



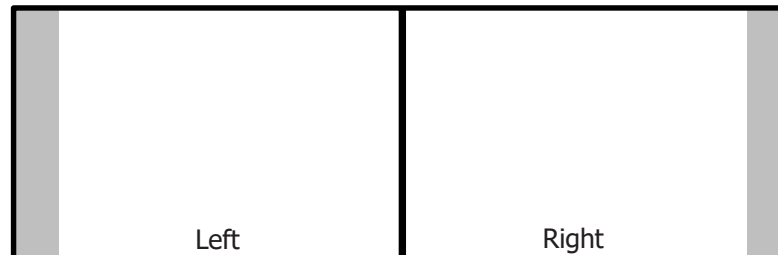
DESIGN STANDARDS

MENOMONEE VALLEY RIVERWALK



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Planning

Purpose	5
Overlay / Standards	6 – 7
Regulatory Requirements	8 – 9
Trail Path & Connections	10 – 11
Existing Unique Conditions	12 – 13

Design Standards

Design Concept	15
Marsh Grasslands / Arboretum Groves	16 – 23
Conditions / Typologies	24 – 31
Other Standards	32 – 44
References	45

Glossary of Terms

Path / Walk: Paved surface of either concrete or asphalt

Shoulder: Required gravel area adjacent to the Path / Walk

Riverwalk Trail: Both the Path / Walk and Shoulder

Riverwalk Zone: The 25' area that includes the Riverwalk Trail including landscaping and amenities

Riverwalk Overlay Zone: Includes Riverwalk Zone as well as area beyond that may include buildings, parking, storage, etc.





Planning

The following section is intended to support property owners and their professional design team(s) in understanding why these standards have been created, the requirements to comply with, and a base understanding of waters edge and waterway regulations. The planning included in this section identifies recommended Riverwalk Trail placement and unique conditions that select sites will pose on these standards.

Purpose

Overlay Zones provide an opportunity to create new development projects that are part of an integrated trail system, a themed district, a redevelopment project area or master-planned neighborhood; which allows these projects to be more compatible and integrated with their neighbors, more pedestrian friendly in design and scale, and more completely integrated in overall urban design.

The City of Milwaukee has placed a great emphasis on achieving the full potential and value to citizens of the Menomonee River Valley, with the Hank Aaron State Trail and Menomonee River as focal points. A continuous system of Riverwalks on both sides of the Menomonee River, connecting with and overlapping the Hank Aaron State Trail will be a great asset and amenity for all citizens of Milwaukee.

With the precedent of the Milwaukee Riverwalk and its success, the purpose of these Menomonee Valley Riverwalk Design Standards is to continue the spirit and success of the river edge improvement implementation with a focus on:

- Addressing Public Access / Connections
- Accessibility
- Safety / Visibility
- Sustainability / Storm Water Management
- Unique aesthetic from the Milwaukee River
- Consistent aesthetic in the Valley



Overlay / Standards

Riverwalk Overlay Zone:

The Riverwalk Zone is for the easterly portion of the Menomonee River extending from the existing Milwaukee Riverwalk Site Plan Review Overlay District westward to Three Bridges Park (S. 27th Street). Within this Menomonee River Overlay Zone, the Plan Commission must approve all projects located 50 feet landward of an existing bulkhead line or ordinary high watermark. For any property located within or partially within the overlay zone, a Riverwalk which is handicapped accessible and open to the general public 24 hours a day at no charge, must comply with the requirements of this overall zone and shall be constructed at the time of any new construction or substantial improvement of a principle structure on the property.

This requirement to construct the Riverwalk shall apply even in cases where the principal structure itself is not located within the overlay zone.

Refer to the City of Milwaukee website for additional requirements that would trigger implementation, define the approval process, owner required maintenance and city participation in the financial support of the design and construction costs associated with the improvements.



RIVERWALK OVERLAY ZONE FROM CITY OF MILWAUKEE OVERLAY ZONE MAP: FILE NUMBER: 170043

Design Standards:

Following are the standards that have been approved by the City of Milwaukee Common Council as part of the Menomonee Valley Riverwalk Overlay (File Number 170043).

These design standards are minimum requirements that are required to be implemented by each property owner. These standards have been developed in conjunction with the Menomonee Valley Partners (MVP), the City of Milwaukee and Public Input.

STANDARDS DEFINED

- Riverwalk Surface / Placement
- Preservation of Natural Edges
- Materials
- Lighting
- Treatments of Building Facades
- Placement of Loading Docks, Outdoor Storage and Parking

As noted further in this report, select sites or conditions are not able to fully comply with the following standards. Where defined standards are not able to be applied or implemented as defined in this document, the building owner and design professional shall apply a solution that is in the spirit of the applicable standard for review and final approval by the City of Milwaukee Plan Commission.

Disclaimer:

These design standards represent design requirements for development of the Menomonee River edge. These standards present various concepts to consider for incorporation into each respective development, however do not relieve the respective property owners and their design professionals from compliance with all local, State and Federal codes, ordinances and other regulatory requirements. The Author, The Menomonee Valley Partners and the City of Milwaukee assume no liability for finalized plans and subsequent construction. It is the responsibility of each design professional to use their judgement and knowledge as they apply the concepts presented herein.



Regulatory Requirements

Recommendations

Based on the number of various regulations that impact waterfront development, developers should:

- Obtain a property survey from a Professional Land Surveyor. The property survey should include the identification of any established bulkhead lines or ordinary high water mark (OHWM). The property survey should also show the location of the Riverwalk Overlay Zone and topography within and adjacent to the Riverwalk Overlay Zone.
- Consult with the Wisconsin Department of Natural Resources (WI DNR) to identify any potential WI DNR / USACE waterway permits required for the proposed project.
- Consult with the City Floodplain Zoning Administrator regarding potential City permits or restrictions for potential construction work that falls within the regulatory floodway.

In general, if WI DNR / USACE waterway permitting is required, the waterway permit applications are usually first submitted by the applicant to the WI DNR. The WI DNR then forwards copies of the submitted application materials to the US Army Corps of Engineers (USACE) for concurrent WI DNR / USACE review and permitting. It is noted, however, that unlike the joint WI DNR / USACE permit application process, any required City of Milwaukee permits must be obtained via direct request to the City of Milwaukee.

NOTE: The term / label "Legal Boundary", as used in diagrams of this document may mean dockline or bulkhead line.



Example of existing water edge condition where legal boundary is likely corresponding to a physical element such as the sheet pile seawall.



Example of existing water edge condition where legal boundary is likely not corresponding to a physical element as the land edge is more natural.

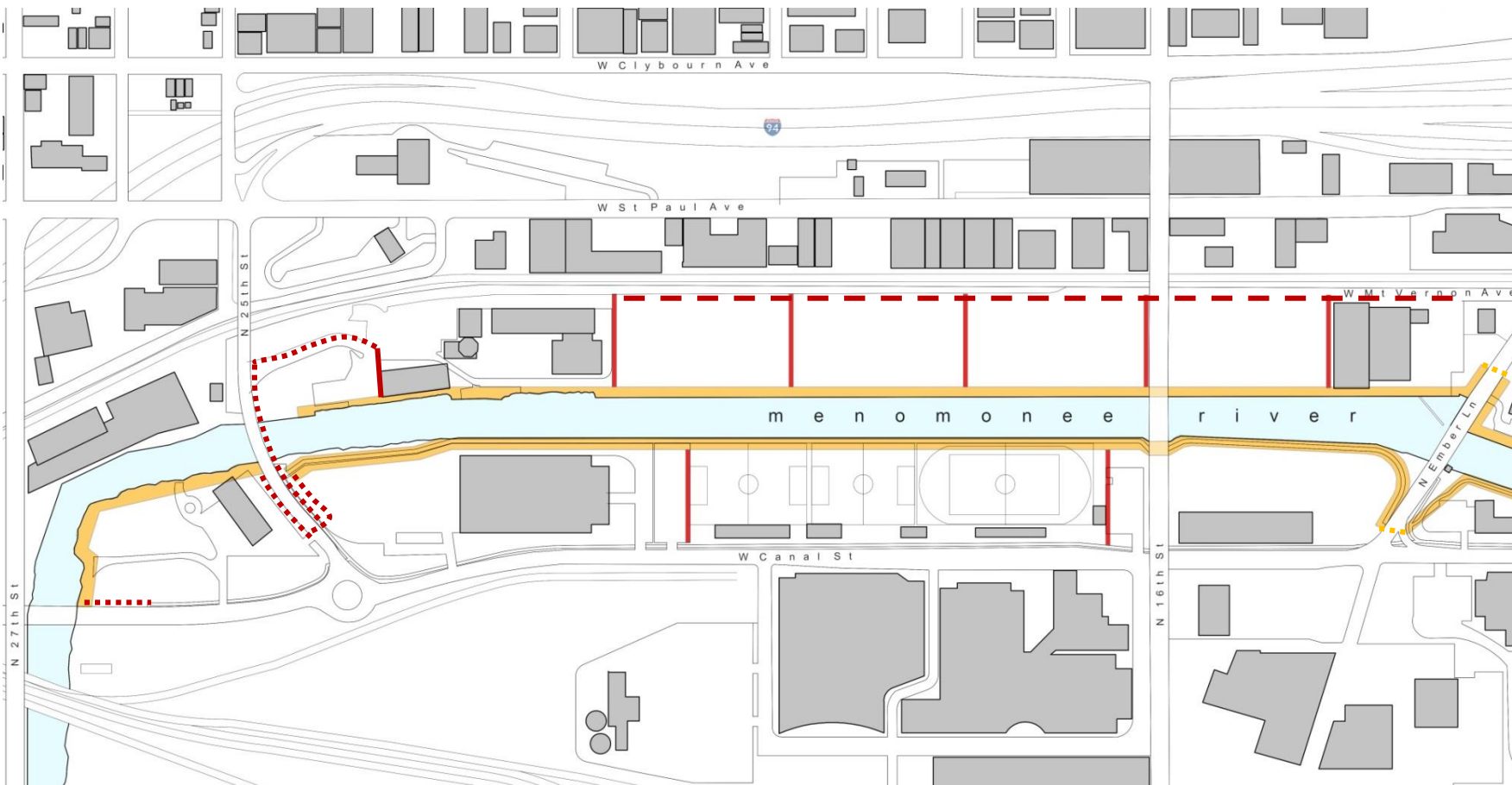
For all surveys, property owners should confirm inclusion of legal boundary for water side edge of property to determine where the Riverwalk Zone (25' area) begins and the regulatory requirements identified above.



Trail Path & Connections

Each site located in the Riverwalk Overlay Zone represents a variety of conditions and challenges that impact the trail width and placement to the edge of the river. The below diagram represents the recommended Riverwalk Trail route along the entire length of the overlay, connections to public right-of-way, and terminations at street or end conditions.

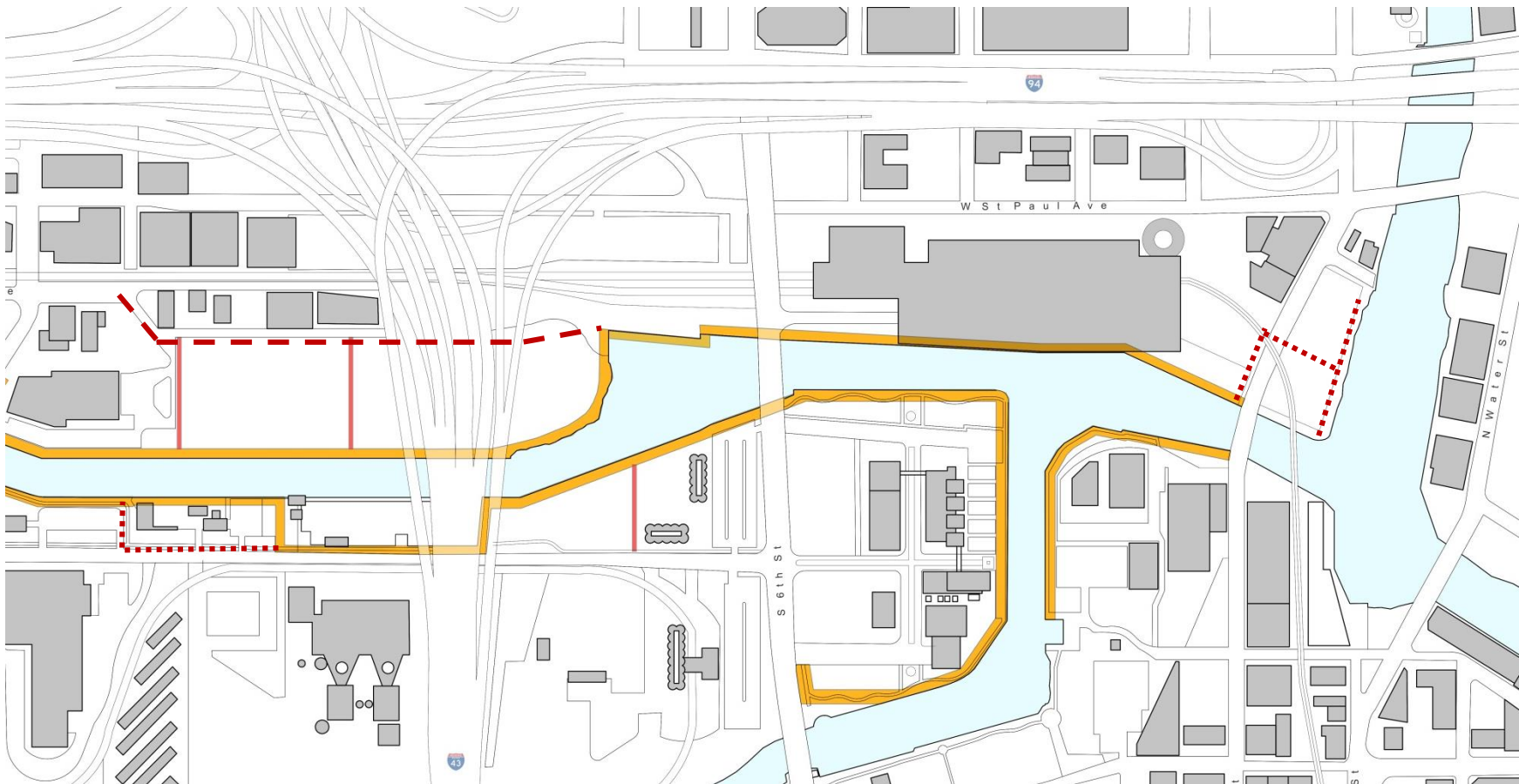
RIVERWALK TRAIL: The recommended trail is based on each site's ability to accommodate the Riverwalk including understood challenges and constraints. In addition to requirements of this document, the entire length of the Riverwalk shall meet all Accessibility Requirements. All segments of the Riverwalk shall be designed to connect to other portions of the Riverwalk system or to connect to adjacent portions of the Riverwalk system if they already exist. No dead end conditions are allowed that do not satisfy both accessible and non-accessible pathways.



RIGHT-OF-WAY CONNECTIONS: Given the length of select Riverwalk conditions based on existing site conditions, connections back to a public right-of-way (ROW) are required to support connectivity, ease of access, accessibility and safety. No connection shall be greater than 600' apart in newly developed sites. Existing sites shall endeavor to add identified connections.

TRAIL ACCESS: Several end conditions to the Riverwalk result in pathways that need to double back or be routed around existing streets, bridges or rail tracks. Connections to the Milwaukee River Riverwalk and 27th Street are important conditions to resolve, along with accessibility access at these locations.

PROPOSED RIGHT-OF-WAY: Though no current roadway or infrastructure occurs in the locations identified, they will be necessary to support site access and meet the requirements of the fire department. These roads shall be considered to provide access to properties and to the Riverwalk Trail.



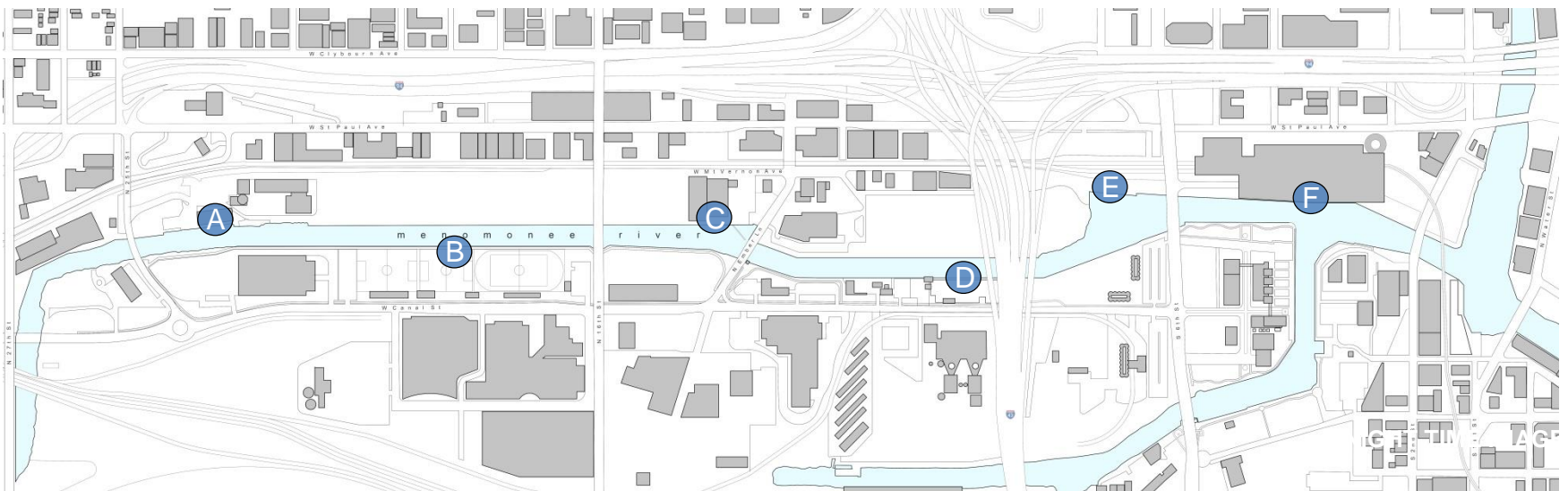
Existing Unique Conditions

Several sites along the length of the overlay fall into a category of unique conditions. These conditions require alternative approaches to the trail and standards as a result of their inability to conform to the size, placement and design characteristics.

These spaces require an approach that follows the spirit of the design standards and will be subject to the review and approval of the Plan Commission.

The following Unique conditions are as follows:

- Milwaukee Four Seasons Skatepark
- Marquette Valley Field / DPW Yards
- Milwaukee Recycles
- WE Energies Switchgear Yard / Twisted Fisherman
- Rail Properties (overlay exempt)
- US Post Office Edge
- Misc. Metropolitan Milwaukee Sewage District Outfalls (not shown)



Additional existing conditions that will need to be managed as part of any project along the length of the Riverwalk include:

- **Deterioration of Existing Seawalls:** Several areas of the river where existing sheet pile walls are installed are in need of repair or replacement. Understanding of existing deteriorated tieback and dead-man are the responsibility of each site owner.
- **Existing Concrete Bulkheads:** Several sites have long concrete bulkheads from former ship mooring/anchors. These conditions are not required to be removed, however will be required to be incorporated or accommodate the required standards herein.
- **Environmental:** Many sites in the valley have contaminated soils. All projects will require a Phase I & II Environmental Assessment to determine the extent of contamination and management plans required.
- **Geotechnical:** Many sites in the valley have poor soils. All projects require a thorough understanding of geotechnical issues to allow for the Professional Architects and Engineers to design below grade systems that will support any path or structure.
- **Corrosive Algae:** Currently, there are studies underway into algae or bacteria that corrodes steel in an advanced timeframe within Lake Superior harbors of Duluth / Superior and its connecting tributaries. Though this issue is not of immediate concern in the Menomonee River, each site owner and design professional shall endeavor to understand the potential impacts of this as it spreads into additional waterways within the state relative to the longevity of steel infrastructure installed.



Milwaukee Four Seasons Skatepark
Building < 25' from water edge



Marquette Valley Field / DPW Yards
Narrow site width / Topography Challenges



Milwaukee Recycles
Building and truck traffic / storage <25' from water edge



WE Energies Switchgear / Inlet Yards
Excluded from overlay for safety



Rail Properties (overlay exempt)
Route Riverwalk Trail around / over water



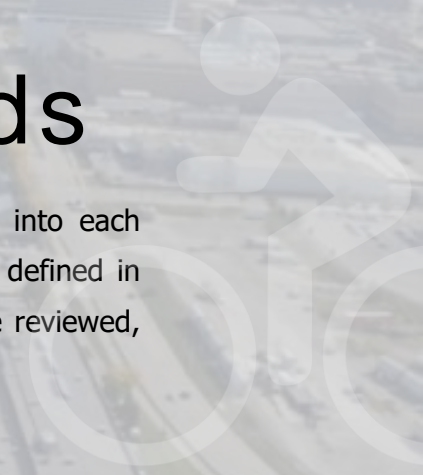
US Post Office Edge
Riverwalk required on land side due to Navigable Path





Design Standards

The following design standards are a requirement for incorporation into each property for areas that fall within the 50' Riverwalk Overlay Zone as defined in the above section. These design standards and any variations will be reviewed, approved and enforced by the City of Milwaukee Plan Commission.



Design Concept Marsh Grasslands & Arboretum Groves

Before the Menomonee Valley was altered by industrial development, it was a vast wetland of grasses, reeds, wild rice and cattails. Native peoples and early settlers thrived on the harvest of fish, fowl and rice that came from the natural fecundity of the valley. On higher ground around the edges of the valley native trees like White Oak, Balsam Poplar and White Cedars grew in groves of dense profusion. These two landscape types: a vast marsh of reeds and grasses surrounded by dense groves of trees, made up the character of the Menomonee Valley. The concept of the Menomonee Valley Riverwalk landscape is to combine and contrast these two landscape types by planting long expanses of grasses punctuated by dense groves of native Wisconsin trees.

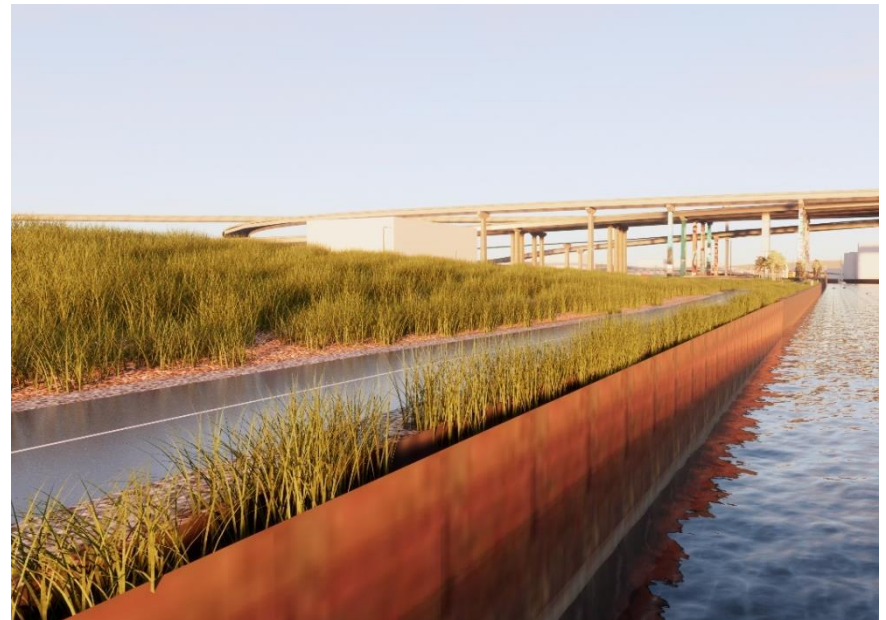
The “Marsh Grasslands” would be associated with long meandering expanses of Riverwalk Trail for bikers, joggers and hikers. These open and sunny landscapes will allow for expansive views and a sense of what the valley was once like.

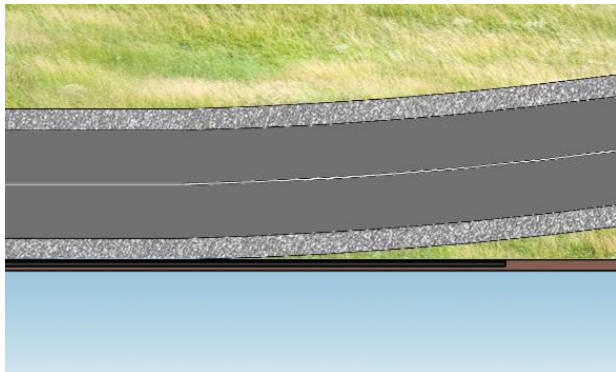
The “Arboretum Groves” of native trees will break up the long linear expanses of grasses with relatively small, dense groves of trees. These groves will provide a place of shade and repose with seating from which the river can be viewed.



■ The Marsh Grasslands

The primary landscape standard is to plant expansive “drifts” of native grasses and wildflowers that recall the vast wetlands of grasses, reeds and wild rice that once dominated the Menomonee Valley. These long and linear grass plantings will line the lengths of the paved Riverwalk Trails, providing an open and expansive landscape for people to move through. Typically these tall, native grasses can eliminate the need for expensive railings when planted in dense “drifts” along the water’s edge. It is generally important to use grasses on both sides of the Riverwalk Trail to give the sense of moving through a Marsh Grassland landscape. Grass species selected for planting along the waters edge should not grow to such tall height as to unduly block the view of the water, while landside grasses could be chosen for tall height. The Riverwalk Trail through the grasslands will be simple and economical black asphalt with sidings of grey, crushed stone. No lighting will be required (as a standard) along these linear grassland trails. Any lighting at this condition will require approval from the Plan Commission.

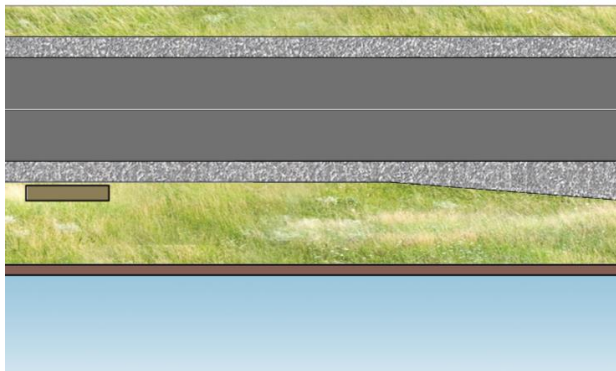




Trail at Rivers Edge



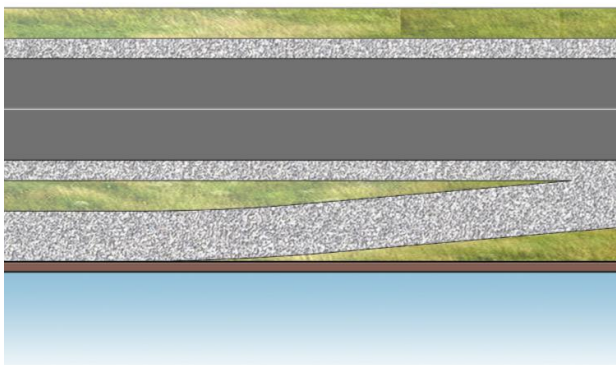
River Edge Path



Inboard Trail



Inboard Path



Split Trail / Walking Path



Split Path

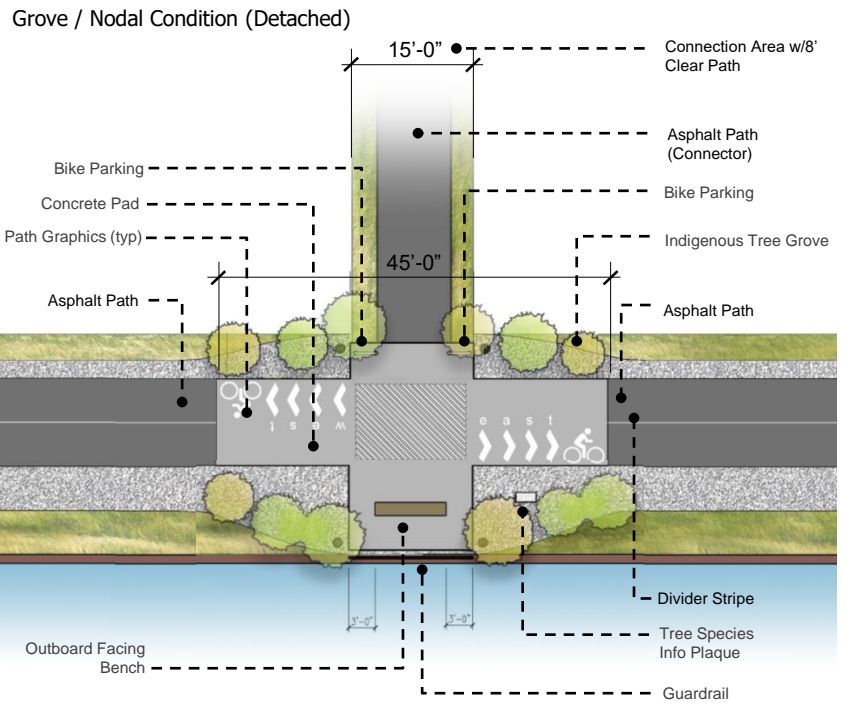
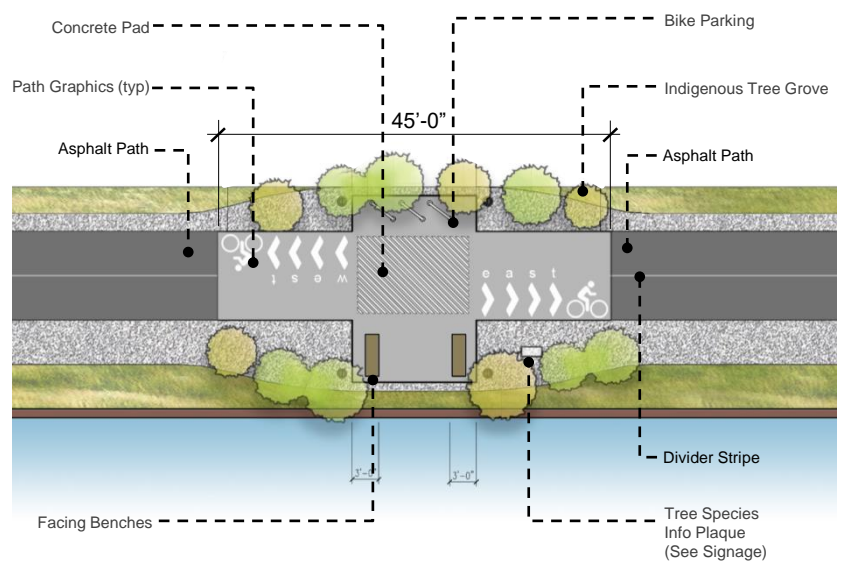
The above diagrams represent the variations of Path / Walk placement and Shoulder placement along with the creation of a walking path from a widened shoulder.



Arboretum Groves

A second landscape standard will be for each property owner to plant at least one dense grove of native Wisconsin trees. In contrast to the long and linear open trails lined with grasses, these groves will offer a place of rest and repose. With the shade of a minimum of 12 trees, a grove will offer shade, a place to park bikes, and a place to sit and rest while enjoying a view of the water. As the Riverwalk Trail passes through a grove, 45' of pavement will be paved in concrete rather than black asphalt, in part to suggest to bike riders that an intersection and place of repose is ahead, and also to have durable pavement that can resist to growth and movement of tree roots (unlike asphalt). Crosswalk stripes will indicate path intersections and movement across the trail from bike parking to seating along the water. Each grove will be lit in the evening as a standard with up-lights into the trees from grade, such that the groves will be softly illuminated in contrast to the relatively dark open grassland trails. Trees within a single grove should be of the same species of a Wisconsin native plant, however adjacent groves shall be of differing species referencing the variety of trees from the valley's history.



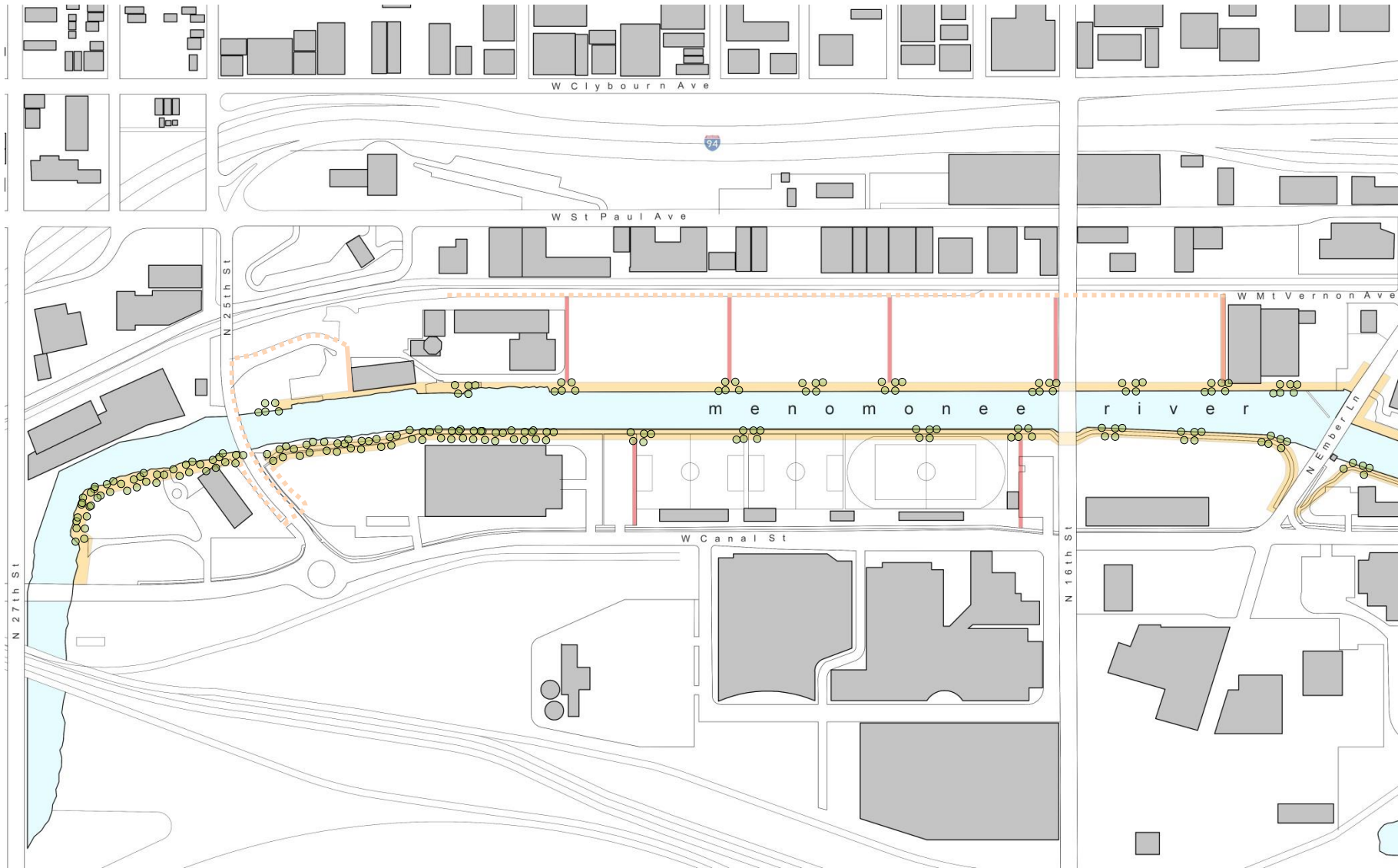


Grove / Nodal Condition (Engaged) with Connection to right-of-way



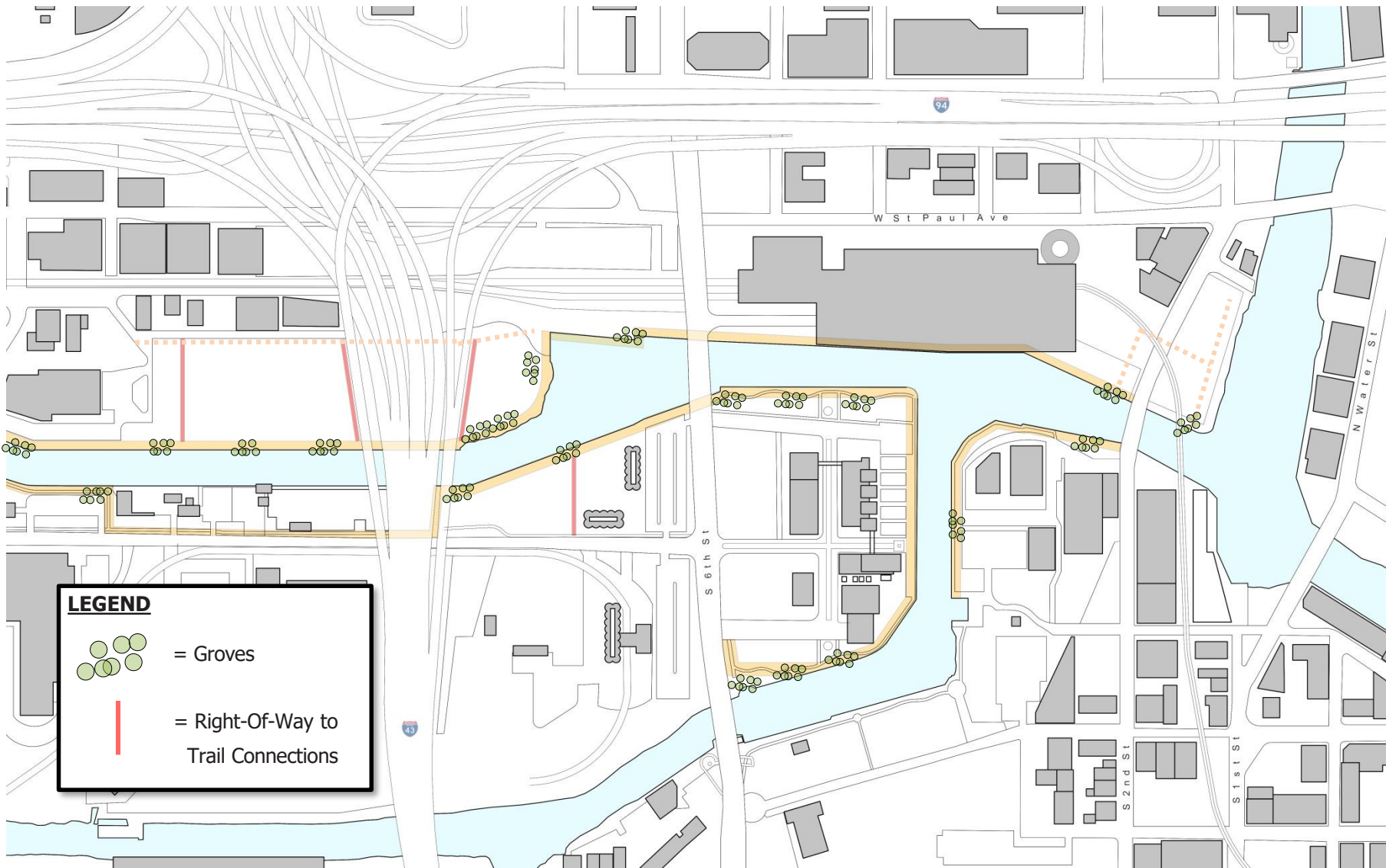
**Grove
Criteria**

The plan below shows the preliminary locations where the Arboretum Groves are to be located. Many of the groves are located at intersections with lateral trail access paths, marking these crossings and providing a place of rest and repose for pedestrians. Groves should generally be approximately 300' apart, but not more than 600' apart.



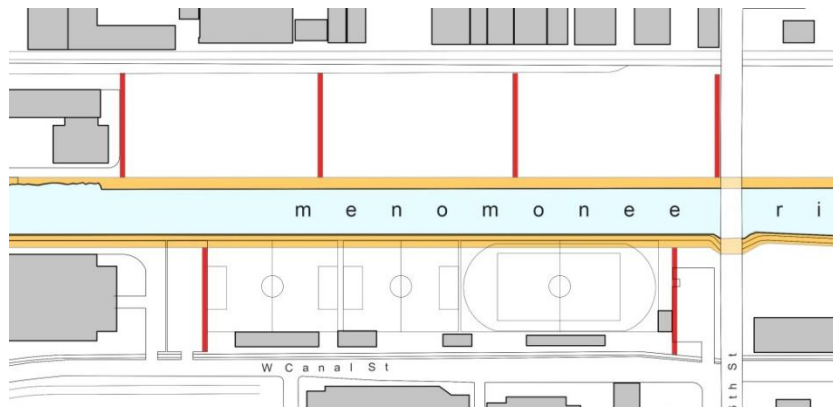


Some of these grove areas shown are currently covered in existing dense tree groves. Owners and design teams should make efforts to avoid the clear-cutting of existing groves of trees, although select sites will require some removal to create grassland clearings within existing extensive forested areas, as long as all of the existing tree groves are not lost.



Connector Criteria

As noted above, connections back to a public right-of-way are an important element of the overall Riverwalk. As a result, these specific conditions are required to follow additional standards in order to create a consistency for use, an understanding of landside development requirements and definition of restrictions. Items like parking, storage and landscaping are all important factors to consider.

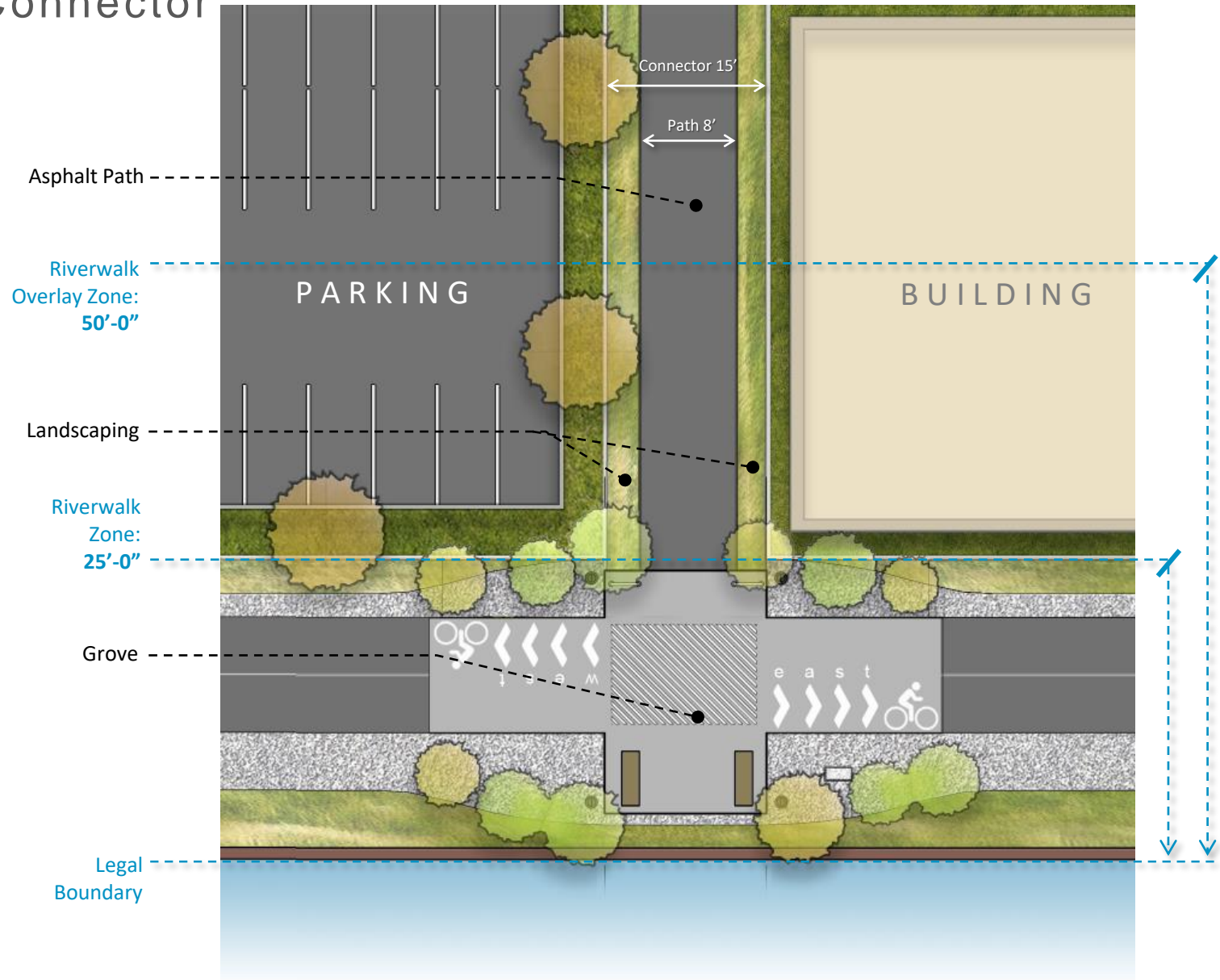


Excerpt from connector plan above showing proposed locations to provide access to the public right-of-way.

The following Connector Standards are as follows:

1. Connectors must be 15' wide overall and connect to a public right-of-way and terminate to a grove (See Grove)
2. Parking lots should be avoided along the Riverwalk and Connectors - If a parking lot is adjacent to a Connector or Riverwalk Zone, Type A landscaping in an additional buffer is required
3. Outdoor storage areas should be avoided along the Riverwalk and Connectors - If storage areas are required and adjacent, Type F landscaping including fence screening as required by Type F landscaping requirements
4. Connector paths shall be constructed of asphalt, similar to adjacent Riverwalk Path / Walk
5. A Shoulder is not required, however landscaping is
6. Landscaping shall be marsh grass on both sides of the Connector path

Right-of-Way Connector

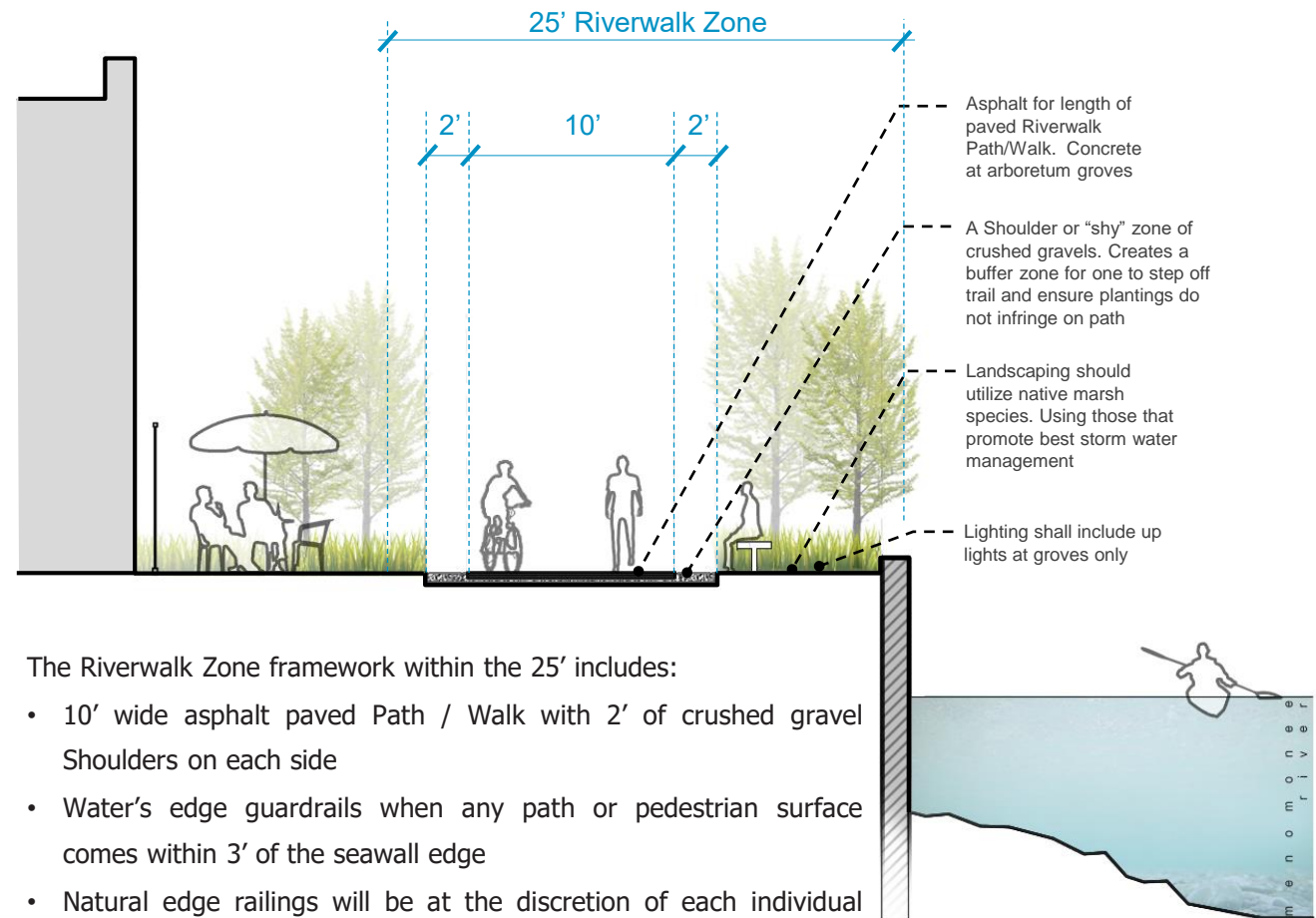




Typology Components

Requirements:

- 25' Riverwalk Zone
- Minimum Path Components
- Railing at Water Edge
- Landscaping



The Riverwalk Zone framework within the 25' includes:

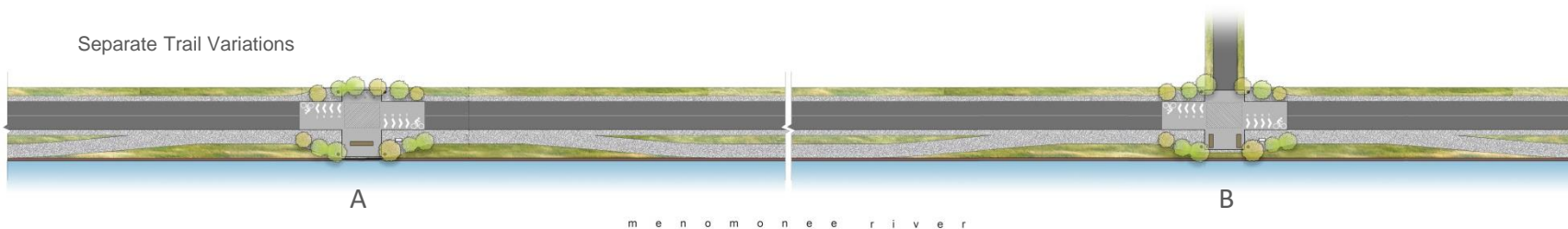
- 10' wide asphalt paved Path / Walk with 2' of crushed gravel Shoulders on each side
- Water's edge guardrails when any path or pedestrian surface comes within 3' of the seawall edge
- Natural edge railings will be at the discretion of each individual owner and design professionals judgement based on the site conditions
- Landscaping plantings that follow the marshland and arboretum concept
- Lighting at Arboretum Groves and connections
- Benches and any other type of amenity shall be placed beyond the shoulder

The following Type sections include the three (3) basic conditions that occur along the length of the Riverwalk, and potential solutions to consider.

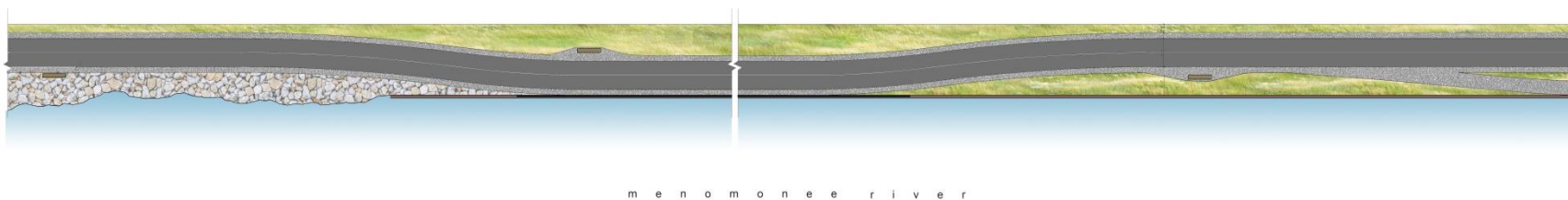
Plan Variations

Each site presents a variety of potential solutions for the placement of the paved Path / Walk relative to the water's edge. The examples below are encouraged as potential solutions to provide curving paths for interest on long sites and placing landscape between the path and the river to help minimize guardrail installation and costs. Additionally, options to take the required gravel shoulder and widen for walkers and runners exist, as well as detaching from the edge of the paved path.

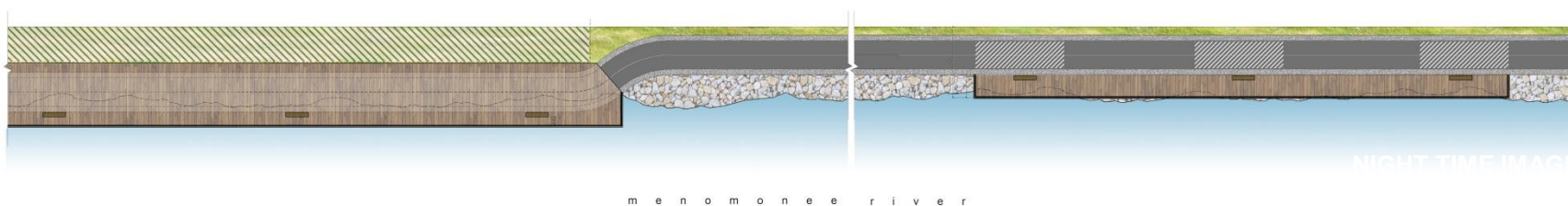
Separate Trail Variations



Combined Trails



Trail Extensions / Boardwalks

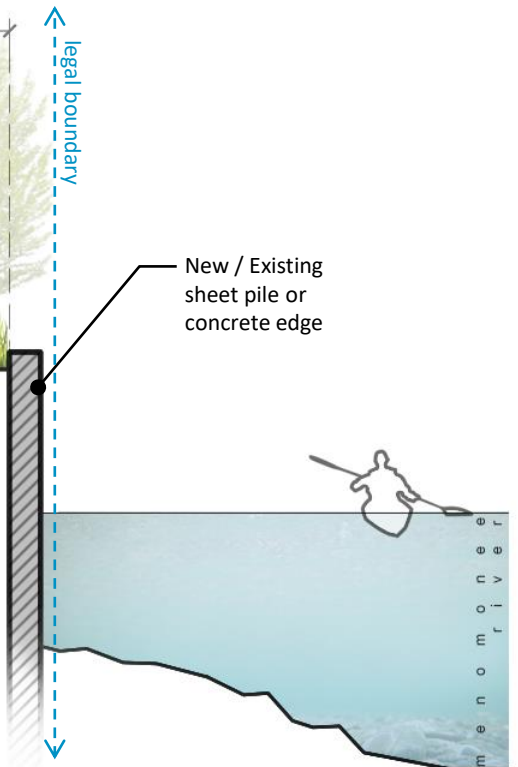
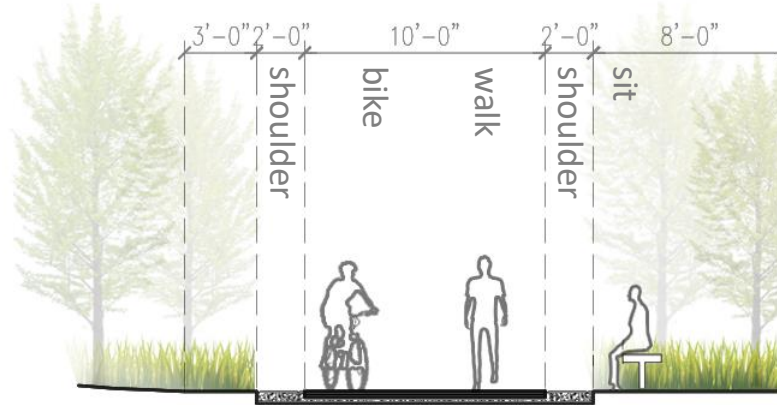




TYPE 1

"Vertical River Edge"

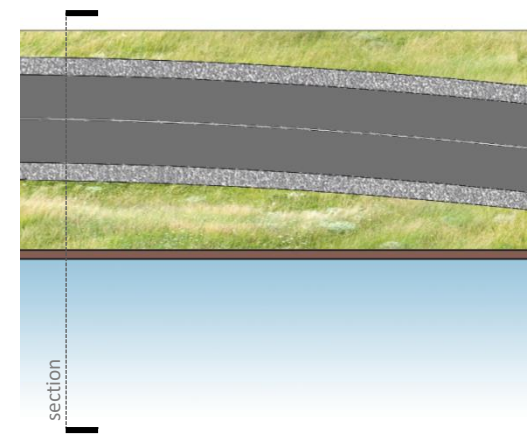
- Sheet Pile / Concrete Edge
- General Uniform Edge Height
- General Uniform Land Surface
- Maximum Functional Width
- Typical Condition along River



Section Typology

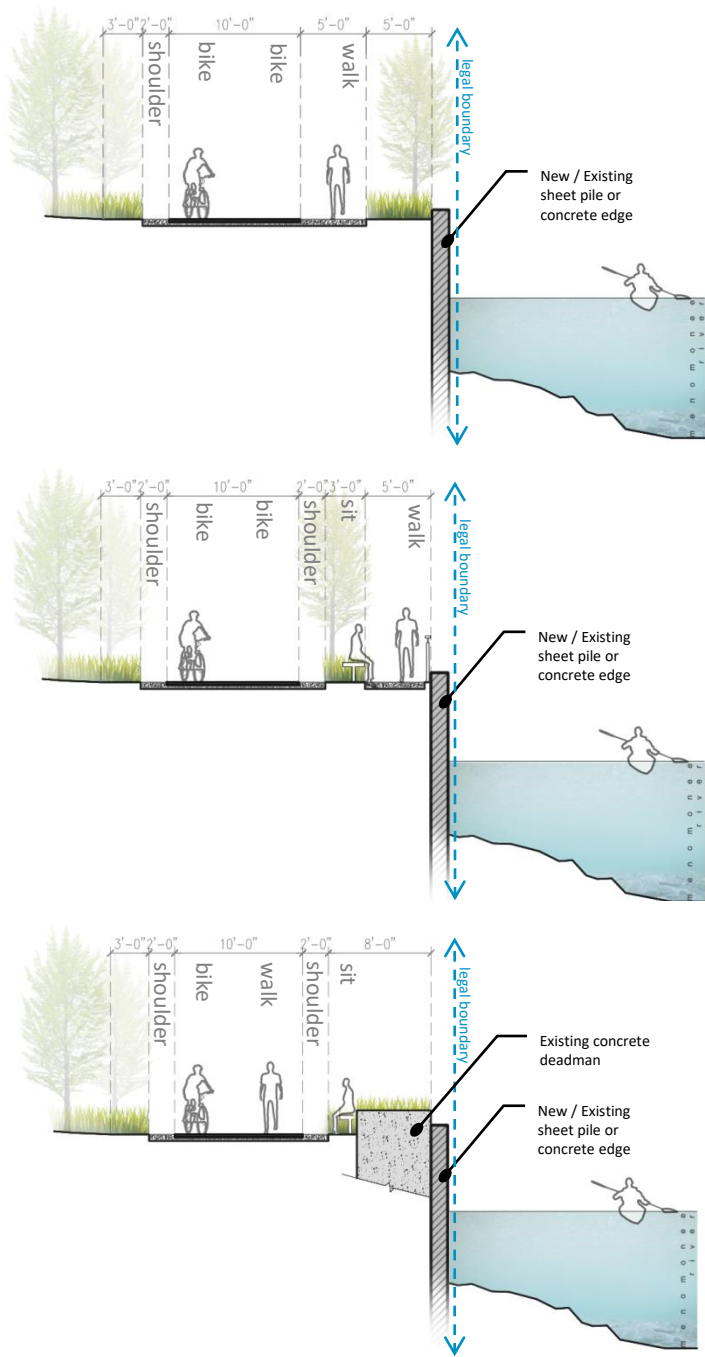
A predominant condition along the length of the river is comprised of a vertical sea wall edge. This edge may be built from existing steel sheet pile, or cast in place concrete. Repair of existing seawalls, and any tiebacks is important to understand for this edge type. Any installation of new vertical edging in a natural edge conditions is subject to review by the WI DNR for flood plain and regulatory compliance.

This condition presents the most flexible of the conditions as it maximizes the 25' surface for path placement, variation of path, shoulder and landscape. Sites are encouraged to take advantage of the opportunity to create places for respite along the length of the Riverwalk within this edge type.

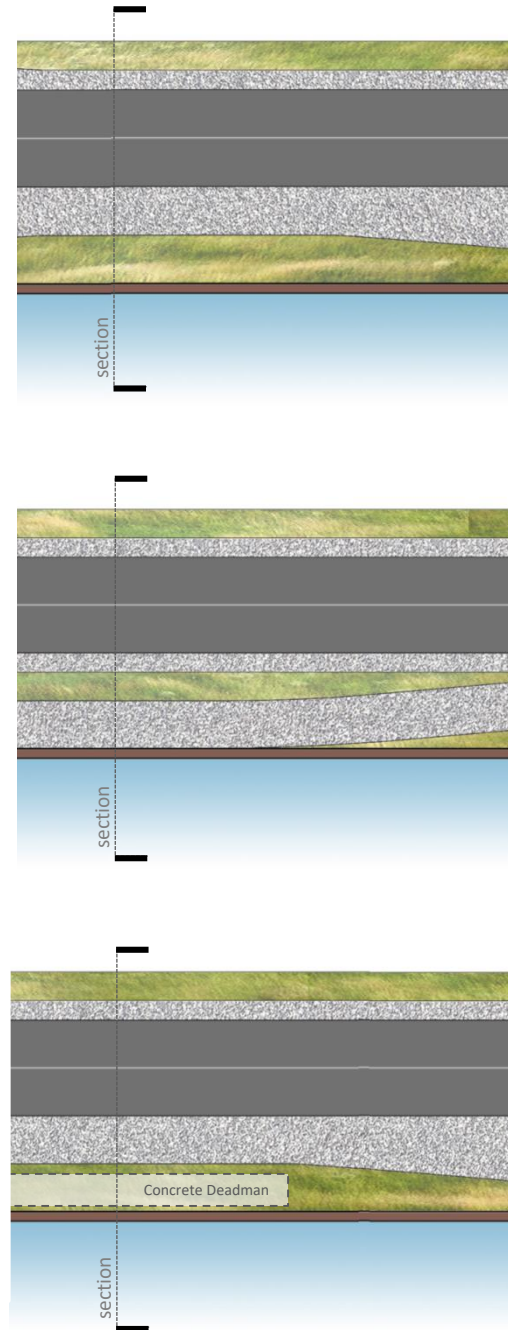


Path Typology

Section Variant Typologies:



Trail Variant Typologies:



This Riverwalk Trail variant includes the widening of a foot path along the edge of the bike path, away from the water's edge which would not require a guardrail.

This Riverwalk Trail variant allows a widened foot path to meander from the paved condition, while continuing the required 2' shoulder. The foot path against the water's edge does require a guardrail.

At select locations, existing concrete bulkheads from terminal equipment or mooring bollards are still intact. It is not a requirement of the standards to remove these, however incorporation into the design is required.

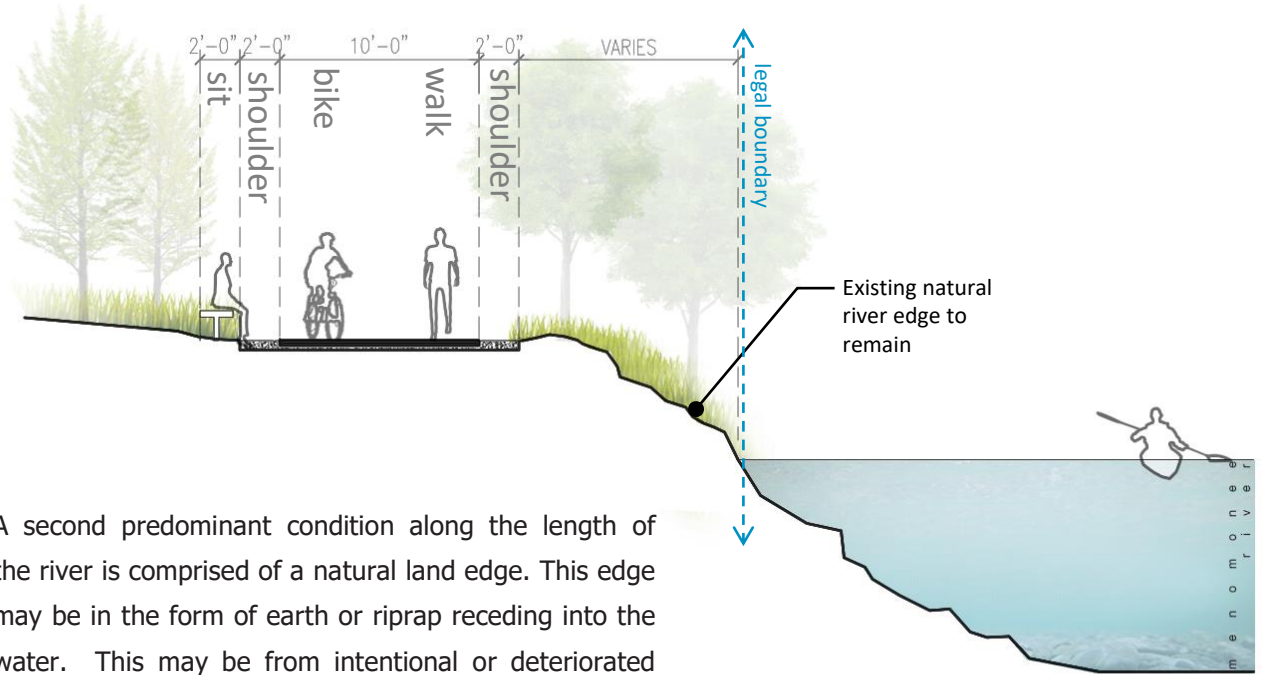




TYPE 2

"Natural / Riparian Edge"

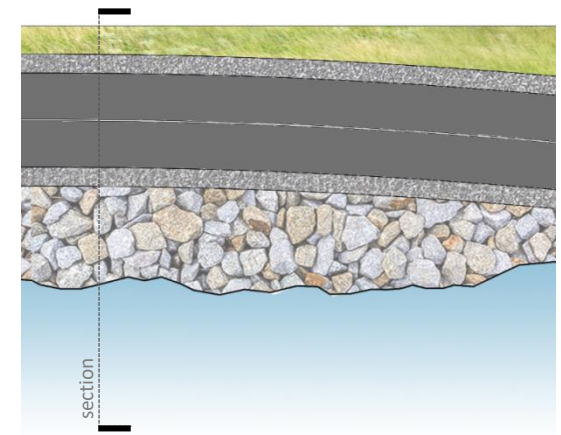
- Natural Edge
- Existing Healthy Trees
- OHWM Varies
- Bulkhead Line In River
- Reduced Functional Path Width



Section Typology

A second predominant condition along the length of the river is comprised of a natural land edge. This edge may be in the form of earth or riprap receding into the water. This may be from intentional or deteriorated landside conditions. Often at these conditions, expanses of existing mature growth including native and non-native trees, and underbrush occur. Care to remove all non-native species and underbrush is required, while leaving all native species with the exception of creating a clearing for visual access to the water edge. Areas where openings are required to implement the Marsh Grasslands shall be reviewed and approved by the Plan Commission.

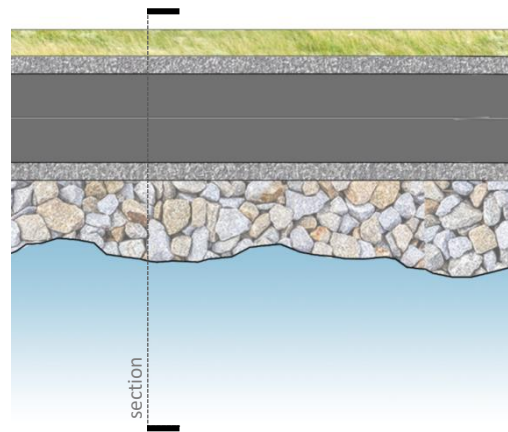
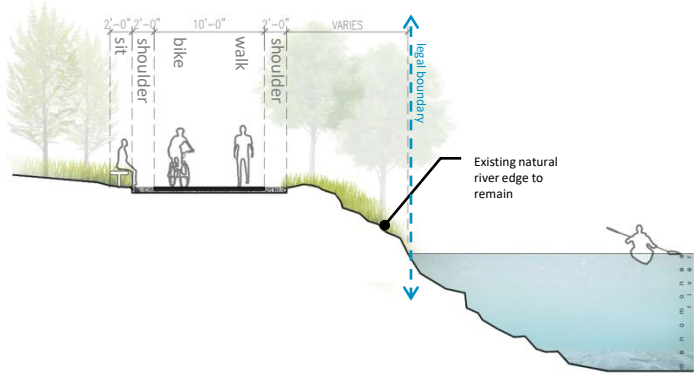
This condition presents a more challenging application of the Riverwalk Zone requirements. This is based on the location of the bulkhead relative to topography and land able to support the 14' wide trail.



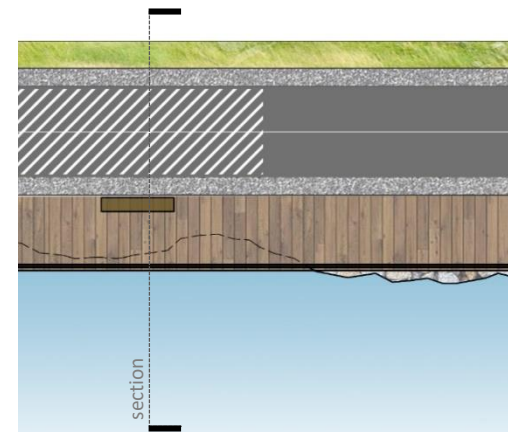
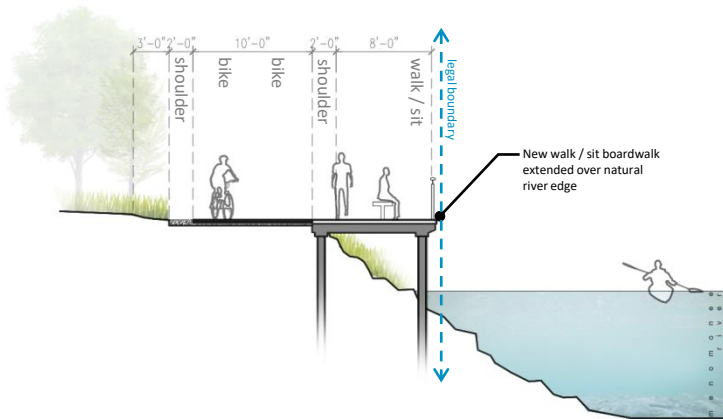
Path Typology

Section Variant Typologies:

Trail Variant Typologies:



This Riverwalk Trail variant will generally require the path to maintain a closer adjacency to the edge of the river. For this variant, it is important to understand the location of the bulkhead and OHWM in relationship to the topography of the site.



This Riverwalk Trail variant may be required for sites where landside constraints, the bulkhead and the OHWM not allow for a 14' wide trail. In this instance, a physical structure may be required over the natural edge or even water to accommodate the minimum trail requirements. These conditions will require review by the City and WI DNR for both floodway contribution and impact to navigable waterways.





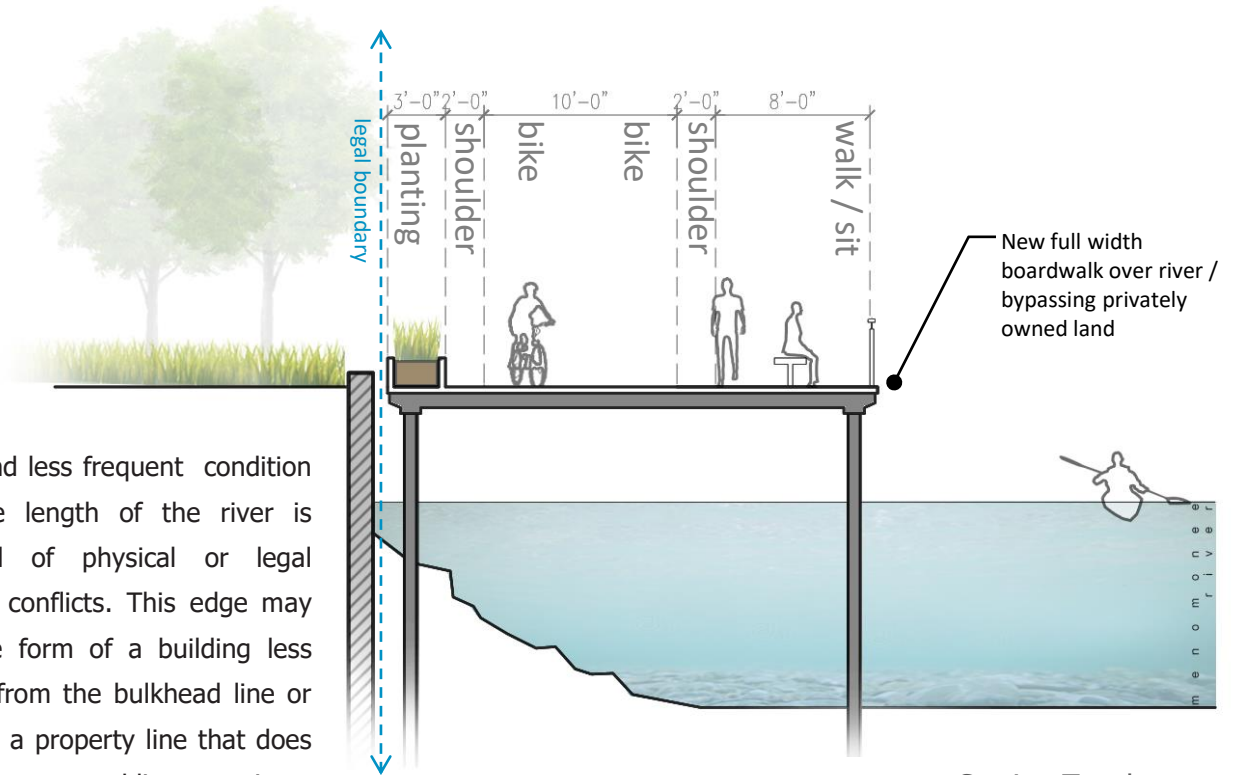
TYPE 3

"Pile-Supported Over Water"

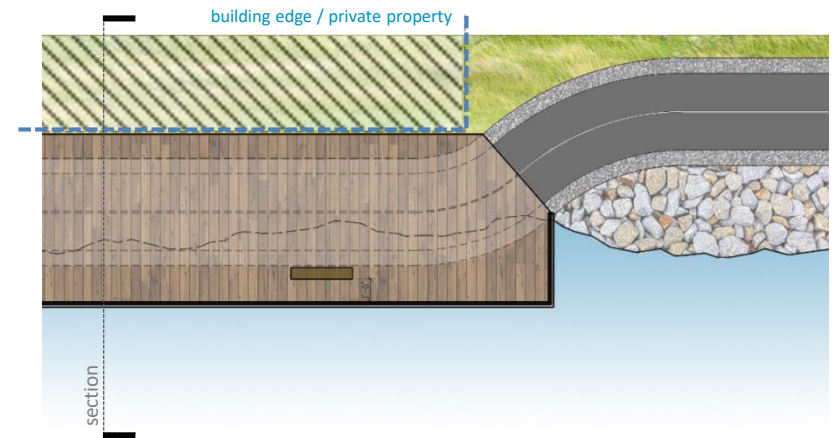
- Property Line Boundary
- Building Edge Against / Near River
- Landside Function Not Possible
- Pile-Supported From River
- Cantilever Structure Over River

A third and less frequent condition along the length of the river is comprised of physical or legal boundary conflicts. This edge may be in the form of a building less than 25' from the bulkhead line or OHWM or a property line that does not allow any public or private development such as the Rail Road. In these instances a structure over the water either pile-supported or cantilevered is required. The Path / Walk and Shoulders at this condition shall be of the same decking material.

These conditions will require review by the City and WI DNR for both floodway contribution and impact to navigable waterways.



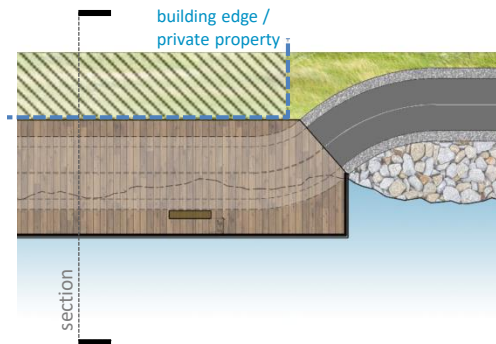
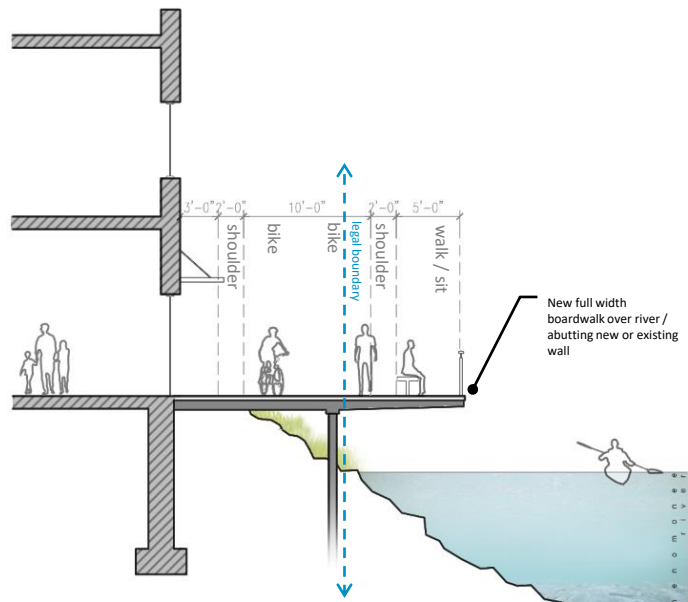
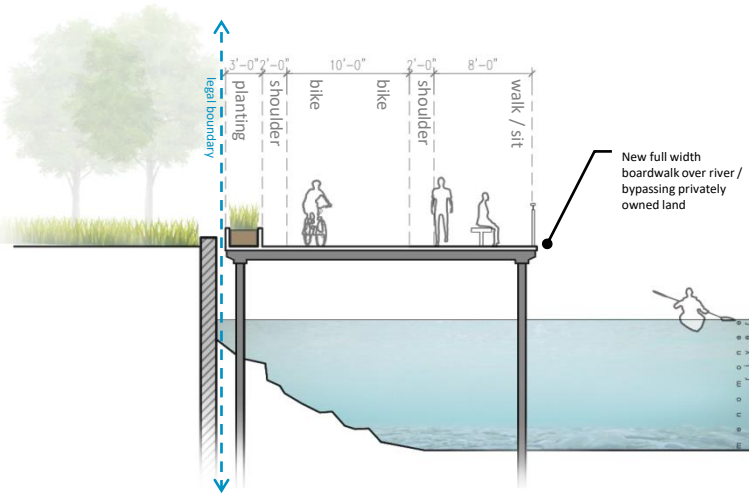
Section Typology



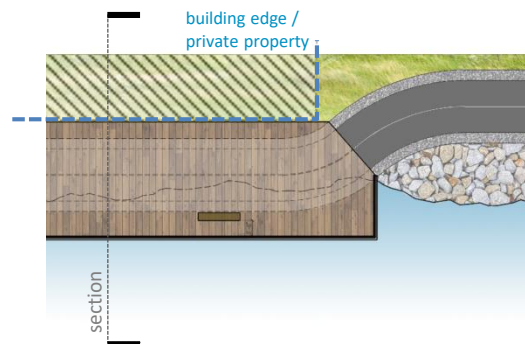
Path Typology

Section Variant Typologies:

Trail Variant Typologies:



This Riverwalk Trail variant includes a pile-supported structure, fully outboard of the bulkhead or OHWM based on a legal boundary. A structure built from weathering steel and IPE decking is required as the base materials for these conditions. (See the railing section for additional information on the rail material and design.)



This Riverwalk Trail variant includes a hybrid of pile-supported structure with a cantilever to create additional width beyond the bulkhead line or OHWM. The structure and railing shall follow the variant noted above.

Note: Any structure built outboard of the bulkhead or OHWM requires approval from the WI DNR.



Stormwater

Regarding potential redevelopment projects (i.e. sites where new development would replace previous development) located along the Riverwalk Zone, stormwater runoff is regulated by the WI DNR under Chapters NR216 and NR151 of the Wisconsin Administrative Code, Chapter 13 of the Milwaukee Metropolitan Sewerage District (MMSD) Regulations, and Chapter 120 of the City of Milwaukee Code of Ordinances. These regulations contain various requirements related to the control of storm water runoff quantity and quality. For most redevelopment projects along the Riverwalk Zone, it is expected that at a minimum, a 40 percent Total Suspended Solids (TSS) removal post-construction water quality discharge requirement will apply. In other words, the regulations will require that stormwater runoff from the post-construction redevelopment site be “cleaned-up” before it is discharged to the municipal storm sewer system or adjacent waterway.

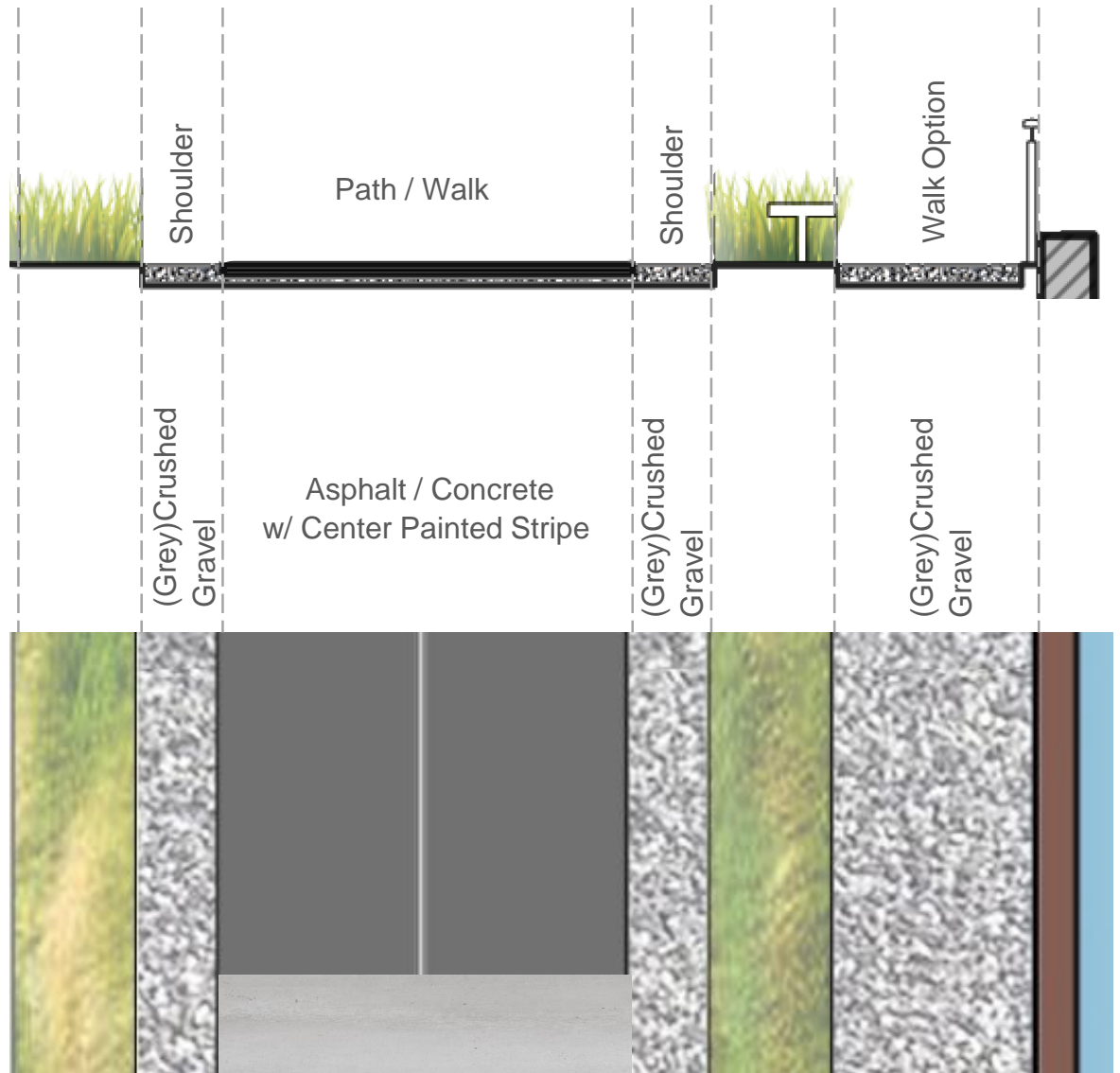
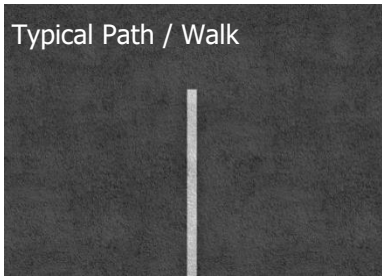




Structural stormwater best management practices (BMPs) such as biofiltration, permeable pavements, vegetated buffers and swales, wet pond storm water detention, underground storm water detention, and proprietary filtration systems, can be used on redevelopment sites to address stormwater quality regulatory requirements. Depending on the redevelopment scenario, one or more of these BMPs may be appropriate. It may be possible to integrate some of these BMPs into the Riverwalk Zone or locate them adjacent to the zone to enhance and/or compliment corridor aesthetics and function. However, it should not be assumed that stormwater BMPs to be located within the Riverwalk Zone will be capable of handling the needs of the entire redevelopment site as this will likely not be the case. Site topography, groundwater elevations, existing infrastructure such as dockwalls and associated buried tiebacks/restraints, and requirements pertaining to the management of soil and groundwater impacted by historical uses are all factors that should be considered in the design and selection of stormwater BMPs.

In specific regard to the management of stormwater runoff originating from the Riverwalk Trail surfaces, vegetated buffers and biofiltration areas alongside the Riverwalk Trails are encouraged as a means of filtering stormwater runoff coming off the trail before it reaches the river.

Surface Materials



In order to create a uniform appearance of surface materials, the following general specifications have been approved and provided. Each site will represent unique subgrade conditions that each owner and professional will be required to understand and specify.

PAVING AND SURFACING

- Concrete Path / Walk Paving: 4000 psi, air entrained Portland cement concrete with tooled joints and light broom finish. Thickness: 5" unless otherwise indicated. Base: 4" aggregate base
- Asphalt Path / Walk Paving: hot mix asphalt in accordance with WISDOT specification section 460. Surface Course: 1.75" of No. 4 LT 58-28 S. Binder Course: 2.25" of No. 3 LT 58-28 S. Base: 10" crushed aggregate.
- Crushed Stone Shoulder Paving: 50% Black Raven 3/8" Chips with 50% Black Raven Sand
- Wood Decking: 5/4" x 6" Ipe Boards



Asphalt Paving



Crushed Stone Paving

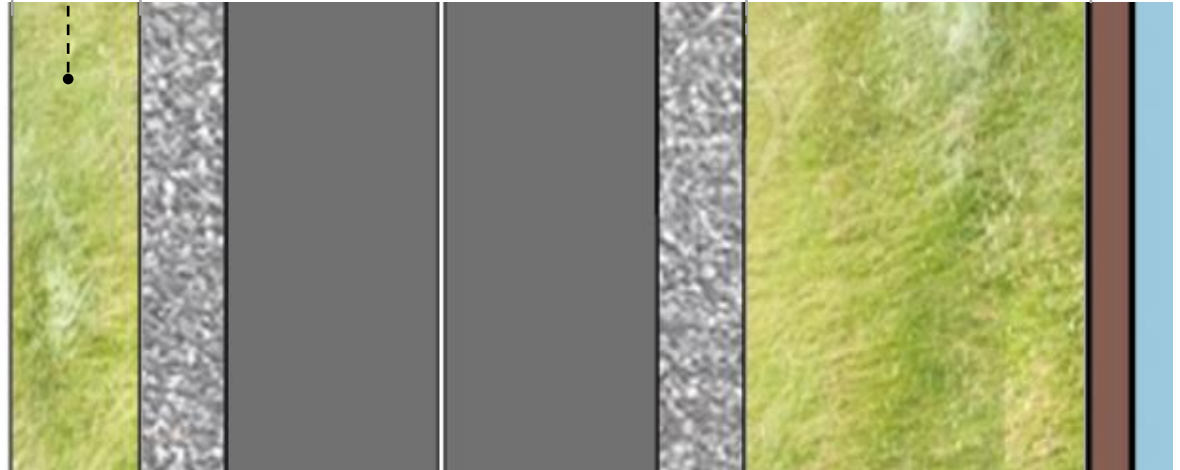


Landscaping / Native Planting



Tall plantings:
 Recommend tall plant for a buffer to adjacent property. Reference native plants. Must be able to maintain visibility with adjacent properties (do not exceed 4-5').

Low Plantings:
 Recommend low plants to maintain river views. Reference native species. Remove existing overgrowth and invasive planting / trees. Maintain full grown non-invasive tree species.



In the Arboretum Groves, native Wisconsin trees should be planted in groves similar to the density and frequency of such groves in the wild; typically much closer in spacing than modern landscaping standards typically suggest. Individual groves should be uniform in species, with tree standards found in the “Menomonee Valley Riverwalk Species Pallett: Trees” available from Menomonee Valley Partners. Ground cover within the groves should typically be crushed grey gravel over an anti-weed growth geotextile to minimize maintenance and to allow people to walk in amongst the trees. Selection from the native species list is unencumbered with the following exceptions:

- Adjacent groves shall be differing species
- Include: Prairie Crab-Apple & Balsam Poplar as acceptable
- Exclude: Willow & Cottonwood species from use

In the long linear Marsh Grasslands stretches native Wisconsin grasses and wildflowers should be used to help re-establish the open landscape character of the Menomonee Valley as it was before industrial development. Plant standards for Marsh Grassland plantings can be found in the “Menomonee Valley Species Pallett: Grasses / Sedges / Rushes” available from Menomonee Valley Partners. Prairie mixes are acceptable, however consultation with an experienced horticultural expert is required to create a successful prairie planting matrix.



■ Lighting

Lighting for the Riverwalk Zone shall be minimal and allocated at select locations only. The overall goal of the lighting strategy is to not illuminate the entire Riverwalk Trail. Within the Marsh Grassland sections the standard intends to minimize light sources to allow for a more natural setting. As the Arboretum Grove zone concept intends to create moments along the Riverwalk Trail, the lighting strategy intends to support this concept. No overhead lighting shall be accepted.

Arboretum Groves shall incorporate ground mounted up lights with the goal of tree stem / trunk and under canopy illumination. Ground mounted fixtures shall be black finish.

Bollards shall be incorporated at connections to the Riverwalk Trail, only where no Arboretum Groves exists. There is no standard created for the spacing of bollards. Each individual site shall develop a strategy based on site conditions.

Recognizing the importance of creating a safe environment, individual sites may propose additional lighting based on unique conditions. The application of these solutions shall be based on the above concept, with a pedestrian scale driving the solution, and be subject to the review and approval of the Plan Commission.



Up lighting:

Tree up lighting shall be in-grade LED fixtures. Fixtures shall be 3000K color temperature and low lumen output to be sensitive to surrounding areas.



Bollards:

Bollards shall be LED source and deck mounted to a concrete base to ensure durability and longevity. All bollards shall be black powder coated finish. Bollard style shall be similar to style shown with some flexibility to be unique to each individual site.

All bollards shall be fully shielded / low glare in a color temperature of 3000K. Overall lumen output shall be low to avoid over lighting. Much of the Riverwalk will have little to no lighting. Providing excessive light in connection areas will impede adaptation to darker areas.



Railings / Guardrails Fencing

Railings or guardrails are required at all locations where pedestrian pathways or paved access to the water's edge is less than 3'. The standard for all railing or guardrails shall be a stainless steel (Grade 316) cable rail system with vertical and horizontal primary members in black-painted steel.

While fencing is not required as a standard, owners may place fencing at the landside edge of the 25' Riverwalk Zone (or further inland) if they so desire. The standard for fencing is not limited to a single design type, however quality and durable materials are required and will be approved by the Plan Commission. As a baseline, fencing can be in black-painted iron or aluminum vertical picket fencing, with a dark green mesh privacy screen if desired, which must be located on the land side of the metal fencing. Steel-framed fencing with wood slats are also acceptable. No chain-link fencing or barbed wire shall be acceptable.

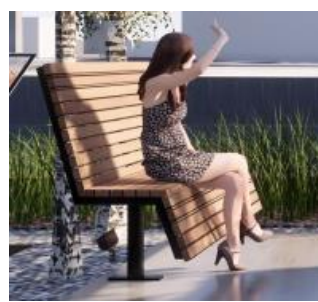


Furnishings

The following furnishings are required within the Riverwalk Zone. All furnishings shall be clear of the Path / Walk and Shoulder. It is recommended that these items be placed a minimum of 1' from the edge of the shoulder.

Seating / Benches:

All seating and benches shall be constructed of black-painted or powder coated steel frames clad in IPE wood blocks or slats. Any deviation from these materials requires approval from the Plan Commission.



Waste / Recycling:

In order to manage waste and littering along the length of the Riverwalk, combination waste and recycling bins are required to be placed at each grove area. Bins shall be consistent across the Riverwalk and follow the specification noted below. If the below product is no longer available, a model approved by the Plan Commission is required.

<https://trashcansunlimited.com/40-gallon-precision-series-grand-stainless-steel-dual-recycler-782429/>



Bike Parking:

Bike parking is not required, however encouraged to be provided at nodes, connections or entries to the Riverwalk given the intended use of the Riverwalk as a bike trail. All bike parking stands shall match the following type shown below, located in groups of three and shall not overhand the Riverwalk Trail. Additionally, owners are encouraged to provide bike repair stands to support the use of bikes as a mode of transportation. Both shall be securely mounted to concrete foundations.



50' Overlay / Buildings and Sites

The Menomonee Valley Riverwalk Overlay District regulates buildings and site components within 50' landward of an existing dock wall or ordinary high watermark. This section of this document regulates buildings, uses and site elements outside of the Riverwalk Zone, but within the 50' Riverwalk Overlay Zone.

Given the public access of the Riverwalk Trail and the public facing nature of properties addressing the river, buildings and site elements should present as though they were on a public street.

Existing conditions which do not comply with the following standards should move towards compliance at the time of additions and substantial remodeling of existing facilities, and at permit required replacement of fencing and/or paving.

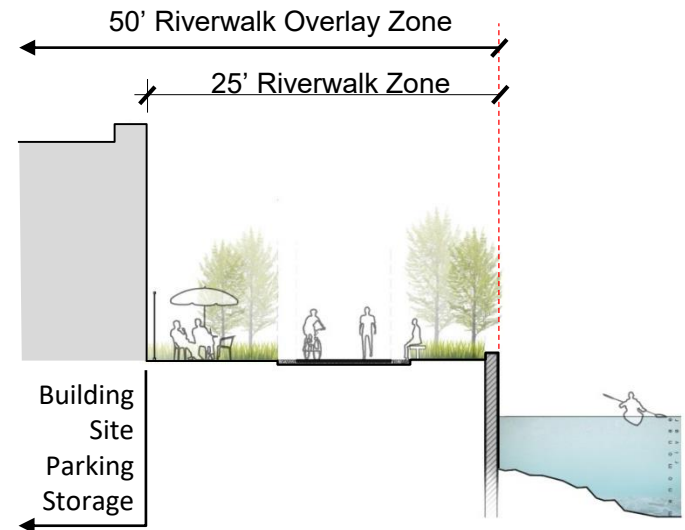
Building Structures

Within the 50' river-abutting zoning overlay area, both principle and accessory structures are permitted. All structures need to be setback 25' from the water's edge to accommodate the Riverwalk Trail.

Building Facades

River facing elevations must have architectural elements or features that create a pedestrian friendly and visually engaging built environment along the Riverwalk Zone.

For all buildings, elements can consist of: fenestration with transparent glazing, wall modulation, decorative pilasters and horizontal banding, scoring and reveals that cast a significant shadow, decorative panels and/or articulation of functional elements. Clerestory windows may be used if internal functions do not allow for large areas of glazing. Building facades within the overlay area shall not be blank, unarticulated walls.





High quality materials that are durable, finished quality and context appropriate should be used. Materials such as EIFS should not be used and split faced block is limited to the base of the façade to a height not exceeding 2.5’.

Site Elements

Private patios and decks are permitted and encouraged in the overlay area beyond the required Riverwalk Zone. Patio and deck surfaces should be finished quality materials that are consistent with materials permitted in the Riverwalk Zone area. Any needed retaining walls should be finished quality materials such as poured in placed concrete or finished quality masonry matching the building. Dry stack block retaining wall systems are not permitted.

Parking Lots

If a parking lot is adjacent to the Riverwalk Zone, Type A landscape at parking lot perimeter adjacent to Riverwalk and any Riverwalk connector is required. The 5’ planting area for the Type A landscaping needs to occur beyond the 25’ Riverwalk Zone. A decorative metal fence is allowed but not required. For security and containment purposes, private property fencing abutting a Riverwalk can be erected along the Riverwalk using decorative metal. Chain link and barbed wire are not permitted. (See Railing / Guardrails and Fencing for additional information)

Storage Yards, Loading Docks and Dumpster Areas

Service areas containing outdoor storage yards, loading docks, and dumpster areas that face the Riverwalk shall be screened using wing walls, or opaque screening / fencing. Type F landscape at Outdoor Storage lot perimeter adjacent to Riverwalk Zone and any Riverwalk Connector is required. The minimum 5’ planting area for the Type F landscaping needs to occur beyond the 25’ Riverwalk Trail area.

Signage

Building wall signs are limited to Type A sign, which are high quality individual letter signs. Sign shall meet the requirement of the zoning district and should be proportional to building façade. Other Sign Types such as freestanding (ground), roof and other sign types are not permitted unless approved by the Plan Commission. Signage may be staff approved if they meet the SPROZ standards.

Lighting

Lighting in the area of the overlay shall follow requirements and standards of those set forth in the 25’ Riverwalk Trail area for permitted fixtures. No high-level flood lights are permitted adjacent to the Riverwalk Trail area, including at outdoor storage yards and parking lots.

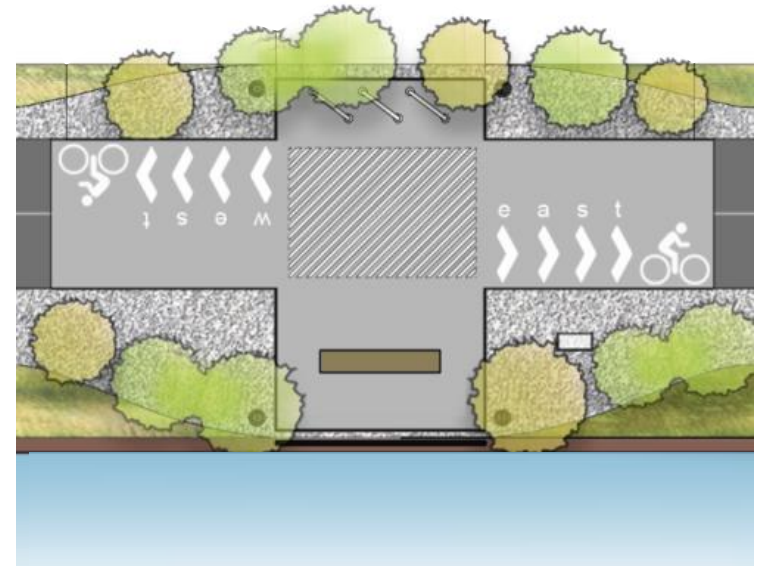
(See Connector Criteria Diagram on Pages 22-23 for additional information and City of Milwaukee Zoning for Landscape Types)

Signage

Signage requirements are minimal within the Riverwalk setback. The only location where signage is required is on the paved surfaces located at the nodes; in conjunction with the Arboretum Groves. As shown below; painted cross hatching, east and west directional arrows, east and west text are identified on the concrete and asphalt surfaces.

Additional signage strategies for overall wayfinding, distance from monuments or important venues is encouraged, however not required. This type of wayfinding or comprehensive signage will be done by the BID or friends of the trail separate from the requirements of these design standards. For example, each Arboretum Groves could include a post-mounted informational plaque that identifies plant tree species and descriptions including Native American, Latin and modern names along with a description of the use or importance of the tree.

All signage provided by each site, will be approved by the Plan Commission.



Reference Documents

The Menomonee Valley Riverwalk Design Standards have been developed through a series of meetings with Stakeholders from the City, Menomonee Valley Partners and local organizations including Marquette University, the Valley BID and through public input. The standards herein have also adopted elements from several resources important in defining requirements for the creation of public spaces, transportation

standards and natural and native species. The following reference document list does not include required standards (unless noted otherwise), however is intended to support further understanding of the definitions and spirit behind the standards. Each owner and professional is urged to review these reference documents in support of their respective designs.

- Menomonee Valley Riverwalk Site Plan Review Overlay Zone
- 2015 - Menomonee Valley Area Comprehensive Plan (2.0)
- 2004 – Wisconsin Bicycle Facility Design Handbook (WI DOT)
- 2007 - Menomonee Valley Species Palette
- Complete Streets best practices for bike and pedestrian traffic
- CPTED (Community Policing Through Environmental Design)





HGA

