigan and is already an attraction for millions of visitors annually. The downtown area has numerous restaurants, shopping opportunities, and performance venues that provide a draw for visitors, as well as hotels that provide the capacity for visitors to stay overnight and extend their time in the area. Increasing recreational opportunities may provide another reason for visitors to extend their time in the region, and will increase the options for things to do. Ensuring that the downtown is well-connected with a marina, dock, or boat launch may increase the demand for boating in the area.47

Extensive County Trail Network. A survey by the Outdoor Industry Association showed that 63 percent of Michigan residents participate in some form of outdoor recreation each year.48 Kent and Ottawa Counties have extensive trail systems as well as plans to increase connections between existing trails and parks, including the Grand River Greenway Initiative. These types of projects can increase recreational opportunities and encourage more residents and visitors to get outside and participate in outdoor recreation. They also contribute to complementary uses and may encourage more people to participate in activities on the Grand River, such as fishing and boating.

Available Boat Access. There are already several existing boat launches and parks land along the river, in both Kent and Ottawa Counties. The boat launches allow access to the Grand River to non-motorized and small motorized boats. These sites provide access points to the river which is critical to encouraging increased use of the river. Accessibility for a variety of users and boat sizes will also be important for increasing recreational use of the river.

Leveraging Local Boating Interest. Kent County and Ottawa County have the fourth and fifth most registered watercraft, of all counties in Michigan. Boating is clearly a popular and high-priority activity in West Michigan. By making the river safer for more users, the GRW project may encourage residents to use their boats in the region instead of elsewhere, and may contribute to tourists from outside the two counties bringing their boats to the Grand River.

Development Potential. Along the Grand River in the project area, there is some land that could be redeveloped, particularly in Grand Rapids, for river recreation-friendly uses. Most river-adjacent parcels in Grand Rapids within the project area are currently industrial or transportation uses on parcels owned by the city or by the State of Michigan. These land uses do not take advantage of their location on the river and make the river hard or impossible for visitors or residents to see and use. 49

Outdoor Recreation Focus. The drive to make the Grand River a focal point of the West Michigan region is evident in many activities that are going on today. The Grand Rapids Whitewater project seeks to create new recreational opportunities in the downtown area of Grand Rapids and to restore natural features and habitats in the river. The Grand River Greenway Initiative aims to connect trails and connect park lands in an effort to encourage outdoor recreation on and off the river. The GRW project will be an important connection between activities happening in Ottawa County and downtown Grand Rapids.

CHALLENGES
Below we outline challenges for GRW and communities in the project area to address.

Limited Boating Infrastructure. Currently there is a lack of marinas, docks, and other boating-related businesses closer to downtown Grand Rapids. Part of the vision for this project involves river users boating from nearby communities to Grand Rapids and docking there for several hours or an overnight visit. To do so, boaters will need marina and docking facilities near the downtown amenities. 50 There are parks where kayaks or canoes could be pulled out of the water and set aside, but this is not a secure option and there may not be enough space if more people choose to do so. More boat launches may be necessary in the future as well, to accommodate increased usage of the river and to provide more convenient access for residents between the existing parks.

Limited Number of Destinations. Grand Rapids and Grand Haven are both destinations in West Michigan. However, there are few areas in between that

49. Various municipalities’ Master Plans and Zoning Ordinances
   City of Grand Rapids Master Plan, adopted February 2005

qualify as destinations for river users. Few communities have downtowns, attractions, or amenities that are adjacent to or a walkable distance from the Grand River. Grandville’s downtown is fairly close to the river, but visitors are required to cross a busy road to reach the downtown. A pedestrian walkway should be improved or a new one added in order to make the downtown more accessible to the river.

Noise Pollution. Some residents who live adjacent to or near the Grand River are concerned about noise from motorized boats. Supporters of the Grand River Greenway Initiative have also expressed concerns about noise from boaters being disruptive to people who want to enjoy a quiet walk along the river. This issue may be mitigated through the use of no wake zones or speed limits in sections of the river. Individual communities make these designations.

Possible Speed Limitations. Depending on the allowed speed of boats on the Grand River, a trip from Grand Rapids to Grand Haven could take around four hours. Communities that are concerned with noise or wakes from faster boats can opt to impose speed limits in sections of the river, which could increase travel time between the cities. A trip of this length might be prohibitive or less attractive to boaters or visitors who are looking for day trip opportunities. Communities and river users will need to work together to set speeds that are suitable for a variety of needs, and creating destinations between Grand Rapids and Grand Haven will be helpful in creating an entertaining river cruising experience.

Range of Interests. In the project area of the Grand River, many boaters use kayaks, canoes, and other non-motorized boats to get around. Some of these users are concerned about interactions or safety concerns with speed boats and other motorized boats which create wakes. No such conflicts have yet been reported in the section of the Grand River that has already been dredged. The Grand Valley crew team practices on the Grand River as well, and has concerns that practices may be interrupted with an increase of river usage. Given the average width of the Grand River and the possibility of speed limits, these issues could be mitigated by community input and communication between the groups involved.
Appendix A. Methodology

In this appendix we describe our methodology for estimating economic impacts and benefits related to:

- Spending on initial dredging and ongoing dredging maintenance;
- Increases in spending by visitors who would otherwise not spend money in Kent or Ottawa County in the absence of the dredging project; and
- Increases in home values occurring as a result of the dredging project.

ECONOMIC IMPACT ANALYSIS

Economic Impact of Dredging

We measure the impacts of the dredging project on output (sales), household earnings, and employment in Kent and Ottawa Counties. We first identified the “net new” economic activity in the region that would not otherwise occur in the dredging project’s absence. Our net new estimates take into account two factors: the amount of money spent in the region, and the amount of substitution that occurs.

Project Cost

We used project cost estimates from the Edgewater Resources, LLC Feasibility Study for the basis of our analysis. We adjusted the DNR project cost estimates up by 2% to reflect increasing costs. We estimate that initial dredging would cost approximately $2.2 million, as shown in Table A-1.

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization</td>
<td>$51,000</td>
</tr>
<tr>
<td>Channel Dredging and Disposal</td>
<td>$1,496,340</td>
</tr>
<tr>
<td>Buoys and Signage</td>
<td>$255,000</td>
</tr>
<tr>
<td>Design and Contingency</td>
<td>$360,468</td>
</tr>
<tr>
<td><strong>Total Cost:</strong></td>
<td><strong>$2,162,808</strong></td>
</tr>
</tbody>
</table>

Source: Anderson Economic Group analysis of base data from Edgewater Resources, LLC feasibility study
We estimate that ongoing dredging and maintenance would cost $170,000 annually, as shown in Table A-2.

**TABLE A-2. Grand River Waterway Dredging Project Ongoing Cost Estimates**

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Dredging</td>
<td>$122,400</td>
</tr>
<tr>
<td>Buoy Maintenance</td>
<td>$30,600</td>
</tr>
<tr>
<td>Design and Contingency</td>
<td>$15,300</td>
</tr>
<tr>
<td><strong>Total Cost:</strong></td>
<td><strong>$168,300</strong></td>
</tr>
</tbody>
</table>

*Source: Anderson Economic Group analysis of base data from Edgewater Resources, LLC feasibility study.*

**Net New Spending Estimates**

Only spending that would occur in Kent or Ottawa Counties would have a local economic impact. In our economic impact model, we assumed that 100% of project spending would occur in the region. In other words, we assumed that the dredging, buoy manufacturing, and engineering firms located in Kent or Ottawa County would receive the project contracts. We made this assumption based on a discussion with the authors of the original dredging feasibility study. If businesses located outside the region won contracts for the project, then the economic impact would be lower.

We estimated that the substitution rate for project spending would be very low. In other words, nearly all project spending would be “new” to the region and would not occur if the dredging did not take place. We estimated that a small crowding out effect would occur, and that substitution for all project items would be 5%. We show our net new estimates for initial and ongoing work in Table A-3 on page A-3.
TABLE A-3. Grand River Dredging Estimated Net New Spending in the West Michigan Region

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent In-Region</th>
<th>Substitution Rate</th>
<th>Percent Net New in Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Dredging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobilization</td>
<td>100%</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>Channel Dredging and Disposal</td>
<td>100%</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>Buoys and Signage</td>
<td>100%</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>Design and Contingency</td>
<td>100%</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>Ongoing Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance Dredging</td>
<td>100%</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>Buoy Maintenance</td>
<td>100%</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>Design and Contingency</td>
<td>100%</td>
<td>5%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Source: Anderson Economic Group analysis based on project cost estimates provided by and conversations with Edgewater Resources, LLC.

Direct and Indirect Impacts

After estimating the amount of net new spending for construction and operations in the West Michigan region, we applied U.S. Bureau of Economic Analysis RIMS II Multipliers to determine the indirect impacts of construction and operations.

Economic Impact Exhibits

We show the economic impacts of the initial dredging project in Table A-4 on page A-4, and the impacts of ongoing maintenance dredging in Table A-5 on page A-4.
### TABLE A-4. Grand River Waterway Project Initial Dredging Economic Impact on Kent and Ottawa Counties

<table>
<thead>
<tr>
<th>Component</th>
<th>One-Time Net New Spending</th>
<th>Output</th>
<th>Earnings</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>Mobilization</td>
<td>$48,450</td>
<td>$37,176</td>
<td>$0</td>
<td>$23,440</td>
</tr>
<tr>
<td>Channel Dredging &amp; Disposal</td>
<td>$1,421,523</td>
<td>$1,090,735</td>
<td>$0</td>
<td>$687,733</td>
</tr>
<tr>
<td>Buoys &amp; Signage</td>
<td>$242,250</td>
<td>$132,535</td>
<td>$0</td>
<td>$68,411</td>
</tr>
<tr>
<td>Design &amp; Contingency</td>
<td>$342,445</td>
<td>$242,622</td>
<td>$0</td>
<td>$208,069</td>
</tr>
</tbody>
</table>

Total: $3,557,735 $987,654 20.3


### TABLE A-5. Grand River Waterway Project Ongoing Dredging Economic Impact on Kent and Ottawa Counties

<table>
<thead>
<tr>
<th>Component</th>
<th>Annual Net New Spending</th>
<th>Output</th>
<th>Earnings</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Indirect</td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>Maintenance Dredging</td>
<td>$116,820</td>
<td>$89,222</td>
<td>$0</td>
<td>$56,256</td>
</tr>
<tr>
<td>Buoy Maintenance</td>
<td>$29,070</td>
<td>$22,306</td>
<td>$0</td>
<td>$14,064</td>
</tr>
<tr>
<td>Design &amp; Contingency</td>
<td>$14,535</td>
<td>$10,298</td>
<td>$0</td>
<td>$8,831</td>
</tr>
</tbody>
</table>

Total: $281,710 $79,152 1.6

NEW
RECREATIONAL
VISITORS AND
SPENDING
ANALYSIS

Economic Impact of Net New Recreational Visitors

We measure the impacts of the new recreational visitors in the project area due to the dredging project on output (sales), household earnings, and employment in Kent and Ottawa Counties. We first identified the “net new” economic activity in the region that would not otherwise occur in the dredging project’s absence. Our net new estimates take into account two factors: the amount of money visitors spent in the region, and the amount of substitution that occurs.

Estimating Net New Visitors

We first estimated the number of net new visitors that may come to the region specifically due to the GRW project. We obtained tourism data for Kent and Ottawa Counties for the most recent years available. For Kent County, this data included the number of trips, visitor traffic, purpose of trips, and activities on trips. We researched tourist attractions in both counties and compared tourism growth rates, where available, for visitors.

We also estimated potential new visitors using theoretical new marinas in Grand Rapids. We researched shares of transient slips at marinas, spending by boaters, and costs for boat ownership. We also conducted interviews at several marinas in the Grand Haven/Spring Lake area to estimate how many marina users live outside the region.

Based on our research, we estimate that the West Michigan region could experience up to about 33,000 net new recreational visitors annually due to the Grand River Waterway project. We estimate that the number of net new visitors will be relatively low at first and grow over time, as the project gains visibility and boating infrastructure (boat launches, marina slips) is added in the project area. Based on tourism data from Longwoods International on Kent County, we estimate that visitors will spend 1.5 days in the region on average, resulting in about 49,000 net new visitor days.

Net New Spending

Our research of boating and boat trip expenditures and visitor spending in Kent County indicates that visitors spend, on average, about $125 per boat trip (for our purposes, we assume this is spending per person, per day). We estimate that a share of this spending will occur in the visitors’ home regions prior to entering the West Michigan region. For example, boaters likely purchase some portion of their groceries and fuel prior to reaching their destination. We assume that visitor spending for marina services, restaurants and bars, lodging, and some fuel is spent in the region. Based on our research of expenditures, we estimate that visitors will spend, on average, $96 per day in Kent and Ottawa Counties. See Table A-6 on page A-6.
Note: A share of sales in retail industries “leaks” out of the region because they are run by national chains or are headquartered outside of the region. We assume that a share of sales to these businesses goes directly to the corporation. After we adjust for the retail margins and other leakages, the net new spending in the West Michigan region is $66.93 per person per day.

Source: Anderson Economic Group analysis of tourism data, studies on boating and boat trips

**Direct and Indirect Impacts**

After estimating the amount of net new spending for net new visitors in the region, we applied U.S. Bureau of Economic Analysis RIMS II Multipliers representing the combined Kent and Ottawa Counties. to determine the indirect impacts of the spending. We used a blended multiplier of 1.7, representing several relevant spending categories to capture spending patterns and to estimate the economic impact of this spending. See “Net New Economic Impact from New Recreational User Spending” on page A-7.

---

**TABLE A-6. Net New Visitor Days and Spending**

<table>
<thead>
<tr>
<th>Net New Visitor Days</th>
<th>Length of Stay</th>
<th>Total Net New Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>49,254</td>
<td>1.5 days</td>
<td>$3,296,548</td>
</tr>
</tbody>
</table>

Note: A share of sales in retail industries “leaks” out of the region because they are run by national chains or are headquartered outside of the region. We assume that a share of sales to these businesses goes directly to the corporation. After we adjust for the retail margins and other leakages, the net new spending in the West Michigan region is $66.93 per person per day.

Source: Anderson Economic Group analysis of tourism data, studies on boating and boat trips

51. Note that this spending is trip-related spending and does not include costs of owning a boat, such as insurance, loan payments, regular maintenance, registration fees, etc.
TABLE A-7. Net New Economic Impact from New Recreational User Spending

<table>
<thead>
<tr>
<th>Net New Spending</th>
<th>Output</th>
<th>Earnings</th>
<th>Employment</th>
<th>Total Economic Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3,296,548</td>
<td>Direct</td>
<td>$3,296,548</td>
<td>$1,701,481</td>
<td>56.6</td>
</tr>
<tr>
<td></td>
<td>Indirect</td>
<td>$2,364,925</td>
<td></td>
<td>$5,661,473</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$1,701,481</td>
<td></td>
<td>$1,701,481</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>56.6</td>
</tr>
</tbody>
</table>

Source: Anderson Economic Group, LLC; U.S. Bureau of Economic Analysis RIMS II Multipliers.
PROPERTY VALUES ANALYSIS

Property Sales Data Collection

We purchased residential parcel data from the Ottawa County Geospatial Insights & Solutions Department. These data included all residential parcels within 2,000 feet of the Grand River within Ottawa County that were sold between October 2013 and April 2018. We researched additional housing and property characteristics, including square feet, bedrooms, and bathrooms, using zillow.com, realtor.com, and BS&A Assessing data. We also used our Geographic Information Systems (GIS) facility to determine if a parcel was along a dredged or non-dredged portion of the Grand River, and to obtain demographic characteristics of the block group in which parcels are located.

We then removed records from our data that did not have each of the added data fields that we gathered. Lastly, we calculated the natural logarithm (Ln) of sales price as this helped get sales price data on the same scale as other data and allowed for us to interpret our regression coefficients in terms of their marginal contribution to sales price.

For our modeling, we selected predictor variables that described the size, housing structure, and location characteristics of the parcel. These variables included:

- Sale year
- Condo (yes/no)
- Lot acreage
- Square feet
- Bedrooms
- Bathrooms
- Dredged area (yes/no)
- Median household income
- Adjacent to water (yes/no)
- School district (yes/no)

Preliminary Data Analysis

We conducted preliminary data analysis to determine if there was evidence of relationships between certain parcel variables and sales price, and to see if the distribution of any variables was concerning for linear regression. We also analyzed the summary statistics of the data. We include some summary statistics of the 938 observations in Table A-8 on page A-9.
Determining Regression Model

We next created a regression model which used principles from hedonic regression. Hedonic regression is used in valuing assets according to their attributes. This process can include an asset’s physical attributes as well other attributes associated with the asset. For residential property, relevant attributes include physical characteristics such as bathrooms and square feet; temporal characteristics such as sale year; and location characteristics such as school district and the median household income of the surrounding area.

Our final regression model had an adjusted R-squared of 0.537. The model’s predictors and associated statistics are described in Table A-9 on page A-10.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min</th>
<th>Median</th>
<th>Max</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales price</td>
<td>$16,000</td>
<td>$173,000</td>
<td>$1,600,000</td>
<td>N/A</td>
</tr>
<tr>
<td>Sale year</td>
<td>2013</td>
<td>2016</td>
<td>2018</td>
<td>N/A</td>
</tr>
<tr>
<td>Lot acreage</td>
<td>0.04</td>
<td>0.38</td>
<td>28.46</td>
<td>N/A</td>
</tr>
<tr>
<td>Square feet</td>
<td>528</td>
<td>1,698</td>
<td>10,000</td>
<td>N/A</td>
</tr>
<tr>
<td>Bedrooms</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>N/A</td>
</tr>
<tr>
<td>Bathrooms</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>N/A</td>
</tr>
<tr>
<td>Median household income</td>
<td>$38,886</td>
<td>$56,211</td>
<td>$100,412</td>
<td>N/A</td>
</tr>
<tr>
<td>Dredged area (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>745</td>
</tr>
<tr>
<td>Condo (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>158</td>
</tr>
<tr>
<td>Adjacent to water (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>122</td>
</tr>
<tr>
<td>Grand Haven school district (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>465</td>
</tr>
<tr>
<td>Allendale school district (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>28</td>
</tr>
<tr>
<td>Spring Lake school district (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>280</td>
</tr>
<tr>
<td>Coopersville school district (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>65</td>
</tr>
<tr>
<td>Grandville school district (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>14</td>
</tr>
<tr>
<td>Jenison school district (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>83</td>
</tr>
<tr>
<td>Hudsonville school district (yes)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>3</td>
</tr>
</tbody>
</table>
We note that our model does not account for all externalities. The adjusted R-squared value indicates that our model would have limited use for predicting sales prices. However, because the model does control for important housing structure and location characteristics, we are more confident in the estimated value of the “Dredged area” coefficient in our model. We note that adding additional predictors to our model, should they be statistically significant, could affect the value of the “Dredged area” coefficient.

**Interpretation of Results**

Using the principles of hedonic regression produces results that explain how, and if, certain attributes are valued on the margin. Specifically, the coefficients in our model can be interpreted as “if all other variables remain constant, how does the change of one unit in predictor X change the sales price in percentage terms?” A transformation is required to determine these percentages, which are included in Table A-9 on page A-11. Note that for binary variables (yes/no), the value in Table A-9 can be thought of as changing from 0 (no) to 1 (yes). We estimate that all other things being equal, dredging adds 16.9 percent to the sales price of the property.
TABLE A-10. Percentage of Sales Price Per Unit of Predictor

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Percentage of Sales Price Per Unit of Predictor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dredged area</td>
<td>16.9%</td>
</tr>
<tr>
<td>Sale Year</td>
<td>8.5%</td>
</tr>
<tr>
<td>Square Feet</td>
<td>0.028%</td>
</tr>
<tr>
<td>Bathrooms</td>
<td>17.8%</td>
</tr>
<tr>
<td>Median household income</td>
<td>0.000232%</td>
</tr>
<tr>
<td>Adjacent to water</td>
<td>35.0%</td>
</tr>
</tbody>
</table>

Source: property sales data for 2013–April 2018 provided by the Ottawa County Geospatial Insights & Solutions (GIS) Department; additional property attribute data from zillow.com, realtor.com, BS&A Assessing data, and ESRI, Inc.
Analysis: Anderson Economic Group, LLC

Application to Property Values

To estimate the potential change in taxable values and tax collections, we collected the most recently available millage rates by municipality from the State of Michigan, and data on residential properties within the project area from the county governments. We included in this analysis residential properties within 2,000 feet of the Grand River, from Fulton Street in Grand Rapids to the Bass River Inlet in Ottawa County.\(^\text{52}\) Most of these parcels (81.7 percent) are located in Ottawa County.

To identify relevant parcels in Kent County, we pulled GIS data from the county’s GIS department and identified residential parcels within 2,000 feet of the river. For these parcels, we pulled the 2018 state equalized value (SEV) and taxable value from the county’s Property Search website, which uses data from the county’s Treasurer and Equalization offices.\(^\text{53}\)

For Ottawa County, we asked the county’s GIS department for the total number of residential parcels in Georgetown, Tallmadge, Polkton, and Allendale Townships within 2,000 feet of the Grand River. We collected 2018 SEV and taxable values for a representative sample of residential parcels in these townships and calculated an average SEV and taxable value from the parcel data collected. We used a representative sample due to the high number of residential properties in the project area within Ottawa County.

\(^\text{52}\) For this analysis, as with the regression analysis, we focused on residential-improved parcels, or residential parcels with a house on them.

\(^\text{53}\) A property’s taxable value is the value used to determine the owner’s tax liability. The SEV is the value that has been adjusted after the county and state equalization. SEV is comparable to the property’s market value.
Using the data on taxable values for residential properties in the project area and the millage rates for relevant areas, we estimated the current taxes collected. We then applied the 16.9 percent premium to the taxable values to calculate the potential change in taxable value for the residential properties, and estimated the taxes collected by municipalities on the incremental value based on the millage rates.54

We took the same steps to estimate the increase in SEV in the project area. We used the data collected from Kent County and a representative sample from Ottawa County to estimate the total current SEV, for residential properties within 2,000 feet of the Grand River in the project area. We applied the 16.9 percent premium to the SEVs to calculate the potential change in SEV for the residential properties.

The incremental SEV and the taxes that could be collected on the incremental taxable value are the numbers we report in this analysis.55

See Table A-11 below and Table A-12 on page A-13.

TABLE A-11. 2017 Millage Rates for Relevant Municipalities

<table>
<thead>
<tr>
<th>Municipality</th>
<th>2017 Total Millage for Principal Residence</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Grand Rapids</td>
<td>34.2390</td>
</tr>
<tr>
<td>City of Grandville</td>
<td>38.6857</td>
</tr>
<tr>
<td>City of Walker</td>
<td>34.5235</td>
</tr>
<tr>
<td>Georgetown Charter Township</td>
<td>25.9507</td>
</tr>
<tr>
<td>Tallmadge Charter Township</td>
<td>25.4032</td>
</tr>
<tr>
<td>Polkton Charter Township</td>
<td>30.6564</td>
</tr>
<tr>
<td>Allendale Charter Township</td>
<td>31.3524</td>
</tr>
</tbody>
</table>

Analysis: Anderson Economic Group, LLC

54. Most of this will be collected by municipalities in Ottawa County due to the majority of relevant parcels being located in Ottawa County.
55. We report the incremental value and taxes collected on the incremental value, not the total taxable value with the potential increase.
**TABLE A-12. Estimate of Incremental Taxable Value and Tax Collections in the Project Area, Kent and Ottawa Counties.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Residential Properties in Project Area</td>
<td>1,522</td>
</tr>
<tr>
<td>Estimated Total SEV</td>
<td>$161,112,999</td>
</tr>
<tr>
<td>Estimated Total Taxable Value</td>
<td>$131,246,530</td>
</tr>
<tr>
<td>Dredging Premium</td>
<td>16.9%</td>
</tr>
<tr>
<td>Estimated Increased Taxable Value</td>
<td>$153,373,706</td>
</tr>
<tr>
<td>Estimated Increased SEV</td>
<td>$188,275,436</td>
</tr>
<tr>
<td>Incremental SEV</td>
<td>$27,162,437</td>
</tr>
<tr>
<td>Incremental Taxable Value</td>
<td>$22,127,176</td>
</tr>
<tr>
<td><strong>Estimated Taxes Collected on Incremental Taxable Value</strong></td>
<td><strong>$614,231</strong></td>
</tr>
</tbody>
</table>

*Source: State of Michigan, “2017 Total Property Tax Rates in Michigan,” report published 12/28/2017, accessed 7/3/2018; Kent County GIS Department; Kent County Treasurer and Equalization; Ottawa County GIS Department; Anderson Economic Group, LLC
Analysis: Anderson Economic Group, LLC*
### FIGURE 5. Registered Watercraft per Household by Michigan County

<table>
<thead>
<tr>
<th>Michigan County</th>
<th>Total Households</th>
<th>Total watercraft registrations</th>
<th>Registrations per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcona County</td>
<td>4,895</td>
<td>2,896</td>
<td>0.592</td>
</tr>
<tr>
<td>Alger County</td>
<td>3,860</td>
<td>2,393</td>
<td>0.620</td>
</tr>
<tr>
<td>Allegan County</td>
<td>44,358</td>
<td>15,474</td>
<td>0.349</td>
</tr>
<tr>
<td>Alpena County</td>
<td>12,692</td>
<td>5,124</td>
<td>0.404</td>
</tr>
<tr>
<td>Antrim County</td>
<td>10,307</td>
<td>6,741</td>
<td>0.654</td>
</tr>
<tr>
<td>Arenac County</td>
<td>6,589</td>
<td>3,967</td>
<td>0.602</td>
</tr>
<tr>
<td>Baraga County</td>
<td>3,331</td>
<td>1,195</td>
<td>0.359</td>
</tr>
<tr>
<td>Barry County</td>
<td>23,201</td>
<td>12,256</td>
<td>0.528</td>
</tr>
<tr>
<td>Bay County</td>
<td>44,009</td>
<td>10,681</td>
<td>0.243</td>
</tr>
<tr>
<td>Benzie County</td>
<td>7,523</td>
<td>4,894</td>
<td>0.651</td>
</tr>
<tr>
<td>Berrien County</td>
<td>62,862</td>
<td>13,731</td>
<td>0.218</td>
</tr>
<tr>
<td>Branch County</td>
<td>16,456</td>
<td>7,041</td>
<td>0.428</td>
</tr>
<tr>
<td>Calhoun County</td>
<td>53,602</td>
<td>10,542</td>
<td>0.197</td>
</tr>
<tr>
<td>Cass County</td>
<td>20,585</td>
<td>10,425</td>
<td>0.506</td>
</tr>
<tr>
<td>Charlevoix County</td>
<td>11,158</td>
<td>6,702</td>
<td>0.601</td>
</tr>
<tr>
<td>Cheboygan County</td>
<td>10,935</td>
<td>6,915</td>
<td>0.632</td>
</tr>
<tr>
<td>Chippewa County</td>
<td>14,175</td>
<td>5,556</td>
<td>0.392</td>
</tr>
<tr>
<td>Clare County</td>
<td>12,875</td>
<td>5,104</td>
<td>0.396</td>
</tr>
<tr>
<td>Clinton County</td>
<td>30,185</td>
<td>8,434</td>
<td>0.279</td>
</tr>
<tr>
<td>Crawford County</td>
<td>5,887</td>
<td>3,303</td>
<td>0.561</td>
</tr>
<tr>
<td>Delta County</td>
<td>15,787</td>
<td>4,991</td>
<td>0.316</td>
</tr>
<tr>
<td>Dickinson County</td>
<td>11,315</td>
<td>3,996</td>
<td>0.353</td>
</tr>
<tr>
<td>Eaton County</td>
<td>44,759</td>
<td>9,268</td>
<td>0.207</td>
</tr>
<tr>
<td>Emmet County</td>
<td>14,135</td>
<td>6,673</td>
<td>0.472</td>
</tr>
<tr>
<td>Genesee County</td>
<td>164,353</td>
<td>29,577</td>
<td>0.180</td>
</tr>
<tr>
<td>Gladwin County</td>
<td>10,607</td>
<td>5,854</td>
<td>0.552</td>
</tr>
<tr>
<td>Gogebic County</td>
<td>6,571</td>
<td>2,519</td>
<td>0.383</td>
</tr>
<tr>
<td>Grand Traverse County</td>
<td>37,731</td>
<td>16,192</td>
<td>0.429</td>
</tr>
<tr>
<td>Gratiot County</td>
<td>14,747</td>
<td>3,603</td>
<td>0.244</td>
</tr>
<tr>
<td>Hillsdale County</td>
<td>17,672</td>
<td>6,139</td>
<td>0.347</td>
</tr>
<tr>
<td>Houghton County</td>
<td>14,559</td>
<td>4,607</td>
<td>0.316</td>
</tr>
<tr>
<td>Huron County</td>
<td>14,071</td>
<td>4,069</td>
<td>0.289</td>
</tr>
<tr>
<td>Ingham County</td>
<td>114,862</td>
<td>14,694</td>
<td>0.128</td>
</tr>
<tr>
<td>Ionia County</td>
<td>22,621</td>
<td>6,303</td>
<td>0.279</td>
</tr>
<tr>
<td>Iosco County</td>
<td>11,621</td>
<td>6,134</td>
<td>0.528</td>
</tr>
<tr>
<td>Iron County</td>
<td>5,515</td>
<td>2,737</td>
<td>0.496</td>
</tr>
<tr>
<td>Isabella County</td>
<td>26,276</td>
<td>5,487</td>
<td>0.209</td>
</tr>
<tr>
<td>Jackson County</td>
<td>61,697</td>
<td>17,219</td>
<td>0.279</td>
</tr>
<tr>
<td>Kalamazoo County</td>
<td>104,623</td>
<td>19,557</td>
<td>0.187</td>
</tr>
<tr>
<td>Kalkaska County</td>
<td>7,116</td>
<td>3,342</td>
<td>0.470</td>
</tr>
<tr>
<td>Kent County</td>
<td>244,284</td>
<td>47,366</td>
<td>0.194</td>
</tr>
<tr>
<td>Keweenaw County</td>
<td>990</td>
<td>470</td>
<td>0.475</td>
</tr>
<tr>
<td>Lake County</td>
<td>5,131</td>
<td>2,796</td>
<td>0.545</td>
</tr>
</tbody>
</table>
### Figure Continued

<table>
<thead>
<tr>
<th>Michigan County</th>
<th>Total Households</th>
<th>Total watercraft registrations</th>
<th>Registrations per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lapeer County</td>
<td>33,354</td>
<td>9,187</td>
<td>0.275</td>
</tr>
<tr>
<td>Leelanau County</td>
<td>9,664</td>
<td>7,203</td>
<td>0.745</td>
</tr>
<tr>
<td>Lenawee County</td>
<td>37,728</td>
<td>10,393</td>
<td>0.275</td>
</tr>
<tr>
<td>Livingston County</td>
<td>71,756</td>
<td>24,564</td>
<td>0.342</td>
</tr>
<tr>
<td>Luce County</td>
<td>2,466</td>
<td>1,490</td>
<td>0.604</td>
</tr>
<tr>
<td>Mackinac County</td>
<td>4,953</td>
<td>3,408</td>
<td>0.688</td>
</tr>
<tr>
<td>Macomb County</td>
<td>347,349</td>
<td>49,135</td>
<td>0.141</td>
</tr>
<tr>
<td>Manistee County</td>
<td>10,503</td>
<td>4,501</td>
<td>0.429</td>
</tr>
<tr>
<td>Marquette County</td>
<td>28,019</td>
<td>8,827</td>
<td>0.315</td>
</tr>
<tr>
<td>Mason County</td>
<td>12,230</td>
<td>5,401</td>
<td>0.442</td>
</tr>
<tr>
<td>Mecosta County</td>
<td>16,323</td>
<td>6,274</td>
<td>0.384</td>
</tr>
<tr>
<td>Menominee County</td>
<td>10,502</td>
<td>3,190</td>
<td>0.304</td>
</tr>
<tr>
<td>Midland County</td>
<td>34,144</td>
<td>9,689</td>
<td>0.284</td>
</tr>
<tr>
<td>Missaukee County</td>
<td>5,909</td>
<td>2,663</td>
<td>0.451</td>
</tr>
<tr>
<td>Monroe County</td>
<td>58,689</td>
<td>13,338</td>
<td>0.227</td>
</tr>
<tr>
<td>Montcalm County</td>
<td>23,946</td>
<td>8,787</td>
<td>0.367</td>
</tr>
<tr>
<td>Montmorenci County</td>
<td>4,173</td>
<td>2,530</td>
<td>0.606</td>
</tr>
<tr>
<td>Muskegon County</td>
<td>66,864</td>
<td>17,199</td>
<td>0.257</td>
</tr>
<tr>
<td>Newaygo County</td>
<td>18,568</td>
<td>9,247</td>
<td>0.498</td>
</tr>
<tr>
<td>Oakland County</td>
<td>505,526</td>
<td>83,504</td>
<td>0.165</td>
</tr>
<tr>
<td>Oceana County</td>
<td>10,265</td>
<td>3,772</td>
<td>0.367</td>
</tr>
<tr>
<td>Ogemaw County</td>
<td>8,969</td>
<td>3,861</td>
<td>0.430</td>
</tr>
<tr>
<td>Ontonagon County</td>
<td>2,998</td>
<td>1,387</td>
<td>0.463</td>
</tr>
<tr>
<td>Osceola County</td>
<td>9,103</td>
<td>3,063</td>
<td>0.336</td>
</tr>
<tr>
<td>Oscoda County</td>
<td>3,640</td>
<td>2,356</td>
<td>0.647</td>
</tr>
<tr>
<td>Otsego County</td>
<td>10,119</td>
<td>3,945</td>
<td>0.390</td>
</tr>
<tr>
<td>Ottawa County</td>
<td>101,892</td>
<td>29,657</td>
<td>0.291</td>
</tr>
<tr>
<td>Presque Isle County</td>
<td>5,960</td>
<td>3,624</td>
<td>0.608</td>
</tr>
<tr>
<td>Roscommon County</td>
<td>11,402</td>
<td>6,802</td>
<td>0.597</td>
</tr>
<tr>
<td>Saginaw County</td>
<td>77,099</td>
<td>15,450</td>
<td>0.200</td>
</tr>
<tr>
<td>Sanilac County</td>
<td>16,645</td>
<td>19,274</td>
<td>1.158</td>
</tr>
<tr>
<td>Schoolcraft County</td>
<td>3,675</td>
<td>9,064</td>
<td>2.466</td>
</tr>
<tr>
<td>Shiawassee County</td>
<td>27,232</td>
<td>2,851</td>
<td>0.105</td>
</tr>
<tr>
<td>St. Clair County</td>
<td>63,225</td>
<td>2,070</td>
<td>0.033</td>
</tr>
<tr>
<td>St. Joseph County</td>
<td>23,529</td>
<td>6,521</td>
<td>0.277</td>
</tr>
<tr>
<td>Tuscola County</td>
<td>21,393</td>
<td>5,271</td>
<td>0.246</td>
</tr>
<tr>
<td>Van Buren County</td>
<td>28,863</td>
<td>10,002</td>
<td>0.347</td>
</tr>
<tr>
<td>Washtenaw County</td>
<td>145,222</td>
<td>16,875</td>
<td>0.116</td>
</tr>
<tr>
<td>Wayne County</td>
<td>682,248</td>
<td>55,883</td>
<td>0.082</td>
</tr>
<tr>
<td>Wexford County</td>
<td>13,352</td>
<td>5,301</td>
<td>0.397</td>
</tr>
<tr>
<td><strong>Unknown County</strong></td>
<td><strong>2,778</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3,940,025</strong></td>
<td><strong>857,304</strong></td>
<td><strong>0.218</strong></td>
</tr>
</tbody>
</table>

- **West Michigan Region**
  - Registrations in Michigan, owners out of state: 48,215
  - Total Registered Watercraft in Michigan: 905,519

Source: Michigan Department of State; ESRI, Inc.
Analysis: Anderson Economic Group, LLC
Appendix B. Similar Projects

GRAND RIVER FROM BASS RIVER INLET TO LAKE MICHIGAN

The section of the Grand River, which runs between the Grand Haven (mouth of the river) and an upstream location at the Bass River inlet, and covers 17 miles, is a population location for recreational boating for residents and area visitors.

**River Dredging.** This section of the Grand River has been regularly maintained by the U.S. Army Corps of Engineers (USACE) as part of the Grand Haven Harbor, MI project.\(^5^6\) USACE maintains 2.5 miles as a deep draft harbor and the remaining 14.5 miles as a designated shallow draft channel.\(^5^7\) This includes depths of 23 feet within the harbor entrance, 21 feet throughout the harbor and extending 2 miles upriver, through downtown Grand Haven, 18 feet at the turning basin and channel into Spring Lake, and 8 feet for the remaining section up to the Bass River inlet.\(^5^8\)

**Benefits on River Usage.** This entire section of the river experiences significant recreational use by small craft vessels, including powerboats and pontoons.\(^5^9\) The Grand Haven area is a highly-popular recreational destination in Michigan, drawing thousands of visitors each year for outdoor activities, and boating is a preferred recreational activity for residents and area visitors alike.\(^6^0\) The area received a reported 1.5 million visitors in 2015, whose spending on lodging, gasoline, slip fees, shopping and dining has a reported $70 million economic benefit to the local economy.\(^6^1\)

---


\(^5^7\) Edgewater Resources LLC, Grand River Waterway Dredging Feasibility Study, May 3 2017, prepared for State of Michigan Department of Natural Resources, Department of Technology, Management & Budget.

\(^5^8\) Approximately 20,000 to 40,000 cubic yards of material must be dredged from the inner channel on a 2 to 4 year cycle. Grand Haven Harbor and Grand River, MI Fact Sheet, June 2018


Benefits on Recreational Opportunities. Access to the river for recreational boating is provided by public and private access points along the river. The state, county, township, city, and village governments maintain several boat launches and marinas in this section of Grand River. There are also private marinas and boat launches, especially closer to Grand Haven.

In addition to boating, this section of the river is heavily used for fishing, hunting, and hiking. The Ottawa County Parks and Recreation Department is developing the Grand River Greenway, which aims to create green infrastructure, such as parks, open spaces, and trails along the south bank of the river to connect communities and contribute to West Michigan’s quality of life. The Greenway will connect with trails in Kent County and existing pathways in the Grand Haven area. Further, the Grand River Heritage Water Trail, which is a 41-mile water trail that encompasses nine distinct routes along the Grand River in Ottawa County, provides kayaking and canoeing opportunities.

Benefits-Related Industries. Several boating-related businesses are located along this section of Grand River, including marinas, boat rentals, and boating gear and equipment/water sport outfitters. Some businesses provide sales of new and used boats as well as storage. The majority of marinas operate in the Grand Haven-Spring Lake area.

Other Observations. There are local watercraft controls along twelve sections of this section of Grand River. These include smaller sections in Crockery, Robinson, and Spring Lake Townships, and more extended sections in Grand

62. Michigan Department of Natural Resources, Michigan’s Recreational Boating Information System (MRBIS), found at www.mcgi.state.mi.us/MRBIS/, accessed on May 7, 2018; Ottawa County Parks Department, “Park Amenities,” found at www.miottawa.org/Parks/amenities.htm, accessed on April 22, 2018
63. Michigan Department of Natural Resources, “Recreation search,” “Map,” found at www.michigandnr.com/parksandtrails/, accessed on May 7, 2018
64. Scott K. Hanshue and Amy H. Harrington, Grand River Assessment, State of Michigan, Department of Natural Resources, June 2017, found at www.michigan.gov
Haven. These rules state that, in general, it is unlawful for an operator of a vessel to exceed a slow-no wake speed.68

In the Grand Haven area, boaters enjoy being able to moor for free for up to 24 hours at the Grand Haven boardwalk that runs from downtown Grand Haven out to the peer. Moorage is also available in Spring Lake Village, including at two local restaurants.

INLAND ROUTE-
INDIAN RIVER AREA

The Inland Route, Michigan is a series of interconnected lakes and streams stretching across the northern tip of the Lower Peninsula of Michigan. It extends from Conway near Lake Michigan to Cheboygan on Lake Huron over a distance of 38.2 miles. The waterway runs through Pickerel Lake and Crooked Lake, the Crooked River, Burt Lake, the Indian River, Mullett Lake, the Cheboygan River, and finally into Lake Huron.69 Crooked and Indian Rivers are connecting channels in the waterway. The waterway is a popular recreational destination for shallow draft navigation.70

River Dredging. The USACE maintains the inland route project for recreational navigational interests. Since 1957, a channel 30 feet wide and 5 feet deep was dredged through Crooked and Indian Rivers, through the Pickerel channel from Pickerel Lake to Crooked Lake, and from Conway to the navigation lock at Cheboygan.71 The Waterway offers access to boats up to 65 feet long with up to a 5 foot draft, though navigation on the Crooked River generally limits boats to 25 feet.72 The waterway requires periodic maintenance dredging on a 7 to 12 year cycle, with maintenance dredging planned for 2018.

Benefits on River Usage. The waterway is a popular motor boating destination with people taking trips by pontoon boats, speed boats, water skiing, jet skis, and fishing boats. During peak recreation times, there are many users on the

68. A slow-no wake speed means a very slow speed whereby the wake or wash created by the vessel would be minimal. In some cases, the boundaries of these are marked with signs and with buoys. Michigan Department of Natural Resources, “Special Local Watercraft Controls by County,” found at https://www.michigan.gov/dnr/0,4570,7-350-79119_79144--,00.html, accessed on May 7, 2018.
Several boating competitions take place, including the Top O’ Michigan Outboard Marathon, which draws boaters from throughout the US and Canada.

**Benefits on Recreational Opportunities.** There are numerous recreational opportunities along the waterway, including fishing, fishing tournaments, hunting, hiking on the 62-mile multi-use North Central State Trail or the 70-mile multi-use trail North Eastern state Trail, paddling along the Inland Waterway Water Trails, and camping. For fishermen, the Sturgeon and Pigeon Rivers are both Blue Ribbon trout streams.

**Benefits-Related Industries.** Local communities have established the infrastructure around the waterway to accommodate boaters and visitors to the area. There are several marinas in the area, which offer boat rentals, fuel, sales, and repair services. Boat launches are available at multiple points along the waterway, including at State parks, municipal parks, campgrounds, and private marinas. The closest communities to the Inland Waterway include Petoskey, Harbor Springs, Alanson, Indian River and Cheboygan. For visitors, there are relatively limited spending opportunities on lodging, dining, and shopping, with more attractions and lodging in Indian River, Cheboygan and Mackinaw City.

**Other Observations.** The waterway features two locks: (1) the Crooked River Lock, which opens the second weekend of April and closes the last weekend in October annually, and (2) the Cheboygan River Lock. Docking space is available in Alanson and along the Indian River. There are local watercraft controls along six sections of the waterway in Emmet and Cheboygan counties. These include smaller sections on Crooked Lake/Pickerel Lake Channel, Crooked River, Indian River and connected channels.

---

DANIA CUTTOFF CANAL

The Dania Cutoff Canal is located in Dania Beach, Florida. It was originally dredged in 1918 and connects the City of Dania Beach to the Intracoastal Waterway. The canal extends from the Intracoastal Waterway west on the southern border of Port Everglades. The waterway runs through the communities of Dania Beach, Alandco, and past the Ford Lauderdale-Hollywood International Airport. The area is popular for recreational boating, including yacht activity and related boatyard services. It is also an important corridor for manatees traveling to lakes in Fort Lauderdale.80

River Dredging. The USACE exercises regulatory jurisdiction over rivers, harbors, and other waterways in Florida, including the Dania Cutoff Canal. The most recent dredging project was completed by the Florida Inland Navigation District (FIND), and was funded by FIND, Broward County, and the City of Dania Beach. The project involved dredging the canal from 10 feet to 17 feet deep. About 102,000 cubic yards of material was dredged, dried, and moved to a landfill. In addition, two ship berths at Port Everglades were dredged for maintenance purposes, and several marine facilities on the canal were deepened.81 The canal has several marinas that offer hundreds of wet slips, dry storage, and a variety of maintenance and other related services. Commercial shipping businesses in the area also use the canal for their business operations.

Benefits on River Usage. The Dania Cutoff Canal is home to a number of marinas where tourists and permanent residents store a variety of types of boats. Many users store large boats and yachts and contribute a sizeable amount to the local economy by spending money at restaurants, maintenance and repair businesses, and others. Commercial businesses also make use of the canal for shipping to the Bahamas.82 Parks along the waterway are attractive to residents and vacationing tourists and are also used for shoreline preservation and educational opportunities on native plants and animal species.

Benefits on Recreational Opportunities. Along the canal, boaters will find city parks, boat ramps for public use, and docks for fishing. Within the City of Dania Beach are 11 public parks and most offer water frontage. There is one

free boat ramp and one marina within the city, with several more marinas along
the length of the canal. The Dania Cutoff Canal also offers access to the Intra-
coastal Waterway, from which boaters can reach the Atlantic Ocean.

**Benefits on Related Industries.** In 2015, the Florida Inland Navigation District
commissioned an economic impact study of the dredging in the canal in 2013.
The study measured impacts on business growth and economic impact on the
Broward County economy in the boat maintenance and report industry. The
study found that the project generated $23.4 million in economic output; 132
additional jobs; $6.6 million in labor income; and $9.9 million in value added.
In addition, the study estimated that nearly $800,000 in additional tax revenue
was generated due to the project.

**OTTAWA RIVER, OHIO**

The Ottawa River area includes the Ottawa River downstream from the Suder
Avenue bridge to the connecting channel in the north Maumee Bay, as well as
Halfway Creek and Hooper Run in Michigan. The river was dredged in 2010 for
environmental purposes, to clean runoff and discharges from landfills and
industrial facilities. A second phase of dredging has been proposed to enhance
and preserve aquatic habitat and for improved navigation for boaters. Natural
processes of sedimentation are causing shallow channel depths that decrease
boating capacity, and limit economic activity in the region.

**River Dredging.** The Ottawa River dredging project was completed by the U.S.
Environmental Protection Agency, the Ottawa River Group, and the State of
Ohio, and was funded by the U.S. Environmental Protection Agency and the
Ottawa River Group through the Ottawa River Great Lakes Legacy Act. The
initial project involved cleaning 240,000 cubic yards of contaminated sediment
from a 5.5-mile stretch of the river. The next phase of dredging will involve
dredging the river to a safe depth for recreational boating.

**Benefits on River Usage.** The Ottawa River area is home to 16 marinas and
yacht clubs, two boat launch ramps (one public and one private), and 60 addi-
tional businesses that serve recreational boaters. The marinas and yacht clubs on
the river have over 1,600 slips or docks. Marinas on Halfway Creek and Hooper
Run, in Michigan, have an additional 530 slips. When the river is dredged,

83. Dania Beach, Florida, “Parks & Recreation Department,” found at www.daniabeachfl.gov,
    accessed on May 23, 2018.
    September 2015.
85. Dave Hochanadel, “Dredging in Ottawa River aims to undo years of toxic contamination,”
86. Leroy Hushak and Mary Bielen, “Valuing the Ottawa River: The Economic Values and
slips will be able to be safely used for more and larger boats, and will attract more visitors to the local area, who in turn contribute strongly to the local economy.

Benefits on Recreational Opportunities. Along the Ottawa River there are a number of public parks that offer a variety of recreational opportunities. Ottawa and Jermain Parks, in Toledo, are the largest in the region and offer a golf course, amphitheater, venues for parties, and other amenities. Surveys conducted as part of a study in 1999 suggested that boaters placed high value on navigational dredging, but a high share of boaters indicated interest in water contact sports and fishing.88

Benefits on Related Industries. In 1999, the Ottawa River Action Group of the Maumee Remedial Action Plan commissioned a study of Ottawa River area residents, club members, marina occupants, and launch site users and businesses. Due to low water depths, many marinas are unable to fill all of their slips but surveys suggest that increasing the depth of the river will bring millions into the local economy. The study estimates the economic impact of local area businesses, due to dredging the river, will be nearly $5 million in additional annual sales. With increased capacity, the increase in economic activity will be greater.89

Other Observations. Support for funding the second phase of dredging in this project is growing. In addition, the river is already seeing improvements from the original dredging project in 2010.

88. Leroy Hushak and Mary Bielen, December 1999.
89. Leroy Hushak and Mary Bielen, December 1999.
Appendix C. Sources of Data

INDUSTRY DATA & MARKET STUDIES

- Tourism data for Kent County from Longwoods International, provided by Experience Grand Rapids, 2016 and 2017.
- Michigan Department of Natural Resources, Michigan’s Recreational Boating Information System (MRBIS), found at www.mcgi.state.mi.us/MRBIS/, accessed on May 7, 2018.
- Boating Economic Impact Calculator, MSU Marina Studies, April 2011.
- Ottawa County Parks Department, “Park Amenities,” found at www.miottawa.org, accessed on April 22, 2018.
- Scott K. Hanshue and Amy H. Harrington, Grand River Assessment, State of Michigan, Department of Natural Resources, June 2017, found at www.michigan.gov.
• Ed Mahoney, Dan Stynes, and Yue Cui, “Economic Impact Analysis, Wellfleet Marina,” June 2015.
• Ed Mahoney, Dan Stynes, and Yue Cui, “Boating Economic Impact Calculator,” Marine Research Center, Michigan State University, April 2011.

MASTER PLANS & LAND USE

• City of Grand Rapids Master Plan, adopted February 2005
• City of Grandville Downtown Development Authority Master Plan Update, Draft February 2018.
- Polkton Township Master Plan, adopted July 2009.

**USACE & DREDGING RESOURCES**


DEMOGRAPHIC, ECONOMIC, & TOURISM DATA

• Demographic data from ESRI, Inc.

• Consumer Expenditure Surveys from the Bureau of Labor Statistics from ESRI, Inc.

• Infogroup Business Listings from ESRI, Inc.


NEWSPAPER ARTICLES

• Alex Doty, “GVSU study sheds light on local tourism,” Grand Haven Tribune, September 3, 2017, found at www.grandhaventribune.com, accessed on May 10, 2018. Lodging options include: overnight options in our area that include hotels, motels, bed and breakfasts, resorts, lodges, and vacation homes.


PROPERTY SALES DATA

• Ottawa County Geospatial Insights & Solutions (GIS) Department, residential property sales data, www.miottawa.org/departments/gis/.

• Kent County GIS Department, residential SEV and taxable value data, www.accesskent.com/GISLibrary/, and Kent County Property Search website (combines data from the county’s Treasurer and Equalization offices), www.accesskent.com/Property/.

• Residential attributes for properties in the study area from municipal property data hosted by BS&A online, www.bsaonline.com/MunicipalDirectory.


Appendix D. About AEG

Anderson Economic Group, LLC is a boutique consulting firm founded in 1996, with offices in East Lansing, Chicago, and New York. Our team has a deep understanding of advanced economic modeling techniques and extensive expertise in estimating economic impacts and economic benefits of a variety of projects. We are experts across a variety of fields in tax policy, strategy and business valuation, public policy and economic analysis, and market and industry analysis. We follow a conservative methodology for estimating economic impacts. Our approach accounts for substitution of economic activity so as not to include spending or activity that would happen in the absence of the project.

Relevant publications from our team include:


Past clients of Anderson Economic Group include:

- **Nonprofit organizations:** Convention and visitor bureaus of Lansing, Ann Arbor, Traverse City, and Detroit, and Experience Grand Rapids; higher education institutions including Michigan State University, Wayne State University, and University of Michigan; trade associations such as the Michigan Manufacturers Association, Service Employees International Union, Automation Alley, the Michigan Chamber of Commerce, and Business Leaders for Michigan.
- **Governments:** The government of Canada; the states of Michigan, North Carolina, and Wisconsin; the cities of Detroit, Cincinnati, and Sandusky; counties such as Oakland County, and Collier County; and authorities such as the Detroit-Wayne County Port Authority.
- **Corporations:** Ford Motor Company, First Merit Bank, Lithia Motors, Spartan Stores, Nestle, and InBev USA; automobile dealers and dealership groups representing Toyota, Honda, Chrysler, Mercedes-Benz, General Motors, Kia, and other brands.

Please visit www.AndersonEconomicGroup.com for more information.
Cristina Benton

Ms. Benton is a Senior Consultant with Anderson Economic Group, directing the Market & Industry Analysis practice area. Her background is in research and data analysis, community and economic development, and urban planning.

While with AEG, Ms. Benton has worked on a number of retail, industry, and market analyses as well as auto dealership franchise projects. Among the clients for whom she has worked are Project Management Institute, Holland Tulip Time Festival, the Ann Arbor Area Convention and Visitors Bureau, and Automation Alley. Ms. Benton has also worked with numerous automobile dealerships in matters of sales performance assessments, geographic territory analyses, market opportunity studies, and expert testimony.

Prior to joining AEG, Ms. Benton worked as a community and economic development assistant with the City of East Lansing, MI, and as a research assistant at Michigan State University working on the evaluation of economic revitalization programs. She also taught university classes on economic development and lectured on market analysis.

Ms. Benton holds a PhD degree in Geography and a Master in Urban and Regional Planning, both from Michigan State University, and a Bachelor’s degree in public administration from Babes-Bolyai University, Romania. She is a member of the Michigan Economic Developers Association (MEDA).

Sara Bowers

Ms. Bowers is a Senior Analyst with Anderson Economic Group, working in the Market and Industry Analysis practice area. Her background is in community and economic development and urban planning.

While working at AEG, Ms. Bowers has worked on projects focusing on economic impacts of industries or events; market analysis for hundreds of automobile dealerships; and sales effectiveness metrics for franchised businesses. She is an expert in spatial market analyses and manages the firm’s Geographic Information System (GIS) software. Among the clients for whom she has worked are the Ann Arbor Area Convention and Visitors Bureau; Grand Rapids Whitewater; Capital Area Salvation Army; the University of Michigan; Automation Alley; and a number of franchised retail clients in the automotive industry.

Ms. Bowers holds an M.P.S. in Community and Economic Development from Penn State University and a B.S. in Geography from Michigan State University. She is also a member of the American Planning Association (APA).
CONTRIBUTORS

The authors would like to acknowledge the following individuals who made significant contributions to research, analysis, and preparation of this report.

Jonathan Tsarong-Blomker

Mr. Tsarong-Blomker is a Consultant at Anderson Economic Group, working in the Market and Industry Analysis practice area. His background is in providing quantitative analyses for matters being litigated in the automotive industry.

While at AEG, Mr. Tsarong-Blomker has conducted numerous analyses for automotive related matters. These analyses include the degree to which certain vehicles compete within OEM defined segments, the relationship of consumer demographics and vehicle preferences within OEM defined segments, and lost sales analyses which take into account Reilly’s law of retail gravitation.

Prior to joining Anderson Economic Group, Mr. Tsarong-Blomker worked with J.P. Matthews and Associates as a Senior Analyst. He has worked on dozens of cases including dealer relocations and additions, sales incentive programs, and terminations. He also worked for VivaKi, a digital marketing firm, where he oversaw operations for their offshore office in New Delhi, India and built a data analytics team in Chicago, Illinois.

Mr. Tsarong-Blomker holds a B.S. in Physics from the University of Wisconsin-Madison.

Brian Peterson

Mr. Peterson is a Senior Analyst with Anderson Economic Group, working in the Public Policy and Economic Analysis practice area. His work focuses on economic and fiscal impact analysis. Mr. Peterson has worked with public and private clients on issues such as pension reform, property tax impact analysis, and environmental economics.

Prior to joining AEG, Mr. Peterson worked as a policy analyst with the Chicago Metropolitan Agency for Planning, where he focused on freight and manufacturing industry cluster development strategy and transportation planning.

Mr. Peterson holds a Master of Urban Planning from the University of Wisconsin—Milwaukee and a Bachelor of Arts in Economics and Urban Studies from the University of Minnesota Twin Cities.