GOAL 1

RESTORE THE RIVER AS THE DRAW & CREATE A CONNECTED AND EQUITABLE RIVER CORRIDOR

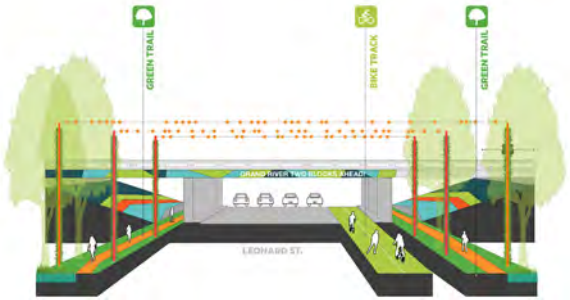
1>>

RESTORE THE RIVER AS THE DRAW & CREATE A CONNECTED AND EQUITABLE RIVER CORRIDOR

The Grand River is the game-changer for Grand Rapids that can help to attract talent and elevate the City as a unique destination, a catalyst for development and an amenity for the region. The River corridor presents the opportunity to offer a range of connected, unique experiences around outdoor adventures not usually found within urban centers. It's time to re-establish the emotional and physical connections between Downtown and the River that Grand Rapids was built upon. Downtown and the River must be accessible and welcoming to all Grand Rapidians. Connecting neighborhoods to the heart of Grand Rapids establishes the need to reconsider critical east-west streets as not just traffic arteries but cultural and environmental corridors that extend the presence of the River into the City.

52

1.1 INTEGRATE ART, EDUCATION, INFRASTRUCTURE, AND ECOLOGY



WHY THIS MATTERS

THE ECONOMIC BENEFITS OF CREATING THE GRAND RAPIDS RIVERFRONT

Investing in the River and promoting redevelopment along its edges will serve as an economic generator, particularly if built upon the idea that the Grand River re-establishes the brand of Grand Rapids as a waterfront city.

The current trail system is an existing asset. Twelve different trail systems exist currently in Grand Rapids, and some offer the potential to provide new modes of recreation and travel to the lake shore via the Musketawa Trail, or to Manistee Forest via the White Pine Trail. In combination with other state wide trail systems, it is possible to ride to New York State or North Dakota. The opportunity exists to complete the connections that are missing in the Grand River corridor.

Grand Rapids in 1856 by Sara Nelson. Source: HistoryofGrandRapids.org

> *"The name Grand Rapids indicates the importance of the rapids in the history of the City and would be an excellent beginning to a vibrant future City."*
>
> *- Public forum comment*

A completed trail network can serve as a more precise tool that changes land use site by site. As waterfront access is created, particularly in the light industrial areas along the Westside and the Southeast side along Market Avenue, uses will shift to take better advantage of the River.

The reconsideration of the flood elevation can serve as a framework for the transformation of the River, its edges, and the opportunity sites along it as one capital project. This will help in raising funds and administering progress of the project as a whole.

HOW THE RIVER FUNCTIONS AT THE LOCAL AND REGIONAL SCALE

The hydrology of the Grand River is a combination of regional and local issues. For instance, while the current and future flood infrastructure protects the City from regional impacts, this same flood infrastructure can serve as a barrier to stormwater entering the River at the local scale. In fact, much of Downtown and the Westside are within a glacial trough formed thousands of years ago. During large scale rain events, the trough begins to function like the larger river it once was. Therefore, the strategies presented as part of GR Forward must recognize the constraints this condition presents.

For instance, it would not serve the interests of the City or its inhabitants to move residents out of the glacial trough to the top of the bluffs. However, we can better manage the potential negative impacts of flooding by thinking about strategies for land use and the environment beyond the River corridor as defined for GR Forward. The City and the River must function together as a new hydrology that requires a new approach to infrastructure to manage stormwater.

>> Regional impacts of river functionality on Grand Rapids

The history of the Grand River begins with the decline of the Wisconsonian ice sheet in the most recent ice age, approximately 13,000 years ago. Large lakes that formed as glaciers melted and flowed from an ancient Lake St. Clair across the state eastward towards Lake Michigan. The result was the creation of a large river valley known as a glacial trough. As the land recovered after the ice sheet receded and melted, the valley split into 2 watersheds–one that flowed to the east and one that flowed to the west.

The westward flowing river became known as the Grand River, the longest river in Michigan. Prior to that naming, it was a resource to Native American tribes and clans such as Hopewell, Chippewa, and Ottawa. The importance of

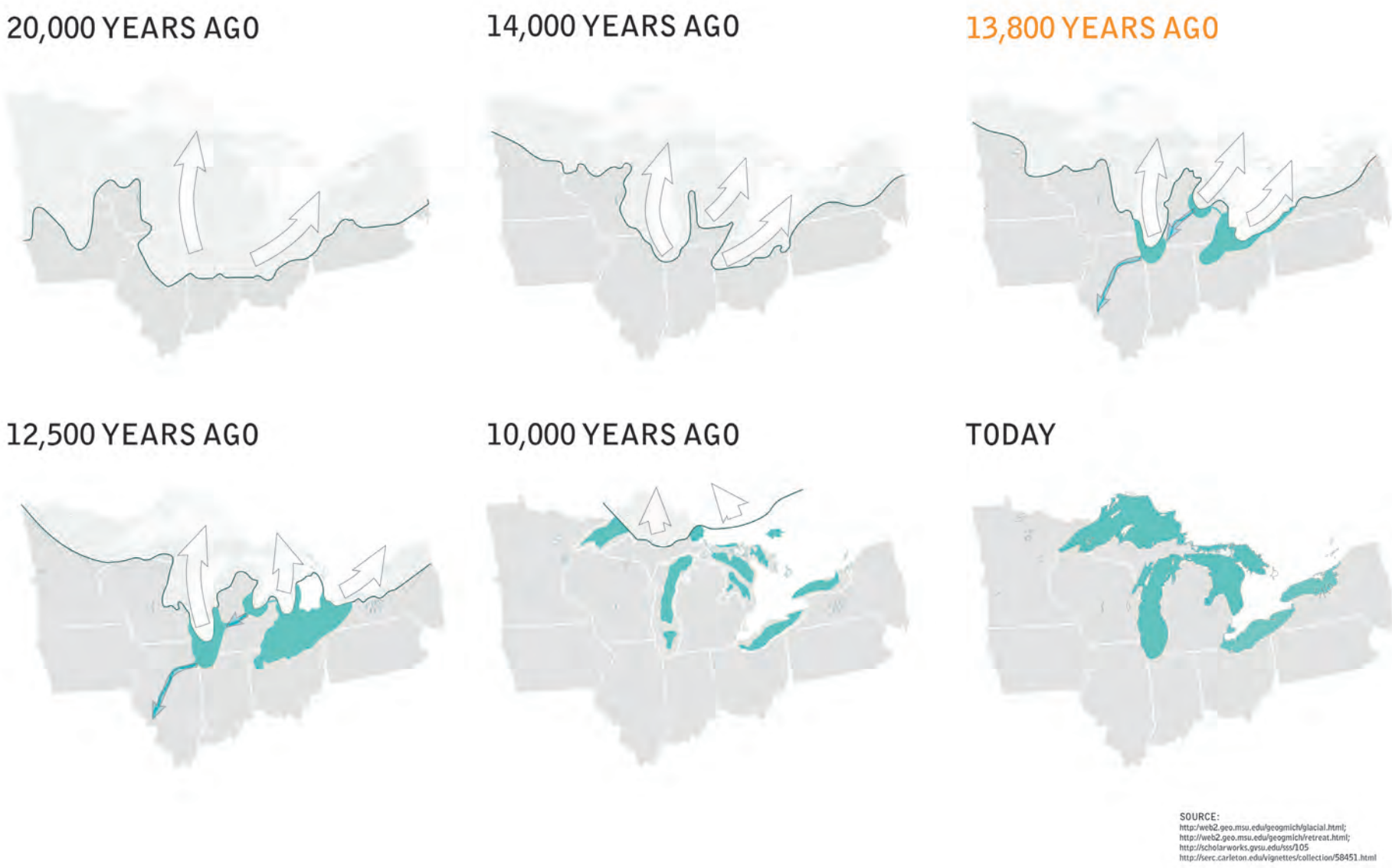


FIG 1.1: *Glacial Landscape transformations*

the River as a mode of transport and a cache of natural resources was critical to these civilizations. These resources helped to create a welcome habitat connected to Lake Michigan for a diversity of fish including trout, sturgeon, walleye, and a range of other species. The natural resources and use of the River as transport also led to the growth of Grand Rapids as a timber town and, eventually, the thriving furniture capital of the world.

It is the length of the Grand River and the area of its watershed that contributes to the River acting as a container for rainwater but also home to other, unintended materials. The conditions that occur upstream combine and eventually end up at the door step Grand Rapids. Grand Rapids is, therefore, more adversely impacted by the behaviors from those higher upstream in the watershed.

These impacts include higher flood volumes due to the development of land near the River that prevents water from naturally soaking into the earth. This water is, instead, rushing to the River over impervious surfaces like concrete and asphalt. Because this water is flowing to the River more quickly, both the sediment and the level of oxygen in the water is impacted thereby negatively effecting water quality. To make matter worse, the stormwater in other municipalities is also directed to combined sewer systems that during heavy rains overflow releasing sewage into the River.

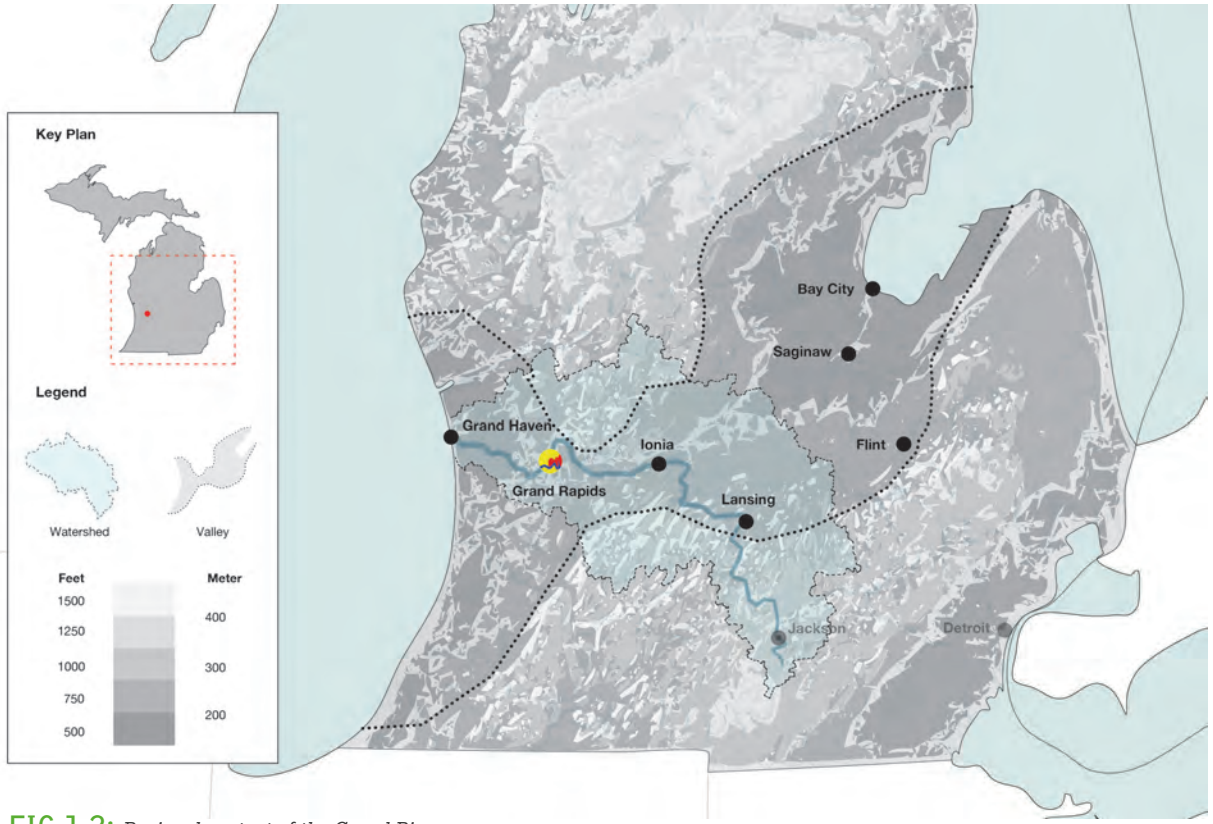


FIG 1.2: *Regional context of the Grand River*

Solutions to these issues require regional thinking. There is not enough land or money to solve the problems as it reaches the City. Instead, coordination is required among the communities that are contributing to the issues to ultimately create solutions that will improve water quality and flood levels. Regional scale tactics to improve water quality will be discussed later in this chapter.

April, 2013 Grand River flooding event

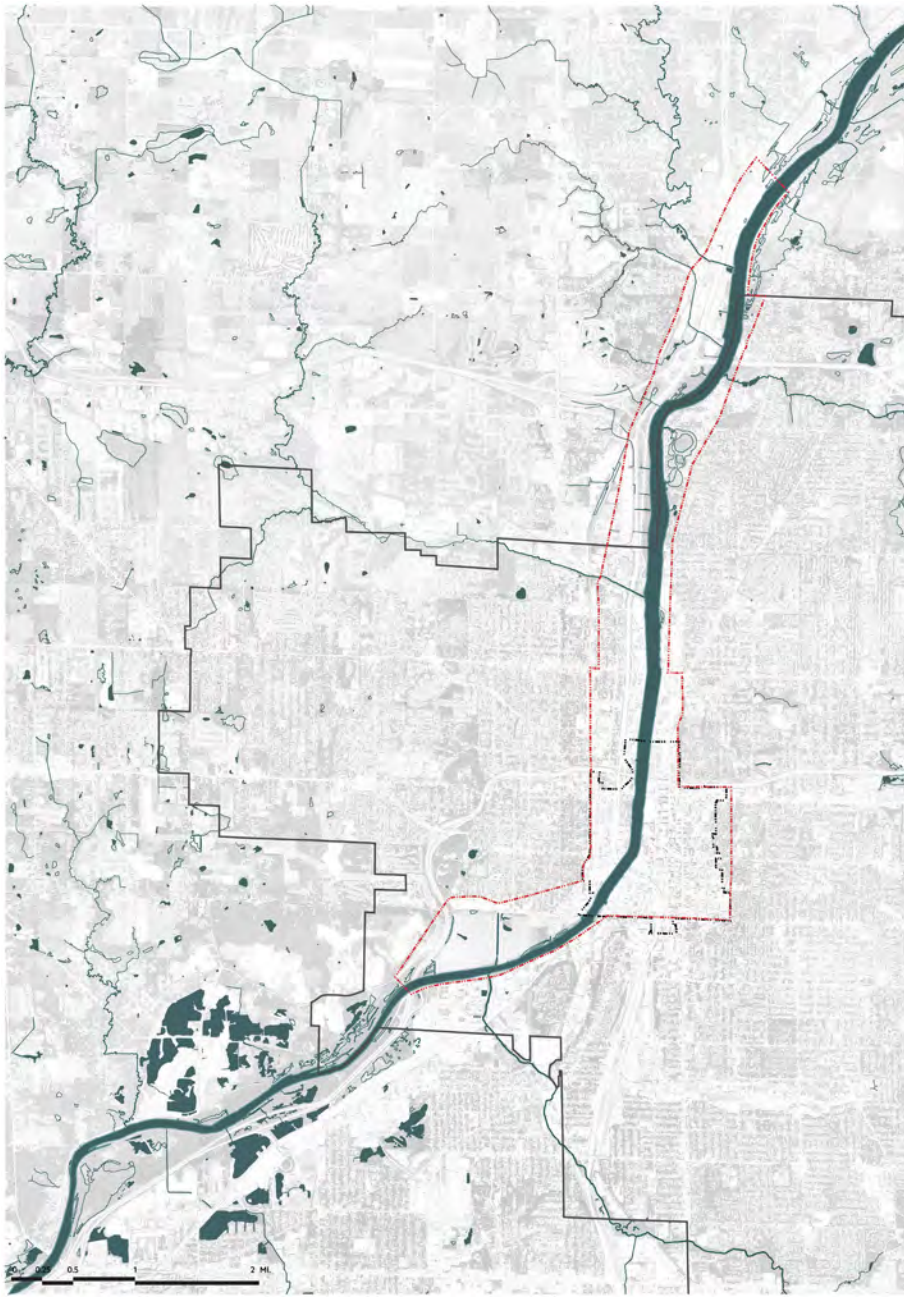


FIG 1.3: *Existing river course controlled by infrastructure*

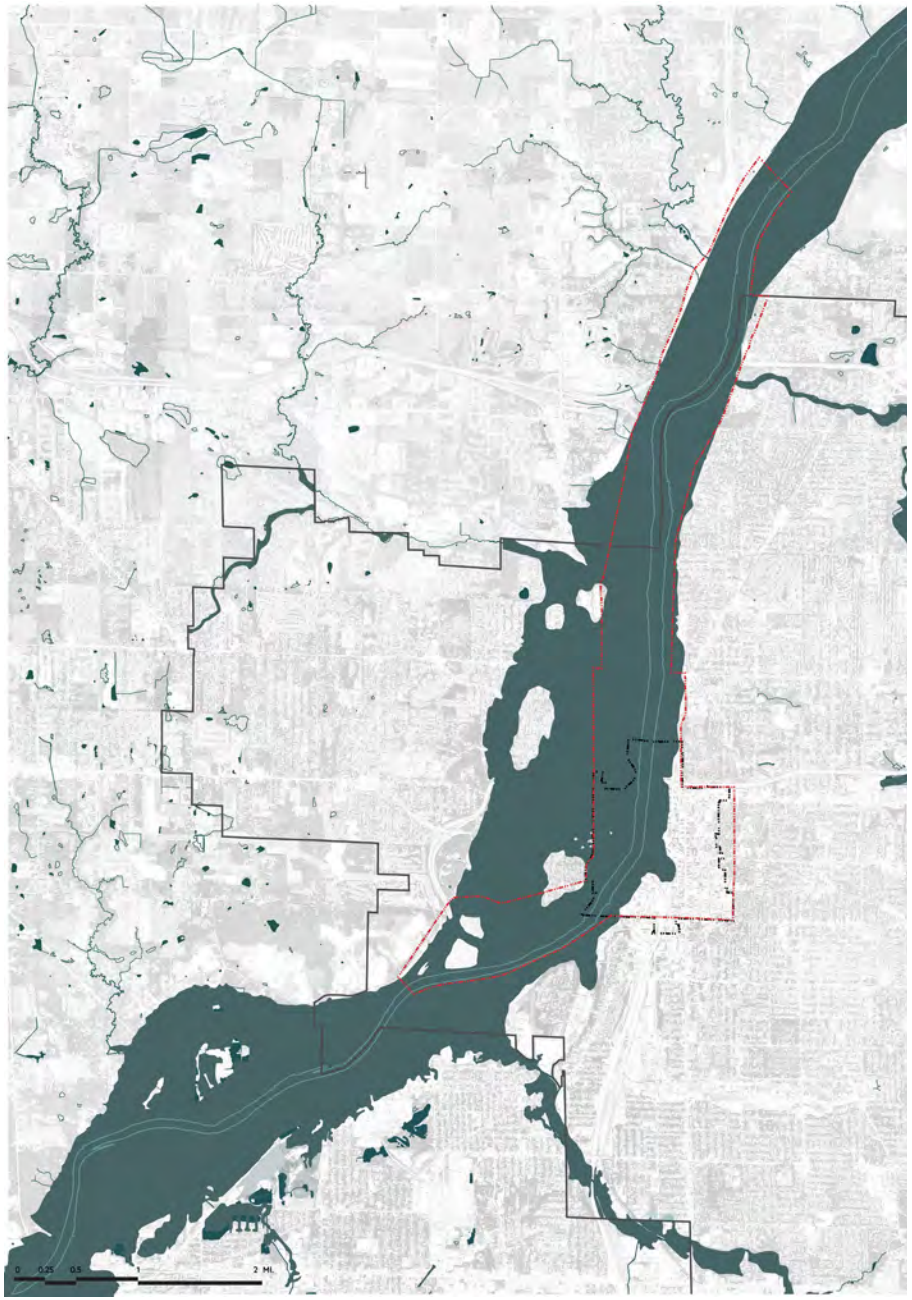
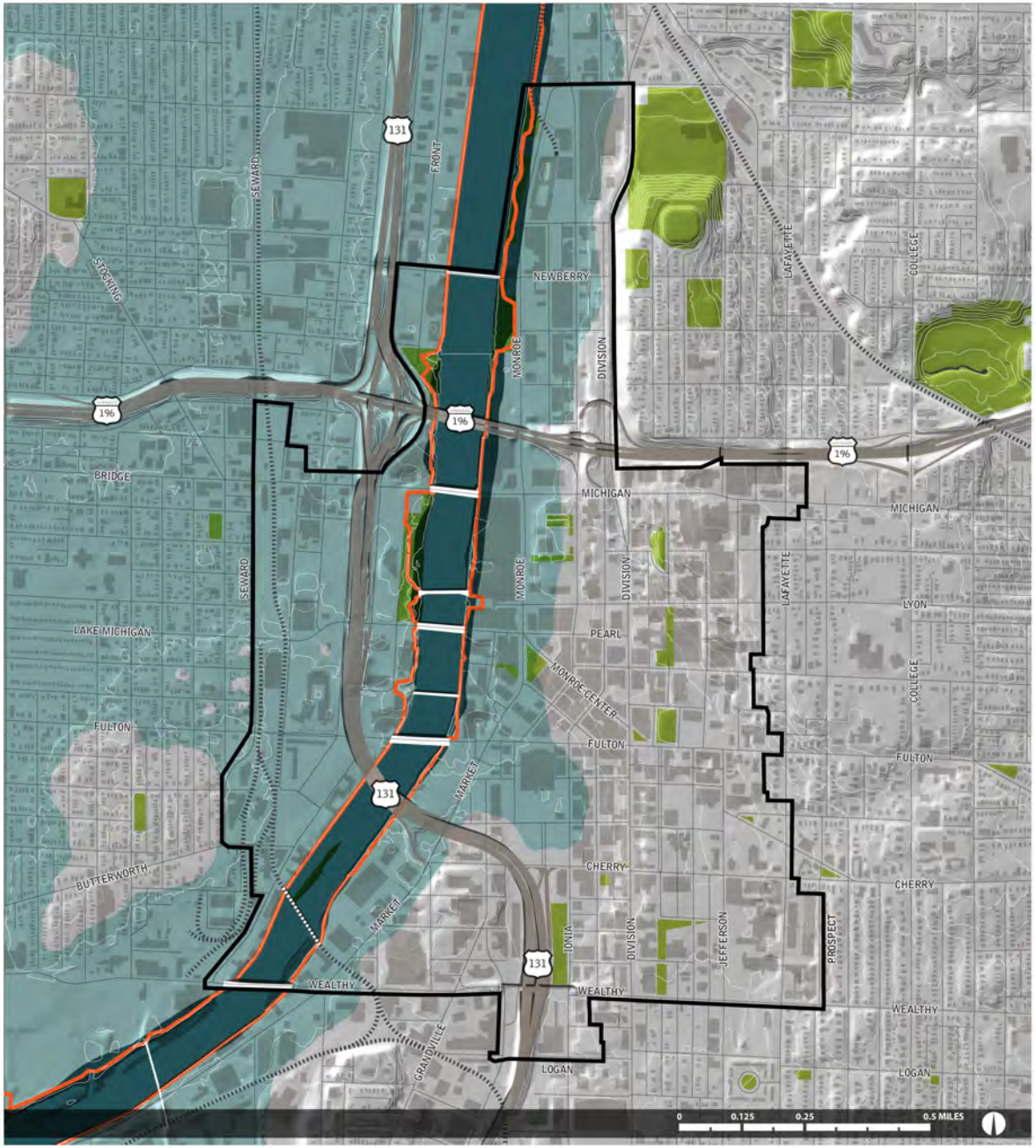


FIG 1.4: *Ancient river course and current glacial trough as it might function in major flood events without current infrastructure*



FLOOD ZONES

- FLOOD WALL
- GRAND RIVER
- 100 YEAR FLOODPLAIN
- 500 YEAR FLOODPLAIN

FIG 1.5: *Flood zones in the greater Downtown area*

These regional constraints require a dynamic local infrastructure to mitigate and protect the City from rain events. This resulted in the City's original system of floodwalls but, today, there are new challenges to address. The annual average rainfall in Grand Rapids has increased by 16% in the last 60 years and this trend is expected to continue or possibly increase. When combined with current projections of climate change and the current evaluation process and remapping of the flood plain by FEMA via the Levee Analysis and Mapping Procedures [LAMP] process, it is apparent that when we imagine the future of the River corridor and Downtown Grand Rapids, we need to consider how we will improve upon the current system.

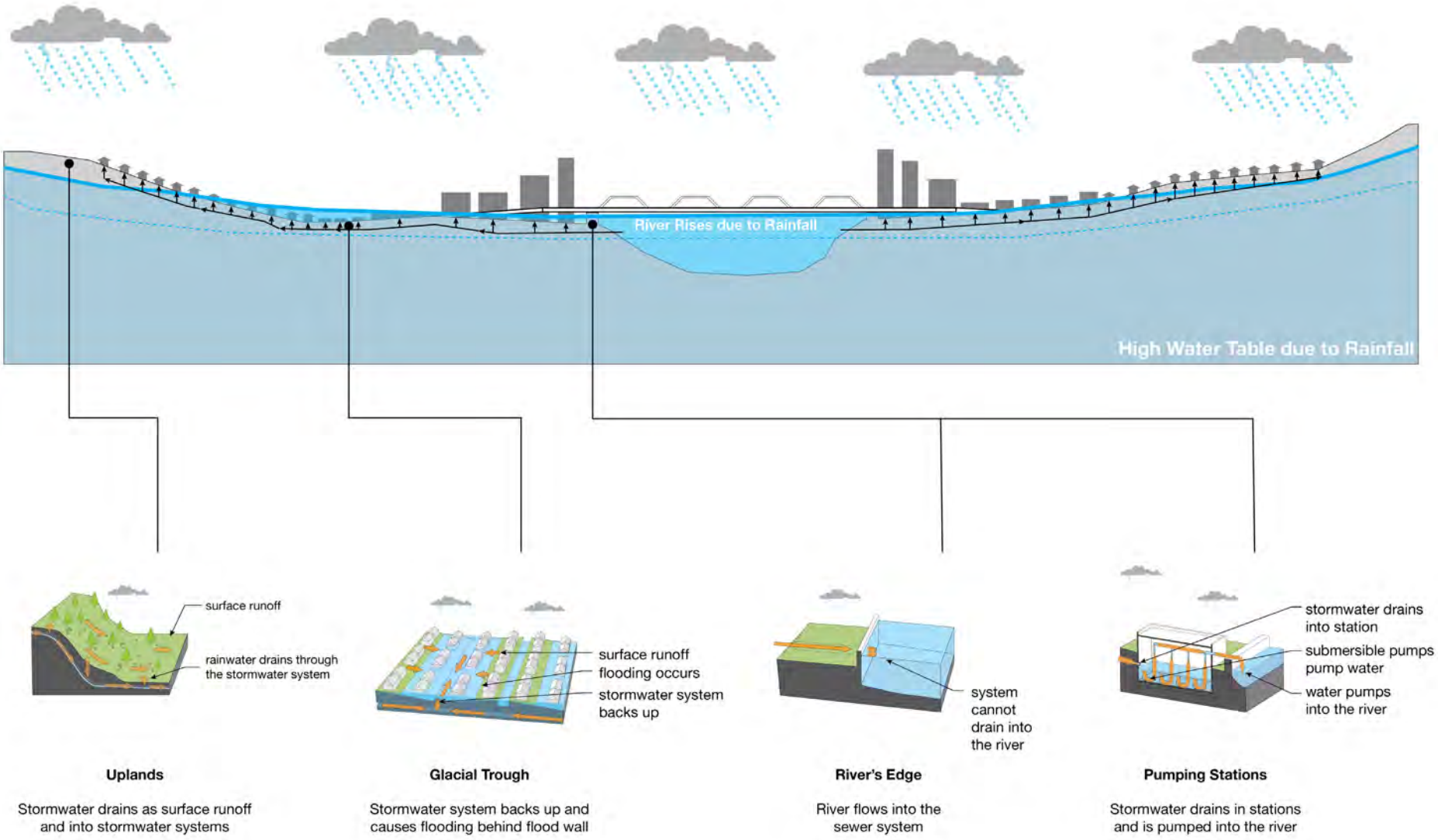


FIG 1.6: *Why the Grand River floods*

In acknowledging the need for flood infrastructure, we must consider how we can alter the past approach of constructing floodwalls, which blocks both access to the River and potential riverfront uses. We need to instead find a way to use the flood infrastructure to reinforce the goal that the River is the biggest asset for the future of Grand Rapids. This requires an approach that integrates flood protection, River access, and habitat. The proposed river work of Grand Rapids White Water [see Goal 1.2], such as the removal of the dams in the Grand River in Grand Rapids, will help to improve the flood conveyance. The River Restoration is the initial step in the improvement of flood conveyance.

>> Flood infrastructure and its impact on the River edges

The City of Grand Rapids has been working with FEMA to establish baseline elevations for flood protection. The collaboration with FEMA has resulted in additional flexibility in the amount of protection provided to prevent flooding. There are two approaches:

Freeboard Deficient: Elevation of the flood infrastructure is equal to the 100 year flood elevation

Accredited: Elevation of the flood infrastructure is 3 feet above the 100 year flood elevation

FEMA will not mandate flood insurance in areas with flood protection meeting either of these approaches.

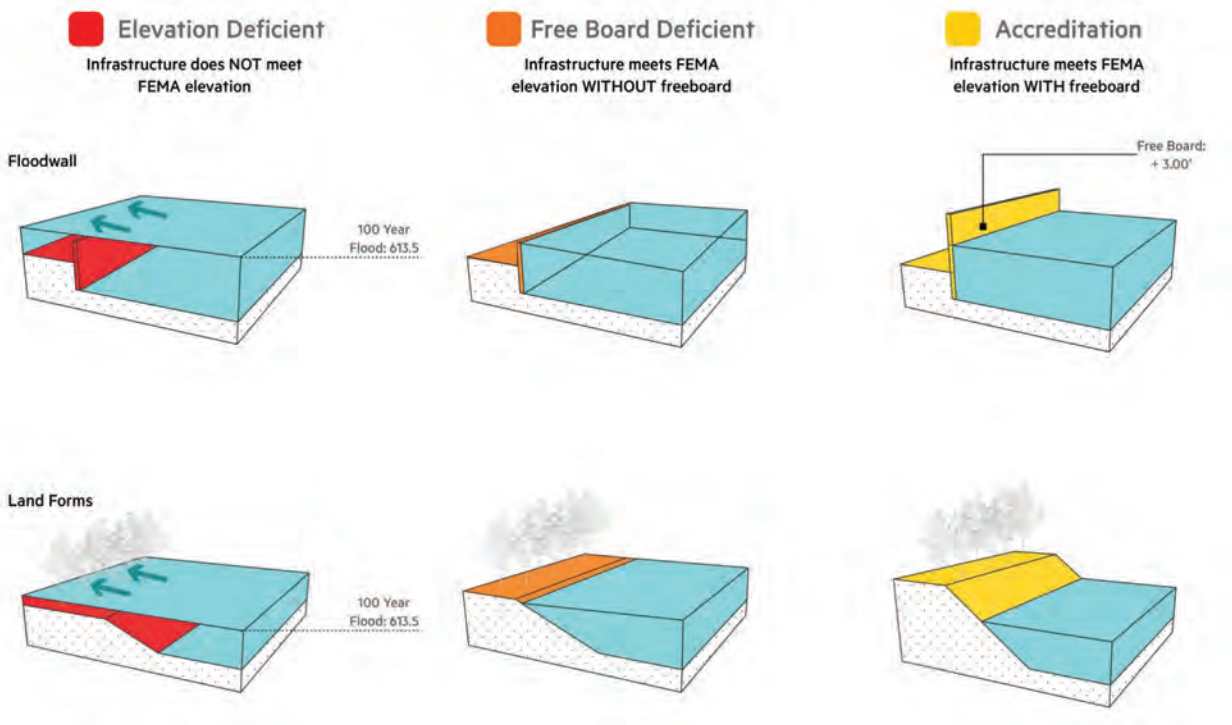


FIG 1.7: *Flood infrastructure strategies*

Given that compliance with FEMA requirements demands that the City and their partners invest significantly in and around the River, the goal throughout the GR Forward process is to achieve the accredited flood elevation. This process included the identification of various key riverfront opportunity sites where there are deficiencies in the current flood protection system, but also where the creation of a new type of flood infrastructure is possible. On all of the opportunity sites identified, the flood protection is not the only consideration, but equally River access and ecology. Rather than floodwalls like those created in previous generations, the approach is to use landscape design as a method of reaching the critical elevations necessary to achieve flood protection and create an amenity along the Grand River corridor.

The City and it citizens have gone through a significant effort in the past 30 years separating its stormwater system from its sewage system.

98% of the City's system has been separated at this point and as a result, Combined Sewer Overflow [CSO] events have nearly disappeared with the exception of the most extreme events.

Much of the investments made to manage the quantity of stormwater have been in the form of grey infrastructure – utilizing pipes. Green infrastructure – landscape designed to capture and hold rainwater where it falls - is now actively promoted by the City and represents an opportunity to improve water quality. As not all of the rain can be captured in this way due to the high volume of water, pumps are also required to limit flooding that comes up from below the ground due to the conditions caused by the glacial trough. Our approach is to improve and add capacity to the existing flood protection system by integrating blue/green infrastructure techniques that help to hold and clean water during flood events.

To address the existing conditions, GR Forward will reinforce the City's innovative stormwater measures as advanced in the Green Grand Rapids Plan, Stormwater Master Plan and, coming soon, the Green Infrastructure Guidebook. In line with this work, GR Forward seeks to:

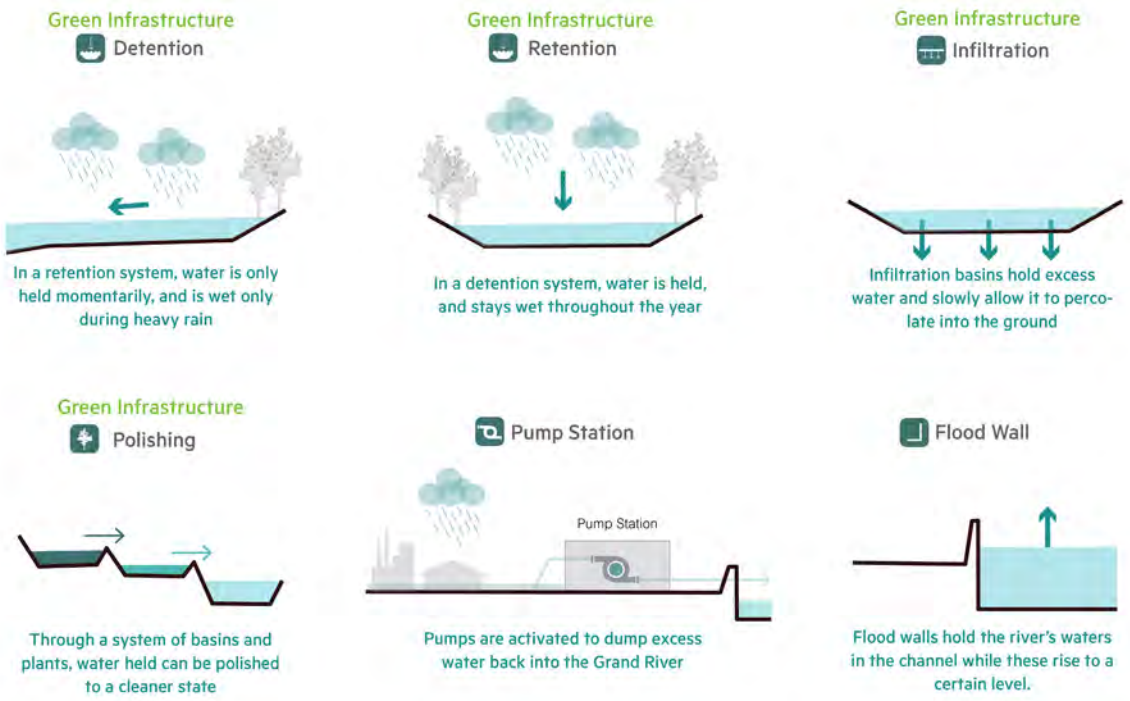


FIG 1.8: *Water treatment goals*

- Reduce the amount of impermeable surfaces throughout the City. The biggest issues are large surface lots that drain into a storm drain and large footprint buildings that, despite being disconnected already from the stormwater system, overflow into street basins.
- Create planted infiltration basins that reduce and redirect rainwater away from the sewer system.
- Increase the use of detention and retention systems that are designed as landscape features and amenities. These are most critical in areas that are higher in the watershed as they can significantly reduce the overall volume of rainwater. Included as a subset of this category are green roofs which function similarly and can help to manage rainwater one sites with large buildings.
- Create capacity wetlands. In areas where there is underutilized space and discharge pumps located in close proximity, create stormwater retention ponds that can use biological and mechanical methods to treat stormwater between major precipitation events. Prior to the storm event, the ponds evacuate clean water from the ponds into

the River and then allow the first flush of water during the storm to refill the basin. Once the basin is full, the pumps continue to pump overboard of the flood infrastructure and the pond can polish the most recent water from that event.

- Create vegetal buffers and terraced wetlands along the edges of the River that strip out excess nutrients prior to the water running off into the River. These systems are also compatible with flood infrastructure, trails, and programs.

This plan will illustrate many of these recommendations at the site scale design. Given the importance of clean water required for suitable access and recreation, these practices are also recommended for projects currently not planned or within the DGRI boundaries and River corridor study area.

> *"Solve flooding concerns with natural processes. Avoid concrete wherever possible."*
>
> *- Open house participant*

Bottière Chênaie Eco-district, Atelier des Paysages Bruel-Delmar

LAND USE AND THE RIVER'S EDGES

This work builds on Grand Rapids's effort to reduce its impact on the Grand River by separating its sewer system. The previous approach to managing sewage and rainwater – combined sewer overflow [CSOs] - is associated with the 19th century use of the River as an effective way to move supplies, waste, and goods. Canals and dams created energy, floated logs above the rapids, and submerged odorous raw sewage and industrial waste.

In the early 20th century transportation moved away from the River but many industrial uses remained. Frequent flooding reduced the value of the properties along the River, thus making it more suitable for the continued industrial use. As some industry left, municipal services filled the gap. This is not just the story of Grand Rapids, but of many industrial cities.

The top three land uses today within the entire Grand River corridor are Industrial at 29.4%, Parks at 24%, and Parking at 9%. With respect to properties directly on the riverfront, Parks represent the top land use at 41.8%, followed by Industrial at 38.1%, and Institutional at 7.6%. This suggests that Grand Rapids is at a positive pivot point in changing the direction it faces as it relates to the River. But the River's history have created additional challenges including:

- Access - The remaining industrial uses continue to create River access issues. This is exacerbated on the Westside where the highway berm limits access to the River from the neighborhoods. The small footprints of the sites also create significant issues in altering the River's edge condition in the future.
- Ecology - Current conditions along the edge are of little to no ecological value given that they are impermeable surfaces adjacent to floodwalls. This impacts aquatic species, as there is no habitat along the edges to provide resting spots in the rapids or for smaller fish to find shelter from predators.

To address these conditions, the River corridor plan evaluated 25 different sites along the Grand River within the study area. Each opportunity site was evaluated with respect to land use, access and ecology and resulted in specific design proposals. 15 sites were evaluated in more depth to address flood infrastructure and FEMA requirements. The 15 key sites and the additional sites for consideration in future phases are further elaborated in Goal 1.5.

1.1 INTEGRATE ART, EDUCATION, INFRASTRUCTURE AND ECOLOGY

To guide the design of the Grand River, GR Forward recognized not only the need to improve how the River is accessed [both visually and physically], but also how it functions. It is a critical piece of infrastructure that, with strategic investment, can improve the local environment. To maximize this opportunity, the design is grounded in forging renewed connections with the River through education and art. With greater awareness, Grand Rapidians can better appreciate the River's important ecological role and advocate for continued enhancements related to water quality.

Erie Street Plaza wetland edge

CREATE VARIED INFRASTRUCTURE TO NOT ONLY PROTECT, BUT ENHANCE AND AMENITIZE THE RIVER

One of the ways that this project is ground breaking is that it looks for ways to utilize flood infrastructure to perform multiple tasks that serve multiple agendas, including River access, habitat, and specialized programs. By imagining the change and requirements to rebuild the flood infrastructure not as a burden but as an opportunity, we create a resilient city, a more dynamic and healthy river, a catalyst for growth, and a place for people from around the world to enjoy.

In the design of the opportunity sites along the River, one or more of the following tools are used to create resilient and dynamic flood infrastructure:

- Terraced flood wall
- Vegetated berm
- Wetland terrace

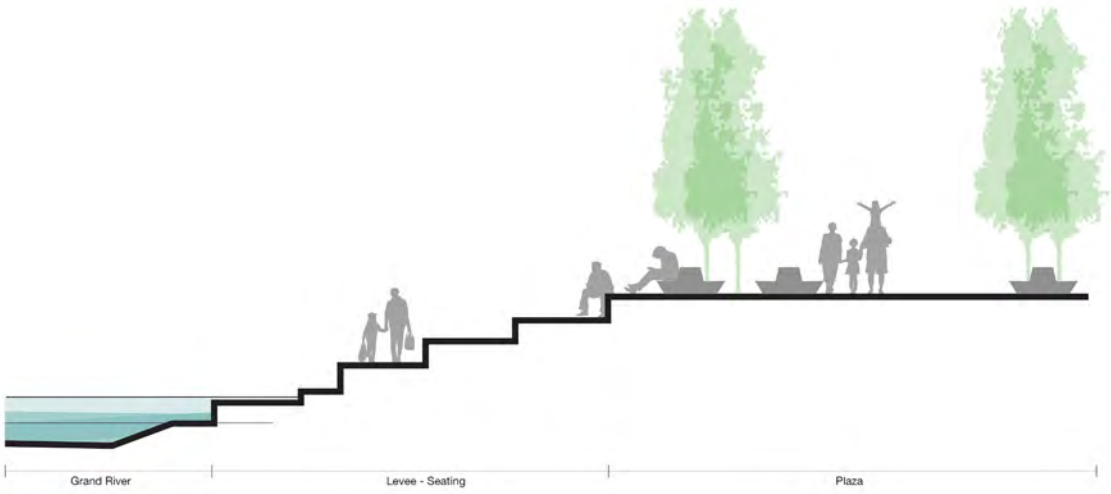


FIG 1.9: *Terraced flood wall*

FIG 1.10: *Vegetated berm*

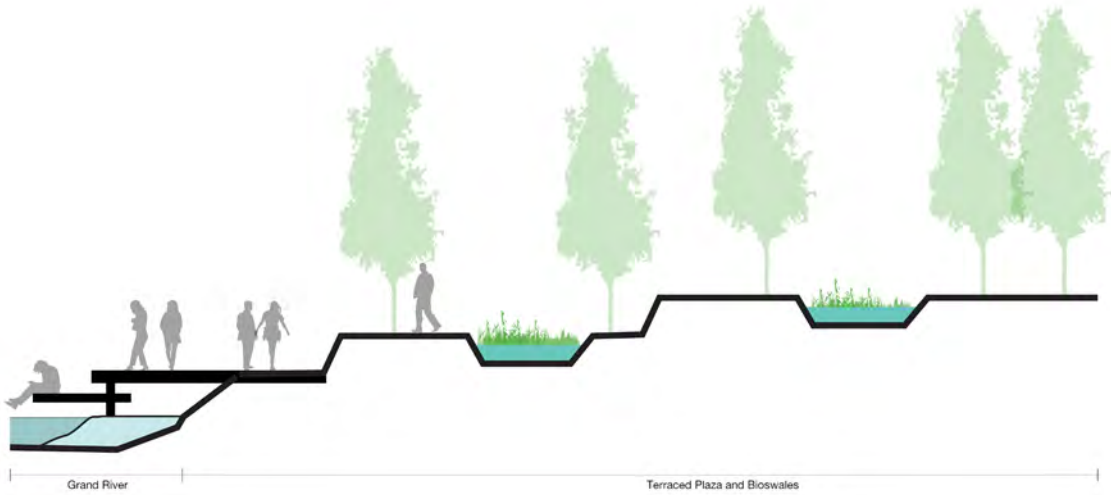


FIG 1.11: *Wetland terrace*

ENHANCE ECOLOGICAL SYSTEMS

The expansion of the idea that Grand Rapids is a place where the wilderness and City collide to create a place unlike any other is dependent upon the creation of new habitat that supports the aesthetic of that goal, as well as upon the programs that activate the places. Those two factors then support the brand that ultimately supports the economic growth associated with the restoration of the River. It is critical in the design of these open spaces that we utilize native plants that bolster the ecological productivity of the edges, as wells as materials that contain an authentic quality that is compatible to the local environmental palette. The appendix includes diagrams illustrating portions of the project where these types of synergies occur.

FOLLOW THE EXAMPLE OF THE GRAND RAPIDS PUBLIC MUSEUM IN INTEGRATING EDUCATION, INFRASTRUCTURE, AND ECOLOGY

The Public Museum is a great example of how an institution can integrate education, infrastructure, and ecology. Part of the expanding mission of the museum is to support both local and regional awareness of the Grand River. By creating a new outdoor exhibit, the Museum can expand awareness of the regional watershed health. They can also actively test the River during the transformative period so that there is better understanding of the benefits in the creation of the River corridor Park System.

> *"In Downtown there is the opportunity for all ages to learn about the river, on the river, cultural, ecological, and connection to Great Lakes."*
>
> *- Open house participant*

Grand Rapids Public Museum

FIG 1.12: *Public Museum concept design*

The goals of this project include:

- Create a world class exhibit about the Grand River that expands opportunities for the museum to grow in its mission to support a healthy River
- Expand public open space access on the Westside
- Create access to the River
- Provide a continuous multi-use trail
- Create habitat and allow for a unique River experience in the city

FIG 1.13: *Proposed Public Museum site plan*

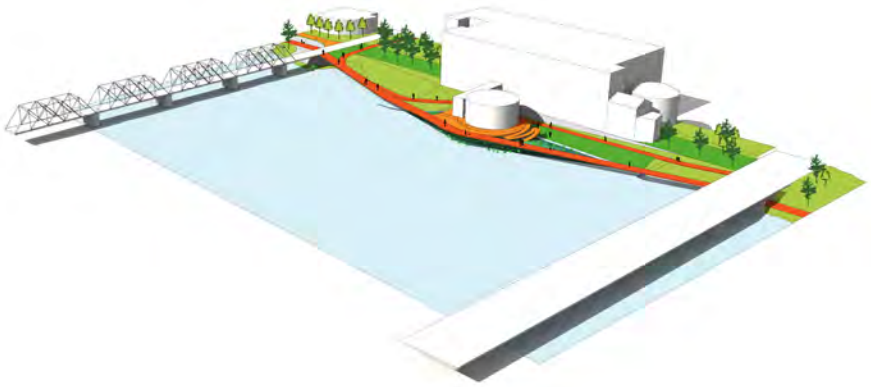


FIG 1.14: *Proposed Public Museum aerial view*

FIG 1.15: *Proposed Public Museum water access*

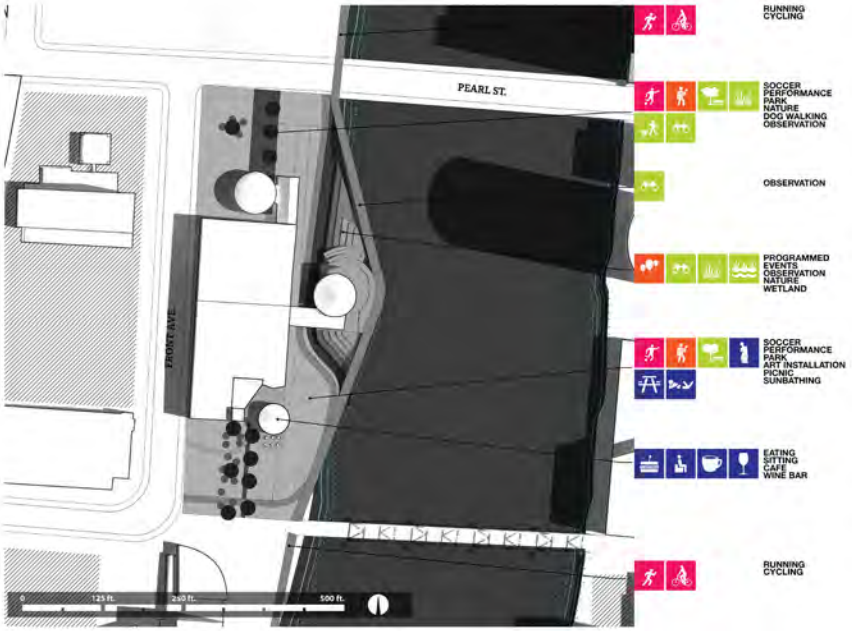


FIG 1.16: *Proposed Public Museum land access*

FOCUS ON IMPROVING WATER QUALITY FOR THE GRAND RIVER SYSTEM TO ENSURE HEALTHY USE AND ACCESS

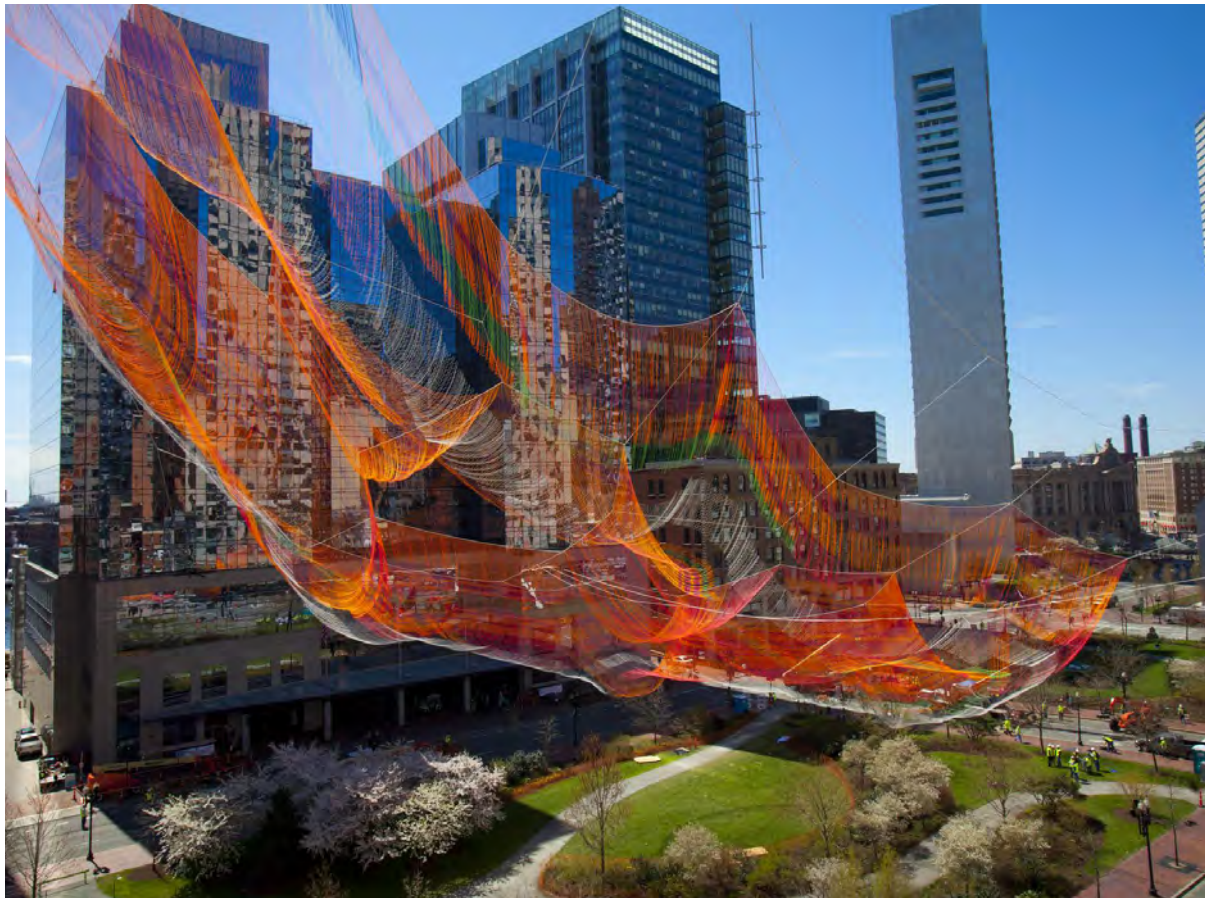
In order to maintain use for swimming, fishing, boating and other activities, it is critical that all communities along the Grand River continue to improve local environmental conditions to ensure that people can continue to use the River for recreation and enjoyment. The following comments and recommendations have been made by the River Restoration Water Quality Work Group. These recommendations help to support and maintain the recreational use, economic benefits and quality of life for those that utilize the River.

Largely owing to the types of industry that developed along the Grand River over the course of the past two centuries, recent studies of the 12 major tributaries of Lake Michigan have found that although the Grand River watershed comprises only 13% of the Lake Michigan drainage basin, it has been one of the most significant contributors of contaminants to Lake Michigan. That said, restoration of the Grand River rapids in Downtown brings with it a unique opportunity to focus attention on improving the quality of the water in the Grand River and Lake Michigan alike. Much work has been done by a variety of organizations to identify issues, opportunities and priorities related to water quality. For instance, increased water flow as proposed by Grand Rapids Whitewater [GRWW] will increase the oxygenation of the water and sediments thus improving the overall water quality and habitat potential. The recommendations below focus on areas that are considered to have the highest potential impact and the greatest opportunity for success when using the restoration of the River as a catalyst.

Even on a cold weekday, the edges of the Grand south of the dam are populated with anglers.

- Recruit a leadership team and embed it in the GR Forward and river restoration processes to achieve the water quality agenda working with the region and state.
- Address regional water quality agenda and identify areas of alignment with existing State strategies.
- The notion of improving the quality of the water in the Grand River should be embedded in the messaging, branding and funding initiatives of the River restoration effort. Responsibility for monitoring progress on the recommendations should become part of the work of the entity that takes on oversight and coordination of the next phase of the project.
- Address high impact point-source water quality infrastructure opportunities upstream from Grand Rapids to Jackson.

- Address livestock and cropland pathogen pollutants upstream of Grand Rapids in the Direct Drainage Subwatershed management unit of the Lower Grand River Watershed and in the Urban Waters Federal Partnership area. Plant buffer and filter strips along priority acreage adjacent to and encompassing the Direct Drainage Subwatershed and Urban Waters Partnership area.
- Improve upstream septic programs and policies. Work with the Michigan's Governor's Office and other relevant state agencies on a statewide septic code and with local health departments to adopt operational inspections and maintenance requirements in their septic regulations.
- Maximize implementation of green infrastructure and low-impact development [LID] within the River Restoration Project Corridor area by encouraging local policies and incentives that favor LID. More detail is included in the Goal 2.



Janet Echelman along the Rose Kennedy Greenway, Boston

CREATE A LANDSCAPE GALLERY OF PUBLIC ART ALONG THE RIVER CORRIDOR

GR Forward convened a focus group from the art community to determine the role of art in the River corridor. While the work of this group is still ongoing, some themes have emerged:

- Use art as a gateway element to the River corridor [on the north and south]
- Commission a 21st century artist to make a site-specific piece[s] of artwork
- Focus resources on a limited number of commissions so they create a dialogue with the current state of public art in the City

To continue this work, GR Forward recommends the following:

- Recruit a leadership team including a knowledgeable, respected local member of the arts community to oversee fundraising, selection process, permitting, maintenance and liability responsibilities, and to guide the curating along trail/corridor
- Hire a conservation/restoration consultant to advise on installation details
- Design and implement a community engagement component to allow Grand Rapidians opportunities to participate in decision-making. Ensure that the Native American population is represented and their history and culture are recognized as part of the river restoration.
- Develop interpretive materials – an "art trail" guide

- Prioritize addressing pathogen pollutants contributed to the Grand River watershed by failing septic systems by advocating for statewide septic rules and improved septic regulation practices in counties [initially prioritizing Kent County] within the Grand River Watershed.
- Implement projects identified by the City of Grand Rapids Green Infrastructure Opportunity Assessment. Inspire a similar assessment and implementation process for managing stormwater runoff in upstream communities.

1.2 REINFORCE THE GRAND RAPIDS WHITEWATER INITIATIVE

In many ways, GR Forward imagines GRWW as a catalyst project that is emblematic of the effort of re-establishing the River as the iconic center of the City. It will not only substantially improve habitat, but serve as a significant recreational asset that establishes the River as an active public space.

Investment in the River allows for new and expanded activities including fishing and boating, as well as providing access for wading and swimming. There is a mutually beneficial relationship with the GRWW initiative and the development of the river's edges. Access will be created along the river that will support both the in-the-river activities and those along the edges, while also allowing for the development and construction of the improved flood infrastructure. It is not only these activities that draw people, but the act of watching these activities creates a reason to visit and activate riverfront parks, trails and restaurant terraces along the River. Anderson Economic Group developed an economic impact study commissioned by Grand Rapids Whitewater that estimates that expanded recreational use of the river and riverfront will stimulate net new economic impact of $15.9 million to $19.1 million per year.

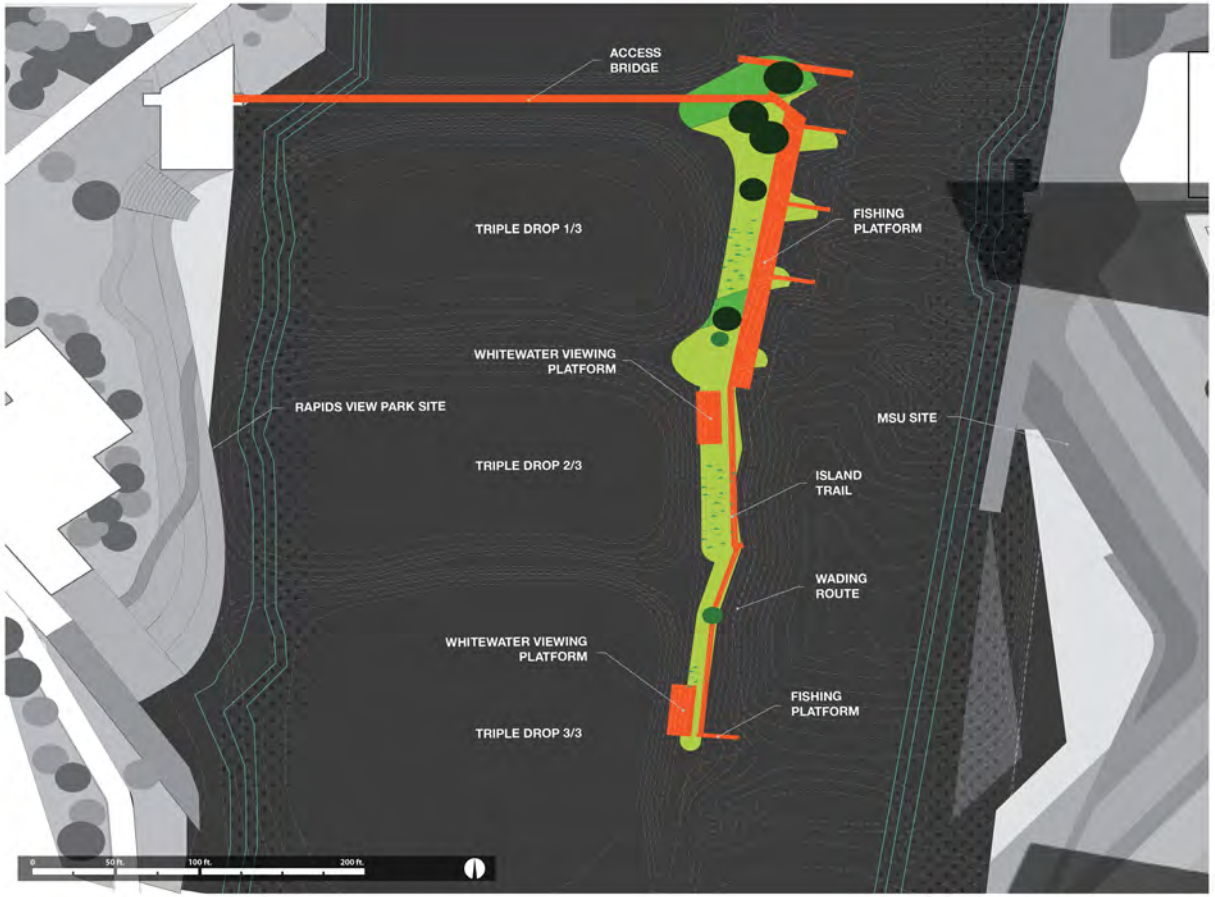


FIG 1.17: *Proposed Park Island*

EXPLORE RIVER ISLAND OPPORTUNITIES

GR Forward has identified opportunities to create two potentially accessible, open spaces in the River that could reinforce the Whitewater design: Park Island and City Island. These islands could serve as critical open spaces within the densest parts of the City and allow the everyday person to have a unique River experience. The feasibility of creating these islands will need to be further evaluated within the context of both the Whitewater Initiative and FEMA compliance.

FIG 1.18: *Proposed City Island*

The Goals of City Island would be:

- Create a public space in the River for the general public to experience the River and activities
- Expand open space accessible to Downtown Grand Rapids
- Create the rapids and support fishing, wading and swimming
- Create pedestrian access down to the River from Gillett Bridge
- Allow for programmatic connections to the convention center and activities
- Create habitat

GRWW has many other points of interaction with the larger vision of the plan, which will be explained in relationship to both the trail system and the individual opportunity sites.

The Goals of Park Island would be:

- Create a public space within the River for the general public to experience the River and activities
- Expand open space accessible to Downtown Grand Rapids
- Create additional riparian habitat
- Create the rapids and support fishing
- Create pedestrian access to the River and allow for a connective crossing under 196
- Allow for events and programming including potential vendors if appropriate

"Restoring the Grand River is an absolute must; this will be an additional and sustainable source of revenue/recreation for the community, will add to the beauty of the city, and create more outside interest."

- Open house participant

1.3 ESTABLISH GRAND RAPIDS AS THE HUB IN A REGIONAL TRAIL SYSTEM WITH UNIVERSAL ACCESS ALONG THE RIVER ON BOTH THE EAST AND WEST SIDES

AMENITIZE THE RIVER TO MAKE IT A REGIONAL DRAW

One of the primary components in realizing the future for the Downtown and the River corridor is understanding how we create access that can serve to inspire new activities and amenities like lodging, great restaurants, unique open spaces, programs, and festivals. The catalyst is a new, interconnected trail system. This system is much larger than the City itself and builds off of regional trail systems that surround the city. The impact will be to draw people to the City and provide residents access to regional recreational opportunities.

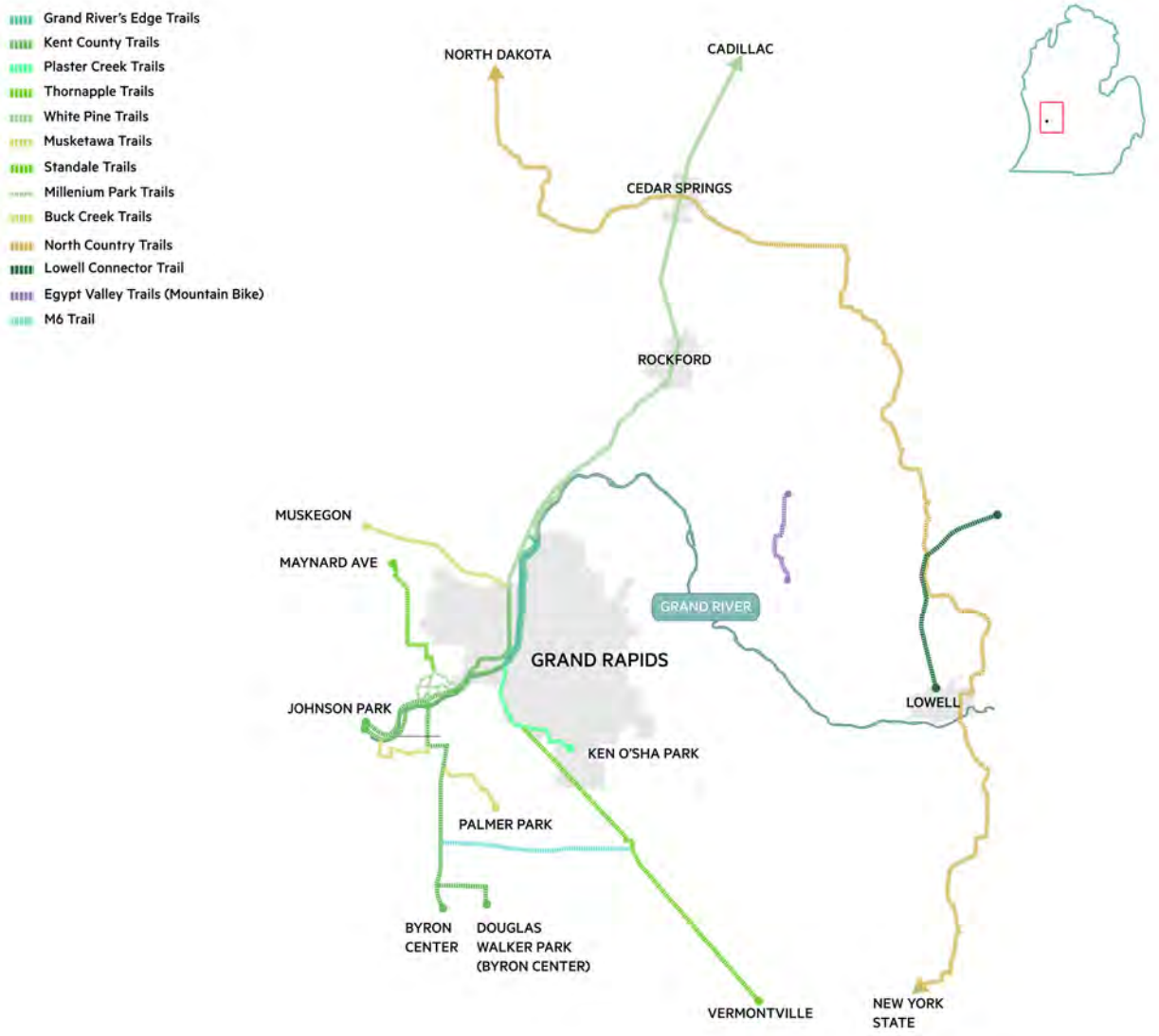


FIG 1.19: *Regional trails network*

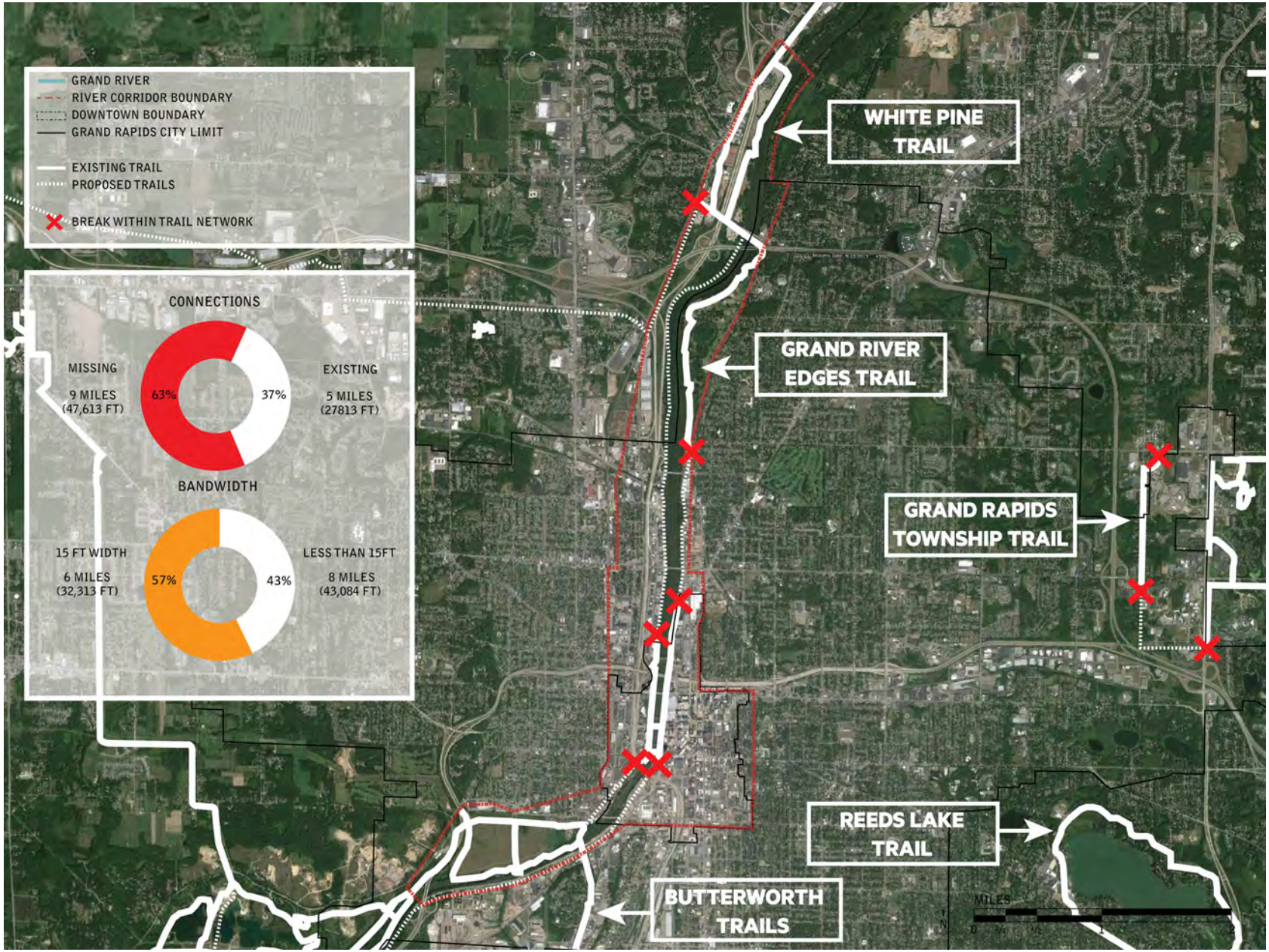


FIG 1.20: *Existing and proposed Grand Rapids trail network*

CREATE A ROBUST TRAIL SYSTEM ON BOTH THE EAST AND WEST SIDES OF THE RIVER

Universal access exceeds ADA accessibility requirements, which this plan fully promotes in the creation and expansion of the trail system. It is about equal access for the whole City, which means that a trail on each side of the River should be provided in order to make sure that equity is brought back to the River. This trail system can become an identifiable element and part of a unique brand that makes Grand Rapids a great place to be.

For much of the past 50 years, changes in land use have favored the East Side, including parks and redevelopment due to the availability of land. Early city planning suggested that an equitable parks system was imagined where both the east and west would receive a Riverside park. Instead, US 131 was developed on the Westside. GR Forward looks to correct this inequity not only by providing a 15' multi use trail on each side of the River, but also in the proposal for a new Westside park [Fig 2.17].

There are many locations along the River where trail connections either need to be improved or created. Nine miles of trails still need to be constructed to make necessary connections to complete a connected system. An additional eight miles of the existing trail system needs to be widened to handle more activity [Fig 1.20].

The current use and characteristics of properties along the River are critical in determining how to upgrade or create new segments of the trail. Land along the River Corridor can be divided into two categories: publicly owned and privately owned. The GR Forward team developed a categorization to help determine the cost and ease of development of the trail system. In this model, we assume that the publicly-held parcels do not require any easement for development. Also excluded from these costs are the 15 opportunity sites, which are considered special conditions and have specific costs outlined respectively [see appendix].

The following prototypical conditions are used to describe 3 potential scenarios.

- Trail Type X: The expansion of the existing trail. This is the least expensive option

- Trail Type 1: The construction of the trail within a site, on the easement, on grade. This is also a low cost alternative if the utility easement can be converted to a public easement.

- Trail Type 2: The construction of the trail is cantilevered outboard of the site. This is considered a medium cost option, but still is significantly more than construction on grade. Cost savings are due to the fact that the wall is being utilized as the structure to hold up the trail. This option could be used in places where landowners do not want to grant public access or where conditions prevent the construction of the trail on grade. An additional benefit of this type of construction is that it does not place a hazard in the water that rivercraft would have to navigate around.

- Trail Type 3: The construction of the trail is in the water. This is a high cost option, but an option that will have to occur in some areas due to constraints such as non-load bearing structures that are built into the floodwalls or going under bridges to provide continuous access.

- Trail Type 4: An entire parcel is publicly acquired and redeveloped to provide green space, public access, trails, and amenities. This is the most expensive upfront option but cost could be mitigated by either a brownfield redevelopment land swap facilitated by the Michigan Department of Natural Resources Trust Fund [MDNRTF] or by the return on the investment from redevelopment.

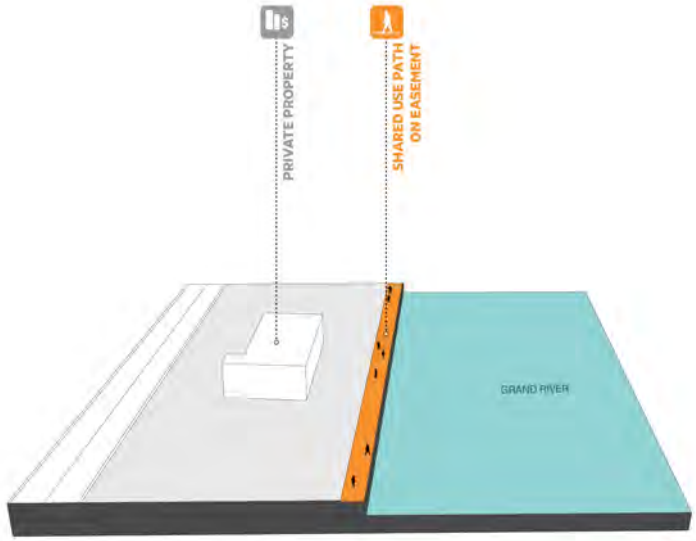


FIG 1.21: *Trail Type 1: Minimum cost – within site on easement [on grade]*

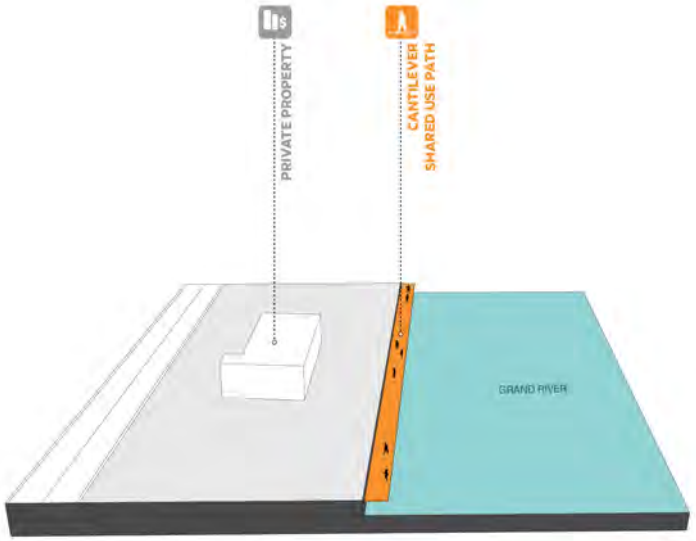


FIG 1.22: *Trail Type 2: Medium cost – cantilever*

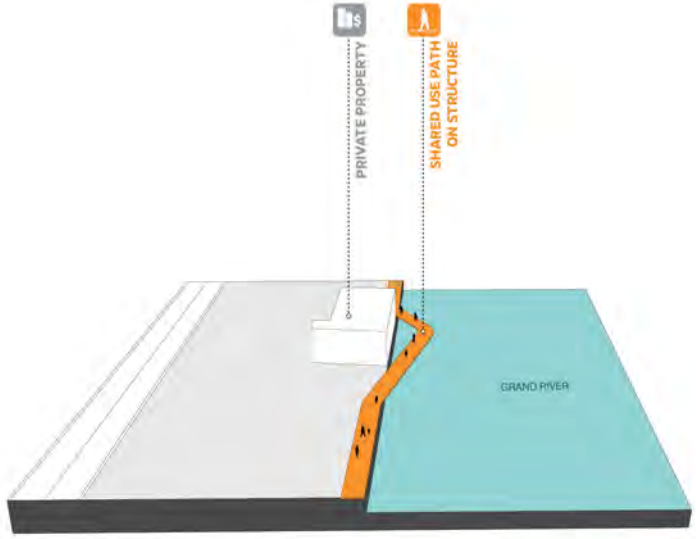


FIG 1.23: *Trail Type 3: High cost – on structure*

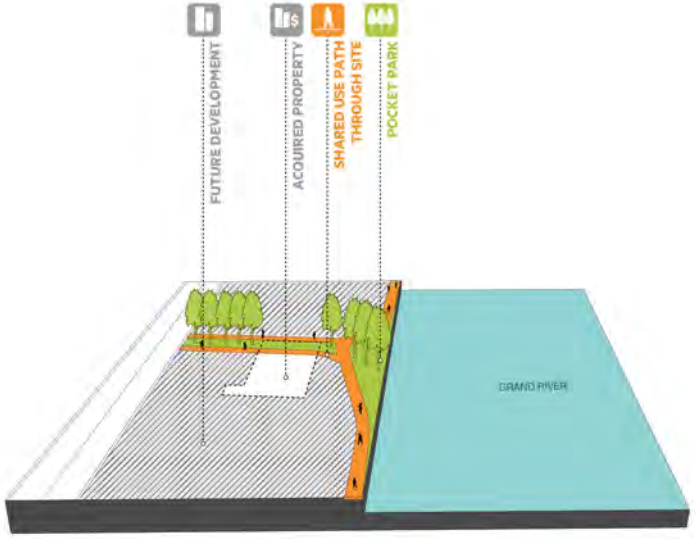


FIG 1.24: *Trail Type 4: Maximum cost – land acquisition program and redevelop*

Existing utility easement at Coldbrook

FIG 1.25: *Proposed river trail at Coldbrook along utility easement*

Existing river trail north of 6th Street Bridge

FIG 1.26: *Proposed river trail improvements north of 6th Street Bridge*

Existing river trail at the Fish Ladder

FIG 1.27: *Proposed river trail improvements at the Fish Ladder*

Existing river trail at Lyon Square

FIG 1.28: *Proposed river trail improvements at Lyon Square*

Existing river edge at 201 Market

FIG 1.29: *Proposed river trail at 201 Market*

FIG 1.30: *Proposed Adventure Park trail and ropes course*

Three scenarios were created to illustrate potential scales of cost and time frame for implementation.

- Scenario 1 [fastest]: Assumes that no private land owners cede right-of-way for public use and no public redevelopment occurs.

- Scenario 2 [least expensive]: Assumes that all private landowners cede right-of-way for public use and no public redevelopment occurs.

- Scenario 3 [most costly, most public benefit]: Assumes that all lands that have the potential for land use change are publicly purchased for redevelopment or swapped. Cost assumes the price of the development of a 100' wide open space.

Based on available funding and the speed of acquisition of necessary easements, it can be assumed that the result will be a hybrid of the three scenarios. By utilizing the strengths and opportunities of each, the City can pursue strategies that will accommodate constraints that are yet to be determined, whether they are based on costs or time.

SCENARIO 1:

NO AGREEMENT WITH PRIVATE LANDOWNERS

- X EXISTING TRAIL TO BE RENOVATED - 5.7 MILES
- 1 NEW TRAIL ON EASEMENT - 4.3 MILES
- 2 NEW TRAIL ON CANTILEVER - 0.6 MILES
- 3 NEW TRAIL ON STRUCTURE - 2.0 MILES
- S NEW TRAIL ON SITE - 0.0 MILES

NOTE: No specific structural condition has been designed for segments requiring a new trail on structure at this point, but the goal would be to create conditions that are not hazardous to rivercraft, or to mitigate the hazard by some means.

FIG 1.31: *Scenario 1: No Agreement with private landowners*

SCENARIO 2:

ACCESS WITHIN EASEMENT ON PRIVATE LAND

- EXISTING TRAIL TO BE RENOVATED - 5.7 MILES
- NEW TRAIL ON EASEMENT - 5.5 MILES
- NEW TRAIL ON CANTILEVER - 0.1 MILES
- NEW TRAIL ON STRUCTURE - 1.2 MILES
- NEW TRAIL ON SITE - 0.0 MILES

FIG 1.32: *Scenario 2: Access within easement on private land*

SCENARIO 3:

ACCESS TO WHOLE SITE ONE PRIVATE LAND

- X EXISTING TRAIL TO BE RENOVATED - 5.7 MILES
- 1 NEW TRAIL ON EASEMENT - 4.5 MILES
- 2 NEW TRAIL ON CANTILEVER - 0.1 MILES
- 3 NEW TRAIL ON STRUCTURE - 1.3 MILES
- 4 NEW TRAIL ON SITE - 1.1 MILES

FIG 1.33: *Scenario 3: Access to whole site on private land*

ALIGN ACCESS WITH THE WATER TRAIL AND THE RAPIDS

One of the beneficial components of the GR Forward effort has been the coordination of the GRWW initiative, known as the "wet side," with the River Edges, the "dry side." While from a conceptual standpoint this delineation can be made, the reality is there is a substantial amount of interaction that occurs between the River and the land.

The team has coordinated on three fronts: construction access, the river program related to the types of rapids, and access points for pedestrians and rivercraft. It should be understood that the initial GRWW proposal builds off of access to existing sites for planning and construction. Staging areas for the construction of the river restoration are planned to be restored to pre-construction conditions in the river restoration project. GR Forward could redesign those sites for implementation during construction restoration. The GR Forward effort will greatly expand access for a wider group of individuals and activities along the River. The following pages illustrate programmatic opportunities along the Grand River. With these, adequate ingress and egress and other accommodations, including safety and signage, should be tailored to the specific needs of users for each site.

FIG 1.34: *GRWW Construction access*

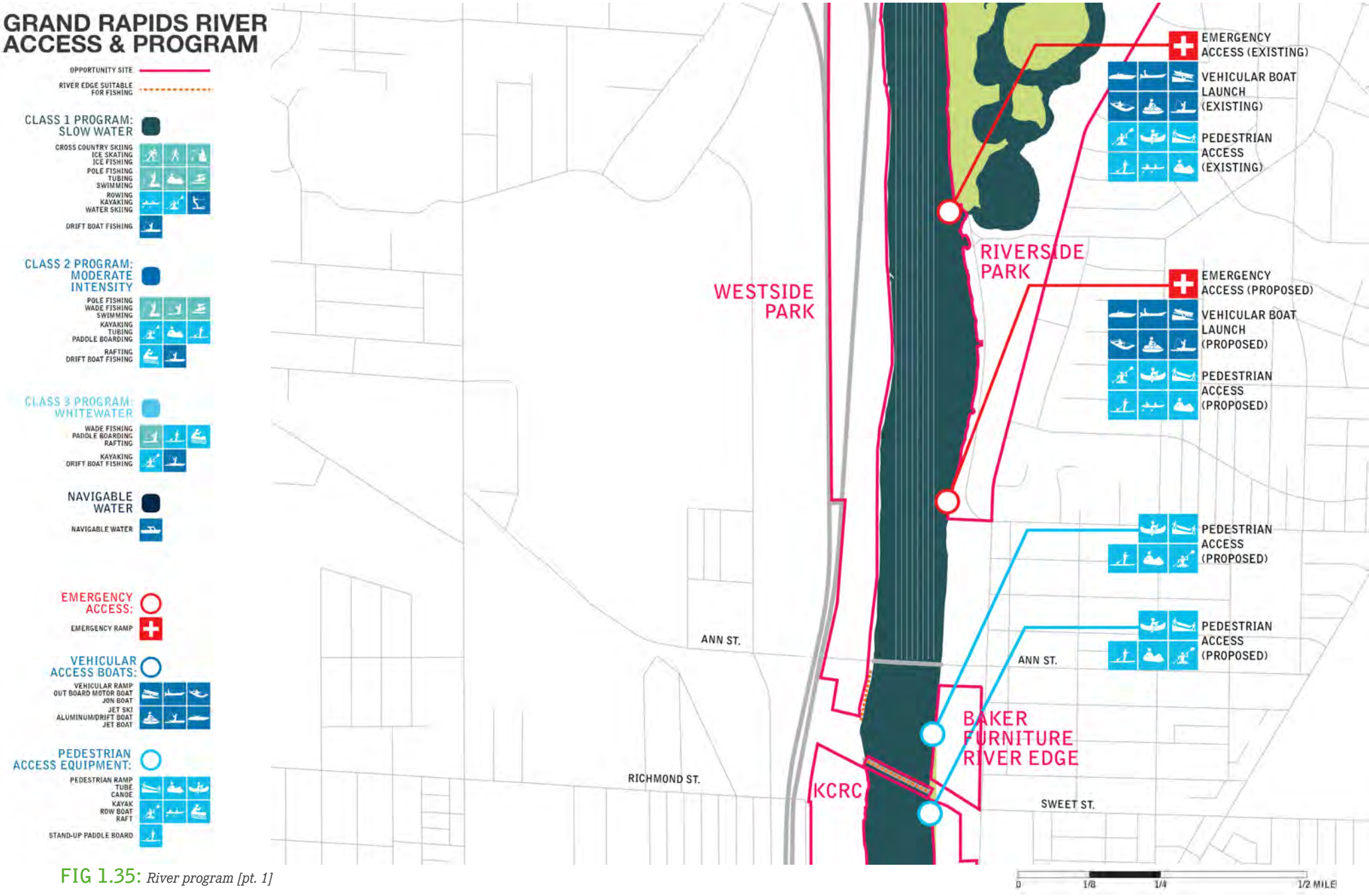


FIG 1.35: *River program [pt. 1]*

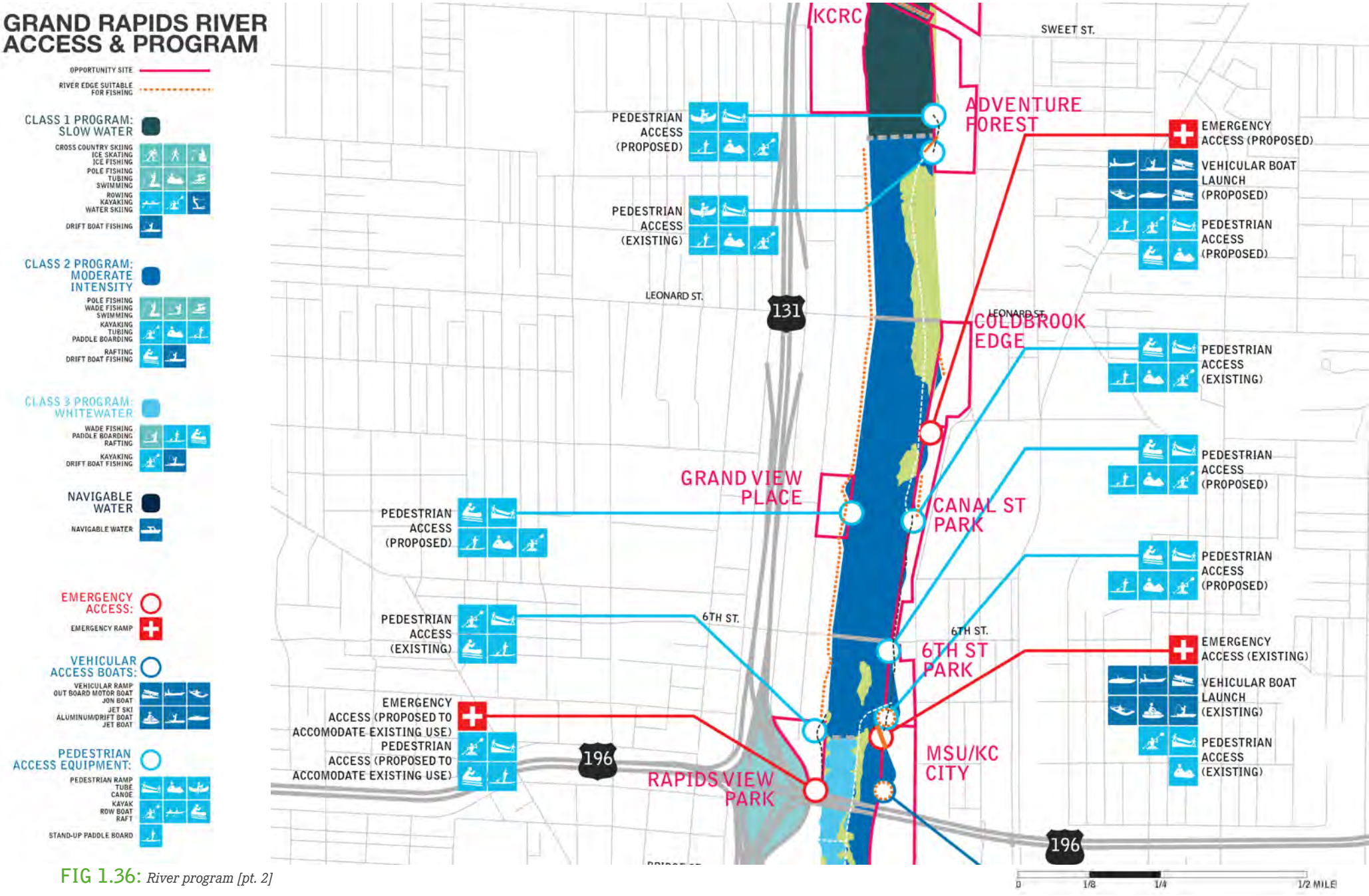


FIG 1.36: *River program [pt. 2]*

FIG 1.37: *Proposed northern Downtown river trail and open space network aerial rendering*

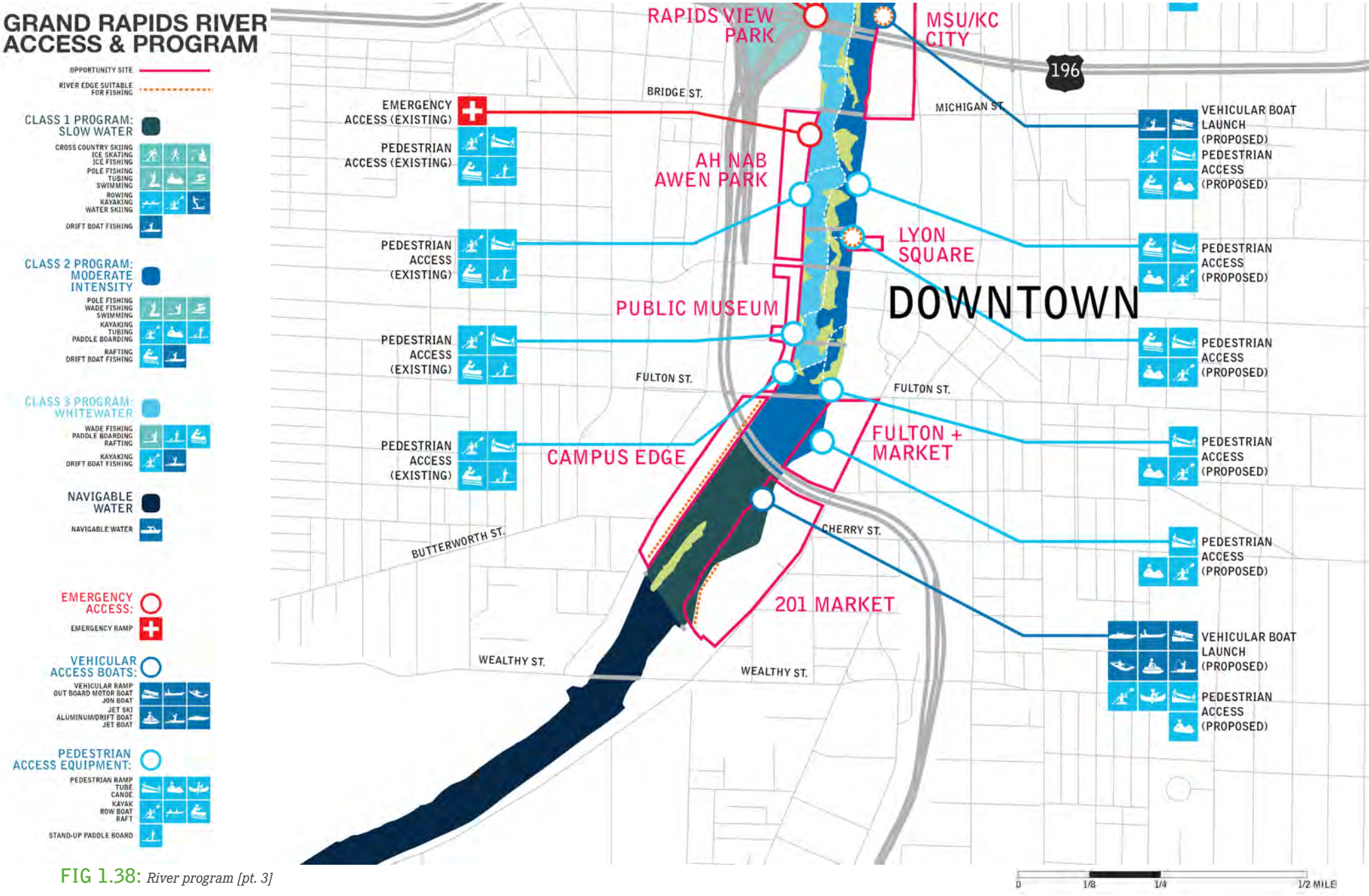


FIG 1.38: *River program [pt. 3]*

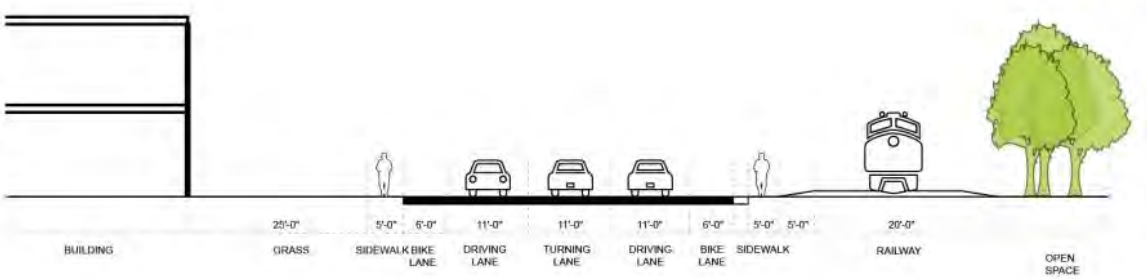
1.4 ENHANCE NEIGHBORHOOD ACCESS TO THE RIVER

The River corridor, which includes the trail and the key opportunity sites, will function as a unified park system and will inevitably be a fantastic resource for Grand Rapids and the region. However, the corridor does run predominately in the north/south direction. Therefore, it is critical that we establish major east/west connections between the neighborhoods and the River so that all of our community will be able to fully utilize this fantastic resource.

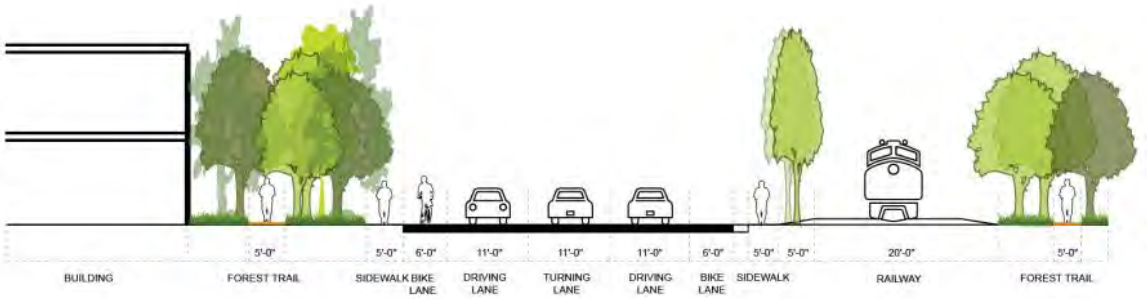
Currently the East/West connections identified fall into two categories: those that bridge the River and connect both sides of the City to each other and; those that connect neighborhoods to specific parks, which then allows them access to the greater River corridor park system.

CREATE A SERIES OF EAST/WEST GREEN CORRIDORS TO CONNECT NEIGHBORHOODS TO THE RIVER

There are major east-west streets that serve as potential connections to the River. Working with community members to incorporate artistic and aesthetic components of local placemaking, an identity can be created for each that brings awareness to the connection to the River while integrating program and ecological benefits. Following are the key east-west connections.



ANN: EXISTING

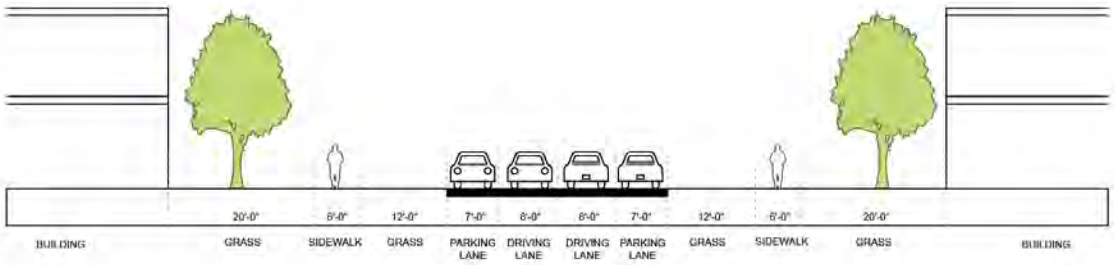


ANN: PROPOSED

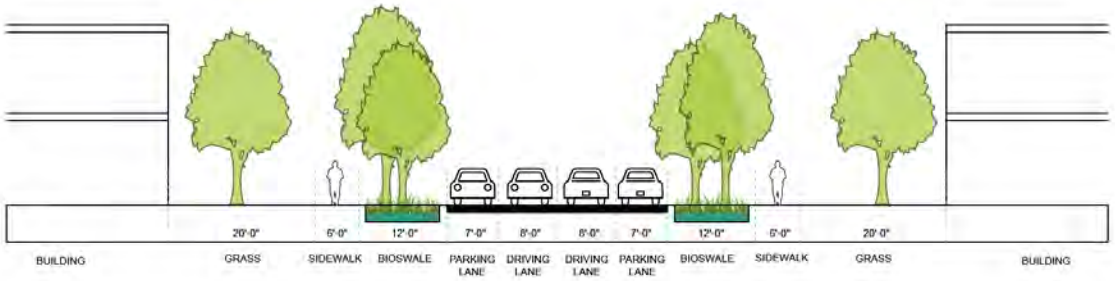
FIG 1.39: *Ann Street river connection: existing and proposed sections*

>> Ann Street: The Northern Gateway

Located on the North side of the River corridor, Ann Street has the potential to access portions of the Indian Mill Creek and the Westside Park. Current issues include the conditions surrounding the entry of the underpass on the Westside and other land uses adjacent to the River. The distinct threshold of Ann Street can be reinforced with the addition of densely planted trees that create a buffer from current uses on the Westside, as well as serving as a gateway to the Westside Park and Riverside Park.



RICHMOND: EXISTING



RICHMOND: PROPOSED

FIG 1.40: *Richmond river connection: existing and proposed sections*

>> Sweet/Richmond: The Parkway

Both of these streets connect significant open spaces on the each side of the River, which will only be strengthened by the addition of two additional open spaces outlined in this plan. These corridors should provide clear linkages to these open space resources through the design and branding of the streets.

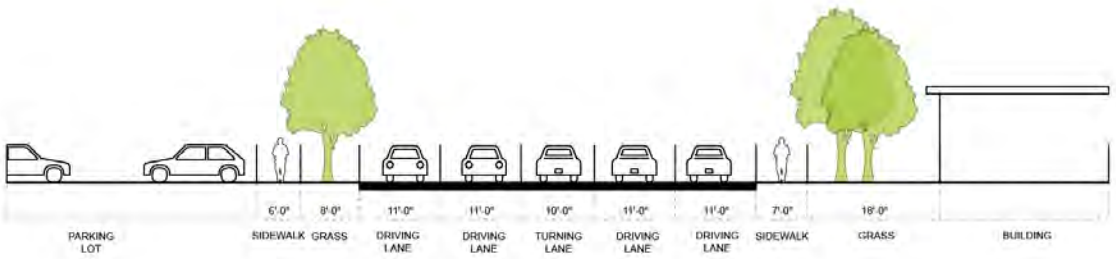
"Make a way for cyclist and pedestrians to get under the bridges at Ann and Leonard like they can at North Park."
- Online collaborative map comment

>> Leonard: Street Life

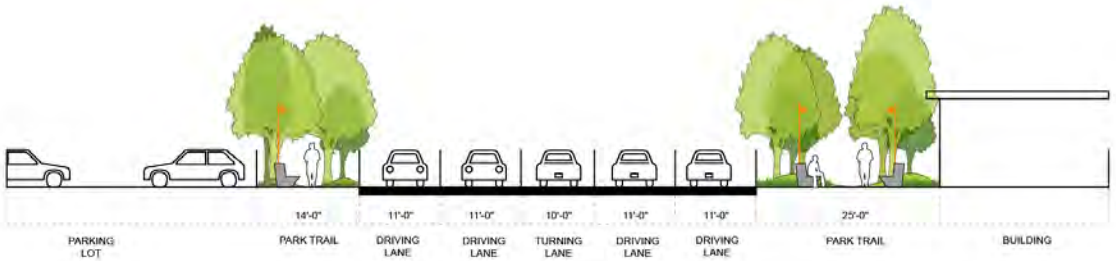
This street has great connectivity across the River and is positioned in an area where uses could change close to the River. It also has the potential to connect near neighborhoods on both sides to the River, as well as to each other. By reinforcing walkability from east to west, as well as integrating parklets and other business-friendly amenities in on-street parking spots, adjacent lots or underutilized spaces, this corridor can help to create a vibrant business district in the northern portion of the River corridor.

>> 6th Street: The Waterway

The historic Sixth Street Bridge is one of the icons of the City. There is substantial potential for land use change of the very near neighborhoods on both sides of the River, as well existing open space assets along the River. Detrimental to this connection is the amount of parking and lack of recreational uses just one block back from the River. Steep slopes on the east and flat underutilized land on the west allows for the creation of new landscapes that can celebrate the water's entry into the River.

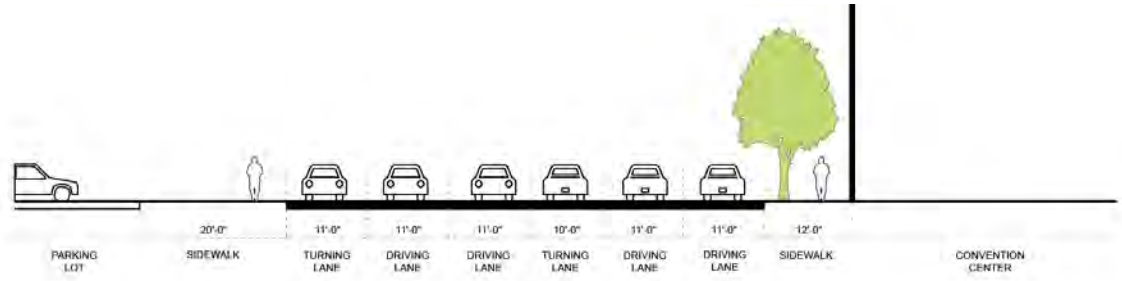


LEONARD: EXISTING

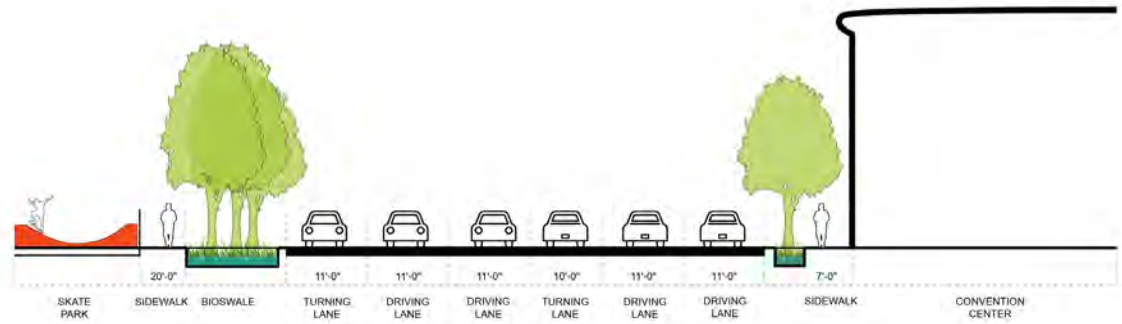


LEONARD: PROPOSED

FIG 1.41: *Leonard river connection: existing and proposed sections*



BRIDGE: EXISTING



BRIDGE: PROPOSED

FIG 1.42: *Bridge/Michigan river connection: existing and proposed sections*

>> Bridge/Michigan: Healthy Bodies & Healthy Businesses

There are two existing anchors on this corridor: the re-emerging business district on the Westside and the Medical Mile east of the River. Major issues exist in creating linkages between the Medical Mile and the River due to the steep grade and access issues from Bridge Street created by the highway infrastructure. The opportunity is to integrate fitness facilities on the east and expand upon the unique identity of the Bridge Street Business District on the west.

>> Pearl/Lake Michigan: The Heart of Downtown

This connection offers great access to and from Downtown and the nearest neighborhoods on the Westside. US 131 is a significant barrier at this location and current land uses such as parking make the crossing between the two undesirable. Activating spaces along the street with programming and more development will draw people back and forth across the River and into the River corridor park system, as well as connect them to the great institutions that already exist along these streets.

>> Fulton: Entertainment Boulevard

Fulton is one of the City's major streets framing the Downtown core as well as serving as an interface to entertainment venues like the Van Andel Arena. This street is oversized for the day to day uses, but during events needs to convey large traffic volumes in and out of the area. The opportunity is to upgrade Fulton as a true boulevard and gateway while increasing pedestrian safety.

>> Wealthy: Innovation Street

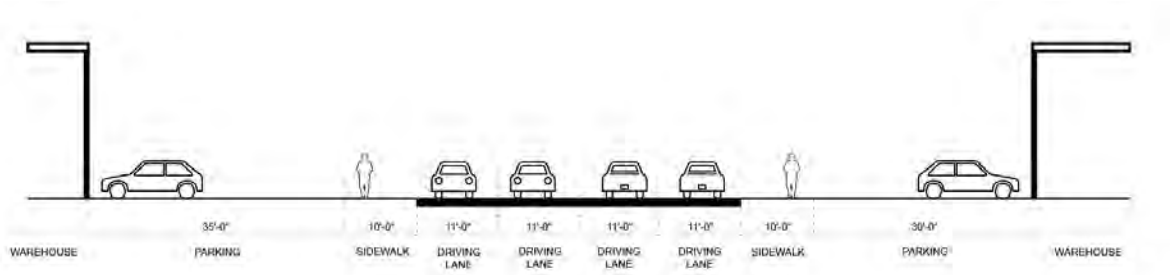
Wealthy is at the southern border of the DDA and connects to East Grand Rapids. It also has the benefit of existing start-up companies and small manufacturing businesses. The major barriers of this street include the highway overpass condition and the River. As entrepreneurial activity increases along this corridor, the streetscape should celebrate this growth and development by embracing the spirit of innovation. The streetscape supports alternative energy powered lighting and interesting technological installations, such as digital kiosks, kinetic sculptures and digital projection.

IMPROVE STREETS THAT MAKE IMPORTANT CONNECTIONS TO RIVERFRONT PARCELS

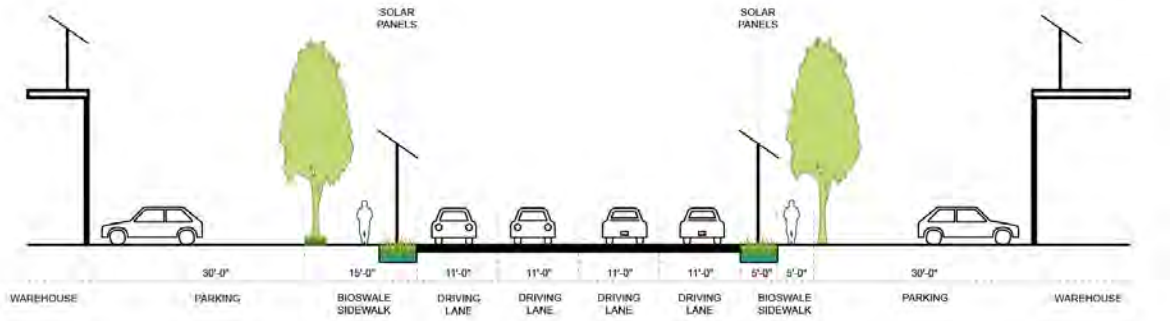
In addition, a number of other streets are important access points to the River and require strategic investment. These include:

- Market Avenue: This Street serves as the connector to the Downtown and a bypass for those coming from the lakeshore. It has potential to connect to a major growth area of the City, as well as potential open spaces on the southeast side.

- Cherry and Coldbrook: These streets will serve as the primary connection from neighborhoods to the east of Downtown to the River.



WEALTHY: EXISTING



WEALTHY: PROPOSED

FIG 1.43: *Wealthy Street river connection: existing and proposed sections*

- Webster and 10th Street: Although these streets do not extend deep into the Westside, they are connection points between the Westside and River edge proposed parks and developments.

"I would appreciate safe, bike-friendly river access. Can I put my children on a cargo bike and go to the river? If not, something needs to change."

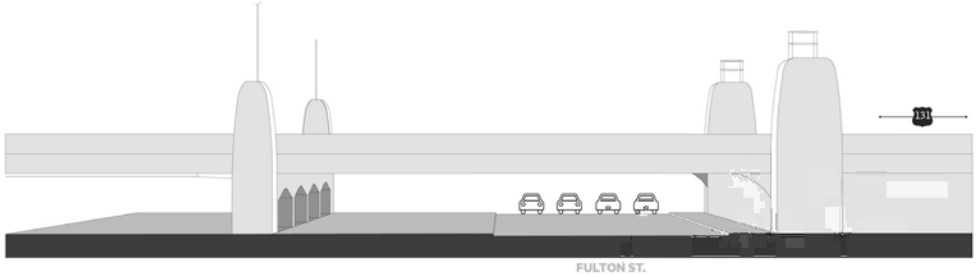
- Online collaborative map comment

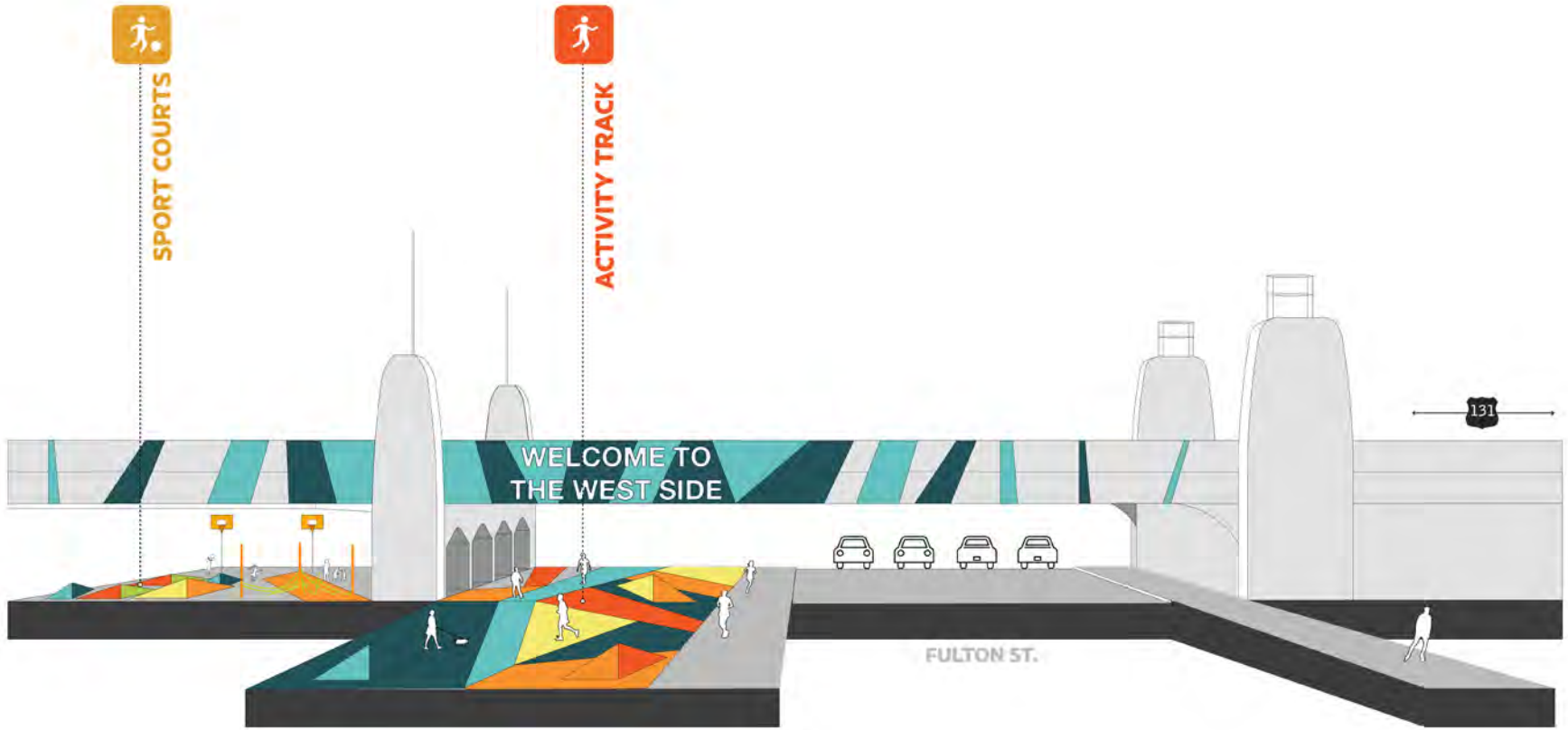
CREATE INVITING GATEWAYS UNDER US 131 THAT CELEBRATE NEIGHBORHOODS AND THE RIVER

When each green corridor, riverfront connector, existing, and proposed pedestrian tunnel passes under US 131, there is an opportunity to create a unique gateway that celebrates the River and the adjacent neighborhoods.

In some situations, such as the existing tunnels, the reconfiguration would require a significant overhaul.

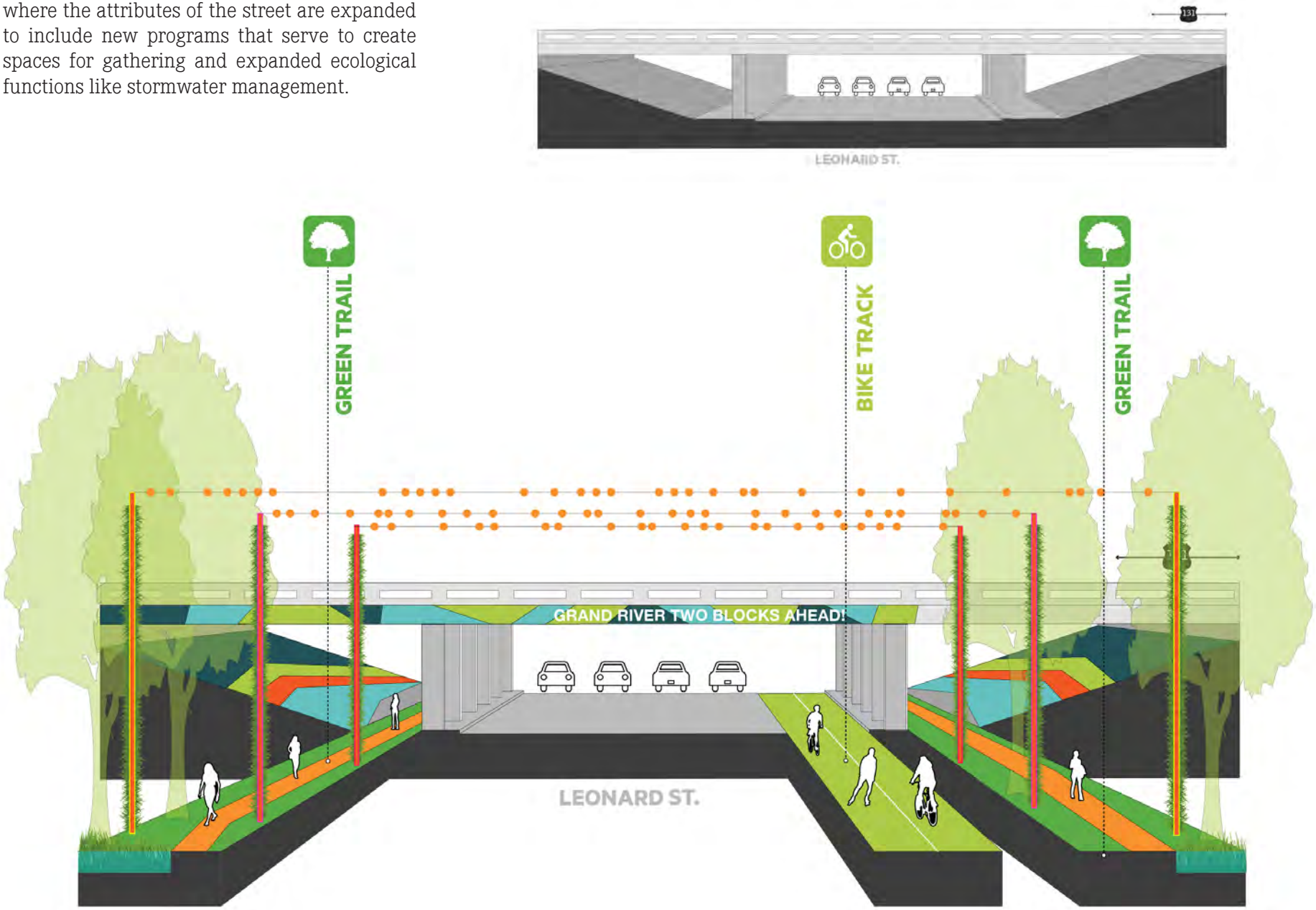
FIG 1.44: *Existing and proposed Fulton Street gateway under US 131*





Underpasses themselves could become places where the attributes of the street are expanded to include new programs that serve to create spaces for gathering and expanded ecological functions like stormwater management.

FIG 1.45: *Existing and proposed Bridge Street gateway under Leonard*



1.5 CREATE THE OUTDOOR ADVENTURE CITY

Part of what has always made Grand Rapids a unique place is the relationship people have to the River as a natural resource. Despite the introduction of dams, flood walls and buildings that turned their back to the River, some Grand Rapidians still maintained a connection to the River and continued to recreate. There are not many cities were you can go out and find a hundred fisherman casting right in the shadow of a downtown.

Recent efforts such as GRWW are also looking to capitalize on the River as a recreational asset. Not only does GR Forward wish to expand this, but so does the community. As a part of the outreach process, a card game was developed to help people discuss the possible future activities along the River. Groups were asked to select from a special deck of cards that included various types of spaces, elements, events, and activities. They chose their top

Open house river exercise cards

Activity on the waterfront

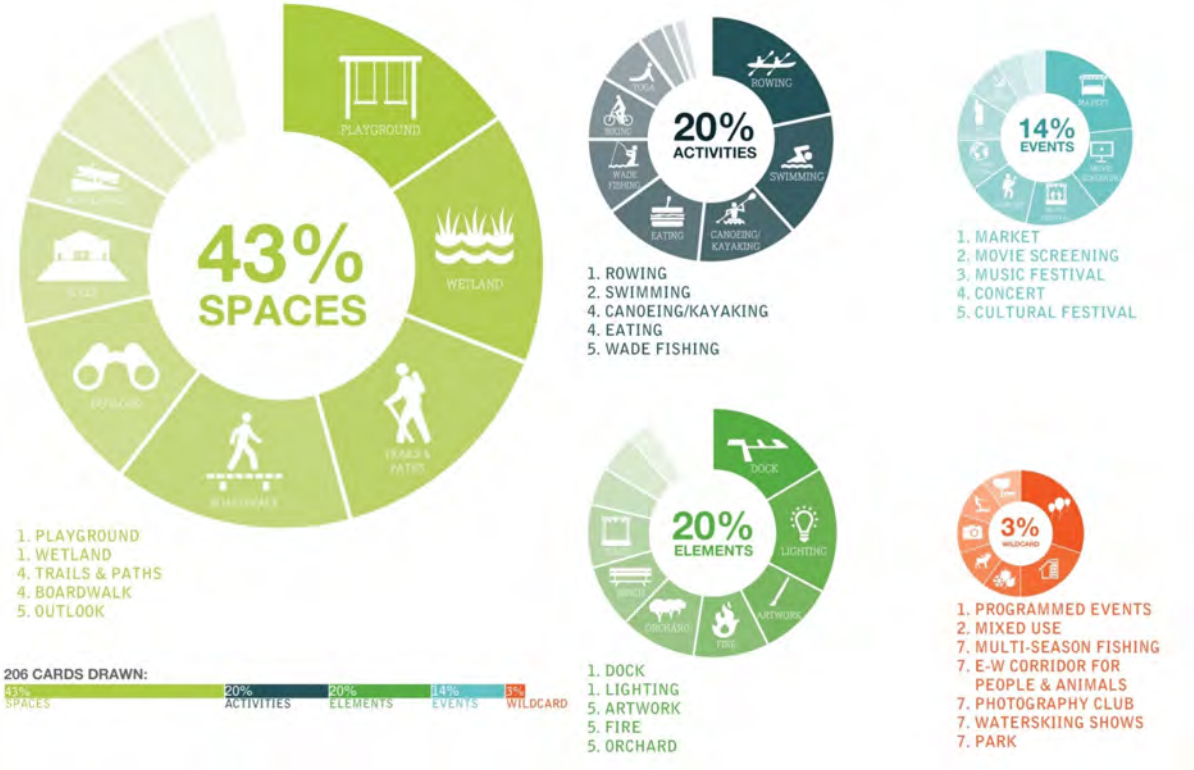


FIG 1.46: *Summary of open house responses to river element preferences*

five preferred cards and were then required to negotiate with their group to pick the group's top five overall. The results favored by 43% the creation of spaces, followed by activities and elements, both at 20% and events following at 14%, and, finally, 3% going to wild card options. A relevant take-away from the results was the clear indication that people are interested in the creation of diverse and interesting places, and many of these are compatible with the type of spaces that are compatible with riverfronts.

Additionally, the majority of the activities and elements identified as a part of this process are also compatible with the idea of creating an active adventure city – one that offers a unique connection to natural resources through outdoor activities and recreation designed to maximize the value of the River.

ENSURE SUFFICIENT RIVER ACCESS

>> Provide river access for construction and programming

GR Forward supports the program and process of the GRWW project, including access for people, walk-in boats, and trailers. When planning sites, it is assumed in certain locations that accommodations need to be provided for construction and maintenance access to the River during its transformation. [See Fig 1.30]

GR Forward also looks to continue to foster and enhance the use of the upper portion of the river for rowing, which is a primary use both historically and currently. Most recently, rowing is an active sporting use that is supported by the Grand Rapids Rowing Association, Grand Valley State University Rowing Alumni, Grand Valley State University Rowing Club, and the Northview Rowing Board, as well as by other educational, and recreational users.

GR Forward included rowing as an important program and has suggested the expansion of amenities, such as viewing stands that could be placed on the proposed phase 2 study site, the Westside Park. [see appendix]

GR Forward supports continued coordination with GRWW and the rowing community and recommends that an independent study looks at the impact of dam removal and placement of a water elevation control mechanism and its effect on the upper pool. The desired goal is to maintain and if possible, enhance the quality of this world class rowing course.

>> Identify solutions to address access deficiencies by adding more access points

While the reconfiguration of the River to support whitewater activities will expand the types of programing available in the River corridor, it will also limit other types of access given the increase in rapid configuration and velocity. Within the process, GR Forward has recommended increasing the number of other access points to 16, but have also been asked to increase the number of boat launches at the southern portion of the corridor to ensure access for motorized crafts that will be limited in the upper reaches of the corridor. Based on guidance from the River Corridor Steering Committee members, this plan recommends the location of a launch south of the mouth of Plaster Creek as well as opening the launch on the former Butterworth Landfill site, which will require some measures to protect the current cap from users.

MATCH PREFERRED SPACES, PROGRAM AND ACTIVITIES WITH OPPORTUNITY SITES

Building off the feedback from the public process, a series of priorities were developed that frame and expand upon the ideas that certain spaces can be prioritized as they relate to: the possible scale and location of the program, the expansion of program into all 4 seasons, activation of places, and the inclusion of art.

In this process, 15 priority riverfront opportunity sites were identified based upon their ownership status, their need for flood protection infrastructure improvements, and the potential use of these sites as construction staging area for the GRWW initiative [see Appendix 1 for more information on these sites]. Each of these sites has one of four types of open spaces that help to create the new park system.

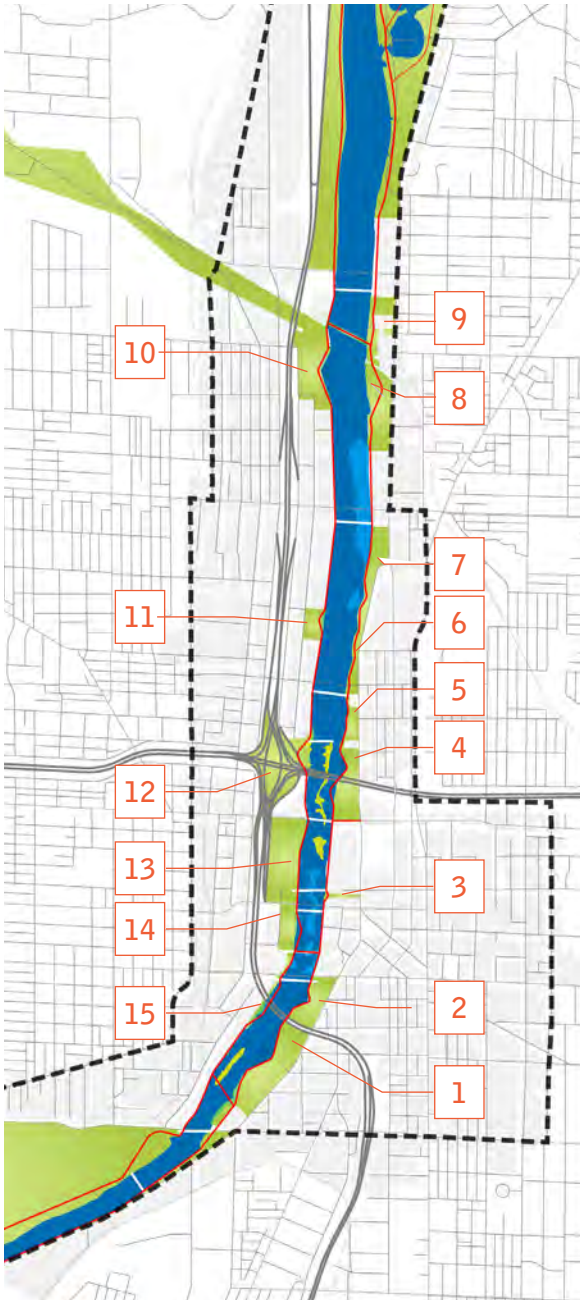


FIG 1.47: *Priority development sites*

1 201 Market - Create a destination, and large scale programmable open space

2 Fulton + Market - Provide access and flood protection via beach and lawn amphitheater

3 Lyon Street - Provide universal accessibility to the lower river walkway by ramp and stairs

4 MSU / KC / City - Create an active edge that creates opportunities to watch river events

5 6th Street - Create habitat and increase opportunities to manage stormwater

6 Canal Street - Renovate and upgrade existing park to blend with river corridor park system

7 Coldbrook - Create a demonstration of how the trail will look and feel

8 Adventure Park - Provide experience with the ecology while participating in extreme and active program

9 Baker Furniture - Create a public private partnership that increases program opportunities on the north east side by moving flood infrastructure onto private land

10 KCRC River Edge - Create a demonstration project that improves the water quality of the Indian Mill Creek

11 Grandview Park - Create a public private partnership that increases program opportunities on the Westside by moving flood infrastructure onto private land

12 Rapids View Park and Interchange Park - Allow for viewing of the most exciting part of the rapids

13 Ah Nab Awen Park - Create habitat and increase opportunities to manage stormwater

14 Public Museum - Exhibit the Grand River and expand opportunities for the museum to grow in its mission

15 GVSU - Create an upper and lower trail for varied experience and view of the river

1 Market Avenue Marina

2 Punk Island Urban Campground

3 City Island Plaza

4 Middle River Islands

5 Post Office

6 The Ledge

7 Bridge Park

8 Riverside Park Lagoon

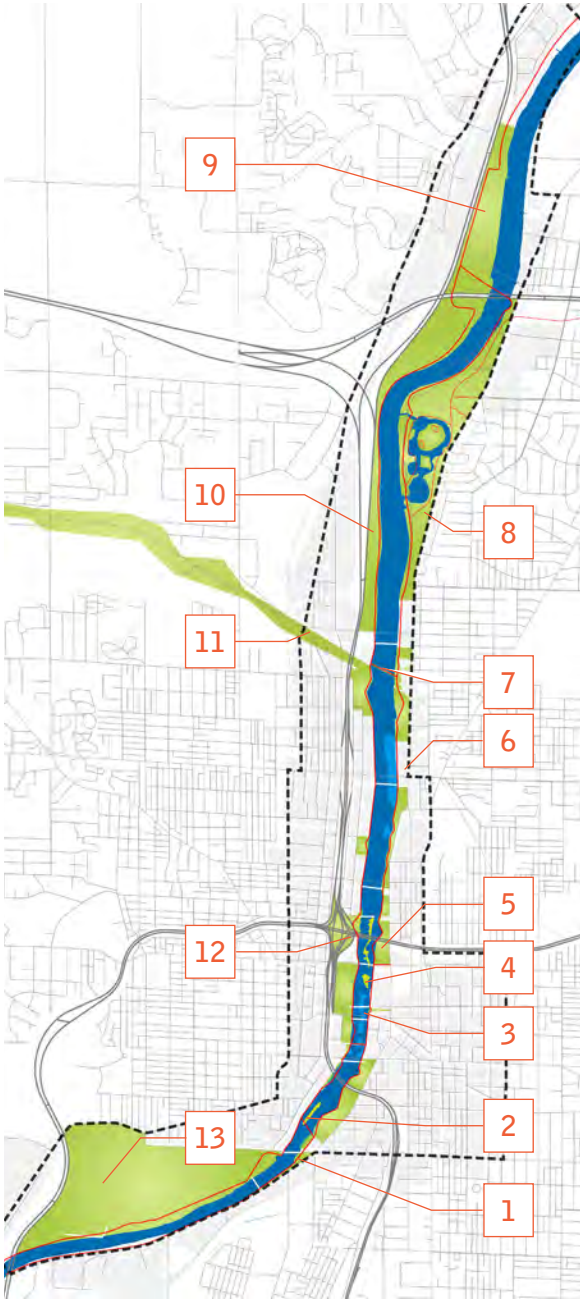
9 Walker Waterfront Park

10 Westside Park

11 Indian Mill Creek Greenway

12 Storm Park

13 Tech Park



GR Forward has identified 13 additional sites [see Appendix 1 for more information on these sites], which it considers to be important sites in the future development of the River corridor. These should be considered in a potential phase 2 effort.

Program elements identified by the public, GRWW, and GR Forward were distributed to the 15 sites based upon the scale and relevance to the adjacent plan or resources needed to support that program. By grouping programs, each of the priority opportunity sites become a unique park–a destination within a much larger park system that is tied together with a unifying trail.

Four major types of open spaces exist in the park system , excluding the trail, which was discussed previously in this chapter. Following are each of these types with the examples of the proposed concepts.

FIG 1.48: *Potential phase 2 development sites*

>> Adventure Park

The Adventure Park is an example of a new park that could be developed on land that is currently controlled by the City Water Department. It is contiguous with an abandoned railroad corridor that parallels the River which was acquired by the Michigan Department of Natural Resources, Michigan Department of Transportation and the City for a future non-motorized trail.

The goals of the Adventure Park are:

- Create an adventure landscape that allows for people to experience the ecology while participating in extreme and active programs
- Manage flooding/stormwater through the design of the trail landscape
- Create pedestrian access to the River and provide access to fish bypass and controls for dynamic barrier
- Provide a continuous multi-use trail connection
- Create habitat and increase opportunities to manage stormwater
- Allow for the expansion of the site as a development, both on-site and across the street
- Create a connection to the existing trail north of Leonard

FIG 1.49: *Proposed Adventure Park concept design*

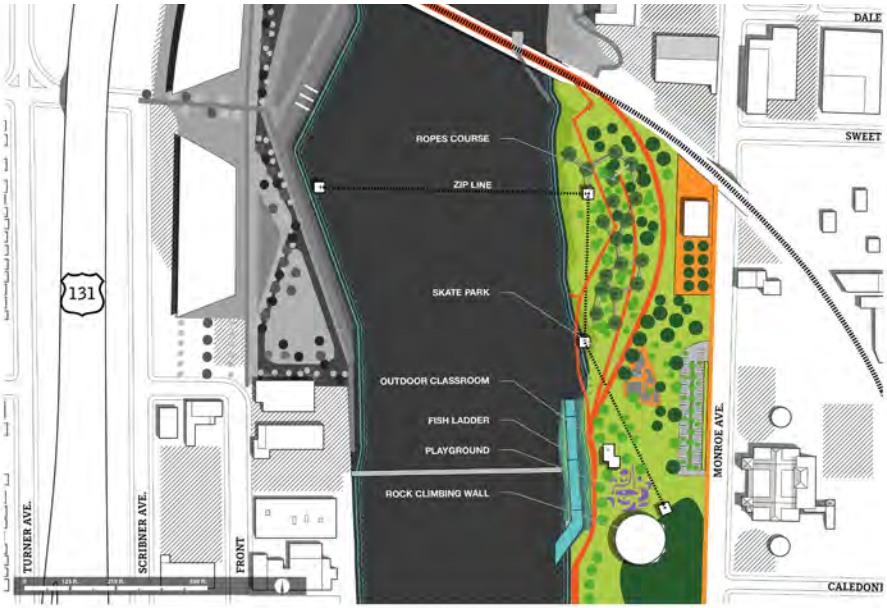


FIG 1.50: *Proposed Adventure Park site plan*

FIG 1.51: *Proposed Adventure Park aerial view*

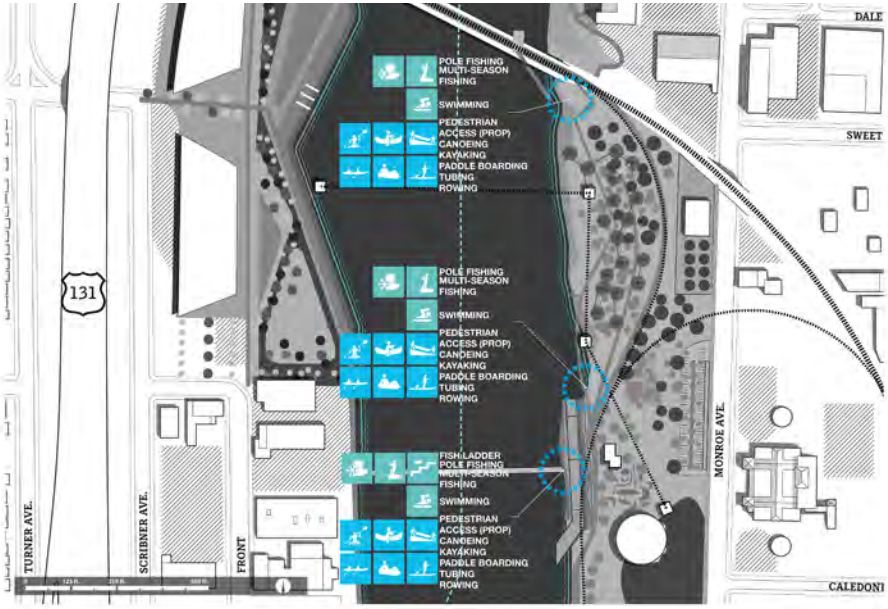


FIG 1.52: *Proposed Adventure Park river access and program*

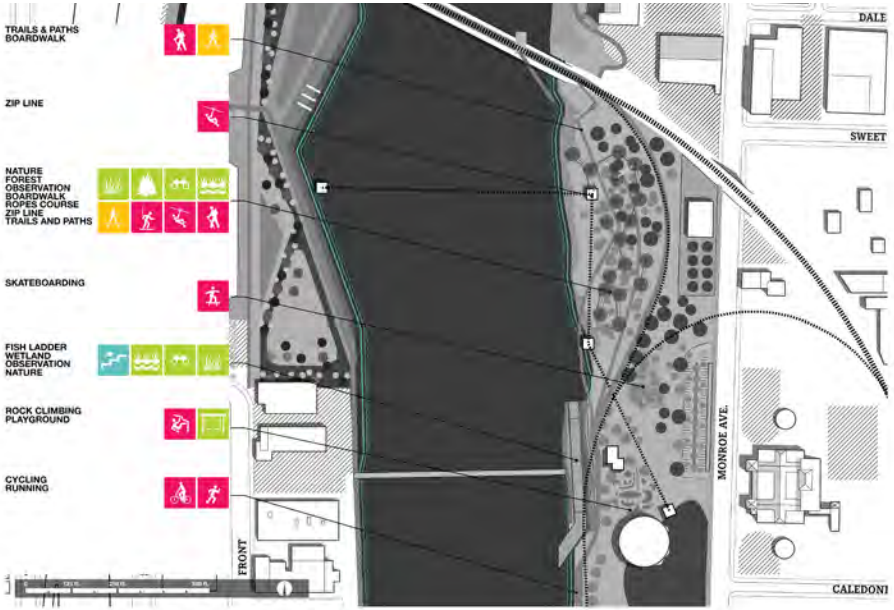
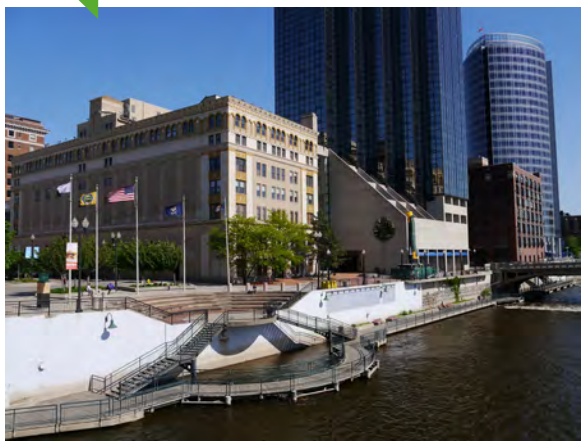


FIG 1.53: *Proposed Adventure Park land program*

>> Lyon Square

Lyon Square is an example of a public/private partnership site where some of the land is privately held and other portions of the site are publicly held. Depending on the level of investment from partners, the use of this type of site could serve the interests of both allowing for public access and use, as well as the use of some of the facilities for private programming and use.

"Lyon Square is awkward, needs to be rethought, it has much potential."
- Open house collaborative map comment



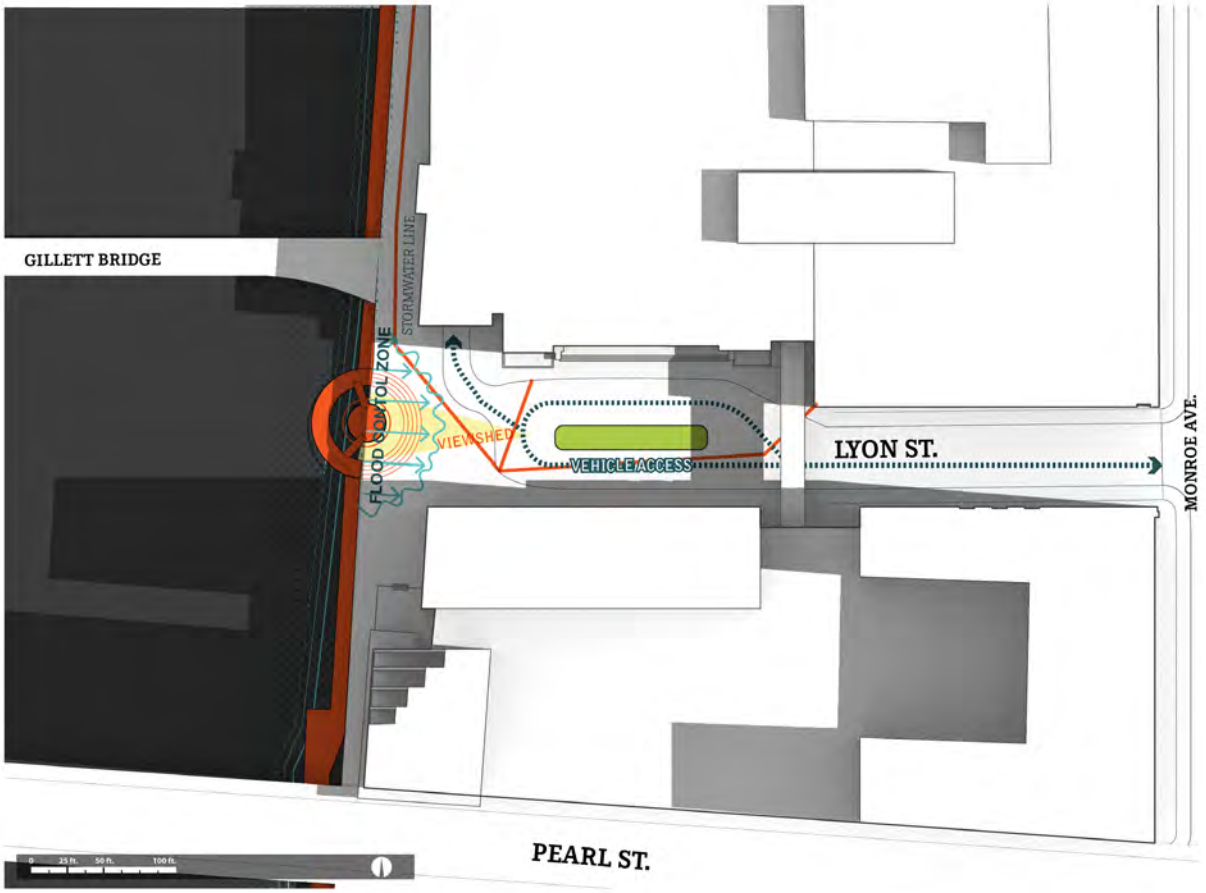


FIG 1.54: *Lyon Square opportunities and constraints*

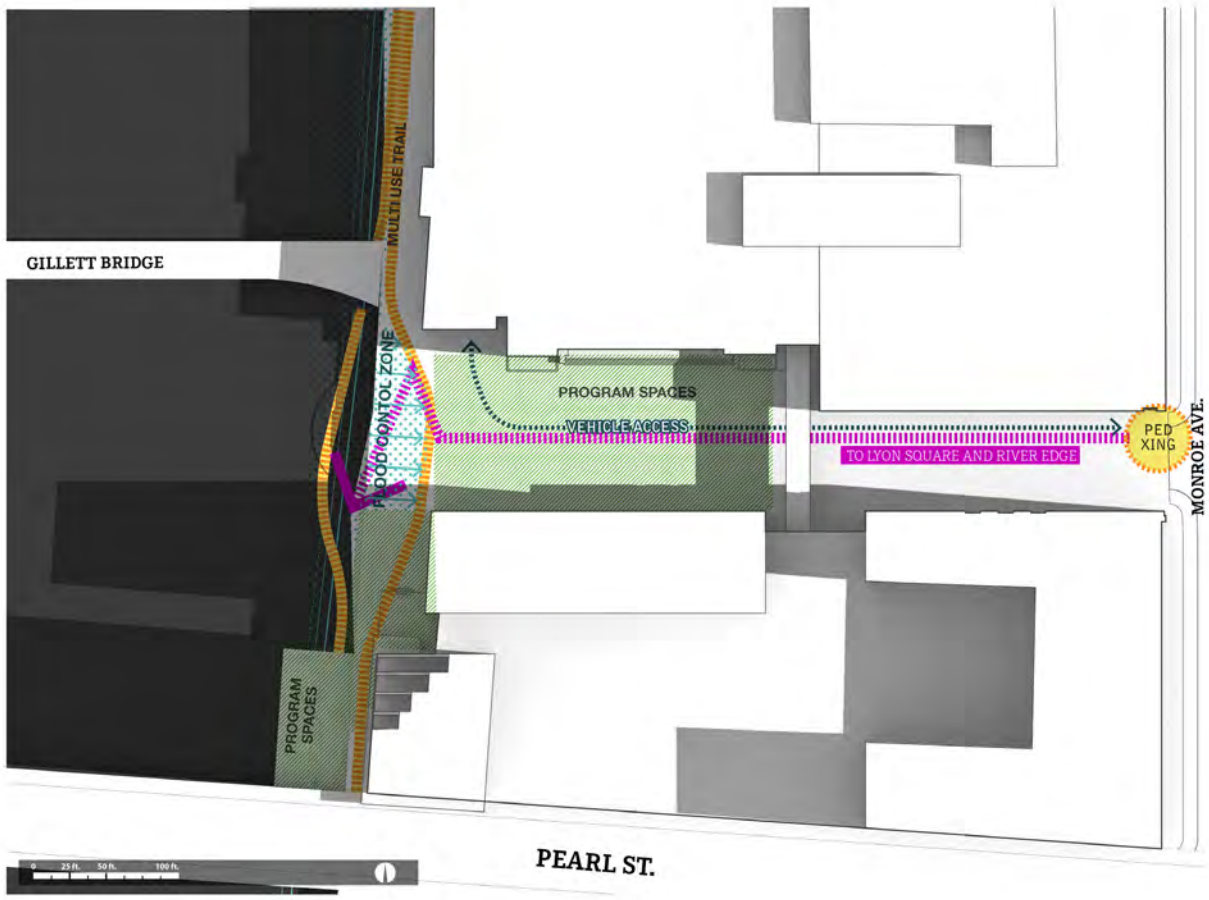


FIG 1.55: *Proposed Lyon Square concept design*

The goals of Lyon Square are:

- Create a public/private development opportunity that includes 2600 sqft of events space and 1300 sqft [100 tables] of dining area
- Manage flooding by raising grade to freeboard deficient, then provide additional flood protection via emergency measures
- Provide universal accessibility to the lower river walkway by ramp and stairs
- Demonstrate ecological capacity along the River's edge in an urban location
- Provide a continuous multi-use trail connection and a connection north
- Create an events plaza in Lyon Square by removing curbs and resurfacing the street, while providing parking flow at non-event times
- Reconfigure lower walkway for increased programming and water elevation changes

FIG 1.56: *Proposed Lyon Square site plan*

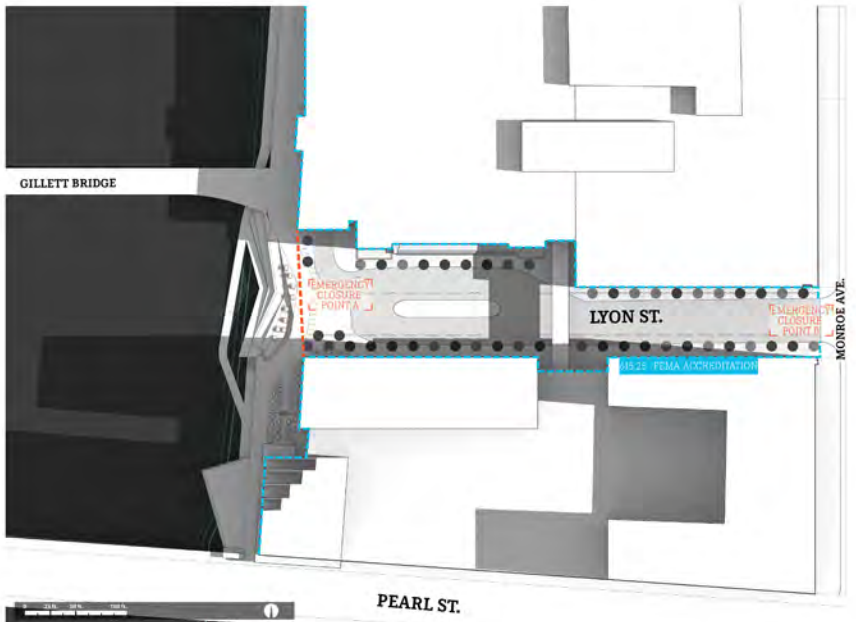


FIG 1.57: *Proposed Lyon Square water access*

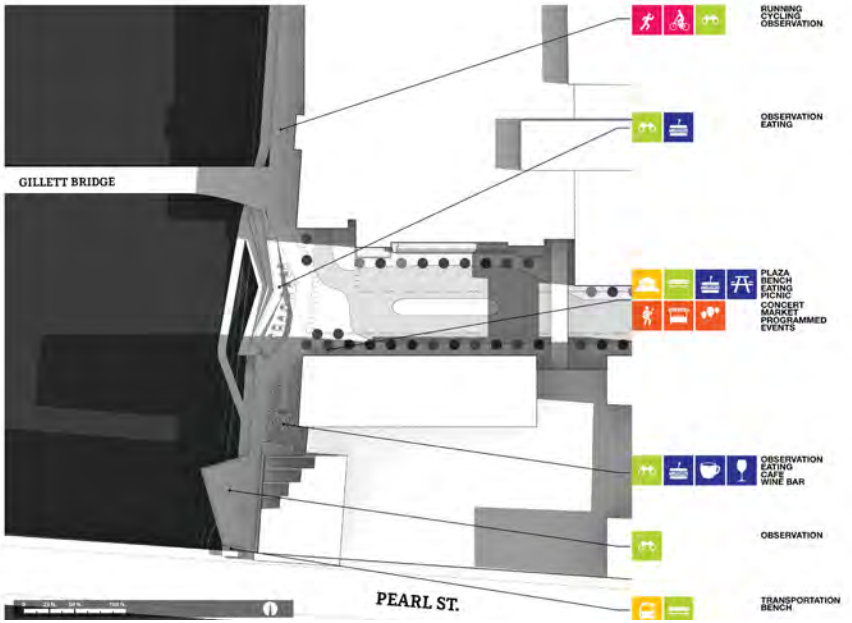


FIG 1.58: *Proposed Lyon Square land program*

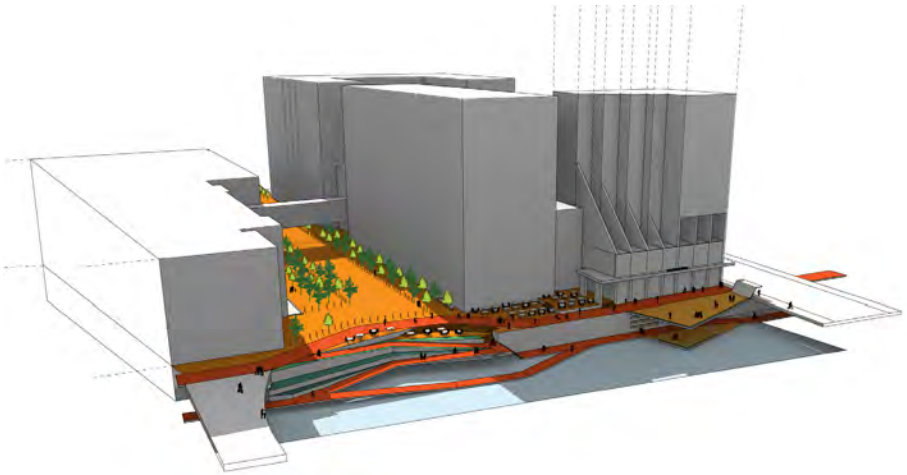


FIG 1.59: *Proposed Lyon Square aerial view*

>> 201 Market Avenue

201 Market Avenue is an example of a publicly owned open space/development parcel. It is a good example of how City services and industrial uses can be converted to higher and best uses that create a new city destination and accommodate new development, as well as provide access to the River. The site is located across the river from Grand Valley State University and is adjacent to one of the few remaining river islands located near Downtown. It has the potential to become a major destination for an emerging neighborhood and for the existing near neighborhoods that can use Cherry Street as their connection to the river.

One of the main features of this development is the large open space referred to as the "Green Living Room." This space was conceived to create a large, public open space for all of Grand Rapids and provide a unique connection to the river. Much like Bryant Park or the Great Lawn in front of the J Pritzker Pavilion in Millennium Park, this space is meant to provide flexible programming and allow for larger outdoor events, while allowing people to interact with the riverfront day to day.

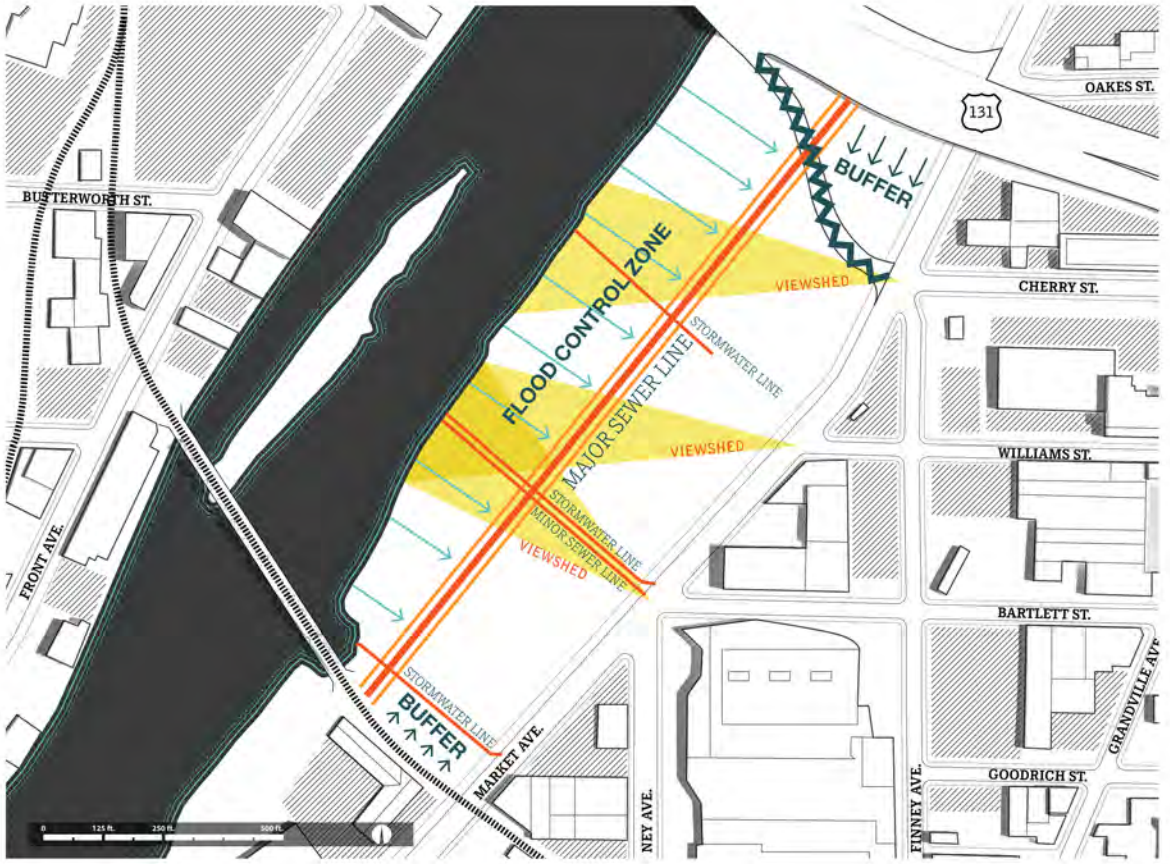


FIG 1.60: *201 Market Avenue opportunities and constraints*

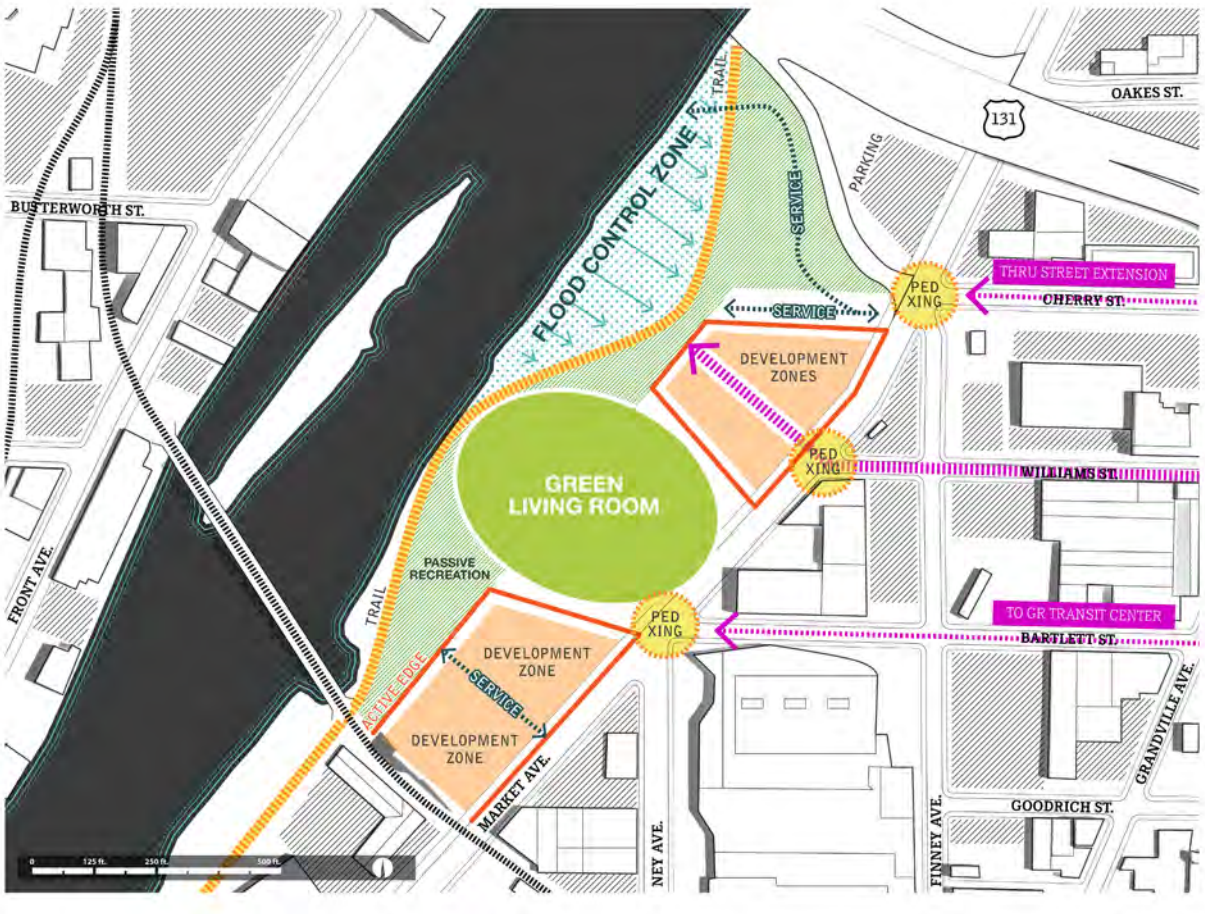


FIG 1.61: *Proposed 201 Market Avenue concept design*

The goals for this project include:

- Create a destination, and large scale programmable open space
- Manage flooding through the design of the landscape
- Provide an ecological edge that manages on-site stormwater and provides River habitat
- Provide River access including boat access
- Provide a continuous multi-use trail connection and a connection north and south
- Ensure there are active uses facing both Market Avenue and the River
- Buffer US 131 and the rail line from the open space
- Create safe intersections along Market Avenue
- Establish a gateway at Cherry Street
- Establish new housing and supporting uses to activate the River
- Visually extend "Downtown" south along the River

FIG 1.62: *Proposed 201 Market Avenue concept design*

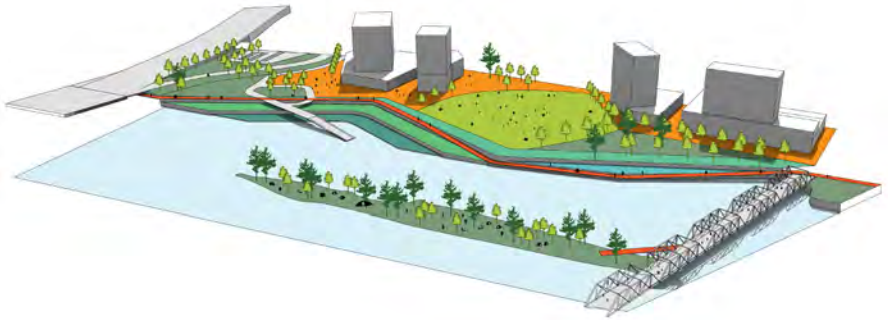


FIG 1.63: *Proposed 201 Market Avenue aerial view*

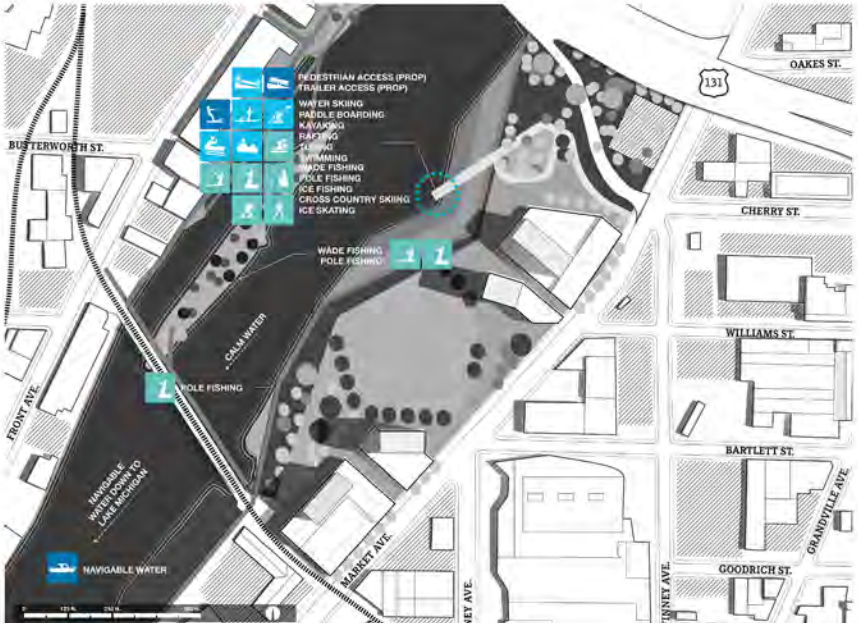


FIG 1.64: *Proposed 201 Market Avenue water access Option A*

FIG 1.65: *Proposed 201 Market Avenue land programs*

FIG 1.66: *Proposed 201 Market Avenue aerial rendering*

>> Rapids View and Interchange Park

Rapids View [Fish Ladder] and Interchange Park is an example of a park renovation which expands and shifts its program to support and view the enhanced River program. It also demonstrates how a piece of stormwater infrastructure can be utilized as both a visual and programmatic amenity that expands the scale of the park and allows for more trail bandwidth.

FIG 1.67: *Rapids View and Interchange Park opportunities and constraints*

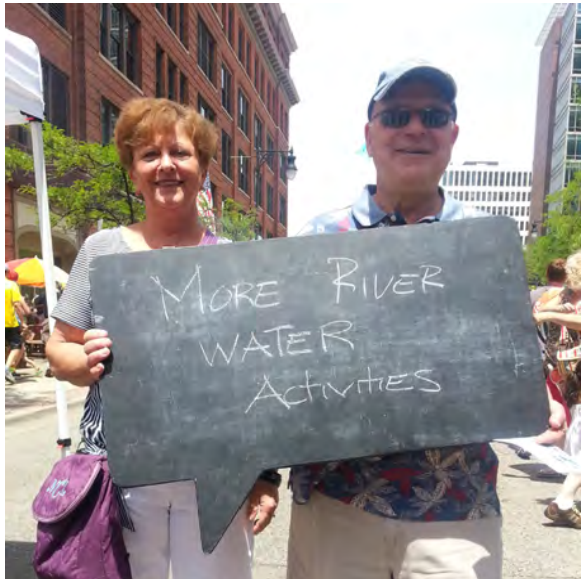


FIG 1.69: *Proposed Rapids View and Interchange Park concept design*

The goals of Rapids View and Interchange Park are:

- Create a public space in the River for the general public to experience the River and activities
- Allow for viewing of the most exciting part of the rapids
- Create pedestrian access to River
- Provide a continuous multi-use trail connection
- Create a link to the interchange Park
- Create a large scale demonstration of stormwater technology
- Create gateways to the City that celebrates water

FIG 1.70: *Proposed Rapids View and Interchange Park site plan*

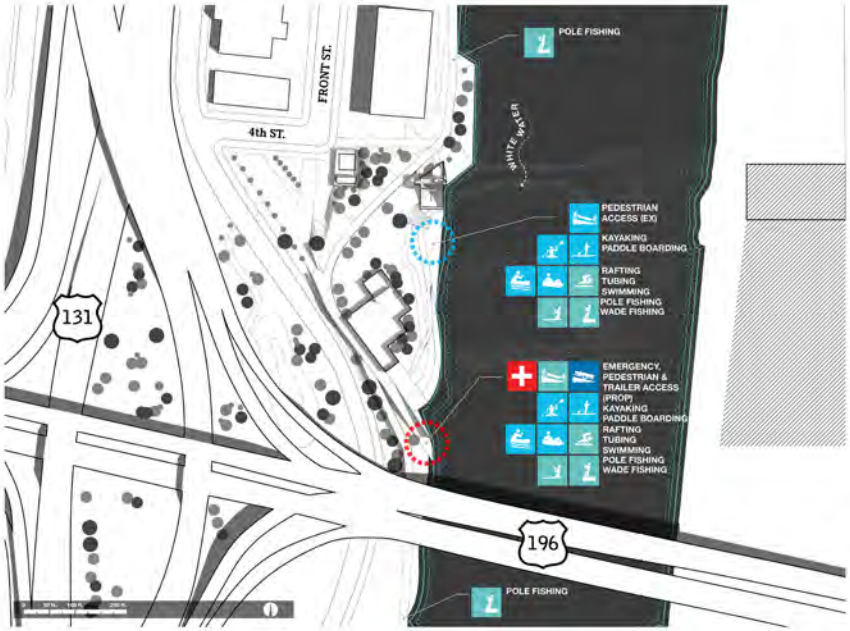


FIG 1.71: *Proposed Rapids View and Interchange Park water access*

FIG 1.72: *Proposed Rapids View and Interchange Park land program*

FIG 1.73: *Proposed Rapids View and Interchange Park aerial view*

IMPLEMENTATION APPROACH

There are a number of major projects built into the goal of restoring the River and several parallel paths for implementation with a variety of drivers, stakeholders, and owners, both public and private. The three major pieces–the River, the trail, and the opportunity sites–all have to work in concert to provide the needed improvements to the flood infrastructure, regional connectivity, and riverfront amenities. For each of these projects, understanding the demands and impact of the FEMA process will be critical. As a determinate to the form of the trail system will be understanding where public use and access can be gained along the edge of the trail, as described in detail under the trail section of this goal. Additionally, a critical point in the opportunity sites will be how landowners and public agencies can work together to provide protection, access and amenities potentially prior to the implementation timeline for the public side improvements. Given the complexities of a project of this magnitude, the recommendation that this be managed and implemented as a singular capital works projects is critical to the success of this goal.

To that point, the development of an interconnected trail system is a priority project for GR Forward. To help make this happen, specific immediate actions are necessary:

- Continue to engage a leadership team to negotiate with landowners to create continuous access
- Commission an economic benefits/impact analysis study to help inform the decision-making process
- Continue to update scenarios that describe impacts on decision-making related to cost and time including:
  1. Prioritize acquisitions of parcels that supply needed access or are major barriers in the connecting of the trail system
  2. Engage the MDNR to identify riverfront owners with environmentally compromised sites who are willing to do a land swap for clean sites away from the River. Then proceed with a brownfield redevelopment that includes public open space, amenities, access, and the multi-use trail
  3. With the leadership team, work quickly to determine which land owners are hesitant to participate. Assume that they will fall under category of no agreement and revise model to reflect beneficial costs
- Outline the preferred method[s] that include time and cost constraints yet to be determined, such as construction timeline for FEMA work and/or GRWW. Cost constraints should be based on a known budgetary maximum that includes all grants and all public and private contributions that will still allow for the completion of the trail system as one capital project over a specific timeline

In addition to moving the trail forward, the following projects are implementation priorities for the Grand River Corridor:

- Continue to work with partners to improve water quality
- Identify themes, artists and a curator to create public art that enhances the local knowledge of the River
- Coordinate with Grand Rapids Whitewater on design, permitting and construction
- Develop final designs to achieve freeboard accredited status from FEMA and target flood infrastructure implementation coordinated with private development

1 RESTORE THE RIVER AS THE DRAW & CREATE A CONNECTED AND EQUITABLE RIVER CORRIDOR

1.1 Integrate Art, Education, Infrastructure and Ecology

Recommendation	Timeframe	Responsibility / Partners	Source of Funds
Create varied infrastructure to not only protect, but enhance and amenitize the river	ongoing	City of Grand Rapids/DGRI/ State & Federal agencies	TBD
Initial Action Steps -			
Outside of the guidelines for the trail and concepts for the 15 priority opportunity sites, utilize proposed sectional typologies for future development that create resilient and dynamic flood infrastructure			
Enhance ecological systems	ongoing	DGRI	DGRI
Initial Action Steps -			
Develop a marketing budget that supports the idea that Grand Rapids is a place where the wilderness and City collide to create a place unlike any other [reflected in Non-Capital Costs]			
Outside of the guidelines for the trail and concepts for the 15 opportunity sites, support the creation of habitat proposed in the master plan			
Follow the example of the Grand Rapids Public Museum in integrating education, infrastructure, and ecology	ongoing	City of Grand Rapids/DGRI/ Foundation	City/DGRI/Foundation
Initial Action Steps -			
Identify other opportunities like the museum exhibit project and building renovation that support the expansion of knowledge and demonstrate how education, ecology and infrastructure can work together			
Focus on improving water quality for the Grand River system to ensure healthy use and access	ongoing	City of Grand Rapids /DGRI/ Foundation/Grand River watershed municipalities/WMEAC/Governor's Administration, Office of Great Lakes, MDEQ, MDNR, MDARD	DGRI, LGROW , Municipalities, State, Federal, Private, [Watershed wide cost]
Initial Action Steps -			
Recruit a leadership team and embed it in the GR Forward and river restoration processes to achieve the water quality agenda working with the region and state			
Address regional water quality agenda and identify areas of alignment with existing State strategies			
Embed water quality in the messaging, branding and funding initiatives of the river restoration effort			
Plant buffer and filter strips along priority acreage adjacent to, and encompassing the Direct Drainage Subwatershed and Urban Waters Federal Partnership area			
Encourage local, regional, and state policies and incentives that favor low impact development			
Prioritize addressing pathogen pollutants contributed to the Grand River watershed by failing septic systems by advocating for statewide septic rules and improved septic regulation practices in counties [initially prioritizing Kent County] within the Grand River Watershed			
Implement projects identified by the City of Grand Rapids Green Infrastructure Opportunity Assessment			

Create a landscape gallery of public art along the river corridor	within 5 years	Arts Leadership Team	Private
Initial Action Steps -			
Recruit a leadership team to oversee fundraising, selection process, permitting, maintenance and liability responsibilities, etc.			
Hire a conservation/restoration consultant to advise on installation details			
Design and implement a community engagement component to allow Grand Rapidians opportunities to participate in decision-making			
Develop interpretive materials – an "art trail" guide			

1.2 Reinforce the Grand Rapids Whitewater Initiative

Recommendation	Timeframe	Responsibility / Partners	Source of Funds
Reinforce the Grand Rapids Whitewater Initiative	within 5 years	City of Grand Rapids / DGRI / private & foundation support / State & Federal agencies	City / DGRI / private & foundation support /State & Federal agencies
> Grand Rapids Whitewater Rapid Restoration	within 5 years	City / DGRI / private & foundation support /State and Federal/GRWW	City / private & foundation support /State & Federal agencies
Initial Action Steps -			
Continue coordination of River Edges with GRWW regarding construction phasing and access [costs include the rapids restoration]			
> Park Island	within 5 years	City / DGRI / private & foundation support /State and Federal/GRWW	City / DGRI / private & foundation support /State and Federal
Initial Action Steps -			
Coordinate the planning, design, permitting and construction with the rapids restoration			
> City Island	within 5 years	City / DGRI / private & foundation support /State and Federal/GRWW	City / DGRI / private & foundation support /State and Federal
Initial Action Steps -			
Coordinate the planning, design, permitting and construction with the rapids restoration			

1.3 Make Grand Rapids a hub in a regional trail system while creating universal access along the river on both the east and west sides			
Recommendation	Timeframe	Responsibility / Partners	Source of Funds
Amenitize the river to make it a regional draw	ongoing	City of Grand Rapids / DGRI / private & foundation support / DNR and Federal	City / DGRI / private & foundation support /State and Federal
Initial Action Steps -			
Confirm and reinforce regional connection to GR and the other trail networks			
Establish a marketing strategy for making Grand Rapids the center of the system			
Establish regional programming that will reinforce and attract users of the trails			
Coordinate with large infrastructure easement holders and the DNR to allow recreational access linking multiple trails in multiple locations			
Create a robust trail system on both sides of the river	ongoing	City of Grand Rapids / DGRI / private & foundation support / State and Federal agencies / WMEAC	City / DGRI / private & foundation support /State & Federal agencies
Initial Action Steps -			
Continue to engage a leadership team to negotiate with landowners to create continuous access			
Continue to update scenarios that describe impacts on decision-making related to cost and time			
Outline the preferred method[s] that include time and cost constraints yet to be determined, such as construction timeline for FEMA work and/or GRWW			
Align access with the water trail and the rapids	ongoing	City of Grand Rapids / DGRI / private & foundation support / State and Federal agencies	City / DGRI / private & foundation support /State and Federal agencies
Initial Action Steps -			
Identify sites on the Westside where access is limited to be targeted for purchase, trade or redevelopment			
Identify privately owned parcels throughout the Corridor where public access can be gained via private and public development partnerships			
Provide additional boat access south of the rapids for greater access for motorcraft			

1.4 Enhance neighborhood access to the river along east/west connections			
Recommendation	Timeframe	Responsibility / Partners	Source of Funds
Create a series of east/west green corridors to connect neighborhoods to the River	within 5-10 years	City of Grand Rapids / DGRI	DGRI / City of Grand Rapids / MDOT
> Ann Street, The Northern Gateway	within 10 years	City /State	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
> Sweet/Richmond, The Parkway	within 10 years	City /State	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
> Leonard, Street Life	within 5 years	City /State	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
> 6th/Newberry, The Waterway	within 5 years	City /State/ DGRI	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			

Recommendation	Timeframe	Responsibility / Partners	Source of Funds
> Pearl/Lyon, Downtown	within 5 years	City /State	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
> Fulton, Entertainment	within 5 years	City /State	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
> Wealthy, Innovation	within 5 years	City /State	Public/Private/Foundation/ MDOT
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			

Recommendation	Timeframe	Responsibility / Partners	Source of Funds
Improve streets that make important connections to riverfront parcels	within 5 years	DGRI/City of Grand Rapids / State	Public [City, State, MDOT]
> Market	within 5 years	DGRI/City /State	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
> Cherry and Coldbrook	within 10 years	DGRI/City /State	Public [City, State]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
> Webster and 10th	within 10 years	City /State	Public [City, State, MDOT]
Initial Action Steps -			
Analyze capacity for landscape, green infrastructure and roadway improvements			
Determine priority: a.] if maintenance cycle is coincidental with timeframe b.] proceed with retrofit regardless c.] coordinate with design/construction of riverfront open spaces			
Design and construct streetscape and roadway			
Create inviting gateways under US 131 that celebrate neighborhoods and the river	within 5 years	City of Grand Rapids / DGRI	City / DGRI / private & foundation support MDOT, USDOT
Initial Action Steps -			
Identify and priority green corridors, riverfront connectors and new pedestrian underpasses			
Analyze highway overpass, and determine if maintenance cycle is coincidental with timeframe			
Design and construct gateways			

1.5 Create the Outdoor Adventure City			
Recommendation	Timeframe	Responsibility / Partners	Source of Funds
Ensure sufficient river access	ongoing	City of Grand Rapids/DGRI/ State and Federal agencies	State and Federal agencies
Initial Action Steps -			
Provide river access for construction and programming			
Identify solutions to address access deficiencies in proposed access			
>>>Determine feasibility of Butterworth and Plaster Creek sites			
>>>Design and construct downstream launches for motorcraft			
Initiate independent study to examine the impact of both dam removal and placement of a water elevation control mechanism on upper pool			
Match preferred spaces, program and activities with opportunity sites	within 10 years	DGRI / City of Grand Rapids	City / DGRI / State / Federal private & foundation support
> 15 Priority Opportunity Sites	within 10 years	DGRI/City	City / DGRI / State / Federal private & foundation support
Initial Action Steps -			
Per the plan recommendation, develop initial 15 opportunity sites based on coordination with public and private owners			
> 13 Phase 2 Opportunity Sites	within 10 years	DGRI/City	DGRI / CITY / Foundation
Initial Action Steps -			
Per the plan recommendation, initiate a 2nd concept development phase			