

RIVER FOR ALL

GRAND RIVER CORRIDOR

IMPLEMENTATION PLAN AND RIVER TRAIL DESIGN GUIDELINES

NOVEMBER 2019

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INTRODUCTION: A 'RIVER FOR ALL'



A 'RIVER FOR ALL'

A 'River for All' symbolizes the significance of the Grand River to the City of Grand Rapids, Kent County, and West Michigan as a prominent feature that will enhance the quality of life for all through activation, beautification, restoration, and connection. The river improvements and public spaces along mixed-use projects. the riverfront will be an amenity for all residents and guests of Grand Rapids to enjoy. Bike routes, The Grand River Corridor Implementation Plan and pedestrian trails, and tributaries will provide connec-*River Trail Design Guidelines* (River Corridor Plan) tions to residents outside of the river corridor and builds upon the above plans and initiative to further into the adjacent neighborhoods providing a critical their vision into the next step towards implementa-'missing link' for the region. The *Grand River Corridor* tion. Implementation Plan and River Trail Design Guide*lines* project and the effort to restore the rapids and **River Corridor Plan Components** enhance flood protection in the Grand River are all part of the vision to create a River for All.

GRAND RIVER CORRIDOR PLANNING AND IMPLEMENTATION

The 2012 Green Grand Rapids Master Plan is a key document in developing the vision of restoring the rapids within Grand Rapids and creating additional public open spaces and a riverwalk along the corridor. Green Grand Rapids set in motion Grand Rapids Whitewater's initiative to transform the Grand River from an underutilized corridor into a riverfront amenity benefiting the entire city.



INTRODUCTION **1.1 DOCUMENT SCOPE & PURPOSE**



The community's 2015 GR Forward Plan and the 2017 Parks and Recreation Strategic Master Plan envision transforming the Grand River waterfront into a 7.5-mile river edge recreation trail that reconnects the city and its visitors to the riverfront, maintains or increases the level of flood protection, and catalyzes private investment through the development of new

The River Corridor Plan is comprised of three components which were developed at the same time and driven by the same public outreach process. Each were written as stand-alone documents:

- 1 Grand River Corridor Design Guidelines (Design Guidelines) - Provides design guidelines for the future river trail and river edge improvements along the 7.5-mile river corridor. This document is the Design Guidelines.
- 2 Conceptual Design for Six Opportunity Sites along the Grand River - Expands on the Design Guidelines to create conceptual design for six sites along the Corridor. These include:
 - Leonard to Ann Trail Connection
 - ~ Water Department Storage Yard Site

- ~ Coldbrook Decommissioned Water Treatment Plant Site
- ~ North Monroe Redevelopment Site
- ~ Grand Rapids Public Museum
- ∼ Fish Ladder Park

3 The Strategic Asset Management Plan

Examines how the future improvement recommendations outlined in the Design Guidelines should be managed and maintained for their long-term success.

PROJECT EXTENTS

The River Corridor Plan extends along 7.5 miles of the Grand River edge within the Grand Rapids city limits. (North on the west bank to Nason Street, north on the east bank to 4-Mile Road, and south on the west bank through Butterworth Area Open Space, and south on the east bank to Hall Street -See Figure 1.1.1)

PURPOSE OF THE DESIGN GUIDELINES

The first component of River Corridor Plan, the *Grand River Corridor River Trail Design Guidelines* (Design Guidelines), establishes general requirements for the design of the Grand River edge at and above the normal high water level (approximately 2-year frequency event at 16,000 cfs) to create a cohesive and accessible river trail system that serves the entire Grand Rapids community. The Design Guidelines was developed through an iterative process of research, discussion, and coordination with the design team, City, and advisory and focus groups.

Intent

The following describes the overall intent for the Design Guidelines:

- Provide a long-range planning document to help guide decision makers and developers in transforming the Grand River from an underutilized and disconnected river trail system into an integrated, accessible, community asset.
- Capitalize upon the proposed 'rapids' restoration efforts to expand recreation options along the Grand River Corridor.



Figure 1.1.1 - General Project Extents

- Provide guidance to create a connected network of diverse upland, riparian, and riverine habitat areas.
- Recommend opportunities to celebrate the historical and cultural significance of the existing landscapes along the river's edge by recognizing their intrinsic value and making improvements to bring their stories to life.
- Establish a unified design vocabulary that acknowledges and allows for the diverse character of areas along the corridor to be expressed.

- Provide implementable design guidelines that direct future improvements along the river's edge.
- Define protocols and processes for reviewing development proposals and measuring their consistency with the Design Guidelines. These should leverage existing planning documents and policies and build upon these resources.

DESIGN GUIDELINES ORGANIZATION

The Design Guidelines are organized by *Corridor-Wide Guidelines* which provide consistency, identity, and connectivity for the entire corridor, and *Site Type & Character Guidelines* which recognize and celebrate the diversity and uniqueness, history, and potentials of the corridor.

To help with reading and understanding the Design Guidelines, the chapters and subsequent sections are broken down as follows:

CHAPTER 1 INTRODUCTION - A 'RIVER FOR ALL'

INTRODUCTION - A RIVER FOR ALL

Section 1.1 Document Scope & Purpose Introduces the Design Guidelines and describes the intent and organization of the Design Guidelines and its relationship to other planning documents.

Section 1.2 Public Outreach Summary

Provides a brief summary of the public outreach process that guided the development and shaped concepts and strategies for the Design Guidelines.

CHAPTER 2 CORRIDOR-WIDE GUIDELINES

Section 2.1 Circulation

Provides corridor-wide implementation strategies for the river trail system, neighborhood connections, and mid-block crossings.

Section 2.2 River Edge

Provides corridor-wide guidelines for river edge improvements and provides prototypes for naturalizing river edges, enhancing river access, and improving the river edge within private development. This section also provides goals and considerations for design of any improvements as part of wall removal and replacement.

Corridor-Wide Guidelines provide consistency, identity, and connectivity for the entire corridor.

Site Type & Character Area Guidelines recognize and celebrate the diversity and uniqueness, history, and varied potentials of the corridor.

Section 2.3 Resilient Systems

Provides corridor-wide guidance for <u>stormwater man-agement</u> and <u>planting strategies</u> along the river's edge that support the goals of the *Grand Rapids Sustainability Plan* and the *Green Grand Rapids Plan*.

Section 2.4 Signage, Identity, & Wayfinding

Provides corridor-wide strategies and framework for future identity, wayfinding, and cultural, historical and ecological education signage along the river corridor.

e Section 2.5 Public Art

Describes Grand Rapids' tradition of public art and provides a strategy for public art within the corridor.

Section 2.6 Cultural & Historical Themes

Describes potential cultural and historical themes at the heart of the corridor, and provides a strategy for how those themes might be incorporated into future improvements.

CHAPTER 3 SITE TYPE & CHARACTER AREA GUIDELINES

Section 3.1 Site Types & Character Areas

Identifies four the 'site types' - Natural Riverfront Parks, Industrial Development Areas, Public Riverfront Parks, and Urban Riverfront Parks - and subsequent 'character areas' that are used to guide developers along the corridor with making design decisions.

Section 3.2 Materials

Provide a framework for materials and site components used for the future design of public and private spaces along the corridor.

CHAPTER 4 IMPLEMENTATION

Section 4.1 Priorities & Phasing

Identifies priorities for trail connections and phasing for site improvements based on coordination with the River Restoration project.

5

Common Questions that a user of the Design Guidelines may have and where to find the answers:

Where do I start?

Section 3.1, Site Types and Character Areas, Figure 3.1.1 illustrates the 4 site types and 11 character areas. Identify which site type and character area your property is located and proceed to the pages that include the guidelines that are specific to that area. Next see **all the sections in Chapter 2** for sections that provide guidelines that are corridor-wide.

What are the design requirements for the River Trail?

Section 2.1, Circulation Guidelines provides design requirements for the River Trail. Section 2.4, Signage, Identity & Wayfinding illustrates examples for incorporating River Trail identity. Section 3.2, Materials gives instructions on paving and finish for the River Trail and identity materials palette.

Where do I provide river access?

Section 2.1, Circulation Guidelines, Figure 2.1.7 identifies desired locations for river access.

How do I improve the river edge if the floodwall is removed?

Section 2.2, River Edge Guidelines provides strategies for improvements when the floodwall is removed.

What opportunities are there if I have a stormwater outfall on my property?

Section 2.3, Resilient Systems includes a section on low-impact stormwater management and provides concepts daylighting stormwater outfalls.

What are the planting requirements?

Section 2.3, Resilient Systems includes a section on **planting guidelines** for the corridor, as well as a recommended plant list.

What type of signage do I need to provide?

Section 2.4, Signage, Identity & Wayfinding describes the signage strategy for the corridor.

Where should we put public art?

Section 2.5, Public Art, Figure 2.5.1 identifies recommended locations for public art within the corridor.

What opportunities are there for site cultural or historical interpretation?

Section 2.6, Cultural & Historical Themes, provides strategies for incorporating cultural and historical themes along the corridor that relate to the First People and Logging and Furniture Industries.

What freedom do I have with materials?

Section 3.1, Materials is divided into two sections: 1) Corridor-Wide Site Components that will provide for consistency and identity throughout the corridor, and 2) Materials by site type which provide a variety of materials that are recommended for specific character areas and allow for options.

What site furnishings and site components am I required to use?

Section 3.1, Materials identifies Corridor-Wide Site Components.

RELATIONSHIP TO EXISTING CITY PLANS

In addition to any other required Federal, State, City and County design and engineering standards, the following existing City of Grand Rapids plans are the basis for the Design Guidelines, and as such the Design Guidelines are intended to supplement these documents.

- 2017 City of Grand Rapids Parks & Recreation Strategic Master Plan
- Grand Rapids Restoration Conceptual Design Plan (ongoing at time of the Design Guidelines)
- 2015 GR Forward Downtown & Grand River Plan of Action
- 2012 Green Grand Rapids Master Plan
- 2002 City of Grand Rapids Master Plan
- 2013 City of Grand Rapids Stormwater Master Plan
- FY2017-FY2021 City of Grand Rapids Sustainability Plan
- 2018 City of Grand Rapids Green Infrastructure Standards

The following documents include specific design requirements for specific areas and streets within the Grand River Corridor that have been approved by the City. These requirements have been incorporated into the Design Guidelines.

• Grand River Overlay District of the City of Grand Rapids Chapter 61 Zoning Ordinance

The City will be amending this document to incorporate either by reference or as standards the applicable Grand River Corridor Design Guidelines.

This document provides design guidelines for private development areas within the established Grand River Overlay District. These guidelines should be an important consideration as part of design and construction of the Primary River Trail, planting areas, stormwater infrastructure, lighting, site furnishings and amenities, river access points, overlooks, and plazas within the District. (See Private Development River Edge Prototypes, Section 2.1 River Edge Design Guidelines)

The boundaries of the current Grand River Overlay District are noted in current City documentation and are subject to change. Any development review effort should refer to the most current documentation.

• 2016 City of Grand Rapids Vital Streets Plan

The 2016 City of Grand Rapids Vital Streets Plan and 2017 City of Grand Rapids Vital Streets Design Guidelines provide the primary guidance for the design and planning of streets and right-of-way areas.

INTRODUCTION **1.2 PUBLIC OUTREACH SUMMARY**



Our

As part of the public outreach process, the project team engaged with thousands of people during ArtPrize 2017 who were interested in creating a River for All. People walked across the temporary crosswalk, learned about the history of the Grand River, and expressed how they would like the Grand River Corridor improved.













PUBLIC PROCESS: BUILDING ON PAST EFFORTS

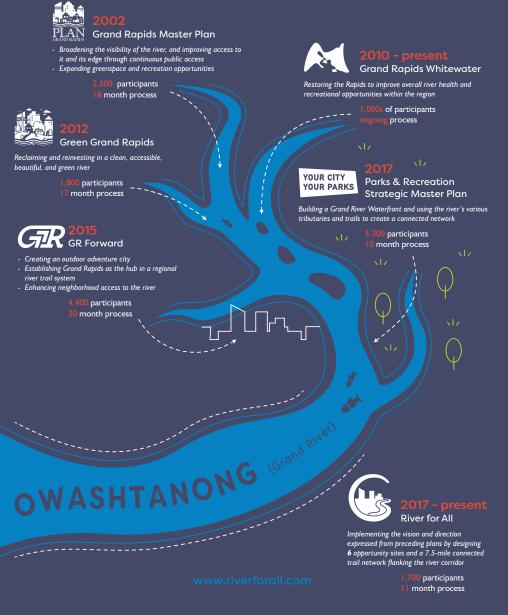
The 'River for All' design process focused on implementing the goals, objectives, and strategies defined in five existing community plans, which were compiled with the help of thousands of Grand Rapidians over multiple years. (As shown in Figure 1.2.1)

Each of these plans direct the City to pursue a River for All as an essential implementation step to restoring and reclaiming the natural beauty of the Grand River.

Figure 1.2.1 - Grand River Corridor **Planning Timeline** The diagram below briefly describes the

planning efforts and public outreach for the Grand River that have taken place since 2002.

REIMAGINING THE RIVER



'River For All' Public Outreach Process

PUBLIC ENGAGEMENT

ArtPrize 2017 (4 days) 117 surveys - 2069 dot votes - 2150 conversations

Water Fest 2018

Fish Ladder Design Workshop

ADVISORY COMMITTEE

(26) members - (3+) meetings

FOCUS GROUPS

(6) topic areas - (7) group sessions

City Design Team - Mayor's Youth Council Mayor's Millennial Advisory Board - DGRI Board of Advisors DGRI Alliance Goal I - Anishinaabe Community - Natural Areas Coalition

WEBSITE/ PRINT OUTREACH

www.riverforall.com (324) comments - (1476) webviews "We Are GR" article



Anishinaabe community meeting





ArtPrize experiential engagement

Mayor's Millennial Advisory Board



ArtPrize dot voting

PUBLIC PROCESS: 'RIVER FOR ALL'

In addition to the feedback received during the previous planning efforts, the design and planning team for this planning effort led a dedicated public engagement process to define strategies to make the Grand River Corridor a 'River for All' The process included Advisory Committee and Focus Group work sessions, website and print communication, and presence at strategic City events including an experiential engagement station at ArtPrize 2017 and an open house station at Water Fest 2018 to get direct feedback from the community.

The following page highlights some of the feedback the team heard through the project process which became a basis for the Design Guidelines.

ArtPrize Public Engagement Summary

At ArtPrize 2017, an engagement station was installed to connect the public to the River for All project and encourage them to offer their feedback about the future of the Grand River Corridor. The 4-day installation spanned along 450 feet of the southern-most eastbound traffic lane on Bridge Street Bridge. The following summarizes the priorities that were heard by subject matter.

Connections

- Knit together trail segments with improved street connections.
- Provide more green at bridge connections and create more buffer space between travel lanes and sidewalk areas.

Figure 1.2.2 - River for All Outreach Summary The diagrams below and on the following page illustrate the desired improvement priorities heard from the community through the various public outreach efforts over the course of the project. Landscape related priorities are in green, access in blue, and programming in pink.

Accessibility

- Create better, barrier-free connections to support access by all wheeled devices, with immediate need for at-grade street crossing improvements.
- Create wider pathways to accommodate bicycles and pedestrians, and other modes of transportation when feasible.
- Provide wayfinding that addresses ADA accessibility and creates a unique identity for the river corridor.

Environment

- Use planted water quality filters and other best management practices to improve quality of stormwater runoff.
- Incorporate educational opportunities, especially through signage and water access, to connect visitors and residents to the river.

Materials

- Use natural materials for seating and lounging.
- Provide movable chairs and tables to promote social interaction.
- Include both soft and hard paths where feasible.

I would like for the **RIVER CORRIDOR** to have...

More trees and plants - keep and encourage the natural river edges

Multi-generational, active, and passive recreation spaces

More seating and lighting

More boat launches and places to touch the river

Places to learn about river ecology and community history

More food and drink options

More public art

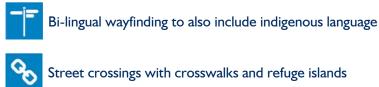
Spaces for live performances

Connections to walk, bike, and bus from my neighborhood

Trails and crosswalks in N/S and E/W directions



ACCESS:







Boat launch, dockage, and barrier free access

☆〒 Visual and physical connection to the river, use streetgrid

PROGRAMMING:



Education/history



Eating and drinking



Interactive art



Live performances



Inclusive recreation

LANDSCAPING:



Lighting and seating to enhance user safety and belonging



Add/protect native trees and plants



RIVER FOR ALL

2 CORRIDOR-WIDE GUIDELINES





CORRIDOR-WIDE GUIDELINES 2.1 CIRCULATION

 $\sim \sim \sim$

CIRCULATION GUIDELINES OVERVIEW

Improved connections to the river add value to neighborhoods, parks, and the urban environment. The 2017 Grand Rapids Parks and Recreation Strategic Master Plan lists a "connected network" as the overarching plan goal, which includes creating a Grand River Waterfront and using the river's various tributaries and trails to connect neighborhoods to river resources.

The following describes the intent and concepts for circulation improvements and creating a complete 'River Trail' system along the Grand River Corridor.

Intent

Connect the regional trail system. A complete and connected River Trail system for the corridor will provide critical links to the regional trail system. (See Figure 2.1.1) Completing these trails will connect Lake Michigan in Grand Haven to the southern border of Grand Rapids, which is a major ongoing effort by Ottawa County, and will connect Downtown Grand Rapids to Riverside Park and further north to the White Pine Trail, and south to Millennium Park and the Kent County trails.

Connect parks and places of interest along the corridor by creating a riverfront trail system on both sides of the river. The River Trail will help residents and visitors navigate to the multiple parks, public destinations, and institutions on both sides of the river, and link them to in-river and river-edge activities and opportunities.

Improve neighborhood connections on both sides of the river. The River Trail system will link to the Vital Streets network, as identified in the 2016 City of Grand Rapids Vital Streets Plan, providing river access to the neighborhoods on the west side of the river that currently have limited access, and providing roadway crossings and safer connections to neighborhoods on the east side.

Improve river access. With the rebirth of the Grand River as a recreational asset for the city, multiple opportunities to provide intuitive, reasonable access for all - boating, tubing, fishing, wading - is desired.



Figure 2.1.1 Grand River Corridor Regional Trail Connections Map Source, Kent County Trails and Trails System Map Credit: www.kentcountyparks.org

Concepts

Provide a hierarchical 'River Trail' system. Develop a range of trail types (Primary, Secondary, and Tertiary) designed to provide for varied recreational use, accessibility, connectivity, and experience. Provide upper and lower trails to allow for four seasons of access. (See Figure 2.1.2 Grand River Corridor River Trail System Plan)

Create a regional network connection. Design for a regional trail connection that links Riverside Park to the Plaster Creek Trail and Kent County trails on the east side of the river, and on the west side from the Fred Meijer White Pine Trail down to the Fred Meijer Millennium Trail Network.

Connect to on-street trails. Connect to on-street trails and walks as described in the 2016 City of Grand Rapids Vital Streets Plan.

Provide mid-block crossings. Provide clear pedestrian and bicycle crossings where the River Trail crosses roadways. Provide grade-separated crossings (underpasses) where feasible.

Connect to future rail connections. Existing active and inactive rail infrastructure will provide valuable cross-river connections for the River Trail system. Trail connections should be completed in coordination with appropriate authorities and will vary based on the specific structure.

Provide easements for neighborhood connections.

Provide easements between adjoining properties that will provide access to the River Trail for neighborhoods on the west side of the river as recommended in the Grand River Overlay District Zoning Ordinance. Easements should be located so that they connect to the on-street connections as identified in the 2016 City of Grand Rapids Vital Streets Plan. (See Neigh-

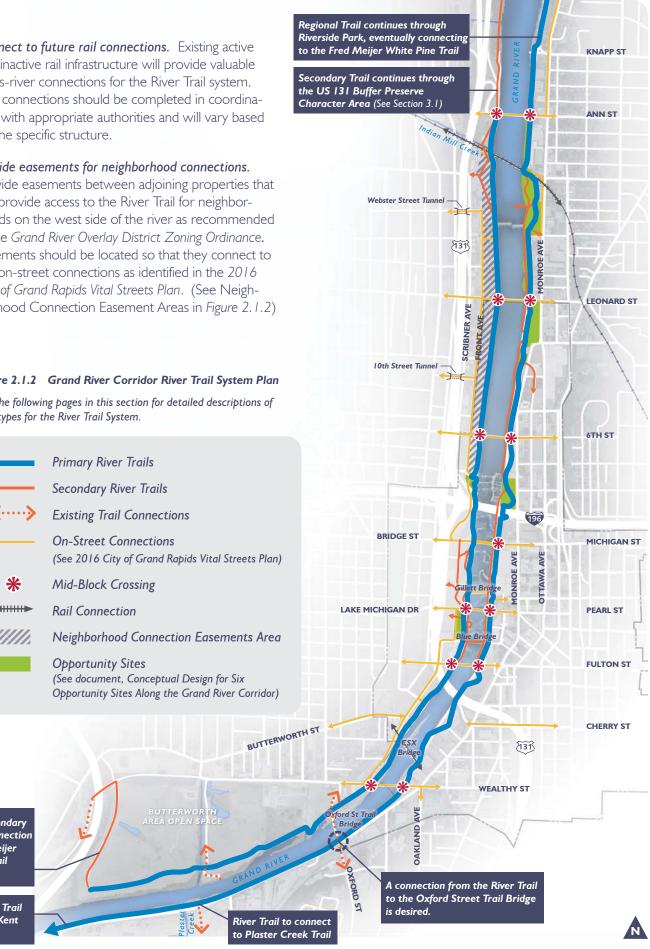
Figure 2.1.2 Grand River Corridor River Trail System Plan

trail types for the River Trail System.



West side Secondary **River Trail connection** to the Fred Meijer Millennium Trail Network

County trails



PRIMARY RIVER TRAIL PROTOTYPES

The primary River Trail prototypes consist of a combination of on-grade, shared-use paths and cantilevered trails that provide a continuous, off-street, public trail on both sides of the river.

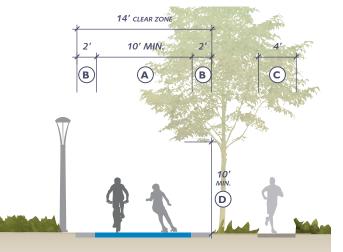
Intent

- Provide a continuous, public trail that is usable in all seasons and is designed for all abilities and a range of users.
- Coordinate with County plan proposals to create a regional trail connection through the city.

Primary Shared-Use Path Concepts

- Provide a wide, continuous, concrete path that is designed to accommodate the greater volumes and potential conflicts between the higher speeds bicyclists and in-line skaters and of pedestrians. Meet County requirements for regional trail designation.
- See Figure 2.1.3, Typical Primary Shared-Use Path Design Requirements.
- Locate trail at or above the 5-year flood event.
- Provide a minimum 5' buffer between edge of trail and edge of road pavement, when adjacent to a roadway. If there is less than a 5' buffer width, a physical barrier or railing should be provided.
- Adhere to the Grand River Overlay District Zoning Ordinance for redevelopment along the river which encourages a 30' minimum setback to provide for a continuous public trail alongside the river. (See page 36 in the following section for locating the River Trail within the Overlay District setback.)





- **A** 10' wide minimum concrete surface
- **B** 2' shoulder/clear zone on each side of the path. Surface material can vary (concrete or crushed stone) based on adjacent site conditions.
- **C** 4' Sidepath of crushed stone or compacted soil adjacent or near path for walkers and joggers. Optional where feasible. (See Figure 2.1.8, Sidepaths)
- **D** 10' minimum vertical clearance
- Design to allow for regional trail designation, wherever feasible.
 - ~ Connect to the regional trails north of Riverside Park, to Plaster Creek Trail, and along Indian Mounds Drive to the Kent County Trails.
 - ~ Design regional trail wayfinding and signage to meet existing standards.

Cantilevered Trail Concepts

- Use only in areas where existing structure setbacks do not allow for on-grade River Trail connections.
- Design to meet County regional trail standards and regulations where cantilevered trails are required to complete a regional trail connection.
- See Figure 2.1.4, Typical Cantilevered Trail Design Requirements.
- Use only acceptable trail decking materials, see Section 3.2, Materials.

Requirements for all trails:

- should comply with AASHTO/NACTO standards.
- All trail design recommendations are subject to compliance with the Americans with Disabilities Act.
- Universal Access ethics are at the heart of improvements along the Grand River Corridor. Circulation Guidelines strategies are based on the "7 Principles of Universal Design" defined by the National Disability Authority (1997).

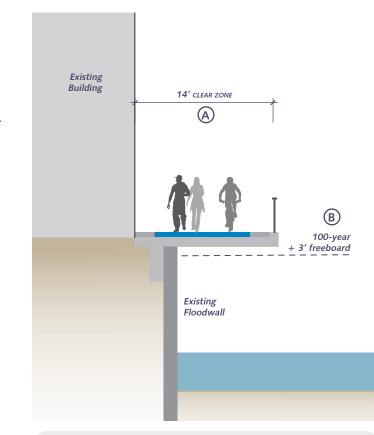


Figure 2.1.4 Typical Cantilevered Trail Design Requirements

- A 14' clear trail zone. If 14' is not feasible due to potential site constraints, a lesser amount may be allowed through a design exception process.
- **B** 3' + freeboard for flood protection.

• All trail design recommendations are subject to further engineering and design evaluation and

SECONDARY RIVER TRAIL **PROTOTYPES**

The secondary River Trail prototypes consist of a combination of on-grade paths designed for slower speeds and used primarily for pedestrians and river edge access, neighborhood connections, and rail trail connections.

Intent

- Provide an alternative from the higher speeds and volume of the Primary Shared-Use Path.
- Provide access to the river's edge below the 5-year flood event. (See Proposed River Access Plan, Figure 2.1.7)
- Provide improved river access for neighborhoods on the west side of the river.

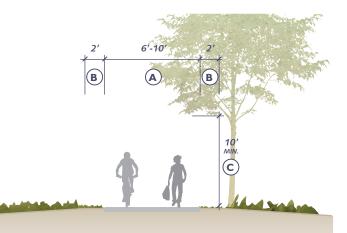
Secondary Shared-Use Path Concepts

- Design as hard- or soft-surface with a varied width and alignment to discourage high speed use and to allow for a variety of experiences.
- See Figure 2.1.5, Typical Secondary Shared-Use Path Design Requirements.
- Surface type and width is dependant upon intended use and desired experience. For acceptable trail surfacing materials, see Section 3.2. Materials.

Lower River Edge Path Concepts

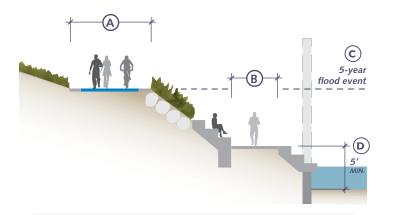
- Provide a Secondary Shared-Use Path (See *Figure 2.1.4*) that runs parallel to the Primary Shared-Use Path and below the 5-year flood event to create opportunities to be at the river's edge. Path may be closed seasonally.
- See Figure 2.1.6, Typical Lower River Edge Path parallel to Primary Shared-Use Path Design Requirements.
- See Section 3.2, Materials for acceptable trail surfacing materials for a path below the 5-year event.





- A 6' minimum wide path.
- **B** 2' shoulder/clear zone on each side of the path. Surface material can vary (concrete or crushed stone) based on adjacent site conditions.
- **C** 10' minimum vertical clearance.

Figure 2.1.6 Typical Lower River Edge Path parallel to Primary Shared-Use Path Design Requirements



- A Primary Shared-Use Path (See Figure 2.1.3)
- **B** Secondary Shared-Use Path (See Figure 2.1.5)
- **C** Path typically located below the 5-year flood event to allow access to the river's edge. May be closed seasonally.
- **D** Set path 5' minimum above river bottom.

Pedestrian River Access **Emergency Access** € **Boat Ramp** (Existing) €



Neighborhood Connection Easements

Trail easements between adjoining properties for neighborhood connections will provide for critical river access for neighborhoods on the west side of the river, as recommended in the *Grand River Overlay District Zoning Ordinance*.

- Provide 10' minimum public right-of-way easements between adjoining properties where there is limited or no access from public rightsof-way to allow access to the River Trail and to connect to Vital Streets as identified in the 2016 *City of Grand Rapids Vital Streets Plan*.
- Provide a concrete path connection with an easement that connects directly to the Primary River Trail and aligns with Vital Street connections whenever possible.



Example of an existing neighborhood connection north of the Plante-Moran building near Fish Ladder Park in Grand Rapids. Image Credit: Google Earth

• Clearly identify as public access.

Rail Connections

Rail connections provide opportunities for cross-river trail connectivity. Future integration of the River Trail system into rail infrastructure should be completed in coordination with relevant authorities and will vary based on the specific structure.

- Provide a River Trail connection to the existing Oxford Street Trail Bridge from the east side of the river.
- Provide a River Trail connection to potential future trails along existing rails at the CSX bridge just north of Wealthy Street and the rail bridge between Leonard and Ann Streets.



Example of a pedestrian/bike connection on an active railroad bridge. Design consists of a perforated steel deck with protected edge, set atop existing bridge footing. Big River Crossing; Memphis, TN | Image Credit: www.bigrivercrossing.com



Existing CSX bridge north of Wealthy Street in Grand Rapids. Image Credit: Wenk Associates

TERTIARY RIVER TRAIL PROTOTYPES

The tertiary River Trail prototypes consist of a combination of sidepaths and boardwalks that are often found in parks and natural areas. Location and type of these trails are to be determined on a site specific basis.

Intent

- Provide trails for site exploration, interpretive education, and quiet leisure.
- Design trails to be pedestrian-only. May be only seasonally accessible if located within the floodway.

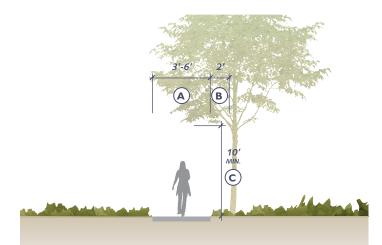
Sidepaths/Hiking Trail Concepts

- Construct with natural-, hard- or soft-surface materials depending on intended use, desired experience, and location within the floodway.
- See Figure 2.1.8, Typical Sidepath Design Requirements.
- See Section 3.2, Materials for acceptable materials for sidepaths and hiking trails.

Boardwalk Concepts

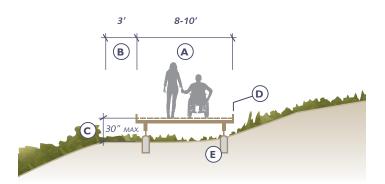
- Recommended when desire is to traverse frequently flooded and sensitive habitats.
- See Figure 2.1.9, Typical Elevated Boardwalk Design Requirements.
- See Section 3.2, Materials for acceptable boardwalk decking.

Figure 2.1.8 - Typical Sidepath Design Requirements



- A 3'-6' wide path
- **B** 2' clear zone from vertical elements on each side of the trail
- **C** 10' minimum vertical clearance

Figure 2.1.9 - Typical Elevated Boardwalk Design Requirements



- A 8-10' clear width
- **B** 3' wide drop zone at 2% slope on downhill side
- **C** 30" maximum drop from walking surface
- **D** Raised edge / rub rail minimum; provide hand or guardrails if adjacent uses present a hazard.
- **E** Permanent or seasonal footing or marine-rated floating system as-per manufacturer or as specified by a structural engineer

MID-BLOCK CROSSING

When the River Trail intersects roadways, safety is of the upmost importance. A grade separated crossing *(bridge underpass shown on Figure 2.2.8, page 32)* and a mid-block crossing should both be included where the River Trail intersects with bridges and roadways. At grade, mid-block crossings are necessary and should be incorporated (following appropriate engineering analysis) where a grade-separated crossing (bridge underpass) is not feasible or would be closed during high water seasons and where the River Trail meets on-street connections as identified in the 2016 *City of Grand Rapids Vital Streets Plan*.

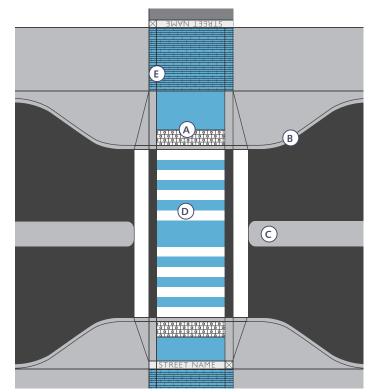
Intent

• Provide a mid-block crossing where the River Trail intersects a roadway to identify the trail and provide for safe access across the roadway.

Concepts

- See Figure 2.1.10, Typical Mid-Block Crossing Requirements
- Enhance the identity of the River Trail by integrating the materials and identity color palette into the mid-block crossing design. (See Sections 2.4, Signage, Identity & Wayfinding Guidelines and 3.2, Materials)
- Consider the following:
 - Vertical and horizontal slopes of streets and bridges must be taken into account to insure adequate sight lines
 - Additional safety elements such as an activated rapid flashing beacon, HAWK system, or other alternative methods may be needed to increase awareness of the crossing and the presence of pedestrians.
 - Where feasible, the crossing distance should be reduced as much as possible from the curb, or a pedestrian refuge island should be provided.
 - Driveway locations, loading docks, and on-street parking may need to be relocated or adjusted to insure adequate sight lines.

Figure 2.1.10 - Typical Mid-Block Crossing Requirements



- A Provide an accessible ramp with tactile strip per-City standards. Emphasize trail connection with colored thermoplastic or reflective paint or colored concrete surface to uniquely identify the River Trail.
- **B** Provide a curb bulb-out, where possible.
- C Provide pedestrian refuge, where possible.
- **D** Integrate clear standard white ladder striping with River Trail identity color palette to maintain visibility.
- **E** Integrate River Trail materials and identity color palette into crossing where possible to communicate trail route across street.

CORRIDOR-WIDE GUIDELINES 2.2 RIVER EDGE



RIVER EDGE GUIDELINES OVERVIEW

As part of Grand Rapids WhiteWater's (GRWW) efforts to restore and revitalize the Grand River, plans were developed to remove dams and restore the city's rapids. As part of the dam removal, major in-river modifications provide the opportunity to leverage the investment of a restored river while expanding recreational experiences along the corridor. The following pages illustrate the strategies for modifying the river edge.

River Edge Guidelines Intent

- Remove/modify existing flood management walls in selected areas to expand public access to the river and enhance the city's economic vitality. Top elevation to be contained by new grading or structures on the developed site. (See Figure 2.2.1, Existing Floodwalls)
- Improve riverbanks in less urbanized areas where no walls are required.
- Expand river access and improve habitat. •
- Maintain flood protection and provide 3'+ freeboard.

River Edge Guidelines Concepts

- Enhance aquatic and streambank habitat by constructing varied edge conditions that allow restoration of a variety of native landscape types.
- Provide multiple points of access and egress for boaters, anglers, and other in-stream users to enhance river recreational value.
- Design all river edge improvements including embankments • and structures placed in the water to minimize hazards to in-stream users.
- Design walls and other structural elements as multifunctional park and urban open space assets.
- Maintain all wetand or riparian, and upland plantings as required in the Grand River Corridor Strategic Asset Management Plan.

Figure 2.2.1 - Existing Floodwalls





RIVER EDGE RECOMMENDATIONS

Much of the existing river edge in the downtown area consists of floodwalls (as shown in Figure 2.2. I Existing Floodwalls on the previous page) and embankments, while the areas north and south of downtown have a more natural streambank.

- Naturalized Streambank Areas River edge conditions north (Riverside Park) and south (Butterworth Area Open Space) of downtown consist of a more naturalized streambank. Design intent and strategies for these areas are included in Section 3.1 -Site Types and Character Areas under Natural Riverfront Parks.
- Downtown Area River Edges With the exception of Ah-Nab-Awen Park, Fish Ladder, the Public Museum frontage, and existing emergency access ramps, flood control walls line both banks of the river in the downtown area. Proposed river edge modifications will vary according to in-river recreational potentials and access requirements, proposed land uses, and other factors. Accordingly, a range of river edge prototypes were developed that reflect a naturalized downtown river edge, river edges that allow river access, and river edges adjacent to private development. Continuity of a lower river trail and river access should be considered within existing parks such as 6th Street and Canal Street Parks, as park improvements happen overtime.

River edge recommendations are shown in Figure 2.2.2, Downtown Area River Edge Prototype Recommendations and are described in more detail on the following pages.

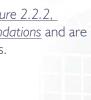
Figure 2.2.2 - Downtown Area River Edge Prototype **Recommendations**

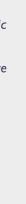
KEY

- Opportunity Sites and Lyon Square Each have specific design plan recommendations.
- Areas that have the following recommended River Edge Prototypes* (see following pages for descriptions):
 - N# Naturalized River Edge
 - **River Access**
 - P# Private Development River Edge

Existing Floodwalls

* River edge recommendations can be compatible within each area when explored in more detailed design. Examples of this compatibility are demonstrated in the schematic design of the Opportunity Sites. (See Conceptual Design for Six Opportunitiy Sites along the Grand River Corridor.)







NATURALIZED RIVER EDGE PROTOTYPES

The following describes the intent and concepts for naturalizing the river's edge.

Intent

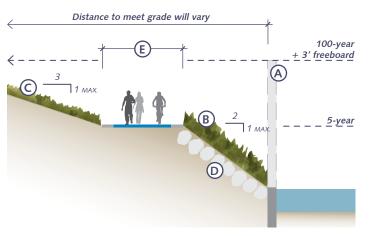
- Restore pockets of native river edge landscape in areas where existing floodwalls are being lowered or removed to access water edge as part of river restoration or riverside redevelopment.
- Provide mitigation of in-stream habitat losses.
- Provide recreational trails and improved river access.
- Provide a green alternative to structural concrete wall.

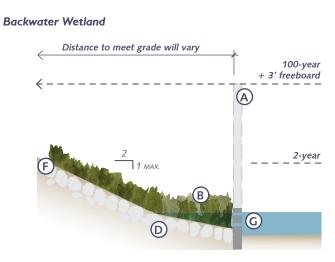


Figure 2.2.4

N2





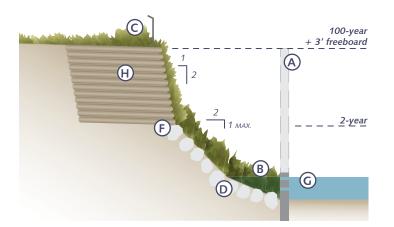


Key for Natural Downtown River Edge Sections (Figures 2.2.3-5)

- A Remove existing floodwall to high water level, or as required by hydraulic analysis/engineering. Maintain 100-yr +3' freeboard by using smaller site walls and berms/embankments.
- **B** Wetland or riparian plantings
- **C** Upland planting or railing barrier
- **D** Soil riprap
- **E** Primary Shared-Use River Trail, see Figure 2.1.3
- **F** Armor to min. 2-year flood event, or as approved by engineering.
- **G** Establish hydraulic connection to wetland edge.
- H Reinforced earth living wall, see Figure 2.2.14

Figure 2.2.5

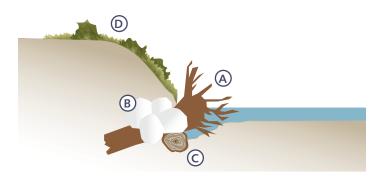




Concepts

- *Figures 2.2.3-6* illustrate concepts for a naturalized river edge where existing floodwalls are being removed or lowered.
- Configure the river edge to preserve the required in-stream flow characteristics to maintain in-river boating and aquatic habitat.
- Construct Primary Shared-Use Paths and river edge access primarily above the 5-year flood event to maximize time of access and to minimize sedimentation and debris removal requirements.
- Armor all unprotected banks below the 5-year flood event, and other areas susceptible to erosion. Only soil riprap (the thorough incorporation of soil into the voids of all riprap) completely covered with soil and interplanted with native wetland and riparian plantings is allowed.

Figure 2.2.6 Log, Rootwad, Boulder Habitat Revetment (Natural Riverfront Character Areas)



- A Log and Rootwad
- **B** Boulder Anchors
- **C** Footer Log
- **D** Existing bank or bioengineered slope protection

Source: Streambank & Shoreline Protection Manual, Lake Co. Stormwater Management Commission, U.S.D.A. Natural Resources Conservation Svc., Jan 2002



Log revetment Image Credit: Bear Creek, Denver, CO, Credit: Wenk Associates

RIVER ACCESS PROTOTYPES

The following describes the intent and concepts for expanding river access and providing a broad range of opportunities at the river's edge throughout the corridor.

Intent

Enhanced River Access

- Create a continuous lower trail that provides direct access to the river.
- Provide multiple types and public points of access and egress not just for boaters and anglers, but for other in-stream users to enhance river recreational value.



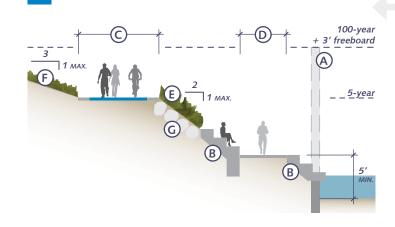
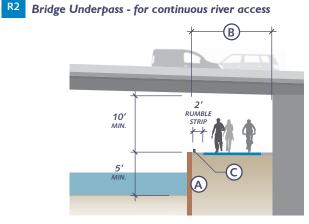


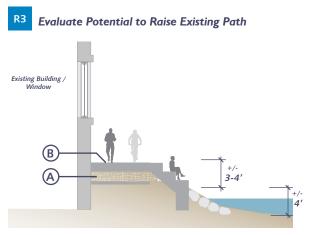
Figure 2.2.8



Concepts

- Figures 2.2.7-11 illustrate strategies for expanding access to the river's edge.
- Provide River Trail crossings below major streets and bridges where feasible. Grade for and provide clearance for maintenance equipment at edges of structure. (See Figure 2.2.8)
- Minimize in-river fill conditions. Use only in areas where no other options are feasible or at bridge underpasses. Tie back to bank as quickly as possible.
- Use continuous fill/structure to river channel bottom to minimize hazards and entrapments to in-river users. Creation of voids, sharp edges, or other protrusions that can snag clothing are prohibited.
- **A** Remove existing floodwall to high water level, as required by hydraulic analysis/engineering. Maintain 100-yr +3' freeboard by using smaller site walls and berms/embankments. Retain wall foundation where possible to minimize in-stream construction.
- **B** Construct edges as steps to allow safe river access/ exit in key locations, where possible.
- **C** Primary Shared-Use Path, see Figure 2.1.3. Locate elevation above the 5-year flood event where feasible.
- **D** Lower River Edge Path, see *Figure 2.1.6*. Locate elevation 5' above river bottom, minimum.
- **E** Wetland or riparian plantings
- **F** Upland plantings
- **G** Soil riprap
- **A** Use sheet pile with fill on-grade or foundation per geotechnical recommendations.
- **B** Primary Shared-Use Path, see Figure 2.1.3. Locate path elevation 5' above river bottom. Provide minimum 10' vertical clearance under structure for construction of the wall and embankment and maintenance equipment. Trail profile should avoid coming under the bridge at sharp angles; comply with AASHTO requirements for sight distance.
- **C** Provide rub rail as required for minimum ADA protection.

Figure 2.2.9



- **A** Fill on existing path which is prone to frequent and extended periods of inundation.
- **B** Evaluate the potential to raise the path to reduce frequency and length of inundation without increasing flood risk.

Figure 2.2.11



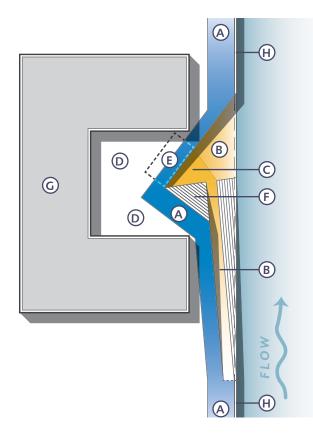


Figure 2.2.10



- A Limestone block/sculpted concrete bendway weir or jetty. Pin blocks for stability in high flows.
- **B** Frequent flow passage
- **C** Limestone block armoring to the 2-year flood level. Armor to scour depth or bedrock

| Α | Public River Trail |
|---|---|
| В | Carry-in boat launch ramp |
| С | Boat launch prep terrace at or above 2-year flood elevation |
| D | Private amenity/mixed-use plaza |
| E | Private kayak/paddle board storage below mixed-use plaza |
| F | Amphitheater/viewing terrace |
| G | Multi-story mixed use infill development |
| н | Existing floodwall |
| | |

PRIVATE DEVELOPMENT RIVER EDGE PROTOTYPES

Redevelopment along the Grand River in Grand Rapids is subject to the Section 5.8.03 Grand River Overlay District (OD-GR) of the City of Grand Rapids Chapter 61 Zoning Ordinance.

The City will be amending the Grand River Overlay District document to incorporate either by reference or as standards the applicable Grand River Corridor Design Guidelines.

Intent

Allow for the opportunity for the City to work with a private property owner in partnership to :

- Improve viewsheds to the river.
- Improve the environment by providing open space opportunities.
- Create a continuous, connected River Trail for recreational purposes and enhanced quality of life.

Section 5.8.03* Grand River Overlay District (OD-GR)

<u>Purpose</u>

As Grand Rapids' most significant natural asset, the Grand River plays an important role in enhancing the quality of life of its residents. The Grand River Overlay District is intended to capitalize on the value of the Grand River as an essential economic, recreational and environmental resource by encouraging land use changes from industrial to open space and mixed-use development. The Grand River Overlay District seeks to introduce new development practices and land use patterns that enhances the extent to which people can view, access and enjoy the riverfront by providing opportunities for viewsheds, easements and recreational opportunities.

Applicability

The requirements of this Overlay District shall apply to any lot or parcel shown on the Grand River Overlay Maps B1-B3, from the ordinary high water mark, floodwall or dock line, whichever is applicable as determined by the Planning Director, on each side of and paralleling the Grand River.

* 2017 City of Grand Rapids Chapter 61 Zoning Ordinance



Concepts

The following are concepts for modifying the river edge within the minimum 30' setback, as required by the Site Layout Requirements of the OD-GR, while maintaining flood protection. Easements and agreements will be necessary.

- Provide a minimum 10' public/private amenity zone adjacent to building for site furnishings, awnings, and landscape to support redevelopment use.
- Construct a minimum 10' shared-use, public trail with 2' shoulders. Overall width shall be minimum 14'.
- Provide a 5' public amenity zone adjacent to river or floodwall for benches, overlook access, and trees.
- Use a cantilevered trail or structure in river (where river hydraulics allows or channel capacity can be developed) as necessary where a property cannot feasibly be developed with the minimum building setback or where an existing building setback does not provide the desired width for the continuous River Trail.
- Consider cantilevered overlooks along the trail to provide greater public open space.
- Provide 3' + freeboard for flood protection.
- *Figures 2.2.12-14* illustrate strategies for the River Trail within the 30' setback as required within the Overlay District.

Key for Private Development River Edge Sections

- A Primary Shared-Use Path, see Figure 2.1.3
- **B** Public/private amenity zone
- **C** Delineation between the path and public/private amenity zone
- **D** Public amenity zone
- **E** Building
- **F** Existing floodwall
- **G** Existing riverbank, elevation varies.
- H Cantilevered Trail, see Figure 2.1.4

Figure 2.2.12

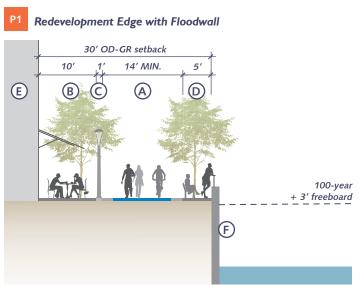


Figure 2.2.13

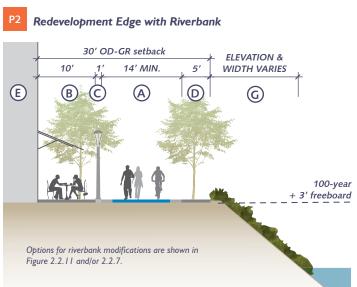


Figure 2.2.14

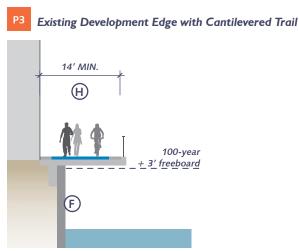


Figure 2.2.16 - Typical Wall Replacement with River Access Detail

WALL REMOVAL AND REPLACEMENT

The recreational and ecological benefits resulting from the removal of in-stream dams and structures to restore the natural rapids of the Grand River should be supported by river edge improvements that enhance natural values and ecological functions, provide river recreational uses, and support safety. The following are recommendations for the design of structural and planted edges.

Intent

The Grand River exerts a moderate flow that fluctuates in elevation on the riverbanks and any structures or other improvements that are subjected to its flows. The following goals and considerations must be incorporated into the design of any improvements as part of wall removal and replacement.

- Design to minimize maintenance required as a result of damage from ice flows, debris, and sediment deposition.
- Configure wall openings to maximize visibility, safety, and aesthetic value.
- Configure wall openings to allow for both hard and planted river edges that encourage safe river access and egress, and that allow for establishment of native vegetation to support enhanced aquatic and terrestrial habitat.
- Maintain flood protection and provide 3'+ freeboard.
- A Modify existing wall Retain existing wall footing below low water level as part of armored planting zone. See Figure 2.2.4 - Backwater Wetland.
- **B** Wetland and sub-aquatic habitat Use in areas protected from ice and flood damage.
- **C Stepped edge** Avoid sharp angles to existing river flow line to maintain consistent flow and to minimize sediment and debris deposition. Step and back-slope walls to allow for emergency egress.
- **D** Inside wall angles must be a maximum 30° from existing wall, preferred 10-20° to avoid debris deposition during higher flows.

Concepts

Wall Replacement

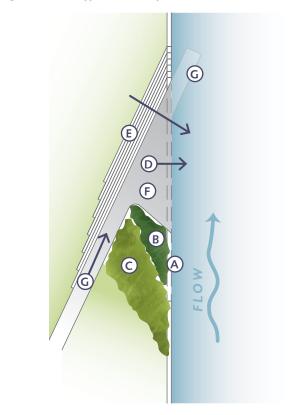
In-kind replacement of the existing vertical wall is prohibited. Removal of an existing wall over 10' feet in length for reasons other than replacement or upgrade of public utilities or infrastructure requires replacement to the minimum requirements, as shown in *Figure 2.2.13 - Wall Replacement Typical Detail* below.

Wall Replacement with River Access

Wall removal should consider replacement under Universal Design principles as emergency and recreation access points. Wall replacement types and geometry must allow for visual surveillance from multiple points of adjacent areas, and allow for pedestrian and boating access and/or restoration of native habitat. Minimum requirements are shown in *Figure 2.2.15 - Wall Replacement with River Access Typical Detail* on the following page.

Figure 2.2.15 - Typical Wall Replacement Section Detail

Nall replacement requirements at minimum require a stepped edge and wetland habitat edge.





Design stacked, back-sloped limestone riprap to high water level. Steep mown slopes should be avoided unless higher maintenance is acceptable. Image: Bridgepark Müngsten Village; Wuppertal, Germany | Credit: Atelier LOIDL



A poured-in-place, stepped edge allows safe river access and egress and provides large areas of informal seating. Image: Confluence Park; Denver, CO | Credit: Wenk Associates

- A Modify existing wall Retain existing wall footing below low water level as part of armored planting zone. See Figure 2.2.4 - Backwater Wetland.
- **B** Wetland and sub-aquatic habitat Use in areas protected from ice and flood damage. See *Figure* 2.2.4 Backwater Wetland.
- **C** Reinforced earth green wall See Figure 2.2.5 -Use to maximize riparian and upland habitat in areas protected from ice and flood impacts.
- **D** Gathering/boat launch area Slope launch area at 1:20 or as required to meet launch ramp requirements and to maintain river flow characteristics.
- E Stepped edge Back-slope and orient edge to optimize river views, maintain river flow characteristics, and minimize debris deposition. Size river edge gathering area to accommodate programmed uses.
- F Accessible river access
- **G** Pedestrian/boater/maintenance/emergency access
 - Extend ramp to channel bottom



Stepped limestone riprap, poured-in-place, or sculpted concrete stone can be constructed as stepped wall.

Image: Heritage Park Redevelopment; Minneapolis, MN | Credit: Wenk Associates



Reinforced earth green walls can be used in locations that are less susceptible to ice and flood damage. Image: Boneyard Creek Improvements; Urbana, IL | Credit: Wenk Associates



CORRIDOR-WIDE GUIDELINES 2.3 RESILIENT SYSTEMS



RESILIENT SYSTEMS OVERVIEW

The Design Guidelines have been structured as a tool to implement aspects of the City's Sustainability Plan and Green Grand Rapids Plan. The City's initiatives to enhance the natural, recreational, and economic values of the urban and natural areas lining the Grand River, together with the work of Grand Rapids WhiteWater (GRWW) to restore the rapids in the river, support the four pillars (principles) that are the basis for the Sustainability Plan - Economic, Social, Environmental, and Governance.

The Design Guidelines support six of the nine Environmental Goals described in the Sustainability Plan, which are addressed in this section and include:

- 1 Protect and enhance natural systems
- 2 Enhance wildlife habitat with locally-adapted vegetation
- 3 Re-establish native plant communities
- 4 Design improvements according to Low Impact Development (LID) principles
- 5 Manage stormwater on-site
- 6 Improve performance / ecological function of existing stormwater outfalls

LOW-IMPACT STORMWATER MANAGEMENT GUIDELINES

Improvement of the quality, and reduction of the quantity, of stormwater runoff entering the Grand River and its tributaries is an important goal of the Sustainability Plan as part of protecting and enhancing natural systems in Grand Rapids. The following describes the intent and concepts for managing stormwater runoff within the corridor.

Stormwater Management Intent

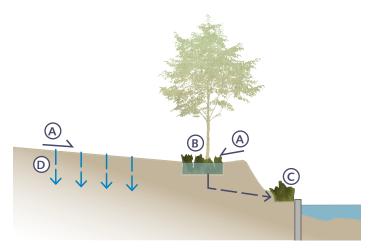
- Manage stormwater on-site to improve water quality through infiltration and biofiltration and to foster healthy stream corridors.
- Adapt existing stormwater systems to improve the quality of storm runoff, and to support the development of native plant communities and functioning natural systems at the river's edge.
- Meet the requirements of the Grand Rapids • Sustainability Plan for all projects within the area governed by the Design Guidelines, including:
 - ~ Provide 100% onsite stormwater management for all new City infrastructure plans.
 - ~ Increase the use of porous pavements to reduce runoff.
- Meet broader goals of educating the community about the importance of wise stormwater management. Selectively daylight and interpret the stormwater system and use it as a teaching opportunity to describe the relationship of resilient stormwater practices to a healthy river and natural systems.
- Manage and improve the quality of all on-site stormwater before it reaches the river.

Stormwater Management Concepts

- Route on-site flows through biofiltration areas prior to discharging to the river.
- Design landscape areas as infiltration/biofiltration basins or bioswale areas wherever possible. These biologically-based water quality treatment methods perform and demonstrate collection, conveyance, and treatment.

- Incorporate, to the greatest degree possible, the following methods to reduce the volume of storm runoff:
 - ~ Porous pavements (including reducing impermeable surfaces on already paved areas)
 - ~ Redirect sediment / trash within existing stormwater system to prevent river contamination
 - ~ Catch basin inserts
 - ~ Leaching basins
 - ~ Gross pollutant / sediment and debris traps
 - ~ Green roofs (where development is present)
 - ~ Biofiltration/trees with adequate soil volume
- Interpret on-site stormwater networks to encourage public understanding of sustainable infrastructure practices and the effects of untreated runoff.
- Daylight existing stormwater outfalls before they reach the river and restore diverse wetland and riparian vegetation at the river's edge.
 - ~ Provide access to daylighted stormwater outfalls and incorporate into environmental education programs.

Figure 2.3.1- On-Site Stormwater Management



- A Slope all on-site run-off to biofiltration prior to discharge into the river.
- **B** Incorporate biofiltration into landscape areas
- **C** Provide wetland filter/edge restoration
- **D** Infiltrate to reduce runoff

Figure 2.3.2 - Prototypical Existing Storm Sewer Outfall Retrofit - Plan View

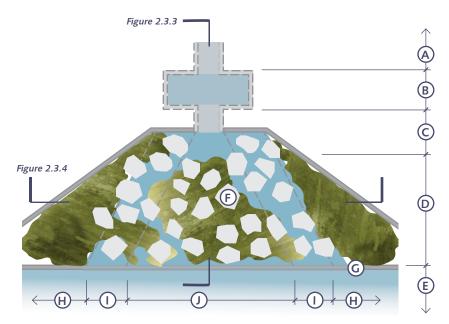
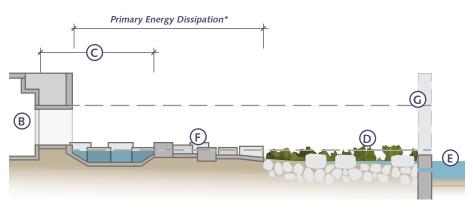
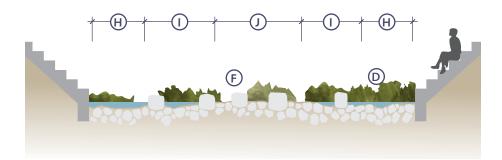


Figure 2.3.3 - Prototypical Existing Storm Sewer Outfall Retrofit - Longitudinal Section



* Source: Denver Metro Area Urban Drainage and Flood Control District - Urban Storm Drainage Criteria Manual, Volume 2, Chapter 9

Figure 2.3.4 - Prototypical Existing Storm Sewer Outfall Retrofit - Cross-Section



* Source: Denver Metro Area Urban Drainage and Flood Control District - Urban Storm Drainage Criteria Manual, Volume 2, Chapter 9

KEY - Figures 2.3.2-4

- A Existing storm outfall
- **B** Sediment/trash vault
- **C** Impact stilling basin USBR Type IV for pipes 48" and larger
- D Marsh/wetland with riprap riprap with energy dissipation complex - see Figures 2.3.2 and 2.3.3.
- **E** River
- **F** Grouted limestone blocks or sculpted concrete
- **G** Existing floodwall remove to high water level, or as approved by hydraulics/engineering
- **H** Low Outfall Impact soil riprap with wetland planting
- I Moderate Outfall Impact soil riprap with energy dissipation and wetland planting
- High Outfall Impact energy dissipation with pockets of soil riprap and marsh

LANDFORM AND PLANTING **GUIDELINES**

Landform and plantings for the Grand River Corridor should work in unison to create a sequence of landscape spaces and corridors that form a "connective tissue" of linear public spaces and larger destination parks and gathering spaces at the river's edge. When thoughtfully designed, and based on projected use and opportunities for connections to the river, these spaces will create a variety of places for recreation, leisure, trails, and river access. These spaces can also enhance the ecological functions and values of the river and its edges, and can contribute significantly to meeting the goals of the City's Sustainability Plan and Green Grand Rapids Plan.

Landform and Planting Intent

Landform and plantings are the foundational elements for the design proposed parts of the river's edge. Design should mimic the natural river terraces that have been modified and obscured by industrial and urban development, and by channelization of the river in the 19th and early 20th century.

Landscape terraces should be configured and plantings should be massed to reinforce the form and spatial qualities created by the terraces to:

- ~ Create a series of functional outdoor spaces.
- ~ Direct views towards, and highlight access to, in-river activities.
- ~ Allow for a variety of trails and accessible connections to the water's edge and to adjacent neighborhoods and districts.

Landscape terraces that give form to parks and urban gathering areas should be sized and configured to accommodate a variety of informal recreation and leisure activities, and large and small programmed events.

Landform and plantings should respond to the varied character of the urban or natural context which can range from mimicking and restoring natural systems and landscape types, to the development of highly sophisticated urban spaces. Restoration of native landscapes and the establishment of a variety of wildlife habitat types are of equal importance to recreational uses in aesthetics in the design of all landform and planting schemes.

Landform Intent

River edge landforms (see Figures 2.3.5-6) will consist primarily of one or more landscape terraces that descend to the river. Terraces can vary considerably in width, landscape character, and recreational or other use. Landforms will vary depending on the urban or natural landscape context, the type and/or intensity of recreational or leisure use, and the extent and type of river access required or desired.

Planting concepts (as illustrated on page 43) should emphasize massing and be located on terrace slopes, or massed to provide shade, screening, or other functional or civic purposes on terraces designated for recreation or civic uses. Plantings should reinforce special qualities created by terraced landforms, as well as support programmatic goals for recreational, leisure, aesthetic, and events uses.

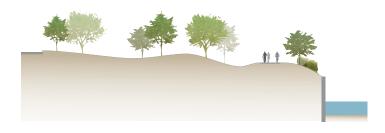


Figure 2.3.5 - Typical corridor landforms in existing parks Undulating landforms and river edge plantings in existing parks often limit river views, river edge access, and recreational use. (See Figure 2.3.7)



Figure 2.3.6 - Recommended landforms in parks Terraced landforms allow for expanded recreation use, better river access, and enhances ecological value. (See Figure 2.3.8)



Figure 2.3.7 Existing Condition Area **Retrofit Strategy Example**

- **B** Sloping lawns have limited passive recreation use.

- **E** Existing parking areas occupy some of the most valuable space for recreational use.



Figure 2.3.8 Recommended Landform and Planting Area Retrofit Strategy Example

- grade changes.

- **E** Provide a variety of options for seating (i.e. terraces) with river views, in addition to more traditional benches.

A Existing shoreline vegetation is difficult to maintain and blocks river views.

C Small areas of turf limit opportunities for recreational use and are costly to maintain. **D** Options for seating are limited; vegetation blocks river views.

A Regrade selected areas to create a series of large and small lawns that accommodate a variety of passive recreational uses.

- **B** Relocate parking to park edges and realign walkways in selected areas to consolidate
- C Restore native plant communities on slopes that separate passive recreation use lawns, to reduce maintenance and water use, and to expand wildlife habitat.
- **D** Establish a variety of hard and soft trails to accommodate different types of trail users, and to provide greater access to the river edge.

Planting Intent

Use native plantings for planting schemes in all character areas (see Section 3.1, Site Type & Character Areas Guidelines) to promote ecological diversity and connectivity, and to create a unique river edge identity.

- ~ Develop planting concepts that introduce more diversity into existing parks to enhance recreational experiences.
- ~ Use native plants for ornamental plantings in all character areas to create a 'river identity' and further define the uniqueness of the Grand Rapids riverfront as a destination.

Expand the use of native and locally-adapted plant species to reduce water use and maintenance costs, to promote biodiversity, and to enhance functioning ecological systems.

- ~ Create planting patterns that enhance habitat, connectivity, and diversity on every project.
- ~ Meet goals established in the Sustainability Plan to increase the urban tree canopy to at least 40%.
- ~ Replace underutilized lawn areas in existing parks with native groundcover and tree plantings.
- ~ Enhance and expand habitat in all ecological zones including aquatic to upland terrestrial habitat.

Interpret the importance of the river and native plant communities to the livelihood of the Anishinaabe and to residents of the city over time.

- ~ Develop planting concepts that interpret the importance of native plants as a source of food and construction materials.
- ~ Describe the importance of the river and native plants to the growth of the furniture industry and to ongoing economic vitality, and for the river's future potentials today.

Planting Pattern Concepts

of river edge urban and natural conditions found along the corridor.



Informal pattern of linear groves of trees and groundcover plantings

Best Use Areas: Parks and larger gathering areas to reduce turfgrass and to define activity areas.

Informal and naturalized character areas. (See pages 78-87)

Habitat: Creates a connected series of tree canopy and understory planting that provides food and shelter, and a movement corridor for many vertebrate and invertebrate species.



Image: Long Dock Park; Beacon, NY Credit: Reed Hilderbrand

sub-aquatic habitat.

Planting pockets/ornamental planters in Industrial Redevelopment Site Type areas (See pages 88-95)

Habitat: Provides habitat for pollinator species to maintain species diversity. Invertebrate species are a food source for fish and other aquatic species.



Credit: Dave Reid

Below describes three planting patterns - *Linear*, *Patch*, and *Urban* - that can be used based on the broad range



Isolated patches of herbaceous, low shrub, and occasional tree plantings

Best Use Areas: Heavily-used parks and along riverfront walkways, and to enhance river edge aquatic and

Image: Milwaukee Riverwalk; Milwaukee, WI

Urban



Formal pattern of linear groves of shade and/or ornamental trees and understory plantings limited to edges, grade transitions, and buffers.

Best Use Areas: Heavily-used urban plazas, gathering areas, and linear riverfront walkways.

Formal spaces within Industrial, Public Riverfront, and Urban Riverfront character areas. (See pages 86-105)

Habitat: Overstory provides linear connectivity, food source, nesting, and other habitat values. Understory planting buffers and planter pots support pollinator species.



Image: Commons Park; Denver, CO Credit: Civitas, Inc.

Landform and Planting Integration

The following graphics illustrate appropriate integration of plantings and landforms, and are examples of alternative approaches to landform and planting along the river edge. Specific options and details for pedestrian access, planting, and connections to the river edge are discussed in greater detail in *Section 2.2, River Edge Guidelines*.



- **B** Landscape terrace sized for small groups and individuals focused on river views and informal/passive recreational use; a secondary path is located at the edge of the terrace.
- **C** River edge terrace with a secondary path and multiple seating options.
- **D** Terrace slope transitions planted with linear masses of native trees and low understory plantings selected to provide a range of wildlife habitat types and to maintain visibility for river views and park safety.
- **E** Large tree masses to further define large terraces, and to provide shade and park settings for pedestrian amenities.

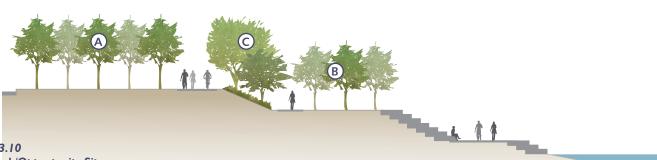


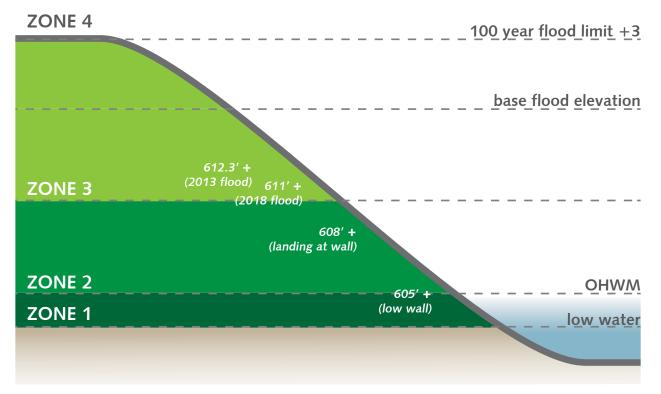
Figure 2.3.10 Urban Park/Opportunity Site

- A Large multi functional terrace sized for larger group gatherings, programmed events, and festivals; locate overstory plantings to provide shade without significant reduction in the potential uses of space; incorporate linear masses of ornamental and native understory shrubs and decorative plantings to encourage use by pollinator species and to enhance connectivity of habitat at the ground level.
- **B** Secondary terraces descending to the river provide for informal gatherings, river viewing, and as pre-function space for in-river activities.
- **C** Without diminishing the functionality of urban spaces, incorporate linear masses of native understory and overstory plantings to enhance connectivity of wildlife habitat.

PLANTING STRATEGY -ECOLOGICAL ZONES

A rich and diverse range of native plant communities once existed along the banks of the Grand River before the establishment and growth of the city as it is known today. These native plant communities will constitute the planting palette used to implement the landform and planting guidelines described in the previous section, which is a goal of the City's Green Grand Rapids Plan and the Sustainability Plan.

The landform and planting guidelines recommend the construction of a series of river terraces and terraced slopes descending to the river. Depending on the elevation of an individual terrace, the plant communities that would be appropriate for that terrace could be quite different than a higher, or lower terrace depending on the relationship to the ordinary high water mark (shown as OHWM in the diagram below), frequency of flooding, and other variables. To mimic the relationship of plants to the river, the diagram below describes three planting zones, each of which has a unique palette of plants that are appropriate for that zone.



NOTE: Elevations are examples from the Coldbrook Site

Following the preparation of grading concepts, relative elevations of terraces and terraced slopes should be determined, and plant communities for each terrace and terraced slope should be determined by identifying the plant materials listed from the Recommended Plant List on the following pages that are acceptable for that particular zone.

t Specific elevations determining the limits of each zone may vary from the diagram below, depending on a project's location along the river. City engineering representatives should be consulted to determine the specific elevations which determine the transition between each zone for an individual site, and the selection of plant materials should be adjusted accordingly.

RECOMMENDED PLANT LIST BY ECOLOGICAL ZONE

TREES

| | | F 1 : 1 | 1 | |
|-------------------------|------------------------|----------------|----------|--|
| | | Ecological | | |
| Scientific Name | Common Name | Zone(s) | Native | Cultivars |
| Acer campestre | Hedge Maple | 3,4 | | St Gregory, Evelyn, Schichtels |
| Acer x freemanii | Freeman Maple | 3,4 | | Autumn Blaze, Celebration, Armstrong |
| Acer miyabei | Miyabe Maple | 3,4 | | Morton/State Street |
| Acer rubrum | Red Maple | 2,3,4 | x | Franksred, Autumn Flame, Northwood |
| Acer saccharum | Sugar Maple | 3,4 | x | Commemoration, Legacy, Green Mountain |
| Amelancier arborea | Downy Serviceberry | 2,3,4 | x | |
| Amelancier grandiflora | Apple Serviceberry | 2,3,4 | x | Autumn Brilliance, Robin Hill, Cole's Select |
| Amelancier laevis | Downy Serviceberry | 2,3,4 | x | Snowcloud, Spring Flurry |
| Betula alleghaniensis | Yellow Birch | 2,3.4 | x | |
| Betula nigra | River Birch | 2,3,4 | x | Heritage |
| Betula papyrifera | Paper Birch | 3,4 | x | Prairie Dream, Renaissance Oasis |
| Carpinus caroliniana | American Hornbeam | 2,3, | x | Native Flame |
| Celtis occidentalis | Common Hackberry | 2,3,4 | x | Chicagoland |
| Cercis canadensis | Eastern Redbud | 3,4 | x | |
| Cornus alternifolia | Alternate-Leaf Dogwood | 3,4 | x | |
| Cornus kousa | Kousa Dogwood | 3,4 | x | |
| Cratageus spp. | Hawthorn | 3,4 | x | |
| Ginkgo biloba | Maidenhair Tree | 3,4 | | Autumn Gold, Presidential Gold, Magyar |
| Gymnocladus dioicus | Kentucky Coffeetree | 2,3,4 | x | Espresso |
| Larix laricina | Tamarack | 1,2 | x | |
| Liriodendron tulipifera | Tuliptree | 1,2,3 | x | Emerald City |
| Malus sp. | Flowering Crabapple | 3,4 | | Firebird, Prairie Fire, Sargent, Zumi |
| Nyssa sylvatica | Blackgum | 2,3,4 | x | Wildfire, Afterburner |
| Platinus x acerifolia | London Planetree | 2,3,4 | | Bloodgood, Columbia |
| Prunus sp. | Flowering Cherry | 3,4 | | Accolade, Mushino, Kwanzan |
| Quercus biocolor | Swamp White Oak | 2,3,4 | x | American Dream |
| Quercus ellipsoidalis | Northern Pin Oak | 3,4 | x | |
| Quercus imbricaria | Shingle Oak | 3,4 | x | |
| Quercus macrocarpa | Bur Oak | 2,3,4 | x | |
| Quercus muehlenbergii | Chinquapin Oak | 3,4 | x | |
| Quercus palustris | Pin Oak | 3,4 | x | |
| Quercus rubra | Red Oak | 3,4 | x | |
| Quercus shumardii | Shumard Oak | 3,4 | x | |
| Taxodium distichum | Bald Cyprus | 1,2,3 | x | Shawnee Brave, Green Whisper |
| Tilia americana | American Linden | 2,3,4 | x | Legend, Boulevard, American Sentry |
| Ulmus americana | American Elm | 3,4 | x | Princeton, Jefferson, Valley Forge |
| Ulmus japonica | Hybrid Elm | 3,4 | x | Accolade, Frontier, Patriot, Triumph |
| Zelkova serrata | Japanese Zelkova | 3,4 | <u> </u> | Green Vase, Halka, Musashino |
| | Japanese Zeikova | 5,1 | 1 | |

SHRUBS

| | | [coloriar! | 1 | |
|---------------------------|----------------------|-------------|--------|--|
| | | Ecological | | |
| Scientific Name | Common Name | Zone(s) | Native | Cultivars |
| Alnus incana | Speckled Alder | 1,2 | X | |
| Aronia arbutifolia | Red Chokecherry | 2,3 | x | Low Scape Hedger, Autumn Magic |
| Ceanothus americanus | New Jersey Tea | 3,4 | x | |
| Cephalanthus occidentalis | Buttonbush | 1,2 | x | Sugar Shack |
| Cornus racemosa | Grey Dogwood | 2,3 | x | |
| Cornus sericea | Red-Osier Dogwood | I,2,3 | x | Arctic Fire, Cardinal |
| Corylus americana | American Hazelnut | 2,3 | x | |
| Hamamelis virginiana | Whitch Hazel | 3,4 | х | |
| Hydrangea paniculata | Oakleaf Hydrangea | 3,4 | | Limelight, Little Lamb, Gatsby Gal |
| Illex verticillata | Michigan Holly | ١,2 | x | Berry Heavy, Jim Dandy, Red Sprite |
| Juniperus communis | Common Juniper | 3,4 | x | |
| Juniperus horizentalis | Creeping Juniper | 3,4 | x | |
| Lindera benzoin | Spicebush | ١,2 | x | |
| Myrica pennsylvanica | Bayberry | 2,3,4 | x | |
| Physocarpus opulifolius | Ninebark | 2,3 | x | Festivus Gold, Ginger Wine, Tiny Wine Gold |
| Rhus aromatica | Fragrant Sumac | 3,4 | x | Gro-Low |
| Rhus copallina | Winged Sumac | 3,4 | x | |
| Rhus typhina | Staghorn Sumac | 3,4 | х | |
| Ribes americanum | Wild Black Currant | 2,3 | x | |
| Sambucus canadensis | Common Elderberry | 2,3 | x | |
| Spiraea alba | Meadowsweet | 2,3 | x | |
| Spiraea japonica | Japanese Spiraea | 3,4 | | Double Play Red, Artisan, |
| Salix exigua | Sandbar Willow | | x | |
| Viburnum acerifolium | Maple Leaf Viburnum | 2,3,4 | x | |
| Viburnum carlesii | Koreanspice Viburnum | 3,4 | x | Spice Baby, Cayuga |
| Viburnum dentatum | Arrowwood Viburnum | 2,3,4 | x | Morton, All that Glows, Autumn Jazz |
| Viburnum x juddii | Judd Viburnum | 3,4 | | |
| Viburnum lentago | Nannyberry Viburnum | 2,3 | x | |
| Viburnum prunifolium | Black Haw Viburnum | 3,4 | x | |
| Viburnum p. tomentosum | Doublefile Viburnum | 3,4 | | Mariesii, Shasta |
| Viburnum trilobum | Highbush Cranberry | 2,3,4 | x | |

GRASSES, SEDGES, and RUSHES

| | | Ecological | | |
|----------------------------|--------------------------|------------|--------|--|
| Scientific Name | Common Name | Zone(s) | Native | Cultivars |
| Acorus calamus | Sweet Flag | I | x | |
| Andropogon gerardii | Big Bluestem | 2,3,4 | x | Karl's Cousin, Indian Warrior, Red October |
| Bouteloua curtipendula | Side Oats Gramma | 3,4 | x | |
| Calamagrostis x acutiflora | Feather Reed Grass | 2,3,4 | | Karl Foerster, Overdam |
| Calamagrostis arundinacea | Fall Blooming F.R. Grass | 3,4 | | |
| Calamagrostis canadensis | Bluejoint Grass | 1,2 | x | |
| Carex comosa | Bristly Sedge | ١,2 | x | |
| Carex pennslvanica | Penn Sedge | 2,3 | x | |
| Carex vulpinoidea | Brown Fox Sedge | ١,2 | x | |
| Deschampsia cespitosa | Tufted Hair Grass | 3,4 | х | Golden Dew |
| Festuca glauca | Blue Fescue | 3,4 | | Elija Blue, Boulder Blue |
| Juncus effusus | Common Rush | | x | |
| Juncus torreyi | Torrey's Rush | 1,2 | x | |
| Koeleria pyramidata | June Grass | 2,3 | x | |
| Miscanthus sinensis | Japanese Silver Grass | 3,4 | | Adagio, Dixieland, Morning Light, Variegatus |
| Molinia caerulea | Purple Moor Grass | 3,4 | | Moorflamme |
| Panicum vergatum | Switch Grass | 2,3,4 | x | Cloud Nine, Northwind, Shenandoah, Hot Rod |
| Pennisetum alopecuroides | Fountain Grass | 3,4 | | Ginger Love, Hameln, Viridescens |
| Schizachyrium scoparium | Little Bluestem | 2,3,4 | x | Blue Heaven, Standing Ovation, The Blues |
| Scirpus acutus | Hard-Stemmed Bulrush | I | х | |
| Scirpus pungens | Chairmakers Rush | | x | |
| Scirpus validus | Great Bulrush | I | x | |
| Sesleria autumnalis | Autumn Moor Grass | 2,3,4 | x | |
| Sorghastrum nutans | Indian Grass | 2,3,4 | x | |
| Spartina pectinata | Prairie Cord Grass | 2,3 | x | |
| Sporobolus heterolepis | Prairie Dropseed | 2,3,4 | x | Tara |

NATIVE SEED MIXES

| | # of Permanent | | | |
|------------------------------|--------------------------|------------|--------|---|
| | (Grasses/Sedges) (Forbs) | Ecological | | |
| Name | Species | Zone(s) | Native | PLS pounds per Acre (Grass/Sedge)(Forb) |
| Low-Profile Prairie Seed Mix | (6)(30) | 3,4 | x | (6)(4) |
| Wet-to-Mesic Seed Mix | (9)(30) | 2 | x | (5)(4) |
| Stormwater Seed Mix | (13)(12) | 1,2,3,4 | x | (3)(1.5) |
| Temporary Cover (Common Oa | it & Annual Rye) | 1,2,3,4 | | (34)(0) |

FORBS

| FORBS | | | | |
|--|---------------------------|------------|----------|--------------------------------|
| | | Ecological | | |
| Scientific Name | Common Name | Zone(s) | Native | Cultivars |
| Achillea millefolium | Yarrow | 3,4 | x | |
| Aesclepias incarnata | Swamp Milkweed | 1,2 | x | |
| Aesclepias tuberosa | Butterfly Weed | 3,4 | x | |
| Allium sp. | Ornamental Chive | 3,4 | | Millennium |
| Aster laevis | Smooth Blue Aster | 3,4 | x | |
| Aster macrophyllus | Big Leaf Aster | 3,4 | | |
| | 0 | 2,3,4 | X | |
| Aster nova-angliae | New England Aster | | x | |
| Astilbe x arendsii | | 3,4 | | Glut, Sister Teresa, Fanal |
| Caltha palustris | Marsh Marigold | 1,2 | X | |
| Coreopsis lanceolota | Sand Coreopsis | 3,4 | X | |
| Coreopsis palmata | Prairie Coreopsis | 3,4 | x | |
| Coreopsis tripteris | Tall Tickseed | 3,4 | x | Flower Tower |
| Echinacea pallida | Pale Purple Coneflower | 3,4 | x | |
| Echinacea purpurea | Purple Coneflower | 3,4 | x | |
| Epilobium angustifolium | Fireweed | 2,3 | x | |
| Eupatorium maculatum | Joe-Pye Weed | 1,2,3 | x | Gateway, Phantom, Little Joe |
| Eupatorium perfoliatum | Boneset | 1,2,3 | x | |
| Fillipendula rubra | Queen of the Prairie | 2,3 | x | |
| Helenium autumnale | Sneezeweed | 2,3 | x | |
| Helianthus divaricatus | Woodland Sunflower | 3,4 | × | |
| Helianthus gigantus | Tall Sunflower | 2,3 | x | |
| Helianthus occidentalis | Western Sunflower | 3,4 | | |
| | Pale-leaved Sunflower | | x | |
| Helianthus strumosus | | 2,3 | x | A 1: |
| Heliopsishelianthoides | False Sunflower | 3,4 | x | Asahi |
| Hemerocallis sp. | Daylily | 3,4 | | Pardon Me, Stella de Oro |
| Hibiscus moscheutos | Rose Mallow | 2,3 | X | |
| Iris virginica | Blue Flag | I | x | Shrevei |
| Liatris aspera | Rough Blazingstar | 3,4 | x | |
| Liatris spicata | Prairie Blazingstar | 2,3 | x | Kobold |
| Lilium michiganese | Michigan Lily | 2,,3,4 | x | |
| Liriope muscari | Lily-turf | 3,4 | | Big Blue |
| Lobelia cardinalis | Cardinal Flower | 1,2 | x | |
| Lupinus perennis | Lupine | 3,4 | x | |
| Mimulus ringens | Monkey-Flower | 1,2 | x | |
| Monarda fistulosa | Bee-Balm | 3,4 | x | |
| Nepeta x faassenii | Catmint | 3,4 | <u>^</u> | Walker's Low, Six Hills Giant |
| Parthenium integrifolium | Wild Quinine | 2,3 | ~ | |
| | | 1,2 | X | |
| Penstemon digitalis | Beardtongue | | x | |
| Perovskia atriplicifolia | Russian Sage | 3,4 | | Filigran, Longin, Little Spire |
| Phlox divarcata | Woodland Phlox | 2,3,4 | X | |
| Phlox glaberrima | Marsh Flox | 2,3,4 | X | |
| Phlox pilosa | Prairie Phlox | 3,4 | x | |
| Physostegia virginiana | Obedient Plant | 3,4 | x | |
| Ratibida pinnata | Yellow Coneflower | 3,4 | x | |
| Rudbeckia fulgida | Black-Eyed Susan | 3,4 | x | |
| Rudbeckia subtomentosa | Sweet Black-eyed Susan | 3,4 | x | Little Henry |
| Rudbeckia triloba | Brown-Eyed Susan | 3,4 | x | |
| Salvia azura | Blue Sage | 3,4 | × | |
| Salvia numerosa | Sage | 3,1 | x | May Night |
| Silphium laciniatum | Compass Plant | 2,3 | × | |
| Silphium terebinthinaceum | Prairie-Dock | 3,4 | | |
| | Old-Field Goldenrod | | X | |
| Solidago nemoralis | | 3,4 | X | |
| Solidago rigida | Rigid Goldenrod | 2,3 | x | |
| Solidago speciosa | Showy Goldenrod | 3,4 | x | |
| Tradescantia ohiensis | Spiderwort | 3,4 | x | |
| Verbena hastata | Blue Vervain | 1,2 | x | |
| Verbena stricta | Hoary Vervain | 2,3 | x | |
| | | | | |
| Vernonia altissima | Tall Ironweed | ١,2 | X | |
| Vernonia altissima Veronica fasciculata | Tall Ironweed Ironweed | 1,2 3,4 | x x | |





CORRIDOR-WIDE GUIDELINES 2.4 SIGNAGE, IDENTITY & WAYFINDING



IDENTITY, SIGNAGE & WAYFINDING OVERVIEW

The identity, signage, and wayfinding system for the Grand River Corridor should celebrate and bring visibility to the diverse history, culture, and recreational opportunities along the river. The sign system should distinctive to the river corridor as a whole but should allow for unique design details and materials within individual character areas. This will create a unified system for the entire corridor while celebrating the individuality of various places along the river.

Intent

- Implement a hierarchical system of graphic components that enhance wayfinding, safety, and quality of experience along the corridor.
- Foster community pride and respect for the river with a system of distinctive signs for the Grand River Corridor and River Trail.
- Celebrate the diversity of individual character areas.
- Promote and foster stewardship of the river corridor.
- Engage with Grand Rapids WhiteWater and the City to coordinate trail and access signage with in-river safety and emergency response communication.
- Create a distinct site feature for the River Trail that enhances corridor identity by marking gateways and assists in wayfinding.

Concepts

- Develop a comprehensive branding, signage, and wayfinding plan for the corridor in coordination with the City of Grand Rapids, DGRI, Kent County Trails, and Grand Rapids WhiteWater.
- Integrate the corridor sign system with the materials palettes identified in this plan.
- Create a distinct River Trail identity that will help residents and visitors navigate to the multiple parks, public destinations, and institutions along the corridor. The River Trail will link them to primary in-river activities and provide access to the river's edge.
- Create a vertical and ground plane element that serves as a 'Welcome Mat' for key points along the Corridor and locate areas for 'Bread Crumbs' at key decision points along the trail. (See page 62-63)
 - Materials should be consistent but may vary in pattern and/or layout depending on site context and location significance.

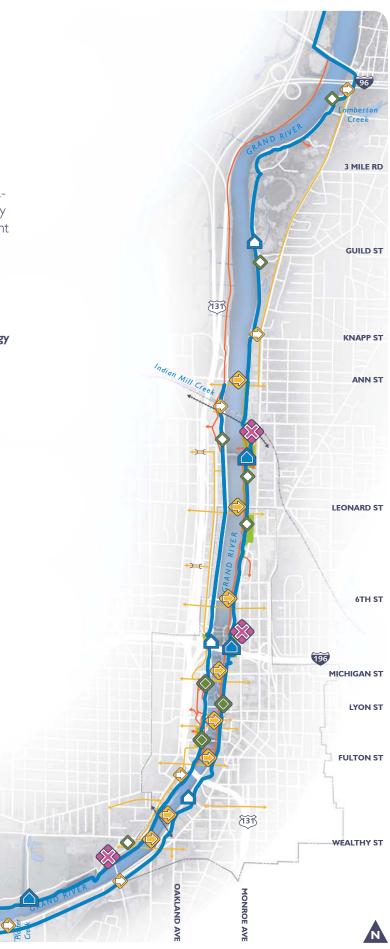
CONCEPTUAL SIGNAGE & WAYFINDING STRATEGY

Figure 2.4-1 illustrates a potential signage and wayfinding strategy for the Grand River Corridor. Descriptions and recommendations for the sign types listed below are detailed on the following pages.

NOT PICTURED, regulatory, interpretive, and seasonal signage types should be located as directed by City standards and other oversight and management agencies.

Figure 2.4.1 - Conceptual Signage & Wayfinding Strategy





SIGNAGE INTENT

PRIMARY MONUMENT/PUBLIC ART

Architectural features that celebrate the Grand River Corridor.

SECONDARY GATEWAY MONUMENT

Landmark-scale wayfinding features that identify the Grand River Corridor.

CONCEPTS

Can be integrated or grouped with public art that reflects the identity/history of the corridor. (See Section 2.5 Public Art)

Should be double-faced with Grand River Corridor identity.

Incorporate with 'Welcome Mats'. (See page 62-63)

TYPICAL SETTING

Locate at important city and corridor entry points as single elements, in groupings, or in combination with other landmark elements such as public art. (See Section 2.5 Public Art)

Locate at significant east-west streets and bridge cross-ings.



PRIMARY DIRECTIONAL SIGNAGE Directional/informational sign scaled for

automobiles.

SECONDARY DIRECTIONAL SIGNAGE Directional/informational sign scaled for pedestrians or bicyclists. Can be single- or double-faced and provide directional/ informational language and graphics with Grand River Corridor identity.

Can be incorporated with 'Bread Crumbs'. (See page 62-63)

Can be single- or double-faced and provide directional/ informational language and graphics with Grand River Corridor identity.

Can be incorporated with 'Bread Crumbs'. (See page 62-63)

Locate on main routes to significant corridor destinations and decision points along the arterial streets.

Locate at secondary streets, Vital Streets connections, and other on-street bicycle trails.

PRECEDENTS



Primary Gateway Monument Image: Indianapolis Cultural Trail; Indianapolis, IN | Credit: Indianapolis Cultural Trail, Inc.



Secondary Gateway Monument Image: Monon Trail; Westfield, IN | Credit: City of Westfield, Indiana



Primary Directional Signage Image: Golden Gate National Park, San Francisco, CA, | Credit: Hunt Design

EXAMPLE

Neighborhood entrances such as West Grand, Creston, Stockbridge, North Monroe, Center City, Swan, West Fulton, Heartside, Roosevelt Park and Black Hills communities

Bridge crossings and trail connections such as Plaster Creek, Indian Mill Creek and Oxford Street Trail

Neighborhood/Vital Streets connections

Plaster Creek, Indian Mill Creek, and Oxford Street trail connections; GVSU campus pedestrian connections



Secondary Directional Signage Image: Nicollet Mall, Minneapolis, MN | Credit: Pentagram Design Studio

SIGNAGE INTENT

SITE INFORMATION SIGNAGE

SITE IDENTIFICATION SIGNAGE

Identifies important sites along the Grand River Corridor. May include rules/regulations

partner/sponsor organizations.

information.

Displays site-specific, semi-permanent, and

changeable information including maps, park

features, rules, events details and identification of

CONCEPTS

Can be single- or double-faced and must provide site information with integrated Grand River Corridor identity.

Consider text in both English and Anishinaabe languages.

Can be single or double-faced and must provide site identification.

Materials should reflect the individual character areas, up-lighting optional.

Known popular tourism areas and parks

TYPICAL SETTING

Park/open space entries, play areas and special recreation destinations such as skate parks or climbing walls

MAJOR INFORMATION KIOSK

Wayfinding and orientation gathering place feature that celebrates the Grand River Corridor. Displays mapping, features, events, partnering organizations, and trail system information.

MINOR INFORMATION KIOSK

Orientation feature with site specific information and city-wide mapping of partnering trail systems and partner organizations.

Large-scale, multi-sided with display panels

May include staffed / secured area for equipment rental or storage, training information, etc.

Multi-faced sign designed to reflect the individual Character Area

May be linked to additional equipment rental/storage facilities

Large public gathering sites within parks or plazas

Key locations and parks along the river corridor

PRECEDENTS



Site Information Signage Image: Governor's Island, NY | Credit: Pentagram Design Studio



Site Identification Signage Image: Governor's Island, NY | Credit: Pentagram Design Studio



Major Information Kiosk Image: Boston Harbor Islands National Park, Boston, MA | Credit: Reed Hilderbrand

EXAMPLE

Museums and destinations, near hotels, at entries to parks that hold special/seasonal events

Riverside Park and Butterworth Area Open Space, future skate park at North Monroe opportunity site

At boating access locations such as the future North Monroe opportunity site, Water Department Storage site, and Butterworth Area Open Space

River access points such as Fish Ladder Park and Coldbrook/Canal Street Park

Minor Information Kiosk Image: George Rigers Park Interpretive Plaza, Lake Oswego, OR | Credit: GreenWorks

| SIGNAGE INTENT | CONCEPTS | TYPICAL SETTING |
|---|---|---|
| TRAIL IDENTIFICATION SIGNAGE Fixed orientation signage to identify location along the River Trail. | May be vertical, fixed elements or on-ground orientating signage. May be integrated with mile-marker system at one-quar- ter or one-half-mile intervals. | Continuous, along trail |
| SEASONAL IDENTIFICATION BANNERS Display special event information and identify partner groups. | May be installed on existing/future light poles and/or along building faces near floodwall edge. To be used for vibrant, high-quality banners for public events only, not for private advertisements | Within Downtown Development Authority (DDA) boundary |
| | | |

INTERPRETIVE SIGNAGE

Display interpretive themes, messages, and graphics.

Uniquely designed sign system that reflects and uses materials of the specific Character Areas in this plan.

Potential Anishinaabe dual-language integration

Single or double-faced sign mounted to poles. Pole material may vary.

Key interpretive sites along the river corridor

Throughout the trail corridor and parks

REGULATORY SIGNAGE

Enhance safety and quality of experience along the corridor. Display regulatory, informational, and directional messages.

PRECEDENTS



 Trail Identification Signage

 Image: Brooklyn Bridge Park; Brooklyn, NY | Credit: Michael Van Valkenburgh Associates, Inc.



Seasonal Identification Banners Image; Milwaukee Riverwalk; Milwaukee WI | Credit: Milwaukee Magazine



Interpretive and Educational Signage Image: Schuylkill River Trail; Philadelphia, PA | Credit: Interpretive Graphics, Inc.

EXAMPLE

Mile-markers or cross-street identifiers, especially within larger parks (Riverside, Butterworth) without visible urban landmarks

Festival, events, ArtPrize information banners along 'The Rapids' throughout Downtown

Existing interpretive locations, historic sites, and cultural learning opportunities such as indigenous sacred sites, historic placemarkers or past industrial districts

As needed, re: City Engineering, Traffic, Public Works



Regulatory Signage Image: Indianapolis Cultural Trail; Indianapolis, IN | Credit: Rundell Ernstberger Associates

CORRIDOR IDENTITY: 'WELCOME MATS' AND 'BREAD CRUMBS'

SIGNAGE INTENT

WELCOME MAT' PRIMARY STREET CROSSING*

Visual cues for the River Trail at street interfaces or major nodes to designate entry into the corridor or park sites. Welcome mats at primary streets should be sized to be easily visible by vehicular traffic.

WELCOME MAT' SECONDARY STREET CROSSING*

Visual cues for the River Trail at street or trail interfaces or secondary nodes to designate entry into the corridor or park sites. Welcome Mats at secondary streets should be sized to be easily visible by approaching pedestrians.

CONCEPTS

Identify River Trail with signature blue paving. Signage should include embedded location identification on the ground plane, and a large vertical wayfinding element, to be designed as part of a future signage package. Scale of signage and paver area should be large in size to be easily visible by vehicular traffic. At a minimum, the pavers should extend the width of the trail and can extend into intersecting sidewalks.

Identify River Trail with signature blue paving. Signage should include embedded location identification on the ground plane, and a smaller vertical wayfinding element, to be designed as part of a future signage package. Scale of signage and paver area should be sized to be easily visible by approaching pedestrians. At a minimum, the pavers should extend the width of the trail and can extend into intersecting sidewalks.

TYPICAL SETTING

Place at primary streets with mid-block crossings.

Place at secondary streets and pedestrian bridges.

Place at intersections with neighborhood connectors. (See *Vital Streets Plan*)

Place at intersections with other regional trails.

'BREAD CRUMBS' TRAIL MARKINGS*

'Bread crumbs' provide visual cues for the River Trail in areas where trail visibility or wayfinding could be lost due to sharp turns or decision making points. Identify River Trail with signature blue paving on the ground plane. Adjacent vertical elements may incorporate blue marking with paint, thermoplast, colored concrete, pavers, or other accepted materials as appropriate. Scale of 'Bread Crumb' area to be sized appropriately to each condition for adequate navigation visibility. Place at the entry point of promenades or widen plazas where the River Trail integrates into the private developments.

Place at turns, corners, or narrowing where the trail visibility is lost due to walls, buildings, stairs, ramps, or similar.

CONCEPTUAL ILLUSTRATIONS



'Welcome Mat' - Primary Street Crossing Conceptual Image for Grand River Corridor | Credit: Wenk Associates



'Welcome Mat' - Secondary Street Crossing Conceptual Image for Grand River Corridor | Credit: Wenk Associates



'Bread crumbs' Trail Markings Conceptual Image for Grand River Corridor | Credit: Wenk Associates

EXAMPLE

Major vehicular street crossings (Bridge Street, Pearl Street, Fulton Street, Leonard Street, Ann Street)

Pedestrian access and crossings (Blue Bridge, Oxford Street Bridge, Riverside Park, Butterworth Open Space)

Scribner Ave, GVSU, DeVos Promenade

* See Section 3.2 Materials for Welcome Mat and Bread Crumb materials.



Temporary Example of 'Bread Crumb' Trail Marking Area 'River For All' Public Outreach, ArtPrize 2017 - Michigan Street Bridge, Grand Rapids Image Credit: Williams & Works



Image Credit: Grand Rapids Magazine

"In my youth, I couldn't imagine Grand Rapids with such extraordinary public art, now I cannot imagine our city without it. Let us remain committed to our unique tradition of placing exceptional works of public art at highly visible and distinct locations for all to savor. More than just improving this exceptional city, each artwork will contribute to the escalating reputation and glow that is Grand Rapids."

> ➤ David Frey, The Frey Foundation, "Public art is a defining urban characteristic", Grand Rapids Business Journal, May 11, 2018



CORRIDOR-WIDE GUIDELINES 2.5 PUBLIC ART





LOVE, Robert Indiana - Louis Campau Promenade, Downtown Grand Rapids

GRAND RAPIDS PUBLIC ART OVERVIEW

Grand Rapids has an extraordinary tradition of world renowned art that began in 1969 with the installation of Calder's La Grand Vitesse in a central downtown plaza. Since then, public art has provided distinction, identity, and a sense of place for the city. Along with Calder's piece, Grand Rapids' reputation for thoughtful permanent art pieces includes Robert Indiana's Love and Maya Lin's Ecliptic. Each has contributed to building an important legacy of art in Downtown Grand Rapids.

The Grand River Corridor is an opportunity to continue this important role for public art established in the city. There is an appreciation for art that lasts and holds up over time, as well as a level of understanding of what art can do for a city which is exemplified by those iconic pieces downtown. It is important that public art within the corridor makes a contribution to the bigger picture of art in Grand Rapids -- it must be profound and important.

There is a tremendous outpouring of community support for ArtPrize, Grand Rapids' 3-week art exhibition which focuses on multiple temporary installation pieces. Projects by ArtPrize, a new citywide art project starting in 2019, will showcase a single public art project completed by a single artist or group of artists at sites in downtown Grand Rapids, and will include education and cultural programming that is free and open to the public. *Projects* will take places during alternate years of ArtPrize. These temporary art installations within the corridor should continue to be part of the public art experience. However, additional, year-round rotating art installations outside of ArtPrize and Projects are not best suited for the river corridor as they require a higher level of management and care than permanent installations.



La Grande Vitesse, Alexander Calder - Vandenberg Plaza, Downtown Grand Rapids

Image Credit: Festival of the Arts, Grand Rapids (www.festivalgr.org)



Ecliptic, Maya Lin - Rosa Parks Circle, Downtown Grand Rapids Image Credit: Quennell Rothschild & Partners (www.grpartners.com)



SOS (Safety Orange Swimmers), A+| Art+Design - Art Prize 2017 Image Credit: Wenk Associates

PUBLIC ART STRATEGY: GRAND RAPIDS CORRIDOR

Intent

- Commission new, permanent works of art for the corridor that are profound and important and that move Grand Rapids into the 21st century art conversation, as well as establish identity and a sense of place.
- Identify strategic locations for iconic work that mark gateways and/or important places along the corridor.
- Focus on the quality of public art over quantity.
- Design or acquire work for longevity. Should not be maintenance driven.
- Identify locations for temporary, and semipermanent installation work for ArtPrize and Project by ArtPrize.
- Incorporate the corridor public art sites into the City-wide Outdoor Art Master Plan currently being developed by the Arts Advisory Committee.

Concepts

- Identify appropriate public art through a 3-phase process starting with 1) Site Selection, 2) Artist Selection, and lastly 3) Budget.
- Place public art in 3 locations within the corridor: (See Figure 2.5.1)
 - 1 North Gateway
 - 2 Central Plaza
 - 3 South Gateway
- Make a statement with the first selected public work for the corridor: it should be on the scale to become iconic and of significant importance for the City.
- Use public art to create an identity for the corridor. The art should pay homage to place and history and celebrate the river and the connections that it provides without being prescriptive. Allow the artist creative freedom.



Public art for the Grand River Corridor should make a statement. Cloud Gate, Anish Kapoor - Creates a gateway to Millennium Park from downtown Chicago

Image: Yuppee Magazine



CULTURAL & HISTORICAL THEMES **OVERVIEW**

'River for All' has been the central maxim for all decisions that have shaped this Grand River Corridor planning effort.

Through multiple outreach efforts, generous community feedback and historical research, the planning team has identified the critical cultural and historical themes at the heart of this corridor, and established strategies for carrying those messages into future improvement efforts.

These recommendations unite the needs and ideas of many cultural groups and historic stories to reinforce the Grand River Corridor as a 'River for All'.



Illustration by Sarah Nelson 1856



CORRIDOR-WIDE GUIDELINES 2.6 CULTURAL & HISTORICAL THEMES



Grand Rapids History & Special Collections, Archives, Grand Rapids Public Library, Grand Rapids, MI.

THE FIRST PEOPLE

The Grand River, which the Chippewa people call Owashtanongzibi ("further country"), is central to the cultural identity of many indigenous communities including the People of the Three Fires, an alliance of the Ottawa (Odawa), Chippewa (Ojibwa), and Potawatomi (Bodewadi) tribes. Since these indigenous origins, the Grand River has served as a spiritual and cultural anchor, a primary travel and trade route, and the valley has been crucial for hunting and growing food. The native communities that live here today, like those who came before them, have a deep relationship with the river and land along it.

Around 1700, the People of the Three Fires established villages in what is now Grand Rapids, with their main gathering place in present-day downtown. The People of the Three Fires called themselves the Anishinabek or 'The Original People'. The lives of these indigenous people changed in 1821 when the Treaty of Chicago gave the United States control of the land south of the Grand River. The area was opened up to settlement, and Native Americans were increasingly displaced, and often forcibly relocated to make room for new arrivals. The new European fur traders established trading posts with the Ottawa tribes and primarily traded European metals for textiles and fur pelts.

The Anishinabek people continue to live in this region of their ancestors and the river continues to hold cultural and historical significance to them. At Ah-Nab-Awen Park there are three large hills which were designed to symbolize the mounds used in Hopewell culture.

Theme Opportunities

Anishinaabe community members were actively engaged in the design process for this corridor plan and provided guidance for the interpretative stories and strategies that should be integrated in future corridor improvements. The following includes potential theme opportunities as it relates to the First People.

• Honor significant sites through interpretive signage and provide opportunities for new active programs that celebrate the location's history.



Ojibwe family on the Grand River in a traditional birchback canoe Image: www.ojibwe.org

- Areas along the Grand River should be used as living classrooms for actively teaching cultural, historical, and ecological knowledge.
 - ~ Establish indigenous means and methods for cultivation and conservation of habitat areas and productive landscapes.
 - ~ Consider ceremonial landscape types as living classrooms, such as: cedar swamps, cattail marshes, wild rice beds, lowland elm forests, and oak savannahs.
- Anishinaabe language is uniquely capable of expressing the significance of the Grand River and its relationship with the habitats and community members that it touches. As such, signage and naming practices should integrate Anishinaabe text wherever possible.
- There is a vibrant legacy of craftsmanship and placemaking along the river. Anishinaabe community members should play an integral role in the future decision-making and design of the Grand River Corridor.

LOGGING & FURNITURE **INDUSTRIES**

By the late 19th century, Grand Rapids was becoming a major center for furniture production. The logging industry supported the production of the high-end furniture of which Grand Rapids would later be known.

Logs could be floated on the river from as far away as Lansing to the lumber mills along its meandering route. The river was a major factor in the region's furniture boom, with industry supplanting activities such as transportation and trade. In the summer of 1883, a flood sent thousands of logs into bridges and other barriers; the resulting log jam stretched over 47 miles.

Parallel canals and connecting flumes moved materials and provided energy and power sources for milling and industrial operations.

Existing historic structures, sites and materials provide direct connections to the industrial legacy. Where they are not present, research into past land uses and industrial processes provide a framework for new programs and learning experiences.

Theme Opportunities

Local community members and business owners provided insight into the critical cultural and historical themes that reflect this rich craft and industrial legacy. The critical elements that emerged from these conversations are listed below.

- Select trees species that contributed to the historic lumber and furnishings industries and interpret through signage.
- Collaborate with a local site furnishing manufacturer to develop a family of benches that recall the Furniture City heritage and that can help create an identity for the corridor.
- Recall industrial histories in play elements and other site features.
- Highlight historic neighborhoods and city routes as remnants of early Euro-American immigrant communities.



Grand River Log Jam Image: Calvin College Hekman Digital Archive



Grand Rapids Furniture Factory Image: Grand Rapids People's History Project





RIVER FOR ALL

3 **SITE TYPES & CHARACTER AREAS GUIDELINES**

SITE TYPES & CHARACTER AREAS GUIDELINES 3.1 SITE TYPES & CHARACTER AREAS





SITE TYPES & CHARACTER AREAS OVERVIEW

Future improvements along the Grand River's edge should support a vibrant and diverse corridor experience by responding to the surrounding context. The Design Guidelines outlines recommendations based on four 'site types' found along the corridor that represent broad categories of public and private use lining the river. These include Natural Riverfront Parks, Industrial Redevelopment Areas, Public Riverfront Parks, and Urban Riverfront Parks. Each 'site type' is then divided into eleven 'character areas' that reflect changes in land use, development density, and river edge types, as well as inherent site characteristics.

This organizational approach to the Design Guidelines is similar to, but expands on the three site type approach - Urban, Transitional, and Anchor - outlined in the *Grand Rapids Parks & Recreation Strategic Master Plan* (GR-PRSMP) to allow for the diversity of the corridor to be fully expressed.

NATURAL RIVERFRONT PARKS

SITE TYPES

The following four site types have been identified that describe broad categories of existing public and private uses lining the river.

NATURAL RIVERFRONT PARKS include the Anchor sites identified in the *GR-PRSMP*, Riverside Park and the Butterworth open space area. It also includes the naturalistic areas across the river from those sites.

INDUSTRIAL REDEVELOPMENT AREAS

include the areas north and south of downtown that are more industrial. Mixed-use redevelopment is replacing industrial uses on multiple sites.

PUBLIC RIVERFRONT PARKS include the existing downtown parks (Ah-Nab-Awen Park, 6th Street Park, and Canal Street Park), the river edge landscapes of GVSU classroom buildings, and Grand Rapids Public Museum. It also includes proposed parks on the Water Treatment and Water Storage sites that will provide public leisure and gathering opportunities.

URBAN RIVERFRONT PARKS include the proposed park at North Monroe, the existing Fish Ladder Park, and the existing promenade at the Convention Center. These areas will become premier destinations for downtown visitors and residents.



INDUSTRIAL REDEVELOPMENT AREAS



PUBLIC RIVERFRONT PARKS



URBAN RIVERFRONT PARKS



CHARACTER AREAS

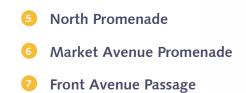
The four Site Types are broken down further into Character Areas (See *Figure 3.1.1*). The following pages describe the **design intent** (purpose) and **concepts** (strategies or recommendations) for each Character Area.

Figure 3.1.1 - Site Types and Character Areas Key Map

NATURAL RIVERFRONT PARKS



INDUSTRIAL REDEVELOPMENT AREAS



PUBLIC RIVERFRONT PARKS

- 8 North Riverfront Park
- **9** The Front Lawn

URBAN RIVERFRONT PARKS



11 The Downtown Promenade

The images to the right highlight typical conditions for each of the site types. Images Credit: Google Earth



NATURAL RIVERFRONT PARKS

Tree-lined river banks, riparian river edges, marshes, and expansive meadows are characteristic of the existing, natural qualities of the two, large, riverfront park areas that anchor the northern and southern edges of Grand Rapids. The areas across the river from those parks consist of steep banks and natural areas that provide a buffer from the adjacent roadway/highway.

Natural Riverfront Park Character Areas

- 1 **Riverside Park (Anchor)**
- US 131 Buffer Preserve 2
- 3 South Market Promenade
- 4 Butterworth Area Open Space (Anchor)

The following describes the shared design intent and concepts for the Natural Riverfront Parks character areas.

Shared Intent

- Increase the number and type of recreational access points to the river's edge.
- Restore the river and adjacent uplands' natural qualities and ecological diversity.
- Incorporate a regional trail and a network of • secondary trails.
- Provide more diverse opportunities for programmed and unprogrammed passive recreation, access to nature, and environmental education.

Figure 3.1.2 - Natural Riverfront Park Character Areas Key Map



Shared Concepts

- Expand the type and numbers of opportunities for passive river access; provide universal access at multiple points along the river.
 - ~ Expand the type and frequency of pedestrian access to the river's edge.
 - ~ Expand visual access to the river in selected areas, develop overlooks, and selectively clear view corridors.
- Expand the type and number of opportunities for boater access to the river.
 - ~ Expand the opportunities for trailered boat launches in Anchor Parks.
 - ~ Provide for carry-in boater amenities and storage.
- Enhance ecological diversity of the river edge; rehabilitate a full range of native plant communities from aquatic to upland landscape types.
 - ~ Improve aquatic and sub-aquatic habitat to mitigate potential loss of in-stream habitat as part of in-river and river edge improvements.
 - ~ Selectively remove invasive plant species and replant with appropriate native species.
 - ~ Convert under utilized turf areas in existing parks to native plant communities.
- Incorporate nature-based recreation opportunities in Anchor Sites to complement facilities in urban parks.
- Interpret each site's unique natural, ecological, cultural, historical, and environmental history.
 - ~ Landforms, structures, and related site improvements should reflect the unique environmental, ecological, and cultural history of each character area.
- Selectively clear understory vegetation to improve trail safety and to open river views.
- Develop a full range of accessible trail types to broaden the range of opportunities for diverse recreational experiences.



Provide a hierarchy of trail types for variety of use and experience. Image: Fox River Bike Trail; Kane County, IL | Credit: Kane County Connects



Expand opportunities for access to the river. Image: Commons Park; Denver, CO | Credit: Civitas, Inc.



Incorporate facilities for environmental education. Image: Menomonee River Valley Redevelopment; Milwaukee, WI | Credit: Wenk Associates

1 RIVERSIDE PARK (ANCHOR PARK)

Extensive areas of mown turf, groves of mature trees, ponds, streams, and a network of trails organized along winding scenic drives extending the length of the park have made the Riverside Park an important destination for passive recreation use, festivals and events, and large and small gatherings for decades.

The following describes the unique design intent and concepts for the Riverside Park Character Area.

Intent

- Preserve the historic qualities of Riverside Park that have great value as part of the city's history.
- Renovate and expand existing park facilities with facilities that respect the park's historic qualities.
- Provide greater ecological diversity and more diverse recreation opportunities without decreasing usable lawn area.
- Enhance the park's scenic qualities.
- Improve river-edge access and enhance riparian and aquatic habitat.

Concepts

- Restore historic structures/develop contemporary structures sympathetic to historic park character. Site improvements should reflect the rustic, picturesque qualities of Riverside Park.
- Evaluate the levels and type of recreational use of existing turf areas in the park, and renovate underutilized turf areas to restore native understory plant communities
- Develop a series of in-river point bars or bend way weirs at the river's edge to enhance aquatic and sub-aquatic habitat.
- Re-evaluate trail locations and types to develop a broader range of trail types that allow a stronger connection to newly created natural areas at the river's edge.

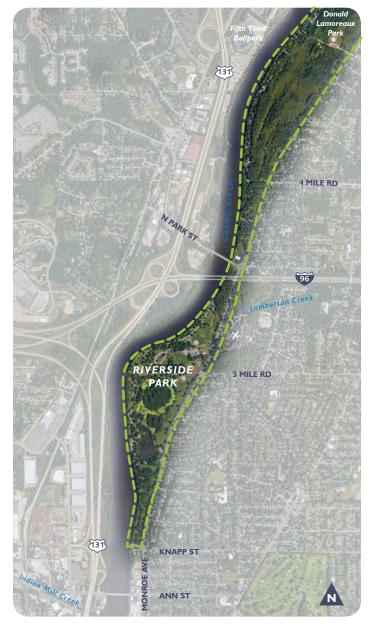


Figure 3.1.3 - Riverside Park Character Area

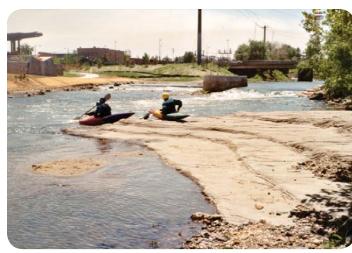


Large turf meadow gathering areas provide spaces for large events as well as leisure.

Image: Hudson Park River Lawn; New York, NY | Credit: Michael Van Valkenburgh Associates



Contemporary park structures with traditional building forms are desired. Image: Lewis Creek Park Picnic Shelters; Bellevue WA | Credit: Miller & Associates



In-river jetties provide opportunities for improved river access. Image: Commons Park; Denver, CO | Credit: Civitas, Inc.



A hierarchy of trail types provides a variety of experiences. Image: Millennium Park; Grand Rapids, MI | Credit: Kent County Parks



Restore native understory in underutilized turf areas. Image: Grant Frontier Park; Denver, CO | Credit: Wenk Associates



Log revetments improve in-river habitat. Image: Bear Creek; Denver, CO | Credit: Wenk Associates

US 131 BUFFER PRESERVE 2

The narrow, vegetative buffer between US Highway 131 and the river's edge, currently under the control of Michigan Department of Transportation, is to be maintained as a natural preserve with trail access.

The following describes the unique design intent and concepts for the US 131 Buffer Preserve Character Area.

Intent

- Maintain as a natural preserve with trail access.
- Enhance the ecological diversity and habitat value of the river's edge.
- Improve quality of storm runoff from the highway.

- Construct habitat improvements at the river's edge, including log revetments, to enhance the quality and diversity of riparian and aquatic habitat.
- Construct biofiltration areas to improve the quality of local stormwater runoff and to create more diverse habitat at the river's edge.
- Selectively clear views to the river from Highway 131.
- Create a continuous trail corridor from Indian • Mill Creek to Fifth Third ball park. Maintain a continuous visual clear zone of low understory plantings for trail safety and visibility from US 131.

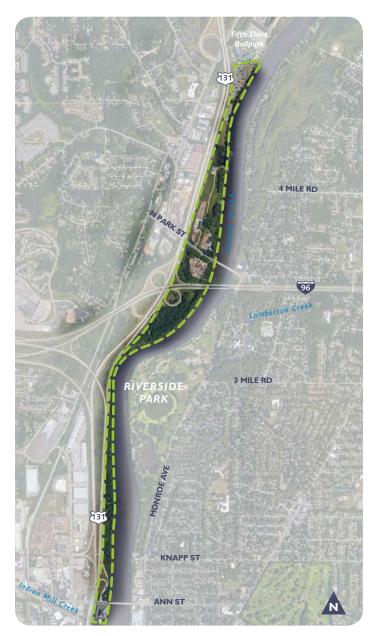


Figure 3.1.4 - US 131 Buffer Preserve Character Area



Existing view from US Highway 131 Image: Grand Rapids, MI | Credit: Google Earth



Image: Stormwater Park; Milwaukee, WI | Credit: Wenk Associates



Log revetments improve in-river habitat. Image: Bear Creek; Denver, CO | Credit: Wenk Associates



Soft surface trail to connect west river edge to the ballfields to the north. Image: Quineboag River Grand Trunk Trail; Sturbridge, MA | Credit: MarjorieTurner.com

3 SOUTH MARKET PROMENADE



Figure 3.1.5 - US 131 Buffer Preserve Character Area

Significant constraints to implementation of a continuous trail connection through the South Market Promenade area stem from the existing narrow trail corridor, steep river edge, privately owned industrial parcels bounded by a raised floodwall and adjacent street, and multiple interceptor sewer facilities.

The following describes the unique design intent and concepts for the South Market Promenade Character Area.

Intent

- Provide a safe, continuous, off-roadway, regional trail connection between the downtown area and City and County trail connections to the south.
- Improve views to the river.

- Develop a continuous regional trail connection integrated into city-owned and private redevelopment areas. Potential options include (from upstream to downstream):
 - Collaborate with Grand Rapids Public Works Department to integrate a regional trail adjacent to pump stations on the embankment next to the 8' floodwall.
 - Provide a cantilever trail where existing uses prohibit on-site trail setbacks.
 - Connect to Indian Mounds Drive via a protected trail along Market Avenue.
 - Provide trail on the existing river embankment where feasible.
- Construct trail pullouts and provide river views where space allows to enhance scenic views and to provide opportunities for interpretation of area history.



Existing pump stations between South Market Ave and the river create challenges for trail access and require coordination with GRPW Image: Grand Rapids, MI | Credit: Google Earth



Existing conditions downstream of Plaster Creek consist of steep slopes and thick vegetation. Image: Grand Rapids, MI | Credit: Google Earth



Existing, narrow sidewalk and buffer adjacent to South Market Avenue Image: Grand Rapids, MI | Credit: Google Earth

4 **BUTTERWORTH AREA OPEN SPACE** (ANCHOR PARK)

The expanse of the Butterworth Area Open Space has an extensive river frontage which presents multiple opportunities for a broad range of recreational uses. The site is best suited for multiple types and points of river access, unprogrammed small and large group recreational uses, adventure sports, and environmental education. Its 'Superfund' site designation places certain limitations on recreation use and facilities development, and can require mitigation that will affect the form and character of the landscape and type and location of recreation improvements.

The following describes the unique design intent and concepts for the Butterworth Area Open Space Character Area.

Intent

- Develop the area as a regional, nature-based, recreation and outdoor education destination with improved river access and habitat value.
- Enhance the site's experiential qualities and character through landscape modifications and site improvements that provide visitor facilities and interpret its complex history.
- Enhance the site's ecological diversity.
- Provide river access for trail users and boaters.



Figure 3.1.6 - US 131 Buffer Preserve Character Area

- Develop a 'language' of landforms, structures and site elements that interpret and recall the site's past occupation and industrial uses, for example as industrial landfill or Anishinaabe fields.
 - Construct sculptural landforms and planting schemes to define use areas and to create a more diverse ecology. Avoid landforms that mimic nearby natural forms as they would limit the opportunity to interpret site history.
 - Use industrial, rustic, and recycled materials; trail and drive materials should be compatible with the site's rustic setting.
- Improve the existing boat launch ramp, and develop supporting facilities and amenities to improve river access for carry-in and trailer launched watercraft.
- Improve habitat value and river access.
 - Develop a series of revetments including point bars or bendway weirs at the river's edge to enhance river edge habitat.



Sculpted landforms recall industrial past and provide habitat diversity Image: Long Dock Park; Beacon, NY | Credit: Reed Hilderbrand



Incorporate multiple types and opportunities for river access. Image: Menomonee River; Milwaukee, WI | Credit: Wenk Associates



Install revetments to enhance river edge habitat. Image: Bear Creek; Denver, CO | Credit: Wenk Associates



Incorporate visitor amenities that preserve the park's rustic qualities. Image: Phil Hardberger Park; San Antonio, TX | Credit: Stephen Stimson Associates



Interpret the park's complex history through environmental education. Image: Menomenee Valley Urban Ecology Center; Milwaukee, WI | Credit: Wenk Associates



Utilitarian steel structures interpret past site uses Image: Marcus Prize Stewardship Pavilion; Milwaukee, WI Credit: UWM School of Architecture and Urban Planning

INDUSTRIAL REDEVELOPMENT AREAS

Multiple sites on the riverfront north and south of downtown Grand Rapids are being redeveloped as a mix of commercial, office, hospitality, and residential uses. Exceptions include the large academic buildings on the Grand Valley State University (GVSU) campus south of Fulton Street and on-going activities of several large and small industrial uses. An existing concrete floodwall of varying heights forms a continuous river edge. As individual parcels redevelop in these areas, the City will encourage a continuous public walkway on, or adjacent to, the existing floodwall as part of redevelopment. On larger redevelopment sites that are part of public-private partnerships, multiple points of public access will expand access to, and further activate the river edge.

Industrial Redevelopment Character Areas

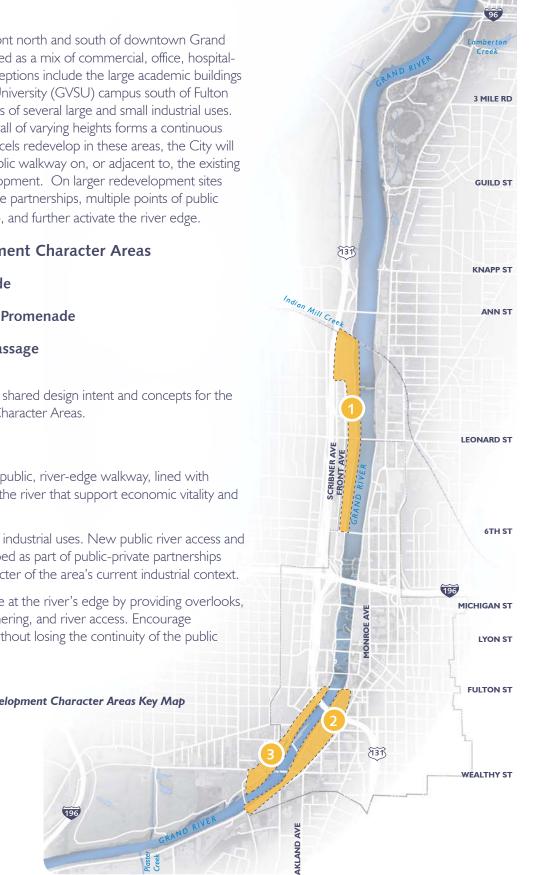
- 1 North Promenade
- Market Avenue Promenade
- Front Avenue Passage

The following describes the shared design intent and concepts for the Industrial Redevelopment Character Areas.

Shared Intent

- Develop a continuous, public, river-edge walkway, lined with active uses oriented to the river that support economic vitality and redevelopment.
- Retain character of past industrial uses. New public river access and gathering areas developed as part of public-private partnerships should reflect the character of the area's current industrial context.
- Diversify the experience at the river's edge by providing overlooks, • outdoor sitting and gathering, and river access. Encourage individual expression without losing the continuity of the public edge.

Figure 3.1.7 - Industrial Redevelopment Character Areas Key Map



Shared Concepts

- Develop a continuous public River Trail (See Section 2.1, Circulation Guidelines)
 - ~ Cantilever the walkway over the river at existing buildings to be retained and/or renovated if minimum setback for on-site River Trail cannot be met.
 - ~ Provide for required building setbacks and pedestrian walkway, pedestrian amenities, connections between the walkway and adjacent development, and related requirements as defined by requirements of the River Overlay District as part of redevelopment projects.
- Preserve/recall the area's industrial character.
 - ~ Recycle and incorporate existing historic building elements in new construction and boardwalk elements as appropriate.
 - ~ Incorporate artifacts and recycled and repurposed materials that promote the creative enterprises and communities that will be drawn to live and work in the area.
 - ~ Encourage use of industrial materials such as exposed structural steel, board formed concrete for new construction.
- Provide enhanced access and connections to the river's edge.
 - ~ Support the development of river overlooks and other publicly accessible destinations along the walkway.
 - ~ Support development of public/private recreational boating access as part of adjacent private redevelopment.
- Support individual expression of redevelopment and new projects without losing the continuity and identity of the public River Trail.
- Emphasize the individual character of each redevelopment project through informal groupings and arrangements of site amenities and landscape plantings on private parcels to reflect the varied character and specific site opportunities of each property.
 - ~ Provide a variety of plantings or architectural elements for shade and visual interest, a variety of seating options, and other site amenities that encourage pedestrian use.



Line the edge with public and private uses and amenities. Image: Empire Stores near Brooklyn Bridge Park; Brooklyn, NY | Credit: Studio V Architecture



Incorporate planting pockets and private water access where space allows. Image: Milwaukee Riverwalk; Milwaukee, WI | Credit: Dave Reid



Incorporate places for art, entertainment, and spontaneous events. Image: Spruce Street Harbor Park; Philadelphia, PA | Credit: Delaware River Waterfront Corp.

5 NORTH PROMENADE

The North Promenade, to be established along the river's edge between redeveloped industrial sites and ongoing industrial uses along the river will create a lively and eclectic promenade where restaurants and bars, retail uses, and businesses line the public riverfront and River Trail.

Existing large and small industrial uses lining Front Street are being replaced by infill residential, mixed-use and hospitality projects in this zone. The barrier created by US 131 and existing buildings located on or immediately adjacent to the continuous floodwall greatly limit river access.

Intent

- Provide better connectivity for the west side neighborhoods to expand river access.
- Develop a continuous public River Trail that reflects the eclectic mix of buildings that currently line the river.
- Establish the character of the River Trail edge to reflect the varied mix of industrial, office, hospitality, and residential uses lining the trail.
- Ensure that the individual expression and identities of businesses lining the North Promenade provide a lively complement to the continuous public connection of the River Trail.

Concepts

- Incorporate secondary paths connecting Front Street to the river. (See *Figure 2.1.2* in the Circulation Guidelines section for proposed locations.)
- Provide for dedicated bicycle/connections to neighborhoods to the west of US 131.
- Provide river overlooks where the River Trail meets secondary neighborhood paths to identify neighborhood connections.
- Reinforce the character of individual buildings and projects with an eclectic mix of industrial and contemporary building and paving character.



Figure 3.1.8 - North Promenade Character Area

- Provide for public river access and expand river edge pedestrian and boater amenity area as part of the possible redevelopment of the County Public Works site.
- Ensure individual expression, seating, and other amenities complement elements of the continuous public edge and incorporate a mix of new and recycled industrial materials, and pockets of plantings, lighting, art, and other amenities to add interest and diversity.



Design to incorporate and extend festivals and seasonal events Image: Spruce Street Harbor Park; Philadelphia, PA | Credit: Delaware River Waterfront Corp.

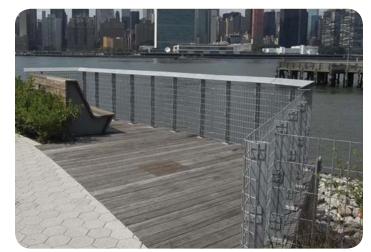


Identify opportunities for planting pockets and the potential for private water access.

Image: Milwaukee RiverWalk; Milwaukee, WI | Credit: Chlodulfa; DeviantArt



Incorporate places for art, and creative lighting Image: East River Esplanade; New York, NY | Credit: NYC Parks, Vicki DaSilva



River overlooks can add diversity in materials. Image: Hunter's Point South Park; New York, NY Credit: Thomas Balsley Associates + Weiss Manfredi



Incorporate informal, portable seating and encourage individual expression.

Image: Spruce Street Harbor Park; Philadelphia, PA | Credit: Delaware River Waterfront Corp.



Establish connections to the river for neighborhoods to the west. Image: BeltLine; Atlanta, GA | Credit: Atlanta BeltLine

6 MARKET AVENUE PROMENADE

The Market Avenue Promenade Character Area abuts the Innovation District that was established in the 2015 GR Forward Plan. It is defined as an area proposed for creative and start-up industries, affordable office spaces, and light industrial, creative maker spaces.

The Market Avenue Promenade contains the Cityowned 201 South Market redevelopment site, which calls for a river access point and significant floodwall removal as part of a public/private redevelopment. The remainder of the area includes a number of narrow private parcels between the floodwall and Market Avenue.

Intent

- Develop the river edge as an important amenity and identity as part of the Innovation District redevelopment.
- Develop important public gathering spaces at the river's edge.
- Develop a continuous, public, accessible River Trail lined with active uses that connects the river to neighborhoods to the south, and provides regional trail connectivity.



Figure 3.1.9 - Market Avenue Character Area

Concepts

- Develop a large-scale, programmable, publicly accessible, destination open space at the river's edge and a specific open space at the Market Avenue site.
- Incorporate universal river access and access for recreational boaters, anglers, and other water sports.
- Provide a safe, regional trail connection between the downtown area and City and County trail connections to the south.
 - Potential trail options include a cantilevered or in-river trail on fill where feasible.
 - A ramp connection to Oxford Street Trails is recommended, needs further study and may require a land purchase to build.

- Create a cross-river pedestrian connection using the CSX Railroad Bridge. Existing piers adjacent to the active track could be retrofitted for a pedestrian trail. Coordination and agreements with the railroad would be required.
- Establish strong visual and physical connections on the 201 South Market site between Market Avenue and public spaces on the river.
- Incorporate active uses in the ground level spaces of private redevelopment facing the river.
- Manage on-site stormwater to develop native plant communities with habitat value adjacent to the river's edge.



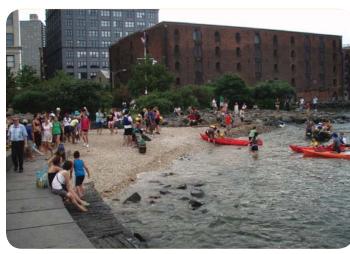
Plan for pubic and semi-public spaces as part of major redevelopment projects.

Image: HafenCity Promenade; Hamburg, Germany | Credit: HafenCity.com



Activate the river trail by incorporating hospitality, food and beverage and retail uses.

Image: RiverWalk; Milwaukee, WI | Credit: Engberg Anderson Design Partnership



Provide multiple options for boating and public river access. Image: Brooklyn Bridge Park; Brooklyn, NY | Credit: Michael Van Valkenburgh Associates

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Incorporate destinations that encourage daily public use. Image: Jamison Square; Portland, OR | Credit: PWP Landscape Architecture



In larger developments, partial wall removal allows for greater river access and river edge restoration.

Image: Milwaukee RiverWalk; Milwaukee, WI | Credit: Marek Landscaping



Plan for evening activities and gathering areas that create a distinct destination. Image: Badeschiff; Berlin, Germany | Credit: Telegraph.co.uk

7 FRONT AVENUE PASSAGE

In the Front Avenue Passage Character Area, the river edge extending northward from the Butterworth Area Open Space has been identified as part of a "connected downtown campus" in the GR Forward Plan and creates an extended student and researchbased community.

Grand Valley State University (GVSU) academic and student service buildings and an eclectic mix of smaller industrial buildings are located on and immediately adjacent to the floodwall, limiting options for a continuous River Trail along the river's edge. An existing riparian edge at the base of the floodwall, and Punk Island's lush understory and tree canopy create a significant transition to the more natural areas to the south.

Intent

 Provide a continuous River Trail connection from Downtown to the GVSU campus and further downstream to the Butterworth Area Open Space.

Concepts

- Develop specific boardwalk/walkway materials requirements compatible with GVSU campus site furniture standards and guidelines.
- Encourage individual expression of the varied character of each renovated or redeveloped private industrial property.
- Create a cross-river pedestrian connection using the CSX Railroad Bridge. Existing piers adjacent to the active track could be retrofitted for a pedestrian trail. Coordination and agreements with the railroad would be required.
- Provide a safe, River Trail connection. Potential trail options long term include cantilevered, in-river fill, or embankment. In the short term, provide connectivity on Front Avenue.

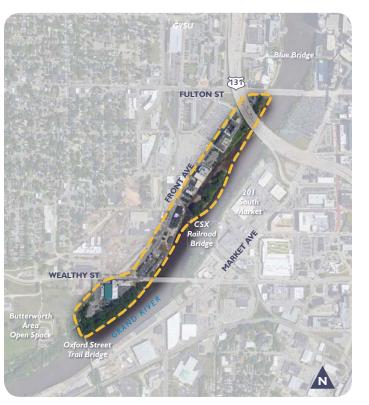


Figure 3.1.10 - Front Avenue Character Area



Develop a palette of materials that is compatible with GVSU campus. Image: Grand Valley State University; Grand Rapids, MI | Credit: Grand Valley State University



Use of informal plantings and rustic or recycled materials on the downstream private parcel edge to create a transition to the Butterworth Area Open Space and recall the area's industrial past.

Image: West Harlem Waterfront Park; New York, NY | Credit: W Landscape Architecture LLC





A cantilevered walk allows for a continuous River Trail connection between the river and existing buildings that are built on or next to the existing floodwall.

Image: RiverWalk; Milwaukee, WI | Credit: VisitMilwaukee

PUBLIC RIVERFRONT PARKS

The recreation, leisure, and special events uses in the existing downtown parks, and the attractions of the regional museums that line the Grand River can be expanded and enhanced to become even more important cultural, recreational, and leisure destinations for Grand Rapids and the region. Although these parks are similar in many ways, their potentials vary depending on their relationship to public institutions, nearby neighborhoods, and the varied recreational potential of the restored rapids.

Public Riverfront Park Character Areas

North Riverfront Park

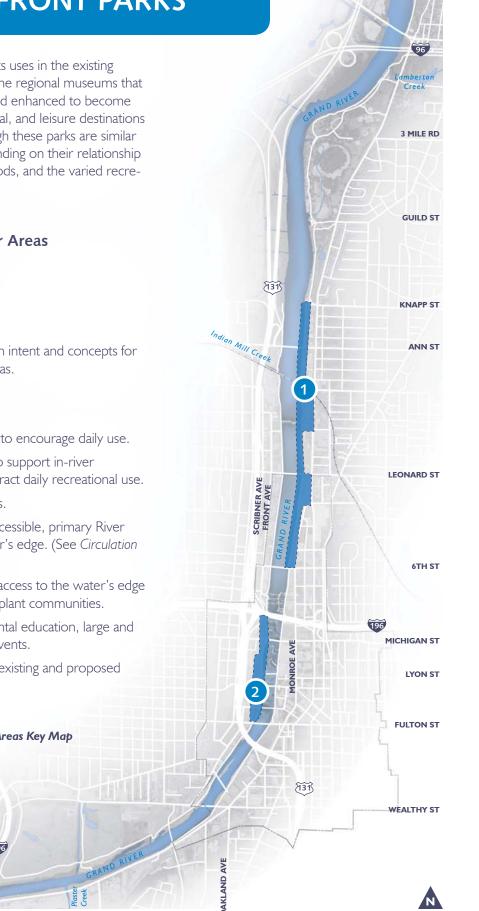
2 The Front Lawn

The following describes the shared design intent and concepts for the Public Riverfront Parks Character Areas.

Shared Intent

- Improve neighborhood connections to encourage daily use.
- Expand and improve existing parks to support in-river recreation uses and other uses to attract daily recreational use.
- Expand in-river and river edge access.
- Develop a continuous, universally accessible, primary River Trail and a secondary path at the river's edge. (See Circulation Guidelines.)
- Balance establishment of pedestrian access to the water's edge with restoration of native river edge plant communities.
- Expand opportunities for environmental education, large and small group gatherings, and special events.
- Restore native plant communities in existing and proposed parks and at the river's edge.

Figure 3.1.11 - Public Riverfront Character Areas Key Map



Shared Concepts

- Encourage informal gathering and leisure use; provide a broad range of seating types, opportunities, and locations, especially at the river's edge. Incorporate play elements, picnicking opportunities, and related neighborhood park amenities to encourage daily use.
- Encourage use in all seasons.
 - ~ Provide for seating/gathering areas protected from seasonal extremes in temperature and weather.
 - ~ Provide warming areas and winter recreational opportunities.
- Interpret the river's natural history and the multiple cultures and uses that have occupied the river edge over time.
 - ~ Preserve and adaptively reuse existing industrial artifacts as park recreational or interpretive amenities.
 - ~ Interpret site histories and cultures (both past and current) through interpretive signage as well as through nontraditional media such as art or landscape elements such as plantings that had economic, religious, or food value.
 - ~ Establish designated use areas for Anishinaabe special events.
- Modify existing riverbanks and floodwalls to enhance river edge access and to support in-river recreation.
 - ~ Develop a continuous secondary trail or boardwalk at the river's edge.
 - ~ Consider universal design principles at all river edge access points.
- Enhance ecological diversity of the river edge to restore a full range of native plant communities ranging from aquatic to upland landscape types, and protect vegetated river edges by providing river access at key access points.
 - ~ Protect existing riparian areas by controlling river access; provide for fishing, boating, tubing and wading with consideration for aquatic and riparian ecological communities.



Design large gathering areas to better accommodate existing festivals and events and a broad range of uses. Image: Newark Riverfront Park; Newark, NJ | Credit: Hector Design Surface



Incorporate art, food and beverage, or other attractions to encourage nighttime activity and use in all seasons. Image: "Impulse"; Montreal, QC | Credit: Luminothérapie Quartier des spectacles Montreal

- Selectively remove invasive plant species.
- ~ Selectively clear understory vegetation to improve trail safety and to open river view corridors.
- ~ Convert underutilized turf areas in existing parks to native plant communities.
- Integrate park and river edge design with in-river recreation programming, large and small events planning, and historic, cultural, and environmental interpretation programs.

NORTH RIVERFRONT PARK 8

The pastoral, naturalistic forms of the existing Sixth Street and Canal Street Parks that include winding pathways, informal groves, and open lawn will continue to define the character for North Riverfront Parks. This character will extend to the proposed parks at Coldbrook and the Water Department Storage Yard park sites when constructed. These areas will experience higher levels of use once the river rapids are restored, requiring a broader range of recreation facilities and visitor amenities to accommodate the significant increase in the type and intensity of park use.

Intent

- Develop the proposed Coldbrook and Water Department Storage Yard Sites as primary river access, environmental education, and community park destinations.
- Preserve and adaptively reuse existing facilities, • such as the water storage tank, for special events or adventure sports venues.
- Provide for carry-in boating, fishing, and tubing access at the Water Storage Site up and downstream of the proposed dam.
- Provide a range of activities and facilities required to meet anticipated needs.
- Preserve and expand on existing uses of Canal and 6th Street Parks. Update park improvements in response to in-river restoration and modify grading and plantings to allow for other unrealized park use opportunities. As appropriate, expand recreational uses, flexible use areas, and opportunities for river edge access.
- Develop park amenities and structures with an eclectic mix of rustic and industrial materials to reflect the area's industrial past and current use.
- Provide for a hierarchy of trail types to include the regional primary River Trail as well as secondary and tertiary trail types for more leisurely use and exploration. (See Circulation Guidelines for trail prototypes.)



Figure 3.1.12 - North Riverfront Park Character Area

• Consider potential future user groups and program needs, such as trailer launch and parking for commercial fishing, in the development and improvements at the Coldbrook site

Concepts

• Preserve, reuse, and interpret the industrial history of industrial artifacts on the Water Storage site. As appropriate reuse artifacts as play elements, sculptural elements, or informal seating.



Preserve industrial artifacts to create a regional destination. Image: Cultuurpark Westergasfabriek; Amsterdam, NL | Credit: Gustafson Porter + Bowman



Provide for carry-in boating, fishing, and tubing access. Image: Brooklyn Bridge Park; Brooklyn, NY | Credit: Michael Van Valkenburgh Associates

- Park structures and support facilities should be of contemporary design and detailing, using rustic and industrial materials to recall the areas industrial past and its return to naturalized qualities.
- Modify landforms, relocate/update site improvements, and otherwise renovate e parks to expand recreational use for use in seasons, and to support in-river recreation activities.
 - ~ Plant slopes with informal massing of no groves and understory native plants that lawns for informal play or large gatherin





Contemporary, rustic park structures Image: Phil Hardberger Park Ecology Center; San Antonio, TX | Credit: Lake | Flato Architects



Incorporate artful historical interpretation in play elements. Image: Sommerrain Playground; Herrenberg, Germany | Credit: KuKuk GmbH

| existing in all | • | Modify landscape plantings location, existing seating an edge improvements in exis river edge leisure use. |
|---------------------------------|---|---|
| ative at define ng areas. | ٠ | Restore pockets of native r communities as part of floc removal. |

- ~ Restore native plant communities in areas not suitable for recreational use by modifying existing park landscapes to reduce lawn areas.
- s, trail types and reas, and related river isting parks to expand
- river edge plant odwall modification and

DOWNTOWN FRONT LAWN

Downtown parks, including Ah-Nab-Awen Park which fronts the river at Ford Museum, and the river edge landscapes of Grand Valley State University (GVSU) classroom buildings and Grand Rapids Public Museum, are defined both by the institutions at their edge and by their relationship to the river. The specific uses and opportunities for the Downtown Front Lawn Character Area will vary depending on the varied opportunities of each site and its potential to create or enhance outdoor spaces that support the mission of each institution.

Intent

• Expand the type and number of outdoor gathering areas and connections to the river to allow for environmental education, historical/ cultural interpretation, and use for large and small informal and programmed events.

Concepts

- Encourage collaboration between GVSU and the Museum to develop an outdoor amphitheater for joint use.
- Develop multiple opportunities for private parties and informal gatherings related to museum operations.
- Provide multiple types of formal and informal seating; provide for informal seating for small groups for environmental education.
- Expand opportunities for informal gathering and relaxing.
 - ~ Incorporate play and interpretive elements to interpret site history and daily use.
 - ~ Plan multiple areas of stepped walls and other areas for information seating.
- Expand opportunities for large and small group events and programs
 - ~ Incorporate multiple venues for small group events connected to adjacent institutions.
 - ~ Plan for adequate electrical power, storage, set-up and take-down, and facilities to allow for more convenient use.

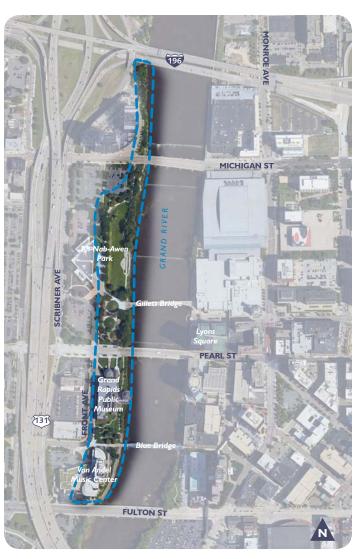


Figure 3.1.13 - Downtown Front Lawn Character Area

- ~ Balance requirements for individual institution identity and standards elements of continuous publicly accessible river edge.
- Use natural materials in more refined forms to reflect the urban context of the area. Balance architectural detailing and materials of adjacent institutional buildings with the use of material and furniture required for the continuity of the River Trail.
- Restore native plant communities in a manner that promotes interpretation of the areas natural and cultural history; develop garden types that highlight cultural use and pre-european ecology.



Encourage higher levels of daily use and more diverse activities by incorporating multiple play elements or interactive water feature. Image: North Shore Riverfront Park; Pittsburgh, PA | Credit: Waterline Studios



Create/maintain large areas for informal gathering and relaxing. Image: West Harlem Waterfront Park; New York, NY | Credit: W Landscape Architecture LLC



Expand options for concerts and events through development of an outdoor amphitheater. Image: Source unknown

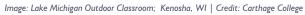


Incorporate multiple options for informal seating/gathering at the river's edge.

Image: Bostanlı Footbridge & Sunset Lounge; Izmir, Turkey | Credit: Studio Evren Başbuğ



Create outdoor classrooms and areas that support existing and potential educational programs.





Create multiple opportunities for river access, incorporate both urban and natural forms and materials. Image: Blue River Walkway; Breckenridge, CO | Credit: Wenk Associates

URBAN RIVERFRONT PARKS

The proposed park in the North Monroe site, the existing Fish Ladder Park, and the existing pedestrian promenade on the east bank of the river at the Convention Center will become the primary destinations on the river for boating competitions and large civic and entertainment festivals and events. They will also be a daily destination for downtown office workers, residents, and visitors to relax and enjoy the river.

The North Monroe and Fish Ladder sites frame the primary river rapids. They are connected to the downtown along the Michigan Street bridge and along the existing east riverbank pedestrian promenade, terminating at the southern edge of the convention hotel at Fulton Street.

Public Riverfront Park Character Areas

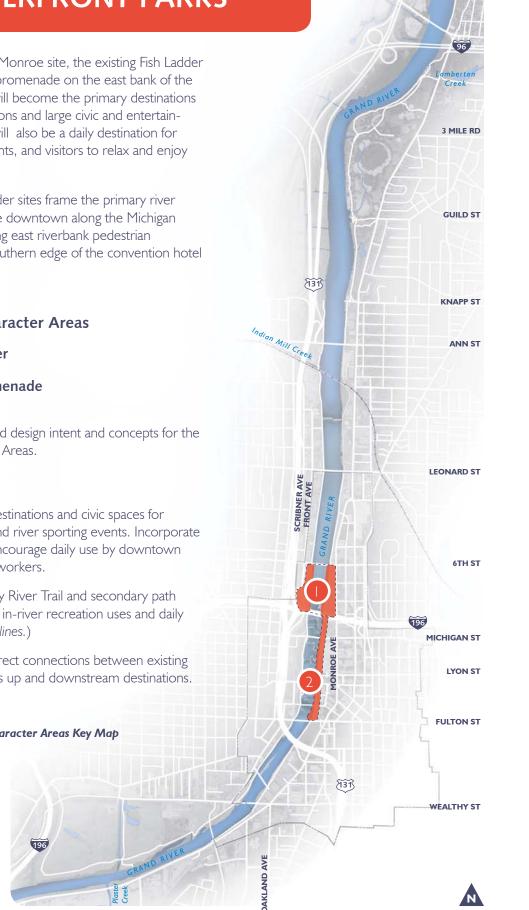
- **1** The Heart of the River
- The Downtown Promenade 2

The following describes the shared design intent and concepts for the Urban Riverfront Parks Character Areas.

Shared Intent

- Develop as primary, urban destinations and civic spaces for major civic, entertainment, and river sporting events. Incorporate park uses and features that encourage daily use by downtown residents, visitors, and office workers.
- Establish a continuous primary River Trail and secondary path at the river's edge to support in-river recreation uses and daily access. (See Circulation Guidelines.)
- Create stronger and more direct connections between existing • and proposed river edge trails up and downstream destinations.

Figure 3.1.14 - Urban Riverfront Character Areas Key Map



Shared Concepts

- Create multifunctional spaces that can accommodate a variety of daily activities and large and small special events and festivals.
 - ~ Incorporate a variety of hard and soft landscape materials on the ground plane that can withstand the impacts of occasional festivals and events, but that create inviting destinations for daily use and relaxation.
- Establish plantings that define a variety of spaces and that are inviting in all seasons.
 - ~ Establish an extensive tree canopy with a simple, multi-functional ground plane for use during festivals and events.
 - ~ Limit understory plantings to edges, grade transitions, and buffers.
 - ~ Establish native plantings on slopes and at river edge
 - ~ Use portable planters to define edges and to provide seasonal color. Use native plants with ornamental qualities.
- Provide for a variety of seating opportunities and seating types in addition to traditional benches to better accommodate a broad range of individuals and small groups.
 - ~ Orient seating to upstream and down stream river views.
 - ~ Incorporate viewing areas and multi-functional spaces along the primary River Trail to accommodate art installations, interpretive signage and elements, and special installations.
- ~ Incorporate stepped seat walls at grade transitions as spectator seating for River events and for River viewing and informal gathering.
- Incorporate play elements, places for picnicking and informal gathering, and destination recreation facilities to encourage daily use.
- Consider the durability and longevity of materials, and maintenance requirements for repairs and replacements due to the intense use of these areas. (See the Grand River Corridor Strategic Asset Management Plan.)



Multi-use edges allow for extensive river access and a variety of informal seating options. Steps form an amphitheater for large events. Image: Confluence Park; Denver, CO | Credit: Wenk Associates



A simple tree canopy over a gravel ground plane encourages daily leisure use and can also accommodate large events. Image: Commons Park; Denver, CO | Credit: Civitas, Inc.



Incorporate large open areas for city-wide festivals and events. Image: Brooklyn Bridge Park; Brooklyn, NY | Credit: Michael Van Valkenburgh Associates

10 THE HEART OF THE RIVER

The potentials of the proposed North Monroe Park site on the east side of the river, and modification of the existing Fish Ladder Park on the river's west edge will increase dramatically with the restoration of the river rapids. Located adjacent to the future primary rapids, these sites will provide great viewing opportunities for major in-river activities and a create a dramatic setting for city-wide civic events.

Intent

- Plan improvements on both the east and west banks to incorporate viewing of the restored rapids that will be used for in-river boating competitions, and that will provide a convenient river entry and exit point for anglers, tubers, and recreational boaters.
- Incorporate recreation features that promote daily use and activity.
- Preserve and adaptively reuse the historic Fish Ladder Park structures as part of modifications to the park and to accommodate expanded spectator viewing.

Concepts

- Establish large multi-functional spaces that can accommodate a variety of large and small festivals, entertainment, and in-river sporting events.
- Minimize the visual monotony of large spaces by creating a mosaic of 'hard' and 'soft' materials on the ground plane. Integrate areas of 'hard' materials, such as poured-in-place concrete, with 'soft' materials such as turf, groundcovers, wood decking, unit pavers, or crushed gravel.
 - ~ Vary materials on the ground plane without compromising the spaces' potential for multiple uses.
 - ~ Incorporate turf areas for sunbathing or lawn games to encourage daily use.
 - ~ Develop ground plane plantings that enhance visual interest, define edges, and add seasonal interest without limiting potential uses.



Figure 3.1.15 - The Heart of the River Character Area

- Define spaces, and create grade transitions with multi-purpose stepped walls and edges that provide for informal seating and spectator seating for river events.
- Incorporate a variety of seating types that include traditional benches as well as multiple options for lounging or seating that encourage daily use for relaxing or sunbathing.
- Provide for multi-functional, universal access to the river's edge to allow for set-up and take-down for large events, event support facilities, boater access, and emergency and maintenance access.
- Incorporate play elements, and destination recreational uses at the edges of event spaces and under the freeway viaduct to encourage daily use.
- Incorporate fish cleaning station facilities to support anglers.
- Develop a tree canopy and ground plane plantings that:
 - \sim Create an extensive tree canopy over a simple multi-functional ground plane.



Incorporate many options for water's edge seating for large spectator events Image: Aker Brygge Waterfront Promenade; Oslo, Norway | Credit: LINK Landscape



Coordinate design of major river access, boat launch, spectator seating, and events areas with requirements for water-based recreation. Image: Sioux Falls Waterfront Park; Sioux Falls, SD | Credit: City of Sioux Falls

- ~ Establish pockets of native plantings at the river edge, to define major grade transitions.
- ~ Establish native upland tree and understory native grass and forb plantings at major grade transitions, and landscape buffers.
- ~ Establish pockets of native plantings at stormwater pipe outfalls to dissipate energy, and to filter pollutants from storm runoff.
- ~ Use portable planters and/or defined planting

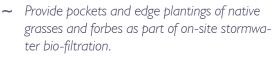
Create/maintain large areas for informal gathering and relaxing. Image: West Harlem Waterfront Park; New York, NY | Credit: W Landscape Architecture LLC





Incorporate recreation attractions that draw daily users on both sites. Image: Lynch Family Skate Park; Cambridge, MA | Credit: Charles River Conservancy

areas to define edges and spaces and to provide seasonal color and interest.



11 THE DOWNTOWN PROMENADE

The Downtown Promenade Character Area is lined with large institutional buildings, including the Convention Center and Post Office, and a mix of mid- and high-rise mixed-use buildings and public use structures. The continuity of the existing streetlevel promenade is interrupted by two major street mid-block crossings.

Intent

- Improve the street-level continuity for the River Trail connection extending from the future North Monroe site to the southern edge of the JW Marriott.
- Replace and extend the existing, lower river edge boardwalk with a river edge trail that is accessible for longer periods of time, requires less maintenance, and is universally accessible.
- Upgrade the existing street-level promenade at the post office to accommodate the higher level use of the River Trail.

- Build upon plans to upgrade river access at Lyon Square and to extend a continuous, lower riveredge trail up and downstream to connect to the North Monroe site and south to Fulton Street.
- Improve the existing low trail and design standards for proposed trail extensions. Accommodate Universal Design principles with an accessible river edge safe for in-stream recreational users. Raise the trail elevation to reduce the frequency of inundation.
- Provide for at-grade and grade-separated trail crossings at all trail-street intersections.
- Integrate pockets of native riparian and wetland plantings at the river's edge as part of trail construction.
- Remove switchback path and replace with integrated trail.



Figure 3.1.16 - The Downtown Promenade Character Area



Design to emphasize a more refined uses of materials. Image: Southeast False Creek; Vancouver, BC | Credit: PWL Partnership



Design to encourage daily and evening use. Image: Brooklyn Bridge Park; Brooklyn, NY | Credit: Michael Van Valkenburgh Associates



Create lots of options for seating. Image: Source unknown



Create continuous, street-level and river edge connections. Incorporate native river edge plantings where possible. Image: Allegheny Riverfront Park; Allegheny, PA | Credit: Michael Van Valkenburgh Associates



Activate the edge with play elements and interactive water as a daily draw. Image: HafenCity Promenade; Hamburg, Germany | Credit: HafenCity.com



Integrate art to promote interpretive play. Image: Source unknown

MATERIALS GUIDELINES OVERVIEW

The Materials Guidelines provide a framework for materials and site components used for the future design of public and private spaces along the Grand River Corridor. The Guidlines have been developed through a coordinated effort that included input from maintenance and management teams, integration of recommendations from prior urban design plans, and coordination with ongoing design efforts.

The Materials Guidelines are intended to inform design decisions with recommendations for commonly-used and tested design materials. They reflect the design intent and concepts for components to be used corridor-wide as well as recommended materials by site type. (See Section 3.1, Site Types & Character Areas.)

Intent

- Create a unifying identity for the Grand River Corridor that celebrates the river and assists in wayfinding through the consistent use of select site elements.
- Select materials that reflect the characteristics of each site type, but allow for flexiblility and individual expression within private development areas.
- Select materials that are resilient, timeless, and adaptable.



SITE TYPES & CHARACTER AREAS GUIDELINES **3.2 MATERIALS**



Concepts

| • | Corridor-Wide Site Components Provide design guidelines for select site components to provide a unified experience and create an identity that is consistent throughout the corridor. Corridor-wide site components include: |
|---|---|
| | ~ Railings |
| | 'Welcome Mats' and 'Bread Crumbs' (Identity Markers) |
| | ~ Lighting |
| | Standard Site Furnishings: Bench Family, Litter /Recycling Receptacle, Bicycle Racks |
| • | <u>Materials by Site Type</u> Recommend materials for commonly used applications within each site type (Figure 3.2.1) and identify where they should be applied. |
| | ~ Paving/Surfacing for On-Grade Trails |
| | ~ Paving/Surfacing for Gathering Areas |
| | ~ Paving/Surfacing for Boardwalks & Decking |
| | ~ Retaining Walls |
| | ~ Site Walls, Terraces, & Screening |
| ٠ | Any variations upon the materials listed in this |

document should be reviewed by the City of Grand Rapids Planning, Parks, and DGRI staff.

RAILING SYSTEM

Intent

• Provide a consistent railing throughout the corridor to create a unifying identity.

Concepts

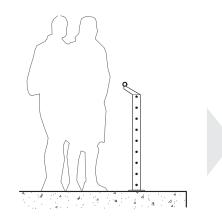
- Angle profile for top rail to discourage climbing and to provide a comfortable edge for river viewing.
- Provide horizontal bars, 4" on center, to accommodate fishing poles & lighter visual appearance.
- Provide double post at intervals to allow varied openings for fishing pole access.
- Provide lean rails at overlooks, view areas, and fishing areas. •
- Set railing height at 42" from ground plane wherever possible. Exceptions may be required such as: bike rail, guardrail, special hazards, rail barriers. Consult local codes for all areas.



Angled lean rail



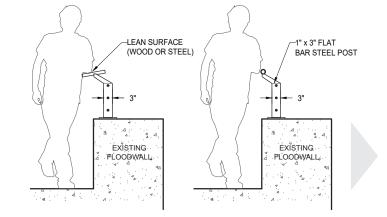




1 Figure 3.2.2 - Railing System - Typical (Cross Section)



DO NOT DO THIS Railing height should be 42", typ. from ground plane wherever feasible throughout the corridor to allow for unobstructed views of the river and fishing access.

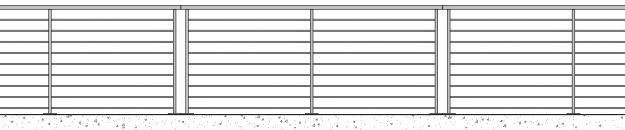


2 Figure 3.2.3 - Railing System - On Top of Floodwall (Cross Section)

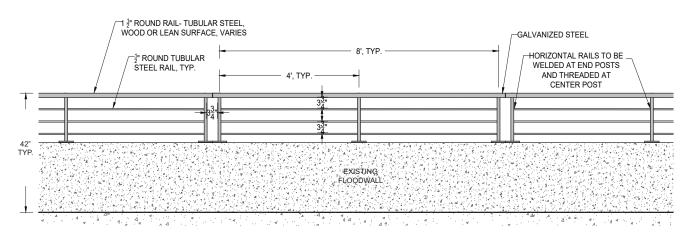
| MATERIAL | ТҮРЕ |
|------------------------|--|
| Support posts | Double rectangular steel bar/gal |
| | Double rectangular steel bar/Co 'natina' coating/approved alterna |
| Steel handrail/toprail | Galvanized steel |
| Lean rail | Ipe wood* round or flat bar top |
| | Steel round or flat bar top/galvar |
| | Steel round or flat bar top/Corte 'natina' coating/approved alterna |
| Infill panel | Square steel bar/galvanized |
| | Square steel bar/Corten/Corten coating/approved alternate |
| | |

* Not permitted below normal high water level

HORIZONTAL PICKET, 3 3/4" VERTICAL SPACING



Railing System - Typical (Longitudinal Section)



Railing System - On Top of Floodwall (Longitudinal Section)

alvanized orten/Corten-appearance nate anized ten/Corten-appearance nate n-appearance 'natina'

Recommended Materials for Railing System

DRAWINGS NOT FOR CONSTRUCTION, **GENERAL GUIDANCE ONLY.**

- Verify compliance with current code requirements
- Verify adequacy of structural design with a structural engineer

TRAIL IDENTITY MARKERS - 'WELCOME MATS' & 'BREAD CRUMBS'

Intent

- Create a distinct site feature that enhances corridor identity by marking gateways and assists in wayfinding. (See pages 62-63)
- 'Welcome Mats' are site-specific gateway elements integrated with River Trail signage to link neighborhoods and major cross-streets to the trail corridor.
- 'Bread Crumbs' are markers that reinforce River • Trail navigation through constrained corridor conditions for bicyclists and pedestrians along the trail route. Does not include signage.

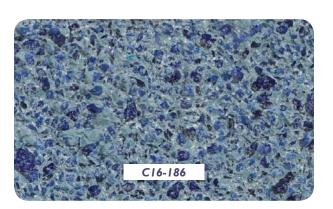
Concepts

- Materials for 'Welcome Mats' and 'Bread Crumbs' should be consistent but may vary in pattern and/or layout depending on site context and location significance.
- Pavers shall be Tectura Designs C16-186 blasted glass paver. Paver size can vary.
- Adjacent vertical elements may incorporate blue marking with paint, thermoplast, colored concrete, pavers, or other accepted materials as appropriate.
- See pages 62-63 for paver area sizing and • typical locations for 'Welcome Mats' and 'Bread Crumbs'.





Figure 3.2.4 - Conceptual image of 'Welcome Mats' at trail street crossings - Blue-aggregate signature pavers integrated with River Trail signage) to be designed as part of a future signage package) at mid-block crossings.



Blue signature 'Welcome Mat' and 'Bread Crumb' paver C16-186 manufactured by Tectura Designs.



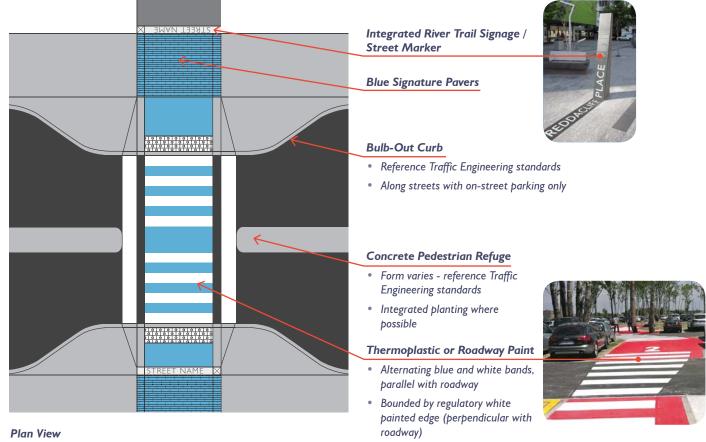
Figure 3.2.5 - Conceptual image of 'Bread Crumb' trail marking - Blue-aggregate signature pavers with vertical blue markings (without signage) reinforces the trail route.

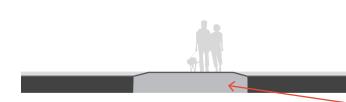
TRAIL IDENTITY AT MID-BLOCK CROSSING

Concepts

- Signage (to be designed as part of a future signage package) should be integrated with signature blue pavers at walkway. Paint or heat-applied thermoplastic bands should be used at mid-block crossings.
- All warning signage, signals or other regulatory markers per-City and accessibility standards.
- For additional River Trail signage guidelines, see page 62-63.

Figure 3.2.6 - Trail Identity at Mid-Block Crossing





Longitudinal Section

DRAWINGS NOT FOR CONSTRUCTION, **GENERAL GUIDANCE ONLY.**

Mid-Block Crossing final design should be coordinated with appropriate regulatory guidelines and approved by City Traffic Engineering.



Raised Concrete Traffic Table

• As applicable based on Traffic Engineering review

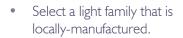
CORRIDOR-WIDE SITE COMPONENTS

CORRIDOR-WIDE SITE COMPONENTS

LIGHTING

Intent

- Provide versatility with a family of lights that offers a range of heights, orientations, and applications.
- Accommodate multiple fixtures on a single pole to minimize clutter and target light in gathering areas.



Concepts

- Provide consistent safety lighting along the main trail.
- Provide special lighting options in gathering areas. (See page 127 for Special Lighting guidelines.)
- Use energy efficient LED technology.
- Select lighting that is 'river bug' and spiderweb resistant.
- When and where feasible, replace lighting with the Landscape Forms LEO lighting fixtures.



Single Pedestrian Light

Multiple Luminaires • Recommended for gathering areas and streetside trails



Double Pedestrian Light

STANDARD SITE FURNISHINGS

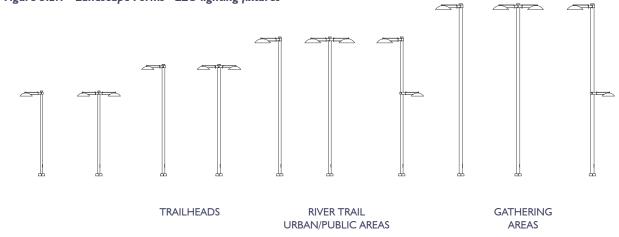
BENCH FAMILY

Intent

- The Grand River Corridor standard bench family should be timeless and flexible to be a consistent element that can be integrated into both public and privately-owned spaces along the corridor.
- Ipe wood seating surface and anodized aluminum are preferred for their durability and easy maintenance.
- Provide options for both backed and backless benches, with potential for additional armrests to provide comfort for all.

Concept

- Standard bench family for the Grand River Corridor to be Landscape Forms 'FGP Bench'.
- Install per manufacturer's guidelines.





Landscape Forms 'FGP' extended bench

Figure 3.2.1 - Landscape Forms - LEO lighting fixtures



Landscape Forms 'FGP' backed bench



Landscape Forms 'FGP' backless bench

STANDARD SITE FURNISHINGS

LITTER/RECYCLING RECEPTACLE

Intent

• Maintain the existing City Standard receptacle which was designed by local business, Landscape Forms. The design is clean and timeless, and adaptable to all site types and character areas.

Concept

- Use the current City Standard receptacle -Landscape Forms Poe receptacle. Color should be Metallic Silver to compliment the Standard Corridor Bench.
- Use a coupled second receptacle with clear recycling signage for future recycling efforts.
- Install per manufacturer's guidelines.



CITY STANDARD RECEPTACLE Landscape Forms - POE - Metallic Silver

STANDARD SITE FURNISHINGS

BICYCLE RACK

Intent

• The standard bicycle rack should complement other corridor-wide site amenities, be functional, and easy to maintain.

Concept

- Standard bicycle rack to be CycleSafe Classic Bike U Rack in stainless steel
- Install per manufacturer's guidelines.
- Should meet all required accessibility and safety regulations.

CORRIDOR-WIDE SITE COMPONENTS





CITY STANDARD BIKE RACK CycleSafe - CLASSIC BIKE U RACK - Stainless Steel

MATERIALS GUIDELINES BY SITE TYPE

PAVING/SURFACING FOR ON-GRADE TRAILS

Intent

- Provide a range of surface types for on-grade trails to accommodate a variety of users and site conditions. •
- Use hard surfaces, such as concrete, for more high-traffic use that can be accessible year-round.
- Use soft surfaces when it is desired to discourage high speeds. •
- Use locally-sourced materials whenever possible.
- NOTE: Special use trails, such as challenge trails or special recreation are not covered in this document.

Concepts

Primary Shared-Use River Trail (SeeFigure 2.1.3)

- Use concrete with broom finish to accommodate high intensity use.
- Scoring pattern to reflect sample trail at Coldbrook demonstration site.

Secondary Path /

Lower River Edge Path / Tertiary Trails

(See Figures 2.1.5-6)

- May be hard- and softsurface depending on desired experience, for example use concrete and pavers in more urban areas and chip-sealed asphalt or compacted soil in more natural settings.
- Use concrete with broom • finish or chip-sealed asphalt when below the normal high water level.
- Concrete and chip-sealed asphalt are approved for below normal water level. Other materials will require higher maintenance and replacement if used in flood prone areas.

Acceptable Materials for On-Grade Trail by Site Type

(See Figure 3.2.8 - Site Type Key Map)

| | | RAL | | υ | z |
|-------------------------|---------------------------------------|--------|---------|--------|-------|
| CATEGORY | MATERIAL | NATURA | INDUSTR | PUBLIC | URBAN |
| Primary Shared-Use Path | Concrete with broom finish | | | ٠ | ٠ |
| Secondary Path / | Concrete with broom finish | | | | ٠ |
| Lower River Edge Path / | Chip-sealed asphalt | | • | | ٠ |
| Tertiary Trails | Stabilized soils* | | • | | |
| | Rubber-based permeable surfacing* | | | | |
| | Permeable pavers* | | • | • | |
| | Base course w/crushed gravel overlay* | | | | |
| | Compacted site soil | | | | |



Concrete with Broom Finish

Stabilized Soil*



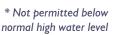
Permeable Pavers*



Compacted Soil

SITE TYPES

Base Course with Crushed Gravel Overlay*









PAVING/SURFACING FOR GATHERING AREAS

Intent

- Paving materials and patterns should enhance the pedestrian experience and should be distinct from the • River Trail as to separate leisurely pedestrians from the flow of trail traffic.
- Material finishes, patterns and color should reflect the individual site type and character area in which they are located (See Section 3.1) while also reflecting the unique identity of adjacent uses and development to create variety along the corridor.
- Use locally-sourced materials whenever possible.
- All pavers are to be installed per City of Grand Rapids guidelines.

Acceptable Materials for Gathering Areas by Site Type

(See Figure 3.2.8 - Site Type Key Map)

| | | | | U | z |
|---------------------------------------|---|--------|------|--------|-------|
| MATERIAL | ТҮРЕ | NATUR/ | INDN | PUBLIC | URBAN |
| Concrete | Broom, acid-etched or sandblast finish; scored | | | • | • |
| Stone paving | Dry laid* | | | | |
| | Mortared on concrete base | | • | • | • |
| Asphalt block pavers | Hanover, or approved equal | | | • | |
| Brick and clay-fired pavers | Pine Hall, Belden, or approved equal | | • | • | • |
| Permeable Pavers | Pine Hall, Belden, Uniloc, Hanover, Pavestone or approved equal | | • | | |
| Base course w/crushed gravel overlay* | Crushed peastone with fines and soil stabilizer | | | | |
| Concrete unit pavers | Uniloc, Hanover, Pavestone or approved equal | | • | • | • |

Concepts

- Concrete can be used for gathering areas in all zones. It can have varied finishes (broom, acid-etched, sandblast), scoring, and colors to reflect the individual site type and character area.
- Pavers can be used for activity zones, small plazas, and pedestrian areas. They shall be placed on concrete base with sand or bituminous setting bed.
- Permeable pavers can be used where appropriate.
- Base course with crushed gravel overlay to be used in natural areas and informal settings.

120 MATERIALS



Concrete - broom and acid-etched finishes



Brick and Clay-fired **Pavers**



Permeable Pavers*



Stone Pavers



SITE TYPES

Asphalt Block Pavers



Base Course with Crushed Gravel Overlay*

* Not permitted below normal high water level

PAVING/SURFACING FOR BOARDWALKS & DECKING

Intent

- they are located. (See Section 3.1)
- Material should be non-slip and accessible for all users.
- necessary.

Concepts

- Marine-grade decking, either galvanized or Corten steel as appropriate, is preferred.
- Steel pan with concrete deck can be used in areas above the normal high water level. This material should be used to extend the width of the primary trail in cantilever conditions where feasible.
- Ipe wood decking must be appropriately detailed to withstand typical urban public use, including skatestops or other means to deter damage and vandalism.
- If using manufactured composite decking, non-wood colors are preferred.
- Marine grade decking, ipe wood decking, or manufactured composite decking should be used as accents or at overlook areas off the primary trail route.





Ipe Wood Decking

• Boardwalk and decking applications should reinforce the individual site type and character area in which

• Material should provide appropriate load-bearing and water-resistance capacity for parks maintenance, as

| Acceptable Materials for Boardwalks and Decking by Site Type | | | SITE TYPES | | | | |
|--|--------------------------------|--------|------------|--------|-------|--|--|
| (See Figure 3.2.8 - Site Type Key Map) | | | NDUSTRIAL | | z | | |
| MATERIAL | ТҮРЕ | NATURA | INDUS | PUBLIC | URBAN | | |
| Marine-grade decking | Galvanized Steel | | • | • | | | |
| | Corten Steel | | | | | | |
| Steel pan with concrete deck* | | • | | • | | | |
| Wood decking* | Ipe or other approved hardwood | • | • | • | | | |
| Manufactured composite decking* | | | | | | | |

* Not permitted below normal high water level





Manufactured **Composite Decking**



Steel Pan with Concrete Deck

* Not permitted below normal high water level

RETAINING WALLS

Intent

- Use durable, visually-appealing, and site type-appropriate materials and finishes for all walls.
- Use locally-sourced materials whenever possible
- Materials used below the normal high-water level are subject to hydraulic analysis.
- When floodwalls are removed, replacement walls should be designed and finished according to site type/ character guidance outlined in Section 3.1.

Concepts

- Use reinforced earth "green wall" lee of floodway only.
- Concrete walls shall have an architectural finish, board form preferred.
- Long, monolithic sections of concrete walls are discouraged.

| Acceptable Materials for Retaining Walls by Site Type (See Figure 3.2.8 - Site Type Key Map) | | SI | SITE TYPES | | | |
|--|--------------------------------------|-----------------------|------------|--------|-------|--|
| | | tAL | | | | |
| MATERIAL | ТҮРЕ | NATURAL INDUSTRIAI | | PUBLIC | URBAN | |
| Concrete | Cast-in-place - Architectural finish | • | ٠ | | ٠ | |
| | Board-formed | • | | | • | |
| Dolomitic Outcropping Stone | Natural weathered edge | • | | | | |
| | Snap cut or dimensionally sawn | | | | • | |
| Precast concrete | Bin blocks | | | | • | |
| | Precast unit walls | | • | | ٠ | |
| Mortared stone | Natural break | | • | | | |
| | Snap cut | • | | | | |
| | Pitched face | | | | • | |
| Mechanically stabilized or rein- forced earth | Precast concrete panels/blocks | | • | | | |
| | Green wall systems | | | | • | |





"Green Wall"



Dry Stacked Stone -Snap-Cut







* Not permitted below normal high water level

SITE WALLS & TERRACES

Intent

• See intent for 'Retaining Walls', page 124.

Concepts

- Dry stacked stone and reinforced concrete are the preferred material for terraces that allow for river access, pending further hydraulic analysis.
- Gabion seatwalls may be • used ouside of the floodplain only. Locally sources or recycled site material is preferred for fill content. Fill content should be 150-200% size of cage openings to prevent spillout. Cage to be 4 gauge (5mm) minimum.



MATERIAL Concrete

Mortared stone Wood* Gabion*



Dry Stacked Stone Terraces



Concrete with **Architectural Finish**

MATERIALS GUIDELINES BY SITE TYPE

| Acceptable Materials for Site Walls, | | SITE TYPES | | | | |
|--|--------------------------------------|------------|---|--------|-------|--|
| Terraces and Screening by Site Type (See Figure 3.2.8 - Site Type Key Map) | | NATURAL | | U | 7 | |
| MATERIAL | ТҮРЕ | | | PUBLIC | URBAN | |
| Concrete | Cast-in-place - Architectural finish | | | ٠ | • | |
| | Board-formed | | • | • | | |
| Dolomitic Outcropping Stone | Natural weathered edge | | • | | | |
| | Snap cut or dimensionally sawn | | | | | |
| Precast concrete | Bin blocks | | | | | |
| | Precast unit walls | | • | • | | |
| Mortared stone | Natural break | | • | • | | |
| | Snap cut | | • | • | | |
| | Pitched face | | | • | | |
| Wood* | Ipe or other approved hardwood | | | | | |
| Gabion* | seatwalls with wood top | | • | | | |





Concrete Terraces



Wood Terraces*





Gabion Seatwall with Wood Top

* Not permitted below normal high water level

SCREENING WALLS AND SMALL ENCLOSURES

Intent

- Enhance the river edge with a diverse family of screening methods that share complementary elements.
- Screening materials should be reflective of the character area. (See Section 3.1)
- Use locally-sourced materials whenever possible. •

Concepts

- Walls or screens over 20 feet in length should include special treatments, formwork, or other architectural fenestration to diminish visual mass.
- Maintenance teams should be diligent about cleaning and repairing vandalism as soon as possible.
- Integrate visual transparency and/or planting wherever these elements can be maintained.
- Materials used below the normal high-water level are subject to hydraulic analysis. •
- Materials should maintain architectural interest.

MISCELLANEOUS SITE AMENITIES

Intent

- Site amenities should be reflective of their character area. (See Section 3.1)
- Site amenities should be easy to maintain for cooperating agencies.
- Material characters should be flexible enough to accommodate new future amenities and furnishing elements.

Concepts

• Private development should be encouraged to provide and maintain publically-accessible resources such as bicycle racks and lockers, kayak racks and lockers, seating areas, special lighting, etc. to further bridge private development and public right-of-way along the corridor.



Safety Lighting Under Bridges • Additional enhanced lighting in special

areas



Integrated Seat Wall Lighting





Perforated Light Columns

SPECIAL LIGHTING

Enhance the corridor

corridor

Concepts

experience by providing

special lighting for visual

• Special lighting is discouraged

in the Natural Riverfront

Parks site type areas with

ground lighting.

• Must be located above normal high water level.

the exception of embedded

interest and variety along the

Intent

- Catenary lighting
- Image projection
- Color LED integration



OTHER RECOMMENDATIONS



Tree Uplighting



Seasonal / Holiday Lighting

Special Event Lighting



Ground-Embedded Lighting

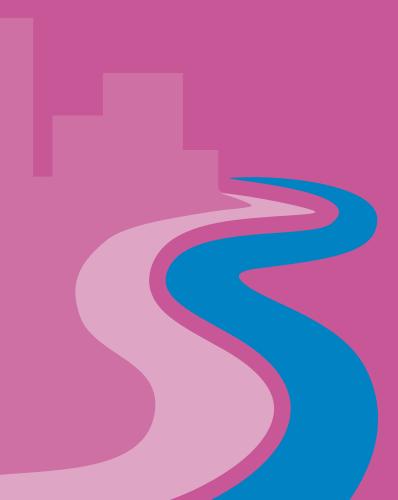
- LED
- Plow/salt proof, water-tight
- Solar preferred
- Not recommended below normal highwater level





RIVER FOR ALL





IMPLEMENTATION OVERVIEW

Implementation of the Grand River Corridor Trail and Design Guidelines will be phased over multiple years. The River Restoration project, which includes in-river improvements to restore the rapids, install an adjustable hydraulic structure upstream, and remove the 6th Street Dam, will be a driving force behind the implementation of projects identified for the corridor. The River Restoration project will draw more visitation and visibility to the river. Construction access for river restoration utilizes access in some of the opportunity sites; therefore, implementation of the opportunity sites will either follow or align with the construction of the river work.

The River Restoration project will take place in three phases. River corridor projects and opportunity sites that interface with the water's edge should be coordinated with the in-river work during these phases. Opportunity sites can be phased to allow for improvements along the water's edge to be built with the river restoration projects without requiring full buildout of the sites until after river restoration is complete.



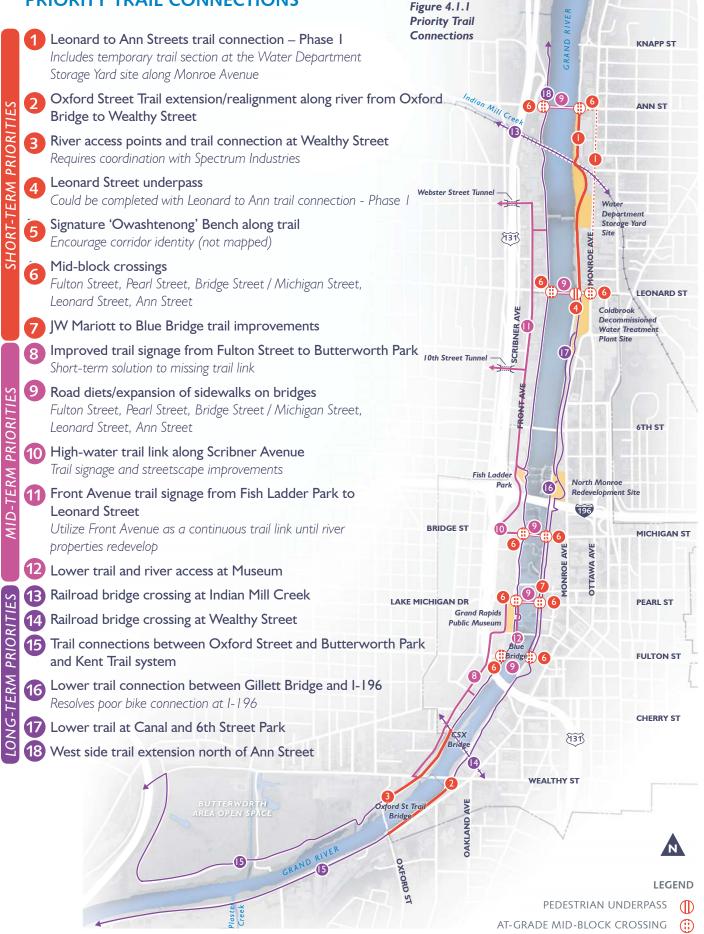




direct river edge interface can happen independently of the River Restoration project. Figure 4.1.1 Priority Trail Connections on the following page identifies and prioritizes trail projects within the corridor. Although a short-, mid-, or long-term priority designation is given, projects should also be driven by adjacent improvements which may move a project into a higher priority designation.

Trail projects and corridor improvements without

PRIORITY TRAIL CONNECTIONS



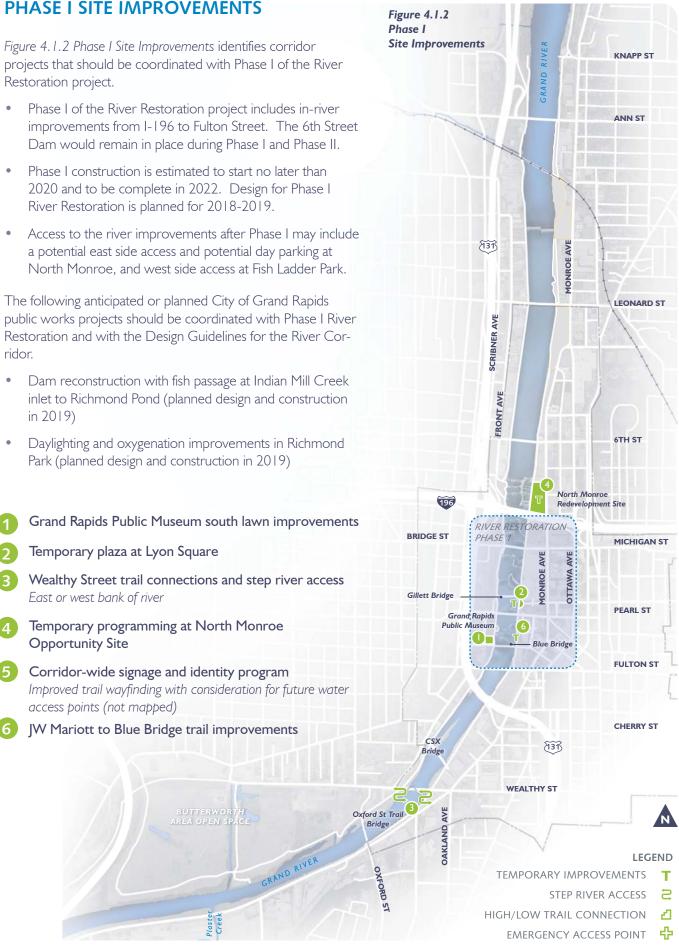
PHASE I SITE IMPROVEMENTS

Figure 4.1.2 Phase I Site Improvements identifies corridor projects that should be coordinated with Phase I of the River Restoration project.

- Phase I of the River Restoration project includes in-river
- Phase I construction is estimated to start no later than River Restoration is planned for 2018-2019.

The following anticipated or planned City of Grand Rapids Restoration and with the Design Guidelines for the River Corridor.

- in 2019)
- Park (planned design and construction in 2019)
- Temporary plaza at Lyon Square East or west bank of river Temporary programming at North Monroe **Opportunity Site** Corridor-wide signage and identity program access points (not mapped) JW Mariott to Blue Bridge trail improvements



PHASE II SITE IMPROVEMENTS

Figure 4.1.3 Phase II Site Improvements identifies corridor projects that should be coordinated with Phase II of the River Restoration project.

- Phase II of the River Restoration project includes construction of the Adjustable Hydraulic Structure.
- Phase II construction is estimated to start no earlier than 2020 and no later than 2022. Design for Phase II River Restoration is on-going through 2020.

The following anticipated or planned City of Grand Rapids public works projects should be coordinated with Phase II River Restoration and with the Design Guidelines for the River Corridor.

- Daylighting storm through the former Highlands Golf Club (Reeds-Barlow Drain, a tributary to Indian Mill Creek (planned design in 2021 and construction in 2022)
- Daylighting and oxygenation improvements in Richmond • Park (planned design and construction in 2019)

Water Department Storage Yard Site initial improvements Maintenance building for adjustable hydraulic structure Access to boat passage Potential addition of mid-level terrace

Stepped river edge access at the Coldbrook Site 9 Emergency river access at Canal Street Park

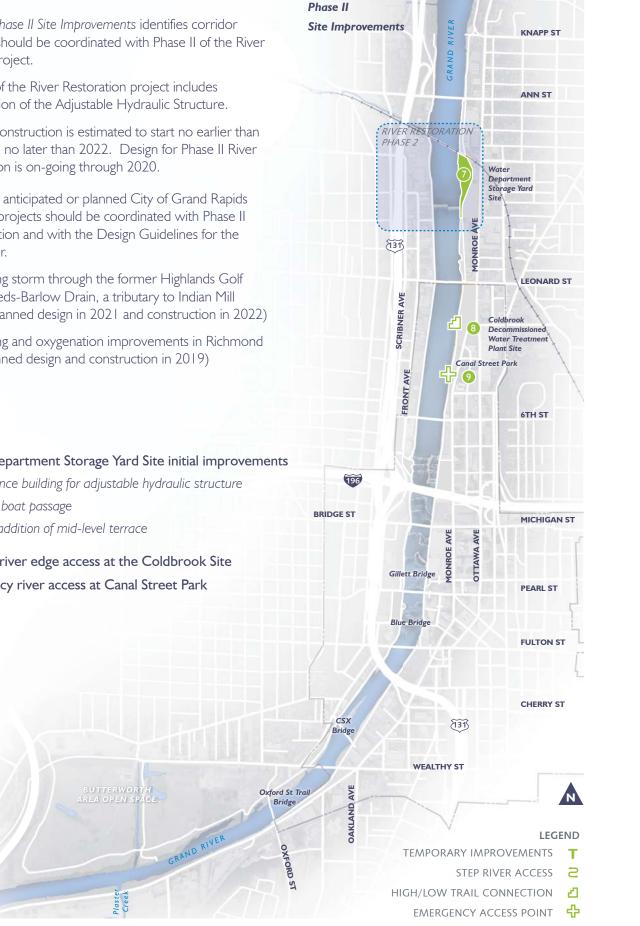


Figure 4.1.3

PHASE III SITE IMPROVEMENTS

Figure 4.1.4 Phase III Site Improvements identifies corridor Restoration project.

- Phase III of the River Restoration project includes removal of the 6th Street Dam
- for Phase III River Restoration isunderway and will continue through 2023.
- can be fully constructed.

(10)

11 **Opportunity Site Improvements**

Street trail connections final improvements

Coldbrook Site / Canal Street Park improvements including partnership, re-use, and programming of existing building

North Monroe park improvements

Fish Ladder Park improvements

Lyon Square final improvements

Grand Rapids Public Museum improvements

