

# 7. Cost Opinions, Funding and Implementation

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This chapter identifies steps towards implementation of the proposed facilities of this plan, the estimated costs for the proposed facilities, maintenance, and education and encouragement programs. The chapter also outlines funding sources and provides a 20-year phasing plan for implementing the recommendations in this plan.

This chapter includes the following sections:

7.1. Implementation Process provides general information about the steps needed to implement a project. (Page 7-1)

7.2. Cost Breakdown provides estimates for constructing the recommended bicycle facilities, maintaining the network, and developing education, encouragement and enforcement programs. (Page 7-2)

7.3. Funding Sources lists funding sources available for planning, designing and constructing recommended projects. (Page 7-5)

7.4. Phased Implementation Plan outlines the bicycle facilities and projects that are recommended for implementation within the next three, ten, and twenty years. (Page 7-10)

7.5. Implementation Strategies provides recommendations for implementing the projects identified in this plan and outlines criteria that can be used to measure how effective the City's efforts are at promoting the plan's vision. (Page 7-14)

7.6. Conclusion (Page 7-18)

## 7.1. Implementation Process

The steps required to implement the projects and programs identified in this Plan will vary. Many signing and striping projects can be completed by the City of Columbus Transportation Division and are exempt from NEPA requirements. Such projects can be implemented using City or grant funds with project level review by City Council, if required due to the visibility or importance of the project. Projects and programs with greater associated impacts typically include the following steps:

- Public outreach to introduce proposed project or program to appropriate Area Commissions, neighborhood groups, business groups and neighbors.
- Preparation of a Feasibility Study involving a conceptual design (with consideration of possible alternatives and environmental issues).

- Developing detailed cost estimates for individual projects or programs.
- Secure, as necessary, outside funding and any applicable environmental approvals.
- Approval of the project by the City Council.
- Completion of final plans, specifications and estimates, advertising for bids, receipt of bids, and award of contract(s).
- Construction of Project/ implementation of the program.

The City has a Capital Improvement Plan (CIP) that provides funding for capital improvements including new bicycle facilities as well as rehabilitation of existing facilities. The CIP is valid for a period of six years, the first of which is referred to as the Capital Improvements Budget. The CIP is updated annually to address the deletion of projects that have been completed and the addition of new projects as well as changes to budgets designated for particular improvements. The capital improvements program for 2007-2012 provides approximately \$2.0 billion in funding. Bicycle projects are usually funded by a combination of sources including funds from the City that is designated through the CIP process.

CIP funding cannot be used for education and encouragement programs. Funding sources for these programs are listed in 7.3. Funding Sources.

## 7.2. Cost Breakdown

Cost opinions are listed for recommended bikeway projects (engineering), maintenance activities, and education, encouragement and enforcement activities.

### 7.2.1. Engineering

A citywide network of bicycle facilities was developed using input from MORPC, City of Columbus, and requests from community members received during the development of this plan. The final recommended network sets up a grid system of bikeways that are approximately 1 mile apart in outlying areas and approximately half a mile apart in the central areas of the city.

After the recommended network was finalized, each segment was reviewed to designate a recommended type of bicycle facility. Recommended bikeway types were selected using high-resolution aerial photos, posted speeds (MORPC GIS data 2006), average daily vehicle traffic (MORPC, 1995-2004), and planned roadway projects included in MORPC's 2030 Transportation Plan. Field visits were conducted at selected sites.

After designating recommended bicycle facility types, cost opinions were developed by applying per-mile unit construction costs for each type of bikeway. See **Table 7-1: Cost Summary of Proposed Improvements**. **Table 7-2: Bicycle Facility Types Used for Cost Estimates** describes the facility types used during the field work process. **Table 7-3: Unit Cost Assumptions** lists the unit costs and assumptions used in developing these costs. Where more detailed cost estimates were available, those cost estimates were used.

Cost opinions are based on per-mile averages of bikeway construction in Ohio. Cost opinions are in 2007 dollars. Cost opinions are planning level, and just include construction costs. They do not include preliminary engineering, design, feasibility, environmental clearance, inspection, utility or right-of-way acquisition costs. Project-specific factors such as grading, landscaping, intersection modification, right-of-way acquisition, and bridge construction may increase the actual cost of construction, sometimes significantly.

Before constructing any recommended facilities, additional field work will be required to verify conditions, including but not limited to: roadway widths, travel lanes, actual motor vehicle speeds, motor vehicle volumes and speeds, bicycle and motor vehicle travel patterns and conflicts, signal timing and actuation, and pavement conditions. Final bikeway treatments should be selected based on verified conditions.

Buildout of the recommended system will result in a total of more than 540 new miles of bicycle facilities. Of these, approximately 168 miles are proposed pathways and the remaining 370 miles are on-street facilities. The total cost of constructing the recommended bicycle projects is estimated at \$148 million dollars.

**Table 7-1: Cost Summary of Proposed Improvements**

<b>Bicycle Facility Type</b>	<b>Mileage</b>	<b>Total Cost</b>
Bike Boulevard	45.6	\$2,143,035
Lane	97.4	\$1,204,212
Lane with Road Diet	61.6	\$5,736,816
Lane with Road Widening	61.2	\$14,129,902
Path (includes bike-ped bridges)	167.9	\$118,462,807
Paved Shoulder	31.4	\$6,443,392
Signed Shared Route/Alleys	73.4	\$167,651
Shared Lane Markings	1.6	\$8,260
<b>TOTAL</b>	<b>540.1</b>	<b>\$148,296,075</b>

*Notes: Costs are in 2007 dollars.*

Table 7-2: Bicycle Facility Types Used for Cost Estimates

Bicycle Facility Type	Description
Lane	Minimum 5' bike lanes can be striped on roadway without modifying number of motor vehicle lanes or roadway width.
Lane Road Diet	Motor vehicle ADT is low enough to eliminate one or more motor vehicle lanes and stripe bike lanes.
Lane Road Widening	Roadway must be widened to provide 5' bike lanes.
Route	Install wayfinding signs and bike route signs along roadway.
Paved Shoulder	Recommend paving 4' minimum shoulder along roadway to provide extra room for bicyclists and motorists.
Bike Boulevard	Traffic calming, pavement stencils, and special signage indicating street is a bicycle priority street.
Path	Ten to twelve foot paved shared-use path.
Shared-Lane Markings	Pavement stencils in roadway indicating to motorists & bicyclists where bicyclists are expected to ride.
Alley	Special designation for downtown alleys. Develop alleys as bicycle/pedestrian priority streets and improve roadway crossings.

Table 7-3: Unit Cost Assumptions

Facility Type	Includes	construction cost per mile	survey/design (12%)	contingency (10%)	admin (10%)	traffic control and mobilization (7%)	TOTAL COST PER MILE
Shared-Use Path	Construction costs. Based on ODOT construction awards 2003-2005.		included in ODOT estimate				\$600,000
Bicycle Lane	5' bike lane. Includes just striping, pavement markings, signage.	\$8,892	\$1,067	\$889	\$889	\$622	\$12,360
Bike Lane with Road Diet	Four lane to three lane conversion.	\$66,972	\$8,037	\$6,697	\$6,697	\$4,688	\$93,091
Bike Lanes with Paved Shoulder	5' bike lane with 5' shoulder construction on both sides. Based on ODOT construction awards 2003-2005.		included in ODOT estimate				\$230,797
Bicycle Boulevard - High	Pavement markings, signage, and two traffic calming improvements per mile.	\$74,739	\$8,969	\$7,474	\$7,474		\$98,656
Bicycle Boulevard - Low	Pavement markings, signage, and two crossing improvements per mile.	\$24,739	\$2,969	\$2,474	\$2,474		\$32,656
Signed Shared Roadway	Signage.	\$1,571	\$189	\$157	\$157		\$2,074
Paved Shoulder	4' paved shoulder.	\$147,840	\$17,741	\$14,784	\$14,784	\$10,349	\$205,498
Shared Lane Markings	Pavement markings and signage.	\$3,683	\$442	\$368	\$368	\$258	\$5,120

### 7.2.2. Maintenance

Bicycle paths require regular maintenance and repair as needed. On-street bikeways are maintained as part of the normal roadway maintenance program and extra emphasis should be put on keeping the bike lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility or creeping into the roadway. The typical maintenance costs for the bikeway network are shown in **Table 7-4: Bikeway Maintenance Frequency and Cost Opinions**.

Using cost opinions in Table 7-4, and assuming the bikeways are constructed given the proposed phasing schedule, it is estimated that maintenance of the bikeway network envisioned by this plan would cost an additional \$2.1 million dollars between 2012 and 2028.

**Table 7-4: Bikeway Maintenance Frequency and Cost Opinions**

Resurface	Asphalt	Every 20 years	\$15,000/mile
	Concrete	Every 20 years	\$15,000/mile
	Aggregate	Every 3years	\$3,000/mile
Replace signs	Worn	Every 10 years	\$30/sign
	Stolen	As needed	\$30/sign
Restripe		Every 3 years	\$200/mile
	Move signs, patch and sweep	2 times/year	\$200/mile

*Source: Regional Bicycle Transportation Facilities Plan, Mid-Ohio Regional Planning Commission, 2003. Costs have been escalated to 2007 dollars.*

### 7.2.3. Education, Encouragement and Enforcement

Education, encouragement and enforcement programs vary significantly in cost depending on the extent of the program. Cost estimates for the programs recommended in the Bicentennial Bikeways Plan are provided as an appendix. This plan recommends the city secure funding to support approximately \$500,000 in funding for these programs from 2009 through 2012, with a goal of developing a \$500,000 annual budget for education, encouragement, and enforcement programs by 2012.

## 7.3. Funding Sources

Funding for implementation of the Bicentennial Bikeways Plan will come from a range of sources, including federal and state transportation funds, parks and recreation funds private sector partnerships, and a proposed Bicentennial Bond package that is similar to the bonds that were issued for the City's sidewalk program. The phasing of the plan allows for implementation as resources become available. The key funding elements are described as follows:

**Bicentennial Bikeways Bonds ("B3" Bonds):** The City will include the Bicentennial Bikeways in the proposed 2008 bond package that will provide funding for key initiatives related to the City's celebration in 2012.

**\$25 M Federal transportation 'Green Tea' demonstration project funding:** The reauthorization of the federal SAFETEA transportation legislation will provide a significant

opportunity for implementing the Bicentennial Bikeways plan. The City will work with Ohio's Congressional delegation and other partners to secure this funding.

**\$10 M Private sector 'adopt a bikeway' endowment campaign:** Key private sector and philanthropic partners will be engaged in a fundraising effort to adopt each mile of the bikeways system. This program will enable community partnerships to sustain the trail system into the future.

**\$15 M Funding from other state and other local sources:** There are a range of public, private and non-profit sources that can supplement the primary funding, including land conservation, public transit, utilities, environmental mitigation, health and physical activity, education, and other sources.

**\$10 M Parks & Recreation Funding:** Metro Parks is planning to spend approximately \$2,500,000 in 2008 for land acquisition, design and construction associated with shared-use trails in Central Ohio. Additional resources will also be spent for operations, programming, and management from recreation funding sources.

In addition to these funding sources listed above, there are a variety of competitive funding sources from local, state, regional, and federal programs. A list and description of these sources is provided in the Appendices.

Statewide funding sources include the Recreational Trails Program, Clean Air Trails Fund, Natureworks Grant, and Land and Water Conservation Fund. Particular emphasis of these funding sources is on recreational, off-street trails. Safe Routes to School program is also a statewide funding source that can be used for school-related bicycle facilities and education, encouragement and enforcement programs. Safe Routes to School is meant to encourage students to walk and bicycle to school through bicycle and pedestrian education and strategically constructing traffic calming and safety devices along identified school routes.

Regional funding sources are administered by MORPC. Eligibility of MORPC funds requires project sponsors to accommodate bicycles and pedestrians in the design of transportation projects. The Transportation Improvement Program is one such source for MORPC funds and requires all projects to meet funding eligibility criteria prior to fund availability to expedite project implementation. MORPC also solicits funds from the Transportation Enhancements, a designated federal fund for which bicycle facilities and education programs are eligible. If bicycle and pedestrian projects identify providing air quality benefits, they are eligible for Congestion Mitigation and Air Quality funds.

Non-traditional funding sources may include funding opportunities for bicycle and pedestrian projects. The Community Development Block Grant (CDBG) provides money for streetscape improvements (which include bicycle and pedestrian projects) when associated with property acquisition and public facility building and improvement. New developments are also a source of bicycle and pedestrian project funding. Bicycle and pedestrian facility improvements can be included in new development requirements and/or funded by development impact fees. Private donors and organizations may provide an additional source of funding for bikeway facilities and education, encouragement and enforcement programs.

**7.3.1. Estimated Future Funds Through 2018**

**Table 7-5** and **Table 7-6** summarize the available funding sources that the City of Columbus can use to construct bicycle facilities and develop programs over the next ten years. Over the ten-year period between 2008 and 2018 approximately \$75.2 million is available for constructing on-street bicycle facilities, \$77.8 million for constructing shared use paths, and approximately \$1.2 million for conducting education and encouragement programs.<sup>22</sup>

Funding source availability may vary from that shown in the table, depending on how the State, MORPC and City apportion the funds. These funds are generally available for environmental, feasibility, design, preliminary engineering and construction of bicycle facilities. Funds cannot be used to pay for a bicycle coordinator position, but some funding sources allow a portion of the monies to be used to administer the development and construction of specific bicycle facilities. It may be possible for the City to receive enough grant funding to hire a part-time or full-time staff person to administer the development and construction of all grant-funded bicycle projects.

**Table 7-5: Bicycle Funding Sources 2008 through 2018**

Agency	Total Available Source Funding		Total Possible Funding for Cyclists in Columbus		Methodology
	2008-2013	2008-2018	2008-2013	2008-2018	
MORPC Congestion Mitigation and Air Quality (CMAQ) (Non SOV Modes) 25% On street 75% Off street	\$10 M Mid-Ohio Region	~\$20 M	\$165,000	~\$330,000	Bicycle facility funding is estimated at 5% of the minimum apportionment. <sup>23</sup>  *2008-2018 funding estimate assumes a continuation of MORPC funding.
Recreational Trails Program 100% off street	\$8.5 M Ohio	N/A	\$1.1 M	N/A	The State of Ohio was apportioned \$1.7 M for the 2007 FY. <sup>24</sup> Funding is available until 2009.

<sup>22</sup> This funding is not guaranteed, however. Columbus will have to compete for some of the funding, and the implementation plan assumes that several funding sources will be developed, notably the proposed Bicentennial Bikeways Bond and federal funding in the next transportation bill.

<sup>23</sup> Approximately \$1.3 M per year of non-committed funding is available until 2013. Bicycle, pedestrian, and transit projects receive 33-67% of that funding, of which 33% is used to obtain a conservative available funding estimate. Source: <http://www.morpc.org/web/transportation/tip/documents/FundingWorkshopSlideshow6-15-06.pdf>

<sup>24</sup> The population of Columbus is 12.7% of the State population, which is used to obtain a rough estimate of the Columbus fund apportionment.

Agency	Total Available Source Funding		Total Possible Funding for Cyclists in Columbus		Methodology
	2008-2013	2008-2018	2008-2013	2008-2018	
Clean Ohio Trails Fund	\$31.2 M Ohio	\$62.5 M Ohio	\$2 M	\$4 M	Assumes funding will be reauthorized in 2008 at \$6.25 million per year, with Columbus receiving approximately \$400,000 per year.
Safe Routes to School Program 30% On-street 60% Off-street 10% Programs	\$5.3 M Ohio	\$10.6 M Ohio (estimated)	\$168,000	\$336,550	The Ohio apportionment totaled \$5.3 M for FY 2008. Funding is available until 2009. <sup>2,25</sup>
Transportation, Community and System Preservation Program 50% On-street 50% Off-street	\$122.5 M Nationwide	\$122.5 M Nationwide	~\$393,000	~\$786,000	\$122.5 M is available through nationwide discretionary grants until 2009. The average 2007 funding award was \$7.9 M. Funding for bicycle facilities is estimated at 5% of total funds.
NatureWorks Grants 50% On-Street 50% Off-Street	\$10 M Ohio	\$20 M	~\$91,555	~\$183,110	Awards equal \$2 M per year. The average grant award is \$18,311, which is used to estimate the possible funding available for Columbus.
Transportation Improvement Program 50% On-street 50% Off-street	\$2.5 B Statewide	~\$5 B	\$15.9 M	\$31.8 M	Statewide funding total is \$1.5 B for FY 2008-2011. <sup>2</sup> Funding for bicycle facilities is estimated at 5% of total funds.
Transportation Enhancements 33% On-street 33% Off-street 33% Programs	\$7.4 M Mid-Ohio Region	\$14 M Mid-Ohio Region (estimated)	\$370,000	\$700,000	MORCP total available funding until 2013 is \$7.4 M. Funding for bicycle facilities is estimated at 5% of total funds.

<sup>25</sup> Bicycle facility funding is estimated at 25% of the total available funding for Columbus.

Agency	Total Available Source Funding		Total Possible Funding for Cyclists in Columbus		Methodology
	2008-2013	2008-2018	2008-2013	2008-2018	
Community Development Block Grants (Neighborhood Commercial Revitalization Investment)	~\$33 M Ohio	~\$66 M	~\$1.65 M	~\$3.3 M	Housing related grants in Columbus totaled \$6.6 M for FY 2007. Grants are available for sustainable development, of which bicycle facilities could be apart of. Funding for bicycle facilities is estimated at 5% of total funds.
Urban Infrastructure Recovery Funds (UIRF) 50% On-Street 50% Off-Street	\$5 M Columbus	\$10 M	\$250,000	\$500,000	An estimated \$1 M per year is estimated given that the previous funding round (2005-2007) had \$3 M available for parks, lighting, and roadway. Funding is available for individuals, corporations, developers, and investors. Funding for bicycle facilities is estimated at 5% of total funds.
Bicentennial Bikeways Bond	\$10 M Columbus	n/a	\$10M	n/a	Proposed Bond Package to fund bicycle projects in Columbus.
Federal transportation 'Green Tea' demonstration project funding Assumes 10% can be used for programs.	\$25 M	\$25 M	\$25 M	\$25 M	Assumes that Columbus will receive \$25 Million in federal transportation funding with the reauthorization of SAFETEA-LU.
Private Sector "Adopt a Bikeway" Assumes 10% for programs.	\$5 M	\$10M	\$5M	\$10M	Assumes this plan's recommendation to establish an "adopt-a-bikeway" or other philanthropic organization is met.
MORPC 2030 Transportation Plan Complete Streets Projects	\$302 M Region <sup>26</sup>	\$605M Region	\$7.5M	\$15 M	Estimates that 2% of cost of regional transportation projects identified in MORPC's 2030 Transportation Plan will be used to provide bicycle facilities (\$1,815M in new projects through 2030).

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Agency	Total Available Source Funding		Total Possible Funding for Cyclists in Columbus		Methodology
	2008-2013	2008-2018	2008-2013	2008-2018	
Metro Parks Funding	\$5 M	\$10M	\$5M	\$10M	Estimates based on past Metro Parks trails funding.

Table 7-6: Total Estimated Available Funding 2008 through 2018

Eligible Projects	2008-2013	Total 10-Year Funding 2008-2018
On-Street Bicycle Facilities and Support	\$35.8 M	\$55.2 M
Off-Street Bicycle Facilities and Support	\$37.3M	\$57.8 M
Education, Encouragement, and Enforcement Programs	\$640,010	\$1,266,755
<b>Total</b>	<b>\$73.7 M</b>	<b>\$114.3 M</b>

## 7.4. Phased Implementation Plan

The phased implementation plan provided here is intended to guide the implementation of the Bicentennial Bikeways Plan. **Table 7-7:** lists the recommended costs and timeframe. **Figure 7-1: Columbus Phased Implementation Plan** illustrates the recommended implementation plan.

This plan recommends the following actions:

**Complete Streets:** adopt a new City policy consistent with the model adopted by the Mid Ohio Regional Planning Council to integrate bicycle facilities into infrastructure projects.

**100 Miles of Bikeways by 2012:** Phase one of the plan involves expanding the existing system to 100 miles with at least 50 miles of new projects created by integrating bike lanes into street paving and construction projects, implementing ‘road diets’ on streets with extra capacity, and continuing the development of shared use paths using current funding. Many Phase 1 priority projects are linked to improvement projects that were already in process prior to the development of the Bicentennial Bikeways Plan.

**200 New Miles by 2018:** The second phase of the plan involves the next 200 miles of bikeways, with a continued emphasis towards on-street facilities that link throughout the City. In the long term, if the resources and support are available, the completed system will reach a total of more than 500 miles.

**City-wide Share the Road Campaign:** The education, encouragement and enforcement elements of the plan are as important as the engineering elements. The Plan calls for a major campaign that provides bicyclists, motorists and other roadway users with the information they need to improve

traffic safety on the City's streets. This campaign will complement other programs including Safe Routes to Schools, Commit to be Fit, and employer-based commuter choice initiatives.

**100 Bike Friendly Intersections:** Safety at intersections is a critical issue for improving Columbus' success at becoming a Bicycle Friendly Community. Each year, ten intersections will be improved with enhanced signage, pavement markings, bicyclist actuated signals and other features.

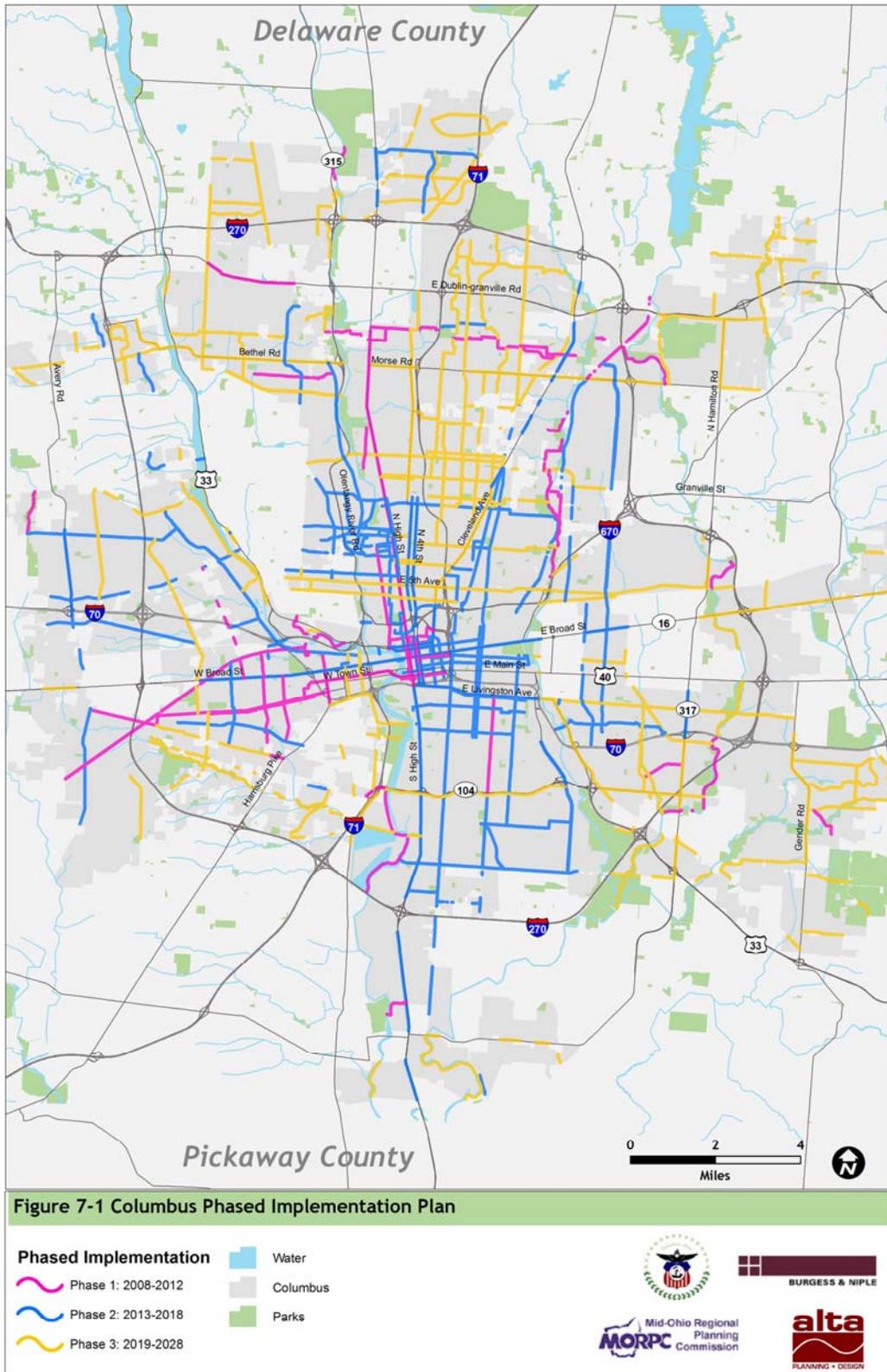
**1000 New Bike Racks:** Just like driving a car, having a secure place to park is essential for travel by bicycle. A new Bicycle Parking Ordinance has been proposed by the City of Columbus Bikeways Advisory Committee. New bike parking can be installed as a typical element of streetscape design, and worksites, public buildings, and schools throughout the City. This plan proposes 250 new bike racks by 2012 and 1,000 by 2028.

Table 7-7: Phase 1 (2008-2012) Multi-Agency Bikeway Improvements (Funded and Potential)

	2008	2009	2010	2011	2012	TOTAL
<b>Ohio Department of Transportation</b>						
<i>Scioto Bikeway Connector</i>			\$4,543,000			\$4,543,000
<b>Franklin County Metro Parks</b>						
<i>ROW Acquisition, Design &amp; Construction</i>	\$4,933,000	Future funding contingent on voter approval.				\$4,933,000
<i>Maintenance</i>	\$100,000					\$100,000
<b>City of Columbus Recreation &amp; Parks Department</b>						
<i>ROW Acquisition, Design &amp; Construction</i>	\$5,077,000	\$2,782,000	\$2,922,000	\$4,057,000	\$2,661,000	\$17,499,000
<b>City of Columbus Public Service Department</b>						
<i>ROW Acquisition, Design &amp; Construction (including General Design Contract)</i>	\$872,500	\$567,000	\$1,275,000	\$2,052,000	\$2,500,000	\$7,266,500
<i>Bike Racks, Spot Improvements</i>	\$257,500	\$350,000	\$200,000	\$200,000	\$229,000	\$1,236,500
<i>Engagement, Education &amp; Enforcement</i>	\$120,000	\$100,000	\$100,000	\$100,000	\$100,000	\$520,000
<i>Greenway Boulevard Demonstration Project</i>		\$687,000				\$687,000
<i>Maintenance</i>		\$10,000	\$10,000	\$10,000	\$10,000	\$40,000
<i>Bike Plan Update</i>					\$250,000	\$250,000
					<b>TOTAL Public Service Dept</b>	<b>\$10,000,000</b>

Note: Cells highlighted in grey include potential funding in addition to committed funding.

Figure 7-1: Columbus Phased Implementation Plan



### 7.4.1. Project Prioritization

Recommended bicycle facilities were grouped into approximately 200 projects. These projects were prioritized using criteria identified in **Table 7-8: Bikeway Corridor Prioritization Criteria**. Prioritization ranking represents the sum of scores from all categories except for the cost categories. Once the prioritization ranking was established for each project, projects were weighted based on cost per mile and total project cost. A list of projects by phase is included in the appendices.

The intent of prioritizing corridors is to identify which projects should be considered for bicycle facilities first. As projects are constructed, lower priority corridors should be moved up the list. The corridor prioritization list and individual projects are flexible concepts that serve as implementation guidelines. The project list may change over time as a result of changing bicycling patterns, land use patterns, and implementation constraints and opportunities. Columbus City Staff, in conjunction with the newly established Transportation, Pedestrian and Bicycle Commission and community members, should review the project list and associated projects at regular intervals to ensure that it reflects the most current priorities, needs, and opportunities for implementing the bicycle network in a logical and efficient manner.

**Table 7-8: Bikeway Corridor Prioritization Criteria**

<b>Criteria</b>	<b>Description and Scoring</b>
<b>Requests from Public</b>	Streets and pathways identified by the public for bicycle facilities or improvements received a score of 8.
<b>Gaps</b>	Proposed bikeways connecting existing and committed facilities received a score of 10. Proposed Bikeways connecting these gap-fillers received the score of 9. Other proposed bikeways received subsequently lower rankings based on their immediate contribution to the existing and planned network.
<b>Safety</b>	This ranking is based on MORPC data identifying corridors with high incidents of crashes and accidents. Any proposed bikeway along a street with a high frequency of accidents received a score of 9. Bikeways with a moderate frequency of accidents received a score of 6. Bikeways with periodic low frequency of accidents received a score of 4. Proposed bikeways not included in the MORPC report received no score for Safety.
<b>Connectivity</b>	Proposed facilities intersecting existing or committed facilities received a score of 5 for connectivity.
<b>Proximity to Destinations</b>	This ranking was based on the “Attractors” layer, which calculated the density of major trip-generating destinations in any area of Columbus. Proposed bikeways providing access to areas with denser trip-generators received scores of 9.
<b>Latent Demand, Potential Users</b>	This ranking was based on the “Generators” map, which employed census data to assess the probability of bicycling in various census tracts. Proposed bikeways providing access to these areas received a score of 9. Since latent demand is a gradient expression, proposed bikeways in areas with fewer likely-to-bicycle characteristics received subsequently lower scores.
<b>Neglected Areas</b>	Proposed bikeways providing access to areas outside of a ½ mile buffer from any existing or committed bicycle facility received a score of 7.
<b>Proximity to transit</b>	Proposed bikeways providing access to COTA stops received a score of 5. Since bicycle lockers provide benefits to long-term bike parking, allowing greater multi-modal possibilities, Bikeways providing access to COTA stops near existing locker facilities received a score of 7.

<b>Proximity to trail access</b>	Proposed bikeways within ¼ mile of greenway and trailheads received a score of 4.
<b>Street Widening Projects</b>	Proposed bikeways on projects slated in the MORPC transportation plan as “Major Widening of an Arterial” received a score of 8.
<b>TAG suggestions</b>	Proposed bikeways, suggested by the Technical Advisory Group received a score of 8.
<b>Weighting Factors</b>	<b>Description</b>
<b>Cost per Mile</b>	Projects with a lower cost per mile ranked higher than projects with a higher cost per mile.
<b>Total cost of project</b>	Projects with a lower total cost ranked higher than projects with a higher total cost.

## 7.5. Implementation Strategies

The Columbus’ Bicentennial Bikeways Plan provides the long-term vision for the development of a citywide biking network that can be used by all residents for all types of trips. Implementation of the plan will take place in small steps over many years. The following strategies, action items, and measures of effectiveness are provided to guide the City toward the vision identified in the plan.

### *Strategy 1: Establish Implementation Responsibility*

The City should establish implementation responsibility by assigning tasks to appropriate city agencies with a central bikeways coordinator to manage the overall program. This Plan recommends that the City fill the existing but unfilled Bikeways Planner position. The Bikeways Planner should have the authority to coordinate implementation of the Bikeways Master Plan, and should ensure that the city implements the plan within the suggested time frame. This person should be supported by enough additional staff to ensure that high-priority projects and programs can be effectively implemented and maintained.

**Action Item:** The City shall determine the duties and time required for the Bikeways Planner and support staff to implement the Bicentennial Bikeways Plan. Once determined, the City shall pursue hiring for the position or assign duties as appropriate.

### *Strategy 2: Strategically Pursue Infrastructure Projects*

City staff should strategically pursue infrastructure projects. Ideally, City staff should pursue capital improvements funding or grant funding for high-priority bicycle and pedestrian improvements first. However, if grant requirements, or construction in conjunction with another roadway project make construction of a lower priority project possible, then the City should pursue funding sources for that project regardless of priority. Additionally, regardless of the priority placed upon a bicycle or pedestrian project, it is intended that an approved bicycle or pedestrian project be installed simultaneous to road improvements projects scheduled in the same area.

**Action Item:** At the end of each fiscal year, City shall publish a public report documenting the status and ongoing actions for all bicycle and pedestrian projects. This report may be combined with the prioritization review discussed below.

### ***Strategy 3: Regularly Revisit Project Prioritization***

Projects have been prioritized based on transportation benefit, regional connectivity benefit, cost, safety and feasibility. This list should be reviewed every fiscal year, with new projects added, completed projects removed, and the priorities revised as conditions change.

**Action Item:** Annual review and update of non-motorized transportation plan project list with input from the newly established Transportation, Pedestrian and Bicycle Commission. Updated list to be shared with the public.

### ***Strategy 4: Update the Plan***

While this plan is intended to guide Columbus' bicycle planning for the next 10 years, it should be reviewed and updated on a regular basis. The plan should be reviewed every five years and updated as needed.

**Action Item:** Review and update the bicycle master plan every five years.

### ***Strategy 5: Integrate Bicycle Planning into the City Process***

The Bicentennial Bikeways Master Plan presents a vision for the future of bicycling in Columbus. To ensure that that vision is implemented, the Plan must become a living document that is incorporated into the day-to-day activities of planning, designing, funding, constructing and maintaining infrastructure in Columbus. This plan recommends several ways for bicycle planning to be integrated into the City process:

#### **Action Items:**

Incorporate a bicycle facilities checklist into the plan review process.

Adopt a bicycle parking ordinance and other city policies that promote bicycling. (See chapter 2 for a summary of recommended policy changes)

Adopt the Complete Streets Policy to ensure that bicycle and pedestrian facilities are included in all major construction and reconstruction projects. Bicycle and pedestrian facilities should be addressed at the project scoping stage. (See Chapter 2 for the proposed text of the Complete Streets Policy)

Develop a three-part bicycle advisory system with the power to effectively direct bicycle planning in Columbus. (See Chapter 5 for a discussion of the recommended advisory system.)

### ***Strategy 6: Encourage Private Donors to Support the Bikeway System***

Through an “Adopt a Bikeway” program, corporations, institutions and individual private donors can support the existing and proposed bikeway system. This program can be leveraged to enhance maintenance through volunteer work, and can connect philanthropy with fundraising to sustain the system.

**Action Item:** Evaluate the opportunities for establishing a philanthropic giving program that can be used to support the construction and maintenance of Columbus’ bikeways.

### ***Strategy 7: Evaluate the Progress toward Becoming a World-Class Bicycle City***

Measures of effectiveness are used as a qualitative way to measure the City’s progress toward implementing the Bicentennial Bikeways Master Plan and becoming a world-class bicycle City. Well-crafted measures of effectiveness measure progress toward meeting an agreed-upon goal, include measurable indicators of progress, and include time-sensitive targets for the City to meet.

**Table 7-7, Potential Measures of Effectiveness** describes several measures that the City may consider. Baseline conditions should be established and goal targets should be developed based on reasonable expectations within the time frame. As new baseline information is discovered as conditions change, and as the City implements more of the Bicentennial Bikeways Plan, the measures of effectiveness should be reevaluated, revised and updated. The City should regularly review the progress made toward these targets, preferably on an annual or biennial basis.

The City of Santa Monica, California has been using measures of effectiveness (“indicators”) since 1994 to measure the progress the City has made toward becoming sustainable. Columbus should consider reviewing Santa Monica’s sustainability report card and sustainability indicators as a guide for developing their own measures of effectiveness. Santa Monica provides its Sustainability Progress Report online at [www.smgov.net/epd/scpr/index.htm](http://www.smgov.net/epd/scpr/index.htm)

Table 7-9: Potential Measures of Effectiveness

Measure	Potential Target
Number of bikeway projects completed	<p>Complete the Tier 1 Priority projects identified in the Bikeways Plan in the next five years (including priority projects linked to the 2012 Bicentennial)</p> <p><i>Objective 1-1 in Chapter 2</i></p> <p>Complete the proposed Bikeway system within 10 years, based on available funding and project costs</p> <p><i>Objective 1-2 in Chapter 2</i></p>
Bicycle mode share	<p>Increase the mode share of trips made by bicycling in Columbus to 10% of all trips in 10 years.</p> <p><i>Objective 2-1 in Chapter 2</i></p>
Trail use	<p>Increase the number of trail users by 10% per year as measured through annual count data.</p> <p><i>Objective 2-2 in Chapter 2</i></p>
Number of collisions involving bicyclists and drivers	<p>Reduce the number of injuries and fatalities by 10% by 2013, and maintain a crash rate (number of crashes in relation to bicyclist mode share) that is the same as or lower than the expected crash rate for a City with Columbus' population.<sup>27</sup> Identify areas with high numbers of bicycle crashes on roadways and the bikeway system and develop the means to mitigate the problem.</p> <p><i>Objective 3-1 in Chapter 2</i></p>
Grant funding received for bikeway projects	<p>Receive an annual average of \$600,000 or more in non-motorized transportation grants.</p>
Percentage of community with access to bicycle facility	<p>90% of residents live within ½ mile of a bicycle facility by 2018</p>
Public attitudes about biking in Columbus	<p>Increase in positive attitudes about biking and about bicycle facilities.</p>
Public attitudes toward bicyclists from drivers	<p>Increase in positive attitudes toward bicyclist from drivers.</p>
Proportion of Arterial Streets with Bike Lanes	<p>Increase in the proportion of arterial streets with bicycle facilities. Suggested target of 25% of all roadway miles by 2018 to spur greater bicycle commuting.</p>
Independent recognition of Columbus' efforts to promote bicycling	<p>Independent recognition of efforts to promote biking and walking by 2013.</p> <p>League of American Cyclist's Bronze Award by 2010 and Silver or Gold Award by 2018</p>

<sup>27</sup> According to the National Highway and Traffic Safety Administration, in 2004, crash rates for bicyclists are 140 per million population injured and 2.47 per million killed. NHTSA *Traffic Safety Facts, 2004 Data, Pedalcyclists* Columbus' crash rate for 2000 through 2004 is 368 per million injured and 1.75 per million killed.

## 7.6. Conclusion

Columbus has shown there is a definite enthusiasm for implementing this plan. The active expression of public interest shown during this master plan development, through a popular online survey, public meetings, and many email submissions, demonstrates several key items:

Many residents feel disengaged from the current system. They feel the city either does not respond to their bike/ped concerns, or is mired down in back logged projects. This plan provides the initial push to organize and tie together diverse neighborhoods, cycling styles, project priority, and communication networks. This is the first comprehensive look at biking in and through Ohio's largest city, and the opportunities far exceed the constraints.

More than ever, cycling and use of the street network and regional trail system has grown. Several trail sections show conditions of over-crowding. New sections of the trail are popular as soon as they are completed. Also, conflicts between cyclists and motorists are showing a steady increase.

The city is well poised to show immediate implementation of some high value, cost effective solutions to specific cycling challenges. This plan helps Columbus respond to several priority challenges in a timely manner, ensuring that the public base of interest stays involved, and will support further efforts.

The future direction of bicycling in Columbus is perhaps best summed up by a quote from Mayor Coleman's 2008 State of the City Address:

“Let's take advantage of our City's flatness... flat is good.

We haven't beaches and oceans... we haven't mountains to climb... but we do have hundreds of square miles of flat land... and we should make the most of it and make biking the #1 outdoor activity... something everyone can do.

So, watch out Ford, wake up Chrysler, take a break Toyota, GM will no longer stand for General Motors... but Get Moving!

We will be moving on bikes – all over our city.”