



# Manitowoc Riverwalk Master Plan and Design Guidelines

October 19, 2009

MANITOWOC  
CITY OF MANITOWOC  
WISCONSIN, USA

KINDNESS  
architecture + planning

## MANITOWOC RIVERWALK MASTER PLAN AND DESIGN GUIDELINES

### PART I: INTRODUCTION

INTRODUCTION .....	4
PURPOSE OF THE PLAN .....	6
APPROACH .....	7
PRECEDENT STUDIES .....	7
PLANNING PRINCIPLES .....	8
PROJECT GOALS OF THE RIVERWALK .....	9

### PART II: EXISTING CONDITIONS

DISTRICTS .....	11
NATURAL DISTRICT .....	12
INDUSTRIAL DISTRICT .....	14
URBAN DISTRICT .....	17
EXPLANATION OF ANALYSIS .....	20
AMENITIES .....	21
EVENTS .....	22
PARCELS .....	23
SUMMARY .....	24

### PART III: LINKAGES AND LANDINGS

DESIGN EXECUTIVE SUMMARY .....	26
RIVERWALK CONCEPT .....	27
RIVERWALK GUIDELINES .....	29
NATURAL DISTRICT .....	32
INDUSTRIAL DISTRICT .....	37
URBAN DISTRICT .....	41
WI MARITIME MUSEUM LANDING .....	46
COAL LANDING .....	48
FARMERS' MARKET LANDING .....	50

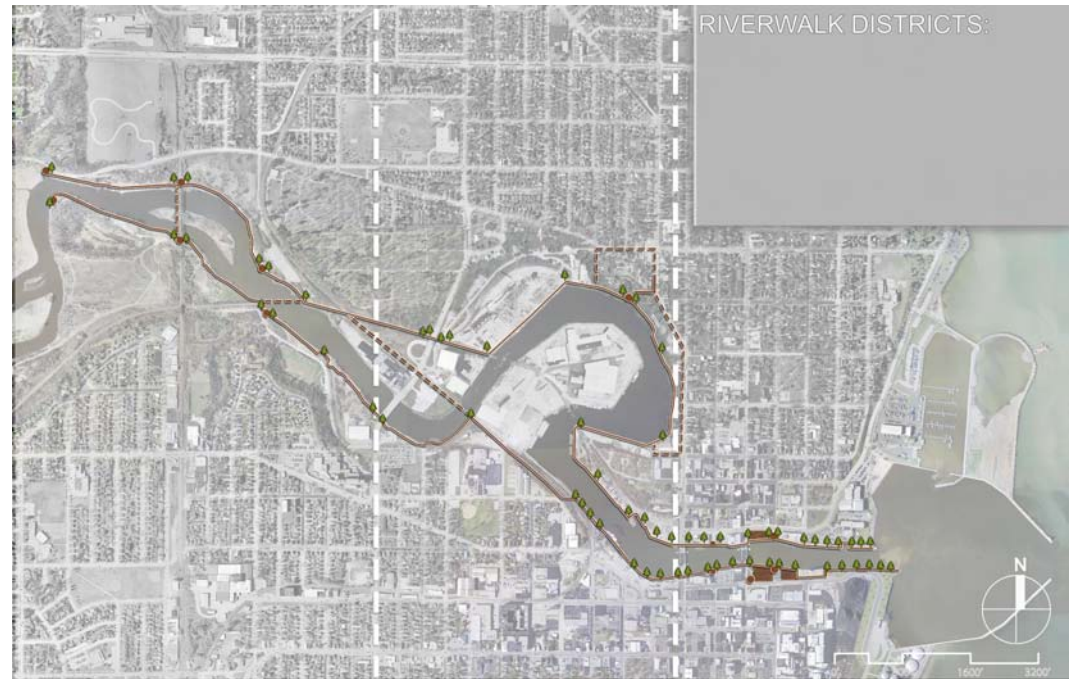
### PART IV: MATERIALS

MATERIAL LIST .....	55
DIAGRAMS .....	56

### PART V: APPENDIX

OPINION OF PROBABLE COSTS .....	60
SAMPLE AGREEMENTS .....	63
6/15 POWERPOINT PRESENTATION .....	97

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GRANT FROM THE WISCONSIN DEPARTMENT OF COMMERCE.



## Part I: Introduction

## INTRODUCTION

The name Manitowoc is derived from the Ojibwa and Chippewa word “Munedowk,” meaning “home of the great spirit.” The name was applied to the Manitowoc harbor and river prior to the first settlement in the early 1800s. The river was first used as means for transportation and to deliver goods, and finally gave rise to the shipbuilding industry. The schooners and clippers that were built were used for trading and fishing in the Great Lakes. Industry has more recently changed its focus to construction (cement, concrete and marine) and food production. However, shipbuilding remains.

Throughout its history, the river has been a prominent feature in the economic development and growth of the City. The river as it exists today, is a reflection of Manitowoc’s history, ranging from natural areas reflective of the land as it existed at the time of discovery and heavy industrial areas that were at the heart of the economic base of Manitowoc, to its meeting at the lakefront. The river has always been a transportation corridor, but as the area continues to move into the future, it ultimately should be designed to be accessible and free for public enjoyment. The development of the riverwalk is a way to recapture the “great spirit” and bring people to it and to the City.

Kindness Architecture + Planning (Ka+p) contracted with the City in 2009 to further develop the details of a riverwalk master plan (Master Plan). A general plan was created in the 2009 draft comprehensive plan by Vandewalle & Associates which identified the importance of the river in enhancing community development. The overarching goal of the Ka+p effort is to identify a shared community vision for the river front; to identify, conceptually plan and design a multifaceted, waterfront walkway system featuring terraces, viewing areas and public gathering places; and to identify details such as circulation, connectivity, infrastructure, amenities, opportunities for public art, environmental interpretation and enhancement. The riverwalk design guidelines, funded in part with federal Community Development Block Grant (CDBG) monies from the Wisconsin Department of Commerce, provide a more integrated and detailed view of the river front, and embodies the consensus of opinion and vision derived from the public input process. The riverwalk design guidelines recognize and celebrate the City’s collective past by taking advantage of existing resources, be they industrial, cultural, historical or natural.

There is tremendous public support for efforts to construct pedestrian-oriented river front enhancements, with clear objectives to improve programmable open space for active recreation, while at the same time encouraging economic development focused on redeveloping older industrial and downtown sites. Ka+p reviewed many factors in the development of these guidelines. The high degree of public ownership adjacent to the river prompted many ideas and thoughts as to what the riverwalk could be. There is also a rich cultural history in Manitowoc that influenced many of the decisions made.

The 2009 riverwalk plan is grounded in current as well as previous community studies and plans.



ICE SKATING ON THE MANITOWOC RIVER, 1888



MANITOWOC, WI circa 1950



RIVERVIEW PARK LOOKOUT, 1910



For example, the “City of Manitowoc Comprehensive Plan 1999 - 2019” identifies the following objectives:

1. Require all new development to provide location and design for either sidewalks or alternative pedestrian/bicycle access paths.
2. Continue the acquisition and improvement of the land along the Manitowoc and Little Manitowoc River for conservancy parks with linear bicycle/pedestrian trails.

The City’s draft 2009 comprehensive plan identifies the creation of recreational trails as a high priority. The plan identifies the preservation of environmental corridors, and improved public access to natural resources such as the Manitowoc River and Lake Michigan.

The 1999 plan also identifies various recreational amenities to be pursued including a Manitowoc River walkway with user amenities on the south side of the river, and further recommends that the City develop a system of “spine trails” that would become part of the regional trail system.

The “City of Manitowoc Park, Recreation, and Open Space Plan 2005-2010” identifies as a key development target the establishment of a recreational trail system along the Manitowoc River, extended from Manitou Park and the Rahr walkway to the east and west to make pedestrian access easier along this waterway system.

Finally, the “City of Manitowoc Bicycle Facilities Plan,” September 1995, identifies the need to connect bicycle and pedestrian routes to the “spine trail” system, and that bicycle planning be integrated into all planning efforts as well as infrastructure development and enhancement projects.

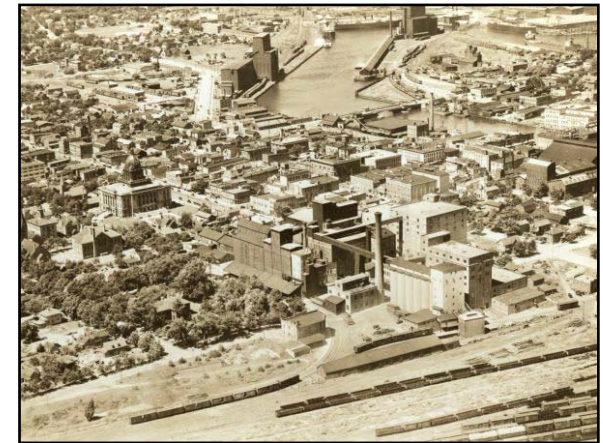
In this study, an open planning process was used, meeting with City planners and various stakeholders - property and business owners, Mainly Manitowoc Inc. (the Wisconsin downtown Main Street Program group), and other key groups. Ka+p held visioning sessions and attended the June 10, 2009 City Plan Commission and June 15, 2009 Common Council meetings. Through these meetings and research, the consensus that emerged was to create a plan for the river that showed the catalytic potential to revitalize the river simultaneously with comprehensive planning, and how the area could be redeveloped over a long period of time without infringing on existing privately owned properties. Two issues surfaced continually; the need for more river connections, and maintaining the river as a working harbor. Keeping these in the forefront allowed an overall goal of maintaining the health of the waterfront— both in sense of the environment and vitality of the City.



RAILING AT RIVER LOFTS CONDOMINIUMS



MANITOWOC SHIPYARDS, 1930



DOWNTOWN BUSINESSES, DATE UNKNOWN

## PURPOSE OF THE PLAN

The design guidelines for the City's riverwalk provides a direction for the design and planning of future development along the river in various sections of the City. The purpose of the guidelines is to provide a framework for policies, describe development concepts, and outline specific project areas.

The plan outlines a series of physical improvements, but also includes riverwalk guidelines and program recommendations. Events and activities are critical to the success of the riverwalk by maintaining the area as a lively public space, integral to the downtown and the City of Manitowoc.

The design guidelines are organized from the general to the specific:

- Program wish list and precedent studies.
- Guiding principles that represent the fundamental goals and values that the Master Plan strives for.
- An existing conditions report of the area.
- A vision for the next evolution of the riverwalk.
- Development concepts that describe how the guiding principles should be translated into specific development activities and actions.
- Recommendations, by district, which propose more specific concepts and ideas.

Over the years, conditions and circumstances will change around the riverwalk as will the City's recreation needs. At each stage in the design guideline's implementation, it is expected that the concepts will be reviewed to ensure that the plan's recommendations continue to be relevant. If necessary, updates to the guidelines may be prepared under the direction and management of the City's Planning Department, which maintains final authority over design and development of the riverwalk.



SIMPLE SIGNAGE

### Qualitative Design Features

- Pedestrian Scale
- Gathering Nodes
- Lighting
- Variety
- Accessibility
- Open Green Space
- Overlook
- Eyes on the River
- Sustainability
- View Corridors
- Connection to Trails
- Materials
- Signage/Wayfinding
- Quality Design

### City Activities

- Amenities
- Destination
- Education/Art
- Family/Children
- Recreation
- Maritime History
- Restaurants
- Office Space
- Retail
- Farmers' Market
- Festivals
- Concerts
- Amphitheater
- Art Fairs
- Tours: Industrial
- Vendors, Seasonal

### Nature Activities

- Pedestrian/Bike/Bridge Crossings
- Fishing
- River/Boat Tours
- Boat Launch
- Dockage
- Winter Activities
- Canoe Access Points
- Observation Tower
- Watercraft Rental
- Industrial/Working Harbor
- Recreation Trails
- Parks
- Wildlife Viewing
- Mariners Landing

## APPROACH

At the visioning session on May 20, 2009, Ka+p presented precedent studies of successful riverwalks in Pittsburgh, PA, Milwaukee, WI and Austin, TX. These riverwalks include nodes for sitting, utilize indigenous materials, reflect the overall context of that city and provide a space for activity. The primary purpose of these examples was to stimulate the conversation towards what could be possible for Manitowoc by highlighting what was successful in each. These visioning sessions generated multiple ideas and considerations in terms of design features and activities. A summary of these elements is included below. These lists were then used to create the riverwalk program and develop the material specifications.

## PRECEDENT STUDIES

The following examples were presented to stimulate conversation, and outline some of the successful and unique design features that may be applicable to Manitowoc.

### Pittsburgh, PA

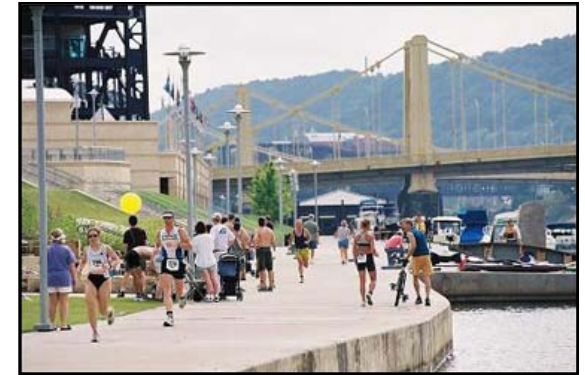
Pittsburgh has a similar landscape to Manitowoc in that it has a working harbor; however, on a much larger scale. There are a variety of activity nodes placed along the riverwalk, and frequency depends on the type of district. When an activity node is introduced, the path widens and more elements are placed such as seating, landscaping and other connecting paths. It is important to note that public access in the Industrial District of Pittsburgh is provided where it does not conflict with industrial uses or needs.

### Milwaukee, WI

The Milwaukee riverwalk is a dominant feature in the city, which also has a working harbor. The Milwaukee riverwalk has several successful attributes: it contains public art; a wide variety of activities that occur along the river; and uses materials that are contextual to the adjacent property. For example, in the Historic Third Ward, a wooden plank path is used as if reminiscent of a wooden pier. There are also various edge treatments; hardscape, landscaped or fenced. The overall development includes terraces, overlooks and public gathering spaces that are interconnected.

### San Antonio, TX

San Antonio's riverwalk was included due to its prominence as a destination. Some of the unique characteristics of this riverwalk are a variety of pathways, complete continuity (including under bridges), connections to existing parks and urban centers, location and wayfinding maps, and the inclusion of public art. In portions of the riverwalk, it is a quiet haven away from the "busy" city.



PITTSBURGH, PA RIVERWALK - MULTIPLE FUNCTIONS



MILWAUKEE, WI RIVERWALK - EDGE TREATMENT



SAN ANTONIO, TX - UNDER BRIDGE CONNECTIONS



## PLANNING PRINCIPLES

The riverwalk is a long range plan designed to place a pedestrian and bicycle trail adjacent to or near the Manitowoc River, and to provide both a physical and visual access to the waterway. The riverwalk path should facilitate the enjoyment of the river for such uses as, but not restricted to, boating, fishing, viewing, biking and pedestrian travel.

The City should work with property owners regarding Wisconsin's recreational immunity statute (§895.52 Wis. Stats.), which is designed to encourage landowners to open property to recreational users by removing the potential for liability. This law may serve as a means of gaining public access to developed lands, particularly in the Industrial District. This statute provides private property owners, including municipal governments, with immunity against liability for any injury to a person engaged in an outdoor recreational activity on the owner's property under circumstances in which the owner does not derive more than a minimal pecuniary benefit. Owners have no responsibility or duty to keep the property safe for recreational activities, to inspect the property, or to give warnings regarding unsafe conditions on the property. Recreational activity is exhaustively defined in the statute to cover a panoply of uses undertaken for the purpose of exercise, relaxation or pleasure, but excludes any organized team sport activities sponsored by the owner of the property on which the activity takes place.

The following principles should govern the design of the Manitowoc riverwalk:

- Utilize the riverwalk as a catalyst for capitalizing on economic development opportunities.
- Incorporate heritage and history into the design elements for the riverwalk.
- Maintain the existing industrial working waterfront.
- Maintain consistency of materials throughout the entire project area.
- Develop a continuous river front pathway along the Manitowoc River, ultimately connecting with the Ice Age Trail and Mariner's Trail.
- Complete the gaps within the boundaries of the riverwalk area.
- Encourage sustainable design.
- Plan for destinations that encourage people to stay.
- Provide a multi-use trail system.



PLANTER AT MILWAUKEE RIVERWALK



NATURE TRAIL AT RIVER



BELDING, MI - SITTING AREA



## PROJECT GOALS OF THE RIVERWALK

The following goals should be considered in the design of the riverwalk:

- Develop a trail loop system including river crossings to encourage a variety of routes, and cross-river connectivity.
- Coordinate and educate property owners to encourage public access through properties comprising the riverwalk system.
- The overall design of the riverwalk, when possible, should adhere to ADA accessibility guidelines for such considerations as slopes, railings, the need for ramps, etc.
- Provide a variety of viewing areas.
- Incorporate signage and wayfinding.
- Improvements should be as maintenance free as possible.
- Provide connections to areas outside of project area.
- Provide diverse recreational opportunities (supporting local & regional uses).
- Provide a variety of access points.
- Expand docking activities and other linkages to the water.
- Create multiple opportunities for the placement of public art.
- Provide for educational opportunities.
- Promote connections to adjacent regional and local trail systems (Although outside this scope, consideration for signage should be given for these trails. The signage should be consistent throughout each trail system, including the riverwalk).
- Consider locating a Vitae course near the YMCA and along the existing riverwalk system by the WI Maritime Museum and lakefront.
- Evaluate the existing riverwalk system to minimize or reduce points of conflict which are hazardous to bikers and pedestrians (beyond the scope of this study).



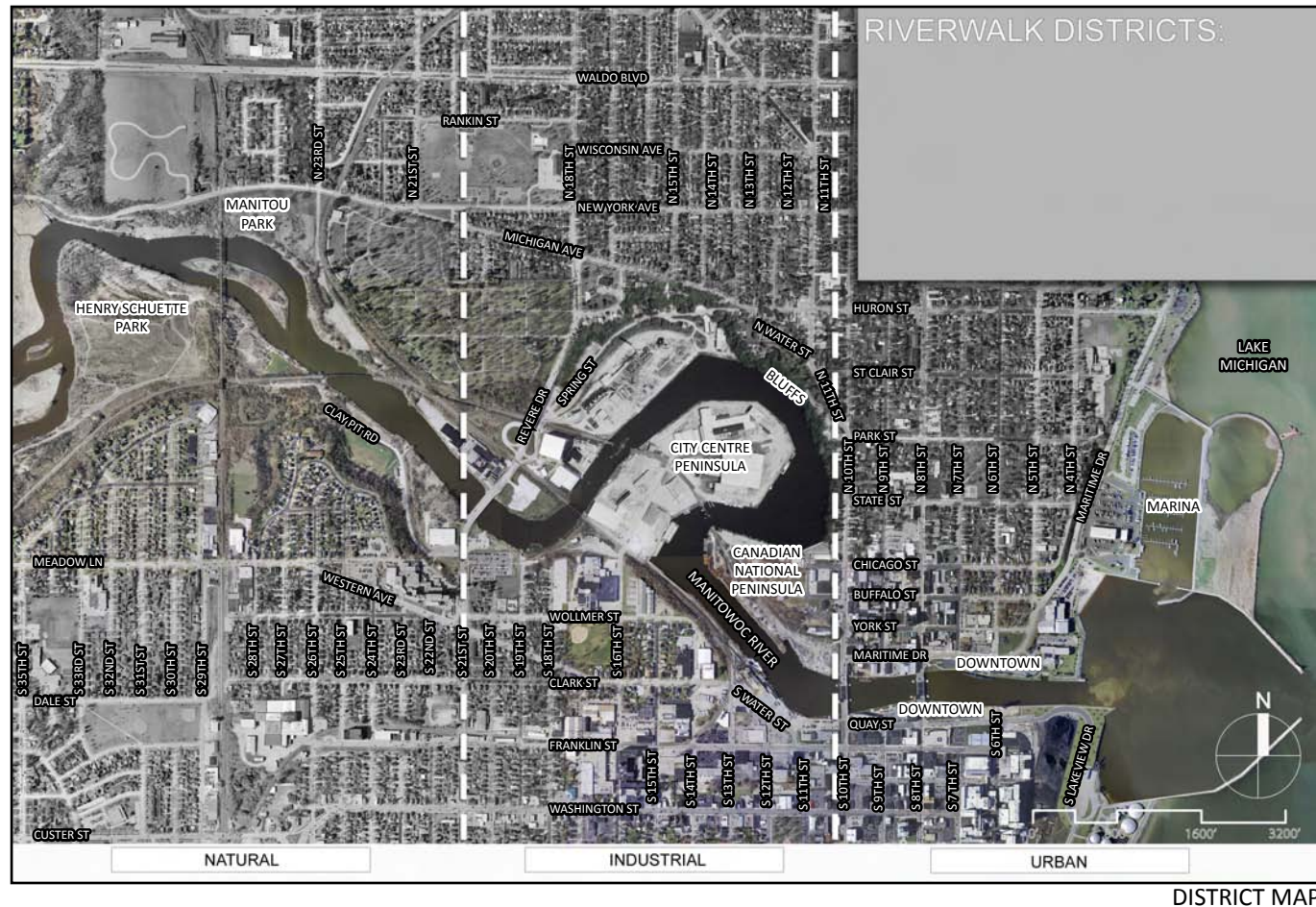
MILWAUKEE RIVERWALK - GATHERING SPACE



MILWAUKEE RIVERWALK, BOAT SLIPS



## Part II: Existing Conditions



### THE DISTRICTS

The project area is bounded by the 8th Street Bridge to the east, the properties adjacent to the river on the north and south banks, and Manitou Park and Henry Schuette Park to the west. For the purposes of this study and based on the visioning sessions, the area also extends to the mouth of the Manitowoc River. General challenges include land ownership, topography, diversity of existing uses, and business and pedestrian conflicts caused by intermixing land uses.

The riverwalk has three distinct areas defined by their character; natural, industrial and urban. With the exception of the steeper bluffs along the north bank of the river in the Industrial District, the terrain is relatively flat. Along the Manitowoc River, severe erosion hazard areas are located west of Water Street, and in Henry Schuette and Riverview Parks. The uniqueness of each district presents challenges as well as opportunities. The challenge is to weave these seemingly disparate segments together, and to master plan a riverwalk design as the thread that will tie these districts together. The following pages provide a closer, more detailed overview of each district.



## NATURAL DISTRICT

The Natural District starts at approximately the 21st Street Bridge and continues west, overlapping the adjacent Industrial District in some areas due to the winding of the river. This district is comprised mainly of urban park lands, floodplain, conservancy and non developable lands. A 7.14-mile segment of the Ice Age Trail runs through 28.5-acre Manitou Park on the north side of the river, and through the 67.5-acre Henry Schuette Park on the river's south side. The "Rahr Family Pathway" trail runs along the north bank of the river at Manitou Park a distance of approximately 960 feet west, until it connects at Michigan Avenue. The landscape in the Natural District ranges from wooded to open grassland, and is home to a variety of native plant communities and wildlife habitat. The majority of the zoning of the riparian land is "P-1," which is a conservancy zoning district. It allows for parks and accessory structures.

The challenge in this district is to not disturb the natural landscape and wildlife habitats, while still providing access to and along the river. This "central park" area together with Henry Schuette Park is a key component of the natural area to be forever a keepsake of environmental importance to Manitowoc.

### Attributes

- Ice Age Trail has passage through Manitou Park and Henry Schuette Park.
- Railroad track bridge connections can be used to provide pedestrian and bike access across river.
- Majority of the land parcels are City-owned.
- Opportunities for viewing wildlife and the river.
- Fishing and boating opportunities.
- Rahr Family Pathway eventually will link to the Ice Age Trail and other local trails.

### Challenges

- The landscape is mainly undisturbed and natural habitat.
- Railway intersects the river's edge.
- Some sections of the land adjacent to the river are erosion hazard areas.



RIVER'S EDGE CONDITION AT NATURAL DISTRICT



VIEW TO NORTH BANK AT CLAY PIT ROAD





LEGEND

RAILROAD BRIDGE		ICE AGE TRAIL	———
VIEWS	←		
CN = CANADIAN NATIONAL			
EROSION HAZARD	//////		
RIVER EDGE REPAIR NEEDED	◇◇◇◇◇◇◇◇		
UNLESS NOTED OTHERWISE EXISTING RIVER EDGE TO REMAIN.			

NATURAL DISTRICT MAP



KEY MAP



RIVERVIEW PARK SHELTER



RIVERVIEW DRIVE PARK



FIELD ALONG MANITOWOC RIVER

## INDUSTRIAL DISTRICT

The Industrial District starts at the 10th Street Bridge, and continues west to the S. 21st Street Bridge. To reiterate, the transition from district to district is somewhat blurred. Some existing river edges in this area are in need of repair. Most notable is the 5.76-acre Burger Boat Company property, located along the north bank of the river, and to the west of the City Centre peninsula. Burger Boat manufactures luxury yachts, and uses the river to launch these boats. The main line of the Canadian National railroad ran along the south side of the Burger property. Adjacent to Burger on its north side is the 7.01-acre St. Barbara Cement Inc. property, which operates as a cement terminal. To the northeast of St. Barbara is the former 6.68-acre Rockwell Lime Company property now owned by BFM, LLC. This parcel was a former lime and cement manufacturing facility, is currently abandoned, and has not been utilized in over 20 years. The Industrial District has an elevation around 588 feet above sea level, and is characterized as being generally flat along the Manitowoc River, with a steep bluff up to the residential areas north across Spring Street. Much of this steep slope area is defined as an erosion hazard area by the City.

To the east of these industrial uses is the City Centre, LLC peninsula property, formerly the Manitowoc Company shipyards. This property houses multiple businesses such as Tower Tech Systems, a manufacturer of support towers for wind turbines, and Deep Flex, a manufacturer of flexible piping for the underground oil extraction industry. The zoning for this parcel is "I-2," heavy industrial, and allows for heavy industrial uses. North and east of the peninsula is a steep bluff, and atop the bluff is Riverview Park, a 1.66-acre neighborhood park. The zoning of the park is "P-1," Conservancy District.

To the east of the City Centre property and to the west of N. 10th Street, is the 22-acre peninsula, of which approximately 21-acres is owned by the Canadian National railroad. This site was used historically as railroad marshalling yards since 1900, including a turntable and roundhouse/maintenance facility. The main line of the former Soo Line Railroad crossed the Manitowoc River on an 1896 swing bridge called "The Burger Bridge". One of the functions of the main line was to move cars to, and from, a Great Lakes ferry service that connected Manitowoc with Ludington MI. This car ferry service ended in 1982. The zoning of this parcel is "I-2."

Red Arrow Products, a manufacturer of flavorings and extracts, is located on the south bank of the river, but this business does not utilize the river for its operation. It does visually impact the river in its current condition, and presents a challenge for continuing a riverwalk trail adjacent to the river through its property. The river is also used to carry cement, coal, stone and barley on approximately 80 barge and ship trips per year.

The working harbor is the focus of the Industrial District, and presents a logistical challenge to maintain the existing industrial working waterfront, while at the same time developing a continuous and safe pedestrian-oriented, riverfront trail system.



VIEW OF CITY CENTRE, LLC



CONDITION OF SHORE BANK AT CANADIAN NATIONAL PENINSULA



FORMER RAILROAD MARSHALLING YARDS, LEFT



The industrial district poses some interesting contradictions. While home to many large industrial complexes, the same area offers wonderful views of the river, and is bounded by steep bluffs and natural habitats. The riverwalk path through this district should be placed so as to minimally impact existing working harbor businesses. The objective should be to locate the pathway as close to the water as feasible, unless the nature of the development or its density makes this impractical. Upland alternatives should be examined if this is the case. Ultimately, the pathway through the Industrial District should connect with the existing Ice Age Trail that runs generally along Spring Street and S. 21st Street.

A scenic overlook and multiple cupola-roofed structures, which formerly existed at the west end of St. Clair Street at Riverview Park in the 1920's, should be recreated. This viewing area would offer great views of the river, the industrial complex on the City Centre peninsula, and vistas of the City. The natural vegetation at this bluff area along the river should be cut back, and developed as an environmental education opportunity, ultimately connecting to existing trails near the base of the bluff.

#### Attributes

- Riverview Park is located on the bluff, and once had a lookout point at North Water Street.
- Development opportunities exist.
- The working harbor and businesses are an educational asset.
- Opportunities for fishing, scenic overlooks and vistas.

#### Challenges

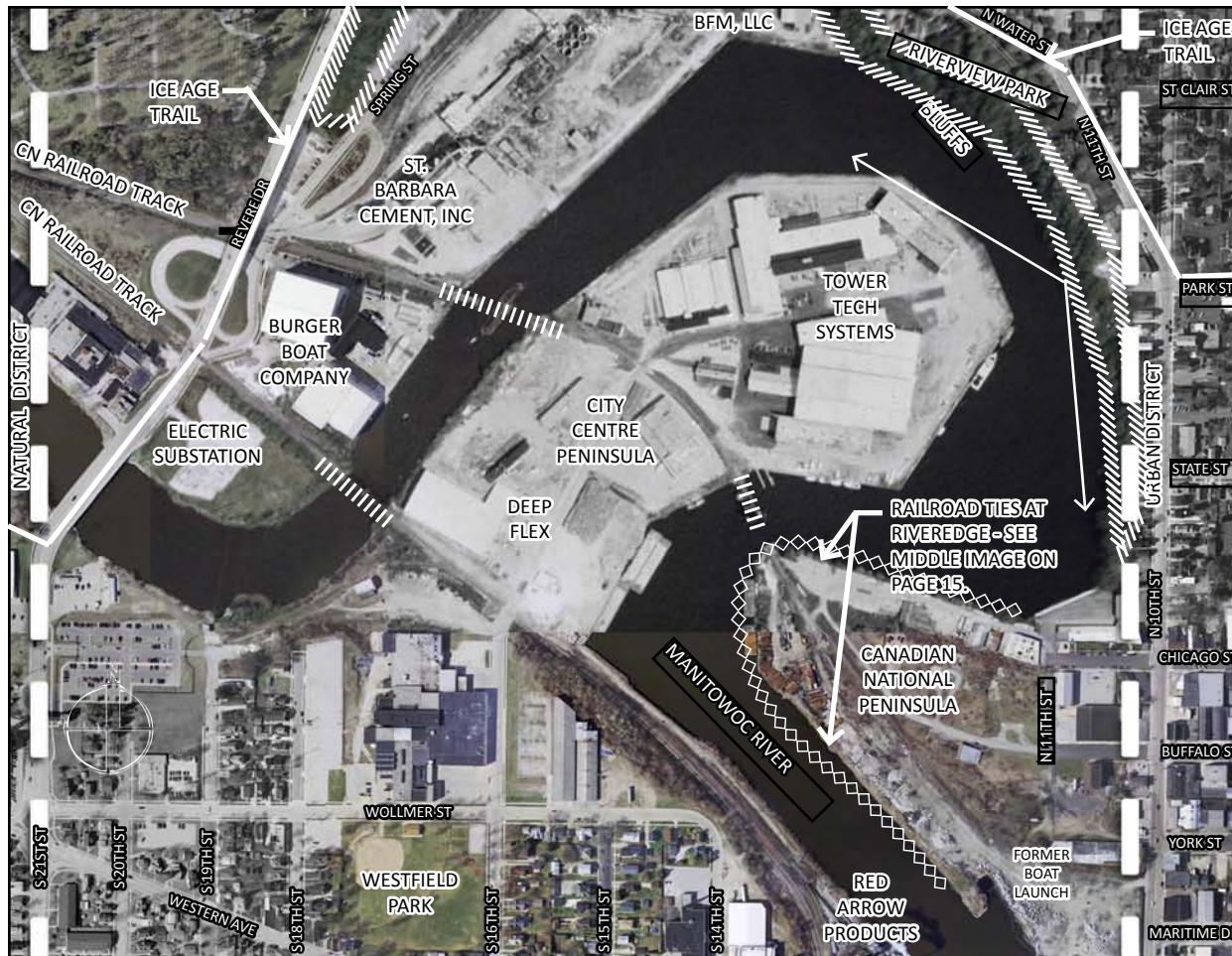
- Easements or similar documents will need to be put in place to provide public access.
- Maintain when practicable, separation of the working harbor versus general public access.
- River edges are in disrepair and can be costly to fix.
- The bluff is in the erosion hazard area.
- Educating owner's of manufacturing properties of the protections provided in Wisconsin's recreational immunity statute.



AREA WEST OF BLUFF IN INDUSTRIAL DISTRICT



RIVER BANK CONDITION IN THE INDUSTRIAL DISTRICT



LEGEND

RAILROAD BRIDGE		EROSION HAZARD	////
VIEWS	←	ICE AGE TRAIL	—
CN = CANADIAN NATIONAL			
RIVER EDGE REPAIR NEEDED	◇◇◇◇◇◇◇◇		
UNLESS NOTED OTHERWISE EXISTING RIVER EDGE TO REMAIN.			

INDUSTRIAL DISTRICT MAP



KEY MAP



CITY CENTRE PENINSULA



TOWER TECH SYSTEMS



RED ARROW PRODUCTS, LEFT



## URBAN DISTRICT

This district starts at the 10th Street Bridge, and continues east to the mouth of the river. This district includes separate riverwalk segments and therefore, existing pockets of activity through this area. The north side of the river features more existing development, with the focus of activity around 8th Street and Maritime Drive. Currently there is an interruption of the riverwalk at the bridges, and there is no clear connection between the north and south side of the river, other than by crossing the 8th or 10th Street Bridges in a vehicle or on foot. The existing riverwalk consists of concrete paving, and includes some public art without a clear theme or design.

City Hall is located on the south bank, and includes a public gathering space, as well as the adjacent .08-acre Mariner's Landing West "mini-park." Continuing east of 8th Street is the City-owned Burger Boat Company Park, and to the east of that is a parking lot, leased by the City, which is home to the Manitowoc Farmers' Market. Continuing east are various industrial properties including the Busch Agricultural Resources grain tower, ultimately leading to the Lake Michigan Carferry Service docking facility. Grain is delivered to Busch an average of eight times or more per year. Here the riverwalk is interrupted. A portion of Quay Street closes for the delivery of coal to the Manitowoc Public Utilities (MPU) and deliveries occur four to six times per year; the closure includes the riverwalk.

On the north side of the river, the Mariner's Trail connects to the existing riverwalk. This six mile stretch of paved trail was developed between the cities of Manitowoc and Two Rivers, and is designed for bicyclists, walkers, joggers and roller-bladers, along the Lake Michigan shore between Manitowoc and Two Rivers. Moving to the west is the WI Maritime Museum and Manitowoc Shipbuilding Company Park, both located on City-owned land. The newly developed River Lofts Condominiums building is west of 8th Street at Maritime Drive, and adjoining the condos to the west is a business office building, and then McMullen & Pitz, marine contractors. McMullen & Pitz uses the river for their business operations. There is a challenge to continue the riverwalk at this site with respect to public access.

The downtown includes a variety of zoning districts. These include "B-3," General Business District, "B-4," Central Business District, "C-1," Commercial District, "P-1," Conservancy District and "I-2," Heavy Industrial District. These zones include multi-use buildings with an emphasis on retail, commercial districts, parks and heavy industrial uses. The zoning in this area would complement public gathering spaces located on the riverwalk. The "I-2" zoning presents a challenge due to its permitted uses.

The land areas abutting the river slopes and drains downward towards the river. Elevations in this area are between 585 and 589 feet above sea level.



MARINER'S TRAIL



RIVER EDGE AT MCMULLEN &amp; PITZ



WI MARITIME MUSEUM

#### Attributes

- The area includes many amenities - City Hall, parks, Public Library, Farmers' Market and the WI Maritime Museum to name a few.
- A majority of the parcels are City-owned and controlled.
- Events and attractions occur frequently and bring people to the river.
- Mariner's Trail has a segment along the river.
- The downtown has a "Main Street" designation.
- There are fishing and boating opportunities.

#### Challenges

- Some areas are working harbor related - the coal stage area, grain delivery and marine contractors.
- Some parcels are privately owned, and the City will need to have an easement or similar agreements in place to connect these parcels to the riverwalk.
- An interruption of the riverwalk occurs at the bridges.



RIVER EDGE AT WI MARITIME MUSEUM



BUSCH AGRICULTURAL RESOURCE GRAIN TOWER  
(EAST OF QUAY)



EDGE CONDITION AT NORTH BANK - URBAN  
DISTRICT



BURGER BOAT/ASSOCIATED BANK



FARMERS' MARKET / PARKING LOT  
QUAY AND 8TH STREETS

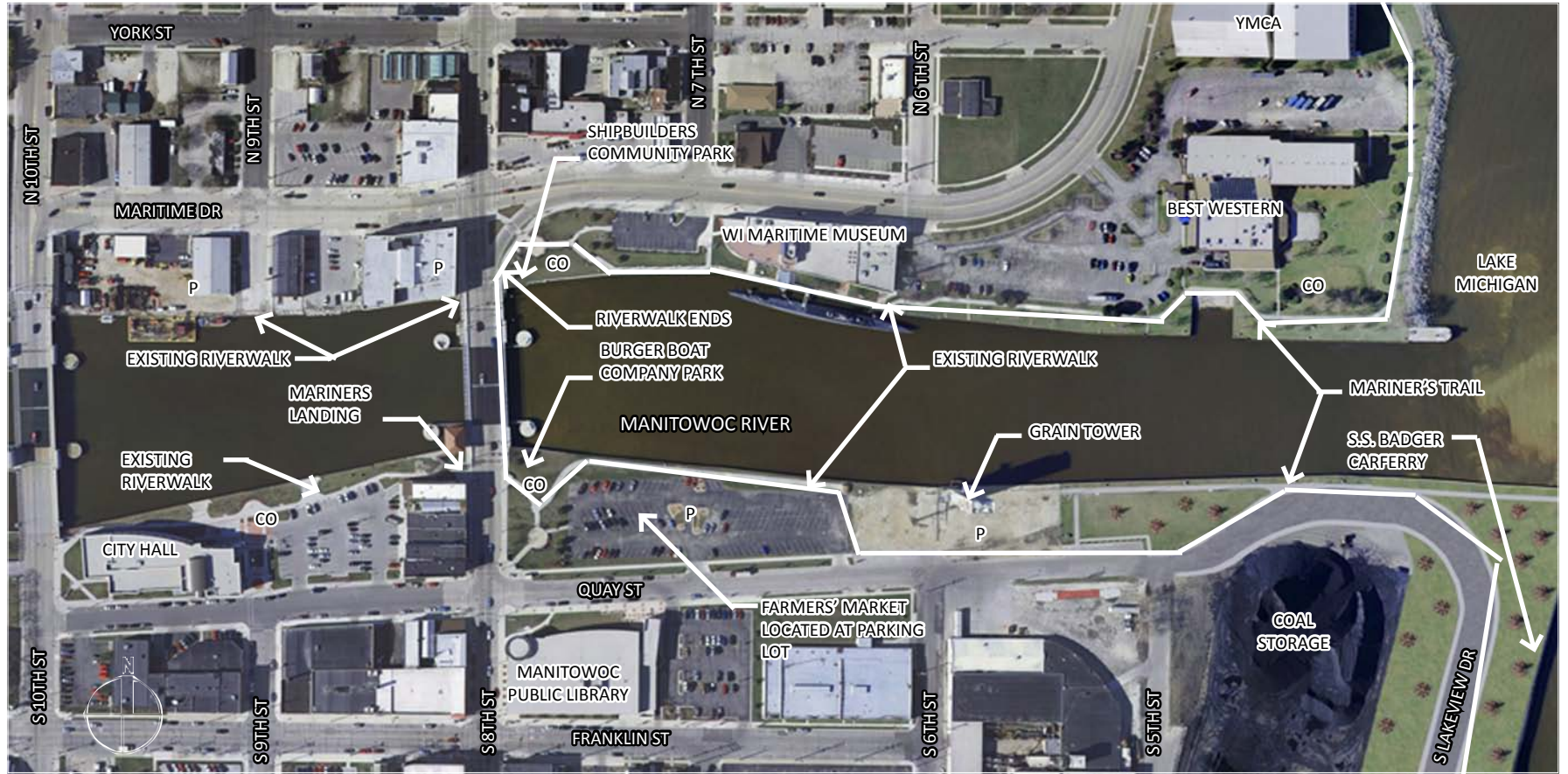


EDGE CONDITION AT NORTH BANK NEAR RIVER  
MOUTH



CITY HALL





URBAN DISTRICT MAP

LEGEND

RAILROAD BRIDGE		EROSION HAZARD	////
VIEWS	←	MARINER'S TRAIL	—
CN = CANADIAN NATIONAL		OWNERSHIP	CO: CITY-OWNED
RIVER EDGE REPAIR NEEDED	◇◇◇◇◇◇◇◇	DESIGNATION	P: PRIVATE
UNLESS NOTED OTHERWISE EXISTING RIVER EDGE TO REMAIN.			



KEY MAP



EXISTING SHEET PILING AT SOUTH BANK -  
URBAN DISTRICT



## EXPLANATION OF ANALYSIS

In order to determine where best to implement the riverwalk, each district was evaluated in terms of where people are already being drawn to the river and adjacent areas, and the degree of difficulty in physically developing the riverwalk. Our evaluation focused on three factors -- amenities, events and parcels. Amenities are defined as places or buildings. Events are public gatherings. Parcels are defined as a plot of land adjacent to the river. Existing contributing factors that bring people to the river were weighted as having either a high or low value, and then graphed on a map. The results of the evaluation were used to identify where a riverwalk path should be located, and where public gathering spaces should be, or should remain. The analysis also resulted in identifying the possible phasing of the riverwalk implementation program.



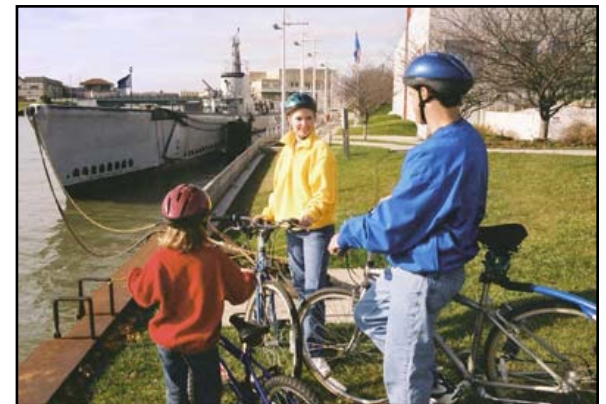
FARMERS' MARKET



BURGER BOAT LAUNCH



WI MARITIME MUSEUM



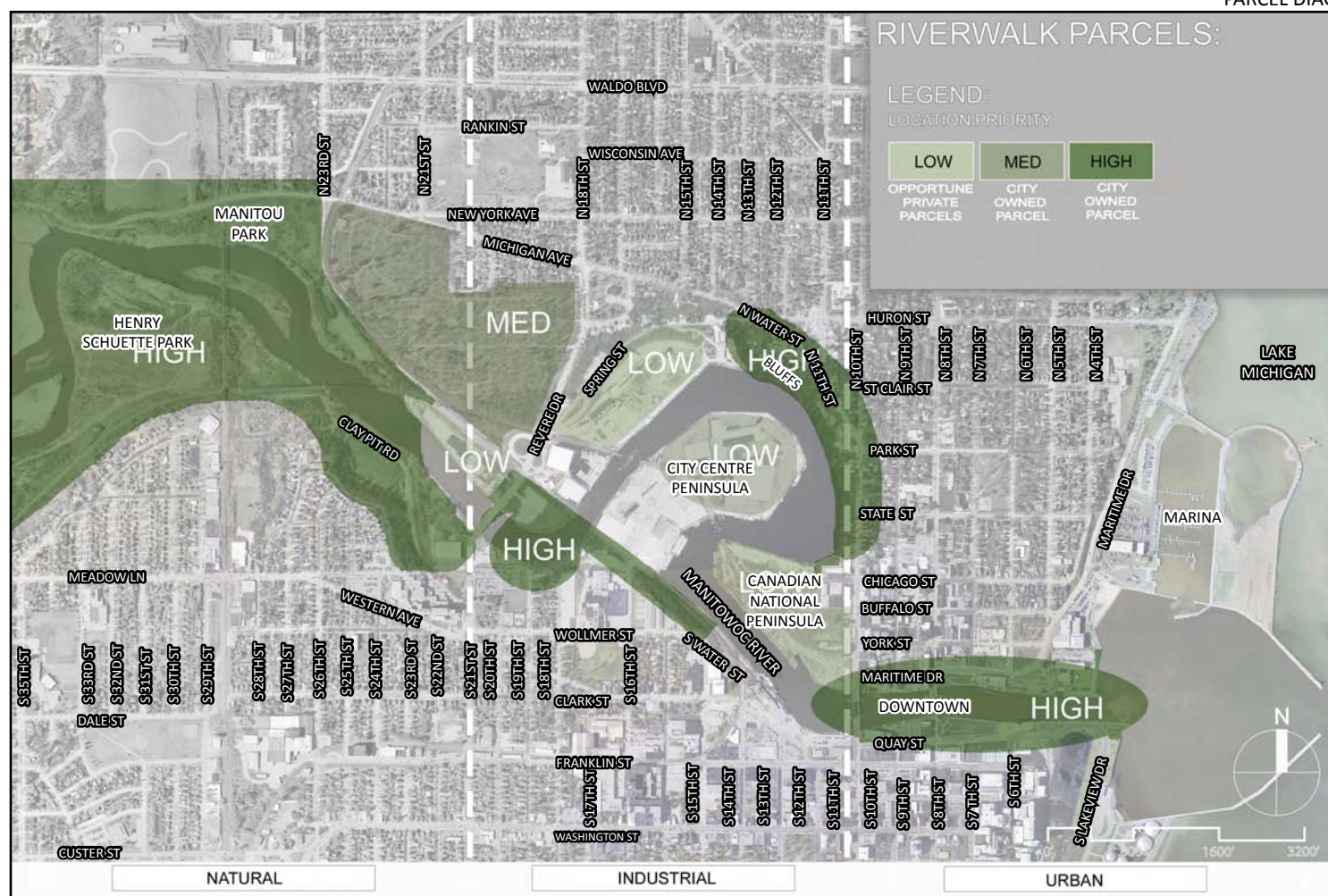
BIKING NEAR MARINER'S TRAIL



- Downtown Commercial/Business districts
- Downtown North Residential District
- City Parks (near river)
- Marina
- Ice Age Trail

- River Rendezvous
- Krazy Daze
- Sputnikfest
- Volkswalk / Oktoberfest
- Bike Race
- Lakeshore Weekend for Kids
- Balloon Glow





### PARCELS

Land parcels adjacent to the river were evaluated based upon the degree of difficulty in creating a public easement for the riverwalk. Examples of easement agreements from other riverwalks are included in the Appendix. Factors that establish a parcel's rating included ownership, topography and existing land use. A high rating means access through the parcel is easily attainable and easy to develop. Higher ratings apply to the City-owned land which has the least number of issues. Flat terrain provides the easiest type of site to develop. Lower rated locations would be working harbor businesses/industrial areas and steeply sloped sites.

#### High Rating

- City-Owned Flat Slope Parcels
- City-Owned Undeveloped Street R.O.W. at River
- City-Owned Vacant/Non Used Parcels

#### Low Rating

- City-Owned High Sloping Parcels
- Business Locations that Utilize the River
- Non-City Owned Parcels



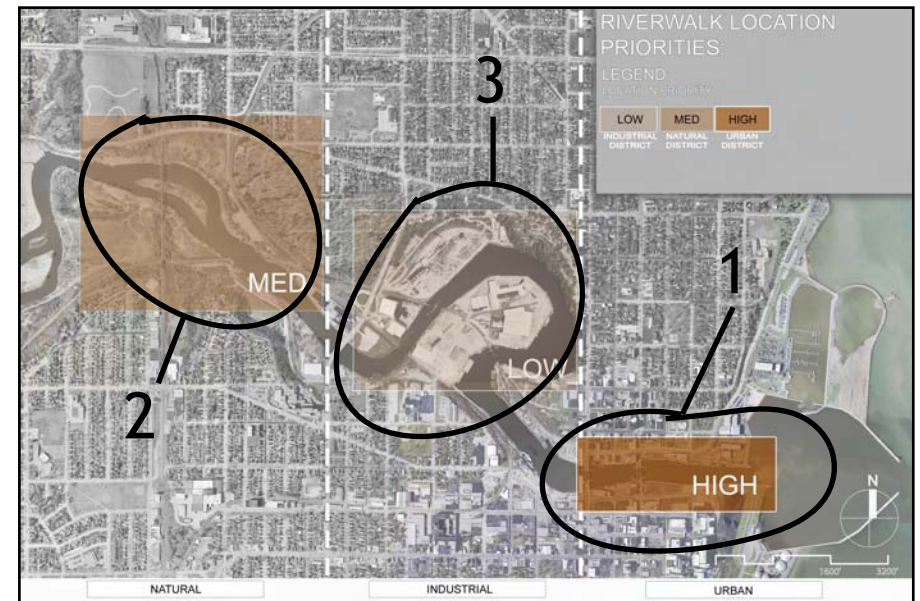
## SUMMARY OF EVALUATION

Overlapping the three analysis diagrams creates a very concise picture of where the highest concentration of activity is occurring (see Composite Diagram at top, right). It is self evident that capitalizing upon present amenities in the urban district would provide the best value for the first phase of the riverwalk (see Priorities Locations diagram at lower right). The second phase would be implemented in the Natural District due to the high percentage of City-owned lands, and low level of development. The existing parks and nature trails are a vital draw to the area, and would provide a viable recreational destination that would complement the urban district as an anchor point. The most challenging phase is the Industrial District. It contains the majority of the working harbor, as well as active railroad infrastructure and steeply sloped topography.

COMPOSITE DIAGRAM



PRIORITY LOCATIONS





## Part III: Linkages & Landings The Proposed Plan



## DESIGN EXECUTIVE SUMMARY

The design and placement of a 5.2-mile riverwalk meets the goal of providing a continuous connection from the mouth of the Manitowoc River to Manitou and Henry Schuette Parks. Eventually the riverwalk could also connect to River Heights Park, but that is beyond the scope of this document.

The entire path of the riverwalk should be accessible, and accommodate a variety of activities such as walking, running, bicycling, roller-blading and related activities. Further, it should create viewing areas to encourage visitors to remain, and enjoy the unique characteristics of the districts. The Natural District is more geared toward passive recreational activities, however, these are not unique to this district. The intent of the overall plan is to bypass the Industrial District due to safety concerns, while providing viewing areas from the Natural and Urban Districts to showcase the ongoing industrial operations. The Urban District will capitalize on the existing successful events and amenities; however all of these should be focused upon the river.

## RIVERWALK CONCEPT

It is understood that the riverwalk system will traverse the three distinct and diverse areas – Natural, Industrial and Urban – in a relatively short span. The Natural District is comprised of fields, densely treed areas and parks; the Industrial District includes older manufacturing plants that use the river to deliver goods and services; and the Urban District has hardscaped plazas, adjacent mercantile businesses and amenities.

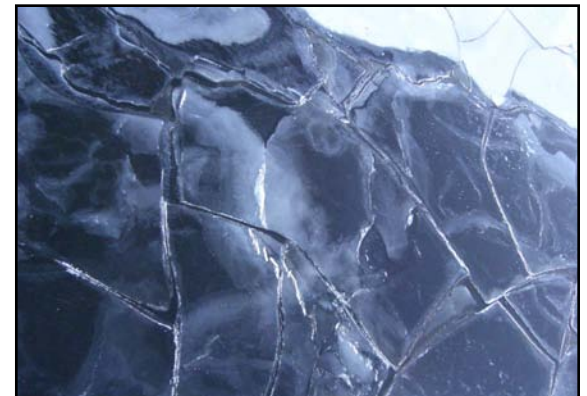
The task is to provide continuity for not only the trails, but also the design of the riverwalk. To this end, a unifying concept was developed, which integrates elements from nature into the urban setting, and elements from the urban setting into the natural setting. The design achieves this by literally infusing materials into the different districts to create a visual and tactile continuity, regardless of the diversity of the surroundings. The goal is that visitors will always know that they are on the riverwalk trail system.

In the Natural District, textured concrete paving and wood platforms from the Urban District are introduced at viewing areas to create a consistent appearance. In the Urban District, and in diminishing magnitude in the Industrial District, undulating pathways are introduced, which incorporate planting areas to infuse nature into the City. The planting areas are regulated into the rhythm of the City grid through these areas.

The incorporation of large pieces of recycled concrete is introduced as a tactile transition between the main path (crushed stone in the Natural District, concrete in the Urban District, and concrete and wood in the Industrial District) and the wood platforms of the viewing area landings. This material draws upon the imagery of the river's ice flow geometry.



INVOKING SHIP HULLS - IMAGERY



FRACTURED ICE FLOW - WALKWAYS

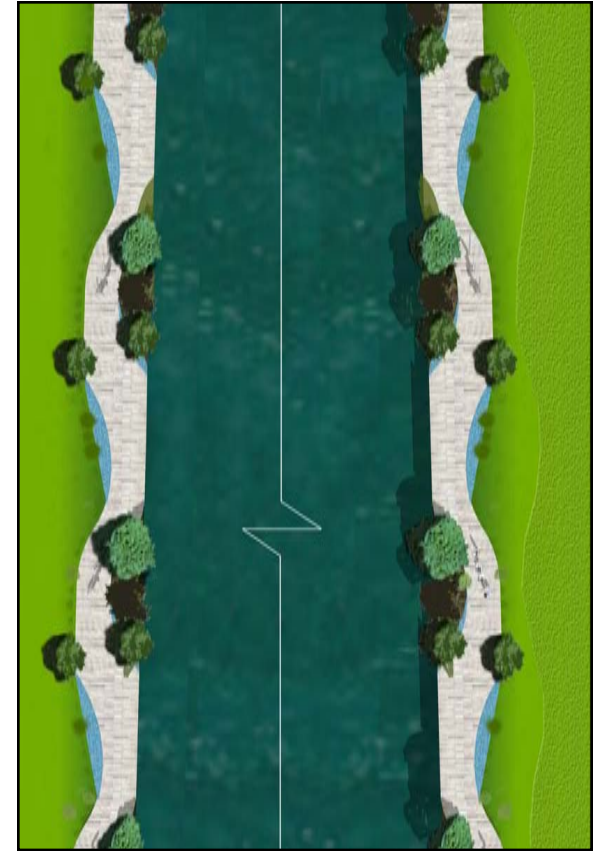


RADIATING RIPPLES - NODES

CONCEPT IMAGES

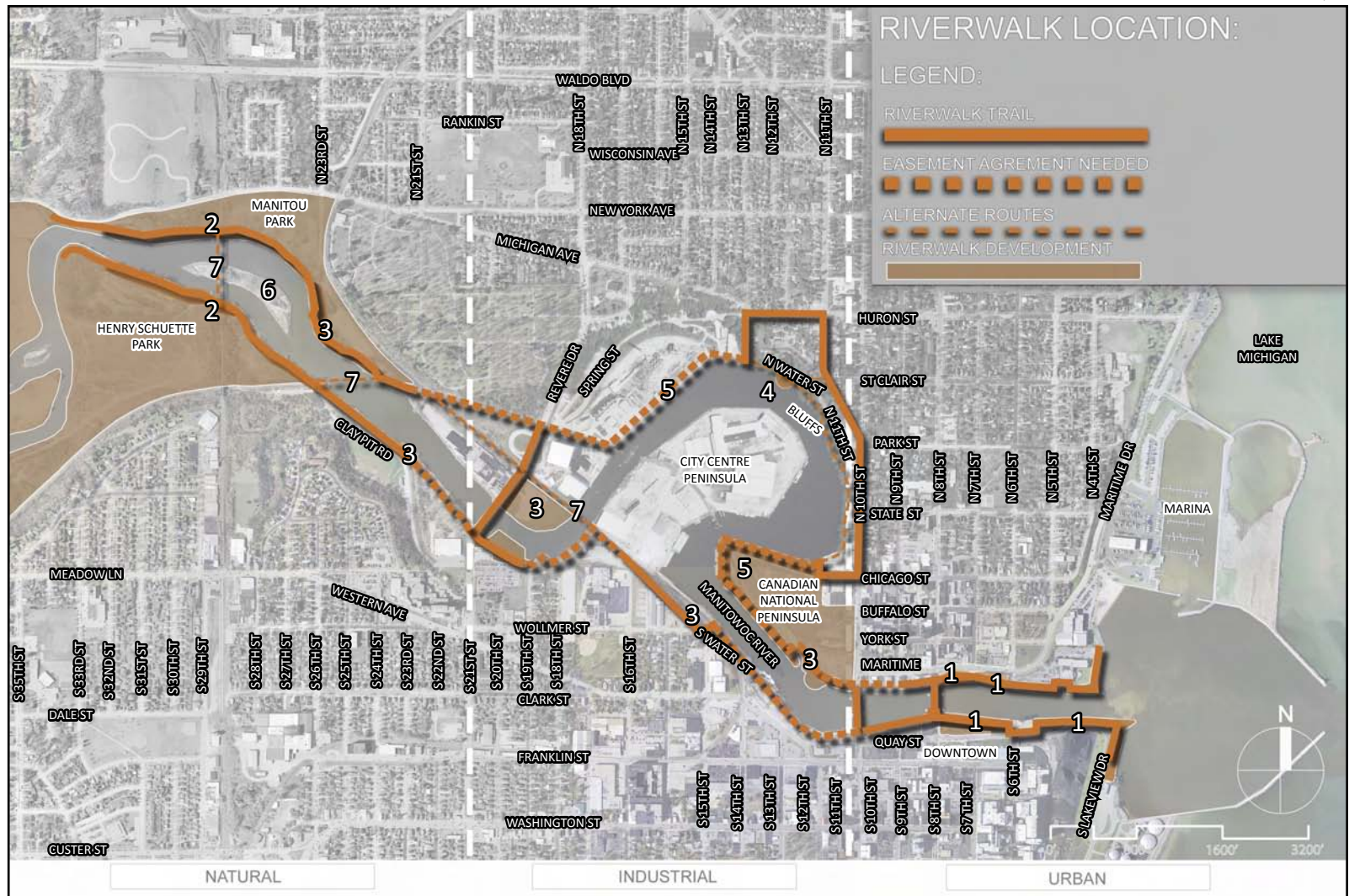
Similar to an obstruction in the water, the Industrial District interrupts this flow from urban to nature and vice versa. This is the reason that the path in the Industrial District bypasses the industrial businesses, and takes the path in a more passive manner, so as to view the manufacturing processes without being directly invasive. This concept is achieved by placement of landings, linkages, material selections and providing a common theme element. Linkages are the connecting paths from landing to landing, and landings are the public gathering spaces. The details will be explained in further detail for each district.

The development of the riverwalk should be thought of as “touching the earth lightly”. The design respects this concept through strategic placement of the circulation paths and thoughtful use of materials to minimize the disturbance of the existing environments, and reinforcing Manitowoc’s goal of becoming a “Green” City.



UNDULATING RIVERWALK PATH





Suggested priorities are indicated by the numbering on the map as per the Priorities Location Diagram in Part II.

OVERALL RIVERWALK MAP

The total length of the riverwalk is approximately 28,150 LF (~ 5.3-miles). Distance includes each side of the river.

- Natural District: 9,850 LF
- Industrial District: 13,700 LF
- Urban District: 4,600 LF

## GENERAL RIVERWALK GUIDELINES

1. The riverwalk should be open to the general public on a 24-hour per day basis, free of charge, except for special amenity sections and/or private piers which may be secured.
2. Amenities provided should be consistent with the guidelines and development themes of the riverwalk requirements. Amenities should include, but not be limited to trees, shrubs, benches, tables, art, statues and other user amenities.
3. The riverwalk should be located on the river or on the upland where possible, with the least disturbance to the environment.
4. A balanced mixture of public and private moorings should be maintained for the cumulative total of all riverwalk sections. Moorings should not obstruct the navigation channel.
5. The riverwalk should be designed to be barrier-free and accessible to all, which may include handicap ramps, cross connecting trails, and similar applications to facilitate access to all citizens.
6. Portions of the riverwalk may be privately owned, but should be subject to public use and access requirements.
7. The proposed structure must meet the standards set up in these guidelines. The review process may include the City and other applicable agencies.
8. The design of the riverwalk should allow for public art, shelters, vendors, interpretative centers and related activities. Art selected for the riverwalk should be aesthetically pleasing. The art work can serve as signage, be functional, or use found objects such as scrap metal at the Canadian National railroad site.
9. The riverwalk can be composed of floating, pile-supported or cantilevered structures depending on site conditions. All segments should be designed for ease of repair and maintenance, and should be made passable all year round.
10. Floating sections should be allowed under bridges to serve as connections between riverwalks. A minimum of 7'-0" clearance is required, and the connection may not obstruct navigation or bridge operation. No moorings should be allowed under bridges.
11. Fixed structures should be constructed to withstand flood flow and ice damage.



DOWNTOWN MANITOWOC, WI



MOUTH OF RIVER - MANITOWOC, WI



SOUTHEAST VIEW AT 10TH STREET BRIDGE



12. Repair of structures should be made to ensure safety to the public. Broken paving, cracks, loose stones, bricks or other paving/decking materials installed pursuant to these guidelines must be promptly repaired with matching materials.

13. Improvements, furniture, fixtures, buildings, walks and railings should be kept in good repair and kept painted, stained or otherwise finished so as to maintain a presentable appearance.

14. Lighting must be kept in good and safe repair. Burned out light bulbs must be promptly replaced.

15. All premises, including boardwalks, stairways, ramps, piers and docks should be kept clean of any refuse, trash or garbage. Sweeping or other acceptable cleaning methods must be done after each day's operations, and at intervals as the need arises.

16. No trash, refuse, stones, bottles or polluting materials should be swept, thrown or disposed of into the river.

17. No waste or wastewater generated by moored boats should be discharged into the river. All such waste should be disposed of in a manner consistent with applicable state, federal and local laws.

18. Land disturbing activities should be consistent with the requirements of the City.

19. At landscaping opportunities, rain gardens or other sustainable methods for run off should be considered.

Refer to the City's updated comprehensive plan to be adopted in December, 2009, as well as the following reports and studies for more information:

- "City of Manitowoc Comprehensive Plan 1999 - 2019," Adopted 21 June 1999.
- "City of Manitowoc Park, Recreation, and Open Space Plan 2005 - 2010."
- "City of Manitowoc Bicycle Facilities Plan," September 1995.



MARINERS LANDING WEST



THE RIVER LOFTS CONDOMINIUM DEVELOPMENT

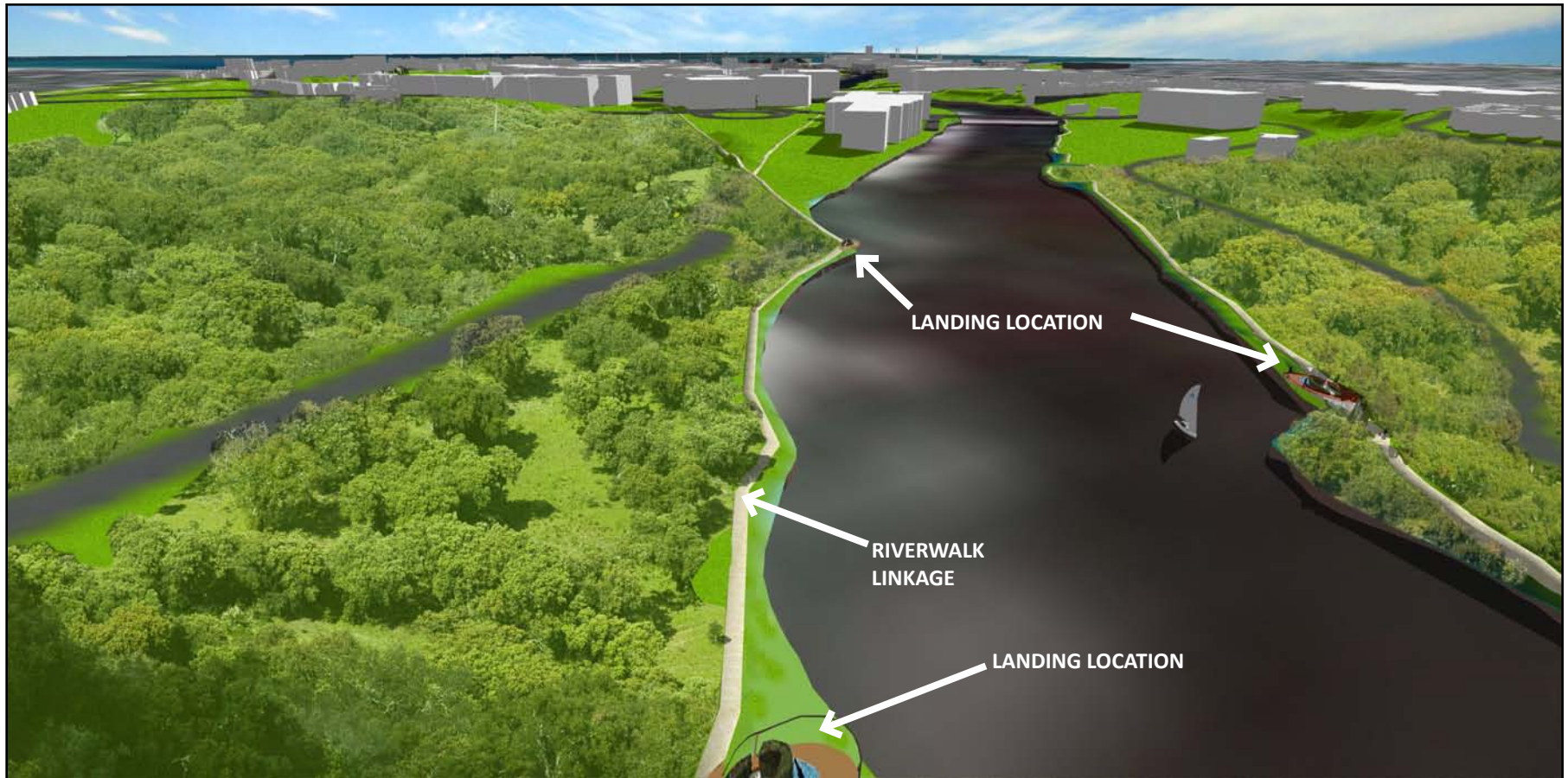


MCMULLEN &amp; PITZ CONSTRUCTION COMPANY



## Part III: Natural District





AERIAL OF NATURAL DISTRICT

### NATURAL DISTRICT

Implementing the riverwalk through the Natural District is relatively straightforward, as the terrain is relatively flat and undeveloped land. The locations of the paths should avoid erosion hazard areas, if possible, and be placed to minimally disturb natural habitats. The paths should be located on land, and be constructed out of crushed stone to allow for the natural absorption of rainfall. We encourage the development of the existing parks on both sides of the river to provide for more formal recreational activities, and hence bring more people to the river. This can be achieved by creating open green spaces for activities such as frisbee or soccer, picnic areas, and exercise trails. The existing trails should be connected to the new riverwalk, primarily at viewing area nodes to create a convergence of circulation. Non-native and overgrown vegetation should be cleared and thinned out, allowing for more desirable trees.

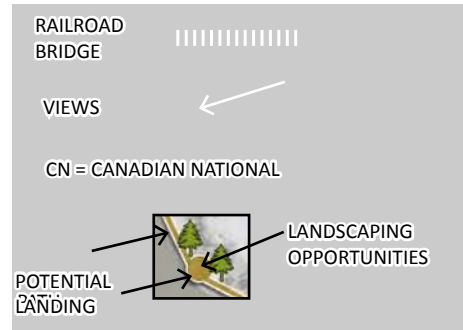
The viewing areas would provide opportunities for the display of public art, incorporation of educational material, and/or provide for the launching of small water craft. The viewing nodes should be strategically located to maximize the physical connections to the river, and provide for interesting views.

Their locations, however, are flexible as the entire district is rather pristine and homogenous in appearance. These nodes should be constructed out of wood decking, with recycled concrete transition paths leading up to them, and with opportunities for the incorporation of public art and educational information. Benches and waste receptacles should be provided to encourage visitors to remain.

The two railroad bridges can provide for exciting linkages across the river by adding a pedestrian bridge component to each. This would provide a more synergistic north-south connections, fostering visitors to more easily explore both sides of the river, and create long and short distance travel options. However, the cost of a pedestrian bridge is expensive, and is a one of the lower priorities, unless non-local or private funding can be secured to fund the project.



LEGEND

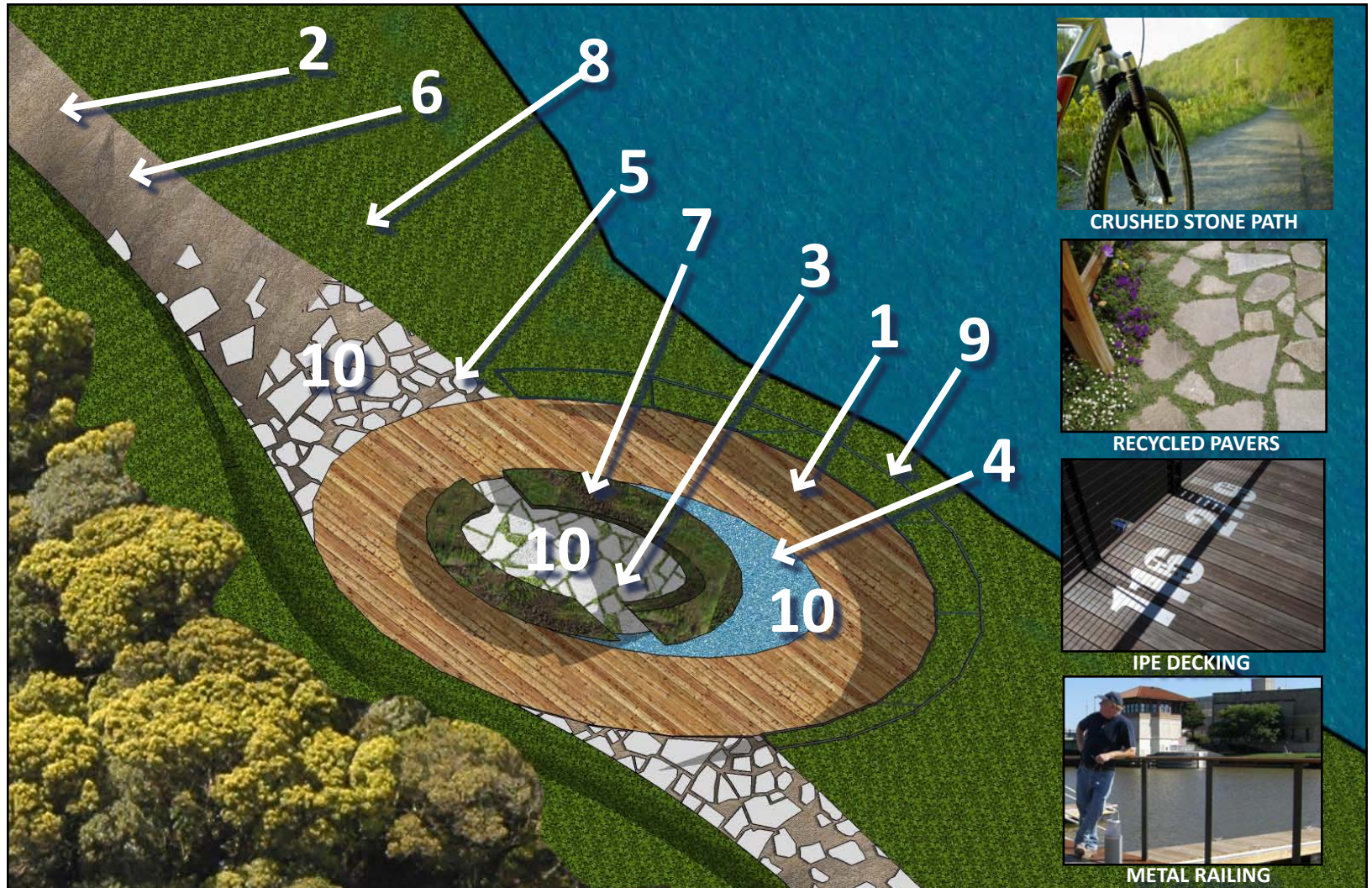


NATURAL DISTRICT MAP



KEY MAP





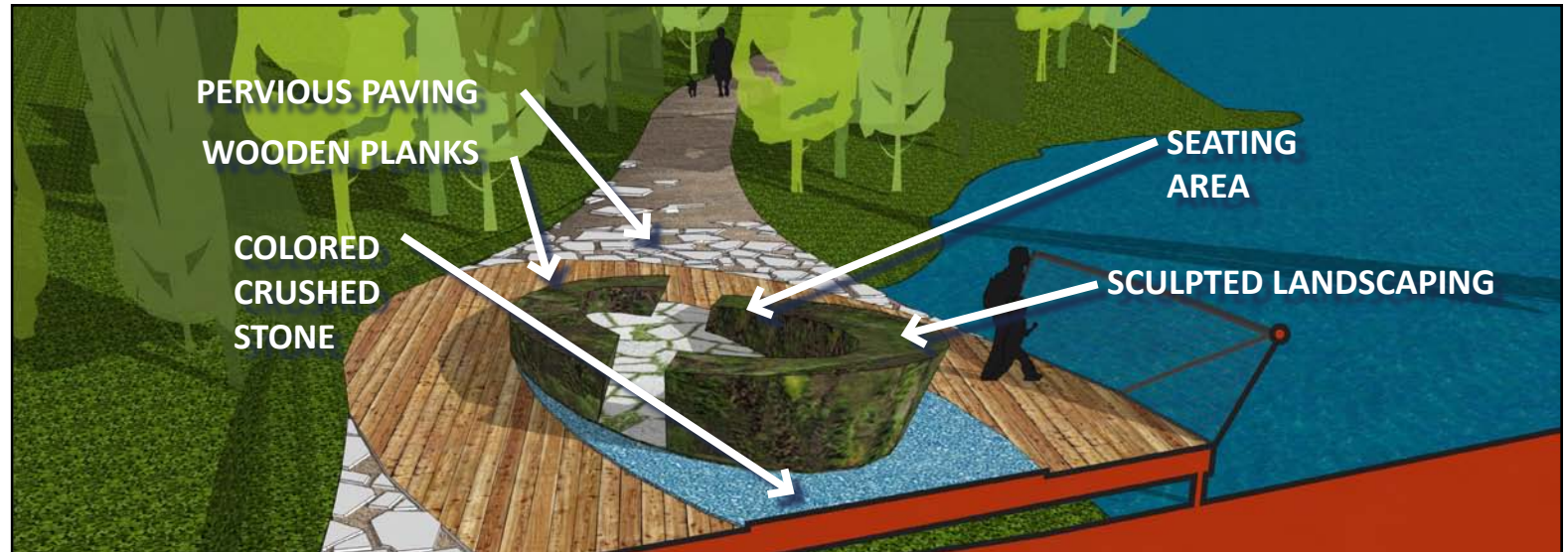
**MATERIALS FOR NATURAL LANDING & LINKAGE**

- 1 - WOODEN PLANK, IPE\*, CERTIFIED BY FSC
- 2 - 8'-0" WIDE PATH, MINIMUM
- 3 - SEATING AREA
- 4 - COLORED CRUSHED STONE
- 5 - PERVIOUS PAVING - RECYCLED CONCRETE/RECLAIMED PAVERS
- 6 - CRUSHED STONE OR TRAFFIC BOND
- 7 - SCULPTED LANDSCAPING

- 8 - NATURAL LANDSCAPE BUFFER AT WATER'S EDGE
- 9 - METAL RAILING WITH CABLES AT 42" A.F.F.
- 10 - POSSIBLE ARTWORK LOCATION

\*IPE IS A HARDWOOD AND IS CONSIDERED SUSTAINABLE WHEN THE PROCESSES OF FOREST STEWARDSHIP COUNCIL (FSC) ARE MET.





SECTION OF NATURAL LANDING



VIEW OF NATURAL LANDING





## Part III: Industrial District



INDUSTRIAL DISTRICT

VIEW OF OVERLOOK AT RIVERVIEW PARK

The design of the riverwalk in this district presents a significant design challenge - creating a contiguous linkage between the Natural District and the Urban District, while simultaneously traversing the existing industrial working waterfront, and providing safe pedestrian passage.

This area presents some unique and rare viewing opportunities, such as seeing 500 foot long boats up close, and in operation loading and unloading commerce. The majority of the businesses that interface with the river are primarily concentrated on, and adjacent to, the City Centre peninsula, allowing the riverwalk to safely bypass the industrial operations, while providing exciting viewing corridors of the business at work. We are recommending that the riverwalk paths do not continue along the edge of this peninsula. Instead, the path should cut across the south end of the peninsula.

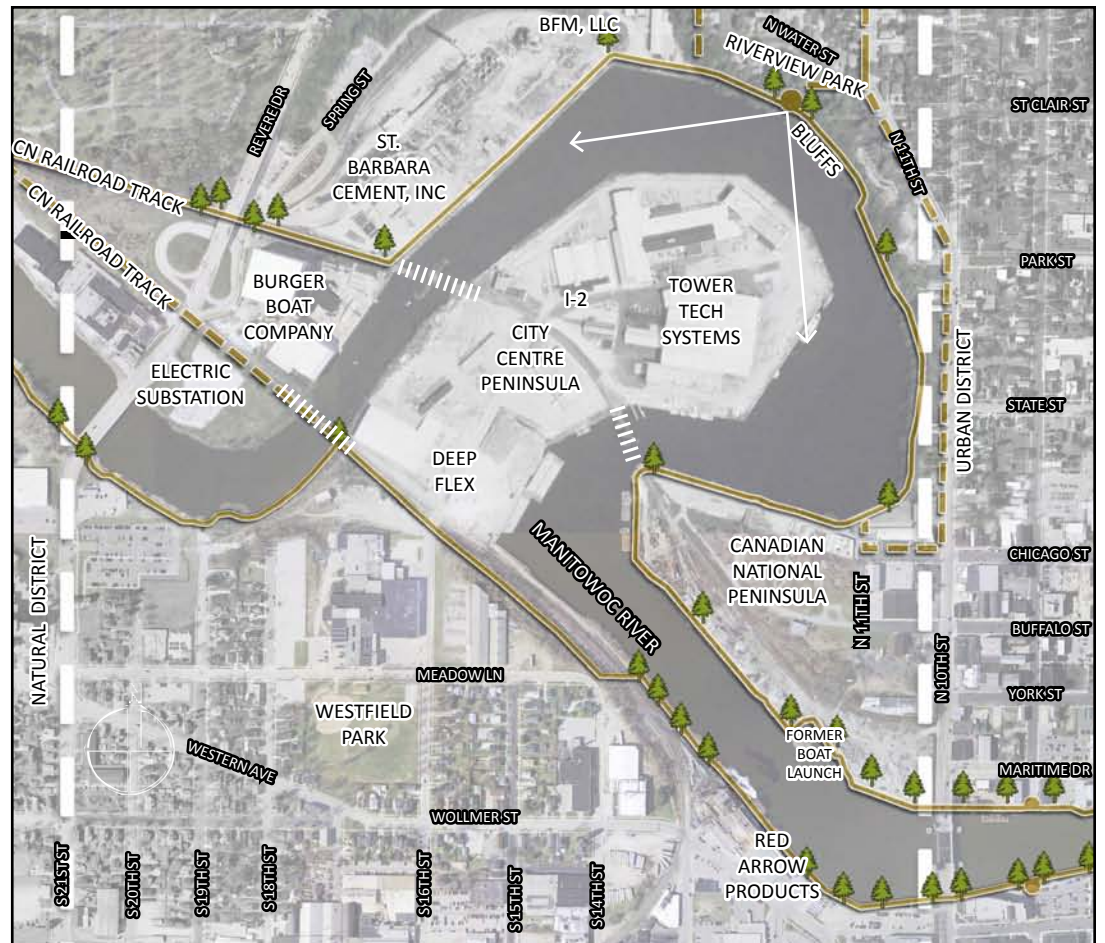
In all other locations, the paths should be located as close to the water as feasible, and should be composed of a combination of the impervious crushed stone paving used primarily in the Natural District, and textured concrete primarily used in the Urban District. This will not be entirely possible along the bluffs located on the north side of the river, across from the peninsula due to their steepness and erosion impact. Here the paths would be wood decking with railings that are supported on columns in lieu of any soil grading. This allows the pathway to float above the natural landscape minimizing its impact



on the environment. Ultimately, the pathway through the Industrial District should connect with the existing Ice Age Trail that runs generally along Spring Street and S. 21st Street.

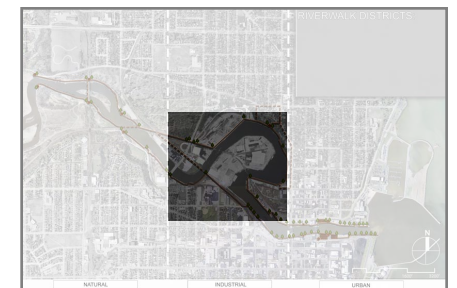
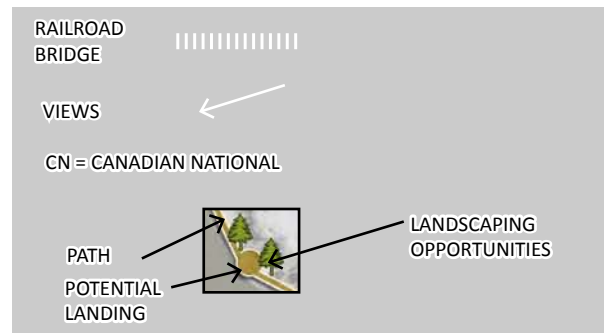
One of the primary viewing areas in the district is at the location of the former Riverview Park scenic overlook at the west end of St. Clair Street. We are recommending that a new viewing platform structure be constructed at this same location, as it affords elevated views along the river, as well as of the ongoing industrial operations. This is also an ideal location to provide a linkage from the adjacent residential neighborhood down to the riverwalk through a series of stairs and landings, terminating in a viewing platform at the river's edge.

Viewing landings should be located at key vistas, which encourage pedestrian migration convergences, such as below the St. Clair Overlook, the public boat launch, at the base of the (future) pedestrian bridge, and trail connections. These should be constructed wood deckings to define their extent, and would include opportunities for the incorporation of public art and educational information. Benches and waste receptacles should be incorporated to encourage visitors to linger and enjoy the views.



INDUSTRIAL DISTRICT MAP

#### LEGEND



KEY MAP

The Canadian National peninsula is the largest contiguous area of developable land in this district. As identified in the 2009 Vandewalle & Associates report, this land should ultimately be developed as a mixed use development which would include a variety of housing types and retail. Restoring the former boat launch site at the south end of the peninsula would provide a much safer public access point near the downtown area. Due to the state of the economy at the date of this report, it appears that such a development may not occur in the next five to seven years. This is privately held land, and that presents additional logistical issues in its development.

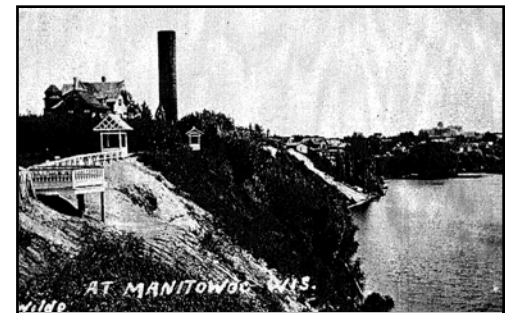
The other vacant parcel is owned by the Manitowoc Public Utilities (MPU), and located just south of the Burger Boat Company property. This parcel is currently in public ownership, and is used as an electric substation for the MPU. Being centrally located, this land could provide for an interesting “stepping stone”, or act as a central hub to the continuity of the riverwalk. A portion of it could be developed in the future as a park or green space.

Adding a pedestrian bridge to the existing railroad bridge would provide a very important mid-riverwalk, river crossing. This pedestrian bridge would be the most logical one to be constructed of the three (the other two are in the Natural District)

As stated earlier in this report and particularly relevant to the Industrial District, the City should work to educate property owners regarding Wisconsin’s recreational immunity statute (§895.52 Wis. Stats.), which is designed to encourage landowners to open property to recreational users by removing the potential for liability. This law may serve as a means of gaining public access to developed lands. This statute provides private property owners, including municipal governments, with immunity against liability for any injury to a person engaged in an outdoor recreational activity on the owner’s property under circumstances in which the owner does not derive more than a minimal pecuniary benefit. Owner’s have no responsibility or duty to keep the property safe for recreational activities, to inspect the property, or to give warnings regarding unsafe conditions on the property. Recreational activity is exhaustively defined in the statute to cover a panoply of uses undertaken for the purpose of exercise, relaxation or pleasure, but excludes any organized team sport activities sponsored by the owner of the property on which the activity takes place.



RIVERVIEW PARK OVERLOOK, CIRCA 1920

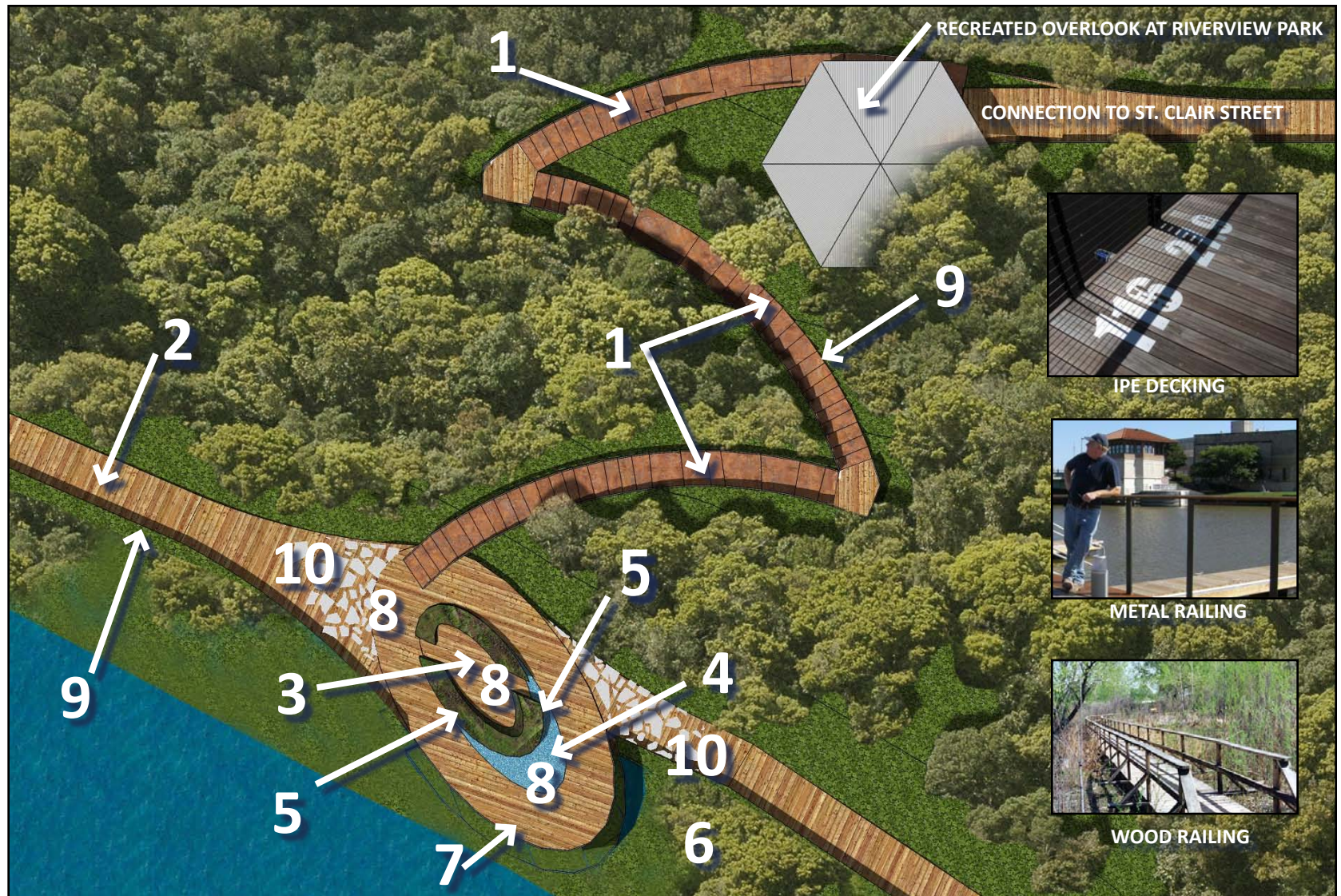


RIVERVIEW OVERLOOK, CIRCA 1920



OPEN AIR SHELTER AT RIVERVIEW PARK





PLAN OF OVERLOOK AND LANDING

MATERIALS AT LOOKOUT TOWER LANDING

- 1 - WOODEN PLANK, IPE, CERTIFIED BY FSC
- 2 - 8'-0" WIDE PATH, MINIMUM
- 3 - SEATING AREA
- 4 - COLORED CRUSHED STONE
- 5 - SCULPTED LANDSCAPING

- 6 - NATURAL LANDSCAPE BUFFER AT WATER'S EDGE

- 7 - METAL RAILING WITH CABLES

- 8 - POSSIBLE ARTWORK LOCATIONS

- 9 - WOOD RAILING

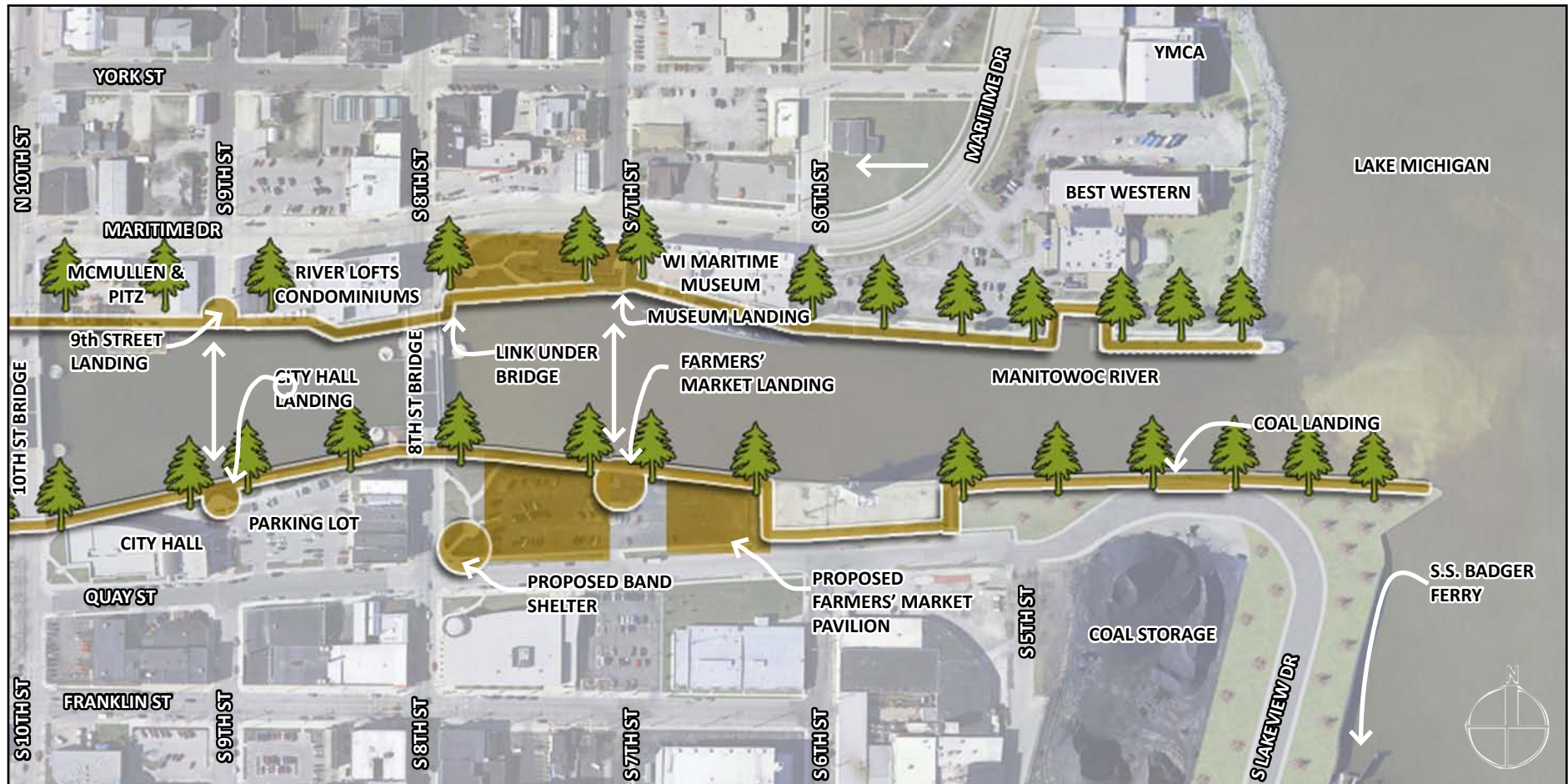
- 10 - PERVIOUS PAVING - RECYCLED CONCRETE/RECLAIMED PAVERS





## Part III: Urban District



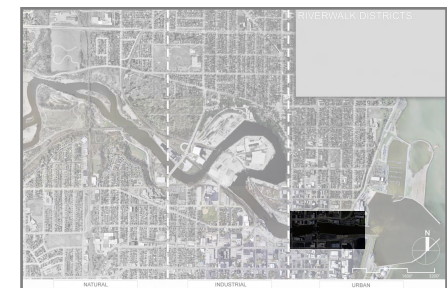


URBAN DISTRICT

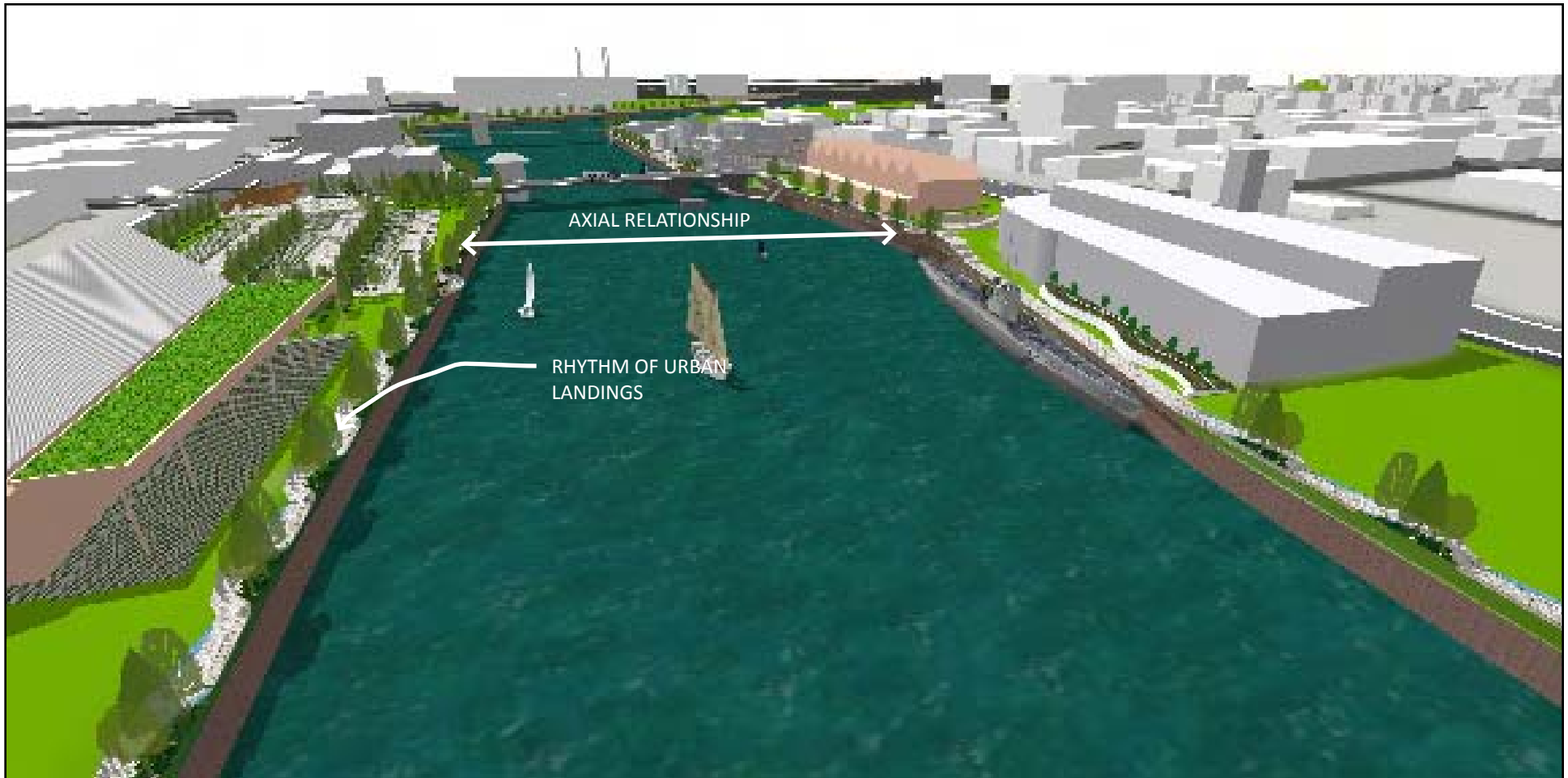
URBAN DISTRICT MAP

The Urban District has the highest density of development within the project area, with a variety of successful activities and events already taking place in close proximity to the river. The design of the riverwalk in this area should build upon existing facilities and current events, while providing a refinement and refocus towards the river.

The River Lofts Condominiums at the southwest corner of the intersection of Maritime Drive and N. 8th Street, and the property to the west have already developed a section of the riverwalk comprised of wood decking and metal railings. This section exists between 8th and 9th Streets. The top priority stated in the visioning sessions was to provide a connection under the 8th Street Bridge. This would have to be a floating, removable walkway due to the fluctuation in the water level. A stair system would need to be constructed on



KEY MAP



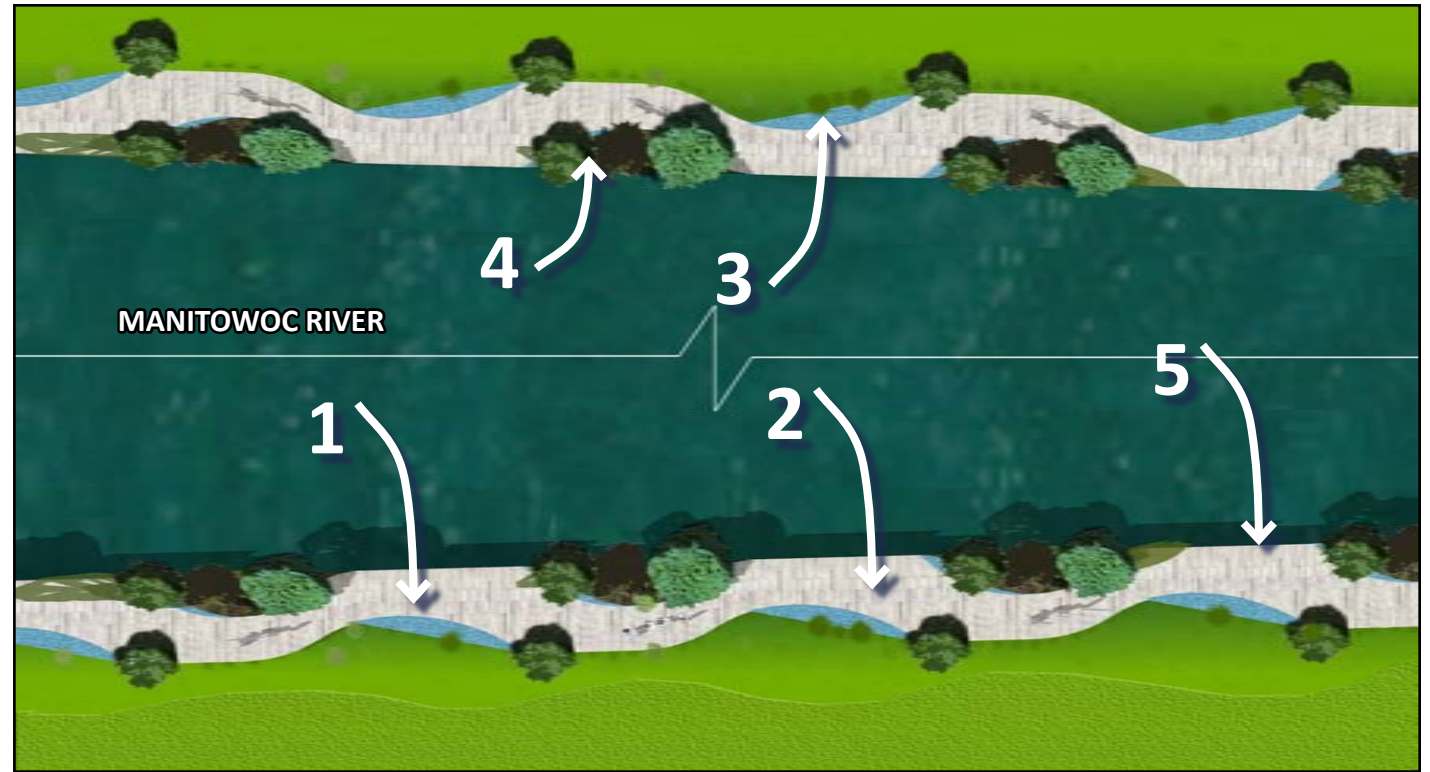
8TH STREET AERIAL VIEW - WEST

the east side of the bridge to connect up to the park. This is an element that could be added quite easily (provided funding is available), prior to any other development, as there are existing walkways through the park that connect to the lake.

The paths should be primarily textured concrete built on land undulating around planting areas to provide a rhythmic rivers edge, similar to a tree lined boulevard. The introduction of the landscaping makes a direct visual connection to the Natural District, while softening the river's edge, and creating a sense of human scale.

The most significant site issue in the development of the pathway is the McMullen & Pitz property. This business relies heavily upon river access for their barges and equipment. One option would be for the City to work with the business to relocate their operations further west. Their site becomes a critical link if the Canadian National peninsula property is redeveloped. A connection under the 10th Street Bridge would be vital to the continuity of the riverwalk.





URBAN LANDING RHYTHM

**MATERIALS FOR URBAN LANDINGS**

- 1 - STAMPED CONCRETE
- 2 - 8'-0" WIDE PATH, MINIMUM
- 3 - COLORED CRUSHED STONE
- 4 - LANDSCAPING BED
- 5 - METAL RAILING WITH CABLES



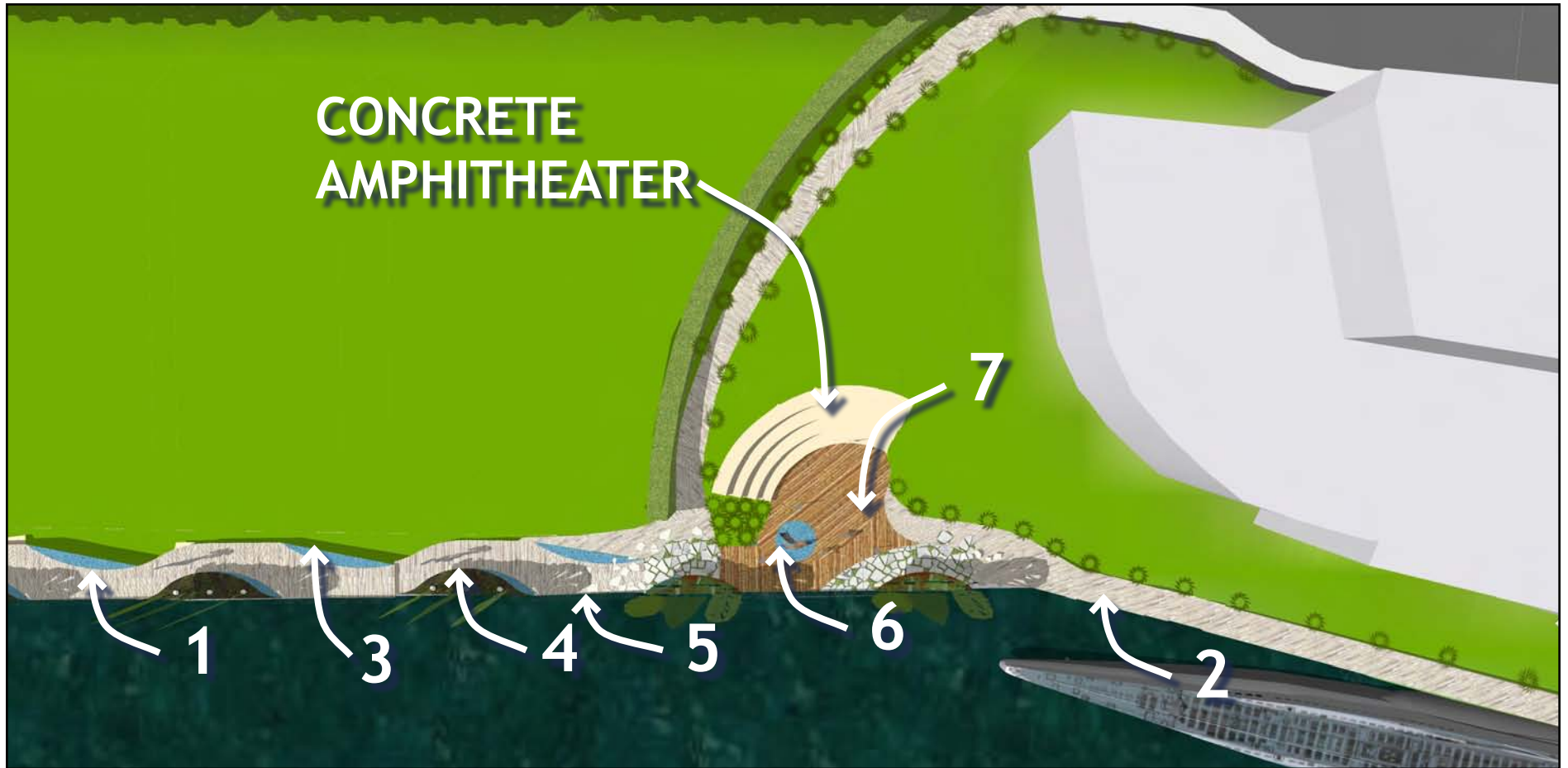
KEY PLAN



URBAN LANDING RHYTHM

Viewing nodes should be provided at the convergence of pedestrian trails and events. These locations are: at the termination of 9th street at the river; directly south of this termination on the City Hall site (this would relocate the existing public gathering space further west); just west of the WI Maritime Museum at the termination of 7th Street; and directly south across the river on the Farmers' Market site. These viewing nodes would introduce wood decking to define their extents, with recycled concrete transitions between the textured concrete walks and the wood decking. The nodes would include opportunities to incorporate public art, educational information and small presentation gatherings for tours. Benches and waste receptacles should be concentrated in and near these nodes, however, due to the high intensity of riverwalk usage and proximity to the downtown, they should be interspersed throughout this district.





PLAN OF WI MARITIME MUSEUM

MATERIALS FOR URBAN LANDINGS

- 1 - STAMPED CONCRETE
- 2 - 8'-0" WIDE PATH, MINIMUM
- 3 - COLORED CRUSHED STONE
- 4 - LANDSCAPING BED
- 5 - METAL RAILING WITH CABLES
- 6 - POSSIBLE ARTWORK LOCATION
- 7 - IPE DECKING, FSC CERTIFIED



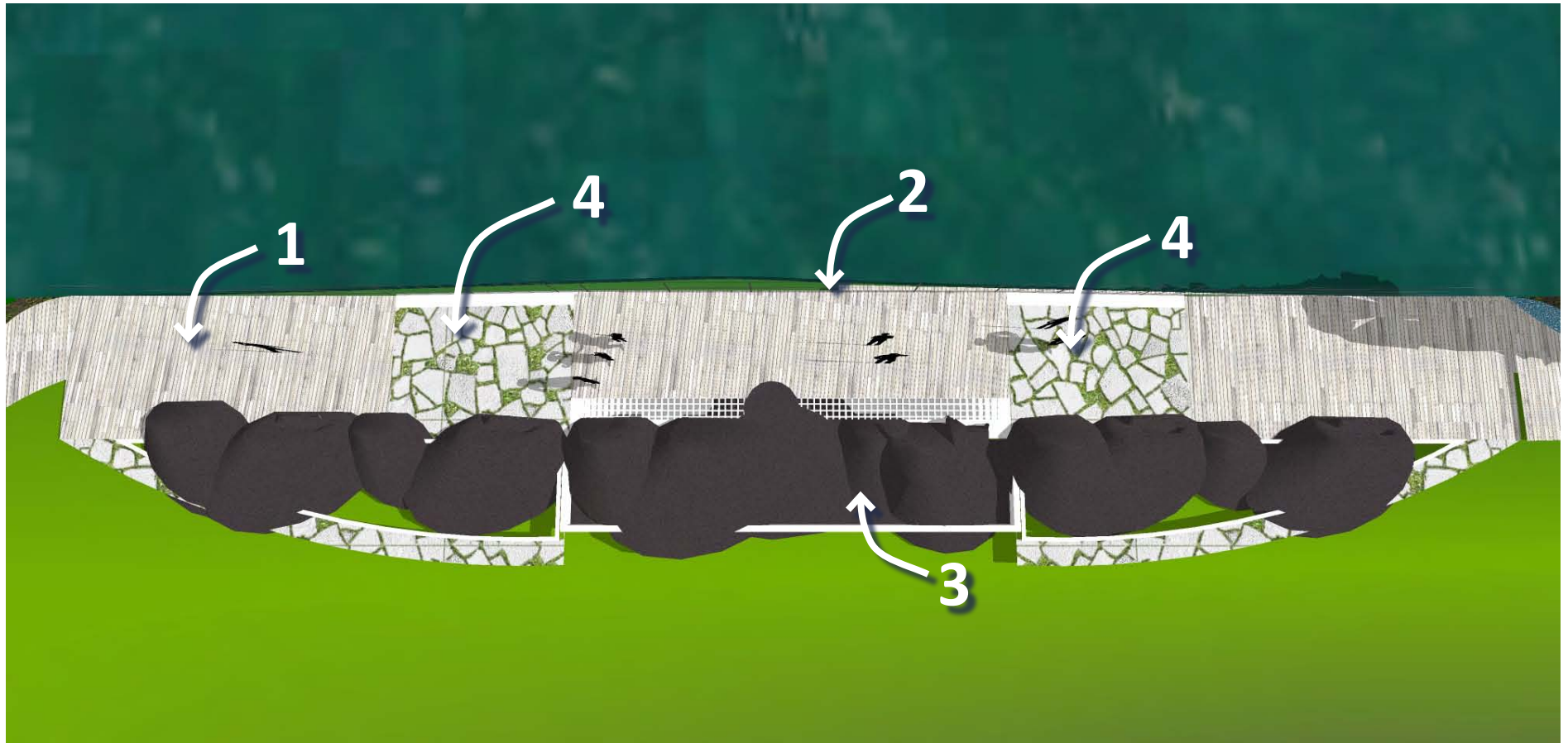
KEY PLAN



WI MARITIME MUSEUM LANDING

The WI Maritime Museum landing would serve as a gathering space for activities in downtown, and for educational functions. It should be designed as a small outdoor amphitheater node to allow for a variety of performances and presentations, while providing for a passive gathering space. The seating should be built into the existing sloped site, taking advantage of the terrain to minimize costs. The performance area “stage” would be located off the main riverwalk to enable events to occur while not obstructing the main circulation pattern. It also encourages passive observation of the events.





PLAN OF COAL LANDING

MATERIALS FOR URBAN LANDINGS

- 1 - STAMPED CONCRETE
- 2 - METAL RAILING WITH CABLES
- 3 - SCULPTURAL "COAL" PILES WITH BUILT IN BENCHES
- 4 - PERVIOUS PAVING - RECYCLED CONCRETE OR SIDEWALK



VIEW OF COAL LANDING

The coal storage area south of Quay Street and the river, provides for a opportunity to respond to a truly unique event – the unloading of the coal over Quay Street from a massive boat. The street is presently closed off during this event, and the riverwalk portion should also include this safety feature. The design of this landing node would incorporate stained concrete forms that represent smaller piles of coal that are molded in such a way as to provide integral seating. The area would be clearly demarcated to inform riverwalk users where the closed off portion is during the unloading process.





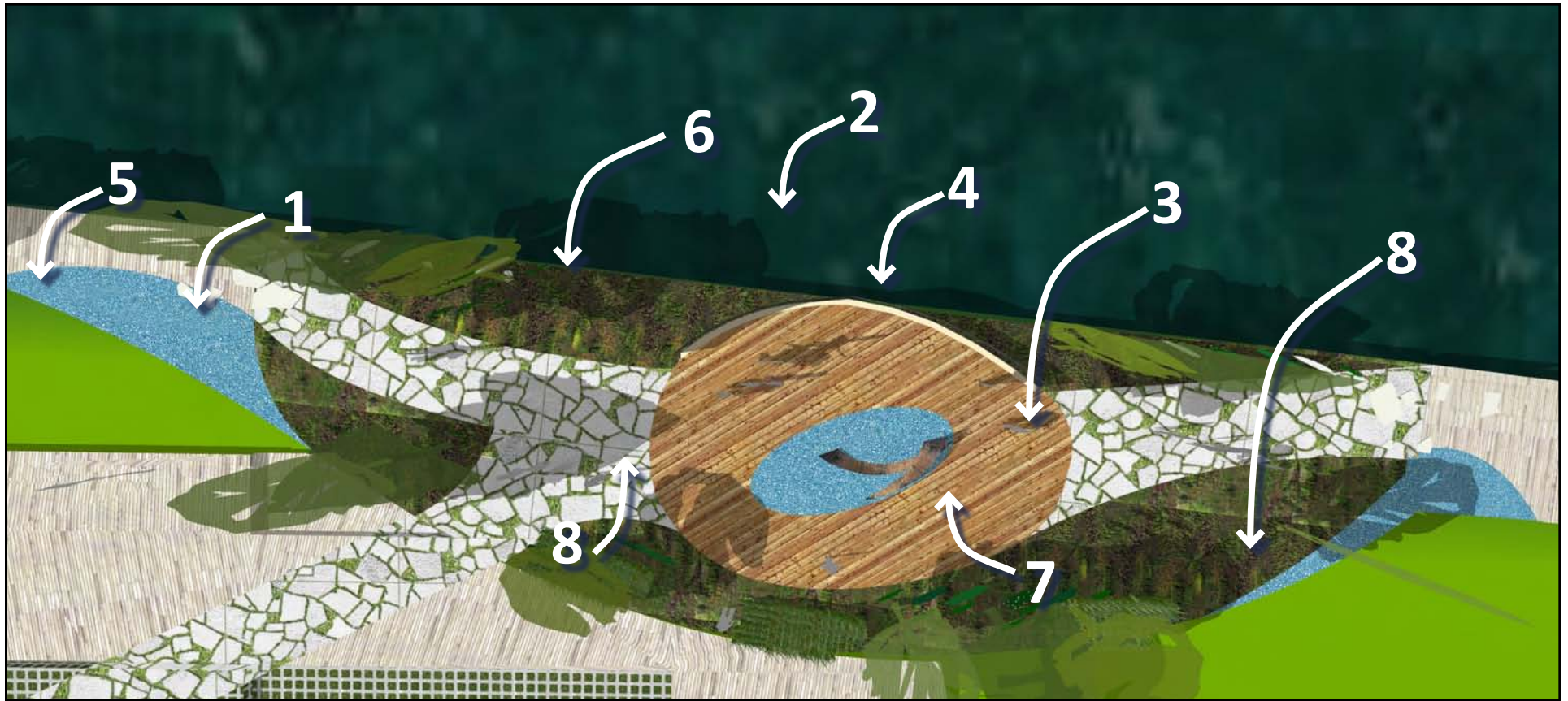
8TH STREET AERIAL VIEW - EAST

The Farmers' Market area on the south bank of the river and north of Quay Street, presents an exciting opportunity to build upon an already successful occurrence. The Market is the downtown's most visited event both in terms of the amount of people and the frequency of visitation. The concept in this area is to create a small structure (closer to the grain tower end of the existing parking lot) that can provide a year round environment for the Market. The building would be designed to allow for the flexibility to extend the Market east into the shelter structure during inclement weather, keeping the charm and appeal of the present event. Creating a small band shell at the southwest corner of the site would provide the opportunity for synergistic events such as plays, and musical performances. In the winter, a portion of the Market building could serve as a warming shelter for ice skaters, further enhancing its year round use. This landing would be located directly south across the river from the WI Maritime Museum's amphitheater, creating a strong visual link between the two uses, and connecting otherwise separate areas of the river and downtown.



PLAN OF FARMERS' MARKET





PLAN OF FARMER'S MARKET LANDING

MATERIALS FOR URBAN LANDINGS

- 1 - STAMPED CONCRETE
- 2 - METAL RAILING WITH CABLES
- 3 - PERVIOUS PAVING - RECYCLED CONCRETE OR SIDEWALK
- 4 - WOOD DECKING, IPE, FSC CERTIFIED
- 5 - 8'-0" WIDE PATH
- 6 - RAISED LANDSCAPING BED
- 7 - LANDSCAPING BED
- 8 - COLORED CRUSHED STONE



VIEW OF FARMERS' MARKET LANDING



## Part IV: Materials

### NATURAL DISTRICT

#### MAJOR PATH:

- CRUSHED STONE, TRAFFIC BOND OR CRUSHED GRANITE

#### LANDINGS:

- WOOD DECKING, IPE, FSC CERTIFIED
- PILES AT AREAS OVER THE WATER
- FRACTURED RECYCLED CONCRETE (RE-USED SIDEWALK, PRECAST CONCRETE)
- METAL RAILINGS AT AREAS OVER THE WATER

### INDUSTRIAL DISTRICT

#### MAJOR PATH:

- IPE WOOD DECKING AT BLUFF
- CRUSHED STONE AT OTHER AREAS

NOTE: PATHS LOCATED JUST WEST OF 10TH STREET SHOULD BE STAMPED CONCRETE. THE TRANSITION AT THE NORTH BANK ENDS AT CANADIAN NATIONAL PENINSULA. TRANSITION AT SOUTH BANK ENDS AT RED ARROW PRODUCTS.

#### LANDINGS:

- WOOD DECKING, IPE
- WOOD RAILING
- WOOD STAIRS
- METAL RAILING AT AREAS OVER THE WATER (SEE URBAN DISTRICT)

### URBAN DISTRICT

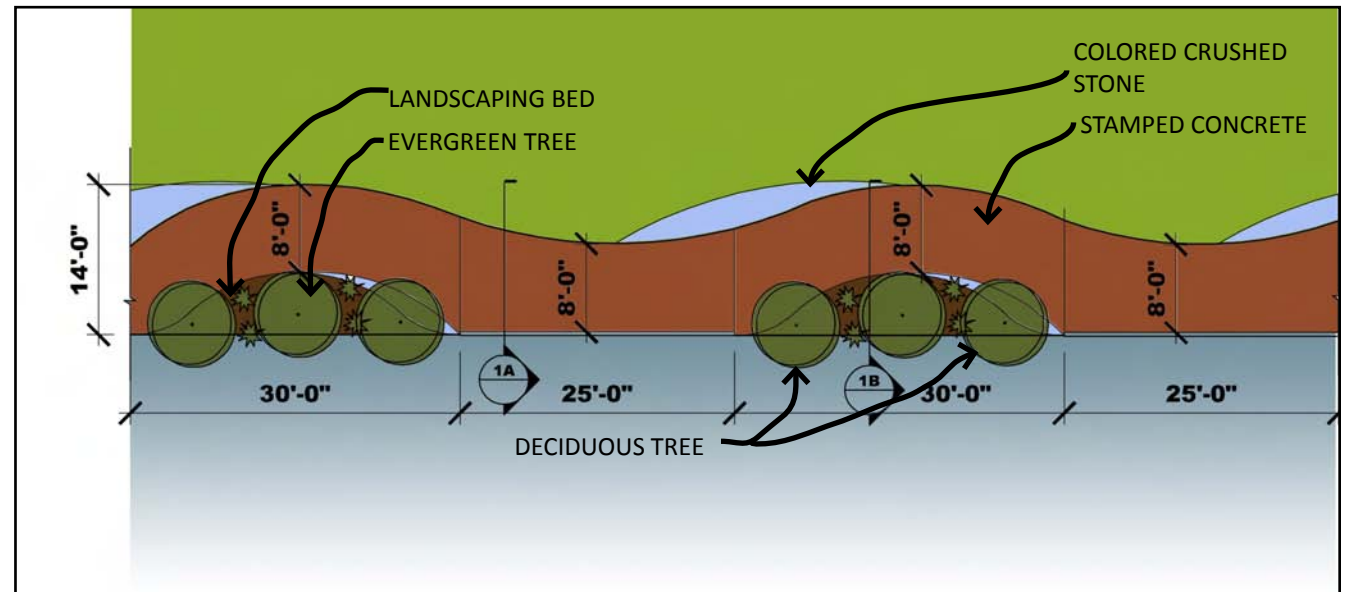
#### MAJOR PATH:

- STAMPED CONCRETE IN WOOD TEXTURE, 5 INCHES THICK WITH 8" STONE SUB BASE
- COLORED CRUSHED STONE
- METAL RAILING WITH STEEL CABLES, SPACED 4" O.C., VERTICALLY AT RIVER EDGE OR AT AREAS OVER THE WATER.

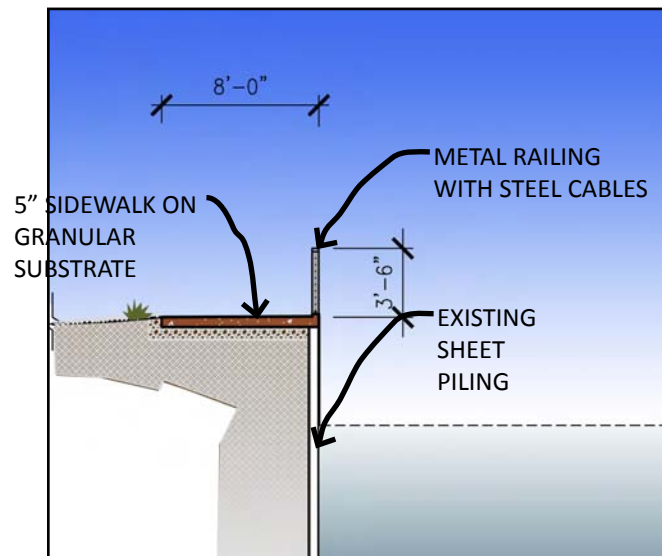
#### LANDINGS:

- WOOD DECKING, IPE
- RECYCLED CONCRETE, FRACTURED

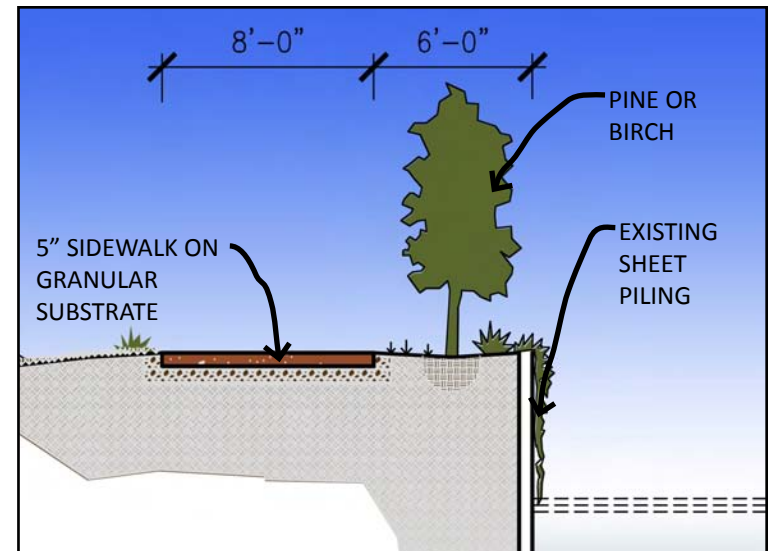




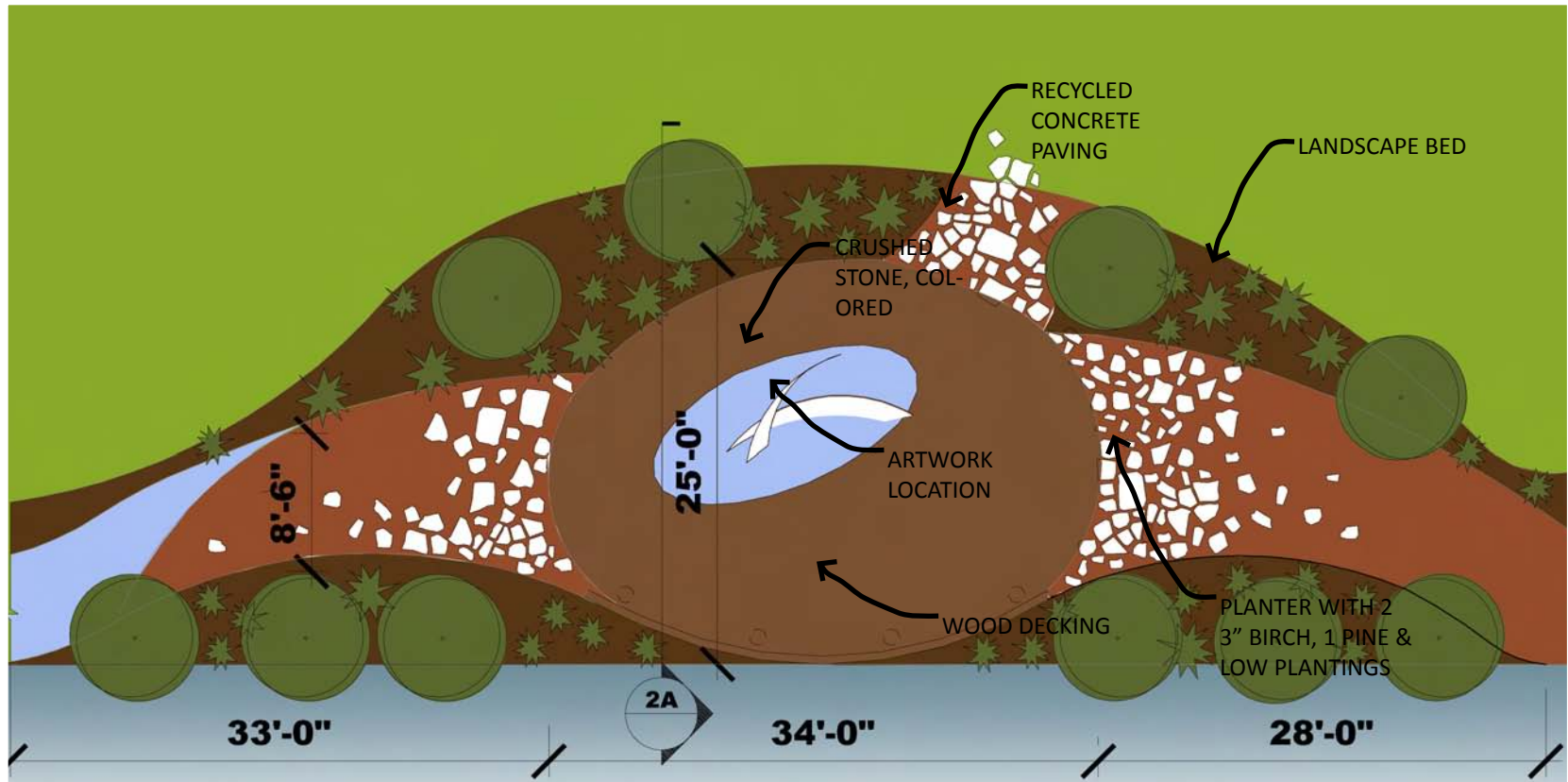
TYPICAL RIVER WALK AT URBAN DISTRICT



SECTION 1A

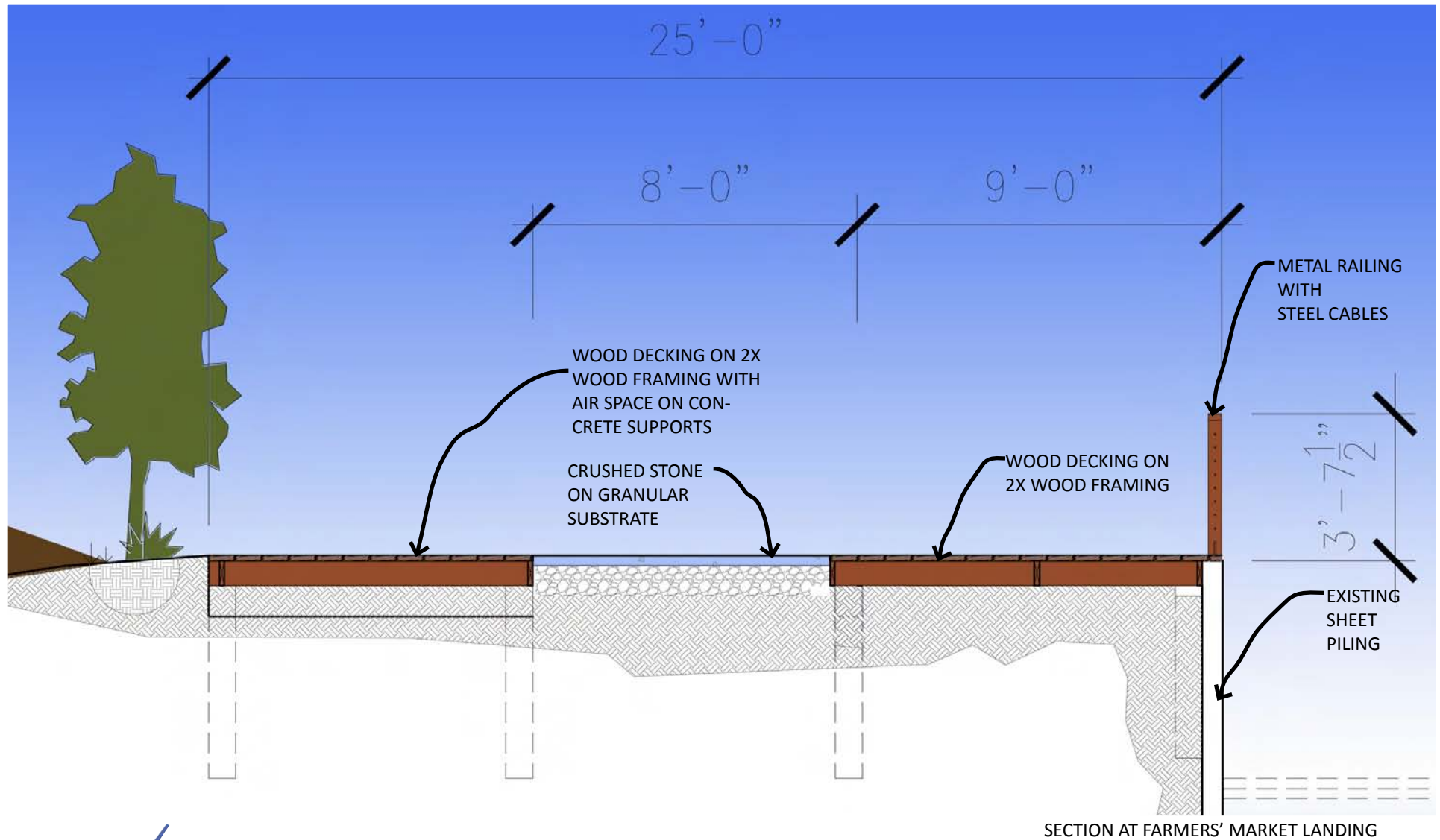


SECTION 1B



PLAN AT FARMERS' MARKET LANDING





# Part V: Appendix



## OPINION OF PROBABLE CONSTRUCTION COSTS FOR MANITOWOC RIVERWALK DEVELOPMENT

## URBAN DISTRICT

	COST	UNIT	QUANTITY	UNIT	TOTAL
DEMOLITION	\$	1.00 SF	40,000	SF	\$ 40,000
NEW TEXTURED CONCRETE (PATH)					
PLAIN, BASE	\$	5.00 SF	25,000	SF	\$ 125,000
TEXTURE, ADD TO BASE	\$	3.00 SF	25,000	SF	\$ 75,000
INTEGRAL COLOR, ADD TO BASE	\$	3.00 SF	25,000	SF	\$ 75,000
RAILINGS	\$	50.00 LF	4,600	LF	\$ 230,000
PLANTERS, LANDSCAPE 125 SF					
3" BIRCH	\$	375.00 EA	3	EA	\$ 1,125
PINE	\$	250.00 EA	2	EA	\$ 500
SOIL	\$	22.00 CU YD	125	CU YD	\$ 2,750
MISC. PLANTINGS	\$	150.00 EA	5	EA	\$ 750
CRUSHED STONE OPTIONS					
STONE	\$	1.00 SF		SF	\$ - SEE INDIVIDUAL LANDINGS
GRANITE	\$	0.75 SF		SF	\$ -
RECYCLED CONCRETE	\$	5.00 SF		SF	\$ -
WI MARITIME MUSEUM LANDING, 1000 SF					
EXCAVATION	\$	5.00 SF	1,000	SF	\$ 5,000
FOOTINGS	\$	200.00 LF	80	LF	\$ 16,000
CONCRETE SEATING	\$	16.00 SF	1,000	SF	\$ 16,000
RAILINGS	\$	50.00 LF	100	LF	\$ 5,000
LIGHTING	\$	3,000.00 ALLOW	5	ALLOW	\$ 15,000
LANDSCAPING	\$	1,200.00 EA	2	EA	\$ 2,400
CRUSHED STONE	\$	5.00 SF	100		\$ 500
FARMERS' MARKET LANDING					
PILES	\$	1,500.00 EA		EA	N/A
DECKING	\$	22.00 SF	1,200	SF	\$ 26,400
RAILING	\$	50.00 LF	60	LF	\$ 3,000
LANDSCAPING	\$	1,500.00 EA	3	EA	\$ 4,500
CRUSHED STONE	\$	5.00 SF	150	EA	\$ 750
INDUSTRIAL DISTRICT, PER LANDING					
DECKING/PLATFORM	\$	25.00 SF	850	LF	\$ 21,250
RAILINGS	\$	50.00 LF	400	LF	\$ 20,000
TREATED WOOD STAIRS	\$	100.00 LF	200	LF	\$ 20,000
RAISED WOOD WALKWAY	\$	22.00 SF	1,600	SF	\$ 35,200
WOOD RAILINGS	\$	20.00 LF	350	LF	\$ 7,000
CRUSHED STONE	\$	5.00 SF	150	EA	\$ 750

## NATURAL DISTRICT, PER LANDING

RAILINGS	\$ 50.00 LF	80 LF	\$ 4,000
PILES	\$ 1,500.00 EA	EA	N/A
DECKING	\$ 22.00 SF	1,000 SF	\$ 22,000
RAILING	\$ 50.00 LF	100 LF	\$ 5,000
LANDSCAPING	\$ 1,500.00 EA	3 EA	\$ 4,500
CRUSHED STONE	\$ 5.00 SF	150 EA	\$ 750

## MISCELLANEOUS

BENCHES	\$ 1,150.00 EA	EA	\$ - QUANTITY TO BE DETERMINED
LIGHTING	\$ 2,500.00 EA	EA	\$ -
RECEPTACLES	\$ 1,000.00 EA	EA	\$ -
BIKE RACKS	\$ 265.00 EA	EA	\$ -
ART WORK	\$ 25,000.00 EA	EA	\$ -

## RIVER EDGE REPAIR

NEW SHEET PILING	\$ 1,500.00 LF	3000 LF	\$ 4,500,000 QUANTITY TO BE VERIFIED AT TIME OF CONSTRUCTION.
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\*NOTE: Kindness Architecture + Planning has no control over labor, materials, equipment or services furnished by others or over the contractor(s)' method of determining prices, or competitive bidding or market conditions, its opinions of probable construction cost provided herein are made on the basis of its experience and qualifications and represents its best estimate as an experienced and qualified professional architect familiar with the construction industry; but cannot and does not guarantee that proposals, bids or actual construction cost will be the same as from its opinion of probable cost. Estimate costs are based on 2009 pricing.