

Technical Assistance Panel Report



Improving the Cuyahoga River Infrastructure: Bulkhead Management Practices

Cleveland, OH

November 3-4, 2021

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Panelists

Chair

Debbie Berry
Vice President of Planning &
Real Estate, University Circle CDC
10831 Magnolia Drive Cleveland, OH 44106

Members

Michael Antinelli, PE, CFM
Co-Founder and Vice President, Brizaga

Joe Ferenczy
Director of Water Resources
Osborne Engineering
1100 Superior Avenue - Suite 300
Cleveland, Ohio 44114-2530

Don Frantz
Owner, Metro Consulting
12429 Cedar Rd.
Cleveland, Ohio 44106

Ken Kalynchuk
Project Director
Project Management Consultants
127 Public Square, Cleveland, Ohio 44114

Teresa Metcalf Beasley
Chair of Public Law Practice Group
McDonald Hopkins LLC
600 Superior Avenue, East Suite 2100
Cleveland, Ohio 44114

Tracey Nichols
Director of Financial Services
Project Management Consultants
127 Public Square, Cleveland, Ohio 44114

Richard Pace
President, Cumberland Development
530 Euclid Avenue, Suite 44
Cleveland, OH 44115

Joshua Ellis
Past Vice President of the Metropolitan Planning Council
Chicago, Illinois

Fred Geis
Geis Companies
2017 E. 9th Street, Suite 200
Cleveland, Ohio 44115

Table of Contents

Introduction	1
Targetable Infrastructure: Bulkheads Along The Cuyahoga River	3
Beyond Bulkheads: Targeting the Public Realm.....	8
Determining Best Practices and Design Guidelines.....	9
Funding Capital Improvements Along the Cuyahoga River.....	14
Uniting the Riverfront: Developing Maintenance Funding	16
Immediate Steps	18
Targetable Actions for the Future of the Cuyahoga River	20
Conclusion	21

Introduction

The City of Cleveland contains two distinct waterfronts with Lake Erie bordering the northern boundary of the city and the Cuyahoga River winding through the heart of the city. In 1796 General Moses Cleaveland arrived at the mouth of the Cuyahoga River and decided that the land just to the east of it would be the capital of the new territory. His surveyors laid out a town, including a 9-1/2-acre Public Square, on the high bluffs overlooking Lake Erie and the winding Cuyahoga, leading it to be the fifth-largest City within the United States during the 1920s. This rampant growth brought on by the river created a rich history within Cleveland as well as national policies like the birth of the Environmental Protection Act.

Even today the Cuyahoga River continues to serve as one of the region's primary resources. The Port of Cleveland, alongside the industrial businesses housed on the riverfront, generates an economic impact of over \$3.5 billion to the region (source: Port of Cleveland Economic Impact Report). Residential and commercial spaces have grown from the vacant and underutilized properties, revitalizing the communities around the river. Access to public space has also grown along the riverfront with paths, trails, and parks being implemented along the river's edges, spurring more recreational uses for Cleveland's river. Recently, the Northeast Ohio Areawide Coordinating Agency (NOACA) kicked off a project to focus on developing the riverfront even further with their Vision for the Valley. This project symbolizes former Mayor Frank Jackson's vision for "One Cleveland", connecting the two sides of Cleveland around this important part of the city. The Vision for the Valley is led by One Team, an organization comprised of the City of Cleveland, the Cleveland City Planning Commission, the Cleveland Metroparks, The Port of Cleveland, and Flats Forward. Together,

they aim to craft One River for all to unite and build One Cleveland.

The partners of One Team requested technical assistance from the Urban Land Institute Cleveland District Council (ULI Cleveland) to target infrastructure related to the Cuyahoga River. ULI Cleveland convened a 10-member volunteer panel for a 2-day Technical Assistance Panel (TAP) on November 3-4, 2021 at Key Tower in Cleveland to address questions posed by the Vision for the Valley partnership. The panel was chaired by Debbie Berry, the Vice President of Community Development for University Circle Inc, a non-profit development, service, and advocacy organization for transforming Cleveland's University Circle neighborhood. The panel included experts from a range of fields including economic development, legal, engineering, real estate development, and architecture. The panelists reviewed detailed background briefing material to prepare for the TAP. During the TAP, they toured the Cuyahoga River, heard from the One Team partners, and interviewed community stakeholders who had worked or resided alongside the river including regional developers, local business owners, regional directors and planners, engineers, and nonprofit entities. Utilizing the information presented to them, the panelist worked together to develop implementation strategies to recommend to the Vision for the Valley partnership that addresses critical infrastructure needs to develop the river's edge within the Cuyahoga River Valley.



Questions Asked of Panel

Goal/Theme: What bulkhead management practices can be adopted to remove barriers to private development, encourage beneficial enhancements to privately-owned riverfront properties, and enhance public access and utilization of the riverfront, while continuing to effectively service the industry in the valley?

1. What economic threats exist with current bulkhead management practices? How can new strategies to bulkhead management alleviate those threats?
2. What tools exist A) under current Ohio law or funding programs and/or B) best practices from other jurisdictions to fund and maintain bulkheads or develop a program that will extend into the future, so in 50 years we don't find ourselves with the same problems?
3. Because the bulkheads are currently a private responsibility of the property owner that provides a public benefit to the users of the river, what's the proper allocation of responsibility between the public sector and the private industry/property owners for installation and maintenance of bulkheads along the Cuyahoga River? What partnership models could be implemented to share responsibility between sectors?
4. What opportunities can be leveraged from better bulkhead management practices that would: A) result in more equitable public access to the river front, natural green space, view sheds, trails, and other recreational amenities? B) improve the ecology, water quality, and climate resilience of the river and surrounding areas?
5. What are examples of case studies or best practices for bulkhead repair, rehabilitation, and maintenance that could be implemented in the Cuyahoga River Valley?



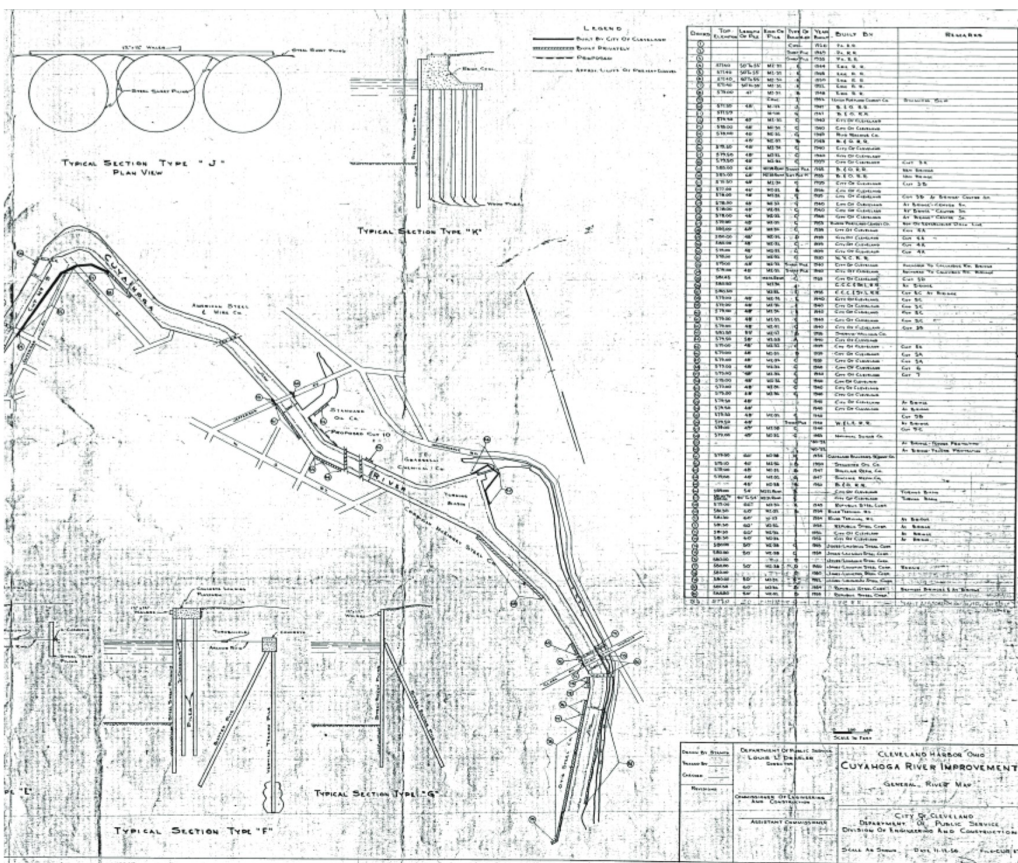
Targetable Infrastructure: Bulkheads along the Cuyahoga River

The Cuyahoga River serves several roles within the city of Cleveland. The river works as a national shipping channel, creating a passageway for commerce and seers. Additionally, the river sees recreational use with kayaks and increasing foot traffic along the river. The Flats East Bank has recently had over \$500 million invested in waterfront development projects to revitalize the area with apartments, offices, and entertainment venues. With the many roles the Cuyahoga River performs for the region, it is important to maintain the vital shipping industries, as well as creating opportunities for development, recreational uses, environmental enhancements, and equitable access.

A major part of the river's infrastructure consists of the bulkheads along its edges. These retaining walls serve as barriers to protect both ships navigating the channel and the land along the water's edge. Over time, bulkheads wear down and put the land they retain at risk of collapse. Within the Cuyahoga River Valley, an area known as the Irishtown Bend started to subside at a high rate between 2004 and 2005. This led to major cracking of Riverbed Street, resulting in the closure of the street after attempted repaving of the road. Throughout 2007, the Riverbed Street

dropped more than 4 feet into the water, posing risks to the Federal navigation channel due to the hill's slope being impacted by water seepage. This example flags the importance of maintaining the river's edge to accommodate public uses and development adjacent to the river.

The panelists were taken on a boat tour to view the bulkheads along the Cuyahoga River between the mouth of Lake Erie and the Carnegie-Lorain bridge. Seeing these bulkheads firsthand provided a visual account of their current conditions and identified areas most in need of attention. Land parcel maps and data were examined alongside the Port of Cleveland's Bulkhead Assessment Report to identify areas needing bulkheads to be replaced, repaired, or naturalized. The Bulkhead Assessment Report gave a rating to sections of the bulkhead from a high grade of A to a low grade of D. The panel suggested that bulkheads rated above a D may have some life still left in them, allowing resources to go to areas more in need of improvements. Approaching sections of bulkhead case-by-case would help to alleviate the initial burden of improving the conditions of the river's edge.



Cuyahoga River Map portraying Bulkhead Types, date 1956. It is estimated that only some areas have changed from when this map was drawn.

Photos from Bulkhead River Tour Depicting Various Conditions of the River's Edge



Bulkheads in various states of disrepair along the Cuyahoga River. Many of the bulkheads found along private property were in various states.



Bulkheads along more industrialized property on the Cuyahoga River. Industrial spaces tended to have bulkheads in much better conditions compared to private and public property due to operational necessity for property owners.

Bulkhead Cost Estimated Breakdown

The Panel reviewed land uses, planned development, and bulkhead conditions assessment inputs to identify a target area in the Flats for a bulkhead improvement analysis and preliminary plan exercise. The 20,225 linear feet area chosen is between the mouth of the Cuyahoga River at the Willow Street Bridge south to the I-90 Bridge over the river. Estimated costs were generated by the panel to help investigate costs associated with addressing these infrastructure issues along the riverbank. While useful in analyzing some of the challenges to repair the bulkheads along the Cuyahoga River, these are general budget estimates used to develop rough-order-of-magnitude costs and should not be assumed to be actual costs.

Most of these bulkheads could be repaired, accounting for 10,770 linear feet. These repairs were estimated to cost approximately \$2,500 per linear feet totaling nearly \$27 million in repairs. Another 8,975 feet were suggested needing bulkhead replacements. Replacement costs for bulkheads were estimated to cost around \$7,500, totaling over \$72.5 million in total replacement costs. An alternative to maintaining the bulkhead would be to naturalize the banks of the river. A total of 480 linear feet were recommended to be restored to some form of a

natural river edge condition, totaling \$720 thousand at an estimated cost of \$1,500 per foot to naturalize the bank. For a breakdown of panel estimates, see Table 1 and Table 2. For a breakdown of estimates by parcel, see the appendix.

One of the largest challenges to sustaining the bulkheads along the Cuyahoga River is enforcement. Within the City of Cleveland, the responsibility of maintaining the bulkheads falls on the property owner. Between the mouth of Lake Erie and the Lorain-Carnegie Bridge, a total of 15,015 linear feet are owned by private land-holders making up nearly 75% of the river's edge. Another 4,260 linear feet are owned by the city of Cleveland, and the remaining 950 feet are owned by the Cleveland Metroparks. Of the total \$100 million estimated cost to address the bulkheads in this area, nearly 76% of the cost (\$76 million) falls on private land-holders. This large cost presents a major problem for these property owners as many of the business owners do not enjoy the benefits of improved bulkheads. With the current state of the river edge, many developers focus on developing the land set further from the river and do not utilize the land close enough to the river to justify the high costs of maintaining it.

Table 1: Estimated Project Costs to Improving Bulkheads

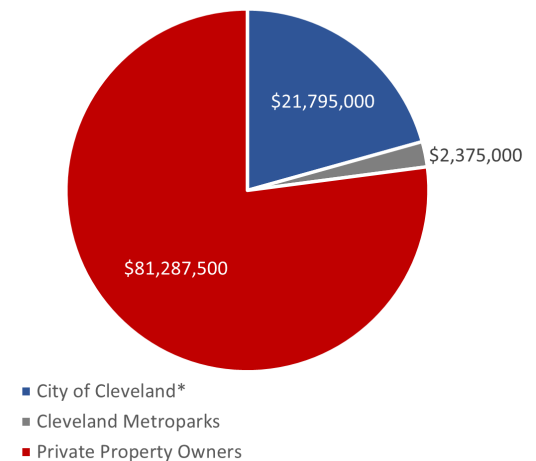
Owner	Linear Feet	Estimated Cost Needed	% Linear Feet owned	% Cost by Entity
City of Cleveland*	4,260	\$21,795,000	19.8%	20.0%
Cleveland Metroparks	950	\$2,375,000	4.5%	2.3%
Private	15,840	\$81,287,500	73.7%	74.7%
Total	21,500	\$100,207,500	100.0%	100.0%

Note: Cleveland Metroparks purchased additional property after the November 2021 panel estimates.

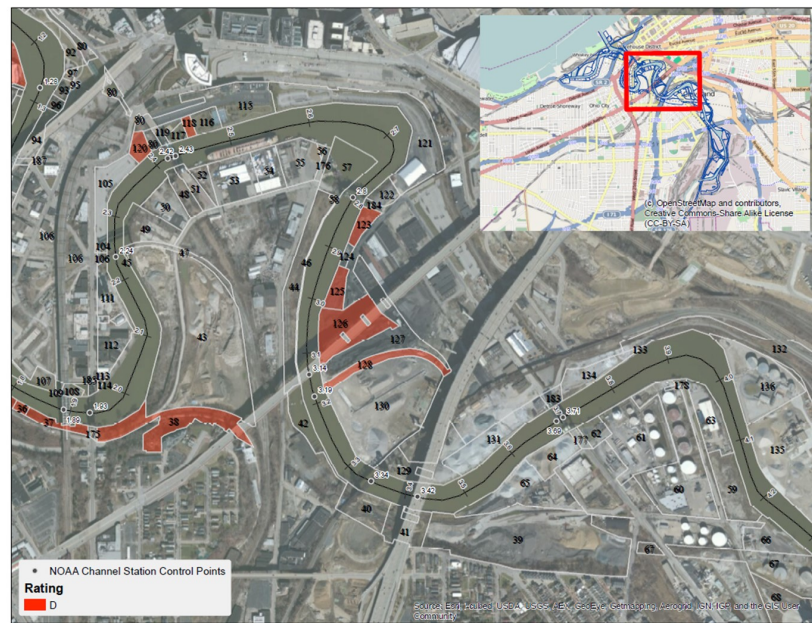
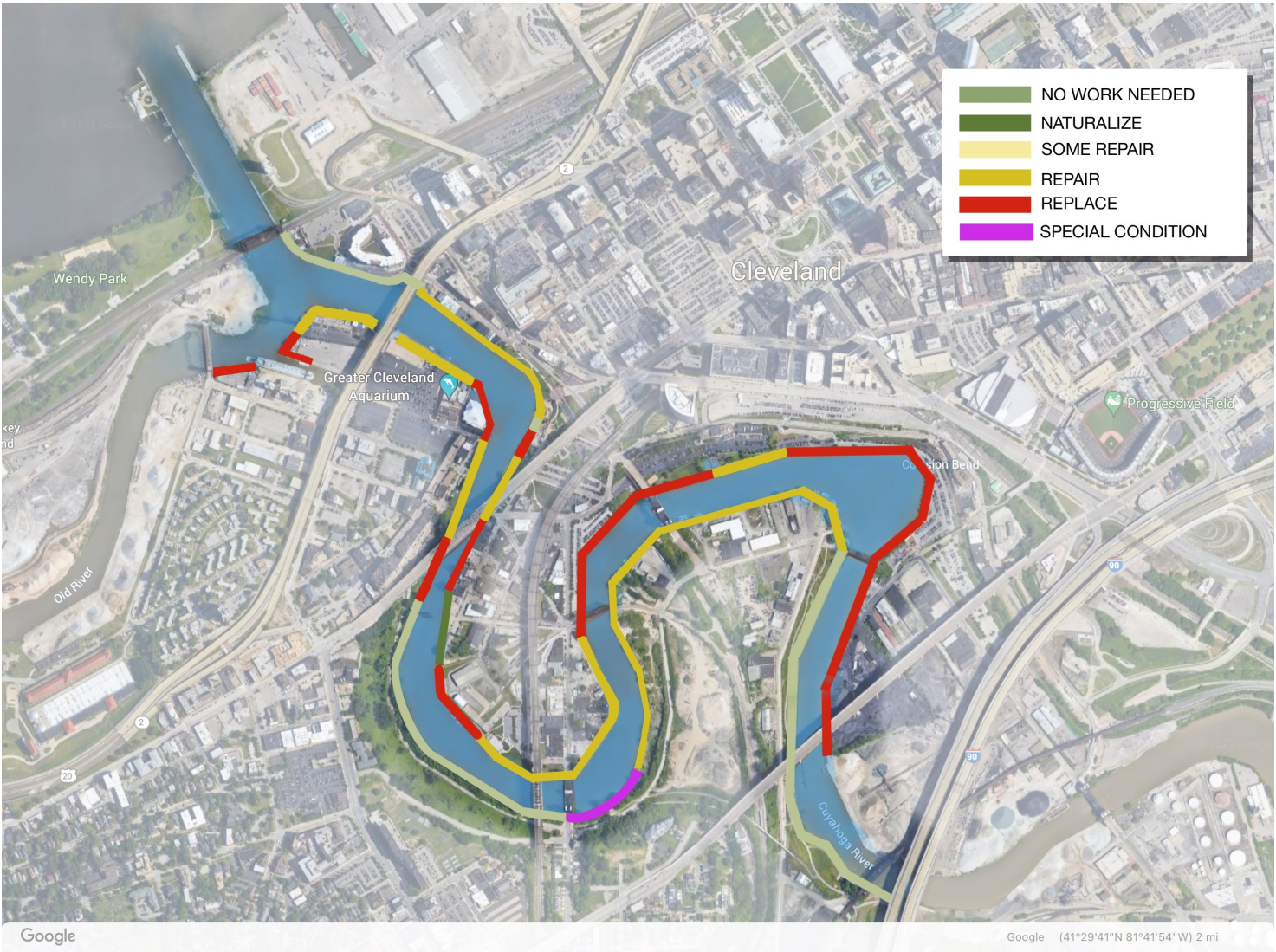
Table 2: Estimated Costs by

Recommended Fix	Estimated Linear Feet	Estimated Total Cost
Naturalization	480	\$720,000
Repair	10,770	\$26,925,000
Replace	8,975	\$72,562,500
Total	20,225	\$100,207,500

Figure 1: Estimated Project Costs by Owner Shares



Area Analyzed by Technical Assistance Panel

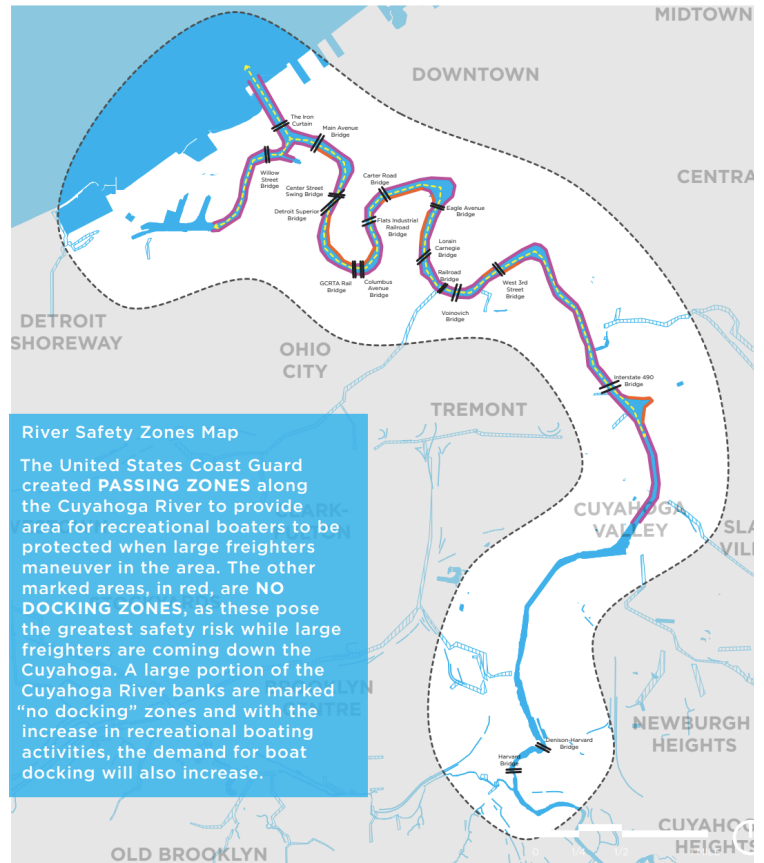


Above map was created by the TAP to help identify different sections of the river needing different repairs.

The map to the left identifies different parcels with D rating bulkheads, these bulkheads represent the areas most in need of attention.

An additional challenge to maintain bulkheads was brought up by panelist Alfred Geis, owner of Geis Companies and riverfront property owner, who had a freighter collide with a bulkhead on his property. He compared the occurrence to that of a hit-and-run damaging someone’s car. The bulkheads along the channel are not monitored making accidents hard to track and follow-up on. Ships navigating the channels may be banking into certain spots as they navigate the river bends making the bulkheads deteriorate much faster. While the Cleveland-Cuyahoga County Port Authority assists cases where boats damage the edge of the river, efforts tend to fall flat as developers may not be focused on always tracking their riverfront. This puts an unaccounted burden on the property owner who now must repair their bulkheads despite others causing the damage. The challenges make owning the riverfront property more of a liability, likely deterring developers from innovating the riverfront.

The bulkheads along the Cuyahoga River are an important part of the river valley’s infrastructure. The river’s edge serves the city of Cleveland’s businesses and residents, generating commerce to businesses along the river and public access to residents and visitors. While the river’s edge offers further opportunities to develop public space and a greater economic impact, many barriers need to be addressed regarding maintenance to realize this potential. The costs of repairing and replacing bulkheads present a significant financial burden to those along the riverfront. Many property owners lack the incentive to make investments in the bulkheads, especially in light of the potential for ongoing damage by shipping traffic and accountability. Despite these barriers, not all bulkheads need to be addressed at once. Addressing the bulkhead replacements case-by-case could alleviate the initial cost burden and target bulkheads improvements more critical to the channel. The panel stressed the importance of enforcing bulkhead maintenance, identifying an important gap within the Cuyahoga River’s infrastructure.



Federal shipping channel and safety map from the Vision for the Valley Report. Limitations on the docking are specifically defined.



Example of bulkhead damages along private property

Beyond Bulkheads, Targeting the Public Realm

The panel came together to investigate the bulkheads along the Cuyahoga River but determined that they are a part of a larger issue along the river. This idea grew during the conversation around enforcing the maintenance and replacement of bulkheads. The disconnect between property owners and their views of holding waterfront property highlighted the difficulty of getting new developments started. With the river's edge being more of a liability than an asset along the Cuyahoga River, developments along the river are sparse. The bulkheads being at risk to ships navigating the channel showed that maritime activities were another issue present within the river. With the river attracting more residential uses, there is more crowding on the river between recreational and commercial vessels. This can create safety issues between the large boats and smaller pedestrian boats. Some bulkheads create further safety concerns trapping someone in the river with no access points. The liability concerned with owning waterfront property and the safety of the waterways detail concerns beyond the panel's initial scope.

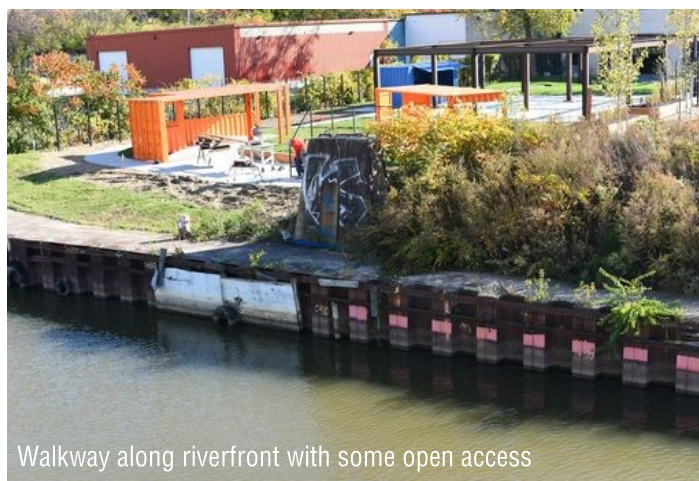
Infrastructure for Public Space

One goal of the Vision of the Valley project is to open more of the Cuyahoga River to public access, which is another target the panel saw as an area to improve alongside the bulkheads. While the infrastructure improvements could allow for the development of public areas, there need to be some standardizations to aid in developing public access. Alongside determining who and how to pay for bulkhead improvements, what to do with the land the bulkhead supports is something that would also need to be sorted out. With repairing and replacing the bulkheads, choosing the right materials and design are important to support the vision on the river's edge along the Cuyahoga River. It is important to have cohesion between improvements as to connect the public access uniformly across parcels. Enforcing and standardizing guidelines concerning developing the Cuyahoga River was a goal the panel called to be addressed alongside bulkhead maintenance.

While the bulkheads on the edge of the river serve to maintain the land in which they support, they also impact the environment around them. In some cases, the bulkheads may be retaining contaminated soil from petroleum or other chemical seepages. This would create additional costs to ensure harmful chemicals do

not get released into the water when bulkheads are removed or repaired. Some bulkheads may offer more environmentally friendly benefits to the river, such as creating wildlife habitat (or habitat restoration) or developing green spaces along the river. Ensuring that the river remains clean and protected can help maintain its status as a resource and amenity throughout North-east Ohio. The environmental improvements of the Cuyahoga River were another target the panel suggested alongside improving the bulkheads.

While the bulkheads of the Cuyahoga River make for an important target to maintain the river's infrastructure, they also capture the importance of preserving the river. Safety and maritime activities within the river are items to keep in mind addressing the bulkheads and further developing the river's edge. As the bulkheads are improved over time, it is also important to think about how the public space along the river's edge is envisioned. It is also important to connect with property owners to get them involved in the process of creating the public spaces along with their land. It is just as important to maintain the ecosystem of the river to ensure it continues to thrive and remain safe for residents as well as local flora and fauna to thrive. A strategic plan for managing the complex system of bulkheads and other river edge condition is imperative to ensure the future success of the Cuyahoga River as a sustainable economic generator and vital community amenity.



Walkway along riverfront with some open access

Determining Best Practices and River's Edge Design Guidelines: Chicago

As Cleveland moves to improve and maintain the Cuyahoga River, other cities and projects may be able to help provide some guidance in improving and maintaining the river's edge. Chicago may be a case to investigate to help Cleveland reach the One River to connect the city. Just under 350 miles to the west of Cleveland, Chicago is another large city built on the coast of a great lake with a river winding through the city. The climate between the two cities is very similar as well, with both regions experiencing snow and ice in the winter. Within the early 2000s, the city of Chicago started construction on a multi-use public space located on the south bank of the Chicago River. The Chicago Riverwalk continued expanding along the Chicago River, adding restaurants, boat access, park-like amenities, and even gardens to support river ecology. The success of the Riverwalk has led to the city providing similar development on Goose Island, expanding out the transformation beyond its original scope. Like what the Vision of the Valley hopes to accomplish with the Cuyahoga River, former Chicago Mayor Rahm Emanuel designated the river as a "second lakefront" as the city shifted its river from a polluted industrial sewer to an open, public space providing various amenities.

One key measure to help ensure the development of the Chicago Riverwalk and maintain the river's edge was the establishment of a Chicago River Task Force. Panelist Josh Ellis who attended the TAP sessions helped to establish this task force in Chicago and spoke of the success and engagement that was created. Involving Public, Private, and Non-Profit entities within the Chicago area, the [River Ecology and Governance Task Force](#) coordinates all activities within the community to better the Chicago region. The governance provided by the task force covers every riverfront within the city limits, aiming to maintain a thriving ecological asset within the city. This force works closely with other agencies like the [Chicago Waterways Committee](#), the [Chicago Harbor Safety Committee](#), and the [Great Rivers Implementation Committee](#). The task force's work along with these other organizations increases the number of stakeholders working together to improve the Chicago River.

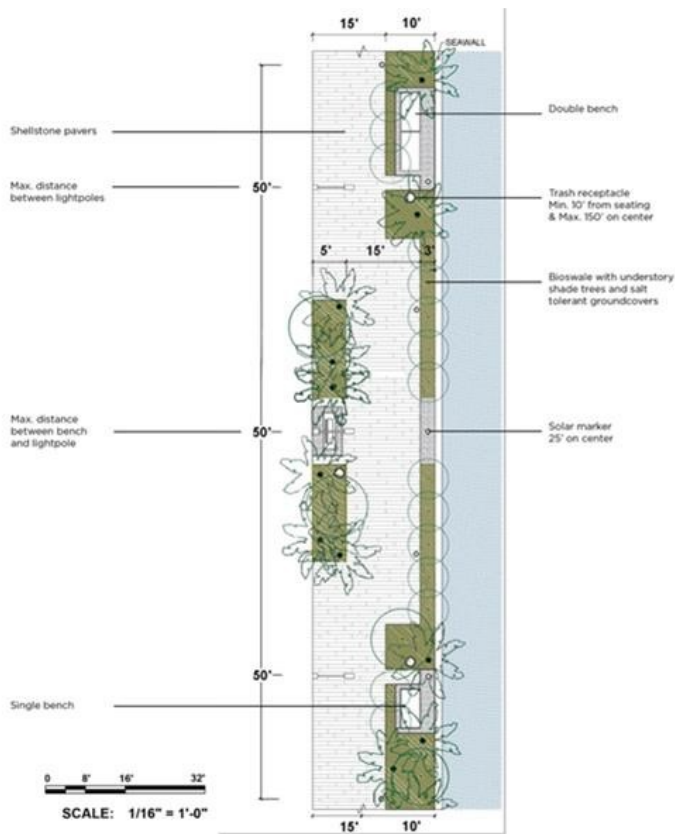
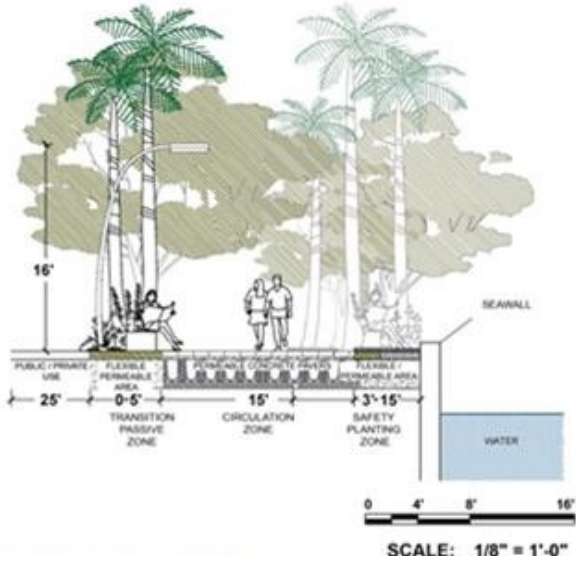
To help standardize the Chicago River's edge, the Chicago Department of Planning and Development worked with the US

Army Corps of Engineers of Chicago to develop a [Chicago River Design Guidelines Report](#). These Design Guidelines helped outline the goals, expectations, and requirements for development along the Chicago River. Standardizing the goals and actions around the river helped to streamline efforts of improving the river's edge within the city limits. The guidelines include architectural treatments, building design, fencing, lighting, landscape, materials, publicly-accessible amenities, and riverbank treatments to ensure compliance in embracing and activating the frontage along the river. The guide also details different character zones along the water, determining minimum setbacks within each zone to create consistency and space for river access, multi-use paths, and aiding biodiversity in the water.



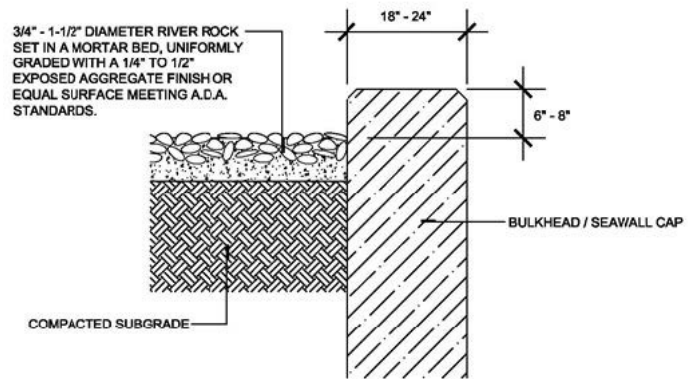
Photos of Chicago River and the Riverwalk along its edge

Best Practices and Design Guidelines: Florida



Another panelist, Michael Antinelli, offered some best practices from his state of Florida. The city of Punta Gorda runs a [Canal Management Division](#) charged with maintaining city seawalls and dredging the city's waterways. Those along the canals buy into the canal maintenance program to help fund the services offered by the division. This removes the burden facing property owners of inspecting, maintaining, and replacing seawalls along with their land, as well as ensures the river is maintained by one entity. The division also has resources and information for business owners to stay informed when they should expect repairs on their seawalls or who to contact if they have questions regarding the canal within their property. The city managing the services targeting their canals ensures that they are maintained and serve the community.

Another Florida city, Miami, targets its water's edge along the Biscayne Bay and the Miami River through zoning. [Section 3.11 within the Miami zoning code](#) defines a "Waterfront Standard" for all properties along the waterfront within the city. Both public and private owners are required to build and maintain an approximate 25-foot Waterfront Walkway open for public use. While the burden of this setback falls on the property owner, the zoning code offers guidelines and a waterfront materials index to help enforce how the river edges are built and maintained. These codes help standardize the waterfront between all property owners and provide resources to make sure guidelines are met and maintained.



[Images](#) represent various guidelines different typologies and seawall zones within Section 3.11 of the Miami Zoning Code

Best Practices and Design Guidelines: Ohio

Ohio has some cases closer to Cleveland that may serve as local case studies to addressing the [The Canalway Partners](#) restored and remediated 2,800 linear feet of shoreline to develop the Towpath Trail within Cleveland. One of the tasks within this project included converting a marina into a two-acre habitat to provide fish a safe space to spawn. Flats Forward, another entity in the area, have had success in developing public space along the East Flat banks. Some possible design guidelines built around the work they have done can be found on the next few pages.

Another nonprofit that had success targeting the river was the [Cuyahoga River Restoration](#). Targeting the restoration, revitalization, and protection of the Cuyahoga River, this nonprofit has helped provide habitats and address the watershed around the river. While their capacity to undertake projects has decreased due to the COVID-19 pandemic, they feel that the river has been gaining more attention with the improvements that have been or are being made. With this attention, they believe more entities are taking ownership and getting involved with the river, making it a salient issue within the region.

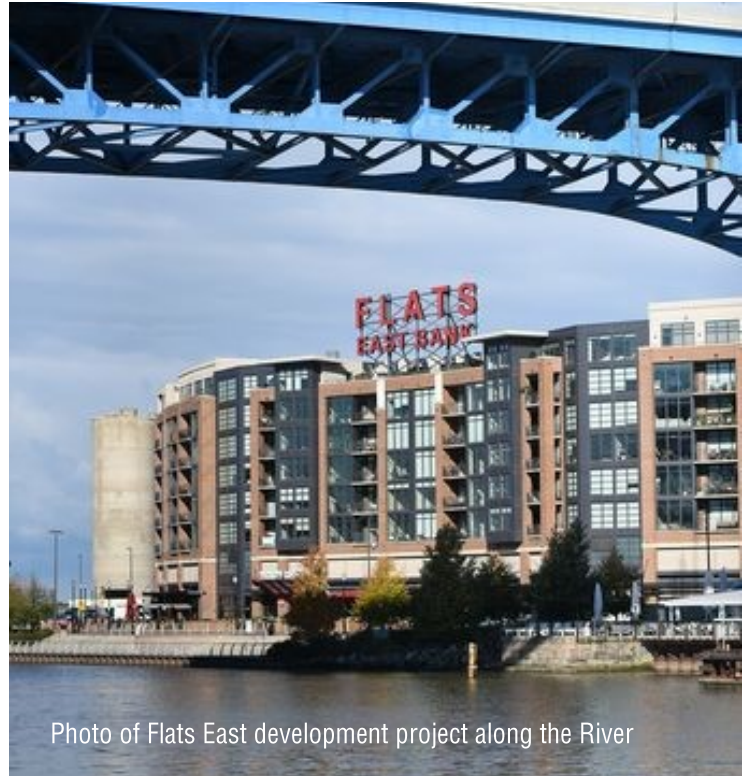


Photo of Flats East development project along the River



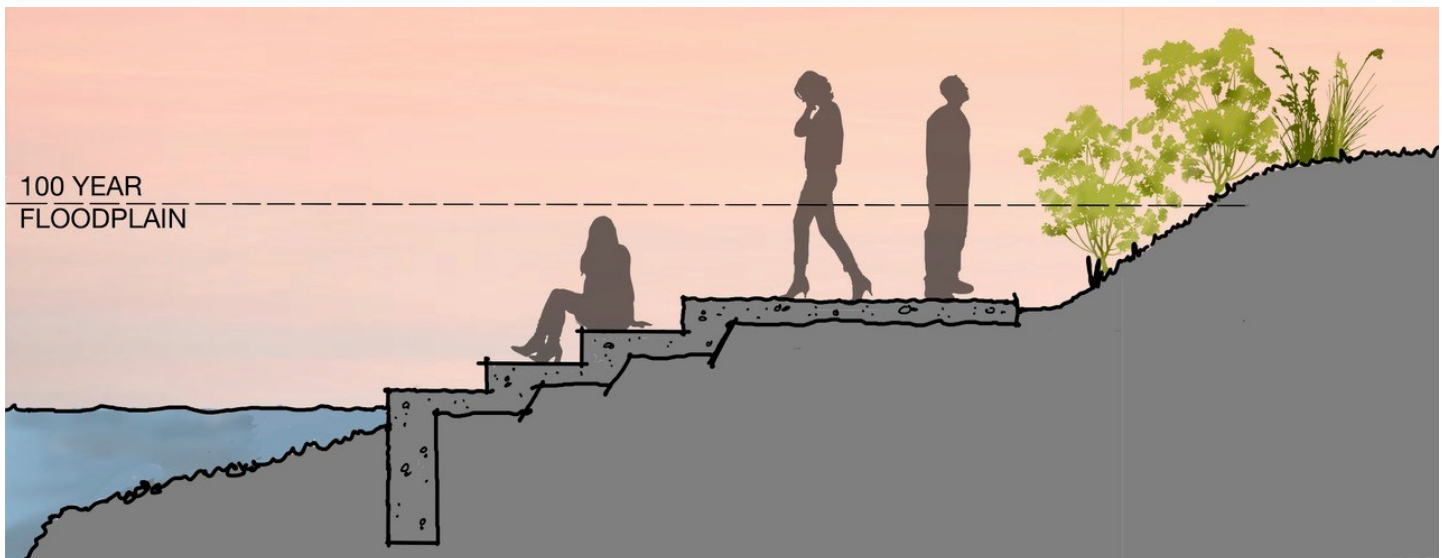
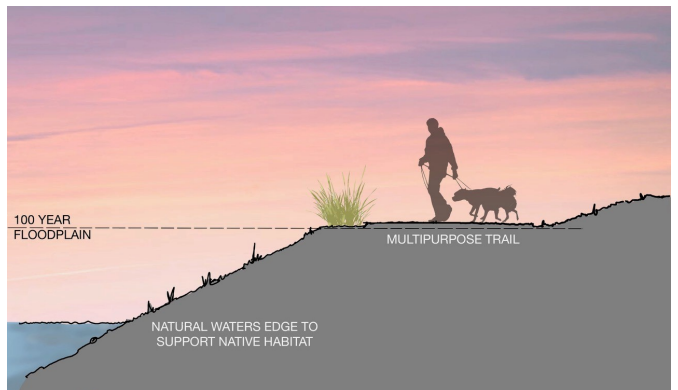
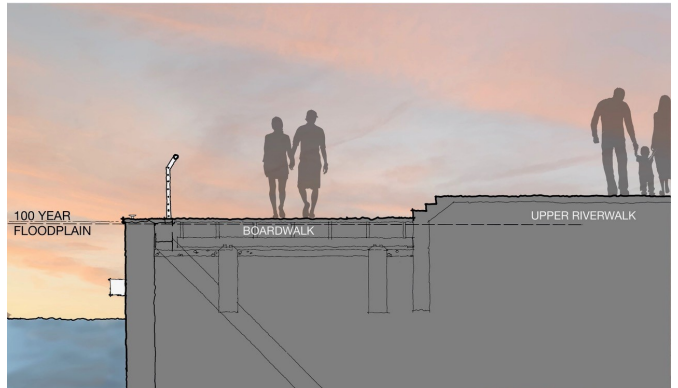
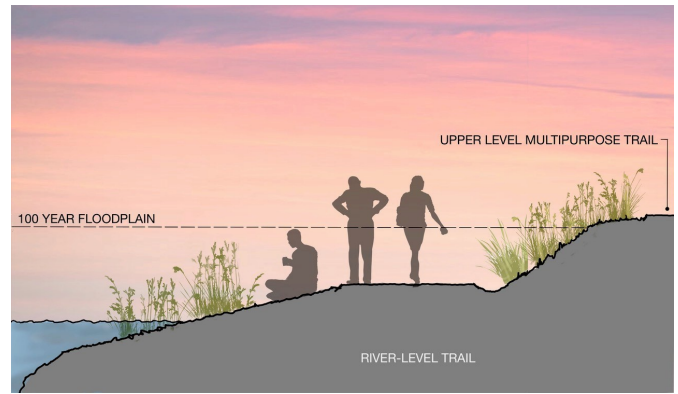
Photo of Towpath Trail built by the Canalway Partners

Cases exist that may help determine best practices and experiences to help further develop the Cuyahoga River. Chicago has undertaken a similar effort with a lot of success, developing the Chicago Riverwalk and expanding riverfront development throughout the city limits. Their creation of a task force and developing guidelines and planning to unify the development of the river's edge helped streamline and strengthen initiatives around the river. In the city of Punta Gorda, Florida, the city manages a Canal Management Division tasked with maintaining the canals, providing services to the property owners.

With Miami, Florida has targeted their waterfronts through zoning codes, setting regulations for public and private property owners to sustain a public space close to the water. There are also local organizations already looking to improve the Cuyahoga River making it a regional focal point.

Example River's Edge Designs

Traditional bulkhead materials include wood timbers, treated lumber used for sheeting, or steel piling. However, to make the riverfront more accessible to the public, the panel suggests alternatives to bulkheads are called “soft shoreline stabilization” methods. The four examples pictured to the right and below can be potentially created along the Cuyahoga River. These examples include a boardwalk with an upper riverwalk, river-level trail with an upper level multipurpose trail, a multipurpose trail that allows for natural waters edge to support the native habitat, or waterfront steps progressing into the water.



Funding Initial Capital Improvements Along the Cuyahoga River

The land owner is responsible for the bulkheads along the riverfront within the city of Cleveland, yet most of the private property owners who have bulkheads on their property do not have any incentives to maintain or repair them. In some cases, the land directly along the river may be seen as a liability for owners. This can deter new developers from utilizing the land and keep people away from the river. However, regions with similar challenges have coordinated with area organizations or local government agencies to unify and standardize the river's edge through zoning and planning. Efforts to improve the Cuyahoga River need to contend with determining who should be responsible for the land along the river.

One of the biggest barriers to improving the bulkheads within the Cuyahoga River is the costs associated with them. Rather than have each property owner address their bulkheads, a public entity may be able to come in and assist. The panel suggested a publicly owned entity be the one to take on the task of improving the river's edge. An organization like this would not only be able to access federal, state, and local grants and funding, but may effectively take on leading the coalition of riverside property owners. One of the goals of the Vision of Valley projects is to create open spaces for public access along the water. Having one organization

focused on the public space either by ownership or providing guidelines and services for property owners breaks down the barrier of property owners taking on the cost directly while helping them work together to achieve the vision for the river.

One option discussed by the panel during the TAP was having this public organization be the sole landowner of the river-front land. Owning all the land within 30 feet of the river would allow whoever owned the land to target all the bulkheads on the river, but also determine how the land be converted to public space. Some property owners were assumed to jump at this opportunity to pass on their liabilities toward another entity, making it relatively easy to aggregate the land under one owner. Tax incentives offered in return to donating the land to a land trust or entity could be a way to get other owners to buy in and offer their land for improvement. Consolidating all this land could help ensure funds targeting bulkhead or river improvement could be easier to obtain and utilized for their intended purposes. The Panel recognizes the significant cost with bringing existing bulkheads to a consistent standard will be costly, and is a project that will require significant one-time capital funding. Potential sources for capital improvement funding identified include:



[Build Back Better](#) – A federal infrastructure bill totaling \$1.2 trillion targeting improvement of neighborhood equity safety, and affordable transportation. One target of this federal spending is to reconnect communities divided by existing infrastructure issues. A portion of this spending also targets climate improvements, including sewer overflow, stormwater reuse projects, and projects that serve financially distressed communities.



[INFRA Grant](#) – A federal grant from the US Department of Transportation providing \$905.25 Million for infrastructure programs. Projects aim to improve local economies, create jobs, and how they address climate change, environmental justice, and racial equity.



[WIFIA Grant](#) – A program focused on investing in the nation’s water infrastructure by providing long-term, low-cost supplemental loans for regionally and nationally significant projects. WIFIA funds will be available sometime during FY 2022.



[NEORS](#) – The Northeast Ohio Regional Sewer District offers some funding opportunities to address flooding, erosion, and water quality concerns through management practices and stream and wetland restorations.



[EPA/OEPA](#) – Federal and State programs targeting environmental needs. The Ohio Environmental Protection Agency offers a Division of Environmental and Financial Assistance which has technical and financial resources to help achieve compliance and address infrastructure needs.



[ODNR](#) – The Ohio Department of Natural Resources offers numerous grants each year. Current grants include [Coastal Management Assistance](#) grants along Lake Erie and [Erosion Emergency Assistance](#) grants.



Ohio Water
Development Authority

[OWDA](#) – The Ohio Water Development Authority offers various grant programs and loans centered around environmental infrastructure within Ohio. Their funding focuses on being responsive to the needs of local government agencies and improving financial and technical assistance related to Ohio’s water.

Uniting the Cuyahoga Riverfront Developing Maintenance Funding

Ensuring that initial capital projects are funded and completed to restore and replace bulkheads is only one part of caring for the Cuyahoga River. Over time, these bulkheads, the land along the river, or even the river itself will have further maintenance projects arise. Making sure the river has the care and services it needs to remain an important resource for Cleveland is another targetable action the panel identified.

To help develop funding beyond capital projects, Flats Forward can work with property owners to create a Special Improvement District (SID) around the river. The district would help cover the maintenance of the bulkhead, riverwalks, and all other river front structures and amenities on the Cuyahoga River within the district boundaries. Funding brought in from the SID could also be used for inspections, safety programs around the river, and an emergency reserve fund to address issues that arise. The boundaries of this “River’s Edge” Special Improvement District could reflect the Vision for the Valley boundaries, targeting all property within the vicinity of the river. A tiered payment system can be a way to get more property owners vested in the river while offering those further away from the river a discounted fee to be included within the SID. One means of creating a tiered SID would be by proximity to the river edge. Riverfront properties would pay a particular fee, while properties within a given distance (for example 250 ft away from the river front) would pay a lower percentage, and properties within a slightly larger distance (such as 1,000 ft) would pay an even smaller percentage. While not every property may be right on the river’s edge, surrounding properties can still enjoy the benefits of being near the river and the access it provides. Another way the area can also gain some funding is by utilizing a river toll or fee. Rental costs for recreational vehicles and river use tolls can help supply further funding to keep the Cuyahoga River maintained and safe.

Developing a River’s Edge Special Improvement District could bring an assortment of benefits to the communities surrounding the Cuyahoga River. The improved public access and connectivity may increase foot traffic and attention around the river. Implementing the recommendations of the Vision for The Valley around the Cuyahoga River will create a district identity around the riverfront. Many firms, developers, and organizations can develop a sense of unity and improve relationships with one another inside the SID. If the goal of the city is to develop “One

Cleveland”, then creating a district focusing solely on one of the region’s most defining resources could help bring residents, businesses, and public entities together to achieve that goal.

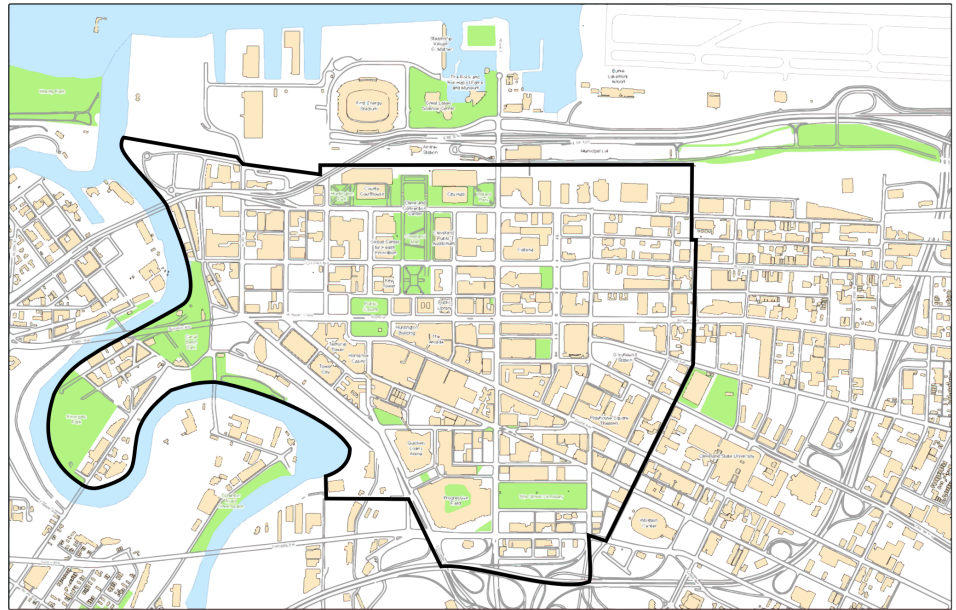
Potential Benefits of River’s Edge SID

- ◆ Improved public access and connectivity of Cuyahoga River
- ◆ Support maritime access for both recreational and freight vessels
- Creates a district identity that makes the region more recognizable nationally
- Enhances property values for property owners along the river and surrounding property owners
- Opportunity to have a greater voice for potential future funding
- Clearly defines riverfront management and resources
- Access to grants and capital
- Leads to relationship building across the community
- Builds dedicated support for maintenance of the River’s edge
- Develops potential access to low interest loans available for use in emergencies
- Standardizes and enforces safety along the River

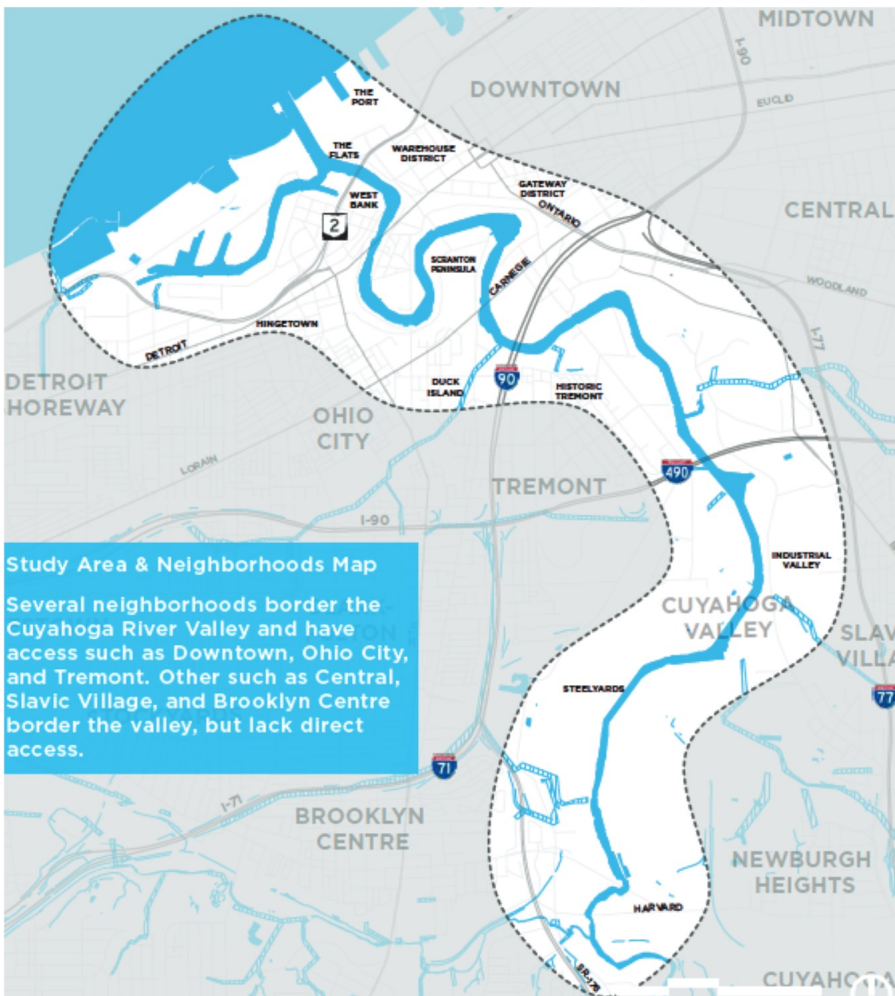
Special Improvement District Around the Cuyahoga River

DOWNTOWN CLEVELAND SPECIAL IMPROVEMENT DISTRICT MAP

The benefits of developing SID along the river go beyond creating a cohesive community. A unified district can facilitate coordination between maritime traffic and recreational uses. Determining standards and protocols can help recreational and freight vessels coexist within the river. Safety standards can be developed, and funding collected from property owners in the district can help pay for safety equipment. The SID structure can provide clearer management and resources for property owners to leverage in maintaining the river's edge. Funding may even be directly used to pay for services like bulkhead repairs, public space improvements, emergency assistance, or other forms of maintenance.



Current Special Improvement District Map within Cleveland



Vision for the Valley's study area was suggested as a potential SID. This area encompasses regions that are still impacted by the river, despite lacking direct access.

Immediate Next Step Recommendations

The most immediate next step the panel suggested was to develop more data around the river, which includes building a base map of the river. Overlaying the federal channel alongside the bulkhead conditions from the ports assessment can identify important areas to focus on maintaining and improving. Parcel ownership determining who owns which section of land can help detail who should be in the conversation of improving the conditions of the bulkheads. Capturing the types of existing bulkheads within a map can help determine which methods of improving, repairing, or replacing would be effective in improving the river's edge. A base map would provide an essential tool in addressing the Cuyahoga River's existing infrastructure. *(Note: The Port of Cleveland is completing an updated Bulkhead conditions assessment. The data from this conditions assessment should also be incorporated into this data.)*

Another short-term goal recommended by the panel was to develop some enforcement strategies and guidelines around the river infrastructure. Many entities have a stake in the Cuyahoga River making it a complex piece of urban space. Developing shared goals and strategies can ensure all these businesses, developers, and organizations near the river work together toward a unifying image. Cleveland may benefit from having some guidelines that river's edge properties can use to standardize and better understand the target vision for the riverfront. Many of the cases uncovered by the panel and mentioned earlier in this report can help determine useful standards and plans in building the One River the city envisions.



The most immediate next step the panel suggested was to develop more data around the river, which includes building a base map of the river.



The final immediate step the panel suggested for continued improvement of the Cuyahoga River is to develop a River Taskforce which will be responsible for ushering bulkhead improvements, land use, and funding proposals forward so that these recommendations do not remain on the shelf. Alongside standardizing and streamlining the strategies and goals for the river, some form of leadership is needed to guide the efforts. A task force comprised of private and nonprofit organizations would make sure voices throughout the community have representation. The task force in charge of the Chicago Riverwalk was formed by its mayor, making it a priority of the city. The panel thought the Mayor of Cleveland may be the right person to build up this task force, involving the city in the creation of the river's leadership. The port authority may be able to bring additional leadership to the Cuyahoga River creating a River Master position to help monitor the river's infrastructure and lead improvement projects. There needs to be a guiding force to help make sure the objectives concerning the river are met. Without the attention of some entity entrusted in managing the infrastructure improvements of the Cuyahoga River, there is a chance many of these ideas and suggestions may fall to the wayside. The panel offered to reconvene at a later point to see how improvements have progressed, hoping to ensure the river continues to improve and benefit the city.

The panel recommended that Flats Forward should start unifying others around the Cuyahoga River. Their work with the Cleveland Flats east bank has shown their ability to lead and inspire others to act in bettering their community. Their work may serve as a great case study to building social and resource networks needed to improve the river's edge. Already having a stake in the Vision for the Valley project, they may be an effective guide for a river task force or developing one.

Targetable Actions for the Long Term Future of the Cuyahoga River

Meaningful improvements to the riverfront involve resolving complex issues and a commitment to a long-term strategic plan related to planning strategies and stakeholder engagement, which requires a long-term strategy. Structural changes around the river may help to improve its long-term development. Some of these structural changes can be targeted by the city of Cleveland. A zoning strategy for setback requirements can help the city address the land right on the river's edge as new developers appear along the river. Determining how setbacks should be standardized for new developments can guarantee that future projects along the river follow standards set in place. The city can also target redevelopment strategies to draw investors to the waterfront. Utilizing economic impact reports can help understand the effect the river has on the community. The Port of Cleveland found that river businesses provide an estimated \$3.5 billion in economic impact from operations. A potential \$2 billion development of the Flats over 20 years could create 20,000 direct construction jobs and a total of 30,000 jobs for the community! Understanding the ROI of these and future projects can help justify further developing the Cuyahoga River.

The Port of Cleveland is another entity the panel thought would be important to target long-term improvements of the river. They already stand as a subject matter expert on the river within the community. Continued assessments and development of resources around the river and its infrastructure can supply

important data to benchmark tasks and gauge the conditions of the river. Their work may also develop new ways to fix bulkheads, providing further environmental and/or structural improvements.

The Port of Cleveland can be an integral part of planning the incremental improvements of bulkheads. Their continued assessments can detail which bulkheads need to be addressed in each wave of capital improvements.

Lastly, it is important to address the discontinuity and stakeholder engagement throughout each improvement project of the Cuyahoga River. The river needs to ensure there are some unifying leadership and goals around it in both the short-term and the long run. Keeping everyone on the same page at each step is important to safeguard the vision of the river. Continued engagement with all players within the community is key to making sure everyone continues to work together. Cleveland has had a history of community members competing for similar funding or improvements. Propagating a sense of unity within the river's edge community can help sustain the continuous improvement of Cleveland's dominant resource. At this moment we have ideas for leadership, but in order for this to continue there needs to be strong leadership. A group needs to be dedicated to this project. Task force should comprise of property owners who have the most to gain.



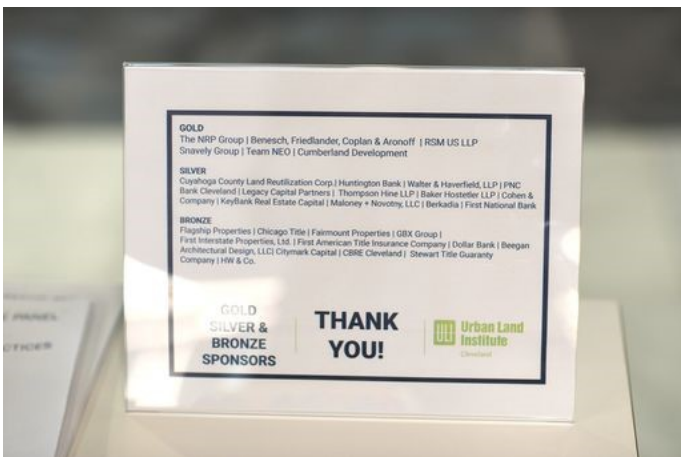
Conclusion

The Cuyahoga River faces many challenges in improving its bulkheads and becoming the connecting point Cleveland is searching for. One of the biggest challenges is coordinating the effort to tackle this and other issues along the river's edge. Addressing this with leadership and standards to help the community keep focused and share a similar vision can go a long way. In most cases brought forth by the panel, success came from getting the community together to achieve the goals they set out. Voices throughout the community being heard and expressed can more stakeholders involved. The panel warned leaving private owners out of the conversations and decisions could create tension and resistance to changes. While initial costs to address the bulkheads are a barrier to address, working together and rallying the community can smooth the grant application process and build the support needed to address issues with the river that may arise. These are long-standing problems that are ingrained from decades of neglect, but incremental pushes from a connected community can lead to greater results.

The initial bulkhead repair and replacement efforts do not need to focus on the entire riverbank at once. The Port of Cleveland offers resources and assessments to identify which bulkheads would be worthwhile targeting over others. While this may increase costs of moving equipment and labor each time a bulkhead needs to be replaced, the costs from being discontinuous would be a drop in the bucket compared to the cost to overhaul the entire river's edge. Approaching bulkheads case-by-case can identify the best methods to address different bulkhead issues. Some areas along

the river may be able to utilize naturalization or ecologically friendly alternatives that have been developed over time. Other areas may not need straight bulkheads currently retaining the river's edge. Areas may need different solutions depending on how public access to the riverfront is planned too. The goal should be to focus on targeting problem areas first, which can be done through coordinating efforts and resources. Funding options like grants, loans, and programs can make for effective tools to kick off the initial infrastructure repairs and replacements needed. Developing a steady source of funding to maintain, protect, and develop the river through something like a Special Improvement District or user fees can help ensure the river's longevity.

The Technical Assistance Panel highlighted that there is momentum and interest in revitalizing the Cuyahoga Riverfront. This coincides with resolving the long-standing issues related to the bulkheads. The interviews with the stakeholders had many respondents willing to discuss and work toward solutions. This is key in keeping the community together, rather than fighting over funding and ideas. The best practice cases, funding opportunities and ideas, initial steps, and longer-term goals within this report all offer tools and methods to help the community rebuild the river's infrastructure and maintain it. Engaging the community about these resources, potential solutions and guidelines, and the vision of a united Cleveland can keep the Cuyahoga River as a defining resource within Northeastern Ohio.



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ULI Cleveland Technical Assistance Panel Committee

Rich Wilden

Architect, Richard Wilden Architect & Technical Assistance Committee Co-Chair

Kirstyn Wildey

Attorney, McDonald Hopkins LLC & Technical Assistance Committee Co-Chair

Adam Saurwein

Partner, Benesch Law

John Neely

Director, Topline Partners, LLC

Arthur Schmidt IV

Project Manager/Senior Planner, OHM Advisors

Melanie Kortyka

ULI Cleveland Executive Director

Written By

Scott A. Corsi

Doctoral Student, Research Assistant at Cleveland State University



ULI Cleveland
P.O. Box 110416
Cleveland, Ohio 4111
Cleveland.uli.org