

**Traverse City Pier Study Committee Meeting**

**July 18, 2014**

**9:00 a.m.**

**Committee Room**

**2<sup>nd</sup> Floor, Governmental Center**

**400 Boardman Ave**

**Traverse City, Michigan**

**AGENDA**

1. Call the meeting to order
2. Attendance
3. Review of June 24, 2014 and July 9, 2014 Meeting Summaries
4. Discussion regarding Additional Information Response from Fleis and Vandenbrink and SmithGroupJJR
5. Candidate discussion and possible recommendation
6. Public Comment
7. Meeting evaluation and adjournment

# TRAVERSE CITY PIER STUDY GROUP

June 24, 2014

## Meeting Summary

### Pier Study Group Members Present:

- Michael Estes, City of Traverse City Mayor
- Ryan Matuzak, Grand Traverse Sport Fishing Association
- Erik Olsen, Grand Traverse Band of Ottawa and Chippewa Indians and Member, Scientific Advisory Team to the Great Lakes Fisheries Trust Board of Trustees
- Cathie Ballard, City Resident
- Jack Knol, Architect
- Ross Richardson, City Commissioner
- Todd Kalish, Michigan DNR Fisheries Division
- Steve Largent, Grand Traverse Co. Conservation District

### City Staff Present:

- Russ Soyring, Planning Director
- Missy Luick, Planning and Engineering Assistant
- Tim Lodge, City Engineer

### Meeting Summary

On June 24, 2014, the meeting of the Traverse City Pier Study Group was held in the Commission Chambers in the Governmental Center, 2<sup>nd</sup> Floor, 400 Boardman Ave, Traverse City MI 49684. Following is a summary of that meeting. If there are any corrections or omissions in the meeting summary, Study Group members are asked to contact Missy Luick immediately with the corrections or omissions.

### Review of April 10, 2014 Meeting Summary

Mrs. Luick briefly summarized the April 29, 2014 meeting summary.

### RFQ Rating Form Summary

Mrs. Luick summarized the numeric rating form totals both by study group members and City staff. The study group results showed the following ranking: 1) SmithGroupJJR, 2) Spicer Group, 3) Fleis and Vandenbrink, 4) Beckett and Raeder, 5) URS, 6) Port and 7) Hubbell Roth and Clark. The staff evaluation results showed the following ranking: 1) SmithGroupJJR, 2) Beckett and Raeder, 3) Spicer Group, 4) Fleis and Vandenbrink, 5) URS, 6) Hubbell Roth and Clark, and 7) Port.

### **Discussion of RFQ proposals and candidate interview selection**

By consensus, the study group eliminated the lowest rated three firms from consideration. They were: URS, Hubbell Roth and Clark and Port. The study group discussed whether they should interview 3 or 4 firms. After some discussion, they decided to interview 4 firms. They will be: SmithGroup JJR, Beckett and Raeder, Spicer Group and Fleis and Vandenbrink. The study group reviewed the draft interview questions and discussed additional questions.

### **Next Steps and questions about the process**

1. Missy Luick will correspond with all 7 candidates and schedule interviews with 4 candidates.
2. Missy Luick will revise the interview questions.
3. Missy Luick will call references for the 4 teams scheduled for interviews.
4. Missy Luick will publish the meeting summary on the project website.

### **Public comments**

- John Scudato commented regarding checking consultant references.
- Jim Shiffer made general comments.
- Jim Moore made comments related to ADA/accessibility of the proposed pier.

### **Meeting evaluation and adjournment**

The meeting concluded at 1:44 p.m.

# TRAVERSE CITY PIER STUDY GROUP

July 9, 2014

## Meeting Summary

### **Pier Study Group Members Present:**

- Michael Estes, City of Traverse City Mayor
- Erik Olsen, Grand Traverse Band of Ottawa and Chippewa Indians and Member, Scientific Advisory Team to the Great Lakes Fisheries Trust Board of Trustees
- Cathie Ballard, City Resident
- Jack Knol, Architect
- Ross Richardson, City Commissioner
- Todd Kalish, Michigan DNR Fisheries Division
- Steve Largent, Grand Traverse Co. Conservation District

### **Pier Study Group Members Absent:**

- Ryan Matuzak, Grand Traverse Sport Fishing Association

### **City Staff Present:**

- Russ Soyring, Planning Director
- Missy Luick, Planning and Engineering Assistant
- Tim Lodge, City Engineer
- Rob Bacigalupi, DDA Executive Director
- Lauren Vaughn, Parks and Recreation Superintendent

### **Meeting Summary**

On July 9, 2014, the meeting of the Traverse City Pier Study Group was held in the Commission Chambers in the Governmental Center, 2<sup>nd</sup> Floor, 400 Boardman Ave, Traverse City MI 49684. Following is a summary of that meeting. If there are any corrections or omissions in the meeting summary, Study Group members are asked to contact Missy Luick immediately with the corrections or omissions.

### **Candidate Interviews**

The Study Group heard interviews from SmithGroupJJR, Spicer Group, Beckett and Raeder, and Fleis and Vandenbrink. The public had opportunity to ask questions of the interview candidates.

### **Candidate interview discussion and possible recommendation**

Overall, the group was impressed with all the four firms that interviewed. The group decided to eliminate Spicer Group and Beckett and Raeder after some deliberation.

After much further discussion, it was decided that the Group would like to solicit an additional written response from SmithGroupJJR and Fleis and Vandenbrink of the following questions:

- 1) Durability/materials selection process and maintenance
- 2) Breakout of public involvement hours
- 3) Explain ideas for connectivity/access to the pier
- 4) More information about coastal/marine experience

The Group will reconvene next week to discuss the additional information responses and make a candidate recommendation. Mrs. Luick to coordinate meeting scheduling with the group and correspond with SmithGroupJJR and Fleis and Vandenbrink. Mrs. Luick will also check references for both firms.

#### **Public comments**

There were no additional public comments.

#### **Meeting evaluation and adjournment**

The meeting concluded at 5:44 p.m.

# TRAVERSE CITY PUBLIC PIER

Baird **FLEIS&VANDENBRINK**  
DESIGN. BUILD. OPERATE.

**"It's an opportunity for more than just the fishermen; it's an amazing opportunity for the entire community."**

- Ryan Matuzak, Grand Traverse Sport Fishing Association



Ms. Missy Luick  
City of Traverse City  
400 Boardman Ave  
Traverse City, MI 49684

**RE: Traverse City Public Pier Interview Follow Up Submittal**

Dear Missy,

The Fleis & VandenBrink / Baird team is very excited to be afforded the opportunity to present you with the additional information requested by the Study Group and to further explain our team experience, qualifications, processes, and initial thoughts. You will find attached a very thorough response.

The depth and experience of both of our firms with projects containing very similar elements provide us with a broad skill set and pool of resources that we are able to share with you. As we discussed in our interview, the culture, internal work processes, and exchange of information between Fleis & VandenBrink and Baird is so similar and so complimentary that our team provides specific experience and expertise in regards to all of the elements of this project.

We understand the City's need to have an clear understanding of the implications of long-term operating and maintenance costs as a consequence of design and material selections. We describe in our response how we will include the City at these decision points and provide you with the information you need to make sound decisions.

As a firm that works primarily with municipal clients, we are asked very often to include public participation in our planning and design processes. Over the years, we have utilized many different strategies, techniques, and levels of effort depending on specific project or client desires or requirements. Our public engagement and participation can be very dynamic and adaptable to your desires. In our response, we explain an approach that we feel works well with the time and budget constraints this particular project will face.

It is no secret that the proposed pier location will be a challenge due to the physical constraints that the Grandview Parkway and Boardman River create for access and connectivity. We have dozens of potential improvements to the connectivity that our team has explored on a preliminary basis already. We are sure there are more great ideas that will come out of the public and stakeholder participation. The key will be to recognize that in order for the pier to be as successful it can be as a community space, focusing on creating connectivity and a sense of place will need to be as high of a priority as the pier itself. The experience and expertise of our team in doing just that is exceptional.

In terms of experience with marine construction of pier facilities, Baird is known as an international leader. Baird is very excited to bring their expertise to this unique project and looks forward to designing to accommodate diverse uses, the river mouth location, and potential iconic nature. Our attached submittal highlights some of the specific pier design and construction experience of team members, as your question requested. Please note that the collective experience of both firms runs much deeper than even what is presented. The normal practice of each of our firms that we work in a very collaborative manner. If partway through the project we realize we need a different skill set or expertise to complete a particular task, we likely have the talent in-house to pull additional individuals onto the project team. Although the Fleis and VandenBrink experience in no way rivals that of Baird in the water, our work along the shoreline with boat

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launches, boardwalks, parks and public spaces ideally suits us to provide leadership with regulatory agencies and compliment Baird's expertise.

As this project moves forward through design and permitting and into the funding and construction phases, we are hopeful that we will remain involved to see the project through to completion. Fleis & VandenBrink is an unparalleled leader in assisting communities with funding infrastructure projects. We look forward to working with the City staff and consultants to team with potential funders throughout the process in order to add viability to the design efforts.

Should you desire any additional information from our team, please feel free to contact us anytime. We look forward to getting started on this extremely exciting project!

Sincerely,

FLEIS & VANDENBRINK



John DeVol  
Manager, Traverse City



**PLEASE CLEARLY EXPLAIN THE PROCESS BY WHICH YOUR FIRM WORKS WITH CLIENTS ON THE DURABILITY / MATERIALS SELECTION PROCESS AND THEIR MAINTENANCE IMPLICATIONS.**

We understand that the long-term operating and maintenance expenses of public infrastructure can be significant to a municipality's annual budget. We are acutely accustomed to preparing and communicating operating costs of our municipal projects to our clients. As a firm that works primarily with municipal clients, and frequently on large infrastructure projects, we have become very skilled at preparing operating budgets. The last surprise our clients want at the end of a project is to be saddled with an unexpected operating expense. In the case of many of our projects, that would result in a user rate increase on a water or sewer bill, for example.

We provide honest discussion during design process relative to operational and maintenance costs during and allow ample time for you to review these options. We are committed to providing the City with decision points throughout the process that will allow input and selection of design elements, materials, and functional elements in combination with an honest assessment of long term operational and maintenance costs.

In a marine environment, the durability of structures is an especially complex issue that requires careful consideration. Our team addresses durability with the Client at multiple points during our holistic approach. Baird has specifically tailored a design approach for marine projects. Material selection along with an understanding of maintenance and operational issues are critical aspects of that approach and we expect that the City will want to participate as an integral team member.

The following outlines a number of elements within our marine project general design approach. Particular attention is given to durability, maintenance, and operational issues. (As the scope of the Traverse City Public Pier has not yet been fully developed it is recognized that all tasks may not be required by the City.)

**TASK 1 – BASIS OF DESIGN**

Developing a Basis of Design (BoD) is a critical step in any project. The BoD is a comprehensive document that defines criteria for the project, including engineering, functional, and user requirements. It is usually developed through close collaboration between the Project Team and the Client throughout the design process. In the case of the Traverse City Public Pier, the public will have input into the BoD as well as the City, as discussed below.

The document is important from a durability perspective as it contains the required design life of the structural components as well as the desired level of maintenance needed to achieve the desired design life. In addition, certain user requirements may

*Both F&V and Baird owe part of our business success to our commitment and methodology for selecting materials for our clients' construction projects. Our meticulous selection procedure involves the thought processes shown below.*

**Attributes Considered**

- Durability / Wearability / Weathering Resistance
- Maintenance Requirements
- Replacement Cost
- Local Source
- Lead Time
- Local of Historic Significance
- Sustainable Features - Energy Efficient, Etc.
- Recycled Content
- Low impact systems and materials (selection of building materials based on the low environmental impact, harmful chemical content, health exposure considerations, etc.)
- Service Life (w/out maintenance)
- \$ Range Including Installation
- Innovative Product or Use

also affect durability and maintenance. For instance, year round operation may necessitate de-icing salt for winter access, which has a negative impact on steel and concrete durability.

Desired architectural features can also impact durability, maintenance and operations. As an example, decking material that is fastened to the structure can promote breakdown and may also preclude the use of some types of mechanical equipment to clear snow or ice in the winter. As such, operational personnel or special equipment may be needed to remove snow and ice for safe access.

Investing the time to think through these types of issues in the creation of this document will help greatly to understand the relationships between material and functional selection versus durability and maintenance costs.

### TASK 2 – INVESTIGATIONS & REPORTS (I&R)

We regularly integrate summary documents into the design process that address specific issues for the Client called Investigations and Reports (I&Rs). These documents are produced for a variety of issues including the characterization of the metocean environment (wind, waves, ice, and sediment transport). They help determine the erosive forces that can be expected from ice and wave scour, thereby driving the design towards proper material selection. In addition, they can also be used to indicate whether dredging might be an anticipated maintenance operation in the future.

In addition to environment characterization, we have also produced I&Rs addressing specific issues related to material selection for structural components. Two key I&Rs for the Traverse City Public Pier Project may be titled Material Availability and Contractor Capabilities. A short list of the items these I&Rs may address follows below:

#### Material Availability:

- Identification of quarries to determine the availability, quality, and cost of stone and concrete aggregates in the region.
- Identification of local concrete facilities to determine familiarity with measures to increase durability such as pre-casting, pre-stressing, or the use of additives to reduce permeability and associated costs.
- Contacting regional steel vendors for current market pricing and trend projections with respect to marine grade steel.
- Contacting vendors for decking, lighting, and other amenities to determine unit costs associated with marine grade applications.

#### Contractor Capabilities

- Surveying the Contractor base to determine those interested in bidding on the project and those familiar with prefabricated construction techniques or other measures to increase quality and durability.
- Identification of capabilities of regional contractors to construct particular types of structures. A contractor equipped and experienced in rubblemound construction might not be prepared to build an open-pile structure, for example.

The above I&Rs will provide the City with “ground truthed” information indicating the cost associated with measures that increase durability and decrease maintenance. In addition they will know if Contractors are generally capable of carrying out the specialized construction methods needed to incorporate these measures. As such, informed decisions concerning material selection and construction type can be made.

### TASK 3 – DETAILED DESIGN & COST ESTIMATES

Considerations of durability and proper selection of materials continue into detailed design and specifications. Items such as proper joint detailing, coating and fastener selection can go a long way towards reducing future maintenance issues. Our team

We will provide the City with “ground truthed” information indicating the cost associate with measures that increase durability and decrease maintenance.

brings the experience to be able to identify these issues during the design process and either provide durable details as a matter of course, or to bring options to the City if there are life-cycle costs determinations to be made.

Regular refinement of line item construction cost estimates throughout this process is critical to understanding the cost drivers for selection between alternatives. When maintenance levels between alternatives differ, life-cycle cost estimates can be performed to aid the City in selecting an appropriate path.

An example of a project where we provided a life-cycle cost analysis to help a client with their decision on what type of streetlight fixture to install was conducted in Rogers City. Their project was designed just as LED technology was coming to the market and was still quite expensive. However, when we compiled a 10-year life cycle cost estimate that including items such as energy usage, ballast and bulb changes, the City decided to become one of the first in the State to light their downtown with LED. The project was highly successful and ended up being presented at an MML conference as an innovation success in the state. We can bring the same type of processes to this project.

#### TASK 4 – BIDDING & CONSTRUCTION

No matter the competence level of the designer, some level of uncertainty exists during the design phase about the ultimate cost and quality of workmanship that will be achieved during construction. This uncertainty is only reduced when the bids come in and again when construction is finished. Typical services which we have worked collaboratively with the Client related to durability, selection of materials and maintenance during the tendering / bidding and construction phase follow:

- Contract Document Preparation –
  - i. Advice related to clauses warranting or guaranteeing performance.
  - ii. Creative contracting methods that make the Contractor responsible for future maintenance thus ensuring his desire to install quality work.
  - iii. Creative bid alternate preparation that allows Clients to choose between a number of options having various durability implications; such as with or without durability enhancing additives, coatings, etc.
- Bid Review & Contractor Selection – We have an extensive network of contacts and experience with the majority of the marine contractors on the Great Lakes. We use this experience to aid our Clients in quality-based selection processes.
- Administration & Construction Management – While it is the responsibility of the Contractor to comply with the contract documents, it is important that the Client and Engineer form a team to enforce QA/QC. We have extensive experience administering contracts in the field during construction on sites throughout the Great Lakes and marine projects around the world (part-time and full time).

#### TASK 5 – MAINTENANCE MANUAL

An Operations and Maintenance (O&M) Manual can also be prepared for the City. O&M Manuals define the interval and scope for inspections and also specific general maintenance tasks throughout the design life of the structure. Examples of comprehensive manuals providing specific maintenance tasks for concrete, steel, wood, railing, lighting, and navigation components can be provided upon request.

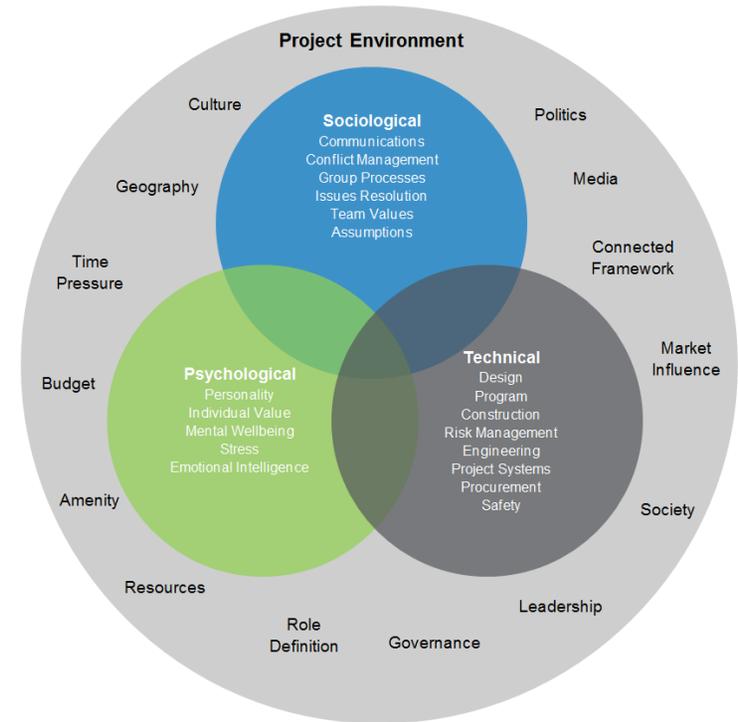
**PLEASE CLEARLY IDENTIFY THE NUMBER OF HOURS YOUR FIRM INTENDS TO SPEND ON**

**PUBLIC ENGAGEMENT AND FURTHER DESCRIBE YOUR PROPOSED PUBLIC ENGAGEMENT PROCESS.**

The Fleis & VandenBrink / Baird team has proposed a public participation process for the Traverse City Public Pier Project that engages the public in an open and interactive process, achieves the project schedule, and can be completed within a reasonable budget.

The schedule identified in the Great Lakes Fisheries Trust grant agreement dictates that the public participation process will need to be efficient. Our process is built around early consensus building so that the design process is not significantly sidetracked causing a problem in meeting the schedule. The public participation process is almost always the most important element of a project in order for it to be fully successful. Therefore, we will work with the study group to modify or tweak the proposed public participation process, including allocating additional hours if needed, to best facilitate the process. The main features of our process will be:

1. Meeting with project regulators at the beginning of the process to identify project constraints, permit issues and “deal breakers”.
2. Completing a site inventory and opportunity analysis to have a complete understanding of the site and its surroundings.
3. Once the base homework is completed from Steps 1 and 2, offering the opportunity for involvement, engagement, and input from the public through an initial charrette to develop design concepts.
4. Once design concept are developed, a systematic method of interaction with and presentation of initial concepts to the public with the opportunity for public feedback to settle on the preferred concepts.
5. Conducting additional public workshop to review concepts followed by public workshops to review the design efforts.
6. Provide a vehicle for the community to see what’s going on. With technology, a website tied to the City’s website, or a project website could be developed. Information about the project can be managed by our project team or by the City.
7. Regular reporting to the City Council to get input, support and approval of the direction of the project as part of the public participation process.



*Public engagement for a project of this magnitude cannot be taken lightly by any of the stakeholders and will be at the forefront as the design of the pier takes form. While issues such as geography, the environment and budget will all play a key role in the final design, Public Participation will also need to incorporate the sociological and psychological factors garnered from interested parties.*

Our experience has shown that initial workshops that incorporate preliminary conceptual design sketches often lead to development of concepts that simply are not realistic. Unfortunately, early concept sketches can create a false public perception of what can actually be implemented. Our goal is for clear communication throughout the public process.

Our approach eliminates this issue by providing conceptual alternatives with preliminary costs following public input. In preparing our proposal, we recognized that the City had budgeted \$6,000 for public participation and tailored our approach to the budget. That resulted in an anticipation of 110 hours dedicated to public participation. However, should the City determine that this activity requires more attention; we are prepared to adjust our work plan accordingly.

### Step 1 | Data Collection & Opportunities Analysis

Prior to engaging the public, the design team and the project stakeholders need to have an understanding of some of issues and opportunities associated with the proposed site and the land/water interface. It is not a secret that the connectivity and accessibility of the proposed location will be a project challenge. In this phase, we will meet with project regulators and conduct initial due diligence to be able to provide a framework that will help guide and keep the public conversations within a feasible realm.

### Step 2 | Obtain Initial Public Input

Conduct a design charrette shortly after project kick off. The purpose of the charrette is to:

*Establish a living Basis of Design (BOD) that summaries government, regulatory, engineering and public, requirements and desires for the pier. Some items to be considered are potential uses, location, operating hours /seasons, recommended dimensions, design life, aesthetic features, emergency access, connections to surrounding features, inclusion of event and programming space, and whatever other features arise as important through the process.*

Major features of our design charrette for this project would include:

1. A “blank slate” approach where the Consultant does not bring pre-conceived design concepts to the table.
2. Separate sessions (2 to 3 hours) for the pier committee, stakeholders, regulators, and the public (including special interest groups). The groups will be kept separate initially to encourage full participation of each group.
3. Presentations to each group regarding the background information that has been gathered to date, and the advantages and disadvantages of various structure types and materials.
4. Attendees will provide feedback on a questionnaire prepared by the City and Consultant team with ample time available for freelance commentary.
5. Specific stakeholder groups will be invited to participate in a risk identification exercise to establish the original Risk Register (RR) for the project.

Following the charrette, materials from the meeting will be posted to the City’s website or project website. It is envisioned that for consistency and clarity for the public, the City’s website will continue be the primary site for accessing information.

From our extensive experience with public participation in projects, we have found that incorporating the following ideas into the process will help increase the engagement and value of the public input:

- Utilize press releases, interviews, and published materials to invigorate community excitement for the project partnering with local news and media outlets. Begin this effort with sufficient notice in advance of the initial public meeting.

- Have the questionnaire available prior to the meeting through the website or City offices.
- Encourage participants to bring their own ideas, sketches, etc. to the charrette.
- Conduct the charrette ideally near the location with a view of the project site at a time when participation can be high.
- Encourage people who are unable to attend the charrette to provide comment on the deliverables posted on the City's website.
- Consider broadcasting the charrette over public access television multiple times for those who could not attend.

### Step 3 | Design Development

During Design Development (DD) the Consultant team will use the BOD and RR as guidance in preparing options and associated costs for the City to evaluate. The Consultant will work closely with the City during this time through regularly scheduled meetings. The intent of the meetings will be to provide a consistent forum to clearly communicate and facilitate design options that best meet project goals identified in the BOD while being cognizant of the City's budget.

During the design development process the public will be encouraged to provide additional commentary via the City's website or written letter. Throughout the entire design process we are committed to providing answers to questions and comments from the public in an organized, structured way. We anticipate developing a Frequently Asked Questions document that can be periodically be updated that will reside on the City website. We will respond to questions in a timely manner, likely on a weekly basis depending on volume and content.

In addition, design options and progress can be presented to the public through the website or by the City at regularly scheduled or special meetings and also at local gathering events such as the Farmers Market.

### Step 4 | Public Presentation

At the conclusion of design development, high end renderings of the chosen option will be published on the City's website and made available to local media along with a description of the project. Following publication the public will be invited to comment on the renderings at a public workshop one last time before final design begins.

Once final design phase begins, the opportunity to influence design choices diminishes. Progress will still be shared with the City and public on a regular and ongoing basis and comments will be encouraged. However, all parties will need to recognize that major changes will be unlikely at that point.

Preliminary  
concept design  
sketches as part of  
the initial  
workshop often  
lead to  
development of  
concepts that are  
not realistic.

Unfortunately,  
these concept  
sketches can  
create a false  
public perception  
of what can  
actually be  
implemented and  
cause disruption to  
the project  
schedule.

**PLEASE EXPLAIN SOME OF YOUR IDEAS FOR  
CONNECTIVITY & ACCESSIBILITY TO THE PIER:**

The envisioned pier location at the mouth of the Boardman River plays a significant role in access and utilization of the pier. This location provides access to the Boardman River and Grand Traverse Bay fisheries, allows for touristic, interpretive and recreational value, and acts as an anchor to the expansion and diversification of Bayfront facilities and features. Direct access can be achieved from the TART, and also to Front Street in a rather indirect manner.

Our team has already invested significant time and thought in evaluating existing site conditions to determine how this location interacts with its surroundings.

We feel that this pier has the potential to be a phenomenal asset to the City, residents, and visitors; however, there are some significant impediments that limit access to the proposed location and consequently may limit use unless some creative solutions are employed. We have included a diagram titled "Site Inventory – Existing Connectivity" that illustrates a portion of what we see in geographical relation to the site. While the site has many great attributes, it also has some drawbacks including:

- Significant Distance for Users on the North side of Grandview Parkway. Available parking on the North side of Grandview parkway is generally over 2,000 feet away and well beyond the "stretched" 1,000 feet one might travel for a special experience and far beyond the more traditional "willing" travel distance of 500 feet from a parked vehicle to a destination.
- Significant Distance and Physical Barriers for Potential Users on the South Side of the Parkway. Access via a parked car and walking or from the shopping district is encumbered in a variety of ways, particularly for those more sensitive to distance. The Boardman River and Grandview Parkway, assets that they are, impose significant barriers for easy access by most means of transportation. Most available parking and pedestrian crossing zones across the Parkway are over a quarter of a mile away.
- The Boardman presents a formidable barrier because of its physical character and the need for boater access on the lower reach of the river. The Parkway and River combined present a very evident and powerful disconnect to the envisioned pier and the anticipated attraction value for the downtown shopper, the fisherman lugging his gear, special community events, destination tourists and the casual waterfront visitor.
- No Direct Vehicle Access from the Grandview Parkway. The lack of direct vehicle access is a serious issue that will likely have to be remedied as part of any pier project, as emergency vehicles must have access to the pier. In addition vehicle access will also be required if events are going to be staged on the Pier.
- Limited Space for Bike Parking. Adequate facilities for bike parking do not exist in the area.

We will utilize our experience in area and regional planning, economic development, recreational and family entertainment venues, transportation planning, and engineering to:

- Analyze, evaluate and understand the implications and consequences of alternative location and placement/orientation of the pier
- Point of origin and purpose of potential users
- Trip generation / reasons to experience the pier
- Technical limitations and/or benefits each of these considerations has on the vision, intent and purpose of the pier.



# SITE INVENTORY EXISTING CONNECTIVITY

- KEY**
- PROJECT LOCATION
  - PUBLIC PARKING AREAS
  - VEHICULAR CIRCULATION
  - PEDESTRIAN TRAILS
  - PEDESTRIAN UNDERPASS
  - BOAT CIRCULATION

We see this as a community destination and gathering place. To make that vision a reality, reasonable access routes need to be developed. Our team has explored dozens of ideas related to maximizing access for all users to the pier. We strive for a solution that will allow a user with a physical disability, a fisherman with a bundle of fishing gear, an artist carrying an easel and trunk of supplies, or a family toting small children to be able to reasonably access and enjoy the pier unfettered. Although we have a lot of ideas, we know that there are many other ideas in the community and we are excited to hear them all and glean the best ideas for inclusion in the project.

We have sketched three of our initial ideas to share with the review committee (see following page). We have many more ideas of our own and are anticipating the community will have tremendous input as well. The concepts are very preliminary in nature and should be viewed as such. It is also noted that no effort has been made to alter the pier from the RFQ layout or to completely relocate the pier even though the opportunity may exist to do so. This was done in an effort to follow the spirit of the question.

### ACCESS CONCEPT 1

Concept 1 provides additional access to the parking, shopping, and restaurants on both the South and North side of Grandview Parkway by:

- Extending the boardwalk on the north side of the Boardman between the Boardman River Boat Launch and the Public Pier.
- Adding additional access to the Pier under the west side of the Boardman Bridge via boardwalk.
- The pier itself may also create enough additional demand such that a water taxi could be profitably operated moving people from Clinch Park (and its nearby parking lots), neighboring marinas, restaurants, and the downtown district to the Pier.
- Direct access for emergency vehicles is provided by the addition of a temporary vehicular drop-off area located on the North side of the Parkway and a connecting roadway element over the existing median. This access is only intended for emergency vehicles not as a general turnaround. The temporary drop off area also serves as a staging area for catering vehicles servicing events on the Pier.

Other features of the concept include:

- Relocation of the TART to accommodate a vehicle drop off area
- A new pier entry plaza serving as general gathering or event space for the public
- The addition of substantial bike parking facilities
- Potential expansion of parking adjacent to the existing Holiday Inn lot
- The addition of a water taxi dock
- Possibly space for transient boaters to moor on the west side of the pier

### ACCESS CONCEPT 2

In Concept 2 the pier is located on the east side of the River but generally maintains similar features as Concept 1. The primary difference being that additional boardwalk access along the northern edge of the river and under the west side of the Boardman Bridge is not needed to access the Pier.

We have  
already  
invested in  
reviewing the  
pier location.  
We have some  
great ideas for  
you!

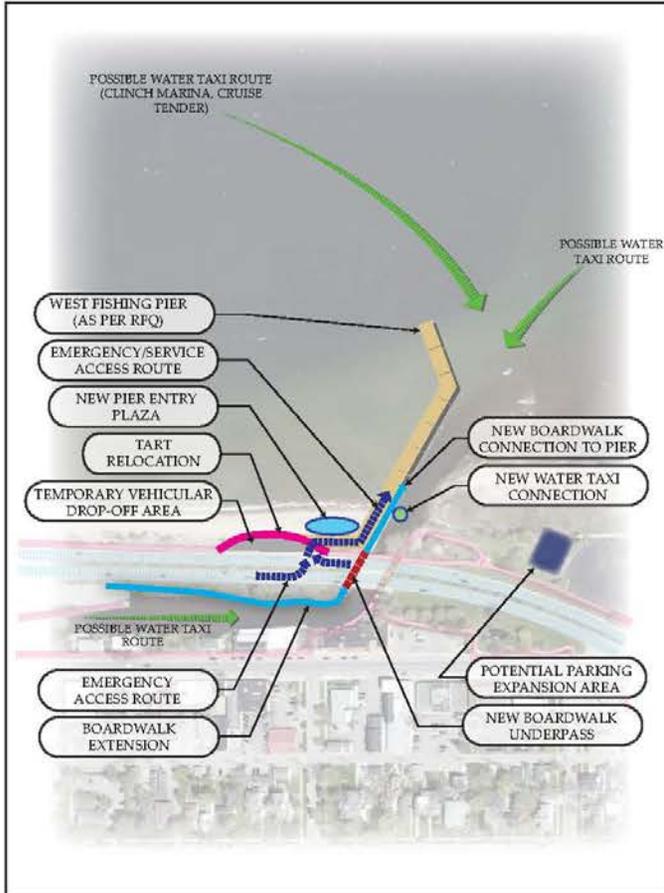
**ACCESS CONCEPT 3**

In Concept 3 the pier is back on the west side of the Boardman River having all the access features of Concept 1 with the following additions.

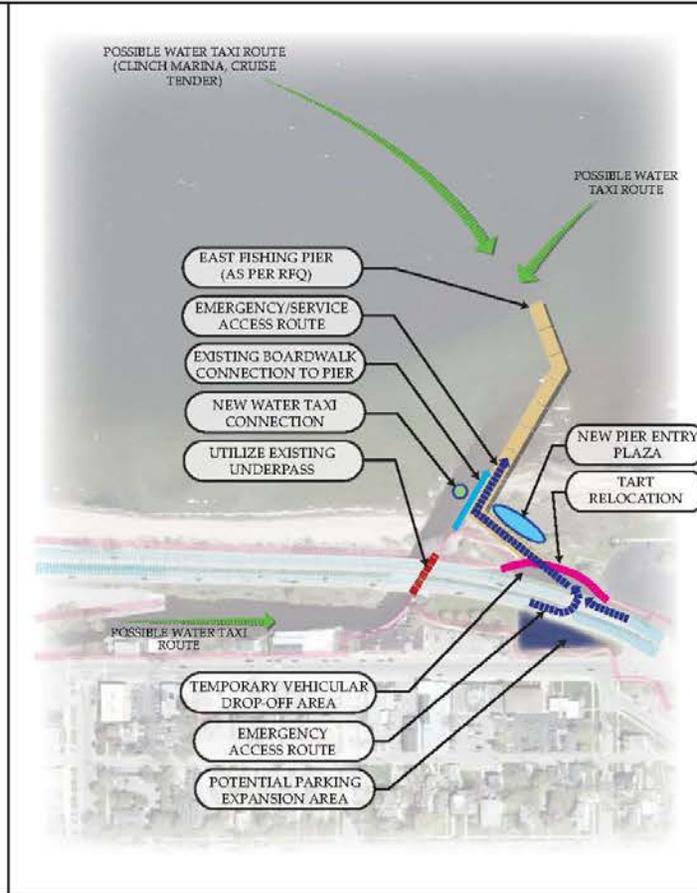
- A bridge crossing of the Boardman from the south side of the Grandview Parkway
- A new tunnel under the Grandview Parkway to access the pier as opposed to a boardwalk under the bridge.
- Relocation of the TART to accommodate a vehicle drop off area

Concept 3, including a new pedestrian bridge crossing of the Boardman River at the end of Wellington Street combined with a new tunnel under the Parkway was lightly discussed during our interview. We understand that was a dramatically different course of action than simply designing a pier. However, should the Traverse City community desire something dramatically different than a “fishing pier,” we wanted to demonstrate our capability and willingness to explore creative solutions. Our unbiased and client driven approach will thoroughly evaluate the linkages, routes, accessibility and peripheral impacts of the entire area and inform the committee, City and community of our findings. In the end, we recognize that access is a crucial issue, and although the proposed site presents challenges, our team is prepared to provide creative solutions that can be presented, vetted, and implemented.

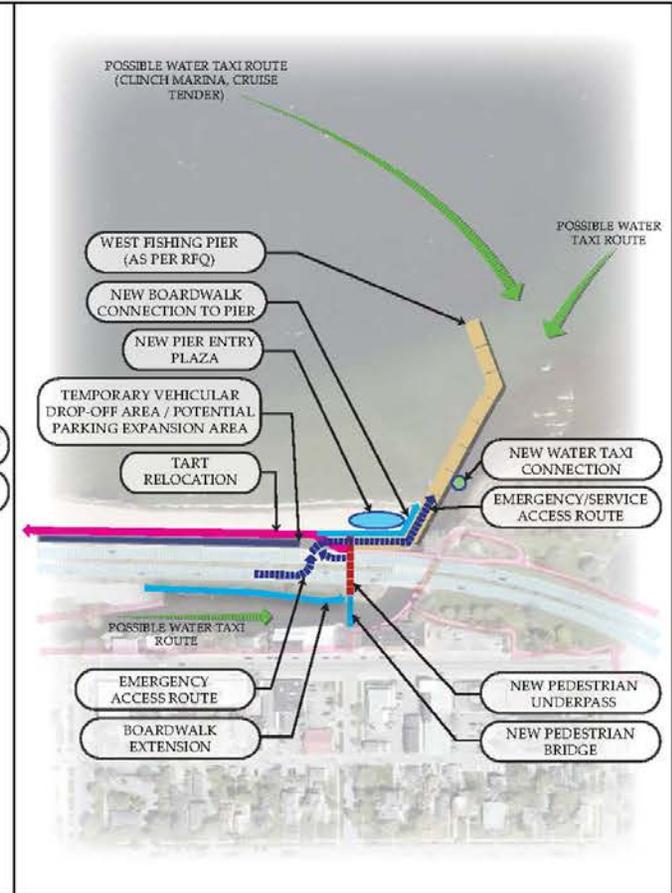




Access Concept 1  
WEST FISHING PIER  
NEW BOARDWALK CONNECTION



Access Concept 2  
EAST FISHING PIER  
EXISTING BOARDWALK CONNECTION



Access Concept 3  
WEST FISHING PIER  
NEW BRIDGE & UNDERPASS CONNECTION

# SITE ANALYSIS CONCEPTUAL CONNECTIVITY



Have any of your team members been intimately involved in the  
**Design & Construction of a pier on the Great Lakes, sea or ocean?**

**Please explain the team members involvement in the project(s) and the details of the project(s) (body of water, length of structure, project cost, etc.)**

For Traverse City, the design of a public pier is an opportunity to create a long-term benefit for the community by improving access to the water. In order for the pier to be successful, it must be designed for uses that are in line with the needs of multiple groups and also robust enough to withstand the physical environment. This latter requirement includes challenges related to waves, soil conditions, water levels, ice, sediment transport impacts, and impacts to the environment of Grand Traverse Bay and the Boardman River.

The Fleis & VandenBrink / Baird team understands these complexities. F&V has extensive experience in Michigan on the great lakes, tributary rivers and inland lakes. These experiences include waterfront development, launch ramps, fishing piers, marinas, parks, environmental education and interpretive centers, commercial development and dredging projects as well as wetland and flood plain mitigation, remediation and restoration. Our projects have included extensive involvement, review and permitting from MDEQ, local commissioners, water authorities, and the Army Corps of Engineers.

Team member Baird has been working on the Great Lakes for more than 30 years, specializing exclusively in marine and coastal projects involving public waterfronts, marine structures, and coastal analysis. The combined experience of the team includes:

- Engineer of record for constructed waterfront projects with a combined value greater than \$600 million.
- More than twenty-five projects involving piers and breakwaters designed for public access.
- Complete project life services including field data collection, public participation process, accessibility analysis, permitting, analysis, planning, cost estimating, design, construction, and post construction.
- More than 1,000 projects involving studies, designs, and construction within the coastal environment, including 600 on the Great lakes alone.
- Staff with more than 500 cost estimates related to marine and coastal construction
- A strong reputation for providing practical solutions that are supported with rigorous analysis.

Representative examples of pier projects that the FV/Baird team has been involved with are provided in Table 1 and also described on subsequent pages. To clearly distinguish between projects that contain piers extending into open water, and those that are shoreline based, the table is divided into three project types:

1. Piers (constructed) – representative projects that have been studied, designed, built, or are nearing construction.
2. Piers (pre-construction) - piers that have been studied and completed through a design development level.
3. Waterfronts - waterfront projects that are generally shore parallel and have been constructed.

The FV/Baird team has more than 90 technical professionals involved with waterfront engineering projects on a daily basis. More than half of Baird staff (45) are engineers that specialize in analysis, design, and construction in the coastal and marine environments. The remaining portion includes landscape architects, scientists, and technicians, all of which are dedicated to coastal and marine work as well. Key staff that will be available in the event that the FV/Baird team is given the opportunity to work on the Traverse City Public Pier are as follows:

F&V & Baird come with a proven track record of successful marine projects. Our past performance shows we know how to facilitate the design of a pier project that will become a focal point for Traverse City and into the future.

With over 15 years of experience in the City and a fully staffed office here, we are excited to take on this project for Traverse City.

**Ed Liegel, PE**

Mr. Liegel will be acting as Baird's project manager for the Traverse City Public Pier. He will also be very closely involved with the structural design of the pier and production of cost estimates and specifications. Mr. Liegel has been involved in a variety of marine projects in his career at Baird, spanning vessel traffic analyses through the Soo Locks to the design of multimillion dollar heavy lift port facilities. He has been integrally involved with projects numbered 4, 8, 10, 11, 12, 13, 14, and 15 listed in Table 1 below. Highlights from two of those projects include:

*Sugar Point Cruise Piers, Barbados*

Mr. Liegel was responsible for the preliminary development, structural design, and cost estimating associated with the cruise ship piers, which were subject to extreme wave uplift forces due to the requirement for a low deck elevation. During that time, he made considerable advances in Baird's knowledge with respect to grout socketing piles in notoriously problematic calcareous soils. He also provided considerable input into the specification, which was complicated by the public-private funding mechanisms for the project.

*Port Hedland Pier, Australia*

Mr. Liegel participated in this multifaceted project as an on-site representative in Australia for seven months. During that time, he was the primary client interface for a complex physical model that Baird was undertaking related to wave structure interaction. In addition, he led a group of international Engineering Consultants in the review of an alternative concept for a novel gravity based wharf that was to be fabricated in China and brought to site on a large heavy life vessel. He also led a study assessing various risk issues related to mooring 24 construction barges in the event of a cyclone during construction.

**Lars T. Barber, PLA**

Mr. Barber will be acting as Baird's QA/QC Manager for the Traverse City Public Pier project. He has worked his entire 35-year career on waterfront projects. These include major developments related to landscape architecture, design of public waterfront spaces, and recreational boating. He has been integrally involved with all the projects in Table 1 below except 13 and 14. Highlights from two of these projects include:

*Pierhead, Barbados*

Mr. Barber performed in a project management role for a super yacht project in Barbados. The project included a multi level public promenade portion ranging in elevation from 6 ft to 12 ft above sea level. The structure is exposed to hurricane wind and wave events, while providing protection for super yachts ranging in size from 60 to 300 ft in length. This project provides the impetus for a large waterfront redevelopment area including hotels, restaurants, specialty shops, and residential units. It has a strong public access component that connects the development to the community, beach front, and the downtown's central business development. Mr. Barber's role included the preparation of marketing studies to determine the entire program of the facility, development of master planning level alternatives, regulatory and public participation process, and the development of construction documents. In particular, detailed design services were provided by Mr. Barber including layout and circulation of the multilevel public pier structure for: public and marina patron access; fire, emergency and service vehicle access; safety and security systems; utility systems; special lighting and signage; extensive landscaping, special paving and site amenities package.

*Sturgeon Bay*

Mr. Barber performed as project manager for a \$20 million waterfront rehabilitation project in Sturgeon Bay, WI. The project included a pile supported public waterfront promenade structure 600 ft in length constructed with steel sheet piling, heavy wood timbers, and concrete/brick paving. The project is subject to large waves, current, and ice conditions. This project provides public access for fishing and transient craft and features extensive utilities, landscaping, and site amenities package. Mr. Barber managed this project from the initial site investigation, to development of master planning alternatives, public

participation including design charrettes and regulatory approvals, final design, preparation of construction documents, and full-time construction observation services. In addition to the public pier component, Mr. Barber managed various other components of this waterfront and downtown redevelopment project including waterfront condominiums, hotel and convention center, museum, high end restaurant, park, open space, two marinas, and public access connections to the community.

### **Craig McGillawee, PE**

Mr. McGillawee will be acting as Baird's lead structural engineer for the Traverse City Public Pier project. He is a marine structural engineering specialist and will be responsible for design calculations, determining related forces (ice, waves, dead, live, and temporary loads), and member sizing. He will also likely be very closely involved with the specifications, pier material selection, and assisting the City with issues related to maintenance requirements. Mr. McGillawee has been integrally involved with projects numbered 4, 5, 14, and 15 listed in Table 1 below. Highlights from selected projects include:

#### *Racine Pier*

Mr. McGillawee is the Project Manager and Engineer of Record for the rehabilitation of a concrete caisson breakwater with construction costs exceeding \$8M. The rehabilitation includes the construction of an anchored steel sheet pile wall, pedestrian promenade, armor stone revetment and navigation tower rehabilitation. Mr. McGillawee was in charge of all technical work for design of the structure, preparation of plans, specifications and costs estimates.

#### *Sugar Point Cruise Ship Piers*

Mr. McGillawee is the lead structural engineer for the engineering and design works for this project, which consists of two open-piled piers capable of facilitating cruise ships up to 360 m in length and onshore works. Estimated construction costs exceed \$100M.

### **Dr. Mohammad Dibajnia, P.Eng.**

Dr. Dibajnia will be responsible for assessment related to impacts on beach and riverine sediment transport for the Traverse City Public Pier project. He is an internationally recognized expert in coastal processes and has developed state-of-the-art models for sediment transport and morphology analysis. He has 28 years of experience as a coastal engineer with strong academic background allowing him to solve challenging problems through an understanding of the underlying processes. He has been with Baird for more than 13 years. Select project examples include:

#### *MacLean Beach Erosion Study*

Dr. Dibajnia is the project manager to address ongoing shoreline erosion along Toronto Eastern Beaches. The study involves detail geomorphic assessment of the study area, sediment sampling and hydrographic surveys, and 2DH numerical modeling of waves and nearshore currents for existing and several design alternative conditions.

#### *Grand Marais, MI*

Dr. Dibajnia was the study manager for investigation of shoreline response and corresponding piping plover habitat evolution as a result of failure of the old dyke as well as construction of a new proposed breakwater at Grand Marais Harbor on Lake Superior. Extensive GIS analysis of historic airphotos, recent satellite images together with site visits and comprehensive numerical modeling of nearshore coastal processes were conducted to understand the history of piping plover habitat evolution at the site and predict its future conditions.

### **C. David Anglin, P.Eng.**

Mr. Anglin will be the lead coastal engineer on the Traverse City Public Pier project. He has extensive experience in the in the planning, design and construction of structures in the coastal and marine environment. With almost 30 years of experience at Baird, Mr. Anglin has been involved in many analytical and desktop studies, field investigations and physical and numerical model studies, and has acted as project manager and/or senior coastal engineer on a wide range of coastal engineering projects, as

summarized below. He has been involved with projects numbered 1, 2, 3, 4, 9, 10, 13, 14, and 15 listed in Table 1 below. Highlights from selected project are as follows:

*Sugar Point Cruise Ship Piers:*

Mr. Anglin was the overall technical manager for a FEED study undertaken for a proposed new cruise ship terminal in Bridgetown, Barbados. The marine works for the project, estimated at \$100M, include two pile-supported piers to accommodate four large cruise ships (up to the Oasis class), dredging, land reclamation, shore protection and extensions to existing sewer and storm water outfalls. Mr. Anglin was responsible for the direction and review of all technical studies for the marine works for project, including the work of numerous subconsultants.

*Cayman Islands Cruise Pier*

Mr. Anglin was the overall technical manager for a FEED study undertaken for a proposed new cruise ship terminal in the Cayman Islands, northern part of the Caribbean Sea. The marine works for the project, estimated at \$115M, include two pile-supported piers to accommodate large cruise ships. Mr. Anglin is responsible for the project management, direction and review of all technical studies for the marine works for project, including the work of numerous subconsultants.

*Eastern Beaches*

Mr. Anglin was the coastal engineer for this project, which involved the planning, design and construction of shoreline protection measures along a section of the Eastern Beaches in Toronto. The recommended design concept consists of two submerged breakwaters with beach nourishment, and was developed through a Class EA process. The design development phase included the definition of design waves and water levels and a 3D mobile bed physical model investigation of breakwater stability, wave transmission and beach response. The final designs were developed using the physical model results and published information on similar projects, considering the characteristics and costs of locally available beach fill and quarried stone materials.

**Brent T. Sumner, PE**

Mr. Sumner will provide review of designs for constructability, preparation of specifications, costs estimates and bid support (if required) for the Traverse City Public Pier project. He has been a coastal engineer for 18 years and has developed substantial experience in marine construction, including stone quality, pier construction, sheet piling, shore protection installation, concrete placing, dredging and reclamation. His North American experience is related to projects sited mainly in the Great Lakes region of the United States.

Mr. Sumner is well versed in the administrative aspects of site work, monitoring of progress, and inspection of workmanship. His experience includes the preparation of technical specifications, tender & procurement, construction administration and contracts management for projects ranging in size from USD\$300,000 to USD\$350M. Mr. Sumner has been integrally involved with projects numbered 2, 3, 5, 7, 8, 9, 10, 12, 13, 14, and 15 listed in Table 1 below. Highlights from selected project are as follows:

*City Deck Fox Riverfront Development*

Project manager responsible for cost estimating a \$13 million urban waterfront improvement project for the City of Green Bay. The project includes extensive improvements along 2700 linear feet of shoreline including: a public fishing pier, pile supported overlooks, floating dockage, a seasonal marina, a public promenade, park space, extensive landscaping and site amenities.

*Showboat Casino Harbor and Pier*

Responsible for resident project representation and quarry quality assurance programs for a new 25 acre, \$12 million multi-use harbor on the southern end of Lake Michigan. The construction included 200,000 tons of quarried stone breakwater, 460 linear feet of sheet pile and concrete ship mooring facilities and 200,000 cubic yards of dredging and beach nourishment.

### Harriet Island Regional Park

Provided periodic construction observation services for over 2,000 linear feet of new riverfront development along the shores of the Mississippi River in downtown Saint Paul. Development includes new stone and bio-engineered shore protection system, a floating pier for excursion boats, a grand stairway, which descends to the river's edge, a river overlook structure and a floating dockage system for an historic riverboat. Responsibilities included: revetment preliminary and final design, preparation of construction documents, quarry and construction observation services.

**Table 1. Selected Examples of Piers & Waterfront Projects**

	Project Name	Body of Water	Structure Length	Project Cost (est)
<b>Piers Extending into Open Water (constructed)</b>				
1	St. Lucia Piers, West Indies	Caribbean Sea	550 ft	\$1.6 million
2	Showboat Pier/Breakwater, IN	Lake Michigan	1,000 ft	\$4.5 million
3	Buffington Boarding Pier, IN	Lake Michigan	450 ft	\$2.0 million
4	Sugar Point Cruise Piers, Barbados	Caribbean Sea	Twin 1,200 ft piers	\$120 million
5	Racine Pedestrian Pier/Breakwater, WI	Lake Michigan	2,200 ft	\$8.0 million
6	Oak Creek Industrial Piers, WI	Lake Michigan	Twin 600 ft piers	\$4.5 million
7	Harriet Island Floating Pier, St. Paul, MN	Mississippi River	600 ft	\$1.9 million
8	City Deck Piers, Green Bay, WI	Fox River	500 ft	\$3.3 million
9	Port Huron Pier, MI	Lake Huron	80 ft	\$0.3 million
10	Cayman Islands Cruise Pier	Caribbean Sea	Twin 1,100 ft piers	\$115 million
<b>Piers Extending into Open Water (pre-construction studies)</b>				
11	Chicago 2016 Olympic Games	Lake Michigan	6,600 ft	\$80 million
12	Phosphate Loading Pier, West Africa	South Atlantic Ocean (W. Africa)	500 ft	\$43 million
13	Fuel Oil Loading Pier, Bahamas	Caribbean Sea	250 ft	\$1.4 million
14	Port Hedland Pier, Australia	Indian Ocean (Australia)	4,000 ft	\$1 billion
15	Pierhead, Barbados	Caribbean Sea	1,900 ft	\$70 million
<b>Waterfronts (constructed)</b>				
16	Lake Forest, IL	Lake Michigan	2000 ft	\$4.8 million
17	Chicago, IL	Lake Michigan	1,800 ft	\$15.5 million
18	Rockley Beach, Barbados	Caribbean Sea	5,000 ft	\$7.5 million
19	Sturgeon Bay, WI	Lake Michigan	2,800 ft	\$5 million
20	Burlington, Ontario	Lake Ontario	2,100 ft	\$1.9 million
21	Eastern Beaches, Ontario	Lake Ontario	1,700 ft	\$3.5 million
22	Welches Beach, Barbados	Caribbean Sea	1,600 ft	\$4 million
23	Michigan City, IN	Lake Michigan	1,100 ft	\$70 million
24	Port Washington, WI	Lake Michigan	600 ft	\$3.8 million
25	Lost Lake, MN	Lake Minnetonka	300 ft	\$0.15 million

**St. Lucia Piers, West Indies**

Baird provided planning and design services to the Government of St. Lucia for pile-supported piers in the small communities of Laborie, Canaries and Anse La Raye. The piers were designed to serve fishermen and the Island's water taxi system, and become a cornerstone for restoring tourism in each of the communities. Key team members include: Dave Anglin, Lars Barber



**Showboat Pedestrian Pier/Breakwater, IN**

Baird was responsible for planning, design, numerical analysis, obtaining Government permits, preparing bidding documents, and full-time construction observation and quarry services for this \$14 million harbor development project. A key marine component of this project is a 1,000 ft long pier used by pedestrians for walking, fishing, and general sightseeing. Key team members include: Dave Anglin, Lars Barber, Brent Sumner



**Buffington Boarding Pier, IN**

Baird was responsible for planning, analysis, design, and construction administration for a \$12 million harbor upgrade, which involved a 450 ft. long floating vessel boarding pier. Key team members include: Dave Anglin, Lars Barber, Brent Sumner



**Sugar Point Cruise Piers, Bridgetown, Barbados**

Baird was responsible for the front-end engineering and design of the cruise terminal, which consists of a 15-acre land reclamation and two open-piled piers capable of facilitating cruise ships to 1,200 ft in length in 40 ft of water. Key team members include: Dave Anglin, Ed Liegel, Craig McGillawee, Lars Barber,



### **Racine Pedestrian Pier/Breakwater, WI**

Baird was responsible for investigation, permitting, analysis, detailed design and construction services for all four phases of the project which included rehabilitating and improving the 2,200 ft long South Breakwater of Racine Harbor. The project provides public access to the waterfront for pedestrians, fishermen, rollerblading, sightseeing, and other pleasure uses. Key team members include: Craig McGillawee, Lars Barber, Brent Sumner



### **Oak Creek Industrial Piers, WI**

Baird was responsible for planning, design, bidding and construction for twin 600 ft long parallel steel sheet pile piers that will serve to direct cooling water back into Lake Michigan and to thermally disperse the discharge. Key team members include: Lars Barber, Mohammad Dibajnia



### **Harriet Island Floating Pier, St. Paul, MN**

Baird accomplished the planning and design of a 600 ft long by 26 ft wide floating public pier on the Mississippi River in downtown Saint Paul. Responsibilities included project management, design development, regulatory coordination, preparation of construction documents and construction administration. Total project cost was approximately \$1.5 million. Key team members include: Lars Barber, Brent Sumner



### **City Deck Piers, Green Bay, WI**

Baird was in a supporting role providing cost estimates for a multi-disciplinary project team for this quarter-mile-long stretch of piers, docks, and boardwalk along the Fox River made up of a variety of materials for the walking surfaces including custom concrete pavers, Brazilian hardwood, and lawn areas. The boardwalk is now home to an array of businesses including banks, restaurants, apartments, and a museum. Key team members include: Brent Sumner, Lars Barber, Ed Liegel



**Port Huron Pier, MI**

Baird was commissioned to design over 7,000 ft of shoreline improvements for a mixed-use development in Port Huron, Michigan, along the St. Clair River. Project features included linear walkway with steel sheet pile cells, fishing pier, wetlands, and other natural environments. Baird also carried out an assessment of pilings for a 300 ft pier. Key team members include: Lars Barber, Brent Sumner, Dave Anglin



**Cayman Islands Cruise Pier**

Baird is lead marine designer for twin piers to accommodate cruise ships and pedestrians. The project is currently in the study phase. Design and construction will be complete by the end of 2017. Key team members include: Dave Anglin, Lars Barber, Brent Sumner



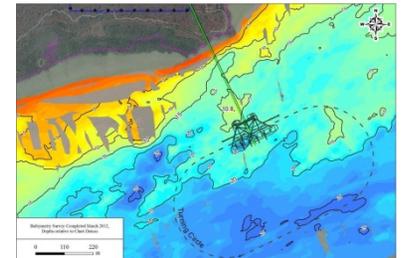
**Chicago 2016 Olympic Games, IL**

Baird was responsible for preparing a feasibility study related to the modification of existing coastal structures in the Chicago area to support the 2016 Olympic bid. The study determined the cost of upgrading the existing breakwater in Monroe Harbor into a media access pier, fabricating and installing floating grandstands, and various other items related to the rowing, sailing, kayaking, and triathlon venues. Key team members include: Lars Barber, Ed Liegel



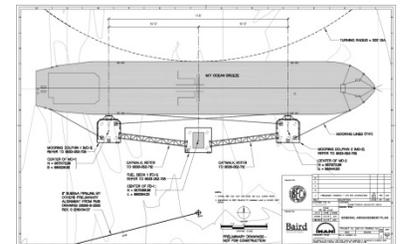
**Phosphate Loading Pier, West Africa**

Baird was responsible for field data collection, analysis, preliminary design, and cost estimating of a pile supported pier, sited on the River Geba in the country of Guinea Bissau. Key team members include: Dave Anglin, Lars Barber, Ed Liegel, Mohammad Dibajnia, Brent Sumner



**Fuel Oil Loading Pier, Bahamas**

Baird assisted with the design of a pier for offloading heavy fuel oil. Baird's scope of work included site surveys, feasibility studies, design development, and preparation of preliminary engineering design drawings for the proposed tanker berth. Key team members include: Dave Anglin, Brent Sumner, Ed Liegel



**Port Hedland Pier, Australia**

Baird was responsible for establishing design parameters, physical modeling of wave loads, and physical modeling of wave overtopping on a large commercial pier. Key team members include: Dave Anglin, Brent Sumner, Ed Liegel, Craig McGillawee, Matthew Clark



**Pierhead, Bridgetown, Barbados**

Baird completed structural engineering for this project, which includes a 500-meter parallel sheet pile breakwater / public pier and approximately 500 linear meters of anchored bulkhead to support a land reclamation and development program. The estimated construction budget exceeds \$70 million. Key team members include: Dave Anglin, Lars Barber, Brent Sumner, Mohammad Dibajnia, Ed Liegel, Craig McGillawee



# Coastal. Community. Process.

B A Y

salmon

laker

steelhead

walleye

smallmouth

Response to Additional Information Request  
Traverse City Public Pier

JULY 16, 2014



imagine a pier...

imagine access

SMITHGROUP JJR

D M A N R I V E R

July 16, 2014

Ms. Missy Luick  
Planning and Engineering Assistant  
City of Traverse City  
2nd Floor, Governmental Center  
400 Boardman Avenue  
Traverse City, Michigan 49684

Re: Traverse City Public Pier  
Response to Additional Information Request

Dear Ms. Luick:

The SmithGroupJJR Team is very excited to provide you and your Selection Committee additional information for consideration as you continue the process of selecting a partner firm for the design and construction of the Public Pier at the mouth of the Boardman River.

We have organized our response in accordance with your email request dated July 11, 2014.

Based on our interview discussion with the Selection Committee, and the subsequent information request, we are convinced our Team is the right partner for the City of Traverse City. Our compelling reasoning for this is as follows:

**Coastal Analysis, Design, Engineering + Facilitation: Holistic, Comprehensive + Integrated.**

Our Team is organized with leadership in each of the professional disciplines required for this unique project; it is also fortified with a combined firm organization of over 800 professionals with considerable depth in each discipline.

**Coastal Engineering + Hydraulic Analysis: International, National, Regional + Local Experience.**

Margaret Boshek has over nine years' international experience in specialized coastal engineering and analysis as well as experience in the Great Lakes, oceans and river environments. She will be supported by Smith-GroupJJR Team members Bill Brose and Jack Cox who are internationally and nationally recognized as leading coastal engineers in the field of waterfront design. Together, Bill and Jack have over 70 plus years of combined experience across the globe and they will be directly involved in evaluating and guiding our technical design efforts. This team of coastal engineers has been responsible for tens of millions of dollars in waterfront structures and facilities construction with a proven track record of technical excellence.



Omni Talon at Detroit RiverWalk



**Public Engagement + Facilitation: Creative, Engaging, Inclusive + Transparent.**

Our facilitation and public engagement expertise and leadership is unmatched. Bob Doyle, who will be leading this aspect of the project, has successfully navigated dozens of communities through challenging urban and waterfront projects by being compassionate, passionate, humorous, genuine and fair. Bob believes a successful facilitator must be a part of the design process and needs the requisite keen process understanding and professional savvy to lead a community towards a successful solution, approach and consensus.

**Fisheries Habitat: Great Lakes Expertise.**

Although we did not stress this in our submittal or interview, SmithGroupJJR has a recognized expert in Great Lakes-specific fisheries and analysis of coastal environments to ensure beneficial habitat creation and preservation. Doug Denison has served as an expert resource to the Fisheries Trust Fund Board, is an engaged leader in the fisheries biology community and is recognized by NOAA, MDEQ and the EPA as a scientific leader in environmental planning and analysis for fisheries habitat. Doug's expertise will bring great value to our Team and will help guide our decision-making process, which will limit negative impacts to the coastal environment and allow for the integration of habitat creation into the Pier's final design.

**Leadership. Commitment.**

The SmithGroupJJR Team's success will be measured by the sum of its parts—each team member contributing thoughtfully to our collaborative approach for the Pier's design and technical solutions. Team synergy plus leadership that is well defined, committed and able to successfully manage the process is mandatory for a team to succeed—regardless of the level of specialized expertise. As the leader of the SmithGroupJJR Team, I have the proven expertise and leadership qualifications to deliver the City of Traverse City across the goal line by meeting and exceeding all project expectations. Also, as an engineer with decades of waterfront experience, I understand the pitfalls that may arise, how to overcome them, and how to deliver a technically-successful project.

This project is going to need a leader with these qualities and experiences and the City deserves a qualified team with strong leadership and a commitment to work with the City beyond the completion of the Public Pier. This cannot happen without a personal commitment to partner with the City from the beginning of the project through to the punch list and beyond, including a review of first-year operations and maintenance. I make this commitment to the City on behalf of myself, SmithGroupJJR and the Team we have assembled to work with you on this very important project.

I look forward to our continued discussion and stand ready to begin our partnership on the Public Pier. If you have any questions, please feel free to contact me directly at 734.669.2766 or pat.doher@smithgroupjjr.com.

Sincerely,



Patrick M. Doher, PE, LEED AP  
Senior Vice President

# 1 | MATERIALS SELECTION PROCESS/

## Evidence-Based Approach

SmithGroupJJR has decades of experience in the use and function of materials used in outdoor spaces, particularly in the difficult marine environments of the Great Lakes. Our designers and engineers use a database of built projects to research the durability and maintenance issues associated with materials used in surfaces, walls, stabilization, furnishings, planted areas and other elements in the built environment. In addition, a philosophy of sustainability is deeply rooted in our exploration and selection of materials. Life cycle cost analysis, local suppliers and natural materials are key to environmental stewardship—which has always been a cornerstone of our design approach.

Together with our built projects, we also explore and benchmark other site development within the region of a particular project to determine the impact of hot and cold temperatures, freeze cycles, humidity, wind, off-shore coastal forces and processes, lake ice and the surrounding environment's impact on the use, life and maintenance of materials.

This evidence-based approach within our design process allows us to provide owners with the information necessary to make informed decisions on suggested and recommended materials.

Coupled with our design process, SmithGroupJJR has excellent relationships with suppliers, fabricators, and contractors who deliver, create, and construct elements within the outdoor built environments. These relationships allow our designers to visit fabricators, invite suppliers and contractors to our office or client's offices to discuss, demonstrate, and inform our collective teams regarding proposed materials, fabrication techniques, and design details.

In addition, we have a core group of architects and engineers that are experts in materials technology, including experts in forensics and analysis of building systems and materials that have national and international reputations in the field of durability, function, and performance. This group serves as a resource throughout our firm and to our clients as we seek to inform our teams and owners throughout the design process.

Finally, we use our relationships with municipal facilities managers and staff to determine the aspects associated with the maintenance of built environments and public spaces. There is no better resource to inform our teams and owners regarding the maintenance of outdoor spaces than those that are charged with the maintenance and operation of these spaces.

Our company has designed and implemented hundreds of projects within the Great Lakes Region, including piers, coastal structures, sediment transport management structures, beaches, marinas, promenades, boat launches, and fisheries habitat enhancements. This experience provides us with unmatched knowledge regarding the best types of materials, material performance, and the issues associated with the operation and maintenance of built outdoor spaces in this region. Whether its stone used to stabilize marine structures; guardrails intended to provide safe access to spaces and places; surfaces of stone, pavers and concrete; or furnishings and amenities within a public space, our teams have the information and resources available to ensure our projects are designed with research, evidence, and knowledge—allowing our clients to make informed decisions with confidence.

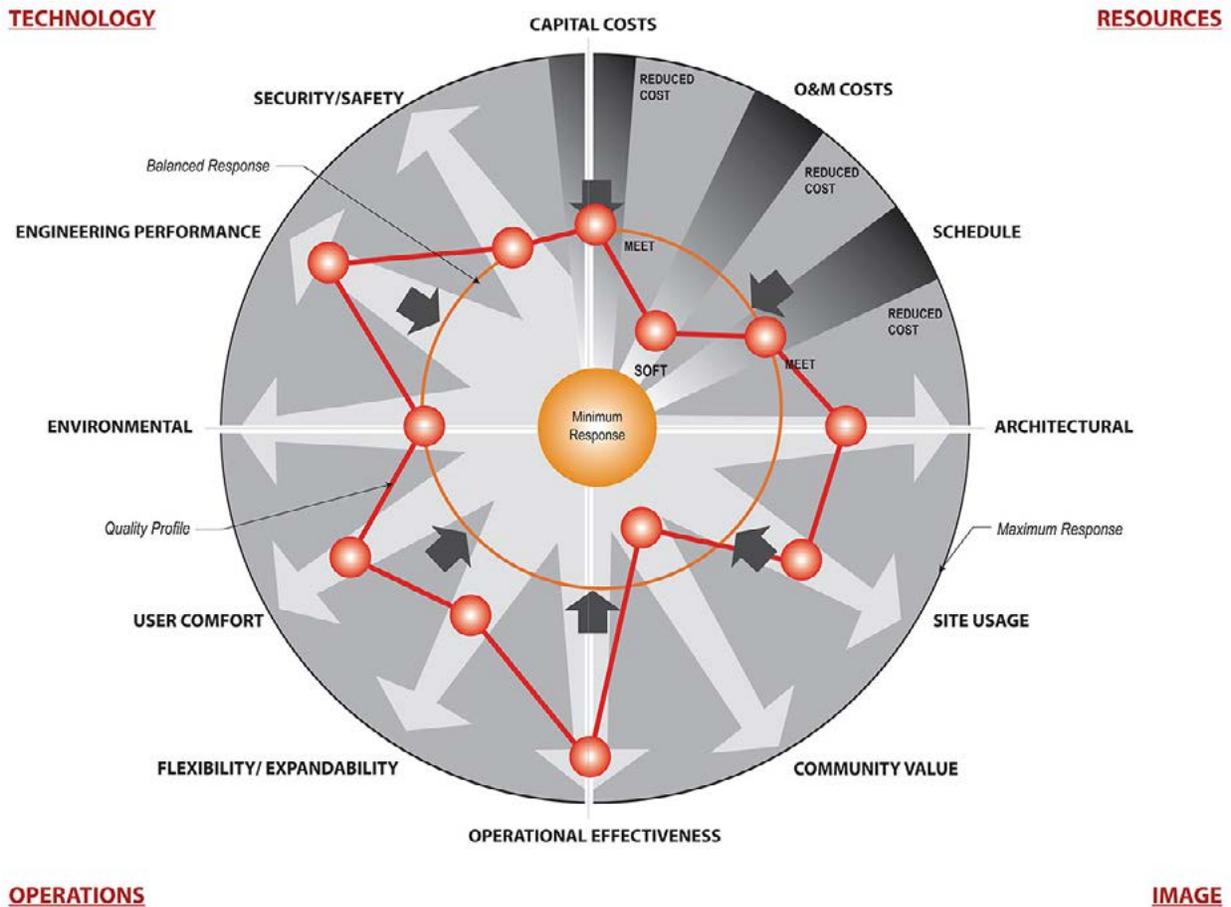
## Quality Model Programming

All of this knowledge and resource data is incorporated into the early phases of our projects and is used as a benchmarking exercise to allow comparison of materials to make informed decisions. A matrix and value model is established in order to prioritize our client's desires. For example, long-term maintenance may be more important than life-safety, and long-term durability may be more important than environmental considerations.

One of the tools we use to help clients weigh options and make decisions regarding design elements, materials and project elements is a Quality Model. In an interactive workshop setting, the client's project expectations may involve design image, flexibility, functionality, technical systems performance, maintenance, budget adherence or any other issues which may shape the direction of the project.

This collaborative workshop environment between the client and SmithGroupJJR helps to build a clear, mutual understanding of design goals and objectives, how the facility should perform, what issues are the most important and, most of all, what the client ultimately wants both tangibly and intangibly.

The benefits of this comprehensive approach are a proactive understanding of facility needs in terms of function and flexibility (accommodating existing and future operational practices), and a thoroughly explored, tested program developed in a collaborated team process. The results of the Quality Model exercise is a clear path regarding project goals and performance, and allows a matrix for decision making to be used as a system of checks and balances throughout the project.



## 2 | WORKPLAN FOR PUBLIC ENGAGEMENT/

Based on our experience with projects of similar scale, we have estimated hours specific to managing public engagement. A detailed chart delineating the hours per team member per task is presented at the end of the section.

Each community and project is unique, and our design solutions are tailored to suit the particular needs and character of your community. Engaging the public in the design process provides us with insights into the needs and preferences of the local community and allows the public to shape the design outcomes. Our experience has taught us that the keys to a successful public engagement process include:

- Engaging the public and stakeholders early.
- Setting measurable objectives for the project against which alternatives can be evaluated.
- Using graphic illustrations to communicate ideas clearly and legibly for lay people.
- Offering genuine alternatives and leaving the “straw dogs” at home.
- Listening to and respecting all participants and discovering the kernel of sound thinking.
- Being analytical, connecting ideas together and illustrating logic.
- Showing your passion, sincerity, and humor!

For over 50 years, our site planning practice has demonstrated that the value of involving the public directly in the process of planning and design will successfully result in the following:

- Design solutions that reflect the direct input of your citizens and fit the character of the community.
- Strong community support for the plan—because they helped shape it!
- Approval and implementation of the plan that is less contentious and faster moving.
- Program elements and connections to the community that reflect the real needs and aspirations for the facility.

The following text consolidates the primary points of public interface originally provided in the “Scope and Approach” of our *Innovative Waterfront Design* qualifications dated June 12, 2014.

### PLANNING PHASE/233 hours

#### SITE INVESTIGATION + SCHEMATIC DESIGN

#### Task 1.3: Establish a Public Outreach Campaign 36 hours



The SmithGroupJJR Team will conduct a public outreach campaign that includes public meetings, tours of the site led by our Team, coordination with local news outlets, and a social media outreach plan. The format and content of the workshops that are outlined below will be used as a starting point for discussions with City staff and the Steering Committee as we refine a public outreach campaign with you.

Before the public engagement begins, we will work with City staff to prepare a detailed and specific outline of the elements of the outreach campaign, including:

- Meetings and workshop summaries noting meeting objectives, presentation content, engagement tools and exercises to be used, and logistical requirements (e.g., room size and set up).
- Social media/web-based approach, including specifics on how, when and what content will be posted; who will monitor and organize public input; and how responses may be prepared.
- A strategy for working with the local media to promote upcoming meetings/events and accurately communicate project progress.

To help facilitate public involvement, we suggest that you form a Steering Committee made up of community citizens, public officials, agencies, organizations, religious/educational institutions, and other stakeholders to represent the community's interests and provide critical input and guidance. We are also proposing to involve individual property owners and stakeholders, as well as the general public, in a meaningful way through active listening in personal interviews, presentations, and design workshops. We use a variety of potential engagement techniques to allow for all participants and groups to be comfortable providing input.

Our Team is experienced in creating a comprehensive social media approach/presence through the use of Twitter, Facebook, YouTube, LinkedIn, Instagram and Pinterest, among others. We will post, and link to, project updates, plans, and information (such as the results of a community preference survey) to keep the community involved in the process. We have used this approach as a low-cost method of engaging the community by soliciting public input, building community enthusiasm, and communicating important project information. These approaches can easily be incorporated into the City's website.

We typically suggest using social media and web-based sites to announce upcoming public meetings, present design documents at key milestones throughout the process, post preference surveys and interactive maps, provide meeting summaries to communicate the project direction, and suggest other forms of input such as contact information for key Team members (if appropriate).

Our Team also collaborates with MindMixer, a social media platform built to streamline the dispersal of project information, facilitate community involvement, and sustain engagement and momentum in a project. If requested, we could assist the City in the design, launch, and maintenance of a project website on the MindMixer platform.

## TASK 1.4: Kick-off Workshops + Interviews 75 hours

The SmithGroupJJR Team will travel to Traverse City for a two-day site visit and set up a project workstation within our local team member's office or a location suggested by City staff. During this initial site visit, we will accomplish a series of activities, as follows:

1. Conduct a Kick-off Meeting with the City staff and the Steering Committee to review project requirements, schedule, and scope of work, and develop a set of project goals and objectives.
2. The Team will lead a tour of the project area with City staff and the Steering Committee members to re-familiarize everyone with existing conditions that will influence the planning and design efforts. We have found that looking at

Results for #popupworkshop  Save  
Top / All

 Jessie Stachowiak @jessiestach · Jun 12  
2 wagons, 4 maps of #AnnArbor, 7 facilitators. ONE day full of awesome public input! #A2streetplan #popupworkshop



  2  1  View more photos and videos

Retweeted by Jessie Stachowiak  
 Ann Arbor DDA @A2DDA · Jun 12  
Looking for your feedback on the #A2StreetPlan #PopUpWorkshop We'll be walking around downtown June 12th #AnnArbor @A2DDA @SmithGroupJJR

 Ann Arbor DDA @A2DDA · Jun 12  
Starting to get some great feedback on the #A2Streetplan in Kerrytown!



a familiar place with a larger group can spark productive discussions and fresh observations of the physical environment that often surprise participants.

3. The first public workshop will kick-off broader public engagement for the project, including (1) providing an overview of the planning process and schedule; (2) incorporating a visioning exercise to let the community share their long-term goals and objectives; (3) reviewing draft existing conditions analyses, and (4) using a feedback activity to broadly discuss issues, opportunities and priorities from the public's perspectives.
4. Meet with the Steering Committee following these meetings to review and discuss the findings and establish a direction for next steps.
5. Perform Pop Up Workshop community outreach efforts to inform the design and programming as well as obtain other feedback to inform the project Team.

## Task 1.6: Schematic Design Plan

122 hours

### *Design Workshop*

A design workshop to be held within our local team member's office or a location suggested by City staff to collaboratively develop at least three waterfront improvement alternatives for the project area.

These alternatives will consider:

- Pier recreational uses and amenities.
- Paths connecting to downtown, Clinch Marina and Park, and the larger TART system.
- Fishing and water access.
- Habitat creation opportunities.

The workshop will be structured as an interactive meeting that allows participants to openly comment on the ideas presented, help in the development of new ideas for the plan, and offer input as to preferences. The goal of the workshop will be to gain an understanding of the range of design and planning ideas possible, their relative merits, and help reach consensus for further refinements to the Pier project.



Tools we use to solicit input from the public participating in the workshop may include:

- Small group/hands on interaction.
- Charrette style idea generation with design professional and public collaboration.
- Preference exercise to help define the design character, program elements, and/or alternative design ideas desired.
- Informal one-on-one open house style interaction with the design Team members.

We anticipate that the result of the workshop will be a series of design sketches illustrating the design ideas, a written summary of the conclusions of the group, and a listing of outstanding design issues that require additional study.

Weather permitting, we often like to tour the site with the public as a precursor to the workshop, or conduct the workshop on site. SmithGroupJJR has recently implemented a new form of community outreach called Pop Up Workshop. These are literally on-the-spot community gathering efforts in which we carry our visioning and design tools into the community to gather informal, immediate and organic feedback about the project, its use, and the desired program elements and outcomes. Typically, we perform these efforts in areas of high pedestrian activity and near the project site. These workshops are also a good opportunity to increase dialogue

about the project via social media. During our most recent Pop Up Workshop in downtown Ann Arbor, we conducted a successful Twitter campaign using pictures and #PopUpWorkshop. The tweets were “favorited” and “retweeted” by SmithGroupJJR, the client and other team members.

### *Schematic Design Plan and Workshop*

The Schematic Design Plan will be presented to the City and public at a *workshop-style* meeting in Traverse City to review and gather input on the plan and anticipated costs. As the design work is refined at this stage in the process, there is still considerable room for meaningful public input. Typically a workshop at this stage includes a brief presentation of the design refinement and alternatives being considered, followed by an interactive set of exercises to engage the participants (as outlined above for the previous design workshop). The design Team will prepare plans, perspective views, and diagrams to help clearly communicate to the public the design intent and the alternative choices available.

The key objectives for the workshop will be to:

- Confirm that the design reflects the input provided in the previous design workshop.
- Assess priorities for implementation, i.e., what matters the most to the community?
- Help define the character and materials for the design through consideration of alternatives.
- Provide information as to the anticipated next steps for the project.



## **DESIGN, BID + AWARD** **PHASE/48 hours**

PHASE 2: PRELIMINARY DESIGN

PHASE 3: FINAL DESIGN

PHASE 4: PROJECT CONSTRUCTION

During these phases, our work related to public engagement will include meeting with the public and elected/appointed commissions and updating the web-based content on an as-needed basis to provide information to the community on the progress of the project.

## Hours Delineated for Public Engagement

	SmithGroupJJR					Gourdie-Fraser		TOTAL HOURS
	B. Doyle	P. Doher	K Gibbons	M. Boshek	Staff	H. Harris-Brady	D. Wagner	
<b>SITE INVESTIGATION AND SCHEMATIC DESIGN</b>								
<b>1.3 Establish a Public Outreach Campaign</b>								
Draft Workshop Outlines/Web Strategy	6	1	1			2		10
Meet with Staff and Steering Committee to Review	3	2				4		9
Coordinating Web-based Platform			4			2		6
Managing Web-based Content	1		6			4		11
<b>1.4 Kick-off Workshops and Interviews</b>								
Kick-off Meeting	6	4				4		14
Project Site Tour	4	2	6			2		14
Workshop #1 Organization and Prep	4		7		4	8		23
Public Workshop #1	4	4	4			2	2	16
Steering Committee Meeting to Review Results of Workshop	4	4						8
<b>1.6 Schematic Design Plan</b>								
Workshop #2 Organization and Prep	6		6	4	4	16		36
On Site ("Pop-Up") Workshop #2A (afternoon)	4	4	4	4		2		18
Design Workshop #2B to Explore Alternatives (evening)	4	4	4	4		4	2	22
Workshop #3 Organization and Prep	8	1	4		4	10		27
Schematic Design Plan Workshop #3 to Refine Plans	12	6			1			19
<b>PRELIMINARY and FINAL DESIGN</b>								
<b>Meetings and Public Updates</b>								
	12	8				12	2	34
<b>Managing Web-based Content</b>								
	2		4			8		14
<b>SUBTOTAL OF HOURS by professional</b>	<b>80</b>	<b>40</b>	<b>50</b>	<b>12</b>	<b>13</b>	<b>80</b>	<b>6</b>	<b>281</b>

Please note that many of the hours used to prepare for public meetings and participation also benefit other phases of the project, such as Concept Development and Schematic Design, to ensure an efficient use of project dollars and the City's resources. In addition, our project team leader has been allocated a certain budget of hours; however, he is committed to the project, as required, and it is anticipated his level of effort will exceed the hours allocated, without additional expense to the City, to ensure the project's success.

### 3 | CONNECTIVITY + PIER ACCESS/

For the Traverse City Public Pier to become a successful public space, it needs to have a clear, legible, and logical connection to the community and its key assets.

Connecting the waterfront to the community in Traverse City is a challenge. The *Your Bay, Your Say* waterfront master planning process outlined several key strategies for improving connectivity, including improvements to the crossing of Grandview Parkway at Union, Cass, and Park streets and improving the non-motorized connection at the Boardman River under the Grandview Parkway Bridge.

The Public Pier is another opportunity to help activate the waterfront on the eastern end of downtown while improving the waterfront connection to downtown. The best way to reach this potential and successfully provide clear access is to consider a range of alternative ideas and vet them through an open and transparent public engagement process. Our design methodology is rooted in the exploration of comprehensive, creative, and innovative alternatives taking into account best practices from around the globe, community preferences, and basic cost/benefit analysis.

#### Technical Challenges:

#### Design Opportunities

The grade difference between Grand View Parkway and the water of the bay is a key challenge; however, the SmithGroupJJR Team believes the challenge is not as significant as it may appear, and with some creative problem solving it can be addressed seamlessly.

Based on the preliminary typographic information collected to date by our Team, we know there is about 20 foot of vertical elevation difference between the water and the bridge. Assuming that the primary elevation of the pier is about 8 feet above the current water level, there is about 12 foot of vertical change that needs to be accommodated in a design. Alternative design ideas will be considered and may include an option for separating pedestrians and bicyclists at the bridge with a new pedestrian-only bridge over the river, which could potentially reduce the grade change to between about 7 to 8 feet.

In the context of the size of this site and the length of the Pier, an accessible path that accommodates 7, or possibly 12, foot of vertical change can be integrated into the full experience of the waterfront and be visually unified with the character of the site and Pier. With universal access as a foundational project goal, the sloping boardwalks and sidewalks become the access ways that everyone uses and not an appendage on the “real” part of the project.



The South Fishing Pier on Belle Isle afforded an opportunity to improve the ecological quality of the Detroit River through the creation of a 2.5 acre protected coastal wetland and shallow water nursery habitat.

#### Compelling Design:

#### Compelling Experiences

More important than making the grades work is designing an experience that leads, if not compels, the waterfront visitor toward the pier and related facilities. The waterfront should be much like a necklace—the path (as a fine chain of gold) with activity hubs (elegant jewels) spaced at suitable intervals to increase visual interest and lead the people from point to point.

As illustrated in the sketches on the following pages, these activity hubs could include:

- A boardwalk node near the shoreline of the bay on the east side of the river that satisfies the urge to experience the bay after passing under the Grandview Parkway Bridge.
- Overlooks along the TART Trail on both sides of the river.

- Iconic design features that focus the experience on the water and become part of the wayfinding system.
- A sweeping path to the beach that offers a panoramic view of the bay and boats.
- Carefully crafted and elegant placemaking nodes or features on the Public Pier that insist the visitor experience them, culminating with an exclamation point at the north end of the Pier!
- A windswept boardwalk that engages the beach as it moves you west toward Clinch Park.



Alternative cross sections will be considered to accommodate heavy use of the TART.



Nodes and overlooks at Milliken State Park and Harbor provide access to and places of interpretive learning.

## Exploring: Alternatives

For the purposes of illustrating a range of potential improvements to accessing the waterfront, we have explored several ideas and provided some conceptual diagrams. During the actual design process our team will complete a thorough analysis of the site and current non-motorized users and use patterns, which will help us gain a specific understanding of how access needs to function and provide us with a basis for exploring other alternatives.

The three alternatives presented on the following pages offer an array of potential approaches, including:

- *West Side Keep it Real* – Straightforward design ideas to lead people to the Pier. This option improves the TART as a multi-use trail and creates an active, programmed park area at the base of the Pier to provide activity and energy to the area.
- *West Side Double-Double* – Recognizes the high levels of non-motorized traffic in this area and provides a pedestrian-focused crossing of the Boardman and pushes a smaller boardwalk out to the bay's edge on the east side of the river.
- *East Side Fly* – Places the primary Pier on the east side of the Boardman and dramatically pulls trail users from Clinch Park and downtown to experience the Pier.

Our team's proven ability to successfully overcome technical challenges (like the access grades) while designing energetic, thought provoking, and inspiring places is a hallmark of our work. We don't know the right answer yet, but are confident in our ability to create a compelling (and feasible!!) access to the waterfront in partnership with the community. We are committed to bringing you a wide range of creative solutions and working with you and the community to determine the approach that best fits Traverse City.

WEST ARM GRAND TRAVERSE BAY

**PATH CONNECTION POINTS / INTERPRETIVE OVERLOOKS**

Widened and improved TART Trail (multi use).

Enhanced beach

Active park use.

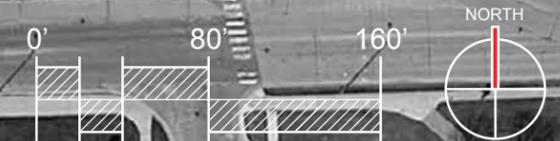
Improve path over Murchie Bridge with MDOT bridge improvements.

**ICONIC RIVER MARKER / OVERLOOKS**

GRANDVIEW PARKWAY

BOARDMAN RIVER

FRONT STREET



# west side double double

WEST ARM GRAND TRAVERSE BAY

ACTIVITY NODES

BAY OVERLOOK / FISHING ACCESS

PATH CONNECTION POINT / INTERPRETIVE OVERLOOK

ICONIC RIVER MARKER / OVERLOOKS

Pedestrian connection to the Clinch Park Marina area and beach.

Enhanced beach

Park / Garden area

TART Trail remains for bike focus.

Connection to Downtown/Boardman gateway adjacent to Paesano's.

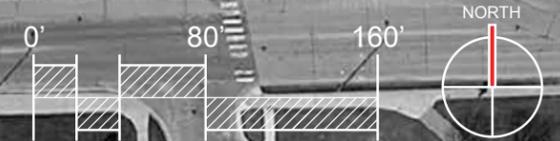
Widen access under the Murchie Bridge.

<5% SLOPE a new pedestrian bridge <5% SLOPE

GRANDVIEW PARKWAY

BOARDMAN RIVER

FRONT STREET



WEST ARM GRAND TRAVERSE BAY

**PATH CONNECTION POINTS / INTERPRETIVE OVERLOOKS**

Pedestrian connection to the Clinch Park Marina area and beach.

Enhanced beach

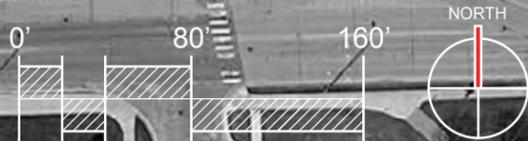
TART Trail remains for bike focus.

Connection to Downtown/Boardman gateway adjacent to Paesano's.

GRANDVIEW PARKWAY

BOARDMAN RIVER

FRONT STREET



## 4 | COASTAL, WATERFRONT + HABITAT FISHERIES/

SmithGroupJJR's Team is composed of some of the country's foremost waterfront and coastal engineers with experience in master planning, design and implementation of coastal shoreline and erosion control protection and recreational boating and public facilities throughout the country.

Our project team includes engineers who served as contributing authors to the most recent edition of the American Society of Civil Engineers *Manuals and Reports on Engineering Practices No. 50, "Planning and Design Guidelines for Small Craft Harbors"*.

For the past 20 years, our team of coastal engineers have regularly presented at the annual *Docks and Marinas Conference*, organized through the University of Wisconsin-Madison Department of Engineering. Our staff have presented on many topics, including:

- Understanding wave action and designing breakwaters and wave attenuators.
- Planning, design and construction of marina structures.
- Hurricane protection for marinas and shore structures.
- Maintenance and improvements to marina dockage and facilities.

At the conclusion of this section, we have provided a detailed matrix illustrating the comprehensive experience of each team member in regards to the design and construction of piers on the Great Lakes as well as oceans, rivers and lakes. Although not an all-inclusive list, the [Pier Experience Matrix](#) clearly demonstrates the depth of experience in the design and engineering of waterfront spaces and places, including the coastal and hydraulic analysis of waterfront environments.

### Coastal Modeling, Design Engineering + Construction

SmithGroupJJR coastal engineers are hands-on and in the field, conducting bathymetric surveys, existing condition assessments, numeric and physical modeling, and on-site construction administration.

We use a combination of numeric and physical modeling as a tool to help ensure the best possible outcome for our clients. This may include using numeric modeling

### Coastal Modeling Experience

- Edgewater Marina Rehabilitation, Cleveland, OH
- North Coast Harbor, Cleveland, OH
- Clinch Marina, Traverse City, MI
- Kenosha Harbor Modeling Study, Kenosha, WI
- Southport Marina, Kenosha, WI
- Fisherman's Cove Marina, Bellingham, WA
- Euclid Waterfront Master Plan, Euclid, OH
- Sister Bay Marina and Shoreline, Sister Bay, WI
- Egg Harbor Marina Reconstruction, Egg Harbor, WI
- Geneva State Park Harbor, Geneva, OH
- Knife River Marina, Knife River, MN
- Grand Marais Marina, Grand Marais, MN
- Hoakalei Resort, Oahu, HI
- Barrier Island Conceptual Design, Seabrook, TX
- Navy Pier Rehabilitation, Chicago, IL
- Lakeshore State Park, Milwaukee, WI
- Milwaukee Art Museum Shoreline Stabilization and Lakefront Promenade, Milwaukee, WI
- Forest Park Shoreline Stabilization and Restoration, Lake Forest, IL
- Riverfront Redevelopment Phase 1 Design, Paducah, KY
- Clarksville Riverfront Planning and Design, Clarksville, TN
- Mississippi Riverfront Plan and Design, Muscatine, IA
- Reef Point Marina, Racine, WI
- Concordia University Lakefront Bluff Stabilization, Mequon, WI
- Rosewood Park, Highland Park, IL
- Silver Bay Harbor of Refuge, Silver Bay, MN
- Apostle Islands Shoreline Stabilization, National Park Service, Bayfield, WI

to identify options to improve the wave climate and sedimentation occurring at existing or proposed facilities. In other instances SmithGroupJJR has constructed a physical model of the planned improvements. The physical models have allowed SmithGroupJJR's designers and engineers to test concepts and develop optimized solutions that can help save client's money and provide optimal protection and structural integrity.

Our team of engineers work collaboratively and are integrated with our design team on developing cost-effective and long-lasting design solutions. This includes developing various conceptual designs, refining these designs, and providing on-site construction administration to ensure our designs get built to our standards.

## CASE STUDIES

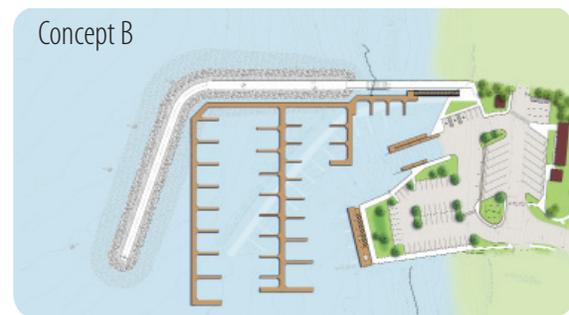
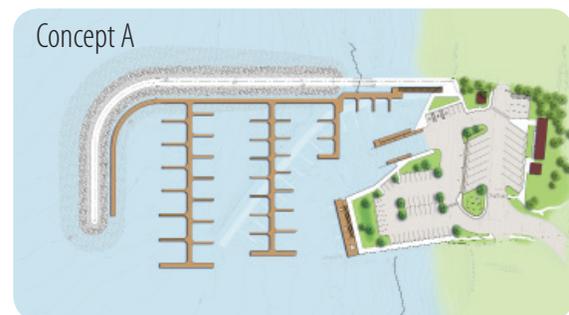
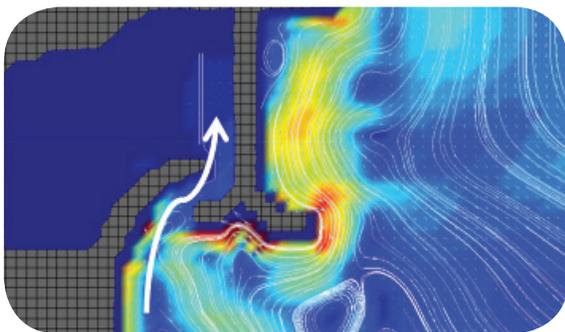
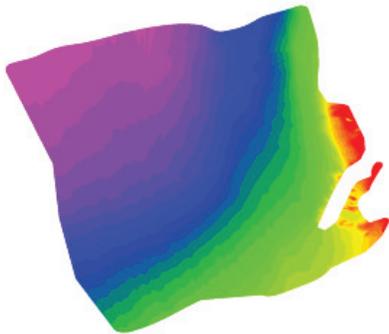
### Written, Graphic and Pictorial Project Samples

SmithGroupJJR provides our clients with a variety of exhibits throughout the process, starting from initial concept and schematic design through to implementation. To do this, we provide our clients with diagrammatic graphics, computer and hand drawn renderings and cross sections, 3D models, wind and wave modeling graphics and videos (when appropriate), written reports, and ultimately, legible and precise construction documentation.

## Egg Harbor/ Egg Harbor, WI

### Wave and Wind Modeling

As part of the initial feasibility study, SmithGroupJJR conducted numerical wave and wind modeling of the existing harbor conditions. These models influenced the concept designs that were developed during the conceptual phase.



### Concepts

SmithGroupJJR developed a series of concept plans that addressed the Village's primary concerns. Options ranged from rehabilitating the existing breakwater and boat slip arrangement in the current configuration, to developing an expanded, pedestrian-accessible breakwater that allowed the Village to provide additional marina boat slips, and improved shore protection structures with a publicly accessible feature.

### 3D Modeling

To help the client visualize the final design, SmithGroupJJR built a 3D model of the proposed breakwater and marina. The 3D renderings helped lessen concerns from the client and the public that the new breakwater would impact their scenic sunset views. The models not only allowed the public to see the minimal impact on their views, but were also used as part of a public referendum to raise funds for construction of the final marina, and in state and federal grant applications.



### Construction and Implementation

SmithGroupJJR engineers prepared the final construction documentation for the Egg Harbor Marina Rehabilitation project, and provided on-site construction administration throughout the construction process.



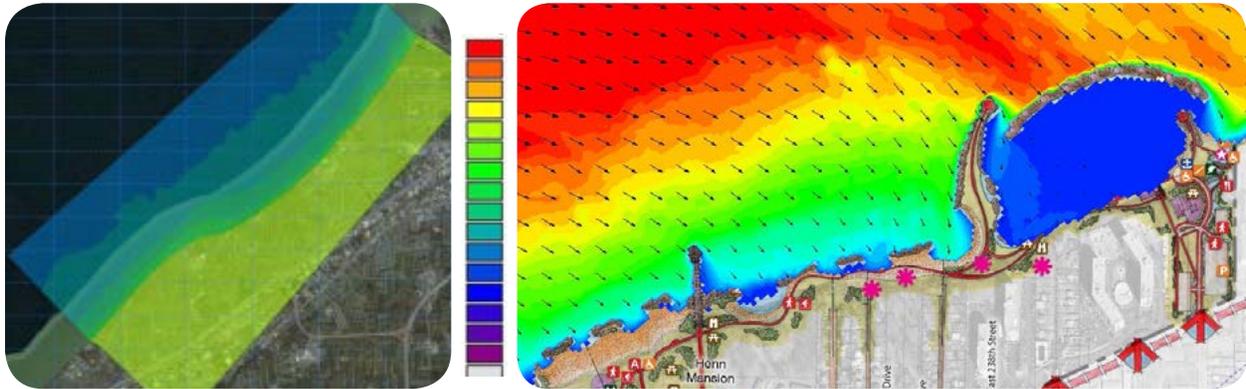
"I think the partnership with the hydraulic modeling lab in Ontario is a great relationship and absolutely tops. We flew up to Ontario to see the model and met the department head of coastal engineering of Queens University. We saw our model in use and could ask questions about our design, which was very helpful. SmithGroupJJR very clearly has their hands around all the technical issues. They were absolutely prepared for every question we could throw at them."

*-Josh Vanlieshout, Village Administrator - Egg Harbor*

# Euclid Sim's Park Fishing Pier/Euclid, OH

## Bathymetric Surveying and Modeling

For years the City of Euclid, Ohio has been looking for ways to improve their waterfront access to Lake Erie. As part of the Euclid Waterfront Improvement Plan, SmithGroupJJR conducted a shoreline site investigation, including bathymetric surveying, modeling, and field investigations to fully understand the environmental conditional along the lake front.



## Field Investigation

To help advance the larger Waterfront Access and Improvement Plan, the team identified one location along the shoreline to complete a pilot project for the overall waterfront vision. The team proposed repurposing the substructure of an existing 150 foot storm sewer outfall and redesigning it as a publically accessible fishing pier.



Before



Before

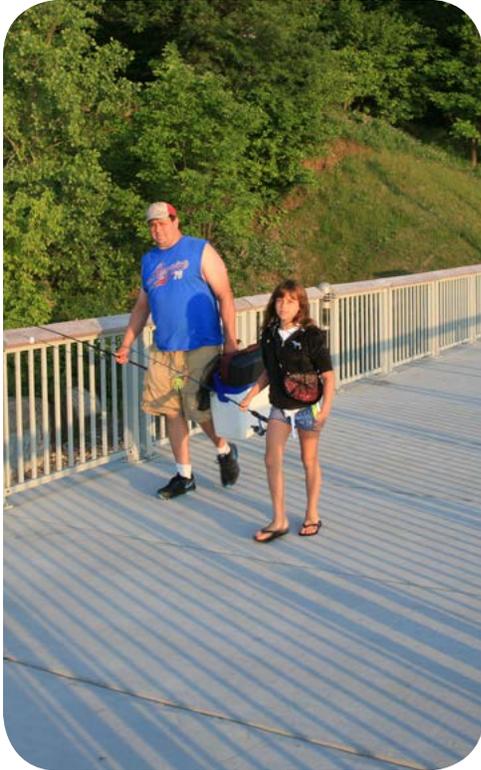
## Concept Design and Design Development

SmithGroupJJR developed a series of conceptual level drawings to present to the City and to the public. These renderings were used to gain public support and as grant fundraising tools. The designs included providing ADA-accessible fishing access and railing design, shade structures, lighting, stepped access to the water (which also serves as an ice-breaker in winter weather), raised planters, benches, and a vertical-axis helical wind turbine.



## Implementation and Final Construction

The Sims Park Fishing Pier was completed in 2013 and has since become a popular destination for area residents and fishing enthusiasts. The new fishing pier is also the location for the “Summer at Sims” Summer Event series. Events have included musical events, ski and water shows, and food festivals.



## Lake Forest Shoreline Park/Lake Forest, IL

Lake Forest's shoreline at Lake Forest Beach was slowly disappearing through a combination of record-high lake levels, wave action, storm damage, and nearby man-made structures that cut off natural sand deposits. Consequently, the sandy beach at the bottom of the bluff was reduced to a thin line of gravel.

Using computer modeling, SmithGroupJJR's designs called for offshore breakwaters and onshore stone revetments. The beach was restored by adding sand along the shoreline, allowing natural wave action to create the desired shoreline pattern.

SmithGroupJJR worked with the entire team, including its coastal engineers to conduct hydraulic model testing using a 100-foot by 100-foot wave tank with lake bottom topography and shoreline contours that replicated Lake Forest conditions. The master plan also added several amenities to the renewed lakeshore, including a protected boat basin and launch area, beach house and landscape lawn area, timber walkways and overlook decks, and a popular waterfront promenade.



## Bender Park/Oak Creek, WI

SmithGroupJJR provided master planning, environmental services, and final engineering for the development of a 302-acre parcel of land along 6,000 feet of Lake Michigan shoreline. The project included active and passive recreational facilities, a boat launch harbor, and fishing piers. Facilities included softball diamonds, soccer fields, picnic shelters, and play equipment, as well as walking and bicycle paths, nature boardwalks, and bioengineered shoreline protection.

The first phase of the project stabilized the bluff and protected the shoreline from further erosion. The second phase included a small boat basin, dockage, launch ramp, promenade, overlook structure, fishing areas, park building, parking, roads, landscaping, and lighting. SmithGroupJJR was responsible for all construction documents and administration on this award-winning project.



## UW-Madison Alumni Pier/Madison, WI

The Memorial Union Pier and Terrace Shoreline on Lake Mendota is part of UW-Madison's Memorial Student Union. SmithGroupJJR was hired to help restore the failing stone shoreline along the terrace and to design, engineer, and implement a new transient marina for area boaters.

The new pier was designed to accommodate both a fixed pier and floating dockage for transient boats and paddlecraft. The fixed pier is designed to remain in place year-round and is engineered to withstand the Lake Mendota fetch, the associated wave climate, as well as the harsh wind and ice conditions of the southern Lake Mendota shoreline.

The adjacent floating dockage is put in place seasonally and provides boat slips for 15 boat and 8 paddle crafts (including canoes and kayaks). The floating dockage was designed to withstand the variable wave climate of the lake.

All design, engineering, coastal environment modeling and analysis and construction documents were prepared by SmithGroupJJR.



## Milwaukee Lakeshore State Park/Milwaukee, WI



Lakeshore State Park is a \$14 million, 17-acre man-made island that is Wisconsin's first urban state park. SmithGroupJJR led the project team and provided planning, design, modeling, coastal and civil engineering, permitting and construction administration for the project. To ensure that the shore protection structures would withstand the extreme Lake Michigan wave and ice environment, SmithGroupJJR built a physical model of the proposed island and the breakwater structures.

Site elements include a large and small watercraft basin, transient boat dockage, small boat beach, fishing access, interpretive features, naturalistic open space, bioengineered shoreline design, native landscape, a signature pedestrian bridge, and over two mile of accessible waterfront and shoreline pathways.

## South Pier Development/Sheboygan, WI

SmithGroupJJR has had a long-standing relationship with the City of Sheboygan that has resulted in a number of planning and design efforts.

Harbor Centre Marina, now a showcase projects for Sheboygan, transformed an area historically used as a fishing, shipping, and industrial facility into a vibrant and active, public waterfront destination.

SmithGroupJJR provided planning, design, and engineering for the implementation of the harbor, 440-slip marina, and public waterfront promenade. The promenade connects users to the Harbor Centre Marina, the Sheboygan Youth Sailing School, the Sheboygan Yacht Club, and public parks and beaches, parking, and park trails and landscape design.



## Silver Bay Harbor of Refuge/Silver Bay, MN



SmithGroupJJR prepared plans and specifications for construction of the Silver Bay Harbor of Refuge along the north shore of Lake Superior. The engineering effort included client workshops, hydrographic and topographic surveys, environmental assessment, hydraulic modeling, and geotechnical investigation. The site design and construction documentation included breakwater, marina dockage, launch ramp, parking, service building layouts, fuel system, and sanitary pumpout. The marina facility has 160 boat slips and a building with restrooms, showers, laundry facilities, and concessions. SmithGroupJJR's solutions optimized performance and minimized cost all within an appropriate response to community and site context.

## Concordia University Lakeshore Enhancements/Mequon, WI

SmithGroupJJR provided master planning, design, and engineering that has improved and enhanced the university's lakefront property. The plans included implementing a massive shoreline erosion and slope stabilization effort for 2,700 feet of Lake Michigan shoreline. The project also included the development of coastal and perched wetlands, environmental habitat enhancement areas, recreational waterfront improvements, and restoration of the bluff with native vegetation. The new shoreline, beaches, and trails are fully accessible to the public, and provide the university with an outdoor learning laboratory for environmental science programs.



## TEAM MEMBERS/

# Margaret Boshek, PE

Project Coastal Engineer



### Education

Master of Science, Coastal & Marine Engineering and Management, Delft University of Technology, The Netherlands, 2009

Universitat Politecnica de Catalunya, Spain, 2009;  
Norwegian University of Science and Technology, Norway 2009

Bachelor of Science, Ocean Engineering, Florida Institute of Technology, Melbourne, Florida, 2003

### Registrations

Professional Engineer:  
British Columbia, Wisconsin

### Professional Affiliations

American Society of Civil Engineers (ASCE)

PIANC

Margaret is a coastal engineer with extensive project experience throughout the United States and internationally working on a myriad of coastal and marine projects. She worked for four years as a corrosion specialist, marine structural engineer, and waterfront and marine designer before obtaining her masters in Coastal and Marine Engineering and Management from TUDelft, the world's leading university for coastal studies, as an Erasmus Mundus full scholarship awardee. She spent one and half years working in The Netherlands as a hydraulic engineer focusing on coastal and river flood defense and dike design including geotechnical analysis and modeling. During this time she worked on the team designing the doors for the new Panama Locks. Margaret spent four years as a lead coastal engineer and project manager in Canada specializing in the planning and design of port terminals, commercial and recreational marinas, and ferry terminals, numerical modeling of coastal dynamics, mooring analysis, floating structure response, waterfront design and construction engineering, specification preparation, and risk analysis. She also has experience in hydrodynamic analysis, beach morphology, wave attenuation and harbor tranquility, physical modeling, construction oversight, field inspections, and oversight of client and public workshops and presentations. Her international experience and project diversity make her well-suited for all aspects of coastal project execution from concept through construction.

- Kenosha Harbor and Southport Marina Sedimentation Study, Kenosha, Wisconsin
- Amador Marina, Panama City, Panama
- Buenaventura Marina, Panama City, Panama
- Fisherman's Cove Marina, Bellingham, Washington
- Public Works & Services Canada Feasibility Study: Marine Infrastructure in Nunavut
- Port Metro Vancouver Roberts Bank Terminal 2, Delta, British Columbia
- Georgia Pacific Log Pond Shoreline Restoration, Bellingham, Washington
- Marina Pez Vela, Quepos, Costa Rica
- Department of Fisheries and Oceans Condition Assessment, Batchawana Bay, Ontario
- McNally Almiq JV Pangnirtung Harbor Development, Pangnirtung, Nunavut
- Catalyst Paper Co. Chip Barge Mooring Design, Powell River, British Columbia
- British Columbia Ferries Tsawwassen Ferry Terminal Propeller Scour Maintenance, Tsawwassen, British Columbia
- Defense Construction Canada Nanisivik Naval Facility, Nanisivik, Nunavut
- Ledcor CMI Ltd. Floating Wave Attenuator Design, Vancouver, British Columbia
- Albian Sands TSRU Floating Pipeline Mooring, Muskeg River Mine, Alberta
- Department of Fisheries and Oceans Condition Assessment, Batchawana Bay, Ontario
- Chevron Canada Limited Hatch Point Wharf Repairs, Hatch Point, British Columbia
- Westshore Terminals Limited Partnership Metocean Study & Vessel Motion Study, Delta, British Columbia
- Centrica LNG Port Hurricane Metocean Study, Boca Chica, Dominican Republic
- Kesho Inc. Lulu Island Dyke Design – New Westminster, British Columbia
- Panama Canal Expansion, Third Locks – Panama

# Bill Brose, PE

## Waterfront Engineering Resource



Bill has 25 years experience as one of SmithGroupJJR's most accomplished waterfront engineers. His involvement begins at the conceptual design level and follows through to construction completion. Bill is experienced in feasibility studies, client and public participation workshops, data acquisition and analysis, underwater data gathering and inspections, construction materials investigations, waterfront design and construction engineering, infrastructure design, and construction plan and specification preparation. He also offers proven expertise in permitting and regulatory agencies, client coordination, and public involvement. Mr. Brose is a co-author of the update for the *ASCE Manual of Engineering Practice 50, Planning and Design Guidelines for Small Craft Harbors*.

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### Education

Bachelor of Science Civil Engineering, University of Wisconsin-Madison, 1984

Post Graduate Studies-Coastal Engineering, University of Wisconsin-Madison, 1988-89

### Registrations

Professional Engineer: Wisconsin, Illinois, Minnesota, New York, Pennsylvania, Ohio, Hawaii, Colorado, Kentucky, Tennessee, Arizona, South Dakota, Idaho

### Professional Affiliations

American Society of Civil Engineers

- Apostle Islands National Lakeshore, National Park Service, Bayfield, Wisconsin
- Caesar Creek Marina Development, Warren County, Ohio
- Southport Marina, Kenosha, Wisconsin
- Agate Bay Marina, Two Harbors, Minnesota
- Algoma Harbor, Algoma, Wisconsin
- Ashland Kiyi Research Vessel Dockage, Ashland, Wisconsin
- Atwater Park Master Plan, Shorewood, Wisconsin
- Bayfield Apostle Islands Marina Improvements, Bayfield, Wisconsin
- Bayport Condition Assessment, Bayport, Minnesota
- Belle Harbor and Pershing Boat Launch Racine, Racine, Wisconsin
- Bender Park Harbor Shoreline and Marina, Oak Creek, Wisconsin
- Caesar Creek Marina, Warren County, Ohio
- Chatcolet Marina, Plummer, Idaho
- Chatfield Reservoir Relocation, Littleton, Colorado
- Clarksville Liberty Park and Marina, Clarksville, Tennessee
- Duncan L. Clinch Marina, Traverse City, Wisconsin
- Clinton Marina, Clinton, Iowa
- Concordia Center for Environmental Stewardship, Mequon, Wisconsin
- Concordia University Wisconsin Master Plan Update, Mequon, Wisconsin
- Crab Orchard Refuge Marina Evaluation, Marion County, Illinois
- Downtown Milwaukee Lakefront Development, Milwaukee, Wisconsin
- Edgewater Marina Rehab, Cleveland, Ohio
- Egg Harbor Marina Rehabilitation, Egg Harbor, Wisconsin
- Euclid Harbor Feasibility Study, Euclid, Ohio
- Fisherman's Cove Working Waterfront, Bellingham, Washington
- Geneva Sand Bypass Investigation, Geneva, Ohio
- Gills Rock Harbor of Refuge Marian Study, Gills Rock, Wisconsin

# Jack Cox, PE

## Coastal Engineering Resource



### Education

Master of Science Engineering,  
Purdue University, 1973

Bachelor of Science, Engineering  
Science, Purdue University, 1973

Post Graduate Coursework,  
University of Chicago, 1974

Doctoral Studies, University of  
Delaware, 1977 (Davis Fellow)

### Registrations

Professional Engineer:  
Maryland, South Carolina, New  
York, Washington, Florida,  
Wisconsin, Indiana, New Jersey,  
Illinois, Missouri, Delaware,  
Ohio, Rhode Island

### Associations

Permanent International Associa-  
tion of Navigation Congresses US  
Commissioner for Recreational  
Boating

Academy of Coastal, Ocean,  
Port and Navigation Engineers  
Inaugural Diplomat  
Engineering

Association of Coastal Engineers  
– Board of Directors

Tsunami Advisory Board at the  
University of Washington

Jack is internationally recognized in waterfront development, including coastal dynamics, harbor tranquility, breakwaters, fixed and floating marine structures, shore protection, port planning, marina design, and risk analysis. Jack is the inaugural class Diplomat for Coastal, Port and Navigation Engineering, with the Academy of Coastal, Ocean, Port, and Navigation Engineers. He is a member of the Tsunami Advisory Board at the University of Washington, and is the Vice Chairman of the Permanent International Association of Navigation Congresses Recreational Navigation Commission. He has authored over 40 coastal publications and is a contributing author of the update for the *ASCE Manual of Engineering Practice 50, Planning and Design Guidelines for Small Craft Harbors*. He is a lecturer at the University of Wisconsin on marina design and shoreline protection engineering. In 2003, Jack was awarded the Distinguished Lecturer Award by the University of Wisconsin for his instructions in the areas of coastal and hydraulic engineering.

- Makronisos Marina, Ayia Napa, Cyprus
- Algoma Harbor Master Plan, Algoma, Wisconsin
- Bayview Harbor Marina Recommendations, Ellison Bay, Wisconsin
- Chatfield Marina Rehabilitation, Littleton, Colorado
- Feasibility Study and Waterfront Improvements Plan, Euclid, Ohio
- Fisherman's Cove Working Waterfront, Bellingham, Washington
- Ocean Reef Marina, Panama City, Panama
- La Pointe Harbor Master Plan, Town of La Pointe, Wisconsin
- Paducah Riverfront Marina and Waterfront Improvements, Paducah, Kentucky
- Vacamonte Beach and Marina, Panama
- Washburn Marina Design and Engineering Study, Washburn, Wisconsin
- Vacamonte Port Feasibility, Panama
- Wilmette Lakefront Master Plan, Wilmette, Illinois
- Caesar Creek Marina Development, Warren County, Ohio
- Geneva State Park Sediment By-Pass and Transient Docks, Geneva, Ohio
- Port of La Crosse Harbor and Waterfront Plan, La Crosse, Wisconsin
- Marina Pez Vela, Quepos, Costa Rica\*
- Ft. Pierce Marina Harbor Breakwater Design, Ft. Pierce Florida\*
- Middle Bass Island Marina Development, Lake Erie, Ohio\*
- Tianjin Marina, China\*
- Vista Mar Marina, San Carlos, Panama\*
- Imperial Pacific Beach Marina, Jaco Beach, Costa Rica\*
- Harbor of Americas, Bocas del Toro, Panama\*
- Playa Celeste Marina and Village, Guanacaste, Costa Rica\*

# Douglas Denison

## Fisheries and Habitat Restoration Resource



### Education

Masters of Science in Water Resource Science, University of Michigan, 1977

Bachelor of Science in Aquatic Biology, Eastern Michigan University, 1974

### Certifications

Certified in Project-Level Quality Documentation (2010), U.S. Environmental Protection Agency, Great Lakes National Program Office and Office of Water

### Professional Affiliations

Huron Erie Corridor Initiative

National Wildlife Federation

Environmental Fund for Michigan - Board of Directors (1999-2001)

EarthShare of Michigan Board of Directors (2001-2002)

Great Lakes Fishery Trust Scientific Advisory Team

Michigan Lakes and Streams Association (1976-2000)

Society of Wetland Scientists

Michigan Society of Planning Officials (1989-2000)

American Water Resource Association

Michigan Water Environment Association

Water Environment Federation

Doug was a leading member of SmithGroupJJR's natural resources practice for over 20 years providing scientific leadership and project management in environmental planning, analysis and mitigation. As the senior environmental scientist, he led a variety of projects including Environmental Impact Statements, endangered species habitat evaluation, water resource analyses, mitigation design and construction oversight, public education, aquatic ecology evaluations, preparing stormwater management plans, environmental studies, NEPA compliance reports, water quality investigations, and agency coordination. Doug is currently working with SmithGroupJJR in a capacity as a natural resource expert emeritus. He is still a leading Great Lakes scientist and has successfully written numerous grants to aid in project implementation. In addition, Doug has years of experience working in the Boardman River Watershed System on such projects as the Boardman River Environmental Framework Study and an Environmental Assessment and an Environmental Impact Statement for MDOT for an east-west connector over the Boardman River.

- Belle Isle Park Deep-Water Habitat Fishing Piers, Detroit, Michigan
- Belle Isle/Detroit River Sturgeon Habitat Restoration, Detroit, Michigan
- Caddell Drain Erosion Control Aquatic Habitat Enhancement and Stabilization, Farmington Hills, Michigan
- Ellias Cove Shoreline Stabilization and River Habitat Restoration, Trenton, Michigan
- Fellows Creek Floodplain and Habitat Restoration, Canton Township, Michigan
- Gilkey Creek Relocation and Restoration, Streambank Stabilization, and Wetland Enhancements, Flint, Michigan
- Johnson Creek Hydrologic Evaluation, Streambank Stabilization Design and Implementation, and Aquatic Habitat Creation, Salem Township, Michigan
- Johnson Creek Headwaters Protection Program and Critical Habitat Assessment, Washtenaw County, Michigan
- BASF Point Hennepin Master Plan and Design Management Recommendations for Habitat Creation, Wyandotte, Michigan
- General Motors, Coldwater-Inland Fisher Guide Division Report of Habitat Restoration and Wetland Mitigation, Flint, Michigan
- Seven Lakes of Northville Cold Water Stream Restoration and Trout Habitat Creation, Northville, Michigan
- St. Clair River Delta Fish Spawning Habitat, Port Huron, Michigan
- Consumers Power Quantitative Analysis and Research on the Impact of Great Lakes Fisheries Resulting from Power Plant Operations, Port Sheldon, Michigan

# SMITHGROUPJJR TEAM | PIER EXPERIENCE MATRIX

Name of Pier	Body of Water	Role	Brief Description	Length of Structure	Project Cost
<b>PAT DOHER, PE, LEED AP</b>					
<b>Navy Pier Revitalization</b>	Lake Michigan	Project Engineer	Project restoration efforts included a new north dock pier; new north and south overlook platforms; stone revetment stabilization in depths up to 30 feet; foundation underpinning for the historic Head House; pump station; paving and repair renovation work.	3,300 feet	\$21 Million
<b>Detroit RiverWalk</b>	Detroit River	Project Engineer/Project Manager	Project leader and engineer of record for 3 miles of public promenade along the Detroit River. Led the design and technical studies including survey, bathymetric survey, environmental studies, geotechnical investigations and river edge stabilization. established basis of design for the riverine coastal environment. Managed the establishment of the program, basis of design, alternatives, design development, construction documents, public facilitation and administered construction for over \$25 million of public, universal access, urban connection improvements along the Detroit River	3.5 miles	\$27 Million
<b>Omni Talon at Detroit RiverWalk - a portion of the Detroit RiverWalk</b>	Detroit River	Project Engineer/Project Manager	Multi-purpose dock approximately 1,000 feet long by 25 feet wide. Pier allowed public access and program space including separate non-motorized path and pedestrian walkway. Responsibilities included supervision of underwater dive inspection, coastal analysis including ice force development due to floating and moving ice and debris, alternatives and development of construction documents as well as construction administration.	890 feet	\$3.5 Million
<b>Fishing Piers at Gabriel Richard Park - a portion of the Detroit RiverWalk</b>	Detroit River	Project Engineer/Project Manager	Two fishing piers at each end of the RiverWalk at Gabriel Richard Park along the Detroit River. Developed concepts, prepared grant applications, secured grant and developed construction documents and administered construction for two universal access fishing piers.	175 feet 104 feet	\$250,000
<b>Elizabeth Park Fishing Pier</b>	Detroit River	Project Engineer	Universal access public pier providing fishing and passive recreation opportunities in Trenton, Michigan.	1,700 feet	\$2.2 Million
<b>Elmwood Township</b>	Grand Taverse Bay	Project Engineer	Worked with Gourdie-Fraser to plan and design retrofitting an existing breakwater to allow for public access and fishing	500 feet	TBD
<b>South Haven Marina Park</b>	Lake Michigan/Black River Mouth	Project Engineer	This public pier and public space was constructed of timber, with wood and metal rails with lights. The structure was designed to attenuate waves and provide temporary mooring for large ships.	400 feet	\$600,000 (pier only)
<b>Milliken State Park and Harbor</b>	Detroit River	Project Engineer	repair and reconstruction of river edge stabilization including the analysis of wave action, ice forces and boat docking along the Detroit River. This was an emergency repair and reconstruction of a structural dock along the State Park.	100 feet	\$1,000,000
<b>Dime Pier Fireworks Dock at Navy Pier</b>	Chicago Harbor (Lake Michigan)	Project Engineer/Project Manager	Coastal analysis and design of a dock structure south of Navy Pier for public access, boat docking and fireworks staging area for the historic pier between Navy Pier and the Locks at the Chicago River. Responsibilities included underwater dive inspection, basis of design, management of coastal analysis and establishing alternatives.	1,800 feet	\$2.5 Million
<b>BOB DOYLE, ASLA</b>					
<b>South Haven Marina Park</b>	Lake Michigan/Black River Mouth	Lead Project Landscape Architect/Project Manager	This public pier and meeting place was constructed of timber, with wood and metal rails with lights. The structure was designed to attenuate waves and provide temporary mooring for large ships.	400 feet	\$600,000 (pier only)
<b>Milliken State Park and Harbor</b>	Detroit River	Lead Project Landscape Architect/Project Manager	a public fishing pier and promenade, built over existing sheet pile wall and pile supported structure	1,000 feet	\$1,000,000
<b>Elmwood Township</b>	Grand Taverse Bay	Landscape Architect	Worked with Gourdie-Fraser to plan and design retrofitting an existing breakwater to allow for public access and fishing	500 feet	TBD
<b>Port Huron Blue Water River Walk</b>	St. Clair River	Lead Project Landscape Architect/Principal-in-Charge	Lead Project Landscape Architect/Project Manager	225 feet	TBD
<b>Fishtown</b>	Lake Michigan	Lead Project Landscape Architect	Master Planning for restoration of commercial fishing and retail public pier	250 feet	TBD
<b>Nautical Mile/Blossum Heath Park</b>	Lake St. Clair	Lead Project Landscape Architect	Waterfront park design plans that included improvements to a popular fishing pier extending into Lake St. Clair	550 feet	TBD
<b>MARGARET BOSHEK, PE</b>					
<b>Sims RiverWalk Park</b>	Lake Erie (Euclid, Ohio)	Project Coastal Engineer	Waterfront development extending from Sims Fishing Pier to a future marina site to the east. Development will stabilize steep erodible bluffs while creating a recreational beach and marine habitat. Coastal dynamics include longshore sediment movement and headland beaches.	2,500 feet	\$20 Million
<b>Marina Pez Vela</b>	Pacific Ocean	Lead Coastal Engineer	Mega-yacht marina facility utilizing cellular cofferdam structures to provide access to marina dockage and deep water fishing opportunities. Structure crest was outfitted with yachting storage lockers and multilevel viewing platforms while protecting the marina basin from high swell waves.	1,700 total feet	\$30 Million

Name of Pier	Body of Water	Role	Brief Description	Length of Structure	Project Cost
<b>Wild Rose Marina Access Pier</b>	Lake Shuswap, British Columbia	Project Manager	Pile supported access pier designed to provide access to a floating recreational marina subjected to high waves and ice effects. The pier was designed to allow for universal access and is therefore ADA compliant and detailed for all-weather use.	300 feet	\$2.5 Million
<b>Fort Pierce Marina Artificial Islands</b>	Indian River, Florida	Coastal Engineer	Redesign of a marina destroyed by hurricane effects which included high surge and strong currents. Design included the implementation of artificial islands to divert sediment around a newly dredged marina basin. Islands provide habitat as well as recreational opportunities to a variety of users.	1,500 feet	\$20 Million
<b>Paris Landing Marina Breakwaters</b>	Paris Landing, TN	Principal Coastal Engineer	Independently designed and engineered a protective set of breakwaters to mitigate wake waves plaguing a small craft marina from barge traffic on the Tennessee River.	200 feet	\$1 Million
<b>Hatch Point Terminal Re-design</b>	Hatch Point, BC	Project Coastal Engineer	Engineered a re-design of a docking terminal to increase moorage capacity to meet market demands. Redesign included selection of materials to provide extended life to the structure and saline water wear resistance.	500 feet	\$2.5 Million
<b>Batchawana Fishing Dock</b>	Batchawana Bay, ON	Project Coastal Engineer	Studied environmental loading on fishing pier including ice thermal forces and observed ice jacking. Made recommendations for retrofits that could be applied to the existing structure as well as a planned expansion.	200 feet	\$500,000
<b>JACK COX, PE</b>					
<b>Sims RiverWalk Park</b>	Lake Erie (Euclid, Ohio)	Senior Coastal Engineer/Civil Engineer	Waterfront development extending from Sims Fishing Pier to a future marina site to the east. Development will stabilize steep erodible bluffs while creating a recreational beach and marine habitat. Coastal dynamics include longshore sediment movement and headland beaches.	750 feet	\$20 Million
<b>Apostle Islands Excursion Ferry Dock</b>	Lake Superior	Senior Coastal Engineer/Civil Engineer	Design of bin wall type access pier for ice push and loading.	300 feet	\$1 Million
<b>Hammond Indiana Marina</b>	Lake Michigan	Senior Coastal Engineer/Civil Engineer	Designed a marina facility including dockage for 1,100 boats, utilities, and an innovative tandem breakwater system and conversion engineering of a retired historic cruise ship into a marina pavilion and festival center.	2,000 feet	\$8 Million
<b>Middle Bass Island Marina</b>	Lake Erie	Senior Coastal Engineer/Civil Engineer	Design of new harbor infrastructure and breakwaters to emulate habitats.	Basin created 20 acres + 800 foot jetties	\$9 Million
<b>Fort Pierce Marina Artificial Islands</b>	Indian River, Florida	Senior Coastal Engineer/Civil Engineer	Redesign of a marina destroyed by hurricane effects which included high surge and strong currents. Design included the implementation of artificial islands to divert sediment around a newly dredged marina basin. Islands provide habitat as well as recreational opportunities to a variety of users.	1,500 feet	\$20 Million
<b>Elliott Bay Marina</b>	Puget Sound (Seattle, WA)	Senior Coastal Engineer/Civil Engineer	Design of supplemental island breakwaters to control nearshore wave rejections while allowing fish migration.	1,000 feet	\$1.2 Million
<b>UW-Madison Memorial Union Pier</b>	Lake Mendota	Principal Engineer	Development of a combination of fixed and floating pier system for the Memorial Union Terrace. The pier serves as a recreational waterfront hangout for students and residents, and provides additional access to Lake Mendota.	85 feet	\$7 Million
<b>BILL BROSE, PE</b>					
<b>Lakeshore State Park</b>	Lake Michigan	Project Manager	The Lakeshore State Park in downtown Milwaukee includes over 2 miles of pedestrian accessible shoreline paths along Lake Michigan. These paths provides shore protection from wave, wind and ice damage and provide public access to the waterfront.	Over 2 Miles	\$17 Million
<b>Clarksville Fishing Pond and Marina</b>	Cumberland River	Principal	Created a fully accessible fishing pond and fishing boardwalks/piers as part of a 130 acre recreational park. Bardwalk and fishing pier access total over 1700 linear feet.	1,700 linear feet	\$34 Million
<b>Egg Harbor Marina and Breakwater</b>	Lake Michigan	Principal	Created a 750 foot long publicly accessible breakwater that serves as a fishing pier, sunset lookout, and provides overall community access to the lake.	750 linear feet	\$7 Million
<b>Euclid Fishing Pier</b>	Lake Erie	Principal	Repurposed a former drainage sewer substructure into a ADA-accessible fishing pier.	250 feet	\$1.1 Million
<b>Bender Park Breakwater Pier</b>	Lake Michigan	Principal	As part of the boat launch and beach improvements, SmithGroupJJR provided created a 200 foot publicly accessible pier as part of the breakwater protection.	200 feet	\$12 Million
<b>Lake Forest Beach Park and Shoreline</b>	Lake Michigan	Project Manager	As part of the shoreline restoration along Lake Forest's waterfront, SmithGroupJJR designed a series of breakwaters to reclaim the beach and protect against erosion. The main breakwater along the shore also serves as a publicly accessible waterfront access and pier for the community.	110 feet	\$8 Million
<b>UW-Madison Memorial Union Pier</b>	Lake Mendota	Principal Engineer	Development of a combination of fixed and floating pier system for the Memorial Union Terrace. The pier serves as a recreational waterfront hangout for students and residents, and provides additional access to Lake Mendota.	85 feet	\$7 Million

Name of Pier	Body of Water	Role	Brief Description	Length of Structure	Project Cost
<b>NEAL BILLETDEAUX, ASLA, LEED AP BD+C</b>					
Frankfort-Elberta Beach to Beach Trailway	Betsie Lake-outlet to Lake Michigan	Landscape Architect	Prepared a Master Plan for the Frankfort-Elberta Beach-to-Beach Trailway, a four-mile multi-use recreational trail around Betsie Lake that connects two Lake Michigan beaches. The universally accessible trailway provides a recreational attraction to enhance local economies and improved access to Betsie Lake's fishing resources. Portions of the trailway will be located on abandoned State-owned railbeds, along waterfronts, through parks, and near shops, restaurants, marinas, fishing areas, boat launches and historical sites and structures. A phased program will accommodate trailway implementation, and future improvements including restrooms, fishing piers, canoe launches, information centers and streetscape elements.	n/a	
Portage Lakefront and Riverwalk	Along Burns Waterway-outlet to Lake Michigan	Environmental Designer/Landscape Architect	Development of a new lakefront park at the confluence of Lake Michigan and Burns Waterway in Portage, IN. The sixty-acre park, on a former industrial brownfield site now within the Indiana Dunes National Lakeshore, was cooperatively developed between the City of Portage and National Park Service and is Portage's first public park on Lake Michigan. The park is a model of sustainable development and includes natural areas and trails, public beach areas, a riverwalk along Burns Waterway, numerous interpretive opportunities and a LEED gold-rated public pavilion with concessions, toilets and public classroom/meeting space.	85 foot fishing pier 1,120 foot breakwater pier	\$9 Million
<b>EMILY MCKINNON, PE, LEED AP</b>					
Wyandotte Transient Marina	Detroit River	Project Engineer	Feasibility study for transient marina; conceptual dock layouts; final dock layout for permit application	400 feet	\$1.7 Million
Townline Park Boat Launch and Beach	Lake Erie	Civil Engineer	Design and permitting of shoreline improvements, including detached breakwaters, boat ramps, parking lot and floating docks.	750 feet	\$4.5 Million
<b>KEENAN GIBBONS</b>					
Mohawk River Pedestrian Bridge	Mohawk River (Amsterdam, NY)	Site Designer	A 500' x 30' curvilinear pedestrian bridge crosses the Mohawk River and connects to the Erie Canal. The bridge is characterized by a stained 15-foot-wide path which meanders its way between raised seat walls harboring intensive vegetated planters (eg. Trees, shrubs, grasses), lighting, benches, and other amenities to create a park-like setting over the water. The bridge superstructure is steel and has formal gateways on either end that include an amphitheater and parking for bicycles and vehicles. Interpretive cultural signage and artwork celebrating the area's heritage are integrated throughout.	500 feet x 30 feet	\$16.5 Million
<b>DAN WAGNER, PE</b>					
Peshawbestown Marina, New Construction	Grand Traverse Bay	Project Manager	The project consists of a 106 slip marina, with two fixed piers, four floating dock systems and broadside docking for a large vessel such as a Great Lakes cruise ship. One fixed pier measures approximately 925' in length and the other (which has been designed to function as a car ferry terminal in the future) measures approximately 1,050' in length.	925 feet 1,050 feet	\$318,000
Munson Medical Center Tributary A Relocation	Kid's Creek, GT Bay Watershed	Project Manager	Civil project manager responsible for all site work related design items including topographic and boundary survey work, geotechnical evaluation, utility relocation, earth operations/site grading, site pavements, storm water and soil erosion controls required to relocate approximately 3,000 lineal feet of an existing stream. The stream was relocated and restored to a natural cross section and alignment to complement future construction of a cancer treatment center. The project, which comprises the majority of two city blocks, also required the vacation of a platted alley and acquisition of several surrounding properties. During the construction phase GFA services included survey staking, underground utility installation observation, soil density/bearing capacity testing, concrete testing, structural inspection and miscellaneous site pavements.	n/a	\$120,000
Elberta Yacht Club	Lake Michigan	Project Manager	Project manager responsible for final engineering for mixed use yacht club development. The project features a multi purpose building containing lodging, restaurant and community spaces. The project features a marina consisting of floating dock systems, fixed fishing pier and several boat houses. All permits and approvals were secured using our design drawings including municipal water, sewer, storm water controls, and DEQ permits.	n/a	\$120,000
<b>GARY WILSON, PS</b>					
Veterans Pier, Tuscarora Township	Indian River, Inland Waterway	Survey	Survey and staking in support of new pier construction	800 feet	\$3,500
NMC Maritime Academy Improvements	Grand Traverse Bay	Survey	GFA created the survey work for the first phase of construction and subsequent phases of improvements.	Main pier: 600 feet x 50 feet	\$15,000
Frenchtown Detroit Beach Sewall Structure	Lake Erie	Survey	Topographic mapping for US Army Corps of Engineers	3,400 feet	\$22,000

Name of Pier	Body of Water	Role	Brief Description	Length of Structure	Project Cost
<b>Green Bay, WI Wetland Rehabilitation</b>	Delta/Lake Michigan	Survey	Topographic and hydrographic survey for US Army Corps of Engineers; including construction staking for five miles of fishing pier	5 miles	\$40,000
<b>Harbor - Port Austin, MI</b>	Lake Huron	Survey	Structure rehabilitation survey for the US Army Corps of Engineers	2,300 feet	\$24,000
<b>Neebish Island Rock Cut, St. Mary's River</b>	Lake Superior, Lake Huron	Survey	Terrestrial laser scan of channel for US Army Corps of Engineers; The purpose of this scan was to create a high definition/ high resolution laser scan of the Rock Cut channel walls and nearby shoreline. The data will be used to create a 3D CADD model of the existing rock walls for structural failure assessment, material inventory, and monitoring purposes. Scan included all waterward faces, tops, and all features immediately adjacent (rubble mounds, stockpiled blocks, etc). Initiated from and referenced to existing geodetic control. The laser scan referenced established and known features along the structure to facilitate the merging of scan data within existing CADD models.	900 feet x 300 feet	\$25,000
<b>Sea Lamprey Barrier, Manistique MI</b>	Manistique River (Lake Michigan)	Survey	US Army Corps of Engineers work order: 15 valley cross-sections, two bridge cross-sections and two dam cross-sections (one upstream face and one downstream face of dam) at the Manistique Papers Inc. dam and the M-94 bridge on the Manistique River. Cross-sections to be used for hydraulic analysis and project design for a proposed sea lamprey barrier.	n/a	\$39,550
<b>Cass River Fish Passage Survey, Frankenmuth MI</b>	Cass River	Survey	The purpose of this survey project was to obtain valley cross section channel data of the Cass River and the Frankenmuth Dam, to most accurately represent existing conditions in a hydraulic analysis. The modeling will determine what impacts are created by a 100-year flood event. In addition to the valley cross sections, project included seven levee cross sections, a structural survey of concrete dam features, and real estate survey information for US Army Corps of Engineers.	Dam: 23 feet x 235 feet	\$21,375
<b>Elmwood Township Marina</b>	Grand Traverse Bay	Survey	New retaining wall, marina bottomlands and dock #3	500 feet	\$8,000
<b>Clinch Park Marina, Traverse City</b>	Grand Traverse Bay	Survey	Construction staking and soundings, harbormaster building, anchorage and new breakwall	450 feet	\$25,000
<b>Detroit River, Bates St. Pier Outfall</b>	Lake Erie	Survey	Topographic and hydrographic survey for the US Army Corps of Engineers	200 feet	\$15,000
<b>Soo Locks, St. Mary's Falls Canalsee Control</b>	St. Mary's River (Lake Superior, Lake Huron)	Survey	Updated mapping for the US Army Corps of Engineers	n/a	\$60,000
<b>Grand Traverse Bay Harbor, Houghton MI</b>	Lake Superior	Survey	As-builts for US Army Corps of Engineers rehabilitation study	1,438 feet	\$8,000
<b>Harbor - Two Rivers WI</b>	Lake Michigan	Survey	Mapping and control for US Army Corps of Engineers	2,700 feet	\$12,000
<b>Chicago Harbor Breakwall Mapping</b>	Lake Michigan	Survey	Updated mapping for the US Army Corps of Engineers	10,000 feet	\$10,000

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