CINCINNATI CONNECTS

Weaving together our region’s trails

FINAL REPORT
December 2015

This project made possible by the generous support of Interact for Health
Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek
ACKNOWLEDGMENTS

The generous support of Interact for Health, the leadership of Groundwork Cincinnati, the active and invaluable participation of many individuals and organizations, and a talented technical team have forged this groundbreaking Cincinnati Connects Plan. This initiative builds upon the 2014 Green Umbrella Regional Trails Alliance (now called Tri-State Trails) project, funded by Interact for Health, that inventoried and mapped existing and planned trails throughout the Tri-State, nine-county region.

Continued public and private support for trails will be critical to the successful achievement of the Cincinnati Connects vision. Implementation of the trail network will also ultimately hinge on the continuing collaboration and support of the Mayor of Cincinnati, Cincinnati City Council, Cincinnati Park Commission, Cincinnati Planning Commission, Hamilton County Transportation Improvement District, Great Parks of Hamilton County, and the Ohio/Kentucky/Indiana Regional Council of Governments.

Working together we can accomplish so much more.

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“In order to achieve health improvements, roads need to be designed to be more pedestrian, bicycle, and public-transit friendly and allow people to use active transportation methods in their everyday lives. Increasing active transportation options leads to improvements in rates of diabetes, obesity and cardiovascular disease.”

*Megan Folkerth, Program Officer, Interact for Health*
EXECUTIVE SUMMARY

The Cincinnati Connects Plan represents a bold vision for a healthy, vibrant, and revitalized city with a robust alternative transportation system that offers enhanced mobility and connectivity for all of its citizens. This plan will implement portions of the city’s most notable plans over the last decade, including the 2012 Plan Cincinnati and the 2007 Centennial Parks Plan. Further, Cincinnati Connects presents the region’s first in-depth analysis for connecting existing and planned trails together into their most advantageous alignments - in this case, urban loop trails.

As envisioned, the 42-mile Cincinnati Connects Urban Loop Trail will pass through at least 32 neighborhoods and run between Mill Creek to the west and the existing trails at Armleder Park, Lunken airport, and the Ohio River Trail Schmidt Fields to the east. Two smaller loops can be formed within the major loop: the Urban Core Loop encompassing uptown and downtown, between Mill Creek and Torrence Parkway; and the Urban East Loop between Torrence Parkway and Armleder/Lunken.

This interconnected loop of pedestrian and bicycle trails will include six connector trails and four primary trails, the Ohio River West, the Mill Creek Greenway, Oasis Transportation Corridor/Ohio River Trail, and Wasson Way. Other completed local trails in fragmented locations (e.g., the central riverfront trails, the Central Parkway Cycle Track, the side path along a portion of Martin Luther King in uptown, the Ohio River Trail Schmidt spur, and trails in Armleder Park and around the Lunken airport) will be integrated into the future urban trail network. The map on the cover of this report shows the best and recommended alignments for all of the primary and connector trails, forming the overall urban loop trail for the City of Cincinnati.

The trails will link city neighborhoods to downtown and will be integrated with public transit and existing transportation infrastructure to create a seamless multi-modal transportation system. The trails will be free, accessible and convenient, making it possible for people of all ages and abilities to travel safely through the City without a car.

In addition to people-powered (walking, bicycling, and wheelchair) transportation opportunities, the trails will provide other quantifiable economic, environmental, public health, social, and recreational benefits. These far reaching benefits are described in Section 2.2.

How can this be accomplished? In Section 2.4, the plan takes a look at the status of the city’s four primary backbone trails in varying states of development, as well as a smaller but strategic trail, Little Duck Creek. The primary trails are the building blocks of the loop trails and form the skeletal framework of Cincinnati’s future trail system.

In Section 3, the plan then looks at how best to link the primary trails together. The Cincinnati Connects technical consultants examine in detail a number of potential alignments for each Connector trail. This gap analysis focuses on a total of 8.6 miles of future connector trails in the following geographic areas:

- Queensgate Connection (connecting the Mill Creek Trail in Lower Price Hill to Price Landing, Ohio River Trail West, and through Queensgate to the downtown riverfront trails).
- Mill Creek Corridor Connection (encompassing the Mill Creek railroad corridor from South Cumminsville to Lower Price Hill).
- Uptown North Connection (connecting Mill Creek from the west to Wasson Way to the east).
- Uptown South Connection (including Martin Luther King Drive capital project).
- Duck Creek Trail Connection.
- Murray Trail Connection.

Section 4 contains maps of each of the recommended alignments, designated as “Alternative A” on the Section 3 maps. Section 5 provides a summary of the preliminary engineering cost estimates for the best connector alignments. This connector trail information, when added to the preliminary design and cost estimates for the primary urban loop trails, will strengthen the city’s competitiveness in seeking future federal, state, and private grants to build the loop.

“The benefits that come with enabling pedestrian and bicycle friendly spaces are well known. People are happier, healthier, and breathe easier. Traffic flows better. And, communities are drawn closer together.”

The Economics Center, 2015.
What are the costs and benefits of creating Cincinnati's urban loop trails?

The Economics Center in Cincinnati completed a detailed Benefit/Cost Analysis for Cincinnati Connects (see Appendix B for the full report). The Center used a standard benefit-cost methodology for transportation projects (including the discounting of future benefits) and examined multiple variables, from reduced vehicle miles traveled to air quality impacts to health and recreational factors. It concluded that the cumulative net economic benefit from building the connector trails and forming the network will be about $43.5 million.

The cost for building the connectors is close to $21 million, plus an annual maintenance expense for 8.6 miles of connector trails estimated at $34,400 per year. The Economics Center concluded that the benefit-cost ratio is 2.78 to 1, indicating that the economic benefits are almost three times as great as the cost for building the urban loop trails. This confirms that implementation of the Cincinnati Connects loop trail will be a sound investment that will pay major public and private dividends for decades to come.

How can this plan be implemented?

The time is now. At the 2010 Cincinnati Neighborhood Summit, 93% of the respondents to a survey on urban priorities said that creating a walkable and bikeable transportation system is important to the future of Cincinnati. And, while city voters have just rejected (November 2015) a permanent parks levy, those for and against the levy all expressed strong support for funding and maintaining trails and parks.

The Cincinnati Connects partners have agreed to transition from their planning role over the past fifteen months to an implementation focus and will participate in public presentations, and briefings and working sessions with the City of Cincinnati and other major public and private partners. The Cincinnati Connects Steering Committee recommends that implementation of the Cincinnati Connects Plan be supported and endorsed by:

The City of Cincinnati, Hamilton County Transportation Improvement District, Ohio/Kentucky/Indiana (OKI) Regional Council of Governments, planning commissions and other governmental agencies, utilities that own/control property within the Cincinnati Connects alignment, Groundwork Cincinnati-Mill Creek, Ohio River West, Oasis, Wasson Way, local foundations and corporations, hospitals and other health care institutions, bicycle and running groups, Great Parks of Hamilton County, Queen City Bike, Tri-State Trails, civic organizations and businesses, Cincinnati Neighborhood Councils, and other interested partners.

Implementation strategies may include, but not be limited to:

1. Incorporating the urban loop trails in their entirety (primary trails and connector trails) into the OKI Regional Council of Governments 2040 Long-range Transportation Plan.

2. Maximizing, when feasible, the value of local trail investments by using the local funds and Cincinnati Connects synergies to competitively leverage larger Federal and State grants.

3. Achieving cost savings and efficiencies by incorporating the recommended pedestrian and bicycle infrastructure into future plans for economic development, housing, parks and recreation, and major road and bridge projects.

4. Preserving public ownership of property within the recommended Cincinnati Connects urban loop trail alignment for future trail development.

A full list of the implementation recommendations are in Section 6 of the plan that also includes a summary of federal, state, and private funding sources.

Appendix A of this report includes enlargements of the recommended urban loop trail map and maps of each segment of the urban loop.

Appendix B includes the Economics Center's benefit/cost economic analysis for the envisioned trail system. Appendix C includes a two-page matrix of federal funding for trails, a glossary of terms, and a list of references used in preparing the plan.

In summary, the Cincinnati Connects Plan sets forth the vision, justification, and landscape and preliminary engineering design and cost estimates for creating the city's urban loop trail that will make Cincinnati one of the top pedestrian and bicycle communities in the nation. When the Plan is fully implemented, the City of Cincinnati will have an interconnected urban loop trail spanning 42 miles that will connect thousands of residents living in over 32 neighborhoods to parks, recreation centers, rivers, employment centers, business districts, transit hubs, cultural resources, schools, and other destinations.
INTRODUCTION

“A transportation system that is well planned, maintained, interconnected, and that offers multiple modes of transportation options can positively affect the economy and the overall quality of life in the City.”

Plan Cincinnati Report, 2012
2.1 PROJECT BACKGROUND

The Green Umbrella Regional Trails Alliance (now called Tri-State Trails): In summer 2012, Green Umbrella and Groundwork Cincinnati convened a small group of trail advocates who agreed to work together to gather available data about trails throughout the Greater Cincinnati region and to plan a first-ever regional trails summit to raise awareness and move the regional trails agenda forward. The trail summit was held at the Cincinnati Zoo in spring 2013 and included 105 participants.

There were several important outcomes from the summit that included a heightened sense of awareness about existing and planned trails throughout the nine-county region and a realization that individual trail groups could benefit from forging a coalition to share information and support each other. The participants agreed to create a Green Umbrella Regional Trails Alliance to provide a forum for continued collaboration and to serve as the collective voice of the regional trails community.

Following the summit, a new partnership emerged between the Regional Trails Alliance and the Health Foundation of Greater Cincinnati. In summer 2013, the health foundation changed its name to Interact for Health and announced a grant to Green Umbrella Regional Trails Alliance to underwrite an inventory, assessment, and mapping of existing, planned, and potential trails that require more study. This body of work is found in the the Green Umbrella Regional Trails Plan.

The technical consultants for this process lead two rounds of public meetings attended by over two hundred people in nine counties and three states. The inventory and mapping included 391 miles of existing trails, 439 miles of planned trails, and 1,293 miles of potential trails. The results were presented at the spring 2014 Regional Trails Summit and revealed a startling and sobering picture of trail fragmentation in the nine-county area. Each trail exists in isolation from the others.

Cincinnati Connects: In summer 2014, Interact for Health asked Groundwork Cincinnati to develop a high visibility project to address this fragmentation and to stimulate trail development. There was a need to demonstrate how to link major trails together to maximize their value, and how to create a compelling case for major investment required to catapult interconnected trail development. In addition, the foundation wanted a pilot project that could provide lessons learned for other trail groups within the Greater Cincinnati region. The Cincinnati Connects Plan is helping to achieve these goals by collaborating with Tri-State Trails to disseminate information and recommendations to about seventy trail groups.

Finally, although this study focuses on trails east of Mill Creek in the City of Cincinnati, it recommends that the study be repeated for the western portion of the City. It also has an eye on creating spur trails inside the urban loop, uniting with other trails in Hamilton County and the Greater Cincinnati region, and eventually linking to state and national trails.

It’s all about mobility, access, and connections.
2.2 BENEFITS OF TRAILS

Trails, and especially greenway trails, provide quantifiable and nationally documented economic, transportation, public health, and environmental benefits. They enhance quality-of-life for everyone when there is equitable access to active transportation and recreational opportunities. Based on evidence from around the country and on technical research and analysis completed for this study, it’s clear that implementation of the Cincinnati Connects Plan will help transform Cincinnati into a hub for active transportation, healthy living, sustainability, and economic vitality.

Briefly, here is a highlight of the benefits that Cincinnati can expect:

I. Economic

In the Midwest, other cities are reaping economic benefits from their urban trails. In Indianapolis, according to a 2013 Partnership for Sustainable Communities report, the eight-mile Cultural Trail, built in 2008, is credited with playing a role in the City’s downtown revitalization — an overall effort that is expected to ultimately create more than 11,000 jobs and an economic impact exceeding $863 million. In addition, property values have increased by 148% for properties located within a block of the Indianapolis Cultural Trail. In Pittsburgh, the Three Rivers Heritage Trail attracts over 600,000 users per year with a total economic impact of $8,286,026 in 2014 alone. The trail is credited for attracting tourism and new talent to the city.

In Cincinnati, the Economics Center conducted a Benefit-Cost Analysis for the Cincinnati Connects Plan (see this report in its entirety in Appendix B). The Center focused on economic indicators of:

- Enhanced Sustainability -- reduction in vehicle miles driven, reduction of carbon dioxide (CO2) emissions and other air pollutants, and increased mobility of residents.
- Economic competitiveness — lower total vehicle operating costs and travel time savings, and other external benefits, including less traffic congestion; and
- Livability — reduction in health care costs and increases in new recreational options for residents.

The preliminary cost estimate for construction of the connector trails is close to $21 million and the estimated annual operation and maintenance cost is $34,400 for about 8.6 miles. The 30-year cumulative net economic benefit from building the connector trails to link the four primary trails together (Mill Creek Greenway, Ohio River West, Oasis, and Wasson Way), plus the increase in trail use resulting from the formation of an interconnected trail network, is estimated at $43.5 million.

This figure does not take into consideration pedestrian benefits, use of the urban trail loops for short trips unrelated to bike commuting, higher rates of trail usage, and trail use on other parts of the four primary trails. If those variables are included in future studies, the economic benefits will certainly increase.

The final benefit-to-cost ratio determined by the Center is 2.782:1. This confirms that the expected benefits of creating the urban loop trails significantly outweigh the costs, making the Cincinnati Connects loop trails competitive for future federal funding applications. Further, while there is a major investment required upfront, the fairly low maintenance cost will result in the cumulative annual benefits quickly surpassing the costs.

Creating the Cincinnati Connects urban loop trails will produce additional financial returns, including increased property values and enhanced marketability of new housing and economic development in neighborhoods adjoining the trails, spin-off impacts from expenditures during and after construction, increased local tax revenues, and diverse recreational opportunities. Building the infrastructure for the Cincinnati Connects loop trails will stimulate diverse businesses and produce jobs for surveying crews; landscape architects; engineers; biologists; construction laborers; asphalt and concrete specialists; maintenance workers; nursery and landscaping fieldworkers; artists; and manufacturers and suppliers of solar power (e.g., for lighting and pedestrian/bike crossing signals) and other green technologies, materials and products. Further, non-motorized transportation will help support and create small businesses located near the trail, including cafes and restaurants, bike shops, and a variety of retail stores.

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1Source: https://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/2013_5_23_indianapolis_case_study.pdf
II. Transportation

A transportation system that is well planned, maintained, interconnected, and that offers multiple modes of transportation options can positively affect the economy and the overall quality of life in the City. (Plan Cincinnati, 2012.)

In Cincinnati, 242,000 residents live within a mile of the planned Cincinnati Connects urban loop trails. Of those, 164,956 people are between the ages of 18 and 64 and could potentially use the loop trail for commuting to work. The Cincinnati Connects trail loops will be integrated with public transit and the existing transportation infrastructure, creating a multi-modal transportation system.

Short- and -mid-term, the City of Cincinnati has an opportunity to create 42 miles of interconnected urban trail loops that will initially run through 32 neighborhoods and connect people to hundreds of destinations, including employment centers, schools, shopping, health care facilities, and City parks and recreational facilities. The Cincinnati Connects plan recommends that a similar study be conducted for the City neighborhoods west of Mill Creek.

Longer-term, the City can create a network of spur trails radiating from the urban loop trails that will reach into all of the City’s neighborhoods and connect trail users to many more destinations. Further, there are excellent opportunities to connect City trails to other great trails in Hamilton County and the Tri-State region.

The Economics Center quantified the annual cyclist mobility benefits for trail commuters at $336,834 annually. However, the highest mobility benefits are expected to accrue to people who don’t own a vehicle. The Center’s research found that workers without access to vehicles are four times more likely to bike and walk to work as those who own cars.

Significant reductions in vehicle miles traveled as a result of people using trails for short trips has been verified by the Rails to Trails Conservancy, World Watch, and U.S. Department of Transportation. According to Rails to Trails, about one half of all trips taken in the U.S. are short trips of three miles or less. These daily trips can be shifted, to some degree, from driving to walking and bicycling if the infrastructure to support people-powered transportation is put into place. In 2008, the Oregon Blue Ribbon Committee for Trails determined that 5%-15% fewer vehicle miles are traveled in communities with accessible and affordable walking and bicycling conditions than in more automobile-dependent areas.

In addition, a robust trail system will create important benefits for motorists. Over time, as the number of vehicle miles on roads and highways are reduced by bike commuters, the remaining motorists will benefit from concurrent reductions in traffic congestion, noise, and accidents. These external benefits are quantified at $114,874 per year.

Therefore, creating the recommended urban loop trails in Cincinnati can be expected to reduce traffic congestion and fossil fuel emissions from mobile sources by increasing the frequency and incidence of walking, bicycling, and public transit use; decreasing automobile use for short trips; and increasing bike commuting.

III. Public Health

There are enormous public health and economic repercussions for communities that haven’t been designed for walking and bicycling. Physicians and health organizations are increasingly advocating active transportation (walking, running, bicycling) in response to declining physical activity; soaring obesity rates; and chronic health conditions including diabetes, hypertension, cancer, and heart disease. The State of Ohio is ranked 8th highest in the country for adult obesity (32.6% of the adult population) and 14th highest for children ages 10-17 (17.4%).

Step It Up! The Surgeon General’s Call to Action to Promote Walking and Walkable Communities recognizes the importance of physical activity for people of all ages and abilities. It calls on Americans to be more physically active through walking and calls on the nation to better support walking and walkability.

*Source: http://stateofobesity.org*
The Children’s Defense Fund reports that health and poverty are so interrelated that many indicators of poverty have become predictors of child health problems. Germaine to the City of Cincinnati, the 2012 American Community Survey found that our City has the second highest poverty rate for children in the country, with 53.1% of children living below the poverty line. Children in economically distressed neighborhoods without access to amenities (sidewalks, hike/bike trails, parks and recreation facilities) have 20-45% higher odds of becoming obese or overweight compared to children who have access to these amenities.

Conversely, where neighborhoods have good public transit, sidewalks, bike paths, trails, greenways and traffic-calming devices, there is more walking and bicycling, greater physical activity, and lower rates of obesity. The Centers for Disease Control and Prevention (CDC) has found that there are significant health cost savings and prevention of chronic diseases when there is access to a functioning pedestrian and bicycle infrastructure. From a public policy perspective, the health and economic benefits of trails for economically-distressed areas of the city can be one of the ranking criteria used for determining future funding priorities for trails.

The Economics Center has estimated $213,590 in annual health benefits if existing and new bike riders were to use the urban loop trail today, and a $2,068,630 economic benefit from a likely estimate of increased physical activity and recreational uses of the urban loop trails by existing and new bike riders. If urban trail usage is high, the economic benefit could be over $3.4 million per year.

IV. Energy and the Environment
In Indianapolis, the 2013 Partnership for Sustainable Communities report for the Cultural Trail estimates that the amount of fuel savings projected over the next 25 years is $21.4 million, as walking and cycling offset local vehicle miles traveled by 83 million miles. The report notes that air quality will also improve by replacing cars with bikes and walkers. Cincinnati will achieve reductions in energy consumption and fossil fuel emissions as increased walking and biking to work and for short trips become commonplace in the City, resulting in fewer vehicle miles traveled. The Economics Center calculated that 324 metric tons of carbon dioxide and 119 metric tons of other vehicle emissions (e.g., particulates, volatile organic compounds, nitrogen oxides, and sulfur dioxide) can be reduced annually by future Cincinnati Connects bike commuters. In monetary terms, this air quality benefit is worth $50,547 annually. That figure will continue to rise as trail commuting and travel to other destinations becomes the new norm in Cincinnati.

In addition to cleaner air and reduced energy consumption, there are clear and compelling urban conservation and restoration benefits from trails and greenways, including the transformation of blighted and underutilized urban and industrial properties as the trails are developed, preserving and improving the health of natural landscapes, reforesting trail corridors and increasing carbon sequestration, and helping to link fragmented wildlife habitat together. A network of trails and greenways will also connect the city’s parks and greenspaces together, and connect people to the city’s river corridors. Unlike roads, greenway trails function like linear parks and facilitate safe, less stressful, and more enjoyable travel from place to place.

Note: At the time the Economics Center conducted its benefit-cost analysis, it was working from a description of the six connectors that differed slightly from the final configuration presented in this report. As a result, some of the numbers in the Economics Center’s analysis will need to be updated in addition to a benefit/cost analysis of the entire urban loop trail prior to their use in the submission of future grant applications.

5Source: http://www.cdc.gov/healthyplaces/parks_trails/sectionc.htm
2.3 ALIGNMENT WITH NOTABLE PLANS

The Cincinnati Connects Plan will help the City meet national livability criteria required to secure grants from the Federal Partnership for Sustainable Communities that includes the U.S. Department of Housing and Urban Development (HUD), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Transportation (DOT). In addition, Cincinnati Connects is consistent with and will help implement a number of landmark local plans. These documents include but are not limited to:

“We see the Cincinnati Connects plan as more than parks and recreation initiatives, and more than amenities that would be nice to have when other more important projects are done. What we see is the opportunity for the City to reinvest and reclaim itself, embracing the beauty of our rivers and hillsides, and utilizing spaces that have been under appreciated. Most importantly, we will be investing in our people, providing new opportunities for access, linking our amazing historic neighborhoods, and making new places of choice for people to call Cincinnati home.”

- Dave Zelman, architect, co-chair of the River West Working Group, and member of the Cincinnati Connects Steering Committee.

Plan Cincinnati is Cincinnati’s first comprehensive plan in over thirty years. It was adopted unanimously by the City Council in November 2012 after a three years long development process and unprecedented public participation through direct engagement of thousands of Cincinnati stakeholders.

One of Plan Cincinnati’s guiding principles is to “Preserve or create a pedestrian-scaled city.” Two “Connect” goals are to “Develop an efficient multi-modal transportation system that supports neighborhood vitality” and to “Expand options for non-automotive travel.”

To learn more please visit: http://www.plancincinnati.org/

The Cincinnati Parks 2007 Centennial Master Plan honors the rich legacy of park planning and design by revisiting the transformative powers that parks can have in shaping a city; by expanding the connective network that Kessler started with the 1907 park system master plan; and by weaving in contemporary issues such as sustainability, crime prevention through environmental design, and a re-engagement with our citizens and partner institutions to provide services and facilities that are current, relevant, responsible and efficient.

The plan recognizes the importance of parkways, greenways, and trails, particularly along Mill Creek and the Ohio River, and recommends an expanded connected network of both natural and built components.

To learn more please visit: http://www.cincinnatiparks.com/about-us/
One of the major strategies of the 2014 Cincinnati Health Department Creating Healthy Communities Strategic Plan (2015-2019) is to help prevent obesity and chronic diseases by increasing levels of physical activity in addition to increasing healthy eating and decreasing tobacco use. The plan identifies the need for access to physical infrastructure in city neighborhoods that will foster active living.

To learn more please visit:

The Greater Cincinnati Regional Trails Plan, completed in 2014, is a living document that captures a dynamic regional dialogue in three forms: a Graphic Information Systems (GIS) database, a user-friendly online map, and a Model Resolution. A collective partnership of public agencies, nonprofit organizations, private firms, and trail advocates in the nine-county region worked together through the collective impact model to create a comprehensive vision for trails and greenways in the nine-county Greater Cincinnati region. The plan addresses the need to link existing and planned trails that are currently isolated from each other.

To learn more please visit:
http://www.greenumbrella.org/TriStateTrails

The mission of the City of Cincinnati Bicycle Transportation Plan is to make bicycling an integral part of daily life in Cincinnati, so that persons of all ages and abilities utilize bicycles for all types of trips.

To learn more please visit:
http://www.cincinnati-oh.gov/bikes/
In 2008 Cincinnati adopted the **Green Cincinnati Plan** as a roadmap for how Cincinnati can be a national leader in addressing global climate change — and make Cincinnati a healthier place to live.

The plan calls for reducing carbon dioxide and other greenhouse gas emissions, reducing dependence on nonrenewable energy, and improving air, land, and water quality.

**To learn more please visit:**

Within the framework of regional multimodal transportation, OKI has developed the **2008 OKI Regional Bicycle Plan and the 2004 OKI Regional Pedestrian Plan**. The goal of these plans is to study the positive impacts bicycling and walking provide alternatives for single-occupant vehicle (SOV) travel and a means of connecting with transit. Whether they replace motor vehicle travel or support transit use, bicycle and pedestrian trips help reduce congestion, fuel consumption, and vehicle emissions. The use of non-motorized modes is especially valuable for replacing short distance auto trips, which have the highest rate of emissions. In addition to transportation and environmental benefits, these modes also contribute to personal health and quality of life.

**To learn more please visit:**
Uptown Consortium Inc. (UCI) initiated the **MLK Reading Road Corridor Study** in order to plan for the impacts of the new I-71 interchange work.

The vision aims to build on the existing institutional, residential, business, cultural, social, and physical assets of the area in order to guide policy decisions and promote positive investment in the Uptown neighborhoods.

**To learn more please visit:**
PARTNER TRAILS

In September 2014, representatives from Groundwork Cincinnati-Mill Creek, the Ohio River Trail West, Wasson Way, Oasis Transportation Corridor, and Little Duck Creek met for the first time to explore the potential benefits of forming a Cincinnati trail coalition and partnership that could boost the development of each of the partner trails and provide the City of Cincinnati with an interconnected trail system. The potential outcomes from linking the partner trails together (Mill Creek Greenway, Ohio River Trail West, Wasson Way and Oasis) to create an off-road super highway for pedestrians and bike riders were astounding:

- Tens of thousands more people living in a greater number of city neighborhoods could use the urban loop trail to reach hundreds more destinations.
- Greater positive impacts on air quality, the environment, and public health, as more people use the trail for active transportation and recreational purposes.
- Increased reductions in vehicle miles traveled, resulting in energy savings and less traffic congestion for motorists.
- More competitive grant applications for federal transportation and other funding to design and build the trails. And,
- Greater economic benefits.

*In other words, for Cincinnati Connects, the sum is greater than the parts.*

The primary partner trails form the skeleton of the Cincinnati Connects urban loop trail. In addition, the Little Duck Creek, a smaller but strategic trail, is included in this plan. While the entire length of the Oasis Trail and Wasson Way are part of the loop trail, only a portion of the Mill Creek Trail and Ohio River Trail West are part of the loop.

The southern portion of the Mill Creek Greenway Trail, about five miles in length, is included in the urban loop trail and called the Mill Creek Corridor Connector Trail. When the city’s entire Mill Creek Greenway Trail is built, it will connect an additional five city neighborhoods (Spring Grove Village, Winton Hills, Carthage, Roselawn, and Hartwell) to the urban loop trail, and link to at least eight suburban communities.

Phase 3 of the Ohio River Trail West crosses Mill Creek and runs east to the Smale Riverfront Park downtown, approximately two miles from Lower Price Hill. It is called the Queensgate Connector Trail in this plan. When the entire twenty miles of the trail are built (between Mill Creek and Shawnee Park to the west), it will connect Queensgate, Lower Price Hill, East Price Hill, Riverside, Sedamsville, and Saylor Park neighborhoods as well as the communities of Addyston, North Bend and Cleves to the Cincinnati Connects trail.
Location
The Ohio River Trail West runs twenty miles along the Ohio River, from Smale Riverfront Park in downtown Cincinnati to Shawnee Lookout Park at the Ohio-Indiana boundary.

Length
The overall length of the trail is 28 miles as currently conceived, which includes 20 miles from Smale Riverfront Park to the Brower Road entrance of Shawnee Lookout Park, and an eight mile loop around Shawnee Lookout Park.

The trail plan is divided into four phases as shown on the maps in the “Connections” section below. Phases are not necessarily in chronological order of development. Phase 1 is three miles from Evans Recreation Area and the planned park at Price Landing in Lower Price Hill to Gilday Recreation Complex in Riverside. Phase 2 is approximately seven miles from Gilday Rec to Fernbank Park in Sayler Park. Phase 3 is two miles from Smale Riverfront to Price Landing. Finally, Phase 4 is 16 miles from Fernbank Park to and around Shawnee Lookout Park.

The expected route of Phase 1 was presented at a well-attended community meeting hosted by Cincinnati’s Department of Transportation and Engineering and the Ohio River Trail West in July 2014. Based on the route, plans, and renderings, community members expressed overwhelming support for Phase 1.

At this time, only one quarter mile of the trail in Phase 1 is complete. It is adjacent to the Peter Cremer site south of River Road near Sedamsville. More significantly, $1.3 million funding has been secured for Phase 1- Segments 1 and 2. This includes a $1 million Federal Congestion Mitigation/Air Quality (CMAQ) grant awarded in January 2015, which will be available no later than 2019.

Beyond Phase 1-Segments 1 and 2, the focus of future fundraising and trail development efforts will be: 1) Phase 1-Segment 3; 2) two miles of Phase 2 from Gilday Rec to Anderson Ferry; and 3) crossing the Mill Creek from Price Landing on the way to Smale Riverfront Park.
Ohio River Trail West has always seen Ohio River Trail West as the connector of communities and greenspaces across western Hamilton County and beyond. Communities and neighborhoods directly engaged include the Cincinnati Banks, Queensgate, Lower Price Hill, East Price Hill, Sedamsville, Riverside, Delhi, Sayler Park, Addyston, North Bend and Cleves. Some important parks and greenspaces along the route include Smale Riverfront Park, Evans Recreation Area, Price Landing, Mt. Echo Park, Boldface Park, Embshoff Woods, Gilday Recreation Complex, Anderson Ferry, Hillside Park and Ballfields, Bender Mountain Preserve, Nelson Sayler Memorial Park, Fernbank Park, Harrison’s Tomb, Gulf Community Park, and Shawnee Lookout Park. And, of course, many schools and other institutions will be served by the trail, such as Oyler School and Community Learning Center, Learning Matters and Community Matters located at the former St. Michael the Archangel Church in Lower Price Hill, nearby Holy Family School, Roberts Academy, St. Lawrence School and Rees E. Price Academy in East Price Hill, Riverside Academy, St. Vincent DePaul School, Mount Saint Joseph University, Sayler Park School, and Taylor High School.

**Relation to Existing Plans**
The Ohio River Trail West has six major regional linkages that make it a vital part of the Tri-State Trails:
1. At Smale Riverfront Park, it will link to the Ohio River Trail-Oasis Transportation Corridor, east of downtown
2. The Mill Creek Greenway’s southern terminus will be its linkage with the ORTW in the vicinity of Price Landing
3. At Anderson Ferry, it will connect to the Ohio River Trail in Kentucky
4. Near Cleves, it will link to the future Great Miami Trail going north to Dayton
5. West of Shawnee Lookout, it will connect to the Whitewater River Trail
6. Also, west of Shawnee Lookout, it will link to the Oxbow Trail and the Lawrenceburg Trail

**Partners**
Our public partners in the creation of the Ohio River Trail West work collaboratively based on deploying resources most effectively. The following roles are generalizations that may not apply in specific situations. Cincinnati Department of Transportation and Engineering provides leadership in the development of preliminary designs and construction plans within the City other than in City parks and recreation facilities. Cincinnati Park Board provides leadership in the integration of existing and future plans. Cincinnati Recreation Commission provides leadership in the development of preliminary designs and construction plans within CRC facilities. Great Parks of Hamilton County provides leadership in the development of preliminary designs and construction plans outside of the City. We will develop similar relationships with Addyston, North Bend and Cleves.

Our neighborhood partners currently include the community councils of Lower Price Hill, East Price Hill, Sedamsville, Riverside, and Sayler Park.
Timeline

January 2015
Congestion Mitigation/Air Quality grant for Phase 1 announced

April 2015
ODOT and OKI scope of services review for CMAQ grant

Early 2016
Design/construction drawings for Phase 1-Segments 1 and 2 funded by CMAQ

2017
Integration of CMAQ with additional funding sources

NLT 2019
Commence construction of Phase 1-Segments 1 and 2

Contact Information

Ohio River Trail West

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Location, Conditions and Multi-objective Strategy

The multi-objective Mill Creek Greenway Trail is located in the geographic heart of the City of Cincinnati and Hamilton County and within the economically distressed Mill Creek river corridor. Because a high percent of Mill Creek households don’t own vehicles and many neighborhoods lack pedestrian and bicycle infrastructure, mobility and connectivity are key issues and an alternative transportation system is critically needed.

The City of Cincinnati’s Mill Creek Trail will generally follow along Mill Creek, from its northern terminus at Galbraith Road in Roselawn to its southern terminus at the Ohio River to the south. In a number of places in the congested corridor, the trail must detour around existing public and private development along the river, making it an urban experience for trail users.

In addition to creating free, accessible, and convenient opportunities for people-powered transportation and for outdoor exercise and recreation, the City’s Mill Creek Greenway Program is a vehicle for transforming blighted, derelict properties along Mill Creek into public greenspace, edible forest gardens, and trails; for supporting economic revitalization of Mill Creek neighborhoods; for improving the health of the river and other vital natural resources; and for educating, training, and employing youth. Groundwork Cincinnati serves as the project manager for the City’s Mill Creek Trail.

The five-mile southern leg of the Mill Creek Trail, between Mill Creek Road in South Cumminsville to the Ohio River, serves as the Mill Creek Corridor connector trail.

Length

The City of Cincinnati’s portion of the Mill Creek Greenway Trail is approximately 15.5 miles between the Ohio River and Galbraith Road in Roselawn. About five miles of the City’s trail has been built to date in two locations:

1. Three miles between the Winton Road and Spring Grove Avenue intersection (adjacent to Spring Grove Cemetery) south to Beekman Avenue in South Cumminsville/Millvale and
2. 1.9 mile between Seymour Preserve and Caldwell Recreation Park.

Over the next year, Groundwork Cincinnati plans to build about one-mile of off-road trail and improve walking and biking infrastructure to link the two trail segments together to create about eight miles of trail. In addition, preliminary plans call for a 2.5 mile West Fork Creek Greenway Trail extending from Mt. Airy Forest to the tributary’s confluence with Mill Creek in South Cumminsville.

When the entire Mill Creek Greenway Trail is completed, encompassing the City’s portion of the trail and the planned suburban parts of the trail in Hamilton and Butler Counties, the trail will be at least 28-30 miles in length. Other planned tributary trails include West Fork Mill Creek (Winton Woods to confluence of the tributary with Mill Creek at Galbraith Road, and the Sharon Creek Trail.

Connections

The Mill Creek Greenway Trail serves as a major north/south route and a connection to the western portion of the City of Cincinnati. It is also considered a backbone trail for the Tri-State Trails regional network.

City Neighborhoods: The Mill Creek Trail will pass through and near fifteen city neighborhoods (Hartwell, Roselawn, Carthage, Winton Hills, Spring Grove Village, Clifton, Northside, Camp Washington, South Cumminsville, Millvale, NorthFairmount, SouthFairmount, Lower Price Hill, East Price Hill, and Queensgate.

Parks: The Mill Creek Trail will connect to the Hamilton County Fairgrounds in Carthage, Caldwell Preserve, Caldwell Park, Seymour Preserve, Salway Park, Spring Grove Cemetery, Mt. Airy Forest and Wayne Park (West Fork Creek Trail), Evans Field, and the future Price Landing park near the mouth of Mill Creek.

Business Districts: The Queen City Commercial center between West Mitchell Avenue and Clifton Avenue and the historic Northside business district.
**Trail Connections:** In Lower Price Hill, the Mill Creek connector trail links to the Ohio River West trail and the planned Price Landing park, and to the downtown riverfront via the Queensgate connector trail. The Mill Creek Corridor connector trail will also link to South Fairmount. It will connect to South Fairmount via the proposed walking paths that are part of the Metropolitan Sewer District’s Lick Run stream daylighting project.

This Connecting City Trails report also recommends a connector trail extending between Mill Creek, through Clifton and the Uptown area of Cincinnati to the Wasson Way trail. There are opportunities to create trail linkages between Mill Creek and the City’s other major trails.

Outside of the Connecting City Trails project and the City limits, there are exciting plans to connect the City’s portion of the Mill Creek Trail to Hamilton County and Butler County suburban communities, and to West Fork Mill Creek communities. Partners include the Connecting Active Communities Coalition, Hamilton County Transportation Improvement District, Great Parks of Hamilton County, General Electric Aircraft Engines, and Arlington Heights, Lockland, Wyoming, Woodlawn, Glendale, Reading, Evendale, and Sharonville.

**Partners**

**Mill Creek Neighborhood Councils:** To date, Carthage, Winton Hills, Winton Terrace Residents Council, Spring Grove Village, North Fairmount, Northside, Camp Washington, South Cummins ville, and Millvale. For future trail phases, Clifton, South Fairmount, Lower Price Hill, East Price Hill, Queensgate, Hartwell, and Roselawn.

**City of Cincinnati Elected Officials:** Mayor’s Office and Cincinnati City Council.

City Departments: Parks, Recreation, Transportation, Health, Public Services, Planning, Metropolitan Sewer District (MSD), and Office of the Environment and Sustainability.


**Other Valued Partners:** Cincinnati Public Schools, the Connecting City Trails Steering Committee Members and organizations they represent, the Hamilton County Transportation Improvement District, Mill Creek Valley Conservancy District, New Prospect Baptist Church, Niehoff Urban Design Studio, University of Cincinnati, PAR Projects, Queen City Bike, Rain Garden Alliance, Safe Routes to Schools, University of Cincinnati School of Design, Working In Neighborhoods.
Relation to Existing Plans
The Mill Creek Greenway Trail Program is helping to implement a number of local, state, and regional plans including but not limited to:

- Mill Creek Watershed Greenway Master Plan (1999).
- Regional Trails Alliance Master Plan (2014).
- City of Cincinnati Bike Plan (2010).
- Revive Cincinnati: Neighborhoods of the Lower Mill Creek Valley Plan (2010).
- The Hamilton County Park District’s Master Plan (2003).
- The Ohio Greenways Plan administered by the Ohio Parks and Recreation Association.

Timeline

2015-2016:
Phase 5 - Winton Road to Center Hill Road (about 2.9 miles).

2016-2018:
Phases 6 & 7 - Mill Creek Road in South Cumminsville to Ohio River Trail in Lower Price Hill, with connections to Price Landing and the downtown riverfront. The trail construction is contingent on the City’s ability to secure a permanent easement or long-term lease on the CSX railroad corridor.

2018-2020:
Phases 8 & 9 - Caldwell Park to Galbraith Road.

2019-2020:
West Fork Creek Greenway Trail – Mt. Airy Forest to Mill Creek in South Cumminsville.

CONTACT INFORMATION
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Location and Length
The main trail will go 7.6 miles from Blair Court in south Avondale to the Little Miami Scenic Trail in Newtown/Mariemont (marked in yellow on map below). An extension of 1.4 miles has been added that will go north from Xavier University, along the east side of Victory Parkway, to Paddock Hills and eventually south Bond Hill (marked in yellow going north from Xavier on Victory Parkway). Another extension has been added from Wasson Way to the Ault Park Valley Trail, the trail going north on Red Bank Road, Murray Trail (marked in light blue and green). The total network is over 11 miles.

Connections
The WW will have some critical connections to other trails including: at eastern end to Little Miami Scenic Trail, to Armleder Park and Lunken Airport and eventually to Martin Luther King Drive in Avondale/Clifton area. Along the way it will connect to important shopping areas, schools and the second largest employment district in the metropolitan area—UC, Clifton, hospitals and EPA Center.

Shopping areas: Mariemont Kroger, Hyde Park Plaza, Rookwood Commons, Wasson Road, Xavier shopping center, Norwood and the new office/shopping that will develop at the MLK interchange.

Schools: connect Terrace Park to Mariemont schools, Withrow HS, Walnut Hills HS, Clark Montessori, Xavier University and UC.

Parks and Recreation: South 80 Park in Mariemont, Ault Park, recreational area behind Withrow HS, Avondale Blair Park, north on Victory Parkway to three Cincinnati Recreational areas and Norwood’s Lower Millcrest Park.

Partners
We have received tremendous support from Mayor Cranley, Cincinnati City Council (three unanimous votes), Hamilton County Commissioners, OKI, SORTA, Senator Portman, Senator Brown, nine neighborhood councils, Fairfax, Norwood, Mariemont. We are working closely with Cincinnati DOTE, City Planning, SORTA, Xavier. Interact for Health, Haile Foundation and private donors have provided important funding.
Relation to Existing Plans
As shown in the trail map we will be a major part of the Cincinnati Connects network, connecting not only geographically, but also connecting the major population and employment centers.

Lead Agency Description
The Wasson Way is a joint effort of the City of Cincinnati DOTE/Planning, Village of Mariemont, Norwood and Fairfax with the Wasson Way Organization (WWO) non-profit group providing overall coordination. The WWO has a strong social media presence with 4300 “friends” on our Facebook page http://facebook.com/wassonwayproject and over 1100 email newsletter subscribers.

There is a website at http://wassonway.org

Susan Schaefer, President of WW Board
susanschaefer1@gmail.com

Wasson Way, 2692 Madison Road box 115, Cin. 45208.
wassonway@gmail.com

Timeline
Wasson Way was approved for a $500,000 grant from the State of Ohio. This funding will help construct a section of the Trail from Madison Road in Hyde Park to near the west side of Norwood in early 2016.
Location
The Oasis trail when complete will be a rail with trail that will provide a critical connection between Cincinnati's growing Riverfront Parks to the existing Lunken Airport trails. The trail will traverse along a corridor that is full of history from the Torrence Road Station to the many forgotten staircase that would bring residents from Cincinnati’s eastern neighborhoods down to the banks of the mighty Ohio River.

Length
4.75 miles Install a 12’ wide multi-purpose transportation corridor on the north Oasis railroad track from Carrel St. to the western terminus of the International Friendship Park.
Relation to Existing Plans
The Ohio River Trail Oasis connects the Ohio River Trail east to the Ohio River Trail West, that connects to the Mill Creek Trail, that connects to Wasson Way, that connects to the Little Miami Scenic Trail, that connects to the Oasis Trail to complete the planned 44-mile Cincinnati Connects urban loop trail.

Connections
The Trail will become the southern terminus of the 330 mile Ohio to Erie and 80 miles Little Miami Scenic Trail and the link between Ohio River Trail West and Ohio River Trail East. It will connect Armleder Park, Lunken Playfield, Avoca Park, Smale Park, International Friendship Park, Eden Park, Alms Park.

Partners

Timeline
Planning and design are in process and it is hoped that construction can begin in the summer of 2016 and be complete by spring of 2017.

Contact Information
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Little Duck Creek Trail

TRAIL DESCRIPTION

Location
The Little Duck Creek Trail runs along Little Duck Creek between Bramble Park (on the Murray Avenue Trail) and Plainville Rd in the Madisonville neighborhood of Cincinnati. Currently, the trail is a natural surface hiking trail.

Length
The length of the proposed shared-use trail is 1.1 miles.
A report published by the City Planning Commission in January 1976 stated, “In 1975, the Madisonville-Eastwood community plan recommended that a linear park-recreation area should be developed along 65 acres of open space along Little Duck Creek through Madisonville. This recommendation was endorsed and given a high development priority in the 1974 Master Recreation Plan for Cincinnati’s Eastern Communities.”

Connections
This small trail would help to connect Madisonville residents to major shopping and food centers on Red Bank Road.

Partners
The City of Cincinnati
OKI Regional Council of Governments
Madisonville Community Urban Redevelopment Corporation
Madisonville Community Council
Friends of Little Duck Creek Trail

Relation to Existing Plans
Regional connections are accomplished by connecting to the Murray Avenue Trail.

Timeline
1976: City Planning Commission Report
Current: Natural Surface Trail
Fall 2016: Engineering Studies to commence
Next steps: Acquiring funding sources for construction
When complete, the Cincinnati Connects trails will traverse a wide range of landscapes including railroad corridors, urban neighborhoods, parks, industrial corridors, and many others. While the primary focus of the Cincinnati Connects Plan is on construction off-road trails, the reality is that the envisioned urban trail system passes through highly developed areas that are unable to accommodate space required for an off-road trail. In these locations, the technical team have identified phased solutions that retrofit existing transportation infrastructure to create safe pedestrian and bicycle facilities.

Guide for the Development of Bicycle Facilities
4th Edition
This guide provides information on how to accommodate bicycle travel and operations in most riding environments. It is intended to present sound guidelines that result in facilities that meet the needs of bicyclists and other highway users.

**NACTO FACILITIES DEFINITIONS**

**One-Way Protected Cycle Track**
Street level bikeways that use physical protection from passing traffic along streets with high motor vehicle volumes and/or speeds.

**Raised Cycle Track**
Vertically separated from motor vehicle traffic along streets with higher speed streets with few driveways and cross streets

**Two-Way Cycle Track**
Physically separated cycle tracks that allow bike movement in both directions on one side of the road

**Buffered Bike Lane**
Conventional bike lanes with a designated buffer separating the bike lane from adjacent motor vehicle/parking lane

**Contra-Flow Bike Lane**
Allow bicyclists to ride in the opposite direction of motor vehicle traffic and are separated with yellow center lane striping

**Left-Side Bike Lanes**
Conventional bike lanes placed on the left side of one-way streets or two-way median divided streets

**Bicycle Boulevards**
Design Elements
- Route Planning: Direct access to destinations
- Signs and Pavement Markings: Easy to find and to follow
- Speed Management: Slow motor vehicle speeds
- Volume Management: Low or reduced motor vehicle volumes
- Minor Street Crossings: Minimal bicyclist delay
- Major Street Crossings: Safe and convenient crossings
- Offset Crossings: Clear and safe navigation

**NACTO Urban Bikeway Design Guide**
The purpose of the guide is to provide cities with state-of-the-practice solutions that can help create complete streets that are safe and enjoyable for bicyclists. ([http://nacto.org/](http://nacto.org/))
TYPICAL SECTIONS - ON-ROAD FACILITIES

BL1: BICYCLE Lanes WITH SIDEWALK

BL2: BICYCLE Lanes WITH SIDEWALK & PARKING

BL3: TWO-WAY CYCLE TRACK WITH SIDEWALK
Use only where there are a minimum number of crossing streets and driveways through the cycle track.
TYPICAL SECTIONS - ON-ROAD FACILITIES

SL1: SHARED LANE WITH SIDEWALK

SL2: SHARED LANE WITH SIDEWALK & PARKING
3.0 CONNECTING THE TRAIL PARTNERS
A fully connected trail network will provide a transportation option for walking and biking that connects open space, parks, natural lands, residential neighborhoods, recreational facilities, commercial areas, and employment centers. In order to make these connections it’s important to identify the gaps in the network and to develop strategies for closing the gaps. The Cincinnati Connects project focuses on six gap areas and provides a series of alternative alignments for closing each of them. Each study area includes a recommended alignment that is the result of engineering analysis, site visits, and stakeholder feedback.

While the recommended alignment represents the preferred approach, it should be noted that each of the remaining alternatives have been thoroughly studied and remain viable secondary options.
3.2 QUEENSGATE CONNECTIONS
River West Working Group
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
**CONSTRAINTS AND OBSERVATIONS**

**A1: Railroad Crossing**

The trail will need to cross four railroad tracks east of State Street. Coordination with the Genessee & 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 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.

**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.

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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.

**CONSTRANTS 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 Genesee & 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 Storrs 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.
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 the 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 the 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.

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1Cincinnati Railroad Improvement and Safety Plan, 2012
2CAGIS
3Source: Historic aerials.
**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.

**SEGMENT A: 3-4**

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

**Adjacent Roadway**
None

**Length**
1,260 ft.

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

**CONTRAINTS 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.

\(^8\) CAGIS measurement
\(^9\) CAGIS measurement
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.

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 mph¹¹ 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 ASHTO 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
ALTERNATIVE: A
SEGMENT A: 5-6

SEGMENT DESCRIPTION
This segment would begin west of Carr Street at the floodwall. The trail would cross Mehring Way from the south side of the roadway to the north side to access an existing pedestrian door in the floodwall. The trail would then continue along the north side of Mehring Way to Freeman Avenue. Between Carr Street and Freeman Avenue, the trail would be located between the existing steel structure supporting the elevated CSX Railroad and a commercial building. This area, within the existing right of way, is currently used as parking and loading for Valerie Makstell Interiors. The parking would need to be relocated (see Constraint A12) and accommodations may be necessary for loading at existing garages (see Constraint A14).

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.

Limits
Floodgate west of Carr Street to Freeman Avenue

Adjacent Roadway
Mehring Way

Length
735 ft.

Recommended Facility Type
SU2: Shared-Use Path Along Roadway & SU7: Shared-Use Path Along Roadway with Buffer<5 feet

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.
CONSTRAINTS 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.

CONTRACTIONS 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.19 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.

19KI 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.

CONSTRAINTS 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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SEGMENT DESCRIPTION
This alternative would begin at Evans Street at the termini of the Ohio River Trail West and Mill Creek Trail. The trail would parallel the north side of US 50 and be cantilevered from the existing US 50 bridge over the Mill Creek and CSX/CIND Railroads. On the east side of the Mill Creek, the trail would cross US 50 at the location of an existing pedestrian bridge, then join with Alternative A at Mehring Way.

This alternative alignment does not require occupying any railroad property although it will still require railroad coordination for an aerial crossing of the tracks. It also has no at-grade railroad crossings which may be easier to negotiate.

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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ALTERNATIVE: C

SEGMENT C: 2-3

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.

CONTRAINTS 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.

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
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

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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.

Limits
Floodgate No. 8 west of Carr Street to Freeman Ave./Mehring Way Intersection

Adjacent Roadway
Carr Street & Freeman Avenue

Length
1,325 ft.

Recommended Facility Type
SU1: Shared-Use Path on Independent Alignment
SU2: Shared-Use Path along Roadway

CONSTRAINTS AND OBSERVATIONS

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.

22Public Rights of Way Accessibility Guidelines, R302.5 Grade, 2011
23AASHTO Guide for the Development of Bicycle Facilities, Chapter 5: Design of Shared Use Paths, Section 5.2.1 Width and Clearance, 2012
24CAGIS Measurement
# Engineer’s Estimate of Cost

## ALTERNATIVE: D

### Engineer’s Estimate of Cost

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**TOTAL:** $11,440,000
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.
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>Freeman Avenue to Pete Rose Way</td>
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$12,160,000

27ODOT Location & Design Manual, Volume 1, Figure 301-4E
CINCINNATI CONNECTS
QUEENSGATE CONNECTION - RECOMMENDED ALIGNMENT

MAP LEGEND

- Recommended Alignment
- Future Access Drive (Price Landing Park)

- Trail Connection (Proposed Ohio River Trail - West)
- Alternative E (2010 Cincinnati Bike Plan)
- Alternative D
- Alternative A
- Trail Connection (Existing Riverfront Parks Trail)

Project Partners:
Groundwork Cincinnati-Mill Creek
AECOM
City of Cincinnati
Human Nature, Inc
Interact for Health
Kolar Design
Little Duck Creek Trail
Ohio River Trail - Oasis Line
Ohio River Trail (Riverfront Parks)
Ohio River Trail West
Queen City Bike
Tri-State Trails
Wasson Way

This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
3.3
MILL CREEK CORRIDOR CONNECTION
Constraints and Observations

General: Trail Location & Width
There is a sidewalk along the entire eastern side of Evans Street. The sidewalk width varies from approximately 5 feet to 12 feet. The 12 foot width walk could be utilized as the trail but it wouldn’t meet all the design criteria for the trail since it would not have a five foot buffer from the roadway. Additionally, there are utility poles and signs that reduce the effective width of the sidewalk to less than 10 feet. The 5 foot width walk could not support an off road trail.

All of the property adjacent to the east side of Evans Street is publicly owned: Evans Recreation Area (Cincinnati), Cincinnati Police Academy (Cincinnati), and MSD (Hamilton County). Except for the constraints noted below, there is sufficient width to widen the existing sidewalk or replace it with an asphalt path with a five foot minimum buffer from the roadway.

A1: Railroad Crossing
The trail will cross one set of CSX railroad tracks. This is an existing pedestrian crossing adjacent to Evans Street. The crossing is asphalt paved.

A2: Evans Recreation Area Impacts
Widening or replacing the existing 12’ sidewalk adjacent to Evans Recreation Area could have impacts on the park facilities such as a baseball field immediately adjacent to the sidewalk.
**A3: Eighth Street Viaduct Underpass**

The sidewalk width is constrained under the Eighth Street Viaduct by a floodgate and utility pole on the south side. The viaduct's piers and a portion of the floodwall are also immediately at the back of walk limiting any widening possibilities.

Evans Street is approximately 36 feet wide in this location. There are two through lanes and parking is permitted in some locations. No parking signs are posted for the east side of Evans Street directly beneath the viaduct. There would be an opportunity to reduce the street width to accommodate a wider trail through this section since parking is not permitted.

**A4: Gest Street Crossing**

The path would need to cross Gest Street at an unsignalized location. Two lanes of traffic would be crossed. The speed limit of the roadway is unposted so it is presumed to be 25 mph. The ADT of Gest Street is approximately 7,200 vehicles per day. A high visibility cross walk should be provided to mark the crossing location with trail crossing signs. Additional measures such as active warning devices or pedestrian beacons may not be needed since the speed limit is less than 40 mph, the roadway has fewer than four lanes, and the ADT is less than 12,000 vehicles per day.²

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²OKI Traffic Counts, 2009

²AASHTO Guide for the Development of Bicycle Facilities, Chapter 5: Design of Shared Use Paths, Section 5.3.2 Design of Mid-Block Crossings.

²CAGIS
CONSTRAINTS AND OBSERVATIONS

General: Trail Location & Width
There is an existing 12’ wide sidewalk along the north side of Gest Street. This sidewalk could be utilized as the trail but it would not meet all of the standard design criteria since it would not have a minimum five foot buffer from the roadway. There are also utility poles and signs adjacent to the roadway reducing the effective width of the sidewalk to less than 10 feet.

The property north of Gest Street is publicly owned (Cincinnati) between Evans Street and Woodrow Street. There is sufficient width in this block to widen the existing sidewalk or replace it with an asphalt path with a five foot minimum buffer from the roadway.

A5: Private Property and Parking Impacts
Between Woodrow Street and Summer Street, the property north of Gest Street is privately owned by The Kroger Grocery & Baking Company. The lot is currently undeveloped and used for parking. Any widening of the sidewalk or reconstruction with a five foot buffer would require property acquisition.

SEGMENT DESCRIPTION
This segment will be a shared-use path along the north side of Gest Street.
ALTERNATIVE: A
SEGMENT A:3-4

Limits
Gest Street to north end of Summer Street

Adjacent Roadway
Summer Street

Length
1,000 ft.

Recommended Facility Type
Shared-Use Path along Roadway, Bicycle Lanes or Sharrows

SEGMENT DESCRIPTION
This segment will be a shared-use path along the east side of Summer Street.

CONSTRAINTS AND OBSERVATIONS

General: Corridor Dimensions
Summer Street is approximately 30 feet wide. The right of way width is 50 feet. There are sidewalks along both sides except at the north end of the corridor (see Constraint A6). The sidewalks are approximately four to five feet wide with a three to four foot buffer from the roadway. Parking is permitted intermittently along both sides of the roadway. Utility poles are located along the east side of the roadway. The ADT of this roadway is not available but expected to be very low. Truck percentage is also unknown but expected to be high because of commercial and industrial operations accessed from the north end of Summer Street. For the purposes of the preliminary engineering analysis an ADT of 500 vehicles per day and a truck percentage of 10% was assumed.

On-road or off-road facilities could be accommodated along this roadway with varying degrees of impacts.

On-Road Facilities: With pedestrians using the existing sidewalks, bicyclists could either be accommodated using sharrows or bicycle lanes. Bicycle lanes would require removing parking from the street and reassigning the roadway width to two-ten foot lanes and two-five foot bicycle lanes. With sharrows and on-street parking, the bicycle level of service is estimated to be C (moderately high). With bicycle lanes and no on-street parking, the level of service is estimated be B (very high).

Off-Road Facilities: Constructing a trail on one side of the roadway would require removing parking from the roadway, reducing the roadway width to 22 feet (two-eleven foot lanes). The eight feet removed from the roadway plus the existing three foot buffer and four foot sidewalk would provide a total of 15 feet where a ten foot trail could be constructed with a five foot buffer to the roadway. The west side of the roadway would have fewer utility impacts.
A6: Narrow Corridor, Private Property, Truck Activity, & Poor Visibility

At the north end of Summer Street, the roadway enters private property owned by DNGJR LLC and Bruce E. Roberts Trust. The corridor narrows to approximately 25 feet between the face of a building on the west side and MSD’s security fence on the east side. Large HVAC and electrical equipment is located approximately five feet behind the MSD fence. Sidewalks are discontinued in this area since it is outside the right of way. This portion of the roadway serves as an access driveway to several private commercial and industrial companies. Heavy truck traffic is common. The driveway turns westward immediately north of a building on the west side of the roadway. The building limits the visibility of vehicles approaching from around the corner.

The constraints present at the north end of Summer Street likely make it infeasible for a bicycle and pedestrian route within the existing roadway section. The available width may be inadequate to safely accommodate heavy truck traffic, bicyclists and pedestrians while also providing a buffer to the building and fence. There should be a minimum of five feet to the vertical faces of the building and the fence, leaving an effective width of 15 feet. The truck traffic would need nearly all of that space leaving nothing extra for a separated bicycle or pedestrian facility. Bicyclists and pedestrians likely cannot safely share the limited space with trucks because of the limited visibility around the building corner. Finally, because the land is privately owned, it may be difficult to acquire the necessary easements, particularly if the bicycle and pedestrian traffic would adversely affect the private operations.

On the east side of the MSD security fence there is an opportunity to provide access for trail users although it would not meet the normal trail criteria. There is an existing sidewalk between the fence and the MSD Administration building. The sidewalk is approximately seven feet in width. There are existing benches, utility pipes, and doorways that open out to the sidewalk. The project team has met with MSD and received preliminary approval to use this space to provide a link from Summer Street to Segment A:4-5 and around the constraints noted above. This space will need to be modified to allow public access through the MSD fence. Bicyclists will need to dismount and walk through this section. Appropriate signing and physical measures, such as a narrow chicane fence or similar gating feature may be needed to ensure bicyclists do walk through the space in lieu of riding.
SEGMENT A: 4-5

Limits
North end of Summer Street to North side of MSD

Adjacent Railroad
CSX

Length
1,840 ft.

Recommended Facility Type
Shared-Use Path

SEGMENT DESCRIPTION
This segment will be a shared-use path along the east side of the active CSX railroad and the west border of MSD.

CONSTRAINTS AND OBSERVATIONS

General: Proximity to Active Railroad and Use of Railroad Property
The CSX Railroad is active within this segment with service to S&B Industries located along the west side of the tracks. The trail will need to parallel the rail line throughout most of this segment. CSX requests that the trail be a minimum of 25 feet from the railroad. Except as noted in the constraints below, the minimum offset can be met. Because of the constraints noted below, the trail will need to be partially or fully on the railroad property in some locations.

A7: Utility Equipment / Private Parking Impacts
An existing utility box (possibly an electric transformer) is located less than 9 feet from the parking area/driveway for the commercial business to the south (DNGJR, LLC). The box is likely immovable so the trail may need to shift southward into the private parking area.

A8: Parking Lot Impacts
The available width between the existing MSD parking lot and the parking area/driveway for the commercial business to the south (DNGJR, LLC) is approximately 9 feet. A twenty foot space between parking areas would be ideal to provide a ten foot path with a five foot buffer to the parking areas on either side. One or both parking areas may need to be reduced to accommodate the trail and the buffers. This may impact three parking spaces on the MSD parking lot or a reduction in driveway width on the private lot.
A9: Parking Lot Impacts / Railroad Proximity / Trail Width
At the north end of the MSD parking lot, the width between the parking area and the railroad tracks narrows to approximately 38 feet. The trail should be located 27 feet from the rail (25 feet to a fence + 2 foot fence buffer), leaving 11 feet for the trail and a parking lot buffer. The trail or buffer spaces may need to narrow in this area to maintain the required offset from the railroad or the parking lot could be reconfigured.

A10: Railroad Proximity / MSD Facility Proximity / Railroad Property
The limits of this constraint are from A9 to the end of the segment. Immediately north of the parking area noted in A9, the corridor becomes constrained by MSD facilities on the east and the CSX track on the west. MSD has multiple buildings, equipment, parking lots and storage areas located immediately adjacent to their western border. The border is lined by a security fence which is located 36 to 39 feet from the CSX track. To avoid conflicts with the MSD facilities, the trail could enter CSX property north of A9 and follow the western side of the MSD fence. In most locations, the trail can maintain a minimum offset of 25 feet from the track, however the trail width may need to be reduced to 8 feet to meet the offset requirement. The trail would likely have fencing along both sides for security of the MSD and CSX facilities. This may create a long, narrow, and enclosed corridor that could be intimidating to trail users. The length of fencing on both sides would be approximately 1,500 feet (0.3 miles).

An easement and use agreement from CSX will be required.
ALTERNATIVE: A

SEGMENT A: 5-6

Limits
North side of MSD to State Avenue near Intersection with Harrison Avenue

Adjacent Railroad
Inactive CSX

Length
3,150 ft.

Recommended Facility Type
Shared-Use Path

SEGMENT DESCRIPTION
This segment would be along the inactive CSX corridor immediately north of MSD. The existing rails would be removed to accommodate the trail.

CONSTRAINTS AND OBSERVATIONS

General: Railroad Property
An easement and use agreement from CSX will be required. CSX may require environmental analyses and potential cleanup at certain locations.

Engineer’s Estimate of Cost

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SEGMENT B: 3-9

Limits
Evans Street to State Avenue

Adjacent Roadway
Gest Street

Length
1,200 ft.

Recommended Facility Type
Bicycle Lanes with Sidewalk

SEGMENT DESCRIPTION
Bicycle facilities would be on-road within this segment while pedestrians would use the existing sidewalks. The existing bicycle lanes on Gest Street, which currently end at Woodrow Street would be extended to State Avenue.

CONSTRAINTS AND OBSERVATIONS

General: Corridor Width
West of Summer Street, existing buildings on the north and south sides of Gest Street limit the opportunity to continue a shared use path along the roadway as recommended for segment A:2-3. The existing sidewalk width is approximately 10 to 12 feet from the curb to the face of building. Utility poles, railroad warning devices, and trees are located immediately adjacent to the roadway. Multiple doorways and garages open onto the sidewalk. Bicycle lanes are recommended for this segment because of these constraints, the available roadway width of 36 feet, and the presence of an existing bicycle lane to the east.

General: Bicycle Level of Service
The bicycle level of service for a bicycle lane on Gest Street is estimated to be B (Very High) using the FHWA Bicycle Compatibility Index and Level of Service Computation spreadsheet. The following information was used to make the computation:

- The roadway width of 36 feet can accommodate two twelve foot lanes and two six foot bicycle lanes.
- The speed limit is unposted so it is likely 25 mph by default.
- The ADT of the roadway was 7208 in 2009\(^5\).
- The percentage of large trucks is not known, however it is assumed to be 1.5% based on guidance from FHWA\(^6\).
- Parking is not permitted along the roadway.

\(^5\)OKI Traffic Counts
\(^6\)FHWA Bicycle Compatibility Index: A Level of Service Concept, Implementation Manual, FHWA-RD-98-095, Table 4. Recommended truck percentages by functional classification for streets where such information is not available.
SEGMENT DESCRIPTION

The existing roadway width varies from 36 feet to 40 feet and includes one 10 foot lane in each direction with 8 foot parking lanes on both sides. The existing width from the curb to the right of way varies widely throughout the corridor. Sidewalk widths vary from 4 feet with a 2 foot tree lawn to 12’ without a tree lawn.

The following general constraints are present throughout the corridor:

- Parking is permitted on both sides of the roadway.
- Utility poles and fire hydrants are present on both sides of the roadway near the curb.
- Retaining walls are present intermittently on both sides of the roadway at the back of walk.
- Catch basins are located throughout the corridor to collect storm water at the curb.
- Houses and commercial buildings are located immediately at the back of walk or within a few feet.

State Avenue is classified as a minor arterial7 and has a traffic volume between 6,000 and 12,000 vehicles per day.8 The roadway is owned and maintained by Hamilton County9. The speed limit is 35 mph. Truck percentage is estimated to be 2%.10 The corridor is a Metro bus route.

The Mill Creek Trail in this segment could be accommodated by three different types of facilities. Two potential types would have bicycle traffic on-road with pedestrians using the existing sidewalk. The third facility type would reconstruct the existing sidewalk as a shared use path. The roadway could be reconfigured as shown below to accommodate bicycle traffic in a two-way cycle track on the east side of the roadway. Each of these potential facility types will be analyzed separately on the following pages.

---

7ODOT Transportation Information Mapping System (TIMS)
8OKI Traffic Counts (6,540 vpd near Ernst Street, 2009) & ODOT Transportation Information Mapping System (11,784 near Saratoga Street, 2013)
9ODOT Transportation Information Mapping System (TIMS)
10FHWA Bicycle Compatibility Index: A Level of Service Concept, Implementation Manual, FHWA-RD-98-095, Table 4. Recommended truck percentages by functional classification for streets where such information is not available.
**Shared Lane with Sidewalk and Parking**
In this scenario, bicyclists would share the existing roadway with motorists while pedestrians would use the existing sidewalk. Shared lane markings (sharrows) would be painted on the roadway to alert motorists to the presence of bicyclists on the roadway and to help indicate a bicyclist's proper position on the street. The roadway configuration could be as shown below:

![Shared Lane Diagram](image-url)

**CONSTRAINTS AND OBSERVATIONS**

**General: Bicycle Level of Service**
The estimated bicycle level of service for a shared lane within this segment would be between D (Moderately Low) and E (Very Low) depending on traffic volume. Casual bicyclists and children are unlikely to use this facility.

**General: Feasibility of Implementation**
This option would be very feasible to implement since it would not impact parking or have any conflicts with the existing constraints noted above. The cost to implement would also be relatively inexpensive since it only involves painting shared lane markings on the roadway.

**Shared Use Path Along Roadway**
This option would eliminate parking along the east side of State Avenue and widen the existing sidewalk to accommodate a shared use path with a buffer to the roadway. The roadway configuration could be as shown below:

![Shared Use Path Diagram](image-url)

**CONSTRAINTS AND OBSERVATIONS**

**General: Utility and Storm Impacts**
This option would impact nearly 50 utility poles along the east side of State Avenue. Approximately 23 catch basins would have to be relocated. Four fire hydrants would be impacted.
**General: Parking Removal**

Parking on the east side of State Avenue would be removed. A parking study may need to be completed to estimate the impact to residents and businesses along the corridor.

**General: Parking Lane Width**

The width of the parking lane would be seven feet. This is a narrow width for a parking lane and may impact the safety of parked vehicles.

**General: Feasibility of Implementation**

This option would be expensive to implement because of the number of utility and storm relocations in addition to the construction of the path. In addition, approval to remove the parking lane on the east side may be difficult to obtain.

**Two-Way Cycle Track with Sidewalk**

State Avenue would be reconfigured with a two-way cycle track on the east side for bicycle traffic. Two-Way Cycle Tracks have a limited application on many roadways because one direction of the bicycle traffic opposes the adjacent motor vehicle traffic. This can result in conflicts at driveways and side streets where turning vehicles may not anticipate opposing bicycle traffic. The east side of State Avenue is, however, an ideal candidate (nice!) for such a facility because there are very few driveways and side streets to cross. The two side streets (West Liberty Street and Saratoga Street) are very low volume roads only serving a few houses. The roadway configuration would be as shown below:

![Roadway Configuration Diagram](image)

**CONSTRAINTS AND OBSERVATIONS**

**General: Travel Lane Width**

The width of the travel lane is nine feet. Nine foot travel lanes exist on many roadways but may not be appropriate for State Avenue. The roadway’s classification as a minor arterial limits the minimum design lane width to 11 feet for design speeds less than 50 mph.

**General: Parking Removal**

Parking on the east side of State Avenue would be removed with a two-way cycle track. A parking study may need to be completed to estimate the impact to residents and businesses along the corridor.

**General: Parking Lane Width**

The width of the parking lane would be seven feet. This is a narrow width for a parking lane and may impact the safety of parked vehicles.

**General: Feasibility of Implementation**

This option would not be difficult or expensive to implement from a construction standpoint. However, since the width of the travel lanes do not meet minimum design criteria, approval from the maintaining agency may be difficult to obtain. Further, approval to remove the parking lane on the east side may also be challenging.

**ALTERNATIVE: B**

**Engineer’s Estimate of Cost**

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SEGMENT A: 2-4

Limits
Gest Street to North End of Summer Street

Adjacent Roadway
Evans Street & Hopkins Street

Length
1,400 ft.

Recommended Facility Type
Shared Use Path Along Roadway

SEGMENT DESCRIPTION
This segment would create a shared use path along Evans Street and Hopkins Street by converting the roadways to one-way and using the other side of the roadway for the shared use path. At the west end of Hopkins Street, the trail would turn north and enter MSD property. The trail would go through an existing parking area and then connect with Alternative A at the north end of Summer Street.

CONSTRAINTS AND OBSERVATIONS

C1: One-Way Street
Evans Street would be converted to one-way north bound, Hopkins Street would be one-way west bound and Woodrow Street would be one-way south bound. All in-bound traffic to MSD would use Evans Street while out-bound traffic would use Woodrow Street. The other lane of traffic would be converted to a shared use path. Approval to make these operational changes would need to be obtained from the City of Cincinnati and MSD.

C2: Entrance to MSD Secure Area
The MSD security fence currently runs along the north side of Hopkins Street and joins to the north side of the main administration building. The trail would need to go through this fenced area to run along the north side of the administration building. Further discussion with MSD officials will be needed to determine how this can be accomplished without compromising security.

C3: Parking Lot Impacts
The trail would traverse the south side of an existing parking lot. The circulation roadway along the north side of the administration building may need to be relocated northward to accommodate the trail. This may result in the loss of approximately 10 parking spaces.
**ALTERNATIVE: C**

**Engineer’s Estimate of Cost**

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This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
MILL CREEK CORRIDOR RECOMMENDED ALIGNMENT

CONNECTING MILL CREEK TO UPTOWN

The connection between the Mill Creek Greenway Trail and Uptown will utilize existing and proposed bicycle facilities along Ludlow Ave, Central Parkway, and Martin Luther King. Approximately 320lf of Old Ludlow Ave will connect the existing Mill Creek Greenway Trailhead located along William P. Dooley Bypass with the existing bike lanes on Ludlow Avenue. From there the trail will remain on-road until it connects with a new sidepath being built by the City of Cincinnati. The sidepath will start at Monmouth Ave and run along the west side of Central Parkway and will continue east along the north side of Martin Luther King Drive. The sidepath, under construction at the time of this report, will ultimately connect to the existing sidepath near the University of Cincinnati. The following map illustrates how the connections are made and the partners included.
3.4
UPTOWN NORTH CONNECTION
BICYCLE LEVEL OF SERVICE

Portions of the trail route will use on-street bicycle facilities in this corridor. The existing street network was analyzed to estimate the existing Bicycle Level of Service (Figure 1.0). The lane configurations, parking use and overall street dimensions were then analyzed for each street to estimate the potential for adding bicycle lanes by one of the following options:

- Reduce motor vehicle lane widths
- Reduce number of motor vehicle lanes
- Eliminate on-street parking from one side of the street
- Eliminate on-street parking from both sides of the street
- Convert two-way street to one-way with parking on both sides
- Convert two-way streets to one-way with parking on one side

Figure 1.1 shows the potential changes that can be made to streets along this route to accommodate bicycle lanes. The improved Bicycle Level of Service is shown in Figure 1.2

Note: The data used for the Bicycle Level of Service analysis was obtained from readily available on-line sources. The data has not been field verified. Street widths were obtained from CAGIS data. ADT was obtained from OKI’s online traffic count data for the major collectors. ADT data for local streets was estimated using engineering judgment. Parking occupancy was estimated to be 50%. Truck percentage was estimated based on guidance from FHWA in their Bicycle Compatibility Index Guide, Table 4.

The scope for this study did not allow for a complete analysis of traffic and parking to estimate the impacts associated with the options above. The analysis contained herein is only a preliminary assessment of the potential for adding on-street bicycle facilities based on the physical dimensions of the roadways. Full traffic and parking analyses will need to be completed prior to implementation of the options presented in this report.
**CINCINNATI CONNECTS**

**UPTOWN NORTH - METHODS TO ACCOMMODATE BICYCLE FACILITIES**

**MAP LEGEND**
- **Green** - Eliminate Parking one side
- **Orange** - Eliminate Parking one side
- **Yellow** - Reduce travel lanes
- **Red** - Maintain parking both sides
- **Gray** - Convert to one way
- **Blue** - Eliminate Parking both sides
- **Blue** - Minor widening
- **Goldenrod** - Shared Lane
- **No roadway changes**

**Project Partners:**
- Groundwork Cincinnati-Mill Creek
- AECOM
- City of Cincinnati
- Human Nature, Inc.
- Interact for Health
- Kolar Design
- Little Duck Creek Trail
- Ohio River Trail - Oasis Line
- Ohio River Trail (Riverfront Parks)
- Ohio River Trail West
- Queen City Bike
- Tri-State Trails
- Wessman Way

This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.

**FIGURE 1.2**

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**CINCINNATI CONNECTS**

**UPTOWN NORTH - PROPOSED BICYCLE LEVEL OF SERVICE**

**MAP LEGEND**
- **Green** - A - Extremely High
- **Yellow** - B - Very High
- **Orange** - C - Moderately High
- **Blue** - D - Moderately Low
- **Gray** - E - Very Low
- **Red** - F - Extremely Low
- **Goldenrod** - Shared Use Path Connection

**Project Partners:**
- Groundwork Cincinnati-Mill Creek
- AECOM
- City of Cincinnati
- Human Nature, Inc.
- Interact for Health
- Kolar Design
- Little Duck Creek Trail
- Ohio River Trail - Oasis Line
- Ohio River Trail (Riverfront Parks)
- Ohio River Trail West
- Queen City Bike
- Tri-State Trails
- Wessman Way

This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.

**FIGURE 1.3**
**SEGMENT DESCRIPTION**

This segment will be a shared-use path beginning at the existing shared use path along the north side of Martin Luther King proceeding northward along the west side of Vine Street and a short distance along the north side of Nixon Street to connect with Glendora Avenue.

**LIMITS:**
Martin Luther King Drive to Glendora Avenue

**ADJACENT ROADWAY:**
Vine Street & Nixon Street

**LENGTH:**
1,100 ft

**RECOMMENDED FACILITY TYPE:**
SU2: Shared-Use Path along Roadway

**CONSTRAINTS AND OBSERVATIONS**

**General: Trail Width Along Vine Street**
There is an existing 8 foot wide sidewalk along the west side of Vine Street with a 5 foot buffer to the roadway. This path width may suffice in the short term although the minimum trail width should be 10 feet. The path could be widened to 10 feet in the future. There is ample green space adjacent to the existing path to widen the path or even construct a new trail with a greater buffer from the roadway.

**General: Property Acquisition**
Widening the trail along Vine Street may require acquiring a small strip of right of way from the adjacent property. The property is publicly owned by the United States of America and is occupied by the Environmental Protection Agency.

**General: Property North Side of Nixon Street**
The property needed for the trail on the north side of Nixon Street is entirely within the public right of way.

**A1: Crossing Nixon Street**
The shared use path can utilize the existing crosswalk for Nixon Street at Vine Street. There may be limited visibility to path users approaching the north side of the intersection from Glendora Avenue because of an existing building at the corner. Restricting right turns on red may mitigate this concern but a traffic analysis may be required to estimate the impacts to the signal level of service.

**A2: Grade Change**
Glendora Avenue is approximately 8 feet lower than Nixon Street. The path will need to traverse the hillside along Nixon Street for approximately 160 feet at a 5% grade. Approximately 200 feet is available.
SEGMENT DESCRIPTION

The route will follow existing Glendora Avenue with bicyclists sharing the roadway with motor vehicle traffic and pedestrians using the existing sidewalks.

CONSTRAINTS AND OBSERVATIONS

General: Bicycle Accommodations

The existing roadway width is approximately 30 feet. Parking is currently allowed on both sides of the street and demand appears to be high based on observations. The roadway dead ends just north of Nixon Street where there is a grade difference of approximately 8 feet so conversion to one-way is not an option. These existing constraints limit the type of bicycle facility that can currently be accommodated to shared lanes. The bicycle level of service for shared lanes on this street is estimated to be D, moderately low.

General: Future Plans

There is potential for the land adjacent to this segment to be developed in the future. There are approximately 100 parcels that are surrounded by commercial development. A sampling of the property owners shows that many are rental properties with 40% owned by one entity. If the land is developed in the future, there would be an opportunity to continue a shared use path through this segment.
SEGMENT A: 3-4

SEGMENT DESCRIPTION
Beginning along the east side of the entrance to the zoo parking lots, this segment would go through existing green space between the zoo parking area and Vine Street, ending opposite of Erkenbrecher Avenue.

Limits:
Shields Street to Erkenbrecher Avenue

Adjacent Roadway:
Vine Street

Length:
550 ft.

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

CONSTRAINTS AND OBSERVATIONS

General: Property Acquisition or Easement
The property is owned by the Cincinnati Zoo. An acquisition, easement or other agreement will be needed with the zoo to use the property.
SEGMENT DESCRIPTION
This segment will replace the existing along the southern and eastern edges of the Cincinnati Zoo with a shared use path. The shared use path could be constructed by widening to the outside of the existing sidewalk or by removing pavement from Erkenbrecher and Dury Avenues.

CONTRAINTS AND OBSERVATIONS

General: Topography
From Vine Street to approximately midway along Erkenbrecher Avenue, the ground slopes upward near the back of the existing walk. The existing sidewalk is approximately six feet wide with no buffer to the roadway. Widening to the north to accommodate a shared use path may require a retaining wall.

General: Zoo Security Fence & Gates
The existing security fence surrounding the zoo is approximately 12 to 13 feet from the edge of roadway. The fence would need to be relocated if a shared use path is constructed by widening to the outside of the existing sidewalk. This may also impact three vehicular automatic gates and one pedestrian gate.

General: Zoo Landscaping
Widening to the outside of the existing sidewalk to accommodate a shared use path would impact zoo landscaping along the entire length of this segment.

General: Erkenbrecher Avenue Median
There is approximately 9 feet of median pavement striped as a center turn lane. This width could be repurposed by narrowing the roadway to accommodate a shared use path on the north side of the road without widening to the north. A traffic study may be needed to estimate the impact of removing the turn lane to Dury Avenue.
**General: Dury Avenue**

Dury Avenue is approximately 36 feet wide with parking permitted on both sides of the street. If parking is restricted on the west side, approximately 8 feet of pavement could be removed to accommodate a shared use path on the west side of the road. There is approximately 10 to 15 feet of available width from the existing curb to the right of way line. Combined with the 8 feet of pavement removal, there would be 18 to 23 feet of space available for a shared use path which is sufficient to meet the criteria of a 10 foot path with a 5 foot buffer to the roadway.

**General: Utility Impacts**

Constructing a shared use path by removing 9 feet of median pavement on Erkenbrecher Avenue may impact three utility poles. Five storm sewer catch basins may need to be relocated.

Constructing a shared use path by removing 8 feet of existing pavement from Dury Avenue on the west side would require relocation of six utility poles. One storm catch basin may need to be relocated. Alternatively, removing the pavement on the east side of Dury and constructing the path on that side would not require the relocation of any utility poles. One fire hydrant and one catch basin would need to be relocated on that side.

**A3: Vine Street Crossing**

The trail will cross Vine Street at the existing crosswalk and signal.

**A4: Utility Box**

A concrete utility box sits a few feet above grade immediately behind the walk at this location. The box would need to be relocated if a shared use path is constructed by widening to the north.

**A5: Utility Cabinet**

A utility cabinet located on the west side of Dury Avenue opposite Hearne Avenue may need to be relocated if pavement is removed on the west side of Dury to accommodate a shared use path.

**Alternative:**

In lieu of constructing a shared use path along the southern and eastern edges of the zoo property, bicycle lanes could be added to both Erkenbrecher Avenue and Dury Avenue. On Erkenbrecher Avenue currently has sufficient width from Vine Street to Dury Avenue to add bicycle lanes in both directions by removing the center turn lane. On Dury Avenue, bicycle lanes could be added by eliminating parking on both sides of the road.
SEGMENT A DESCRIPTION
This segment of the route would be on-road for bicycle travel while pedestrians would use the existing sidewalks. Bicycle lanes in both directions would be constructed on Northern Avenue by converting the existing two-way street to one-way eastbound and eliminating parking on one side of the roadway. The bicycle lanes would be two-way with the westbound direction contra-flow to the motor vehicle traffic.

CONSTRAINTS AND OBSERVATIONS

General: Parking Side
The north side of the roadway has fewer homes and would be the most likely side to eliminate parking.

Limits:
Dury Avenue to Burnet Avenue

Adjacent Roadway:
Northern Avenue

Length:
1,600 ft.

Recommended Facility Type:
BL6: Two-Way Bicycle Lanes on One-Way Street with Sidewalk, Parking One Side

Image Source: Google Maps, 2015

Northern Avenue facing east
SEGMENT DESCRIPTION

This segment of the route would be on-road for bicycle travel while pedestrians would use the existing sidewalks. Bicycle lanes in both directions would be constructed on Northern Avenue by converting the existing two-way street to one-way eastbound and eliminating parking on one side of the roadway. The bicycle lanes would be two-way with the westbound direction contra-flow to the motor vehicle traffic.

CONSTRATNAND OBSERVATIONS

General: Traffic Study

The ADT of this segment of roadway is unknown but estimated to be in the range of 5,000 vehicles per day. Two travel lanes could accommodate ADT of 20,000 vehicles per day or more. There are turn lanes at the ends of this segment which may account for the added width throughout. These turn lanes would be removed by the addition of a bicycle lane unless roadway widening for the turn lanes is required by the traffic study.
SEGMENT DESCRIPTION
This short segment would connect Northern Avenue with Prospect Place via Harvey Avenue. Bicycle lanes would not be a good facility for this segment because of the need to make an immediate left turn from Harvey onto either Northern Avenue or Prospect Place. Shared Lane Markings can be used on the roadway to indicate the intended route. Parking would be eliminated on both sides of the street within this short segment.

CONSTRANITS AND OBSERVATIONS

General: Parking
Parking is currently permitted on both sides of the street. The existing BLOS is D because the existing lanes are approximately 9.3 feet to accommodate the parking lanes. If the parking lanes are eliminated, the lane widths can increase to 14.7' which improves the BLOS to C.
SEGMENT DESCRIPTION
Prospect Place would be converted from two-way to one-way eastbound with parking restricted to one side to accommodate bicycle lanes in both directions. One bicycle lane would be contra-flow to the motor vehicle traffic.

LIMITS:
Harvey Avenue to Knott Street

ADJACENT ROADWAY:
Prospect Place

LENGTH:
1,000 ft.

RECOMMENDED FACILITY TYPE:
BL6: Two-Way Bicycle Lanes on One-Way Street With Sidewalk, Parking One-Side

CONSTRAINTS AND OBSERVATIONS

GENERAL: PARKING
Parking is currently permitted on both sides of the street. The existing BLOS is D because the existing lanes are approximately 9.3 feet to accommodate the parking lanes. If the parking lanes are eliminated, the lane widths can increase to 14.7’ which improves the BLOS to C.
SEGMENT DESCRIPTION
Motor vehicle traffic would remain two-way in this segment but parking would be eliminated on one side to accommodate bicycle lanes in both directions. The existing roadway may need to be widened by one foot to meet the minimum lane dimensions.

Limits:
Knott Street to Reading Road

Adjacent Roadway:
Prospect Place

Length:
750 ft.

Recommended Facility Type:
BL2: Bicycle Lanes with Sidewalk & Parking

CONSTRAINTS AND OBSERVATIONS

General: Widening Side
Widening should be to the south side of the roadway since there are few if any utility impacts.

General: Parking
Parking could be eliminated from the north side of the roadway since .

General: Bus Route
This segment of Prospect Place is part of a Metro Bus Route.

General: South Avondale School
Directly adjacent to the route is South Avondale School which provides a unique opportunity to include Safe Routes to Schools.

Image Source: Google Maps, 2015

Prospect Place at South Avondale School facing east
**SEGMENT DESCRIPTION**
This short segment would connect Prospect Place to Cleveland Avenue via a shared use path along the east side of Reading Road.

**CONSTRAINTS AND OBSERVATIONS**

**General: New Development East Side of Reading Road & Acquisition**
The existing site on the east side of Reading Road is undeveloped. For the purposes of this study, it is assumed that any new development will be far enough from Reading Road to accommodate a shared use path along the east side. The property is owned by the Cincinnati Urban League. Early coordination with the Urban League is recommended. Property acquisition from the Urban League may be needed to accommodate the path.

**A6: Crossing Reading Road**
The bicycle lanes should cross Reading Road at Prospect Place as if the roadway continued on the opposite side. The bicycle lanes would then join the shared use path. The traffic signal will need to be modified to accommodate what would be a through phase for the bicycle traffic.

**A7: Crossing Cleveland Avenue**
Bicyclists traveling eastbound will need to cross Cleveland Avenue to join the bicycle lane on the south side of the roadway. A high visibility crosswalk will need to be painted for the crossing.
SEGMENT DESCRIPTION
Motor vehicle traffic would remain two-way in this segment but parking would be eliminated on one side to accommodate bicycle lanes in both directions.

Limits:
Reading Road to Ridgeway Avenue

Adjacent Roadway:
Cleveland Avenue

Length:
1,600 ft.

Recommended Facility Type:
BL2: Bicycle Lanes with Sidewalk & Parking

CONSTRAINTS AND OBSERVATIONS

General: Parking
Parking could be eliminated from the south side of the roadway since there are fewer homes on that side.
**ALTERNATIVE: A**

**SEGMENT A: 12-13**

**SEGMENT DESCRIPTION**
Bicycle lanes would be constructed along this segment by converting the existing two-way roadway to one-way northbound and eliminating parking from one side of the roadway. Bicycle lanes would be two-way with one direction contra-flow to the motor vehicle traffic.

**Limits:**
Cleveland Avenue to Blair Court

**Adjacent Roadway:**
Ridgeway Avenue

**Length:**
450 ft.

**Recommended Facility Type:**
BL6: Two-Way Bicycle Lanes on One-Way Street With Sidewalk, Parking One Side

**CONSTRAINTS AND OBSERVATIONS**

**General: Parking Side**
Parking could be eliminated from the west side of the roadway since there are no homes on that side.
### SEGMENT DESCRIPTION

This short segment of roadway would connect the on-road system of bicycle lanes to the Wasson Way Trail. The existing roadway dimensions are not wide enough to accommodate any dedicated bicycle facilities but there only three buildings on the street so ADT is very low. Painted shared lane markings may be sufficient to indicate the intended route of the trail system.

### Engineer’s Estimate of Cost

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SEGMENT DESCRIPTION

This segment would continue the shared use path of Segment A:4-5 along the western side of Dury Avenue. The shared use path could be constructed by widening to the outside of the existing sidewalk or by removing pavement from Dury Avenue.

LIMITS:
Northern Avenue to Rockdale Avenue

ADJACENT ROADWAY:
Dury Avenue

LENGTH:
1,900 ft.

RECOMMENDED FACILITY TYPE:
SU2: Shared Use Path Along Roadway

CONSTRAINTS AND OBSERVATIONS

GENERAL: ZOO SECURITY FENCE & GATES
The existing security fence surrounding the zoo is approximately 12 to 13 feet from the edge of roadway. The fence would need to be relocated if a shared use path is constructed by widening to the outside of the existing sidewalk. This may also impact one vehicular automatic gate.

GENERAL: ZOO LANDSCAPING
Widening to the outside of the existing sidewalk to accommodate a shared use path would impact zoo landscaping along the entire length of this segment.

GENERAL: RETAINING WALL
There is a retaining wall located a few feet behind the security fence. The elevation drops west of the retaining wall. The zoo is currently utilizing the space for a new exhibit (this is the former main parking entrance).

If a shared use path is constructed by widening to the outside of the existing sidewalk, the existing retaining wall may be impacted.

GENERAL: DURY AVENUE
Dury Avenue is approximately 36 feet wide with parking permitted on both sides of the street. If parking is restricted on the west side, approximately 8 feet of pavement could be removed to accommodate a shared use path on the west side of the road. There is approximately 10 feet...
to 15 feet of available width from the existing curb to the right of way line. Combined with the 8 feet of pavement removal, there would be 18 to 23 feet of space available for a shared use path which is sufficient to meet the criteria of a 10 foot path with a 5 foot buffer to the roadway.

**General: Utility Impacts**

Constructing a shared use path by removing 8 feet of existing pavement from Dury Avenue on the west side would require relocation of five utility poles. Three storm catch basin may need to be relocated. Alternatively, removing the pavement on the east side of Dury and constructing the path on that side would not require the relocation of any utility poles. One fire hydrant and three catch basins would need to be relocated on that side.

**Alternative:**

In lieu of constructing a shared use path along Dury Avenue, bicycle lanes could be added to Dury Avenue by eliminating parking on both sides of the road. There are no homes along this segment. The zoo owns both sides of the roadway. The east side is a parking lot.
ALTERNATIVE: B
SEGMENT B: 15-16

SEGMENT DESCRIPTION
Rockdale would be converted from two-way to one-way westbound to accommodate two-way bicycle lanes. From Dury Avenue to Wilson Avenue parking would be restricted to one side. From Wilson Avenue to Burnet Avenue, parking would be maintained on both sides.

CONSTRAINTS AND OBSERVATIONS

General: Parking
From Dury Avenue to Wilson Avenue there are no homes fronting along the south side of the street. Parking could be eliminated from this side.

General: Bus Route
This segment is part of a Metro Bus Route. The conversion to one-way would may impact the route.

General: Rockdale Academy
The conversion to one-way could impact operations at Rockdale Academy. Coordination with the school should be made before implementation.

Limits:
Dury Avenue to Burnet Avenue

Adjacent Roadway:
Rockdale Avenue

Length:
1,600 ft.

Recommended Facility Type:
BL6: Two-Way Bicycle Lanes on One-Way Street with Sidewalk, Parking One Side (Dury-Wilson)
BL5: Two-Way Bicycle Lanes on One-Way Street with Sidewalk, Parking Both Sides (Wilson-Burnet)

Image Source: Google Maps, 2015
Rockdale Avenue facing east
SEGMENT DESCRIPTION

Bicycle lanes would be added to Rockdale Avenue by eliminating parking from one side of the roadway. Two-way traffic would be maintained in this segment.

LIMITS:
Burnet Avenue to Reading Road

ADJACENT ROADWAY:
Rockdale Avenue

LENGTH:
2,400 ft.

RECOMMENDED FACILITY TYPE:
BL2: Bicycle Lanes With Sidewalk & Parking

CONSTRAINTS AND OBSERVATIONS

GENERAL: PARKING
There are fewer homes fronting the south side of the roadway. Parking could be eliminated from that side.

GENERAL: BUS ROUTE
This segment is part of a Metro Bus Route.
SEGMENT DESCRIPTION
A shared use path would be constructed the cul-de-sac at the east end of Rockdale Avenue to Prospect Place in the existing green space on the east side of South Avondale Elementary School.

CONSTRAINTS AND OBSERVATIONS

B1: Parking Impacts
The shared use path would likely impact the existing school parking lot at the corner of Reading Road and Prospect Place. Five parking spaces could be removed.

ALTERNATIVE: B
Engineer’s Estimate of Cost

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ALTERTATIVE: C
SEGMENT C: 4-18

SEGMENT DESCRIPTION

This segment would join Alternative A at the intersection of Vine Street and Erkenbrecher Avenue. The segment would be composed of bicycle lanes on Erkenbrecher Avenue with parking restricted to the one side of the street.

From Vine Street to Dury Avenue, the bicycle lanes can be added by removing the center turn lane. Parking is currently only permitted on the south side of the street.
From Dury Avenue to Wilson Avenue, bicycle lanes can be added by removing parking from one side of the street. Parking is currently permitted on both sides of the street.

CONSTRANTS AND OBSERVATIONS

General: Bus Route
This segment of Erkenbrecher Avenue is part of a Metro Bus Route.

C1: Vine Street Crossing
The bicycle lanes should begin on the west side of Vine Street and cross on both the north and south side of the intersection. The traffic signal would need to be modified to include the bicycle lanes as a through movement.

Limits:
Vine Street to Wilson Avenue

Adjacent Roadway:
Erkenbrecher Avenue

Length:
1,900 ft.

Recommended Facility Type:
BL2: Bicycle Lanes With Sidewalk & Parking

Image Source: Google Maps, 2015
Vine Street crossing facing south
**CONSTRAINTS AND OBSERVATIONS**

**General: Widening**
Erkenbrecher Avenue generally has two travel lanes with a center turn lane within this segment. The turn lane provides a left turn storage area for vehicles turning into Cincinnati Children's Hospital. For the purposes of this study, it is assumed that the center turn lane cannot be removed. Parking is permitted along the north side of the roadway and is likely needed by the homeowners on that side of the street. The existing roadway is approximately 40 feet wide but would need a minimum of 51 feet to accommodate bicycle lanes in both directions and meet the minimum lane width criteria for this roadway (a commercial major collector). Therefore, it is anticipated that a roadway widening of 9 feet would be needed within this segment.

The additional width could be obtained by widening to the south side of the roadway. This would impact landscaping and a curved concrete retaining wall along Children's Hospital. The retaining wall would have to be rebuilt and new retaining walls may be needed in the eastern portion of the segment. Two concrete staircases would also likely need to be rebuilt. One fire hydrant would be impacted.

Widening the north side may also be feasible on the western portion of this segment. Three utility poles would be affected. Widening to the north may not be feasible on the eastern end of the segment because of the proximity of an existing building.

**General: Bus Route**
This segment of Erkenbrecher Avenue is part of a Metro Bus Route.
**SEGMENT DESCRIPTION**

Bicycle lanes would be added to Erkenbrecher in this segment by reducing the number of travel lanes from five to three on the west end and from four to two on the east end. The eastbound right and left turn lanes would be combined into one lane.

**Limits:**
Burnet Avenue to Harvey Avenue

**Adjacent Roadway:**
Erkenbrecher Avenue

**Length:**
600 ft.

**Recommended Facility Type:**
BL2: Bicycle Lanes With Sidewalk & Parking
CONSTRAINTS AND OBSERVATIONS

General: Center Turn Lane
The center turn lane only has use at the south bound left turn to Maple Avenue and for a few miscellaneous driveways. Maple Avenue is estimated to have a low ADT. The turn lane may not be necessary. A traffic study will need to be completed to assess the impact.

OPTIONS

Bicycle Boulevards
The Uptown North Corridor could be implemented with features of bicycle boulevards to accompany the one-way street conversions. Items such as the following could be implemented to control traffic volumes and facility bicycle traffic through the corridor.

Where bicycle lanes enter one way streets in a contra-flow direction, the treatment in the image below could be used. This may be used at locations such as segment points 6, 9 & 15.

Where bicycle traffic has to negotiate an offset left turn, the following treatment could be used to help guide bicycle traffic. This could be used in Segment A:7-8.

One-Way Street Pairs
Alternatives A & B could be implemented as one-way pairs with bicycle lanes in one-direction instead of both directions. This would eliminate the contra-flow bicycle lanes along Rockdale Avenue, Northern Avenue and Prospect Place.

SEGMENT DESCRIPTION

Bicycle lanes would be added to Harvey Avenue in this segment by removing the center turn lane and eliminating parking on one side of the street. At Prospect Place the segment will join with Alternative A.

LIMITS:
Erkenbrecher Avenue to Prospect Place

ADJACENT ROADWAY:
Harvey Avenue

LENGTH:
550 ft.

RECOMMENDED FACILITY TYPE:
BL2: Bicycle Lanes With Sidewalk & Parking

ALTERTATIVE: C
## Engineer's Estimate of Cost

### ALTERNATIVE: C

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UPTOWN NORTH RECOMMENDED ALIGNMENT

FUTURE MARTIN LUTHER KING SIDEPATH
Included in Uptown Consortiums MLK Reading Corridor Study are improved pedestrian circulation strategies that are highlighted by 15’ wide pedestrian sidewalks on the north and south side of MLK. The sidepaths are intended to host active transportation options from I-71 to Vine Street. Additionally, the City of Cincinnati’s Department of Transportation and Engineering is looking at a strategy that puts a 15’ wide sidepath on just the north side of MLK. Regardless of the approach it is understood that the ultimate goal for the MLK corridor is to include off road bicycle facilities. Because of this, it is the recommendation of this report that a sidepath along MLK be installed.

The consultant team is also aware of the complexities of the MLK sidepath and therefore is providing on-road recommendations that could precede the MLK sidepath or become part of a braided network of trails within Uptown. The on-road recommendations can be seen in the following map:

CINCINNATI CONNECTS
UPTOWN - RECOMMENDED CONNECTIONS

MAP LEGEND
- Recommended Alignment (Sidepath on north side of MLK; MLK Reading Corridor Study)
- Recommended Alignment (Urban Trail connection to the neighborhoods, schools, and zoo)
- Proposed Wasson Way Trail
- Sidepath Connection (CDOT Plan; being constructed)
- UC Urban Trail Connection
- Alternative A (Uptown South - BLOS)
- Alternative B (Uptown South - BLOS)
- Wasson Way Connection

Project Partners:
Groundwork Cincinnati-Mill Creek
ACCOM
City of Cincinnati
Human Nature, Inc
Interact for Health
Kolar Design
Little Duck Creek Trail
Ohio River Trail - Oasis Line
Ohio River Trail (Riverfront Parks)
Ohio River Trail West
Queen City Bike
Tri-State Trails
Wasson Way

This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
3.5 UPTOWN SOUTH CONNECTION
SEGMENT A: 1-2

SEGMENT DESCRIPTION

This segment will be a shared-use path beginning at a proposed shared use path along the north side of Martin Luther King Jr. Blvd. The path will generally follow the I-71 right of way.

CONSTRAINTS AND OBSERVATIONS

A1: Grade Change and Potential Property Impacts

There is an approximately 20 foot difference in grade from Martin Luther King Jr. Blvd. to Van Buren Avenue. The change in grade will require a 400 foot descent at a grade of 5%. The descent will need to begin just west of Borrman Avenue to meet the elevation of Van Buren Avenue.

Property has been acquired on the north side of Martin Luther King Jr. Blvd. for a new interchange at I-71. It is not clear if there is sufficient width to accommodate the trail descent to Van Buren Avenue. Some additional acquisition may be needed from two properties on the west side of Van Buren Avenue.

A2: Van Buren Cul de Sac

Van Buren Avenue, which used to connect to Melish Avenue under I-71, will now connect west to Borman Ave just north of Martin Luther King Jr. Blvd. as part of the I-71 interchange project as shown on the right.

It is not clear if there is sufficient space for a trail between the cul de sac and a new ramp from I-71 southbound. Coordination with the on-going project may allow for the cul de sac to be shifted northward to provide sufficient space for a trail.

A3: Private Property

It is not clear if there is sufficient space to accommodate a trail within the new right of way acquired on the west side of I-71 for the interchange project (as indicated by the green line in the image above). Some additional property acquisition may be necessary from the adjacent owner, Norton Outdoor Advertising. The property is used for billboard advertising.
SEGMENT A: 2-3

SEGMENT DESCRIPTION
This segment will be a shared use path following the original Norfolk Southern Railroad Alignment.

Limits:
Wehrman Avenue to Wasson Way

Adjacent Roadway:
None – follows original Norfolk Southern Railroad Alignment

Length:
2,800 ft.

Recommended Facility Type:
SU2: Shared-Use Path on Independent Alignment

CONSTRAINTS AND OBSERVATIONS

A4: Crossing Wehrman Avenue
The trail will have a mid-block crossing of Wehrman Avenue near the current southern end of the road. The roadway is being extended across I-71 as part of the new interchange project. A high visibility crosswalk will be needed to mark the crossing location.

If space permits, the trail could cross under the new Wehrman Avenue bridge. The precise locations of the abutment and piers is not yet known. Coordination with the design-build team may allow for plan adjustments if needed to accommodate a trail under the bridge.

Image Source: Google Maps, 2015

A5: Public Property
The property needed for the trail between Wehrman Avenue and Whittier Street is publicly owned by the City of Cincinnati and the State of Ohio.

A6: Crossing Whittier Street
The trail will have a mid-block crossing of Whittier Street east of Wehrman Avenue. A high visibility crosswalk will be needed to mark the crossing location.

A7: Private Property
The original Norfolk Southern Railroad property is now privately owned between Whittier Street and Fredonia Avenue. The property is either undeveloped or partially occupied by a parking lot. An acquisition or easement will be needed from Varland Metal Service, Inc.
A8: Parking Lot and Fencing Impacts
The parking lot for Varland Metal Service, Inc. will need to be altered to accommodate the trail on the north side. The north side of the parking lot will need to be shifted southward by approximately 10 feet to make space for the trail. The alteration may affect approximately five parking spaces in the lot but there appears to be sufficient space within the west half of the existing lot to add additional parking. An existing security fence surrounding the parking lot will need to be relocated southward as well.

A9: Crossing Fredonia Avenue
The trail will have a mid-block crossing of Fredonia Avenue north of Melbourne Avenue. A high visibility crosswalk will be needed to mark the crossing location.

A10: Private Property
The original Norfolk Southern Railroad property is now privately owned east of Fredonia Avenue. Buildings encroach into the original railroad alignment but a sufficient width still remains to construct a trail. A building on the north side of the alignment is located approximately 15 feet from the southern boundary of the original railroad property. There is an additional 25 feet available from this boundary to the face of an adjacent building to the south. Aerial photos show various materials stockpiled on this space. The building on the north side of the alignment has a door on the east side which may be accessible only through the original railroad alignment. A security fence currently restricts access to the site. The fence would need to be relocated and public access provided between the two buildings. The original railroad property is currently owned by The Holthaus Partnership. An easement or acquisition will be needed from this owner. A strip of right of way will likely also be needed from the adjacent property to the south, which is owned by Melbourne of Cincinnati, LLC.

A11: SORTA Property
The original Norfolk Southern Railroad property is currently owned by the Southwest Ohio Regional Transit Authority from the eastern edge of the property noted in A10 to Blair Court.

### ALTERNATIVE: A

#### Engineer’s Estimate of Cost

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<td>TOTAL</td>
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ALTERNATIVE: B

Alternative B is an on-street alternative to connect the Wasson Way Trail to the University of Cincinnati. Segment A:2-3, an off-road alternative using the original Norfolk Southern Railroad alignment, could be used in lieu of the on-road Segment B:2-3 if possible.

This alternative will use on-street bicycle facilities. The existing street network was analyzed to estimate the existing Bicycle Level of Service (Figure xx). The lane configurations, parking use and overall street dimensions were then analyzed for each street to estimate the potential for adding bicycle lanes by one of the following options:

1. Eliminate on-street parking from one side of the street
2. Eliminate on-street parking from both sides of the street
3. Convert two-way street to one-way with parking on both sides
4. Convert two-way streets to one-way with parking on one side
5. Convert two-way streets to one-way with no parking
   a. Only where parking is currently restricted on both sides of the street

Figure xx shows the potential changes that can be made to streets along this route to accommodate bicycle lanes. The improved Bicycle Level of Service is shown in Figure xx.

Note: The data used for the Bicycle Level of Service analysis was obtained from readily available online sources. The data has not been field verified. Street widths were obtained from CAGIS data. ADT was obtained from OKI's online traffic count data for the major collectors. ADT data for local streets was estimated using engineering judgment. Parking occupancy was estimated to be 50%. Truck percentage was estimated based on guidance from FHWA in their Bicycle Compatibility Index Guide, Table 4.

The scope for this study did not allow for a complete analysis of traffic and parking to estimate the impacts associated with the options above. The analysis contained herein is only a preliminary assessment of the potential for adding on-street bicycle facilities based on the physical dimensions of the roadways. Full traffic and parking analyses will need to be completed prior to implementation of the options presented in this report.

CINCINNATI CONNECTS

MAP LEGEND

- A - Extremely High
- B - Very High
- C - Moderately High
- D - Moderately Low
- E - Very Low
- F - Extremely Low

Project Partners:
Groundwork Cincinnati-Mill Creek
AECOM
City of Cincinnati
Human Nature, Inc
Interact for Health
Kolar Design
Little Duck Creek Trail
Ohio River Trail - Oasis Line
Ohio River Trail (Riverfront Parks)
Ohio River Trail West
Queen City Bike
Tri-State Trails
Wasson Way

This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
SEGMENT DESCRIPTION

University Avenue/Lincoln Avenue and Daniels Street/Oak Street will be converted from existing two-way streets to one-way streets within the limits of this segment. The two streets will operate as one-way pairs with University Avenue/Lincoln Avenue westbound and Daniels Street/Oak Street eastbound. The additional lane of traffic will be converted to a bicycle lane. Parking will be maintained on both sides of the street except where it is currently restricted to one side or not permitted. Commons Way (also known as Alumni Way) on the University of Cincinnati campus will also be converted to one way southbound with a bicycle lane.

LIMITS:
University of Cincinnati to Stanton Avenue

ADJACENT ROADWAY:
University Avenue/Lincoln Avenue & Daniels Street/Oak Street

LENGTH:
6,000 ft.

RECOMMENDED FACILITY TYPE:
BL7: One-Way Street with One-Way Bicycle Lane

CONSTRAINTS AND OBSERVATIONS

A new traffic signal will likely be needed at the intersection of Daniels Street and Jefferson Avenue. Currently eastbound traffic from the university can use the existing signal at University Avenue to cross Jefferson but that won’t be available with the conversion to one-way.

B2: Offset Intersection
Daniels Street is offset from Oak Street by approximately 60 feet. A treatment like the one shown below may be needed to guide bicycle traffic through the intersection.
SEGMENT DESCRIPTION
This segment will connect the eastbound Oak Street bicycle lane with Lincoln Street. The bicycle lane will only be needed for the northbound direction. The bicycle lane will be added by removing parking from the west side of the roadway. This side has no residential development and the businesses appear to have off-street parking.

Limits:
Oak Street to Lincoln Avenue

Adjacent Roadway:
Stanton Avenue

Length:
1,100 ft.

Recommended Facility Type:
BL7: Two-Way Street with One-Way Bicycle Lane
SEGMENT DESCRIPTION

This segment will provide bicycle lanes on both sides of Stanton Avenue. From Lincoln Avenue to Melish Lane parking will be eliminated on both sides of the roadway. There are only two homes along this segment south of Beecher Street that use on-street parking. Parking for these homes could be provided on Beecher Street or other accommodations could be made to provide off-street parking. The remainder of the street appears to be commercial with off-street parking. From Melish Lane to Wehrman Avenue, parking can be maintained on one-side of the street however there are no homes or businesses within this stretch.

Limits:
Lincoln Avenue to Wehrman Avenue

Adjacent Roadway:
Stanton Avenue

Length:
1,200 ft.

Recommended Facility Type:
BL1: Bicycle Lanes with Sidewalk
SEGMENT DESCRIPTION

This segment will be on a new roadway and bridge being constructed as part of the new I-71/Martin Luther King Jr. Blvd. Interchange. Wehrman Avenue will be reconnected from the east to west side of the interstate. The exact roadway dimensions are not yet known. For the purposes of this study, it is assumed that the roadway and bridge will be wide enough to accommodate a bicycle lane in each direction and a sidewalk.

CONSTRAINTS AND OBSERVATIONS

B3: Coordination with I-71 Design Build Team

As noted above, the dimensions of the new roadway and bridge are not known. Coordination with the design-build team is needed to ensure the roadway will have sufficient width to accommodate a bicycle lane in each direction and a sidewalk. Alternatively, the roadway could also be designed with a shared use path on one side.

Limits:
Stanton Avenue to Wehrman Avenue (west side of I-71)

Adjacent Roadway:
Wehrman Avenue

Length:
500 ft.

Recommended Facility Type:
BL1: Bicycle Lanes with Sidewalk
SEGMENT DESCRIPTION

Bicycle travel will be entirely on-road within this segment with no dedicated bicycle facilities. The bicycle route will be marked with shared lane markings (Sharrows). The existing roadways within this segment are not wide enough to accommodate bicycle lanes. It’s unlikely that any of the streets can be converted to one-way because there is not a grid pattern to provide an opposite direction route. Further, Whittier Street may be the only access for the commercial businesses in this area with the removal of the Fredonia Avenue bridge over I-71. The bicycle level of service is between C and D within this segment. The alternative off-road alignment, Segment A:2-3, would be preferred for this segment but if the constraints cannot be resolved, the on-road segment may the only possible connection.

Limits:
Wehrman Avenue (west side of I-71) to Wasson Way

Adjacent Roadway:
Wehrman Avenue, Whittier Street, Fredonia Avenue, Ridgeway Avenue, Blair Court

Length:
500 ft.

Recommended Facility Type:
SL1: Shared Lane with Sidewalk
SL2: Shared Lane with Sidewalk & Parking

ALTERNATIVE: B

Engineer’s Estimate of Cost

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<td>B:6-7</td>
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3.6 MURRAY TRAIL CONNECTION
SEGMENT DESCRIPTION

This segment will continue the Murray Trail south along Red Bank Road to the Columbia Parkway ramps. The trail will cross from the west side of Red Bank Road to the east side at Woodland Road.

CONSTRAINTS AND OBSERVATIONS

A1: Major Highway Crossing

The trail will need to cross Red Bank Road at the intersection with Woodland Road.

Red Bank Road is five lanes wide in this location with two through lanes in each direction and a left turn lane. The roadway is curbed without shoulders. The crossing width is approximately 70 feet. The ADT of Red Bank Road was 15,062 vehicles per day in 2013. The speed limit is 35 mph and the roadway is classified as an urban principal arterial.

Woodland Road has two lanes with curbs. There is extra space striped with transverse markings on the north side of the road to accommodate the swing of a turning truck. The crossing width is approximately 40 feet. The ADT is not known but expected to be very low since the road only accesses about 20 homes on Old Red Bank Road. The speed limit is 25 mph.

The existing intersection is signalized but there are no existing crosswalks or pedestrian signals. Right turn on red is unrestricted. Left turns have both a protected and permitted phase.

The existing signal will need to be modified to include a pedestrian phase, pedestrian signal heads and pushbuttons to cross both Woodland Drive and Red Bank Road. The crosswalk should be designated with high visibility markings. Right turns on red should be prohibited for the movements that will cross the path. The permitted left turn from Red Bank northbound to Woodland westbound should also be prohibited during the opposing traffic green phase. Restricting these two movements will remove conflicts to the shared use path green phase. A traffic analysis will need to be performed to assess the impact on the level of service at the intersection by restricting these two movements.

1 OKI Traffic Counts GIS Database
2 Ohio Department of Transportation Functional Classification Maps, Hamilton County, 2004
A2: Private Property

Right of way or trail easements may be needed on property east of Red Bank Road between Woodland Road and the Columbia Parkway ramps. The property is owned by Salt Creek Development, LLC and Highland Fairfax, LLC, both manufacturing companies. A 200 foot width of land parallel to the east side of Red Bank Road is currently unused. The trail could be located immediately adjacent to Red Bank Road and would only require a small strip of additional right of way. However, if the property owners are willing, the trail could be located further from the road to improve safety and comfort by distancing traffic from trail users.

A3: Major Ramp Crossing

The trail will have to cross the Columbia Parkway ramps at Red Bank Road. Ramps for all directions on Columbia Parkway are combined into one roadway with one intersection. There are four lanes to cross with a width of approximately 80 feet. There are two “island” areas, one between the left and right turns onto Red Bank Road from Columbia Parkway and another between the exit and entrance ramps. Both are approximately 8 feet in width. The ADT was estimated to be 21,874 vehicles per day in 2013.3 There is no posted speed limit on the ramps. Vehicles would be transitioning from the 35 mph speed limit on Red Bank Road to the 50 mph speed limit on Columbia Parkway. Since the crossing location would be near the intersection, the speed would be expected to be on the lower range, particularly since all vehicles have to make a turn at the intersection.

The intersection is currently signalized. There are no pedestrian signals. The existing signal operates under three phases. Left turns from Red Bank Road to the ramp have a protected phase only. Left turns from the ramp to Red Bank southbound have both a protected and permitted phase. Right turns on red is permitted.

The existing signal would need to be modified to include a pedestrian phase, pedestrian signal heads and pushbuttons. The pedestrian phase would need to occur simultaneous with the Red Bank Road through movements. The pedestrian phase may require 30 seconds. If the length of the Red Bank Road through movement is currently less than 30 seconds, the pedestrian phase could have a negative impact on the intersection level of service when it is called. A full traffic analysis will need to be performed to estimate the impact.

Permitted turns to and from the ramp (those that must yield to other traffic) are of particular concern for the safety of trail users. Drivers may be unaware of bicyclists and pedestrians on the trail as they scan for traffic before making their turns. The AASHTO Guide for the Development of Bicycle Facilities describes multiple scenarios that could result in a crash at sidepath/roadway intersections.

Safety could be improved by restricting right turns on red to and from the ramp. Again, a traffic analysis will need to be performed to estimate the impact to the intersection level of service by restricting this movement. The crossing distance could also be shortened by creating raised pedestrian refuge islands at the two painted islands. Turning radii could be sharpened but this may have an impact on truck turning movements.

3 OKI Traffic Counts GIS Database
**ALTERNATIVE A**

**SEGMENT A: 13-14**

---

**SEGMENT DESCRIPTION**

This segment will connect the trail from Red Bank Road to the Wasson Way Trail via the existing right of way along the Columbia Parkway ramps.

---

**CONSTRAINTS AND OBSERVATIONS**

**A6: Columbia Parkway Underpass**

The trail will go between the piers adjacent to the ramp and the bridge abutment. There is an existing slope from the abutment to a point behind the piers. There is a level area present behind the piers with an approximate width of 12’. A small retaining wall may be needed to retain the slope.

---

**A7: Topography**

The Wasson Way Trail is approximately 30 feet higher than the Columbia Parkway Ramp. The trail will need approximately 600 feet to ascend the slope at a 5% grade. Approximately 750 feet is available to make the connection.

---

**ALTERNATIVE A**

**Engineer's Estimate of Cost**

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ALTERNATIVE A1

SEGMENT A1: 12-13

SEGMENT DESCRIPTION

This segment would provide an alternative to Segment A:12-13 and would eliminate the safety constraints noted in A1 and A3 as well as the property constraint noted in A2. The trail would continue along the west side of Red Bank between Woodland Road and the Columbia Parkway ramps and would cross to the east side of Red Bank on the south side of the ramp intersection. The trail would be squeezed into a narrow space between the roadway and a retaining wall adjacent to Duck Creek.

LIMITS:
Woodland Road to Columbia Parkway Ramps along west side of Red Bank

ADJACENT ROADWAY:
Red Bank Road

LENGTH:
600 ft.

RECOMMENDED FACILITY TYPE:
SU2: Shared-Use Path along Roadway

CONSTRAINTS AND OBSERVATIONS

GENERAL: HIGHWAY LIGHTING AND SIGNING
One highway light pole and one highway sign would need to be relocated to accommodate the trail within this segment.

A4: HORIZONTAL WIDTH FROM ROADWAY TO RETAINING WALL
The trail would be squeezed into a narrow space between Red Bank Road and a retaining wall adjacent to Duck Creek. The space from curb to face of retaining wall is approximately 14 feet minimum to 20 feet maximum. There is guardrail mounted on posts adjacent to the back of the retaining wall which reduces the available width by approximately 3 feet. Pedestrian railing is mounted directly atop the retaining wall. Near the intersection with the Columbia Parkway ramps, the guardrail is relocated to the back of curb and the guardrail and railing at the retaining wall is terminated.

If the guardrail adjacent to the curb near the southern end is extended northward, the guardrail adjacent to the back of the retaining wall could be removed to gain 3 feet of width. A 9 foot trail could be constructed immediately adjacent to the back of retaining wall which would leave approximately 5 feet of space to the curb. The 9 foot trail would have 1 foot of buffer space to the pedestrian railing mounted atop the retaining wall.
The outside curb lane on Red Bank Road has a width of approximately 15 feet. The minimum lane width permitted is 11 feet. An additional 4 feet of space could be obtained by reducing the outside lane width.

**A5: Red Bank Road Crossing**

The trail would cross Red Bank Road on the south side of the intersection with the Columbia Parkway ramps. There is one lane of traffic in each direction with a wide painted median between the lanes. The total width of the crossing is approximately 50 feet but half of that width is the painted median. The ADT on this portion of Red Bank was 7351 in 2005.\(^4\) The speed limit is 35 mph.

The existing intersection is signalized. See Constraint A3 for the signal details.

The signal will need to be modified to include a pedestrian phase, pedestrian signal heads and pushbuttons. The pedestrian phase of the signal would need to occur simultaneously with the Red Bank Road southbound double left turn to the Columbia Parkway ramps. The Red Bank Road southbound through phase would have to be dropped when the pedestrian phase is called. The southbound through movement would only occur simultaneous with the northbound through. This may reduce the level of service of the intersection. A full traffic analysis will need to be performed.

The trail crossing should have a highly visible crosswalk. The painted island could be replaced with a raised island which may provide some additional comfort for users.

### ALTERNATIVE A1

**Engineer’s Estimate of Cost**

<table>
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<tr>
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\(^4\) OIK Traffic Counts GIS Database
### SEGMENT DESCRIPTION

This trail segment will connect the Murray Trail to the Wasson Way Trail and the Duck Creek Trail (Alternative A) via Red Bank Road. Bicyclists would likely need to use the roadway within this segment because of the constraints noted below.

The ADT on this segment of Red Bank Road was 10,200 in 2013\(^5\). The roadway is classified as an Urban Collector. Truck traffic is unknown but assumed to be 1.5\(^6\). The preliminary Bicycle Level of Service is E, very low. The OKI Bike Route Guide rates the road as “Use with Caution”. There may be little that can be done to improve the Bicycle Level of Service (such as widening the roadway, adding bike lanes or shoulders) given the narrow width of the corridor and significant constraints on either side of the roadway. Lowering the speed limit to 25 mph would only slightly improve the level of service to D, moderately low.

### CONRAINTS AND OBSERVATIONS

#### B1: Trestle, Retaining Wall & Utilities

The footing of the existing trestle over Red Bank Road is approximately 11 feet from the edge of roadway. South of the trestle, an existing retaining wall has a similar offset from the road. Utility poles occupy the narrow space.

A minimum of 15 feet of horizontal width is required to meet the trail criteria (5 foot roadway buffer, 8 foot trail and 2 foot buffer to the pier footing/retaining wall). There is sufficient space to construct a 5 foot wide sidewalk with a 2 to 5 foot roadway buffer.

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\(^5\) Ohio Department of Transportation, Transportation Information Mapping System, Traffic Count Database System, 2013

\(^6\) The Bicycle Compatibility Index: A Level of Service Concept, Implementation Manual, Table 4. Recommended truck percentages by functional classification, FHWA, 1998
It may be possible to accommodate a trail within this very constrained segment of Red Bank Road with major investments in infrastructure. The existing retaining wall could be reconstructed further from the roadway and the utilities could also be relocated. However, the trestle footing is immovable.

The existing right of way is located approximately 30’ from the eastern edge of Red Bank Road. Norfolk Southern currently owns the property beyond the right of way from a point 50 feet north of the trestle to a point 185 feet south of the trestle. That property is planned to be transferred to the City of Cincinnati prior to construction of the Wasson Way Trail.

One possibility would be to route the trail behind the trestle on the east side and reconstruct the retaining wall at a greater offset from the roadway. The height of the retaining wall would be approximately 25 feet at its highest point and the total length may be 200 feet. The cost for a cast in place wall could be in the range of $875,000. A mechanically stabilized earth wall could be nearly $200,000 cheaper but a more detailed analysis would need to be performed to ensure the stability of the trestle abutment foundation during excavation for and construction of the MSE wall geogrid straps. The wall could be approximately 60 feet shorter but would require more extensive earthwork on the southern end which could be graded out rather than constructing a wall. This could save about $250,000.

**B2: Columbia Parkway Bridge**

The underpass is free from piers on the east side but there is an embankment sloping up to the Columbia Parkway abutment. The embankment begins approximately 8 to 14 feet from the edge of Red Bank Road.

A 5 foot sidewalk with 2 to 5 foot buffer could likely be constructed here without any major reconstruction. However, if a trail would be considered here, a short retaining wall may be needed so that the embankment slope can be excavated out to a point 15 feet from the edge of Red Bank Road. The maximum height of the wall may be 3 to 4 feet with a length of approximately 75 feet. The wall cost would likely be less than $50,000.

**B3: Utility Conflicts**

From the Columbia Parkway eastwards toward Wooster Pike there are 7 utility poles that are between 8 and 12 feet from the edge of Red Bank Road. A sidewalk can likely be routed around the poles. These utility poles would probably need to be relocated if a trail were considered for the corridor.

Utility poles can cost nearly $10,000 each to relocate, based on previous project costs. The utility relocation for this segment of the corridor may therefore be $70,000 if a trail were constructed.

**B4: Topography**

Little Duck Creek enters a 12’ wide culvert on the north side of the intersection of Red Bank Road and Wooster Pike. An embankment slope is located on the north side of the intersection of Red Bank Road and height separates the roadway from the creek. The slope is protected by a guardrail which is located approximately 10 to 12 feet from the curb. There is already an existing 5 foot wide sidewalk at the intersection.

The minimum horizontal width needed to accommodate a trail and a roadway buffer is 14 feet in this location (5 foot buffer, 8 foot trail, 1 foot buffer to guardrail). If a trail were considered for this corridor, the embankment may need to be widened. Widening the embankment might entail constructing a new 50 foot long retaining wall to avoid lengthening the large culvert and reconstructing its headwalls. The retaining wall height may be four to five feet. The retaining wall cost would likely be less than $50,000.

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*Ohio Department of Transportation, Transportation Information Mapping System, Traffic Count Database System, 2013*
**B5: Wooster Pike Crosswalk**

To link into the Duck Creek Trail and Wasson Way Trail, the sidewalk should cross Wooster Pike on the east side of the intersection so there is only one roadway crossing. Maintaining the existing crossing on the west side of the intersection would require crossing Red Bank Road and Wooster Road. There are three lanes of traffic to cross on the east side: one westbound to Red Bank Road, one southbound to Wooster Road and one northbound to Wooster Pike. The length of the crossing would be 60 feet but 15 feet of that length would be through an island. The ADT on this segment of the roadway was 7,438 in 2013. The speed limit is 35 mph. There is an existing crosswalk on the west side of the intersection across Red Bank Road.

The existing signal is three phase. All movements have a protected phase. Right turn on red is permitted except for the right turn from Wooster Road northbound to Wooster Pike. The existing pedestrian phase is called by pushbuttons at the curb ramps.

The existing signal would need to be modified to move the pedestrian crossing to the east side. The right turn on red prohibition for northbound Wooster Road to Wooster Pike provides a measure of protection for a crossing on the east side that does not exist on the west side. A full signal analysis will need to be performed to estimate if the level of service would be affected by changing the pedestrian phase.

**Alternatives Considered:**

There are fewer constraints to building a trail on the west/south side of Red Bank Road versus the east/north side. The south side of Red Bank Road is unencumbered by development, utilities, driveways, piers or retaining walls for 1,200 feet between Wooster Pike and west of Columbia Parkway. However, between the Columbia Parkway bridge and the ramps leading from Red Bank Road to Columbia Parkway, the west side of Red Bank Road has major constraints to trail development. Two retaining walls separate the roadway from Duck Creek, the first of which is at an offset of approximately five feet from the curb. The trestle supporting Wasson Way is located about 12 feet from the curb. The right of way line is located five feet or less from the roadway, the adjacent property owner from which land would be acquired for a trail is owned by the Norfolk Southern Railroad. The right of way line remains near the roadway north of the trestle where a business operates. The narrow depth of the commercial lot requires the business owner to utilize the space they own near the roadway for parking, leaving no space for a trail.

Constructing a trail on the west side of Red Bank Road would require major infrastructure investments which may include constructing new retaining walls adjacent to Duck Creek for a length of over 400 feet and a height of 15 feet. The cost of such a structure would likely be over $1 million. A trail bridge or boardwalk could also be constructed but would also be expensive, also likely over $1 million.

The trestle is immovable so a trail would either need to go through it or around it. Going around on the road side may be possible but there would be a reduced width adjacent to the roadway which may need to be protected by a barrier. Going through the trestle could be challenging and it’s not known if there would be sufficient vertical clearance (a minimum vertical clearance of 8 feet is required).

Finally, property acquisition from the railroad and private business owner could be challenging.

It may be possible to construct a trail on the east side of Red Bank Road between the Columbia Parkway ramps and the Columbia Parkway bridge and then cross to the south side of Red Bank Road for the remainder of this segment to Wooster Pike. There would then be only one major constraint to resolve at B1 however, there would also be a mid-block crossing within a highway curve. The sight distance for the crossing may be limited which would require appropriate warning devices and potentially a pedestrian signal.

### ALTERNATIVE B

**Engineer’s Estimate of Cost**

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9 Ohio Department of Transportation, Procedure for Construction Budget Estimating, Retaining Walls, $175/sf, 2013
10 Ohio Department of Transportation, Procedure for Construction Budget Estimating, Multi-Span Bridges >4000 SF, $250/sf, 2013
11 AASHTO Guide for the Development of Bicycle Facilities, Chapter 5: Design of Shared Use Paths, Section 5.2.1 Width and Clearance
MURRAY TRAIL CONNECTION RECOMMENDED ALIGNMENT

CONNECTING TO AULT PARK
During the analysis of the Murray Trail Connect a link to Ault Park was identified. To make this connection the existing “Valley Trail” in Ault Park would be utilized and improvements to Old Red Bank Road would connect Ault Park to the existing terminus of the Murray Trail. The connection to Ault Park can be seen in the recommend alignment graphic below:
3.7 DUCK CREEK TRAIL CONNECTION
SEGMENT A: 1-2

Limits:
Armleder Park to Wooster Road

Adjacent Roadway:
Armleder Road

Length:
530 ft.

Recommended Facility Type:
SU2: Shared-Use Path along Roadway

SEGMENT DESCRIPTION
This segment will continue the existing Miami Overlook Trail in Armleder Park to Wooster Road.

CONSTRAINTS AND OBSERVATIONS

General: Floodplain
The entire length of this segment is within the 100 year floodplain of Duck Creek and the Little Miami River. The trail may periodically be inaccessible when inundated by flood waters.\(^1\) The existing ground is approximately 1 to 3 feet below the 100 year base flood elevation 501.

A1: Armleder Sign & Property acquisition
The width from the curb to the right of way line is approximately 16 feet which provides enough space for a 10 foot trail with a 5 foot buffer to the road. The existing sign for Armleder Park is located about 6 feet from the curb and within the space where the trail would be located. The trail may need to shift slightly south to go around the sign which may require a small acquisition from the adjoining property owner.

A2: New Crosswalk & Signal modification
A new crosswalk will need to be constructed across Wooster Road at the signalized intersection with Armleder Road. The existing signal has a push button to call a green signal but does not have pedestrian signal heads for the crossing. The ADT of the roadway was 12,757 in 2013.\(^2\) The existing signal appears to operate as two phase. Left turn movements are unprotected.

The signal will need to be modified to include a pedestrian phase with the Armleder Road green phase. Pedestrian signal heads will need to be mounted on the signal poles and a high visibility crosswalk must be painted on the roadway. A signal analysis may be needed to assess any impacts to the intersection level of service by the addition of the pedestrian phase.

\(^1\) FEMA Flood Insurance Rate Map, Hamilton County, Ohio, Panel 356 of 390, Map Number 39061C0356F, 2012
\(^2\) OKI Traffic Counts, Wooster Road at Beechmont Circle, 2013
SEGMENT A: 2-3

Limits:
Armleder Road to Linwood Park

Adjacent Roadway:
Wooster Road

Length:
900 ft.

Recommended Facility Type:
SU1: Shared-Use Path on Independent Alignment
SU2: Shared-Use Path along Roadway

SEGMENT DESCRIPTION
The trail will follow Wooster Road northward within existing right of way for 700 feet to a parcel of property owned by the City of Cincinnati. The trail will then turn westward and cross Duck Creek into Linwood Park.

CONSTRAINTS AND OBSERVATIONS

General: Floodplain
The entire length of this segment is within the 100 year floodplain of Duck Creek and the Little Miami River. The trail may periodically be inaccessible when inundated by flood waters. The existing ground is approximate 3 to 17 feet below the 100 year base flood elevation.

A3: Grade Change & Embankment in Floodplain
The existing grade drops by approximately 8 feet when it enters the parcel of land owned by the City of Cincinnati on the east side of Duck Creek (part of the Linwood Park property). Embankment may be required in the floodplain which will require coordination with the U.S. Army Corps of Engineers.

A4: New Bridge over Duck Creek
A new bridge over Duck Creek would be constructed near the north end of Linwood Park. The bridge would ideally span the floodway but this may not be practical since the floodway width is approximately 285 feet. The bridge should therefore span the bankfull width of Duck Creek and be designed to be occasionally inundated. The estimated bridge length is 85 feet which could likely be a single span. The estimated cost for this structure may be $200,000.

14 FEMA Flood Insurance Rate Map, Hamilton County, Ohio, Panel 243 and 356 of 390, Map Number 39061C0243E, 2010 & Map Number 39061C0356F, 2012
CONSTRAINTS AND OBSERVATIONS

General: Floodplain
Most of this trail segment is within the 100 year floodplain of Duck Creek and the Little Miami River. The trail may periodically be inaccessible when inundated by flood waters. The existing ground within Linwood Park is approximately 17 feet below the 100 year base flood elevation 501.

A5: Grade Change & Embankment in Floodplain
Linwood Park lies approximately 20 feet below the SORTA owned railroad tracks. The trail will traverse the slope for 400 feet to negotiate the grade change at a maximum 5% slope. Placing additional embankment on the existing slope will require a geotechnical study and may require coordination with the U.S. Army Corps of Engineers for any portion of the embankment within the floodplain.

ALTERNATIVE A
SEGMENT A: 3-4
Limits: Linwood Park
Adjacent Roadway: None

Length: 670 ft.

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

SEGMENT DESCRIPTION
This segment of the trail will skirt the northern edge of Linwood Park and then traverse the slope between the park and the SORTA owned OASIS Railroad. The trail could have a connection to the existing parking area of the park which could serve as a trailhead location and community connection.

16 FEMA Flood Insurance Rate Map, Hamilton County, Ohio, Panel 243 and 356 of 390, Map Number 39061C0243E, 2010 & Map Number 39061C0356F, 2012
**ALTERNATIVE A**

**SEGMENT A: 4-5**

**Limits:**
Linwood Park to Duck Creek

**Adjacent Railroad:**
SORTA owned OASIS Railroad

**Length:**
2,900 ft.

**Recommended Facility Type:**
SU3: Shared-Use Path along Railroad

**SEGMENT DESCRIPTION**

The trail would parallel the east side of the OASIS Railroad which is publicly owned by the Southwest Ohio Regional Transit Authority (SORTA). The segment begins at Rendcomb Junction No. 7 and proceeds northward approximately 2000 feet to Valley Junction. The trail will then continue to follow the SORTA owned eastern line, which is currently unused, and cross Duck Creek about 800 feet north of the junction on an existing railroad bridge.

**CONSTRAINTS AND OBSERVATIONS**

**General: Proximity to Active Railroad**
Genesee & Wyoming operates the Indiana and Ohio Railway (IORY) in this corridor and Norfolk Southern (NS) has trackage rights. There are currently one or two trains per day using the corridor. The rail corridor has one or two tracks within this segment. On the southern end at Rendcomb Junction there are two tracks. The western track is currently unused and the eastern track is used by the IORY. The tracks converge into one for a distance of 500 feet and then diverge back to two tracks with the IORY track now on the west side and the unused track on the east side.

On the southern end, where the active rail line is on the east side, and in the single track section, the trail would likely need to be constructed parallel to the tracks but not directly in the rail corridor. The trail should be at least 25 feet from the active rail line. This may place the trail on the slope between the railroad and Duck Creek which may be difficult to construct. See “Topography and Slope Stability” below.

Where the active rail line moves to the west side, the trail could occupy the unused SORTA track however the offset from the active rail line would only be 12 feet, less than the standard 25 feet.

Negotiations with the railroad to place the trail closer than 25 feet to the IORY may be difficult. The Genesee & Wyoming Railroad is contesting a similar arrangement proposed on this same rail corridor for the Ohio River Trail further south. Depending on the outcome of those negotiations, it may be necessary to keep the trail at least 25 feet from the I&O Track throughout the entire corridor. This would place the trail corridor on the existing slope between the railroad and Duck Creek which may be very difficult and costly to construct as noted on the following page.

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18 Public Utilities Commission of Ohio, Railroad Grade Crossing Inventory, Airport Avenue Grade Crossing Record ID 13487, Last update 2010.
**General: Topography & Slope Stability**

Allowable proximity to the active IORY line may require the trail to be constructed on the slope between Duck Creek and the railroad as noted above. According to available contour data from CAGIS, the slopes are generally between 30% and 50%. The top of slope is approximately 12 to 25 feet from the nearest rail line with the larger width generally adjacent to the single track section.

Slopes steeper than 50% are generally unstable unless the soil is reinforced. Since the existing slopes are already approaching 50%, any widening of the railroad shelf to accommodate a trail may involve grading limits that would extend into Duck Creek. Steeper slopes could be constructed by reinforcing the soil with straps or tie-backs which may limit impacts to Duck Creek. However, stability of the slope may still be a major concern.

Landslides in Hamilton County are common on slopes steeper than 15%. Landslides may occur where additional load is added to existing slopes, when the slopes become saturated with water, when vegetation is removed, or when the bottom of slopes are undercut. Constructing the trail on a widened shelf will likely involve removing portions of the existing vegetation and loading the hillside with additional overburden. Flooding on Duck Creek may occasionally saturate the hillside which may trigger a landslide when the flood waters recede. And, Duck Creek’s current may undercut portions of the slope which could cause the upper slopes to lose stability. With all of these conditions possible, there may be a severe risk for landslides by constructing on the existing slope without significant structural supports. As further evidence of the landslide potential in this area, two locations on Columbia Parkway were observed that have had concrete piles constructed to stabilize the roadway slope.

The preliminary engineering assessment is that portions of this segment may not be feasible without significant structural support of the hillside and trail. This may include retaining walls, piles, reinforced soil, or spanning the unstable slopes with a trail bridge. A full geotechnical analysis will be required to more fully assess the slope stability and recommend treatments for constructing a trail in this area.

A retaining wall constructed along Duck Creek in this segment may need to be 2,000 feet long, 10 to 20 feet in height and may cost between $4 million and $7 million. If a bridge structure is used to span the hillside parallel to the railroad, the length would again be approximately 2,000 feet and the cost would likely exceed $7 million.

**General: Floodway Encroachment**

Coordination with the U.S. Army Corps of Engineers may be required if any of the work encroaches on the floodway of Duck Creek.

**A6: Existing Railroad Bridge over Duck Creek**

The existing condition of the bridge is unknown. At a minimum, a new deck and railing would need to be constructed across the bridge to accommodate the trail. The existing bridge is approximately 90 feet long. A structural inspection of the bridge should be performed to estimate any additional work that may be required.

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19 Soil Survey of Hamilton County, Ohio, US Dept. of Agriculture, Soil Conservation Service, August 1982
20 Ohio Department of Transportation, Procedure for Construction Budget Estimating, Retaining Walls, $175/sf, 2013
ALTERNATIVE A

SEGMENT A: 5-6

Limits:
Duck Creek to Wooster Pike/Redbank Road Intersection

Adjacent Railroad:
SORTA owned OASIS Railroad

Length:
2,700 ft.

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

SEGMENT DESCRIPTION
The trail will continue to follow the unused SORTA rail line north of Duck Creek until it crosses beneath Wooster Road and joins with the Norfolk Southern rail line. At that point the trail would cross the NS line and proceed uphill to the intersection of Wooster Pike and Redbank Road.

CONSTRAINTS AND OBSERVATIONS

General: Floodplain
The portion of this segment along the existing railroad corridor is within the 100 year floodplain of Duck Creek, Little Duck Creek and the Little Miami River. The trail may periodically be inaccessible in these areas when inundated by flood waters. The existing ground along the railroad is approximately 1 to 2 feet below the 100 year base flood elevation.

A7: At Grade Railroad Crossing
The trail would need to cross the Norfolk Southern’s N&W line east of the Wooster Road bridge. NS has one track in this location. There are two other adjacent tracks that are SORTA’s and currently unused. There are approximately six trains per day that use the NS track and the track speed is between 20 and 40 mph. There is currently not a grade crossing in this location but it is within public right of way which is presumed to be the original location of Wooster Pike before it was grade separated from the railroad.

Assuming it would take a pedestrian 5 seconds to clear the track, the sight distance required is 1,174 feet (for a speed of 40 mph). There is sufficient sight distance to the east but the curvature of the track and the location of the Wooster Road Bridge abutment may limit sight distance to the west. Active warning devices may be needed at a minimum to warn pedestrians of an approaching train.

It may be difficult to negotiate a new pedestrian at-grade crossing with NS.

22 FEMA Flood Insurance Rate Map, Hamilton County, Ohio, Panel 244 of 390, Map Number 39061C0244E, 2010
23 Public Utilities Commission of Ohio, Railroad Grade Crossing Inventory, Estimated from Woodland Avenue Grade Crossing Record ID13473 (2008) & Airport Avenue Grade Crossing Record ID 13487 (2010)
24 Federal Railroad Administration, Highway Rail Grade Crossing Inventory for Ohio, Crossing S24850N, Woodland Road
CONSTRAINTS AND OBSERVATIONS

A8: Topography
The railroad is approximately 16 feet higher than Wooster Pike. The trail should traverse the hillside at a 5% slope which requires a length of 320 feet.

ALTERNATIVE A
Engineer’s Estimate of Cost

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SEGMENT B: 2-8

**Limits:**
Armleder Road to South of Duck Creek

**Adjacent Roadway:**
Wooster Road

**Length:**
640 ft.

**Recommended Facility Type:**
SU2: Shared-Use Path along Roadway

**SEGMENT DESCRIPTION**
This segment will proceed south along Wooster Road and cross Duck Creek utilizing the existing roadway bridge or a new trail bridge.

**CONSTRAINTS AND OBSERVATIONS**

**General: Floodplain**
The entire length of this segment is within the 100 year floodplain of Duck Creek and the Little Miami River. The trail may periodically be inaccessible when inundated by flood waters.27 The existing ground is approximate 3 to 5 feet below the 100 year base flood elevation 501.

**B1: Wooster Road Bridge over Duck Creek**
The existing bridge is approximately 36 feet wide. There is a 5 foot wide sidewalk on the west side with no buffer to the roadway. The bridge is 148 feet long with three spans. The superstructure is a steel girder with a concrete cast in place deck. It was constructed in 1961.28 The bridge is maintained by Hamilton County.

There are three options that could be considered to accommodate the trail through this constraint: 1) Widen the existing bridge; 2) Construct a new trail bridge on the west side; 3) Move bicycle traffic to the roadway.

Widening the existing bridge may require an additional 5 to 10 feet of width on the west side. It is unlikely this can be accomplished by cantilevering from the existing bridge. The abutments would need to be widened, new piers constructed and a new beam added to support the widened portion.

There is approximately 50 feet of right of way available on the west side of the existing bridge which is sufficient to accommodate a new trail bridge. The trail bridge length would likely be the same as the existing roadway bridge, 148 feet. The cost of a new bridge may be $500,000.29

Moving bicycle traffic onto the roadway could be problematic operationally, particularly for the northbound direction. Northbound bicyclists would have to cross the southbound direction twice. The preliminary Bicycle Level of Service is estimated to be D, moderately low based on Wooster Road's ADT of 14,264, the roadway's functional classification as an urban collector30, and truck traffic of 8% of ADT31.

**Recommendation:**
Construct a new trail bridge west of Wooster Road.

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27 FEMA Flood Insurance Rate Map, Hamilton County, Ohio, Panel 356 of 390, Map Number 39061C0356F, 2012
28 Federal Highway Administration, National Bridge Inventory
29 Ohio Department of Transportation, Procedure for Construction Budget Estimating, Multi-Span Bridges <4000 SF, $200/sf, 2013
30 Ohio Department of Transportation, Functional Classification Map, Hamilton County, 2004
31 Ohio Department of Transportation, Transportation Information Mapping System, Traffic Count Database System, 2013
SEGMENT DESCRIPTION
The trail would leave Wooster Road and proceed northwest along the west side of Duck Creek into Linwood Park.

CONSTRAINTS AND OBSERVATIONS

General: Floodplain
The entire length of this segment is within the 100 year floodplain of Duck Creek and the Little Miami River. The trail may periodically be inaccessible when inundated by flood waters. The existing ground is approximately 5 to 19 feet below the 100 year base flood elevation 501. The trail would also be within the floodway of Duck Creek which must be kept free of encroachments so that the 100 year flood can be carried without substantial increases in flood heights. No additional fill could be placed within the floodway.

Because the trail would be within the floodway, the trail should be constructed of concrete which is more durable and able to resist the erosive forces of a flood.

B2: Private Property
Between Wooster Road and Linwood Park the trail would be on property that is not publicly owned. The property would need to be acquired or a trail easement would need to be obtained from the owner. The land appears to currently be unused although there is a gravel driveway through the property.

ALTERNATIVE B
Engineer’s Estimate of Cost

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<td>Wooster Pike/Redbank Road Intersection to Wasson Way</td>
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<td><strong>TOTAL</strong></td>
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</tbody>
</table>

32 FEMA Flood Insurance Rate Map, Hamilton County, Ohio, Panel 243 and 356 of 390, Map Number 39061C0243E, 2010 & Map Number 39061C0356F, 2012
SEGMENT C: 9-5

Limits:
Armleder Park to SORTA Railroad north of Duck Creek

Adjacent Roadway:
None

Length:
2,500 ft.

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

SEGMENT DESCRIPTION

This alternative alignment would begin at the north end of Armleder Park and connect to the SORTA Railroad north of Duck Creek. The alignment would go through property owned by Wooster Development, LTD (Prus Construction) on the east side of Wooster Road. The trail will cross Wooster Road and enter property owned by Caraustar Mill Group, Inc. which is currently greenspace but zoned for general manufacturing. The trail will then continue westward and join Alternative A north of Duck Creek on the SORTA owned rail line.

CONSTRAINTS AND OBSERVATIONS

General: Floodplain
Portions of this segment would be within the 100 year floodplain of the Little Miami River and Duck Creek. These portions of the trail may periodically be inaccessible when inundated by flood waters. Most of the Prus property and the portion of the Caraustar property adjacent to Wooster Road is above the 100 year floodplain. The eastern portion in Armleder Park is up to 23 feet below the base flood elevation of 501. The western portion near the connection to the OASIS rail line is 1 to 2 feet below the base flood elevation of 502.

General: Private Property
Acquisitions or easements would need to be obtained from Wooster Development, LTD (Prus Construction) and Caraustar Mill Group, Inc. for the trail’s alignment through these properties. The trail alignment should minimize impact to the industries’ operations. Additional right of way or a trail easement would also be needed along Wooster Road from both of these property owners.

C1: Topography
The Prus Construction Property sits approximately 24 feet above Armleder Park with slopes of approximately 30% to 50%. The trail will need approximately 480 feet to ascend the slope at a 5% grade.

C2: Impact to Industrial Operations
Some of the private trucking company’s operations may be impacted by the trail easement. Boxer Trucking stores trailers on the property. An easement may impact the storage capacity of the facility.

33 FEMA Flood Insurance Rate Map, Hamilton County, Ohio, Panel 244 of 390, Map Number 39061C0244E, 2010
34 CAGIS Contours
C3: Building Entrance & Utility Pole
The entrance to a warehouse building at 5315 Wooster Pike is a few feet higher than the curb. Approaching the door is a ramp retained by a short wall. Access to this doorway may need to be maintained perhaps by raising the trail to the level of the door. The building is approximately 18 to 20 feet from the roadway. The trail may only be three feet from the face of the building which may be a concern for people entering or exiting from the building.

An existing utility pole located in front of the building at 5315 Wooster Pike is located approximately 8 feet from the edge of roadway. It would likely need to be relocated closer to the roadway to accommodate the trail between it and the building.

C4: Driveway crossing
The trail would cross the main industrial driveway entering the Boxer Trucking Company. The AASHTO Guide for the Development of Bicycle Facilities notes that there are many concerns with shared use paths adjacent to roadways, particularly at driveways. Crashes are more likely at these locations because drivers turning to and from the driveway are not accustomed to scanning for pedestrians or bicyclists on the path. Of particular concern at this location is the driveway located near a building which blocks the view of the path. Bicyclists approaching the driveway may not be seen by truck traffic exiting the facility. Additional warning devices, stop/yield signs for driveway traffic and painting the trail green across the driveway may be needed to address the safety concerns.

C5: Mid-Block Crossing of Wooster Road
The trail would need to cross Wooster at a currently un-signalized mid-block location between the Prus Property and the Caraustar Mill Group property.

Wooster Road has an ADT of approximately 14,264. The roadway has three lanes with the center lane being a two-way left turn lane. The speed limit is 35 mph.

The crossing should have a high-visibility marked crosswalk. Where the speed limit is less than 40 mph additional measures, such as active warning devices, reduced crossing length, enhancing driver awareness, etc., may not be necessary.

Since the roadway traffic will likely be higher than the trail traffic, it would be most appropriate to require trail users to yield to the roadway traffic. Depending on the final trail alignment, sight lines may be blocked by existing buildings close to the road. A bicyclist would need to be able to see a car 360 feet away from a point 90 feet from the roadway in order to enter the roadway without slowing on the approach to the crossing. If the buildings block the sight triangle, additional measures may be required.

**ALTERNATIVE C**

**Engineer’s Estimate of Cost**

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<th>Limits</th>
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<td>Duck Creek to Wooster Pike/Redbank Road Intersection</td>
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<td>A:6-7</td>
<td>Wooster Pike/Redbank Road Intersection to Wasson Way</td>
<td>$130,000</td>
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<tr>
<td>TOTAL</td>
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<td>$1,630,000</td>
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</tbody>
</table>

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35 Ohio Department of Transportation, Transportation Information Mapping System, Traffic Count Database System, 2013
CONSTRAINTS AND OBSERVATIONS

General: Floodplain & Private Property
See General Constraints noted under Alternative C.

C1: Topography
See Constraint C1 under Alternative C.

C6: Impact to Construction Operations
Some of the private construction company's storage operations along the northern border of the property may be impacted by the trail. Since the site is large by comparison to the trucking operation on the southern border (Alternative C), the overall business impact may be less than that caused by Alternative C.

C7: Multiple Driveway Crossings
Along Wooster Road the trail would cross four industrial driveways for the Prus Construction property. As noted in Constraint C4 for Alternative C, these locations may be safety concerns because drivers may fail to observe trail users. There are also three buildings close to the roadway which will limit the visibility of trail users from the driveway. Additional warning devices, stop/yield signs for driveway traffic and painting the trail green across the driveway entrance may be needed to address the safety concerns.

C8: Prus Construction Sign
The construction sign is located from 10 to 20 feet from the edge of Wooster Road. The sign would have to be relocated.
**CONSTRAINTS AND OBSERVATIONS**

**General: Private Property**
Acquisitions or easements would need to be obtained from Wooster Development, LTD (Prus Construction) and Caraustar Mill Group, Inc. for the trail’s alignment through these properties. The trail alignment should minimize impact to the industries’ operations. Additional right of way or a trail easement would also be needed along Wooster Road from both of these property owners.

**C2: Impact to Industrial Operations**
Some of the private trucking company’s operations may be impacted by the trail easement. Boxer Trucking stores trailers on the property. An easement may impact the storage capacity of the facility.

**C8: Limited Sight Distance**
As the trail approaches Wooster Road from the east, sight distance to the trail from the north on Wooster Road will be blocked by an existing building located approximately 30 feet from the edge of roadway. See Constraint C5 for sight distance requirements at the mid-block crossing.

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**ALTERNATIVE C2**

**Limits:**
Alternative C on Prus Property to Wooster Road

**Adjacent Roadway:**
None

**Length:**
850 ft.

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

**SEGMENT DESCRIPTION**
This route would provide an alternative path through the trucking company by following the eastern and northern boundaries of the operation. Although it would still have an impact on the company’s operations it has the benefit of eliminating the constraints along Wooster Road noted in Constraint C3, C4, C7 and C8 under Alternatives C and C1.
CONSTRAINTS AND OBSERVATIONS

General: Concrete Barrier
Because the speed limit on Columbia Parkway is 50 mph, trail users should be separated from the roadway traffic by a concrete barrier. The barrier should be placed 12 feet from the edge of the right travel lane. The total length of concrete barrier would be approximately 4,300 feet. The cost for this item may be $200,000.

The length of the trail along Columbia Parkway confined by the concrete barrier and the adjacent rock cut slope may make the trail feel enclosed. This could affect trail users’ sense of personal security, could block the view of trail users needing help and could impede emergency response. The concrete barrier should be no more than 42" in height and the trail width should be as wide as practical to mitigate these concerns.

37 AASHTO Guide for the Development of Bicycle Facilities, Chapter 5: Design of Shared Use Paths, Section 5.2.2 Shared Use Paths Adjacent to Roadways (Sidewalks), 2012
38 Ohio Department of Transportation Location & Design Manual, Volume 1, Section 300 Cross Section Design, Figure 301-3E Rural Shoulder Criteria, 2015
39 Ohio Department of Transportation, Estimator Software, 2014 Catalog
40 AASHTO Guide for the Development of Bicycle Facilities, Chapter 5: Design of Shared Use Paths, Section 5.2.1 Width and Clearance, 2012
**General: Drainage**
The trail may require relocation of the ditch drainage and catch basins along Columbia Parkway. More frequent catch basins may be needed along the concrete barrier to limit the spread of storm water onto the freeway that may be caused by the introduction of the barrier.

**General: Lighting**
The existing highway lighting along Columbia Parkway will likely need to be relocated to accommodate the concrete barrier. The lights could be remounted atop the barrier. Approximately nineteen light poles would be affected. The electrical conduit system would likely also be affected. The cost for relocating the lighting system may exceed $100,000.41

**General: Highway Guide Signs**
Two ground mounted guide signs located along the west side of Columbia Parkway for the exit at Eastern Avenue will need to be relocated. The existing signs are located approximately 20 feet from the edge of travel lane.42 Freeway signs are typically placed 30 feet from the edge of travel lane. The signs may be able to be remounted on the outside of the trail (which would be approximately 30 feet from the edge of the travel way) or the signs could be mounted on a cantilever structure overhead.

**D1: At-Grade Railroad Crossing**
The trail would need to cross one active track on the OASIS Rail Line. The track is used by the Indiana and Ohio Railway (IORY) operated by Genesee and Wyoming. Norfolk Southern has trackage rights.43 There are currently one or two trains per day using the corridor.44 The average train speed is 20 mph.45 There are train signals located north and south of the crossing location but these are believed to be inactive at this time. Active signals would be a concern for occasional blockages of the crossing.

A trail user would need to see 734 feet in each direction to cross the track (assuming 5 seconds for the crossing).46 There appears to be adequate sight distance to the north although the south could be partially blocked by vegetation at a slight bend in the track alignment. Active warning devices may not be needed due to the low volume of trains, low train speed and the likelihood that most users would take less than 5 seconds to cross the track (and would therefore not need as much sight distance).

**D2: Mid-Block Ramp Crossing**
The trail would separately cross the entrance and exit ramps to Columbia Parkway from Eastern Avenue. The length of each crossing is approximately 16 feet. In 2013 the ADT of the entrance ramp was 2,037 vehicles per day and the exit ramp was 2,362 vehicles per day.47 The speed limit of Eastern Avenue is 25 mph and the speed limit of Columbia Parkway is 50 mph. The ramp speeds would be in transition from 25 to 50 mph. Since the crossing location is nearer to Eastern Avenue, the speed may be closer to the lower range.

The intersection of the path and roadway should have a high-visibility marked crosswalk. Since the ADT is less than 12,000 vehicles per day and only one lane is being crossed, additional crossing measures may not be needed.48

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41 Estimated using ODOT Estimator Software and probably quantities, 2014 Catalog
42 Ohio Department of Transportation Standard Construction Drawings, TC 42.10, Typical Guide Sign Placement, 2013
44 Public Utilities Commission of Ohio, Railroad Grade Crossing Inventory, Airport Avenue Grade Crossing Record ID 13487, Last update 2010.
45 Federal Railroad Administration, Highway Rail Crossing Inventory for Ohio, Crossing 524751R Airport Road
47 OKI Traffic Counts GIS Database
D3: Horizontal Width under Columbia Parkway Bridge
The trail will follow the path of an existing sidewalk under the Columbia Parkway Bridge. The sidewalk width is estimated to be 3.5 to 4 feet in width with a 2 to 4 foot grass buffer. The existing bridge piers are located approximately 4 to 5 feet behind the back of walk. At the eastern end, a slope begins to the abutment immediately behind the walk. On the western end the slope appears to begin behind the bridge piers. The walk is separated from the roadway by a chain link fence. The ramp has a 10 foot wide shoulder on the right side. The total minimum existing width from the ramp travel lane to the bridge piers is estimated to be 20 feet.

The trail will need to be a minimum of 8 feet wide. It should also be separated from the ramp with a barrier. The trail will also need a buffer of 1 to 2 feet from the barrier and from the existing bridge piers.

The ramp shoulder is currently wider than the required width of 6 feet.49 A 20” wide concrete barrier can be constructed at an offset of 6 feet from the ramp travel lane. This would leave approximately 12.3 feet of space between the back of barrier and the bridge piers which should accommodate an 8 foot trail plus 1 to 2 feet of buffer space to the barrier and piers. A small retaining wall may be needed on the eastern end to retain the slope which currently begins at the back of walk.

Note: These dimensions need to be verified in the field — cannot measure on aerial images since the area is obscured by the overpass.

D4: Trail Connection
The existing sidewalk under Columbia Parkway Bridge connects to sidewalks on Leonard Street and Archer Avenue via a sidewalk connection on the west side of Columbia Parkway. This sidewalk connection would provide access to the trail for residents in the Linwood and Mount Lookout neighborhoods on the west side of Columbia Parkway. It would also provide a link to Ault Park via the existing sidewalk for pedestrians and the low volume neighborhood streets for bicyclists.

D5: Grading
The hillside adjacent to this location, about 1,000 feet northeast from the Eastern Avenue exit ramp gore, does not have a rock cut. Rock cuts are generally at least 30 feet from the edge of travel lane, a distance known as the clear zone. The clear zone is a width adjacent to the roadway which should be kept clear of obstacles that may be struck by errant vehicles. Since there doesn’t appear to be a rock cut in this location, the backslope may begin closer to the roadway than 30 feet. The toe of slope may need to be excavated to accommodate the trail in this location. The excavation may encounter rock as is typical in the adjacent areas.

D6: Gateway Sign
A landscaped gateway sign at the Cincinnati municipal border may be impacted by this trail segment.

ALTERNATIVE D
Engineer’s Estimate of Cost

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<td></td>
<td>A:2-3</td>
<td>Armleder Road to Linwood Park</td>
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49 Ohio Department of Transportation Location & Design Manual, Volume 1, Section 300 Cross Section Design, Figure 303-1E Interchange Elements — Pavements, Shoulders and Medians, 2012
This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
The Cincinnati Connects Plan recommends that an additional urban loop trail study be conducted for city neighborhoods located west of Mill Creek. There is exciting potential to connect these neighborhoods to the Cincinnati Connects urban loop trail to the east, and to the west to suburban communities, and to regional connections including parks and trails owned and managed by Great Parks of Hamilton County.
4.0
Recommended Composite Alignment
CINCINNATI CONNECTS

RECOMMENDED ALIGNMENT

Project Partners:
Groundwork Cincinnati-Mill Creek
AECOM
City of Cincinnati
Human Nature, Inc
Interact for Health
Kolar Design
Little Duck Creek Trail
Ohio River Trail - Oasis Line
Ohio River Trail West
Queen City Bike
Tri-State Trails
Wasson Way

This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.

CINCINNATI CONNECTS

FUTURE CONNECTIONS

Project Partners:
Groundwork Cincinnati-Mill Creek
AECOM
City of Cincinnati
Human Nature, Inc
Interact for Health
Kolar Design
Little Duck Creek Trail
Ohio River Trail - Oasis Line
Ohio River Trail (Riverfront Parks)
Ohio River Trail West
Queen City Bike
Tri-State Trails
Wasson Way

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This project made possible by the generous support of Interact for Health. Project Management and Leadership provided by Groundwork Cincinnati-Mill Creek.
5.0 PRELIMINARY COST ESTIMATES FOR RECOMMENDED TRAIL CONNECTIONS
### QUEENSgate CONNECTION

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<td>A:6-7</td>
<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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**TOTALS** | $12,160,000 |

### Mill Creek Corridor

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<td>A:3-4</td>
<td>Summer Street</td>
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<td>A:4-5</td>
<td>Summer Street to North of MSD</td>
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<td>A:5-6</td>
<td>North of MSD to State Avenue</td>
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<td>A:6-7</td>
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**TOTALS** | $5,090,000 |

### Duck Creek Connection (Alternative A)

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<td>Linwood Park to Duck Creek</td>
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<td>Duck Creek to Wooster Pike/Redbank Road Intersection</td>
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**TOTALS** | $3,190,000 |

### Murray Trail Connection

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<td>Redbank Road at Columbia Parkway Ramps to Wasson Way Trail</td>
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**TOTALS** | $590,000 |

### Uptown Trail

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**TOTALS** | $940,000 |

### Total All Cincinnati Connects Trails

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6.0
IMPLEMENTATION RESOURCES
6.1 TYPES OF FUNDING

GENERAL NOTES

Identifying funding opportunities for trails and greenways in many respects takes the same level of thought, analysis, and review that the planning and feasibility process requires. There are many types of funding sources available at a variety of in three major categories: Local, State, and Federal. Below is a list of major potential funding partners identified during this study:

Local Resources
- City Capital Funds
- U.S. Housing and Urban Development (HUD) Community Development Block Grant (CDBG) funding allocated through City government
- Local Foundations
- The Health Care Sector (hospitals, health insurance companies, and health associations)
- Corporations

State Resources
- The Clean Ohio Trail Fund and the Recreational Trails Fund, both administered through the Ohio Department of Natural Resources (ODNR)
- Land and Water Conservation Funds through ODNR
- State of Ohio Capital Funds

Federal Resources
The FHWA is leading the United States in developing a surface transportation system to move people and goods in a safe, accountable, flexible, efficient, and environmentally responsible manner. FHWA's programs benefit the Nation's communities to improve quality of life, provide access for all, and preserve our heritage. FHWA's programs also benefit recreational interests. Below is a list of current funding opportunities available through the FHWA:

- TAP/TE: Transportation Alternatives Program / Transportation Enhancement Activities
- RTP: Recreational Trails Program
- SRTS: Safe Routes to School Program
- PLAN: Statewide or Metropolitan Planning
- 402: State and Community Highway Safety Grant Program
- FLTP: Federal Lands and Tribal Transportation Programs (Federal Lands Access Program, Federal Lands Transportation Program, Tribal Transportation Program)
- NHPP/NHS: National Highway Performance Program/National Highway System
- TIGER: Transportation Investment Generating Economic Recovery Discretionary Grant program
- STP: Surface Transportation Program
- HSIP: Highway Safety Improvement Program
- CMAQ: Congestion Mitigation and Air Quality Improvement Program
- ATI: Associated Transit Improvement (1% set-aside of FTA)
- FTA: Federal Transit Administration Capital Funds

See Appendix C for a full matrix of federal funding opportunities.

Additional Resources and Links

FHWA - https://www.fhwa.dot.gov/environment/recreational_trails/overview/benefits

The Cincinnati Connects Steering Committee recommends that implementation of the Cincinnati Connects Plan be supported and endorsed by:

The City of Cincinnati, Hamilton County Transportation Improvement District, Ohio/Kentucky/Indiana (OKI) Regional Council of Governments, planning commissions and other governmental agencies, utilities that own/control property within the Cincinnati Connects alignment, Groundwork Cincinnati-Mill Creek, Ohio River West, Oasis, Wasson Way, local foundations and corporations, hospitals and other health care institutions, bicycle and running groups, Great Parks of Hamilton County, Queen City Bike, Tri-State Trails, civic organizations and businesses, Cincinnati Neighborhood Councils, and other interested partners.

Implementation strategies may include, but not be limited to:

1. Incorporating the urban loop trails in their entirety (primary trails and connector trails) into the OKI Regional Council of Governments 2040 Long-range Transportation Plan.

2. Maximizing, when feasible, the value of local trail investments by using the local funds and Cincinnati Connects synergies to competitively leverage larger Federal and State grants.

3. Achieving cost savings and efficiencies by incorporating the recommended pedestrian and bicycle infrastructure into future plans for economic development, housing, parks and recreation, and major road and bridge projects.

4. Preserving public ownership of property within the recommended Cincinnati Connects urban loop trail alignment for future trail development.

5. Integrating the recommended urban loop trail system into the City Administration’s coordinated report process, so that opportunities to develop the network are routinely considered in a variety of future development plans and projects.

6. Encouraging private developers to include and fund Cincinnati Connects trails within and adjacent to their future projects.

7. Developing a trails operation and maintenance strategy to ensure long-term management of the trail network.

8. Collaborating with capable public and private entities that could be responsible for or assist with trail planning, design, implementation and maintenance.

9. Supporting future connections between Cincinnati Connects and other trails in Hamilton County and in other parts of the Tri-State region.

10. Creating a plan for trails, such as the Ohio River West, Lick Run/Westwood, and West Fork Creek Trails, to serve and connect city neighborhoods located west of Mill Creek.

11. Establishing objective criteria for determining trail funding priorities, including but not limited to completing the urban loop trail in its entirety as well as individual trail segments that will strategically advance implementation of the Cincinnati Connects Plan.

Whenever possible, the Cincinnati Connects Steering Committee is available to discuss these recommendations and to assist with implementing the strategies.