3.2 QUEENSGATE CONNECTIONS
In 2007, a group of concerned residents of the Western Riverfront neighborhoods fought a proposal which would have placed an intense industrial & transportation use on the 16-acre Price Landing site. From the success of their efforts a formal organization was formed, The River West Working Group. Through their leadership and in partnership with the Price Hill neighborhood they’ve worked to create a better idea of how this land could become an asset for the region.

**Vision**

The River West Working Group believes that building this park is crucial for several reasons:

- It will serve as a gateway to the West Side of Cincinnati for those traveling westbound on US Route 50
- The park will become a key node for future bicycle and walking trails of the Ohio River Trail West network
- It will add much needed recreational assets to the Lower Price Hill neighborhood
- It will continue the recovery of the Ohio riverfront into an active, green, scenic way

To Learn more about the Price Landing Plan please visit:

www.pricelanding.org
ALTERNATIVE: A
SEGMENT A: 1-2

SEGMENT DESCRIPTION
This segment will begin at the future Ohio River Trail West pedestrian bridge that will carry the trail over the CIND and CSX railroad tracks into Price Landing Park where it will follow along the north side of the park adjacent to the railroad right of way and consistent with the Price Landing Framework Plan. There will be an additional at-grade trail connection to the Ohio River Trail West immediately east of the train signal and just before the four tracks converge to two. An access driveway for motor vehicles is planned for this location as the entrance to Price Landing Park.

CONSTRAINTS AND OBSERVATIONS

A1: Railroad Crossing
The trail will need to cross four railroad tracks east of State Street. Coordination with the Genesee & Wyoming Railroad (CIND) and CSX Transportation will be required for an aerial crossing of their property. A minimum of 23' of clearance will be required. The structure will likely need to span the entire railroad right of way. The estimated structure length is 230 feet. A retaining wall will likely be required on the western approach from the Ohio River Trail West because of proximity to US 50 (River Road). The estimated cost of the bridge and approaches is $2.6 million.1

A2: At-Grade Railroad Crossing
Alternative A would have an at-grade crossing at the CSX Wood Street Lead railroad siding. The single track is used to access Cincinnati Bulk Terminals along the Ohio River. It is estimated that the track is utilized only a few times per week and the train speed is in the range of 10 mph. There is an existing private vehicular crossing of the railroad tracks here used as an industrial access to River Container Concepts, LLC, located at the confluence of the Mill Creek. It is not known if a crossing agreement exists between CSX and River Container Concepts.

An at-grade railroad crossing may be hazardous to trail users attempting to cross. Users should have adequate sight distance and proper warning of an approaching train.

Limits
State Avenue to West Side of Mill Creek: Price Landing

Adjacent Roadway
None

Length
2,470 ft.

Recommended Facility Type
SU1: Shared-Use Path on Independent Alignment

1Price Landing Framework Plan, 2015
The estimated required sight distance for the at-grade crossing is 370 feet based on assumed train speed of 10 mph, a walking speed of 3 feet per second and a crossing length of 20 feet. Today there appears to be 370 feet of sight distance in both directions for the at-grade crossing. However, in the future, when Price Landing Park is established, fencing and vegetation along the park boundary may limit sight distance to the west. The crossing may require active warning devices at a minimum to warn trail users of approaching trains. If sight distance will be limited to the west by future park features, gates should also be installed.

The property is not publicly owned. Railroads often strongly resist new at-grade crossings of their tracks, particularly on their own property. Early coordination with CSX for approval of the at-grade crossing is recommended. Another alternative will need to be considered if the crossing will not be approved.

**ALTERNATIVE: A**
**SEGMENT A: 2-3**

**SEGMENT DESCRIPTION**
This segment would begin at the eastern edge of Price Landing Park. It would proceed across the Mill Creek either on the existing CIND railroad bridge or a new multi-modal structure in the same location.

**CONSTRAINTS AND OBSERVATIONS**

**A3: CIND Railroad Filled Arch Bridge**
The trail would cross the Mill Creek either utilizing the existing CIND Railroad bridge or on a new multi-modal structure in the same location.

The existing bridge is owned by the Central Railroad of Indiana (CIND, a subsidiary of Genessee & Wyoming). It is composed of a nineteenth century stone arch backfilled with soil. There have been several extensions and additions made since then. Currently, the structure is approximately 90 feet long and 77 feet wide. At one time it was crossed by four railroad tracks which led to the former Storns Yard on the east side of the Mill Creek. Today, there is only one track on the north side of the bridge, the CIND Ditch Track, which runs eastward to Longworth Hall where it ends. CIND currently uses the track to access River Container Concepts, LLC, and Cincinnati Bulk Terminals. The remainder of the bridge is now utilized as an industrial truck access between properties owned by River Container Concepts, LLC, on either side of the Mill Creek. The existence of lease agreements between the railroad and the private enterprise for use of the railroad bridge is unknown.

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*Source: CSX 2015 Contractors Handbook for CSX Roadway Worker Protection, Table of Required Sight Distances*
*Source: CAGIS*
*As measured in CAGIS*
The arch opening of the existing bridge is approximately 66 feet wide based on historic plans. The bankfull width of the Mill Creek, however, is nearly twice that width. The small opening tends to trap debris between the Mill Creek Barrier Dam and the arch.

The existing condition of the bridge is not known. Typically, structures of this age would exhibit structural deficiencies and would have on-going maintenance concerns.

The CIND plans to double track the Ditch Track from the west side of Mill Creek to Longworth Hall. Since the property is not publicly owned an agreement will need to be negotiated with G&W to either utilize the existing arch bridge or to construct a new bridge in the corridor for trail use. Such an agreement may be challenging to secure.

The existing bridge may not be wide enough to accommodate the existing track, a future track, a roadway and trail depending on the railroad clearance requirements. The centerline of the existing track is located approximately 30 to 35 feet from the north side of the bridge leaving about 45 feet from the centerline to the south side. The existing track would likely need to be shifted closer to the north side if another track is added in the future to ensure sufficient width for a roadway and trail on the bridge. The truck access road would be less than the generally required 25’ from the track but it appears that the current operation does not have that much clearance.

A new bridge (or bridges) over the Mill Creek would be approximately 175 feet long (the width of the floodway) and 75 to 85 feet wide to accommodate all of the travel modes. Likely cost would be in the range of $4-5 million.

Reconstructing the bridge over the Mill Creek as separate railroad, public roadway and trail bridges may present opportunities to resolve concerns with the access and width of the existing bridge. The railroad may be more willing to provide access for the trail on their property if there is an opportunity to replace the aging structure. There may also be more opportunities to secure grant funding for a project that benefits multiple partners and objectives. Besides the trail, the following groups would likely benefit from replacing the structure:

- CIND Railroad with a new structure and reduced annual maintenance costs.
- Cincinnati Stormwater Management Utility (SMU) by improving the hydraulics and debris buildup on the Mill Creek.
- Environmental groups by removing the arch structure that constrains the bankfull opening of the Mill Creek for passage of aquatic organisms.
- Private commercial freight businesses by providing dedicated permanent access to the riverfront terminal which may also increase property values.
- Emergency management personnel by providing emergency access to the future Price Landing Park from the east when the at grade crossing by the train signal is blocked.

A4: Floodgate No. 5

The trail would pass through Cincinnati Storm Water Management Utility’s Floodgate No. 5 on the east side of Mill Creek. The floodgate is approximately 180 feet wide and was constructed to accommodate five or more tracks entering the former Storrs Yard on the east side of Mill Creek. Approximately 140 feet of the floodgate panels have been permanently erected for the last fifty years after the majority of the railyard ceased operation in the 1960s. Recent plans have been discussed by Cincinnati SMU to reconstruct the floodgate with a smaller opening.

If a smaller floodgate opening is constructed in the future accommodating only the existing uses, access for the trail through the floodwall could be constrained. Coordination with Cincinnati SMU is recommended to ensure that any future plan for reconstructing the floodgate has accommodations for a trail in combination with other modes.

A new bridge (or bridges) over the Mill Creek would be approximately 175 feet long (the width of the floodway) and 75 to 85 feet wide to accommodate all of the travel modes. Likely cost would be in the range of $4-5 million.

Reconstructing the bridge over the Mill Creek as separate railroad, public roadway and trail bridges may present opportunities to resolve concerns with the access and width of the existing bridge. The railroad may be more willing to provide access for the trail on their property if there is an opportunity to replace the aging structure. There may also be more opportunities to secure grant funding for a project that benefits multiple partners and objectives. Besides the trail, the following groups would likely benefit from replacing the structure:

- CIND Railroad with a new structure and reduced annual maintenance costs.
- Cincinnati Stormwater Management Utility (SMU) by improving the hydraulics and debris buildup on the Mill Creek.
- Environmental groups by removing the arch structure that constrains the bankfull opening of the Mill Creek for passage of aquatic organisms.
- Private commercial freight businesses by providing dedicated permanent access to the riverfront terminal which may also increase property values.
- Emergency management personnel by providing emergency access to the future Price Landing Park from the east when the at grade crossing by the train signal is blocked.

A4: Floodgate No. 5

The trail would pass through Cincinnati Storm Water Management Utility’s Floodgate No. 5 on the east side of Mill Creek. The floodgate is approximately 180 feet wide and was constructed to accommodate five or more tracks entering the former Storrs Yard on the east side of Mill Creek. Approximately 140 feet of the floodgate panels have been permanently erected for the last fifty years after the majority of the railyard ceased operation in the 1960s. Recent plans have been discussed by Cincinnati SMU to reconstruct the floodgate with a smaller opening.

If a smaller floodgate opening is constructed in the future accommodating only the existing uses, access for the trail through the floodwall could be constrained. Coordination with Cincinnati SMU is recommended to ensure that any future plan for reconstructing the floodgate has accommodations for a trail in combination with other modes.

A new bridge (or bridges) over the Mill Creek would be approximately 175 feet long (the width of the floodway) and 75 to 85 feet wide to accommodate all of the travel modes. Likely cost would be in the range of $4-5 million.

Reconstructing the bridge over the Mill Creek as separate railroad, public roadway and trail bridges may present opportunities to resolve concerns with the access and width of the existing bridge. The railroad may be more willing to provide access for the trail on their property if there is an opportunity to replace the aging structure. There may also be more opportunities to secure grant funding for a project that benefits multiple partners and objectives. Besides the trail, the following groups would likely benefit from replacing the structure:

- CIND Railroad with a new structure and reduced annual maintenance costs.
- Cincinnati Stormwater Management Utility (SMU) by improving the hydraulics and debris buildup on the Mill Creek.
- Environmental groups by removing the arch structure that constrains the bankfull opening of the Mill Creek for passage of aquatic organisms.
- Private commercial freight businesses by providing dedicated permanent access to the riverfront terminal which may also increase property values.
- Emergency management personnel by providing emergency access to the future Price Landing Park from the east when the at grade crossing by the train signal is blocked.

Cincinnati Railroad Improvement and Safety Plan, 2012
CAGIS
Source: Historic aerials.
CONSTRAINTS AND OBSERVATIONS

A5: Gatehouse

There may not be sufficient space between the existing storage structure for Floodgate No. 5 and the right of way line to accommodate both a trail and roadway. The width is approximately 24 feet.8

A minimum width of 35 feet (10 foot trail, 5 foot buffer, 20 foot roadway) is needed to accommodate both a trail and roadway. Because of the insufficient width here and at Constraint A6, the recommended facility type is Shared-Use Path Combined with Roadway.

Note:
The Cincinnati SMU floodgate storage building may be replaced in the future in a new location. At that time, the trail could be separated from the roadway.

Alternatives Considered:
The trail could follow along the floodwall and bypass the gatehouse. However, because of Constrain A6, the trail and roadway must be combined at some point so there is a cost benefit to keeping the trail on the existing pavement.

A6: Horizontal Width between Floodwall and Abutment

There is a pinch point of approximately 24 feet in width (min.) between the abutment of the Sixth Street viaduct and the existing flood wall where a trail and the access driveway cannot fit separately.9 Because of the insufficient width here and at Constraint A5, the recommended facility type is Shared-Use Path Combined with Roadway.

ALTERNATIVE: A

SEGMENT A: 3-4

SEGMENT DESCRIPTION

This segment would parallel an existing access roadway under the US 50 viaduct and along the inside of the floodwall. The existing roadway is used to access Floodgate No. 5. It may also be used by railroad personnel to access the track and as an industrial access to River Container Concepts, LLC. Traffic volumes are not known but expected to be light. Because of a pinch point (see constraints A5 & A6), the trail on this segment may be combined with the roadway.

Limits
East Side of Mill Creek to Mehring Way Ramp from US 50 EB

Adjacent Roadway
None

Length
1,260 ft.

Recommended Facility Type
SU6: Shared-Use Path Combined with Roadway

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**Note:**
If motor vehicle use of the roadway is restricted to limited access for maintenance, this would preclude an additional public access point to Price Landing Park.

**A7: Motor Vehicle Access to Trail**
From the US 50 exit ramp to Mehring Way westward, the trail would be combined with a maintenance roadway. Unauthorized motor vehicle traffic should be prevented from entering the trail. There should be a gate or removable bollards to prevent motor vehicles on Mehring Way from entering the trail.

**ALTERNATIVE: A**

**SEGMENT A: 4-5**

**SEGMENT DESCRIPTION**
Trail would be on the south side of Mehring Way adjacent to the inside of the flood wall. There is approximately 17 feet to 24 feet of space between the floodwall and Mehring Way which provides enough space to accommodate the trail with appropriate buffers.

**CONSTRAINTS AND OBSERVATIONS**

**General: Highway Lighting & Utility Poles**
East of Harriet Street, there are three highway light poles with guy wires that may need to be relocated. There is also one highway light pole west of Harriet Street adjacent to the gatehouse that should be relocated because of the narrower trail width (see Constraint A8 below). There is one utility pole and guy wire immediately east of Harriet Street which will likely need to be relocated.
A8: Horizontal Width & Obstructions at Harriet Street
Floodgate No. 7
Near Harriet Street the width between the floodwall and the roadway is restricted by two features:

- There is an approximately 11 foot wide gatehouse adjacent to the floodwall for storing the flood gate panels for Floodgate No. 7 at Harriet Street. This leaves a width of approximately 8 feet for the trail between the gatehouse and the roadway which does not meet criteria.
- At Harriet Street, the flood gate extends about 7 feet from the face of the floodwall restricting the trail width again and leaving approximately 14 feet from the roadway to the floodgate.\(^{10}\)
- The combined length of these width restrictions is approximately 90 feet

The trail width would be reduced to less than minimum criteria in this area and there would be no buffer between the trail and the roadway. The AASHTO Guide for the Development of Bicycle Facilities allows for a reduced trail width for short distances for physical constraints such as the floodgate. The recommended minimum width is 8 feet which is the smallest width within this stretch. The trail should move in toward the roadway and occupy all the available space between the roadway and the gatehouse/floodgate. Appropriate signs should be posted to warn users of the narrower path width.

A9: Mid-Block Crossing with Limited Sight Distance
The trail would cross from the south side of Mehring Way to the north side to access an existing pedestrian doorway in the floodwall. The crossing would be located approximately 45 feet west of the floodwall at a break in the steel structure supporting the elevated CSX Railroad above Mehring Way.

Motor vehicle sight distance to the crossing location may be severely limited by the presence of the steel structure immediately adjacent to the roadway (both approaches) and the floodwall (WB approach).

A bicyclist traveling at 12 mph on the path would need to be able to see an approaching vehicle from a point 130 feet from the crossing in order to stop before colliding with the vehicle. Similarly, a vehicle on Mehring Way traveling at the speed limit of 25 mph\(^{11}\) would need to be able to see a bicycle on the path from a point 220 feet from the crossing.\(^{12}\) The sight triangle is blocked in both directions by the floodwall, the steel structure supporting the elevated CSX Railroad and/or buildings adjacent to Mehring Way.

Stop signs may be warranted for either roadway or trail traffic because there is not adequate sight distance for yield control. A raised crosswalk may also be beneficial to slow motor vehicle traffic, particularly for those that may be operating above the speed limit (which is currently not posted). Warning signs should be posted for both motor vehicle traffic and trail traffic. Bicyclists should be encouraged to dismount and walk their bicycles across the roadway.

A10: Private Property
After crossing to the north side of Mehring Way, the trail would need to briefly enter private property (owner: IMF, Inc.)\(^{13}\) before reentering public property. The length of acquisition would be approximately 50 feet. According to aerial photos, the land does not appear to be used.

\(^{10}\) CAGIS measurement
\(^{11}\) AASHTO GUIDE for the Development of Bicycle Facilities, Chapter 5: Design of Shared Use Paths, Section 5.2.1 Width and Clearance, 2012
\(^{12}\) Guide for the Development of Bicycle Facilities, Table 5-7, AASHTO, 2012
\(^{13}\) Source: CAGIS
CONSTRAINTS AND OBSERVATIONS

A11: Horizontal Width at Pedestrian Door at Floodgate No. 8

The trail would utilize an existing doorway in the floodwall on the north side of Mehring Way. The doorway width is five feet.\(^{14}\)

Two bicyclists or a bicyclist and pedestrian entering the doorway from opposite directions at the same time may collide and crash. The doorway would need to be 10 feet wide to meet the minimum criteria (8 feet path plus 1 foot buffer on each side).

The doorway should be reconstructed as a custom door with a minimum width of 10 feet.

\(^{14}\)Flood Wall Construction Plans, Flood Wall & Appurtenant Works, Contract No. 7 – Cincinnati, Ohio River, U.S. Army Corps of Engineers, 1946
A12: Horizontal Width Between Roadway and Building
The trail would proceed along the north side of Mehring Way adjacent to a commercial building (Valerie Makstell Interiors). The horizontal width between the roadway and the building varies from 14 feet to 29 feet. The area is currently used for business parking and loading. The right of way line is at the face of the building according to CAGIS.

There is insufficient width to accommodate both the trail and parking within most of the length fronting the commercial building. The minimum width to accommodate a parking lane and the trail is 21’ (7’ parking lane, 5’ buffer, 8’ trail, 1’ buffer to building).

The parking should be relocate to another location such as the unused lot on the northwest corner of Mehring Way and Carr Street owned by Cincinnati SMU. Some on-street parking could be provided on the eastern end where there is more width available. Lane width on Mehring Way WB could be reduced in some locations to provide additional width for parking.

A13: Business Entrance
The entrance to Valerie Makstell Interiors is located midblock. There are two steps to enter the building. The entrance would front directly on the trail.

Customers exiting the business may step into the path of an approaching bicycle. The width between the building and the roadway is approximately 20 feet at the entrance.

The trail should be located as far as practical from the building entrance, preferably 5 feet from the edge of roadway, which would leave a 5 foot buffer to the building.

A14: Loading Dock
There may not be sufficient sight distance on the trail to see a vehicle exiting the loading dock.

A bicyclist moving at 12 mph would need to be able to see a vehicle exiting the loading dock at 5 mph from a point 75 feet from the dock (the distance required for the bicyclist to stop). The bicyclist would also need to be able to see the vehicle at a point 38 feet from the edge of the trail to be able to stop before the vehicle reaches the path.

At the loading dock, the available space between the roadway and the edge of the building is approximately 26 feet. If the path is located 5 feet from the roadway and is 10 feet wide, the edge of the path would be 9 feet from the building. The building blocks the additional 29 feet that would be needed for a bicyclist to see an exiting vehicle and have enough time to stop.

Warning signs should be placed on the trail to warn bicyclists to slow down at the approach to the dock. Coordinate with the building owners to erect appropriate safety measures on the building, such as mirrors, so that trail users and dock vehicles can see each other better.

**A15: Horizontal Width Between Roadway and Building**

At the southeast corner of the commercial building in the northwest quadrant of the Mehring Way and Freeman Avenue intersection is approximately 10 feet from the edge of the roadway. The total roadway width is approximately 35 feet.

The existing sidewalk width would not safely accommodate trail users and provide a buffer to the roadway and building. A pedestrian or bicyclist approaching the trail from the sidewalk on the east side of the building could collide with a trail user because of limited sight distance around the building.

The roadway width should be reduced to provide at least enough space for an 8 foot trail and a 5 foot buffer from the roadway. Also, the trail offset from the building should be maximized to provide additional sight distance around the building.

**Alternatives Considered:**
Two alternatives were considered within this segment but not recommended:

1. **Continuation of the shared-use path along the south side of Mehring Way.**

   A continuation of the trail along the south side of Mehring Way within this segment would not meet the established criteria because of a railroad track estimated at 15 feet to 18 feet south of the roadway and a steel structure immediately adjacent to Mehring Way supporting the elevated CSX Railroad above the road. A trail along a railroad should be offset from the track by 25 feet. As an absolute minimum, the legal clearance requirement from the centerline of track is 8 feet in Ohio. With a barrier or fence placed at the minimum clearance offset, there would be approximately 9 feet remaining for a trail between the fence and the steel structure supporting the elevated CSX Railroad. The effective trail width would be 7 feet in this situation accounting for 1 foot buffers to the fence and steel structure. This does not meet the minimum requirement of 8 feet in the AASHTO Guide for the Development of Bicycle Facilities. Further CSX may own property to near the Mehring Way edge of pavement for at least half the length of this segment according to CAGIS.

   A continuation of the path along the south side of Mehring Way would also necessitate construction of a new trail opening in the floodwall west of Carr Street at Floodgate No. 8.

2. **Sidewalk on the north or south side of Mehring Way with bicycles using a shared roadway lane with painted shared lane markings (sharrows).**

   Similar to a shared-use path adjacent to the railroad, a sidewalk would also be within the 25 foot wide clearance area for the railroad. Again, a barrier could be erected at the absolute minimum horizontal clearance of 8 feet which would allow a sidewalk width of 7 feet. However, as noted above, CSX may own a portion of the property needed for the sidewalk.

   A sidewalk could also be constructed on the north side of Mehring Way but it would also impact the parking arrangements as noted for the recommended shared-use path on the north side.

   Further, because the adjacent sections of the corridor are shared-use paths, it is most desirable to maintain the facility type within this segment, particularly because it is close to downtown and may attract less experienced riders that may be uncomfortable riding in the roadway.

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17AREMA Manual for Railway Engineering, Table 28-3-3. Legal Clearance Requirements by State, 2001
CONTRASTS AND OBSERVATIONS

A16: Mehring Way / Freeman Avenue Intersection

The Mehring Way intersection with Freeman Avenue has slip ramps in the northwest and southwest quadrants. The slip ramps provide a pedestrian refuge island which effectively reduces the length of the crossing. The pedestrian refuge island in the northwest quadrant is too small to accommodate the trail width. The slip ramp and island should be reconstructed to provide a larger refuge island. The slip ramp could be relocated to occupy the space within the public right of way immediately east of the commercial building at the corner. This roadway remnant was the original location of Freeman Avenue.

There is currently no crosswalk for the west leg of the intersection across Mehring Way. There are existing crosswalk, pedestrian signal heads and pushbuttons for the other legs. The existing traffic signal will need to be modified to accommodate a pedestrian phase, pedestrian signal heads and pushbuttons for the west leg to accommodate the trail crossing.

The existing refuge island may not be large enough to accommodate the trail width. The intersection should be redesigned with a larger pedestrian refuge island.
**A17: Railroad Piers**

Several railroad piers are located in the southwest quadrant of Mehring Way and Freeman Avenue. A large concrete pier is located immediately adjacent to Mehring Way. There is another smaller concrete pier located approximately 6 feet south of the large one. And there is a large steel pier located west of both the concrete piers. The steel pier is approximately 9 feet from the large concrete pier.

The preferred trail alignment is to pass all three piers on the south side in approximately the same location as the existing CSX railroad siding. Although the track is used to the west of Freeman Avenue, there is evidence that the track is not used from Freeman Avenue eastward. Vegetation is growing within the tracks and the tracks appear to end about 300 feet southeast of the railroad bridge over Mehring Way.

Even if the tracks are not currently used, CSX and Cincinnati Bulk Terminals may want to reserve the option of using the track in the future. Further, the track is on CSX property.

The status of the CSX track and future plans of Cincinnati Bulk Terminals should be verified.

**Alternative Considered:**

If access to the track cannot be obtained, an alternative is to route the trail on the north side of the large concrete railroad pier adjacent to Mehring Way and within the current location of the merging lane from Mehring Way west of Freeman. The merge lane could be eliminated by reconfiguring the intersection. The merging lane is approximately 11 feet wide. Additional space for a buffer between the trail would still be needed and could be obtained by shifting the two travel lanes over approximately six feet into the space currently occupied by the grass median. There is approximately 12 feet of space available between the existing median edge of pavement and another concrete railroad pier. This would then provide space for a 10 foot trail, 5 foot roadway buffer and 2 foot buffer to the pier face.

**A18: Utility Poles**

Two utility poles located approximately 600 and 800 feet northwest of Pete Rose Way are approximately 10 feet from the curb and likely within the path of the trail. These poles will need to be relocated.
SEGMENT DESCRIPTION

This segment would reduce the number of travel lanes on Mehring Way to add a shared use path on the south side.

CONSTRAINTS AND OBSERVATIONS

General: Corridor Width

This segment does not currently have adequate width along the south side of Mehring Way to continue the trail as noted in the constraints below. Further, locating the trail onto private property owned by Duke Energy and Hilltop Basic Resources may not be feasible. Duke Energy’s West End Substation is located within 10 feet of the curb (Constraint A18). Hilltop stores bulk materials on their land up to the right of way line.

Mehring Way is approximately 46 feet wide in this segment with four travel lanes, two in each direction. The ADT in 2013 was 2,971 vehicles. Typically, a four lane highway can accommodate traffic volumes significantly higher. It may be feasible to reduce the number of lanes to accommodate the trail.

A Highway Capacity Conceptual Planning Analysis was performed to analyze if the roadway could be reduced from four lanes to two to obtain the additional width needed for the trail. The analysis estimated that the existing level of service on the roadway is rated as “A” with a volume to capacity ratio of 0.05. By reducing the number of lanes to two, the level of service would be approximately “B” with a volume to capacity ratio of 0.10. This analysis indicates the roadway currently has considerable excess capacity as a four lane road and could be reduced to two lanes without adversely affecting typical weekday traffic. This analysis does not consider impacts to traffic during events held at the riverfront such as Bengals and Reds games when the event traffic may be higher than that used in the analysis. However, Pete Rose Way is available as an alternative route to the riverfront. West of Pete Rose Way, the left lane of Mehring Way could be designated as a left turn lane to Pete Rose Way with the right lane being the through lane. Further analysis may be needed to evaluate the lane reduction with event traffic.

The trail could be accommodated in this segment by reducing Mehring Way from four lanes to two from Pete Rose Way to just east of the Clay Wade Bailey Bridge, shifting motorized traffic into the two northern lanes, and converting the two southern lanes into a trail with vegetated buffers to the roadway and adjacent industrial properties. A more detailed traffic analysis should be performed to fully assess the impacts of this recommendation.

19K Traffic Counts GIS application, ID HAM2147, W Mehring Way at Central Avenue (US 52), 2013
A19: Horizontal Width between Curb and Wall
The available width between the roadway curb and an existing concrete wall adjacent to Duke Energy’s West End Substation is approximately 5 to 6 feet.

The available width does not meet the standard criteria and would not safely accommodate trail users and provide a buffer to the roadway.

There may be space to widen onto the private property owned by Duke Energy (except as noted in Constraint A19). However, the facility houses major electrical infrastructure (recently relocated because of the anticipated new I-75 Ohio River Bridge). At least one electrical pole would need to be relocated. The presence of underground facilities would need to be verified.

A concrete wall, approximately five feet in height, would need to be relocated.

Because of this constraint, the trail should be located within the existing right of way by reducing the number of travel lanes on Mehring Way as noted above.

A20: Horizontal Width between Curb and Electric Distribution Tower
The available width between the roadway curb and an existing electrical distribution tower is approximately 10 feet. The tower is considered unmovable.

The available width does not meet the standard criteria and would not safely accommodate trail users and provide a buffer to the roadway.

Because of this constraint, the trail should be located within the existing right of way by reducing the number of travel lanes on Mehring Way as noted above.

A21: Horizontal Width between Curb and Brent Spence Bridge Piers
The available width between the roadway curb and the existing piers of the Brent Spence Bridge is approximately 5 feet.

The available width does not meet the standard criteria and would not safely accommodate trail users and provide a buffer to the roadway.

Because of this constraint, the trail should be located within the existing right of way by reducing the number of travel lanes on Mehring Way as noted above.
A22: Horizontal Width between Curb and Private Property

The available width between the roadway curb and the edge of private property owned by Hilltop Basic Resources is approximately 5 feet. The property is used as bulk material storage, primarily aggregate for asphalt and concrete.

The available width does not meet the standard criteria and would not safely accommodate trail users and provide a buffer to the roadway.

It may be feasible to acquire a strip of the private property for the trail. However, reducing the storage capacity of the owner’s property may adversely impact the business.

Because of this constraint, the trail should be located within the existing right of way by reducing the number of travel lanes on Mehring Way as noted above.

A23: Horizontal Width between Curb and Clay Wade Bailey / CSX Piers

The available width between the roadway curb and the existing piers of the CSX Railroad bridge is approximately 5 to 7 feet. The available width between the roadway curb and the existing piers of the Clay Wade Bailey Bridge is approximately 10 feet.

The available width does not meet the standard criteria and would not safely accommodate trail users and provide a buffer to the roadway.

Because of this constraint, the trail should be located within the existing right of way by reducing the number of travel lanes on Mehring Way as noted above.
SEGMENT DESCRIPTION

The trail in this segment would utilize space reserved for a future trail on the south side of Mehring Way to connect with the existing Ohio River Trail in Smale Park.

CONTRAINTS AND OBSERVATIONS

General: Corridor Width
There is a space approximately 15 feet wide behind the existing 15 foot wide sidewalk along Mehring Way. This space was reserved for a future trail when Mehring Way was reconstructed as part of the construction of Paul Brown Stadium in 2000. This configuration with the sidewalk at the edge of roadway, a landscaped buffer and then a trail is consistent with the matching section east of Elm Street. The trail should be constructed in the space behind the landscaped area adjacent to the existing sidewalk.

ALTERNATIVE: A
Engineer’s Estimate of Cost

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<th>Segment</th>
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<th>Estimated Cost</th>
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<td>$3,290,000</td>
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<td>A:2-3</td>
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<td>A:3-4</td>
<td>East Side of Mill Creek to Mehring Way Ramp from US 50EB</td>
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<td>A:4-5</td>
<td>Mehring Way Ramp from US 50EB to Floodgate West of Carr Street</td>
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<td>A:5-6</td>
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<td>Freeman Avenue to Pete Rose Way</td>
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<td>A:7-8</td>
<td>Pete Rose Way to Clay Wade Bailey Bridge</td>
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<td>A:8-9</td>
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<tr>
<td>TOTAL</td>
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CONSTRAINTS AND OBSERVATIONS

B1: Cantilever from MSE Wall

There is a Mechanically Stabilized Earth (MSE) retaining wall located on the west approach of the US 50 bridge. The wall is approximately 450 feet long and 19 feet high at the highest point. The existing sidewalk, located on the fill side of the wall, has a width of approximately 8 feet and there is no physical barrier between the sidewalk and the 55 mph travel lane. To accommodate the trail, a concrete barrier would need to be constructed at the curb and the width of the sidewalk increased to a minimum of 10 feet. This would require a cantilever of approximately 4 to 5 feet from the face of the existing MSE Wall.

MSE walls are not typically designed to support cantilever loads from the face of the wall. In addition, the concrete panels on the face of the wall are relatively thin and would allow few options for a cantilever connection. While further analysis would need to be completed to determine the capacity of the wall, strengthening or rebuilding the wall would likely be required to support a cantilever load.
B2: Cantilever from US 50 Bridge
The existing sidewalk width is approximately 5 feet and there is an existing concrete barrier between the sidewalk and the 55 mph travel lane. To accommodate the trail, the width of the sidewalk would need to be increased to a minimum of 10 feet. This would require a cantilever of approximately 5 to 6 feet from the face of the existing bridge.

The most feasible option for structural support would likely be widening the existing bridge. Removing the north sidewalk railing on the existing bridge would allow the deck to be widened to accommodate the sidewalk. Depending on the available capacity of the existing steel beams, one or two new steel beams would be added for the widening. The new beams could be supported on hammerhead shaped concrete piers constructed adjacent to the existing piers. A new barrier would be built on the outside edge of the widened bridge.

B3: Overhead Sign Truss and Bridge Mounted Light Poles
An overhead sign truss is located on US 50 on the east side of the Mill Creek. The northern truss foundation is located at the outside edge of the existing sidewalk. Widening the sidewalk to accommodate the trail would require also widening the truss. There are also bridge mounted highway lighting poles attached to the north side of the sidewalk railing. All of the poles and electrical service would need to be relocated. Ten existing lights would be affected.

B4: Horizontal Width at Gatehouse
The existing gatehouse for Floodgate No. 5 through which the CIND Railroad passes north of US 50 is approximately 6 feet from the outside face of the existing sidewalk railing.

There may be very limited space for widening the sidewalk to 10 feet minimum in its present configuration. The length of the floodgate building is approximately 100 feet.

Constructing a cantilever immediately adjacent to the building could be challenging.

Note:
The gatehouse may be replaced in a new location as part of an ongoing floodgate improvement project by Cincinnati SMU.
**B5: Steps to US 50 Pedestrian Bridge**

There are approximately 30 steps to reach the top of the existing pedestrian bridge over US 50. The steps are not accessible and would not be compliant with the ADA. The steps would need to be replaced with a ramp at a maximum grade of 5%. The ramp length would likely be approximately 400 feet long on both sides of US 50.

**B6: Existing US 50 Pedestrian Bridge**

The trail would utilize an existing pedestrian bridge over US 50. The bridge is approximately 140 feet long and 7 feet wide. The structure was built in 1965. It was last inspected Sept. 2, 2014 and was given a general appraisal of 7-Good with an operational status of A-Open with no restrictions. The full length of the bridge is lined with a vandal protection fence. An electric conduit crosses the western side of the bridge on the southern half.

The width of the existing bridge is too narrow for the trail. The minimum width is 10 feet (8 foot trail with 1 foot buffers to the bridge railing). There would be inadequate space for passing other trail users. Bicyclists would need to be encouraged to walk across the bridge.

The existing bridge should be replaced with a new, wider bridge possibly using the existing piers. The cost would likely be less than $1 million (not including the proposed ramp approaches).

**ALTERNATIVE: B**

**Engineer’s Estimate of Cost**

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<td>Floodgate West of Carr Street to Freeman Avenue</td>
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SEGMENT DESCRIPTION
This alignment would provide an alternative to crossing the Mill Creek on the existing CIND Railroad Bridge. The alignment would connect with Alternative A on either side of the Mill Creek. The trail would mostly be under the southern side of the existing US 50 viaduct and within the existing highway right of way. A new trail bridge would be constructed under the US 50 bridge possibly utilizing the US 50 piers as its supports. On the east side of the Mill Creek, the trail would follow the edge of the floodwall to the existing Floodgate No. 5. One of the existing steel floodgate panels would have to be removed to admit the trail.

SEGMENT C: 2-3

LIMITS
West Side of Mill Creek under US 50 Bridge to Floodgate East Side of Mill Creek

ADJACENT ROADWAY
US 50

LENGTH
665 ft

RECOMMENDED FACILITY TYPE
SU1: Shared-Use Path on Independent Alignment
SU4: Shared-Use Path on Structure

CONSTRAINTS AND OBSERVATIONS

C1: US 50 Pier
The first US 50 pier east of the CIND Railroad track has been filled with concrete between the individual pier columns. The reason for the fill is not known. The trail will either need to go under the US 50 bridge east of this pier.

US 50 bridge piers facing east
C2: Bridge over Mill Creek

The proposed trail bridge could possibly be supported by the existing US 50 piers. The US 50 bridge over the Mill Creek was constructed in 1965 and widened in 2014. The last inspection was completed November 10, 2014. The substructure of the bridge was given an appraisal of 6-Satisfactory. The space between the piers is estimated to be 25 feet (normal to the bridge). The piers are skewed to the alignment of the Mill Creek. A concrete or steel support could be attached between the pier columns to support the new trail bridge. The trail bridge would have a total length of approximately 260 feet with a main span of approximately 143 feet. Preliminary estimated cost for the structure may be in the range of $1 million.

A full structural analysis would need to be performed to ensure that the existing US 50 piers and foundation can support the additional load from the trail bridge. Pier modifications may be required to support the additional load.

Access to install prefabricated bridge beams may be difficult between the US 50 pier columns. Access to drive steel H piles for the foundation of the bridge abutment (and potential pier modifications) may also be difficult because of the available vertical clearance under the existing bridge.

C3: Private Property & Floodgate No. 5

The trail would need to briefly enter property owned by the CIND Railroad to get access through Floodgate No. 5. The access would be unlikely to have an impact on the railroad's current or future operations as long as the trail can go through the southern end of the floodgate. Steel floodgate panels are currently erected in that location. One or two panels may need to be removed. If the panels cannot be removed, then the trail would need to use the existing opening on the north side of the floodgate adjacent to the CIND Railroad access.

The CIND Railroad may not allow access on their property for the trail. A new opening in the floodwall for the trail could be constructed within the existing right of way under US 50 if necessary.

ALTERNATIVE: C

Engineer’s Estimate of Cost

<table>
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<td></td>
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<td>Floodgate West of Carr Street to Freeman Avenue</td>
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<tr>
<td>TOTAL</td>
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SEGMENT DESCRIPTION
This segment would be an alternative around the portion of Mehring Way constrained by the existing railroad on the south side of Mehring Way, the elevated railway above Mehring Way and Valerie Makstel Interiors on the north side of Mehring Way. The alternative would begin at Alternative A west of Carr Street and the Mehring Way floodgate. Following the floodwall West of Carr Street, the alignment would pass a floodgate storage building for Mehring Way Floodgate No. 8 and the Carr Street Pump Station. The trail would then cross Carr Street just north of Floodgate No. 9 and follow the east side of the street to the corner of the floodwall. Then the alignment would go eastward between the floodwall and the cloverleaf ramp to US 50. At Freeman Avenue, the alignment would turn south and follow Freeman Avenue through Floodgate No. 10 where the existing sidewalk width is approximately 12 feet. The alignment would then rejoin Alternative A at Mehring Way.

D1: Mid-Block Crossing with Limited Sight Distance at Carr Street
The trail would cross Carr Street immediately north of the existing floodwall.

Motor vehicle sight distance to the crossing location from the south on Carr Street may be severely limited by the floodwall.

A bicyclist traveling at 12 mph on the path would need to be able to see an approaching vehicle from a point 130 feet from the crossing in order to stop before colliding with the vehicle. Similarly, a vehicle on Carr Street traveling at the speed limit of 15 mph would need to be able to see a bicycle on the path from a point 140 feet from the crossing. The sight triangle is blocked by the floodwall for both directions of the path. Stop signs may be warranted on either the path or roadway approach to the crossing because there is not adequate sight distance for yield control. A raised crosswalk may also be beneficial to slow motor vehicle traffic, particularly for those that may be operating above the speed limit (which is currently not posted). Warning signs should be posted for both motor vehicle traffic and trail traffic. Bicyclists should be encouraged to dismount and walk their bicycles across the roadway.

NOTE
Constraints A9 and A10 also apply to Alternative D
D2: Grade Change

The elevation at the Freeman Avenue Floodgate No. 10 is approximately 20 feet higher than the elevation of Carr Street and Mehring Way. The maximum accessible grade is 5% which would require a horizontal distance of 400 feet. The distance between Carr Street and Freeman Avenue is approximately 450 feet. The trail would need to be built on fill along the floodwall. The grade of Freeman Avenue between the floodwall and Sargent Street is approximately 6%.

Fill would need to be placed against the floodwall. A structural analysis may be required to ensure the wall has enough structural capacity to retain the fill.

The grade of the trail would likely need to follow the grade of Freeman Avenue which exceeds the maximum accessible slope of 5%. However, the ADA guidelines do allow for accessible routes along a roadway to follow the roadway if no other alternative exists. 22

D3: Floodgate No. 10

The width between the curb and the floodwall at Floodgate No. 10 on Freeman Avenue is approximately 12 feet.

The minimum width from the curb to the floodwall should be 14 feet (8 foot trail, 5 foot buffer to roadway and 1 foot buffer to wall).

The trail width and/or buffer width could be reduced for this localized area. The AASHTO Guide for the Development of Bicycle Facilities allows for a reduced trail width for short distances for physical constraints such as the floodgate.23

D4: Light Pole

An existing light pole on Freeman Avenue immediately south of the floodwall is located approximately 10 feet from the curb line and would likely be within the path of the trail. The light pole will need to be relocated.

D5: Steep Embankment & Private Property

The west side of Freeman Avenue south of Floodgate No. 10 is on a steep embankment with an approximate 2:1 slope located behind guardrail. The embankment would need to widened or a retaining wall could be constructed to accommodate the trail. The existing R/W is located approximately 10 feet from the curb.24

An approximately 10 foot wide strip of right of way may need to be acquired from a private owner on the west side of Freeman Avenue to accommodate the trail and a retaining wall. Widening the embankment may have a more negative impact on the property which is currently used for parking.
## Engineer's Estimate of Cost

**ALTERNATIVE: D**

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<td>Freeman Avenue to Pete Rose Way</td>
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<td></td>
<td><strong>TOTAL</strong></td>
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<td><strong>$11,440,000</strong></td>
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</table>
This alternative, developed by the City of Cincinnati, would cross the Mill Creek on either a new trail bridge on the south side of the US 50 Bridge or by widening the existing US 50 bridge to accommodate the trail.

SEGMENT DESCRIPTION
This segment is similar to Alternative B except on the south side of US 50. The western end would connect to the proposed Ohio River Trail West in the vicinity of Evans Street south of US 50. A new MSE wall would be constructed adjacent to the existing wall along US 50. The trail would cross the railroads and the Mill Creek by either widening the existing US 50 bridge or constructing a new bridge immediately south of the US 50 bridge. On the east side of the Mill Creek, the existing roadway embankment would be widened to accommodate the trail grade adjacent to US 50. The trail would cross Mehring Way and connect with Alternative A.

Constraints and Observations:

E1: Connection to Ohio River Trail West
Between the connection point with the Ohio River Trail West and the west abutment of the US 50 bridge, the available width between the existing US 50 MSE wall and the railroad right of way varies from approximately 69 to 42 feet. This limited space would need to accommodate the Ohio River Trail West, Alternative E and a new roadway to access the proposed Price Landing Park. The trail and roadway widths may need to be narrowed in some locations to fit within the available space.

E2: MSE Wall
This constraint would be similar to Constraint B1. Since an existing sidewalk is not present on the south side of US 50, a cantilever attached to the existing MSE wall would have to support the entire trail width. MSE walls are not typically constructed to support cantilevered loads. It is likely that the MSE wall would need to be reconstructed in this area to support the trail.

E3: Bridge over Railroads and Mill Creek
The structure supporting the trail over the railroads and the Mill Creek could either be a new structure or a widening of the existing US 50 bridge. A new structure would be approximately 1,050 feet in length.

Limits
Ohio River Trail West (south side of US 50 near Evans Street) to Mehring Way Ramp from US 50EB

Adjacent Roadway
US 50

Length
2,800 ft.

Recommended Facility Type
SU2: Shared-Use Path along Roadway
SU4: Shared-Use Path on Structure
The recently reconstructed US 50 bridge currently has additional width available on the south side which is striped out. The width varies from a minimum of 4’ at each abutment to a maximum of 22 feet. The widest portion occurs near the location where the CSX and CIND tracks pass beneath US 50.

The roadway is classified as an urban arterial in this location and has a design speed of 50 mph. Standard design criteria requires a minimum shoulder width of 12 feet for a divided arterial highway. At the widest point, there would be approximately 10 feet of unused pavement on the existing structure that could be devoted to the trail. Widening to accommodate the trail would still be required at either end. Additional piers would likely need to be constructed to support the widening sections at either end. New piers would likely not be required at the widest existing section where the railroad tracks pass beneath. This would limit impacts to and coordination with the railroads for this alternative.

### ALTERNATIVE: E

**Engineer’s Estimate of Cost**

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<td>Floodgate No. 8 West of Carr Street to Freeman Ave. / Mehring Way Intersection</td>
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<td>A:6-7</td>
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27ODOT Location & Design Manual, Volume 1, Figure 301-4E
This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
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