



Bicentennial Bikeways Downtown Action Plan Review

City of Columbus, Ohio
June 2013



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Introduction

Purpose and Scope

This document is intended to inform the City's current planning efforts with respect to bicycling in downtown Columbus. The aim is to assess progress made since the publication of the Columbus Bicentennial Bikeways Plan (2008) and opportunities which may exist, to help the project team prioritize bicycling related projects for inclusion in the Downtown Action Plan (DAP). The Columbus Bicentennial Bikeways Plan is scheduled to be updated in 2013—this review will also serve as guidance and offer insight for consideration in the 2013 Plan update.

The geographic scope of this document is the downtown area bounded by I-670 to the north, I-70/71 to the east and the south, and the West Inner Belt (Highway 315) to the west. The premise taken is that every street where bicycling is permitted (e.g. excluding limited access highways) in downtown should be a bicycle friendly street, although the type of provision for bicycling will vary according to the street cross section and traffic characteristics. The level of detail is strategic, so the focus is on corridors and programmatic elements (e.g. education, encouragement, enforcement, and evaluation) rather than details such as the need for a particular curb ramp or block-by-block analysis.

The intended audience of this document is the DAP project team, city and agency staff, and decision makers.

Method

This study began with an assessment of conditions for bicycling in the downtown area since 2008. This was based on analyses of available evaluation data, local interviews and collation of relevant documents. The parties contacted included representatives from the City of Columbus Public Service staff, Recreation and Parks Department staff, the League of American Bicyclists and Consider Biking. Based on this assessment, Alta Planning + Design staff then developed near-term and long-term recommendations on how to best accommodate and expand bicycling in downtown Columbus.

It is important to note that since 2008, there have been new developments in the design guidance available for urban bikeways. In particular, the 2012 NACTO Urban Bikeway Design Guide, the 2012 AASHTO Guide for the Development of Bicycle Facilities and the 2009 MUTCD all include new treatments that should be considered in Columbus. This document presents new recommendations for the downtown study area based on this current guidance.

Top: Mayor Michael Coleman, joined by local officials and stakeholders, speaks at a press conference for the kick-off of the 2008 Bicentennial Bikeways Plan.

Planning Context

Columbus Bicentennial Bikeways Plan 2008 (BBP)

Public survey

Alta Planning + Design developed the Columbus Bicentennial Bikeways Plan (Alta, 2008). The plan included a public survey component, which elicited a broad range of priorities desired by the respondents, as seen in **Table 1**. Although a few respondents directly mentioned “downtown”, the geographic locale of many project priorities is unknown and a proportion of these are likely to include downtown streets and paths.

BBP Recommendations

Downtown Bikeways

Figure 1 is derived from the plan recommendations map, with a focus on the downtown. In addition to the bike lane and the Mt. Vernon Ave Downtown Bikeway Connector recommendations, speed tables (raised intersections) were proposed at alley junctions with the street network. The intention was to form a network of low traffic routes for bicycling through downtown.

A full list of the BPP proposed bikeways for downtown is given in **Table 2**.

Downtown Columbus Strategic Plan 2010

Subsequently, the City commissioned the Downtown Columbus Strategic Plan (MSI Design, 2010), or DCSP. The structure of the plan includes:

10 Principles to guide the planning process... applied in the **12 Ideas** section of the Plan, which divides downtown into three distinct planning areas...the Discovery District, the High Street Core and the Riverfront.... The **8 Strategies** address Downtown holistically, identifying the needed policy changes and further study needed to guide the revitalization of Downtown Columbus.

Table 1: 2008 Plan Survey Results

Type of Project	Number	Proportion
Shared Use Paths	28	28.0%
New Trail Development	7	7.0%
Connections / Missing Links	10	10.0%
Upgrades to Existing Trails	8	8.0%
Trails in Highway Corridors	2	2.0%
Regional Trails	1	1.0%
Bicycle Facilities	35	35.0%
Touring Routes	1	1.0%
Bike Parking	2	2.0%
Bike Lanes	25	25.0%
Paved Shoulders	1	1.0%
Connections / Missing Links	6	6.0%
Implementation	15	15.0%
Design & Technology	2	2.0%
Bridges / Crossings	1	1.0%
Bike Blvd	1	1.0%
Downtown / Campus	2	2.0%
Intersections	1	1.0%
East West Connections	3	3.0%
Access	2	2.0%
Amenities	3	3.0%
Programs & Policy	13	13.0%
Education & Enforcement	6	6.0%
Encouragement / Promotion	3	3.0%
Policy	1	1.0%
Maps	1	1.0%
Safe Routes to School	1	1.0%
Transit	1	1.0%
Operations & Maintenance	9	9.0%
Safety / Crash Locations	5	5.0%
Routine Repair	1	1.0%
Capital Maintenance	1	1.0%
Signage	2	2.0%
Total	100	100.0%

Figure 1: 2008 Columbus Bicentennial Bikeways Plan Map of Downtown Proposed Bikeways

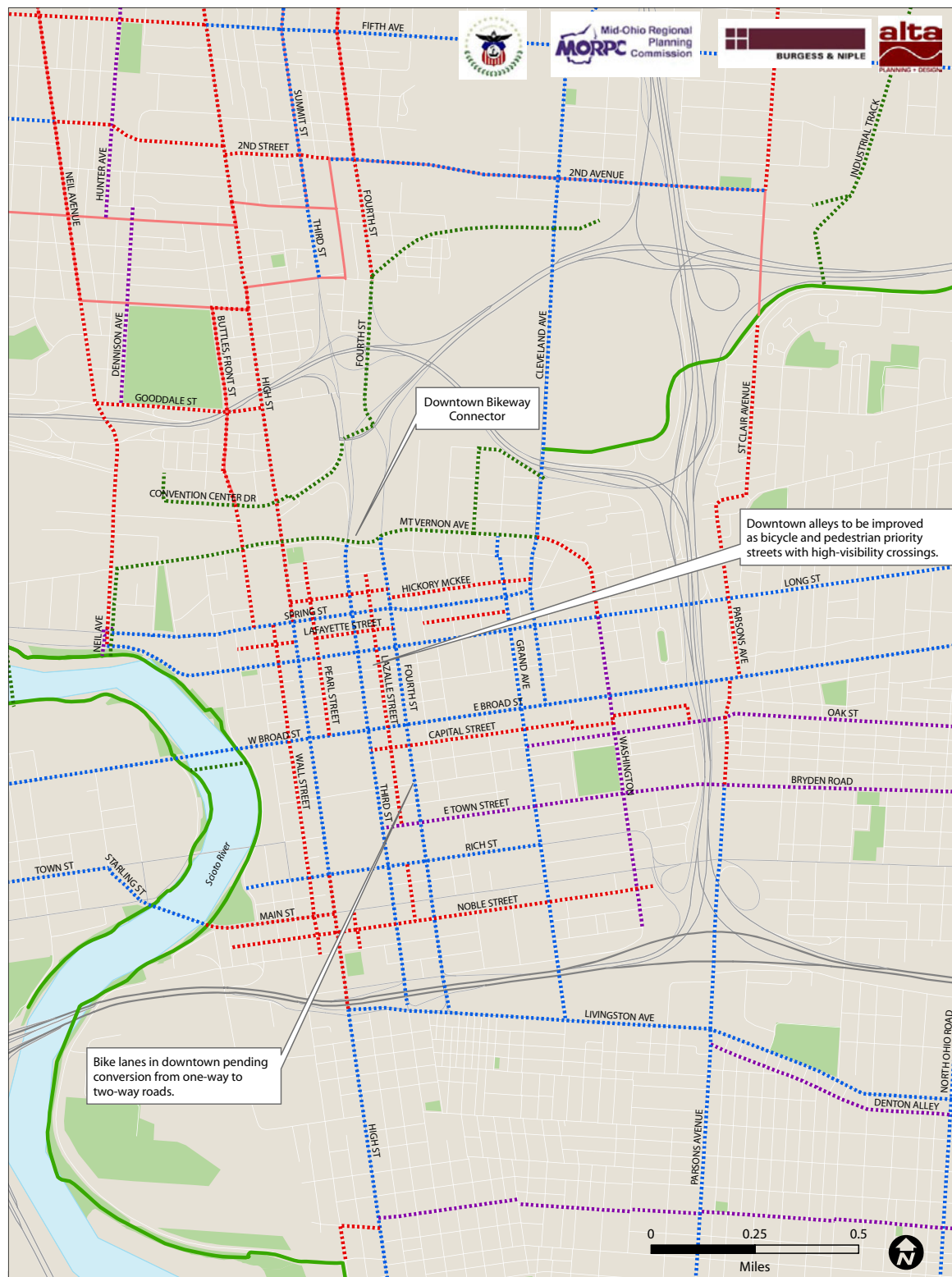


Figure 5-3: Existing and Proposed Bicycle Network: Downtown Columbus

Proposed Bikeways

- Shared Use Path
- Bike Lane
- Bike Boulevard
- Signed Shared Roadway
- Paved Shoulder
- Shared Lane Markings

Existing Bikeways

- Shared Use Path
- Bike Lane
- Signed Shared Roadway
- Paved Shoulder, Wide Curb

- Parks
- Columbus

City of Columbus constructs and maintains bikeways within city boundaries. Bikeways outside of city boundaries are the responsibility of the jurisdiction through which they run. This plan recommends that Columbus collaborate with other jurisdictions to construct continuous bikeways along corridors that run through multiple jurisdictions.

Data Source: City of Columbus, Franklin County, Mid-Ohio Regional Planning Commission, U.S. Census. Map created by Alta Planning + Design. January 2008.

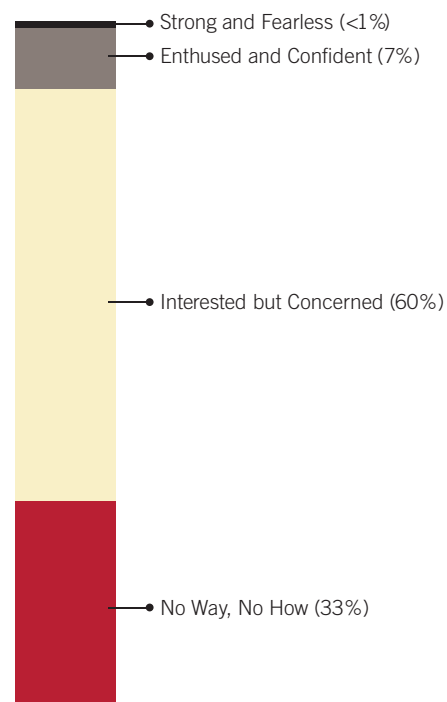
If implemented, many DCSP recommendations will affect transportation mode choice. For the purposes of this summary, only those DCSP components directly relating to bicycling are extracted and summarized.

- Idea 8 relates to the High Street Core area and carries forward a Bicentennial Bikeways Plan recommendation for a downtown bike station:
 - Numerous bike infrastructure investments are currently planned to take place Downtown. The City is working to implement its Bicentennial Bikeways Plan by installing shared lane markings on High Street and constructing new bike lanes. The Capital Crossroads Special Improvement District recently was awarded federal funding to build end-of-ride facilities such as bike shelters, garage parking and bike lockers. As recommended in the City’s Bicentennial Bike Plan, the next step is a Bike Station that combines storage facilities, lockers and showers for commuters, in addition to bike rentals and repairs. Bike stations could be built as stand-alone structures or supplement other transit facilities. Cities from Chicago to Washington, DC have built these facilities as a way to further encourage and promote cycling as an alternative to automobile transportation for both residents and visitors.
- Idea 12 is to further develop the Scioto-Olentangy Greenway Corridor. By removing several dams, a green corridor including bicycle and pedestrian paths could be developed to strengthen the linkage between OSU and downtown.
- Strategy 5: Street network contains an issue statement which notes that the one-way street system was designed to optimize motorized traffic mobility and safety but has created a downtown difficult to navigate for all modes (including walking and bicycling) and recommends conversion of some streets to two-way operation. Several sub-strategies are described for consideration, including: “Apply the City’s “Complete Streets” policies and standards into the downtown street, pedestrian and cycling network taking into account existing conditions and prioritizing aesthetics.”

Figure 2 shows the breakdown of the population by bicyclist type based on a 2006 study by Roger Geller (Jennifer Dill revisited this study in 2012 and found similar results, with slightly more riders in the Strong and Fearless and Enthused and Confident categories). Strong and fearless riders, around 1% of the population, are comfortable riding on most roadways with minimal bicycle facilities. However, in order to attract potential bicyclists from the other population groups, more separated and comfortable bikeways along direct routes are needed (e.g. cycle tracks, discussed later in this report).

The DCSP does not propose specific access corridors with bicycle lanes or paths other than the Scioto-Olentangy Greenway Corridor. Shared lane markings on High Street are a positive development, however research indicates that sharing a lane with motor vehicles will only appeal to the strong and fearless and enthused and confident riders, or less than about

Figure 2: Four Types of Bicyclists



Source: Geller, 2006

10% of the general public (Forsyth and Krizek 2010; Koorey and Kingham 2011; Buehler and Pucher 2012).

Downtown bike stations make sense given the current absence of long term commuter parking within private buildings. However, without bikeways that provide attractive access to bicycle stations and bicycle parking for the majority of the population, their potential use will not be realized.

Infrastructure Developments

The City has produced a memorandum outlining the city-wide progress towards meeting the BBP goals, which in quantitative terms has been substantial. Only those physical elements relating to downtown have been highlighted in this document.



Above: *The City's first in-street bike corral at Yellow Brick Pizza in Old Town East*

End of Trip Facilities Downtown

A number of bike shelters are proposed for downtown and will be equipped with bike air pumps, bike repair stations and info kiosks. This will be the first comprehensive municipal system of its kind in Ohio.

Bicycle parking stands have been installed in 149 locations downtown. Just east of the downtown core, the City's first in-street bike corral was installed in June, 2012 at Yellow Brick Pizza in Old Town East. An in-street corral provides bike parking year-round in a protected area of the roadway pavement. Additional locations are being planned for implementation in 2013.

Completed Downtown Bikeways

The following projects have improved bicycling access to varying degrees since the adoption of the BBP:

- Shared lane markings on High Street and Town St.
- Livingston Avenue street reconstruction at the Children's Hospital, which includes improved pedestrian crossings, bicycle lanes, and stormwater filtration treatments.
- One-way to two-way conversions and associated streetscape enhancements on Gay Street, Civic Center Drive, and portions of Front Street
- Get Green Columbus Initiative including bicycle parking requirements, reduced car parking requirements, new bicycle rack locations, and the installation of bicycle shelters, with the first being constructed at 3rd and Broad St.

A full list of completed and proposed bikeways is provided in **Appendix A**.

Proposed Downtown Bikeways

Figure 3 and **Appendix A** show existing bikeways in the downtown Columbus area at the time of this report, improvement projects proposed in the 2008 BBP plan, the 2012 City-produced document: *Bicentennial Bikeways Plan: Public Service Accomplishments and Plan for the Future* and other proposed bikeways in downtown Columbus such as bikeways proposed as part of The Ohio Department of Transportation I-70/I-71 improvement projects. Appendix A also includes the proposals which are made later in this document.

The list of proposed projects suggests that:

- Shared lane markings or sharrows should not be used as an alternative to bicycle lanes, especially on roadways with high traffic volumes or motor vehicle speeds in excess of 25mph. High Street, Front Street and segments of Town Street were recommended for bicycle lanes in 2008, but shared lane markings were proposed on these corridors in the 2012 document. With the exception of low-speed, low-volume streets where motorists and bicyclists can share the roadway safely and comfortably, defined bikeways are preferred. The greater the roadway speed and volume, the more separation is needed for bicyclists to operate comfortably and safely.
- Intersections should be configured in a way that clearly defines expected movements for all roadway users and highlights potential user conflicts.
- Bicycle boulevards need to be comfortable, attractive, and offer good connectivity for bicyclists to encourage diversion from the busy parallel arterial alternative. Roadway markings are only one component of the bicycle boulevard. Bicycling supportive intersection treatments and traffic calming measures are key elements as well.¹ Additional guidance on bicycle boulevards can be found in the NACTO Urban Bikeway Design Guide.²

Programmatic Developments

The following section outlines programs that have been enacted in Columbus since the adoption of the 2008 Bicentennial Bikeways Plan. Although these programs are not limited to downtown, by their nature they will have an impact on the demand for bicycling access and mobility downtown.

Public Involvement

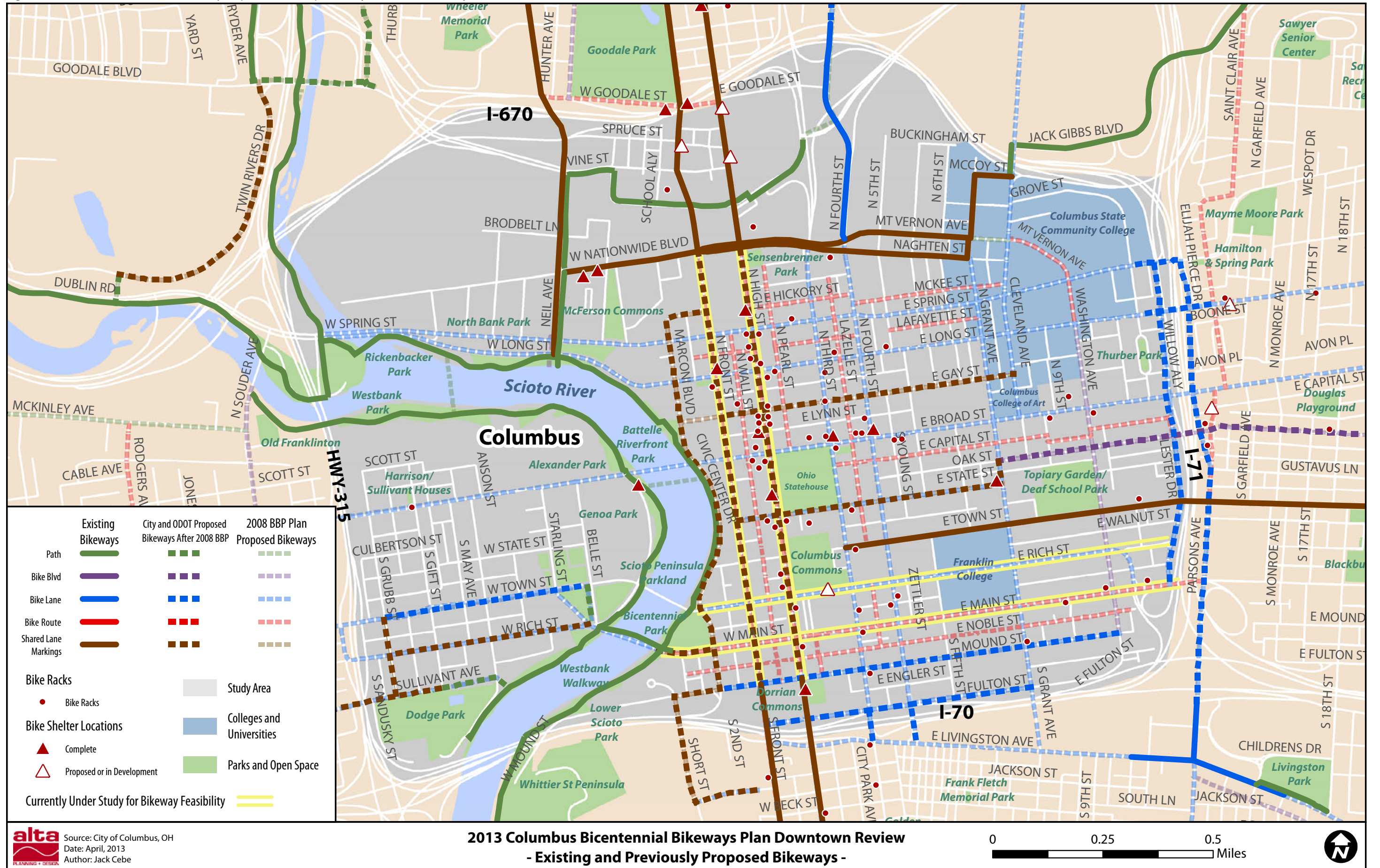
Consider Biking was a partner in the development of the 2008 Bicentennial Bikeways Plan. The organization has a large, engaged board and three permanent staff members. The organization is partnered with several local businesses and organizations such as Community Shares of Mid Ohio and The Institute for Active Living.

The Division of Mobility Options and Pedestrian Commission's Bicycle Subcommittee meetings are held the last Wednesday of each month. Some advocates are pushing hard for separated bicycle facilities (SBFs), arguing that a bicycle lane is not enough to convince the "interested but concerned about safety" segment of the public. Other advocates are taking a more incremental approach.

¹ Walker et al 2009 : Fundamentals of Bicycle Boulevard Planning & Design Guidebook

² <http://nacto.org/cities-for-cycling/design-guide/bicycle-boulevards/>

Figure 3: Downtown Columbus, OH Previously Proposed and Completed Bicycle Infrastructure Projects



alta
Source: City of Columbus, OH
Date: April, 2013
Author: Jack Cebe

2013 Columbus Bicentennial Bikeways Plan Downtown Review
- Existing and Previously Proposed Bikeways -

Rankings and Awards

Columbus received the League of American Bicyclists (LAB) Bronze level Bicycle Friendly Community award in 2009. The LAB application reviewers provided feedback and recommendations to the application. The feedback is summarized in **Table 2**, paraphrased for brevity.

Bicycling Magazine ranks America’s top bike-friendly cities over a population of 100,000 using data from the Alliance for Biking and Walking and the LAB. In 2010, Columbus was ranked 35th out of 50, but in the latest ranking had slipped out of the top 50 to 65th.

There is a perception, whether accurate or not, that Columbus is not keeping up with peer cities, despite the rapid advances made since 2008. This may be addressed in part by increased marketing of the city’s achievements through published report cards rich in graphics and key statistics.

Table 2: Summary of LAB Feedback

Engineering
Promote the bike coordinator position to full-time
Continue to ensure that new and improved facilities conform to ODOT and AASHTO guidelines ¹
Continue practitioner professional development with respect to providing for bicyclists and consider Association of Pedestrian and Bicycle Professionals (APBP) membership for relevant city staff
Continue to increase the number of arterial streets with bike facilities, coupled with expansion of off-street paths
Increase secure bicycle parking through grant (e.g. CMAQ) funding, planning regulations, etc.
Education
Continue share the road and other road user behavior campaigns
Work to get education messages added to routine council communications e.g tax/utility bill mailings
Create a traffic ticket diversion program as suggested in Ohio Revised Code 4511.52
Continue to expand <i>Smart Cycling</i> adult bicycle skills training, consider hosting a League Cycling Instructor (LCI) seminar to expand cycling education and build encouragement program expertise
Encouragement
Support May as National Bike Month, with a Mayor’s Community Bike Ride to showcase the bike network
Consider a Summer Streets event which closes a major corridor for part of a Sunday to motor traffic, encouraging people to walk and bicycle for fun and fitness
Consider a mountain bike and BMX skills park to encourage bicycling sport, fostering a gateway to transport bicycling
Continue to encourage businesses to promote commuter cycling through the Corporate Challenge
Enforcement
Ensure that police officers have general knowledge regarding traffic law as it applies to bicyclists through the Enforcement for Bicycle Safety seminar and other continuing education training materials
Continue to encourage targeted educational and punitive enforcement relating to Share the Road
Evaluation/Planning
Continue to improve data collection methods on bicycle usage and crash statistics
Continue to integrate the development of the cycling network into land use planning

¹ Since the LAB memo, the new 4th Edition Guide to the Development of Bicycle Facilities (AASHTO 2012) and the 2nd Edition Urban Bikeway Design Guide (NACTO 2012) have been released.

Fold Out For Map


Education and Encouragement Programs

Columbus has several programs and campaigns which are underway or recently concluded.

My Columbus Mobile App. This recently developed smartphone and tablet app allows users to view a map of the City's bikeways and report road and trail maintenance issues.

Bike User Map. The Columbus Bike User Map is a tool to match bikeability of roadways to the abilities of bicyclists. It is a collaboration between the City, Central Ohio Transit Authority (COTA), the Mid-Ohio Regional Planning Commission (MORPC) and Consider Biking since 2009. The award winning Bike User Map is in its third printing.

2 by 2012 (Consider Biking). This recently concluded three-year campaign was funded by the Columbus Foundation. The campaign focused on achieving mode shift amongst adults using the single-occupant vehicle for commuting. The stated goals included getting people to replace 2 car trips per month with 2 wheeling, by 2012, with a target of 2% mode shift (to 2.7% from 0.7%). Last measure was 0.7%. Through outreach to human resources managers, employers were identified for events such as "Brown Bag Lunches", bike mechanical checks, and bike maps.

Safe Routes to School (Consider Biking). The Consider Biking Safe Routes to School campaign is now in its second year. Last year the program partnered with Columbus Public Health and worked with 6 elementary and middle schools on improving bicycling and walking to school for students. The program also solicits help from high-school students to serve as "bicycle ambassadors," where they help younger children get to school by traveling with them and teach students about bicycling and walking safety.

Share the Road Campaign (City of Columbus). Share the Road was initiated by Mayor Coleman upon adoption of the 2008 BBP to help Columbus residents understand bicycling laws and encourage everyone to respect each other's right to use the road. The plan is currently being implemented and includes tactics such as television commercials, signage, newsletters, distribution of pocket-sized tip cards, and banners hung along downtown streets.

How We Roll (Yay Bikes). Funded by ODOT, this program has focused on OSU students and staff. It is an education and awareness campaign that seeks to promote vehicular cycling and address the behaviors that most often lead to bicycle and motor vehicle crashes such as riding on the sidewalk, not using bicycle lights and failing to stop at signals and stop signs. The program promotes these initiatives through a grassroots outreach and media campaign, community events such as bicycle tours, and bicycle safety gear and accessory giveaways.

Connect the Core Campaign (Consider Biking). Following the Alliance Benchmarking Report release and the circulation of an idea for a Columbus bicycle share program, Consider Biking suggested that adequate infrastructure would be needed to make bicycle



Above: An informative poster from the How We Roll campaign. "How We Roll began as a unique cyclist safety campaign funded by the Ohio Departments of Transportation and Public Safety and developed by Yay Bikes! to reduce bike/car crashes near The Ohio State University." (source: http://yaybikes.com/portfolio/hwr_campaigns/)

share more successful. This program sought to build public support for bikeways on nine downtown streets, listed in **Table 3**. After a “soft start” in November 2011, momentum built in January 2012 with a newspaper article³ highlighting the campaign.

Evaluation of Bicycle Activity Levels

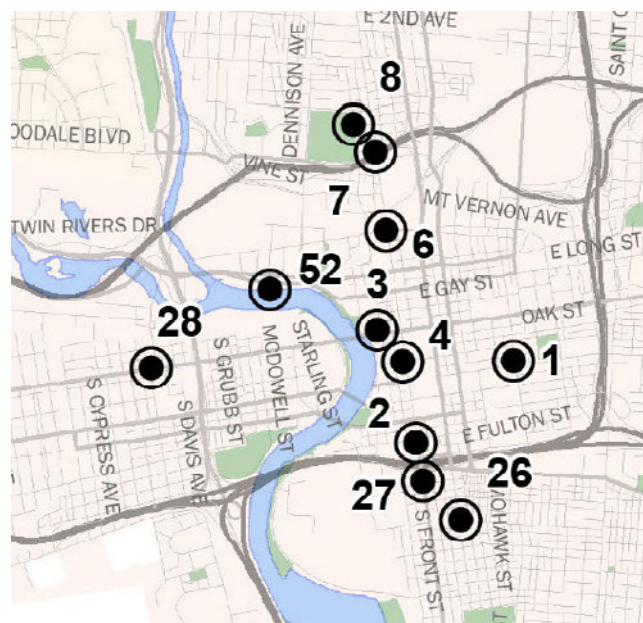
Table 3: Connect the Core suggested priority streets for bikeways

East – West	North-South
Spring St - bike lane (from Washington Ave - Neil Ave)	3rd St - bike lane (Nationwide Blvd - Livingston Ave)
Long St - bike lane (from Neil Ave - Washington Ave)	4th St - bike lane (Fulton Ave - Nationwide Blvd)
Town St - bike boulevard (from Parsons Ave - Columbus Commons)	Grant Ave - bike lane (Livingston Ave - Naughten Rd)
Rich St - bike lane (from Washington Ave - Front St)	Washington Ave - bike boulevard (Spring St - Fulton St)
Noble St - signed, shared roadway	

Since 2005, manual bike counts have been conducted twice annually⁴ at downtown sites as marked on the location map extract provided in **Figure 4**. There are six count sites within the downtown boundary and a further five immediately adjacent to the boundary. The most recent count was taken on September 26, 2012. The count locations not within the study area border the study area and are located on roads which enter or exit the study area. Therefore these roads are considered representative of bicycle traffic volumes in the study area. Permanent bike/pedestrian counters have been installed on some trails and monitored by MORPC staff⁵ since 2010; however these do not have the capability to distinguish modes. No on-street automatic permanent bicycle count stations are currently in operation.

Manual bicycle count data obtained from MORPC has been analyzed over the 2005-2011 period. For the year-by-year comparison shown in **Figure 5**, only the average number of bikes counted at an aggregate of all downtown count locations is shown. This is because the individual count locations are unlikely to have a large enough sample size⁶ to enable statistically significant comparison. Some of the 2005, 2006 and 2010 counts were performed during light rain and therefore likely under-represent the level of bicycling activity in that year. Applying national average weather factors to each of these years may change the rate of change (slope) but not the direction of the upward trend in bicycling activity.

Figure 4: Downtown Area Count Locations



3 Cyclists tell Columbus to get it in gear Group: Bike lanes needed Downtown (1/26/12) <http://www.dispatch.com/content/stories/local/2012/01/26/cyclists-tell-city-to-get-it-in-gear.html>
 4 http://www.morpc.org/transportation/bicycle_pedestrian/project.asp
 5 A report on trail use for The Columbus Parks Department was completed in December of 2012 (source: MORPC planning staff)
 6 Manual counts are limited to a few hours one or two days a year and the variability in the observed values (number of bicyclists) is high for small numbers.

Although it is not statistically valid to make a year-by-year comparison of bicycle traffic at individual locations due to conditional variance, an indicative comparison of the relative bicycle traffic between locations is illustrated in **Figure 6**. The likely substantial effect of weather and other confounding factors is lessened by averaging the counts for all seven years of available data. The key import of this graphic is that the Scioto trail (site 52) has a substantially larger average two-hour bicycle count than all other locations except High Street south of Poplar Avenue (site 7). This is most likely due to these bikeways' high level of appeal to bicyclists in terms of comfort, safety, aesthetics and connectivity. Unfortunately,

Figure 5: Average Number of Bicyclists Counted per Year (source: MORPC)

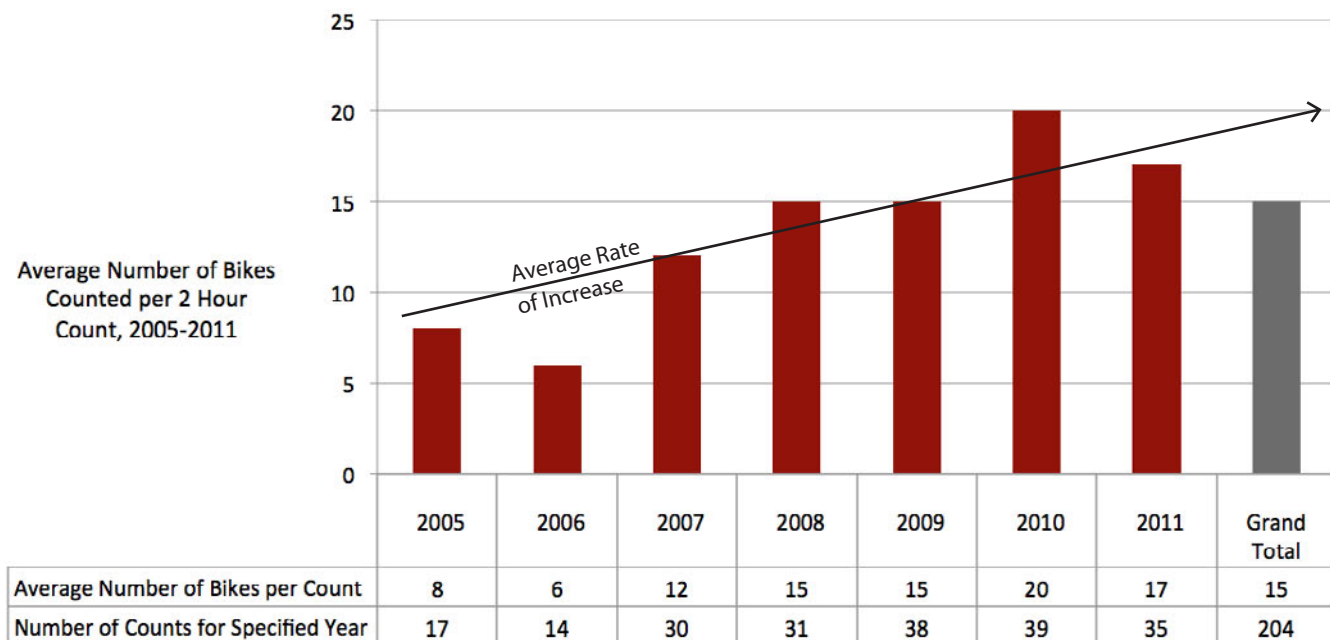
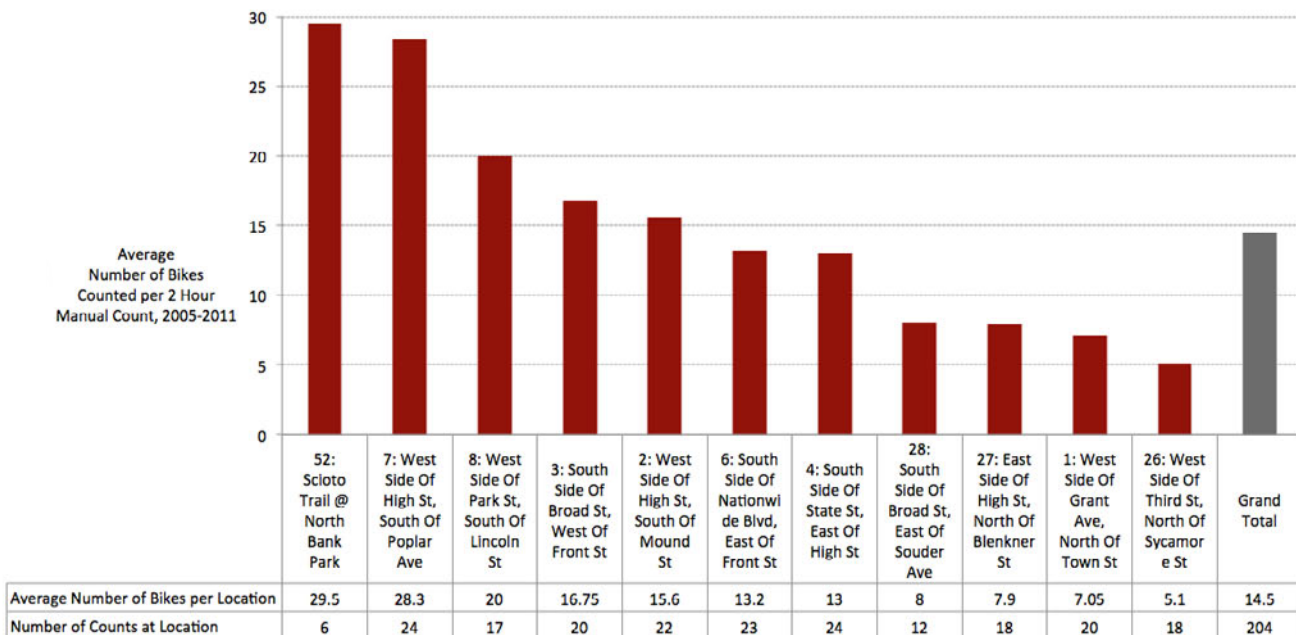


Figure 6: Average Number of Bicyclists Counted per Location (source: MORPC)

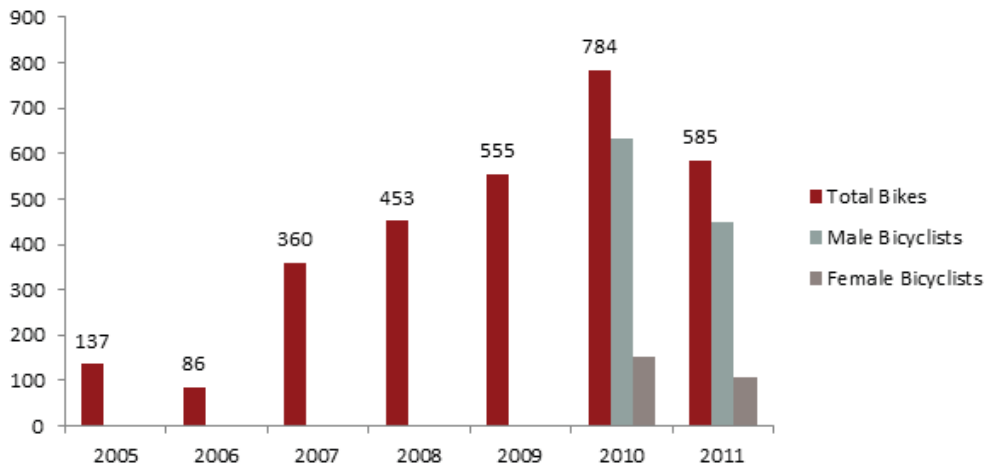


count data is not available for all downtown streets and therefore the usefulness of this analysis for corridor prioritization is limited.

The male/female split was only collected for 2010 and 2011 counts as shown in **Figure 7**, but for these two years the data suggests that about three quarters of bicyclists are male. Transportation systems which provide greater perceived safety for bicyclists tend to attract a more equal gender balance (Buehler and Pucher 2012).

Consider Biking reports anecdotal observations that there appears to be many more people cycling with the recent drought and recession. 2011 was a very wet year, which may have reduced bicycling. These influences are difficult to measure without obtaining and analyzing a larger dataset including economic indices, weather records, and much larger count sample sizes.

Figure 7: Total Number of Bicyclists Counted (source: MORPC)



Recommendations

Planning and Evaluation

Bicycle activity monitoring

A good evaluation and needs assessment tool that Columbus could expand upon is conducting counts of the number of bicyclists using key downtown routes and bikeways. For routes, the city could supplement the existing bicycle count program with automatic, permanent count stations. After one full year of data collection, the data collected at permanent count stations would enable the development of hourly, daily, weekly, and monthly expansion factors to annualize the short term count data. Weather factors could be developed to adjust data collected during wet periods. For end-of-trip facilities, the city could perform periodic parked bicycle counts.

Count locations should be places where there is a presence of bicyclists or an expected increase after improvements have been made. There is little point in conducting counts in locations where pedestrians and bicyclists are almost non-existent.

General count locations should be selected based on the following considerations and suggested criteria:

- Bicycle activity areas or corridors (downtowns, near schools, parks, etc.).
- Along major bike routes into downtown, especially at the crossings of key barriers.
- Key corridors that can be used to gauge the impacts of future improvements, such as locations where future bicycle improvements are planned.
- Locations where counts have been conducted historically.
- Locations where bicycle collision numbers are high.

Automatic count technologies are useful in conducting longer-term counts, establishing daily, weekly, or monthly variations and almost always require fewer person-hours. The most common technologies used for automatic bicycle counts are:








- **Passive infrared** (detects a change in thermal contrast) - best suited for locations where there is little grouping, however it cannot distinguish between bicycles and pedestrians.
- **Active infrared** (detects an obstruction in the beam) - can distinguish between bicyclists and pedestrians, and is therefore appropriate for shared use pathways.
- **Video imaging/playback** (either analyzes pixel changes or data are played back in high speed and analyzed by a person) - can provide information concerning user type, behavior, and demographics, in addition to count data.
- **Ultrasonic** (emits ultrasonic wave and listens for an echo).

- **Doppler radar** (emits radio wave and listens for a change in frequency).
- **Pneumatic tube** (traditional air pressure rubber sensors fixed on top of pavement) – suitable for short term (2-14 day) counts on paths or bike lanes. Where motor vehicles may encroach on the bike lane or in mixed traffic conditions, classification methods can separate bicycles from longer wheelbase vehicles, however, accuracy is not as high.
- **Piezoelectric** (senses pressure on in-pavement cables or pads) – suitable for repeated longer term (>2 week) or permanent (365 day) count sites; most appropriate for counting bicycles on pathways away from motor vehicles; accuracy is improved when positioned away from road vibration caused by heavy vehicles.
- **In-pavement magnetic Loop** (senses change in magnetic field as metal passes over it) – suitable for repeated longer term (>2 week) or permanent (365 day) count sites; the latest magnetic sensors and loggers are capable of accurately distinguishing bicycles in mixed traffic streams.

The choice of an automatic count technology primarily depends on the type of data that is required, the project budget, and the number of staff available. All automatic count technologies require calibration. The physical installation of the counting device is another important consideration. Some infrared technology requires sensors to be installed on both sides of the pathway, while other devices can be effectively installed in locations with poles/street lights on just one side of the pathway or sidewalk, such as in an urban setting.

All automated count technologies have an error factor, meaning that they will fail to detect a certain percentage of passing bicycles or pedestrians. Depending on the technology and model, “no-detection rates” vary from 1% to 48%. Correction factors can be developed by comparing automated counts with manual counts. For example, if comparisons with manual counts indicate that an automatic counter has a 5% no-detection rate, the jurisdiction can factor up its automated counts by 5%.

Figure 8: Columbus Bike Map (2012) Legend extract

	<p>GOOD Low-traffic roadways where bicyclists and motorists can more safely share the road. Suitable for bicyclists with basic skills.</p>
	<p>MODERATE Roadways where the speed and volume of traffic may present challenges, especially at peak hours. Suitable for bicyclists with intermediate skills.</p>
	<p>POOR Roadways with a high volume of traffic or high speeds. Extreme caution should be used on these roadways. Suitable only for bicyclists with advanced skills.</p>
	<p>RESIDENTIAL These routes are generally low-traffic and low-speed, and suitable for bicyclists with basic skills. Some are preferred routes suggested by local bicyclists for getting from one area to another.</p>
	<p>EXISTING OFF-ROAD BIKEWAY A shared-use path on which bicycles are permitted. Separate from roadways.</p>
	<p>BIKE LANE OR SHARROW On-street designation for bicycles with paint markings in or alongside traffic lanes.</p>
	<p>COMMITTED BIKEWAY Site of a future bikeway facility.</p>

Planning maps

The City’s 2012 Bike Map uses an innovative Level of Service (Good, moderate, poor) symbolization of routes with no particular bikeway as seen in **Figure 8**. For bikeways, routes are given a solid blue line for off-road paths, a dotted line for lanes and shared lane markings, and a dashed line for future bikeways. While this approach is considered to be generally intuitive for public users, a different symbol set is recommended for planning maps as outlined in **Table 4**.

Guidelines for these facilities are provided in 2009 Manual on Uniform Traffic Control Devices (MUTCD), the 4th Edition Guide to the Development of Bicycle Facilities (AASHTO 2012), and the second edition of the Urban Bikeway Design Guide (NACTO 2012).

Table 4: Bikeway Types for Planning Purposes

Bikeway Type	Examples
Path	<ul style="list-style-type: none"> • A shared use path is intended for concurrent use by bicyclists, pedestrians and other non-motorized users (e.g. greenways) • Separated bicycle facilities (SBFs) are exclusively for bicyclists with physical separation (e.g. curbs, bollards) from general traffic lanes. SBFs are typically called cycle tracks* and may be either: <ul style="list-style-type: none"> ◦ a protected bicycle lane at roadway level or ◦ a bicycle path at a higher level than the adjacent road
Bike Lane	<ul style="list-style-type: none"> • A traditional bike lane is separated by paint striping only (no physical separation).
Bicycle Boulevard	<ul style="list-style-type: none"> • A road corridor that has multiple improvements to make bicycling a preferred transportation route. Typically includes pavement markings such as sharrows, traffic calming, bicycle wayfinding signage, and intersection improvements.
Shared Lane Markings or Sharrows	<ul style="list-style-type: none"> • A road corridor where pavement markings on the outside lane, along with “Share the Road” signage, indicate to motorists that bicyclists are to be expected on the roadway.**
Bike Route	<ul style="list-style-type: none"> • Sharrows (shared lane markings) for low speed streets • Signposted wide curbside lane or signposted paved shoulder
Not classified	<ul style="list-style-type: none"> • Paved shoulder not on a designated bike route • Wide curbside lane • Local streets with relatively low traffic volumes

* See Figure 9 on page 18 for images depicting different cycle track typologies.

**Shared Lane Markings should only applied to streets with 3,000 ADT or less and a design speed of 25 mph or less.

Infrastructure

Bikeway types and design guides

In addition to on-street bicycle lanes and shared lane markings (or sharrows), downtown treatments may include road diets, bicycle boulevards (including traffic calming measures to reduce speed and volume of traffic), and connections to off-street paths and trails. Extensive information on the application of these treatments is available in the 4th edition of the AASHTO Guide for the Development of Bicycle Facilities⁷, in the 2009 Manual on Uniform Traffic Control Devices (MUTCD)⁸, and the 2nd edition of The NACTO Urban Bikeway Design Guide.⁹ All three documents were released following the 2008 BBP, and contain up-to-date guidelines or standards for bikeway planning and design that support the recommendations presented in this report. The NACTO and AASHTO guides are not statutory requirements or standards, rather they should be considered alongside the site-specific application of professional engineering judgement.

Bikeway recommendations

After reviewing previous bicycle planning efforts, input from selected officials and stakeholders, and recently completed and planned infrastructure improvements for downtown Columbus, the Alta team generated several near-term and long-term bikeway recommendations. It is believed that implementing these recommendations will improve bicycling safety and comfort and promote new ridership in the downtown area quickly, while working within the constraints that downtown Columbus presents. These recommendations are intended to help Columbus become a top-level bicycle friendly community by utilizing innovative designs that have been developed since the 2008 Plan was created.

The recommendations of this Review can be seen in **Figure 11** on page 21 and are listed in the table in **Appendix A**. The recommendations in this map are a combination of selected previous proposals and new proposals. Highest priority recommended projects are listed in the near-term recommendations of this section, but all recommendations in the map and the table are worthy of consideration in the expansion of the downtown Columbus bikeway network.

In the near term, the City should focus on generating two premiere, cross-downtown cycle tracks: one providing a two-way north/south connection, the other a two-way east/west connection. Such connections would provide comfortable and safe access to the downtown core for bicyclists of multiple skill and comfort



Figure 9: Examples of physically separated bicycle paths. Top : a one-way protected cycle track in Chicago, IL. Middle: a two-way protected cycle track in Washington, DC. Bottom: a two-way raised, separated cycle track in Indianapolis, IN. NACTO guidance for the design and implementation of cycle tracks can be found here: <http://nacto.org/cities-for-cycling/design-guide/cycle-tracks/>

7 https://bookstore.transportation.org/item_details.aspx?id=1943

8 <http://mutcd.fhwa.dot.gov>

9 <http://nacto.org/cities-for-cycling/design-guide/>

levels. Cycle tracks are physically separated bikeways, either at the roadway level (a bicycle lane separated from other lanes by vertical physical elements such as a curb, planters, or bollards) or above the roadway level (a pathway exclusively for the use of bicyclists). US examples of different cycle track configurations can be seen in **Figure 9**. These bikeways will provide a safe, comfortable route for bicyclists of multiple abilities and will provide better access to and from the downtown core from surrounding areas.

North/South Premiere Bikeway Corridor

Grant Avenue is the recommended corridor for the North/South bikeway. This bikeway will connect to the pathway along Jack Gibbs Blvd to the north via McCoy Street and Cleveland Ave and will terminate at Livingston Ave to the south. Third and Fourth Street were both considered for this bikeway, but were ruled out due to their high speed, I-670 access ramps and high volumes of traffic. However, if plans for the 4th Street streetcar are revived in the future, cycle tracks should be considered in the redevelopment of this corridor.¹⁰ Grant Avenue has several advantages that make it a good candidate to accommodate cycle tracks:

- There are existing traffic calming measures such as mid-block and high-visibility pedestrian crossings, street trees, and on-street parking as well as shared lane markings along portions of the corridor.
- There is sufficient right of way and relatively low vehicular demand that make this corridor a good candidate for a road diet.
- There is ample off-street parking that would accommodate the loss of on-street parking.
- The Grant Avenue Bridge over I-71 is a preferred bicycle connection to the city center from the South since there are no conflicts with traffic entering or exiting the highway.

The Grant Avenue corridor will connect to the I-670 bikeway at the north via the I-670 underpass on Cleveland Avenue. However, this section is a five-lane cross-section, including the turn lane, and will pose significant crossing challenges for bicyclists. It is recommended that this connection be studied further. To the

south, the Grant Avenue corridor will connect to proposed bicycle lanes on Livingston Avenue.

A traffic study will need to be conducted to determine the future impact that reallocating roadway space on Grant Avenue would have on downtown multi-modal level of service.

East/West Premiere Bikeway Corridor

For the East/West corridors, there are several options for cycle tracks shown on the recommendations map which should be studied further. Each of the following corridors has unique advantages and disadvantages for accommodating cycle tracks:



Figure 10: Example of bicycle intersection accommodations in Chicago, IL. <http://nacto.org/cities-for-cycling/design-guide/intersection-treatments/intersection-crossing-markings/>

¹⁰ Fourth Street Streetcar plans are indefinitely on hold

PROVIDING FOR BICYCLING IN DOWNTOWN COLUMBUS:

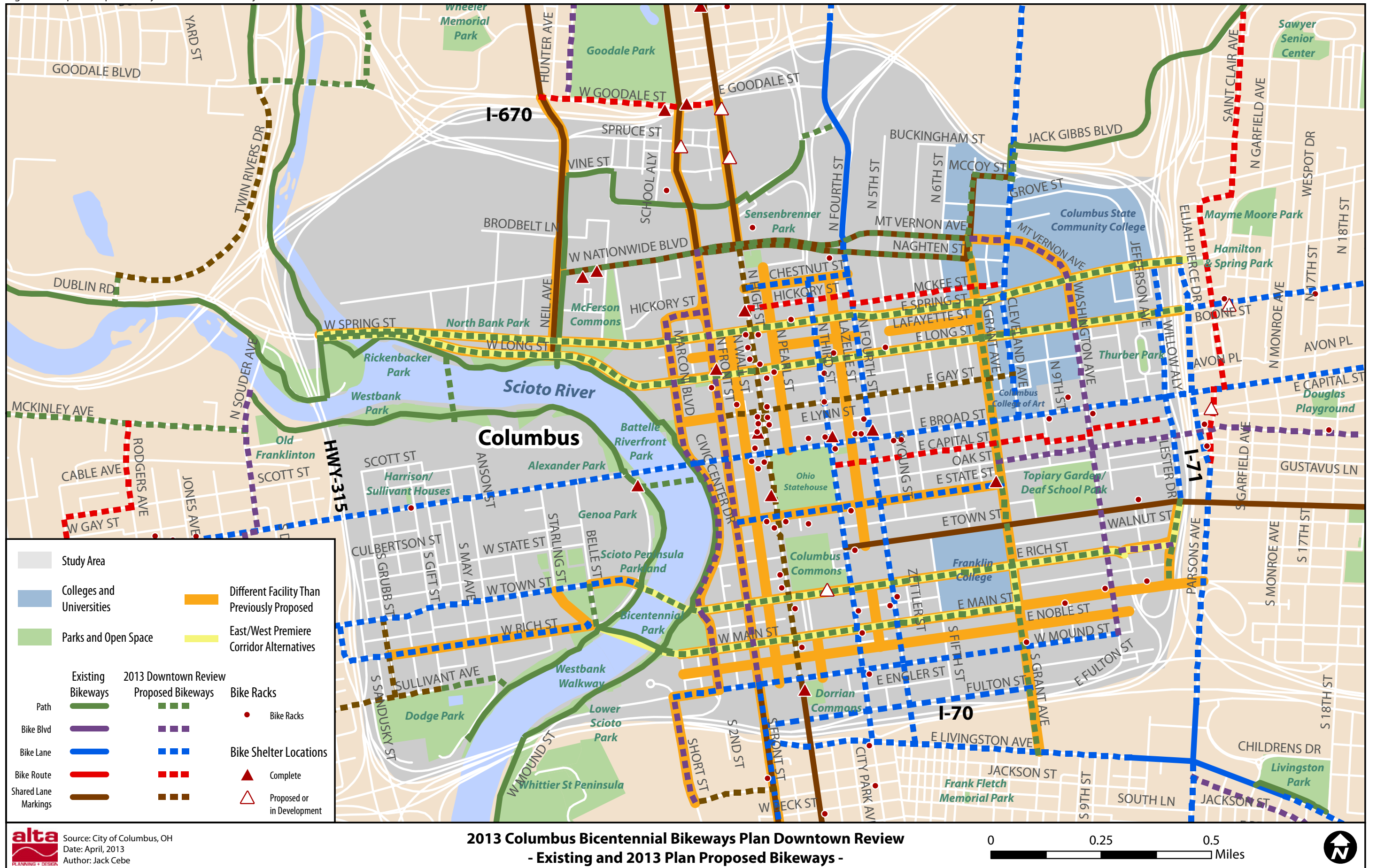
- Main Street has the advantage of having a new, attractive separated crossing for bicyclists over the Scioto River along the new Main Street Bridge. This would provide connection to future bicycle lanes on Town Street West of the river. However, multiple conflict points at the I-71 overpass would require the route to connect to the East at the Town Street Bridge via Rich Street and a proposed bike lane on Lester Drive.
- Rich Street is also a good candidate for receiving cycle tracks. To the East where Rich Street intersects Lester Street, bicyclists could be easily routed along a two-way cycle track or two-way bicycle lanes on Lester Street (south-bound bike lanes are to be completed as part of I-71 improvements in 2014) to provide relatively safe and comfortable crossing of I-71 at Town Street. Rich Street is a one-way corridor and would require a two-way cycle track with bicycle signals, or reconfiguration of the street as a two-way corridor and the addition of one-way cycle tracks in each direction. Either treatment will require further study to determine feasibility.
- Long Street and Spring Street become good opportunities for one-way physically separated bike lanes with the removal of highway access ramps at I-71 as part of planned I-71 improvements. Another attractive feature of these corridors as Premiere Bikeway options is the limited number of mid-block driveways – this will limit conflict points for bicyclists and vehicles. To the west, these facilities would provide connection to Olentangy Trail and could continue along Dublin Road.
- Town Street and State Street were studied as potential corridors as well. While these streets are ideal in that they have relatively low traffic volumes and some traffic calming, neither is able to provide continuous bicycle connection from East of downtown to West of downtown. State Street is interrupted by the State Supreme Court building and plaza, and Town Street is interrupted by the Commons. For these reasons, a continuous and legible connection is more difficult to provide on either of these streets

It is recommended that the City measure the level of existing bicycle demand and reach out to the bicycling community to help guide the selection of an East/West corridor. Connection to the future bicycle boulevard along Oak Street and Fair Avenue is also an important consideration to take into account.

Additional Near-Term Recommendations

- Front Street and Marconi Boulevard are shown on the recommendations map as bicycle boulevards. At present, shared lane markings alone on these wide, one-way streets may not encourage many people to bicycle on these routes. Bicycle boulevards are typically recommended on low volume streets (<5000 ADT), currently ADT on both Front Street and Marconi Boulevard are approximately 7000-8000 ADT. However, with a future north extension of two-way traffic flow on Front Street and conversion of Marconi Boulevard to two-way operation, shared lane markings could be augmented with further traffic calming and relocation measures to lower traffic speeds, reduce motor vehicle through traffic, and better reflect the local access function of this important commercial area.
- Maintain a consistent bikeway type along corridors and bikeway connections as much as possible. Changes in bikeway type may be necessary where roadway sizes and conditions change.

Figure 11: Report Proposed Bicycle Infrastructure Projects



alta
PLANNING + DESIGN
Source: City of Columbus, OH
Date: April, 2013
Author: Jack Cebe

2013 Columbus Bicentennial Bikeways Plan Downtown Review
- Existing and 2013 Plan Proposed Bikeways -

0 0.25 0.5 Miles



Fold Out For Map
→

PROVIDING FOR BICYCLING IN DOWNTOWN COLUMBUS:

- High-visibility bicycle accommodations should be included at any intersection where bikeways intersect a major roadway.
- Utilize Hickory Street, McKee Street and Capital Street alleys as low-volume bicycling alternatives to higher-capacity parallel streets such as Spring St, Long Street and Broad Street. This will require bicycle route signage and intersection improvements at major intersections. Specific traffic studies will be required for intersections of alley bikeways and major roads to determine what intersection accommodations are appropriate. The NACTO Urban Bikeway Design guide provides guidance for Bicycle Boulevards (also known as Neighborhood Greenways) at major intersections and offset crossings—these concepts could be utilized at these locations.¹¹

The following are near-term recommendations adapted from the 2008 BBP that provide additional potential opportunities for downtown Columbus:

- Study the feasibility of implementing a road diet and installing bicycle facilities along Broad Street. The Broad Street corridor, especially West of downtown, could provide a direct connection to the downtown core.
- Study the feasibility of a bicycle and pedestrian bridge over the Scioto River, adjacent to North Bank Park, using the historic railroad structure. This would provide a iconic, major connection to downtown Columbus.

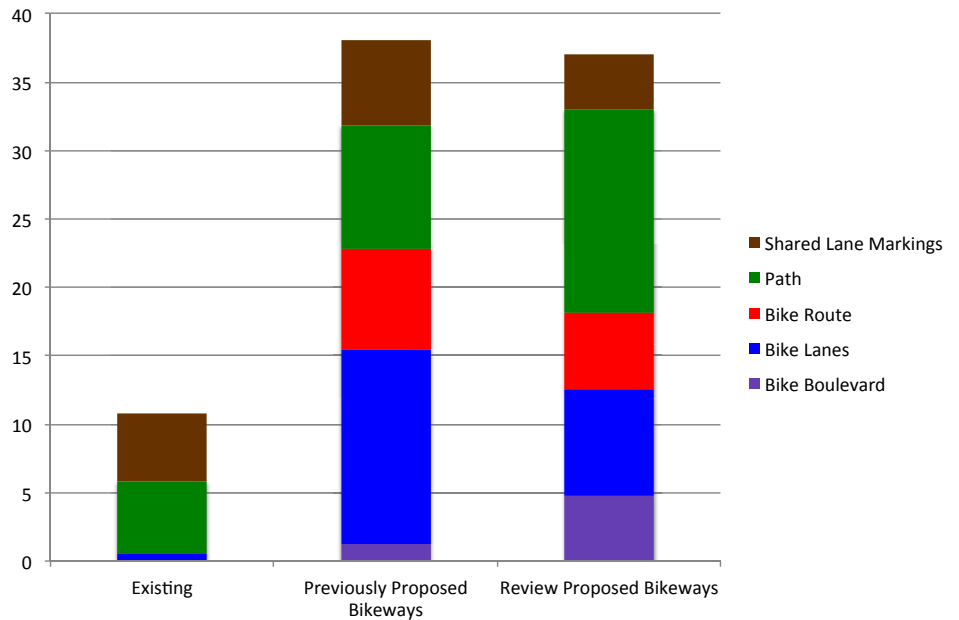
Long-Term Recommendations

- As streets throughout the downtown are re-surfaced or re-stripped, coordinate the installation of the recommended bikeways in this Review with these roadway projects where feasible. This will ensure the cost-effectiveness of roadway projects. However, it may be determined that some corridors warrant more immediate attention, such as those identified in the near-term recommendations, due to user demand and/or safety concerns.
- As streets throughout downtown are re-engineered, complete streets principles should be applied. These can include, but are not limited to: application of traffic calming techniques, landscaping, natural stormwater filtration, road diets, pedestrian accommodations, improved transit facilities and bicycle accommodations along roadways and at intersections. Also, study the feasibility of adding separated facilities (e.g. bicycle lanes, buffered bicycle lanes or cycle tracks) along streets as they are re-engineered. Cycle-tracks are appropriate on streets that would cause cyclists to feel stress using other, less separated types of in-roadway facilities due to high traffic volumes, high speed traffic, high parking turnover, etc.
- Institute lower speeds on streets where shared lane markings are currently installed or proposed, and actual speeds are over 25 MPH. This can be accomplished through strategic application of various traffic calming or speed management techniques. If traffic calming is not feasible on these corridors, consider separated bicycle facilities such as bicycle lanes or cycle tracks.

The general near-term and long-term mentioned in this section recommendations apply to all roadway projects recommended in **Figure 11** and **Appendix A** of this Review. **Figure 12** at the top of the following page shows the breakdown of the total mileages in downtown Columbus among the various proposals presented in this report.

¹¹ <http://nacto.org/cities-for-cycling/design-guide/bicycle-boulevards/>

Figure 12: Mileage Comparison Among Existing Facilities and Various Proposals



Ancillary Improvements

While bikeways are a crucial element of any successful bicycling network, there are many other infrastructural improvements that support the growth of bicycling. End of trip facilities are equally as important as bikeways for supporting bicycling transportation. As discussed earlier, the City is installing new end of trip bicycling facilities such as bicycle racks, on-street bicycle parking, maintenance stations and bicycle shelters at popular destinations in the downtown area. In addition, the City revised the parking element of the zoning code in May 2010 to reduce auto space requirements and include bicycle parking requirements.¹² To continue this trend, it is recommended that the City consider installing protected bicycle parking in existing parking garages and retrofitting existing parking meters with bicycle rack attachments to cost-effectively expand secure bicycle parking capacity.

Land use also has a great impact on an area’s “bikeability.” When destinations are separated by great distances, and the only direct roadways between destinations are wide, high-speed arterial and collector roads, it reduces the ease and attractiveness of bicycling for transportation. Bicycling for transportation is best served by dense, mixed-use development and an interconnected street network.¹³ Therefore, The City should ensure that the Downtown Action Plan and subsequent revisions to the zoning code includes land-use policies which generate denser, mixed-use development over time. While the aforementioned revisions to the parking element have also reduced motor vehicle parking requirements, this might be augmented by a “sinking lid” policy to reduce total downtown parking supply (on and off-street) over time, while ensuring that parking is distributed to where it is most needed.

Bicycle share programs, in conjunction with other bicycling improvements, have also been shown to increase bicycling activity levels in cities across the world. According to research conducted by Bikes Belong: “Bike sharing is a cost-effective way to increase bicycling. It also has the potential to make bicycling more

¹² <http://development.columbus.gov/planning/parking.aspx>

¹³ Bicycling Supportive Land Use Policies: <http://www.bicyclinginfo.org/develop/policies-land.cfm>

mainstream. When combined with infrastructure improvements, it is a top way to grow bicycling in U.S. cities.”¹⁴ The new bike share system in Columbus will be a significant addition for the City. The system is scheduled for launch in 2013, and new downtown bikeways will support use of bike sharing.

Education, Encouragement and Enforcement Programs

Columbus, OH has initiated many programs in recent years that provide good support for the expansion of bicycling throughout the city. An overview of these programs is provided in the Programmatic Developments section of this report (p. 8). It is recommended that the City continue to support and develop these efforts by following the League of American Bicyclists recommendations that were made during the most recent LAB Bicycle Friendly Cities Program review (as summarized in **Table 2**).

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¹⁴ <http://www.bikesbelong.org/resources/stats-and-research/research/bike-sharing-in-the-united-states/>

Quality Assurance Statement

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	Client	Steve <u>Thieken</u> , Burgess & <u>Niple</u> Daniel Moorhead, City of Columbus
	Project number	2012-184

Document Revision Schedule

Rev No.	Revision Title	Date	Description
1	Draft	10/12/2012	Draft for client review
2	Draft	2/6/2013	Second draft for council staff review Note: A separate "Columbus Sharrows Policy" memo was delivered on 3/29/2013
3	Draft	4/11/2013	Third draft with GIS mapping and project updates
4	Final	6/25/2013	Final report with minor edits, project updates

Appendix A - Table of Existing, Previously Proposed and Newly Proposed Bikeway Facilities

This table shows the previously built bikeways, previously proposed bikeways and newly proposed bikeways within the downtown study area of this review. The data in the table was compiled from GIS data provided by the City of Columbus. A blank space in the table indicates no information or bikeway exists. **Yellow highlighted rows** indicate that the recommendation in this Review is different from the most recent proposal.

* indicates that the proposal will be implemented as a result of collaboration between the city of Columbus and the Ohio Department of Transportation on the I-70/71 Columbus Crossroads Project.

† indicates proposal changed between the 2008 BBP proposals and Columbus 2012-2014 proposals.

Segment	Start	Stop	Existing Bikeway	Year Built	Previously Proposed Bikeway	Status	BBP Review Proposed Bikeway	Miles within Study Area	Notes
Belle St †	Town St	Main St Bridge			Path	Committed	Path	0.08	
Broad St	Franklin County Line	Madison County Line			Bike Lanes	Proposed	Bike Lanes	1.92	
Capital St	Third St	Lester Dr			Bike Route	Proposed	Bike Route	0.84	
Chestnut St.	High St	Fourth St			None	None	Bike Lanes	0.25	
Civic Center Dr	Rich St	Broad St			Shared Lane Markings	Committed	Bike Boulevard	0.35	
Cleveland Ave	Broad St	McCoy St			Bike Lanes	Proposed	Bike Lanes	0.54	
Cleveland Ave	McCoy St	I-670 Bikeway	Path	2010	Bike Lanes	Existing	Bike Lanes	0.07	
Fourth St	I-670 On Ramp	Nationwide Blvd	Bike Lanes	2012	Bike Lanes	Existing	Bike Lanes	0.50	
Fourth St	Nationwide Blvd	Mound St			Bike Lanes	Committed	Bike Lanes	1.05	
Fourth St*	Mound St	Livingston Ave			Bike Lanes	Committed	Bike Lanes	0.06	The South Innerbelt project will rebuild S Fourth St between Livingston Ave and E Fulton St as a one-way northbound arterial street with a bike lane. The current ramp from I-70 westbound will be removed. Construction could begin as soon as 2016 or as late as 2026
Front St	Goodale St	Nationwide Blvd	Shared Lane Markings	2011	Bike Route	Existing	Shared Lane Markings	0.34	
Front St †	Nationwide Blvd	Mound St			Shared Lane Markings	Committed	Bike Boulevard	1.00	Currently under study by B&N for a bicycle facility
Front St †	Mound St	Whittier Ave	Shared Lane Markings	2013	Shared Lane Markings	Committed	Bike Lanes	0.12	The South Innerbelt project will rebuild S Front St between Livingston Ave and W Mound St as a two-way arterial street with sharrows. Construction could begin as soon as 2016 or as late as 2026
Fulton St	Front St	Third St			Bike Lanes	Committed	Bike Lanes	0.24	

Appendix A - Table of Existing, Previously Proposed and Newly Proposed Bikeway Facilities (continued)

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Segment	Start	Stop	Existing Bikeway	Year Built	Previously Proposed Bikeway	Status	BBP Review Proposed Bikeway	Miles within Study Area	Notes
Fulton St*	Third St	Grant Ave			Bike Lanes	Committed	Bike Lanes	0.37	East Interchange reconstruction will include a bike lane on Fulton St between S Third St and S Grant Ave. Construction could begin as soon as 2014 or as late as 2020
Gay St	Marconi Blvd	Front St			Shared Lane Markings	Committed	None	0.06	Gay St right-of-way was vacated by the City, however, bicyclists are currently using this route to connect from the Scioto Trail into downtown
Gay St	Front St	Cleveland Ave			Shared Lane Markings	Committed	Shared Lane Markings	0.70	
Grant Ave	Livingston Ave	Naghten St			Bike Lanes	Committed	Path	1.01	
Grant Ave	Naghten St	Mt Vernon Ave	Shared Lane Markings	2010	Bike Lanes	Existing	Path	0.05	
Grant Ave	Mt Vernon Ave	McCoy St	Shared Lane Markings	2010	Path	Existing	Path	0.15	
Grubb St	Town St	Sullivant Ave			Shared Lane Markings	Committed	Shared Lane Markings	0.16	Direction reversal and installation of Shared Lane Markings, to be completed in late 2013
Hickory St	Spring St	Front St			Shared Lane Markings	Committed	Bike Boulevard	0.14	
Hickory St	High St	Fourth St			Bike Route	Proposed	Bike Route	0.25	
High St	Buttles Ave	Nationwide Blvd	Shared Lane Markings	2010	Bike Route	Existing	Shared Lane Markings	0.56	
High St †	Nationwide Blvd	Mound St			Shared Lane Markings	Committed	Shared Lane Markings	1.00	Currently under study by B&N for a bicycle facility.
High St*†	Mound St	Whittier Ave	Shared Lane Markings	2013	Shared Lane Markings	Committed	Shared Lane Markings	0.14	The South Innerbelt project will rebuild High St between Livingston Ave and W Mound St as a two-way arterial street with sharrows. Construction could begin as soon as 2016 or as late as 2026
Lafayette St (discontinuous alley)	Ludlow St	Grant Ave			Bike Route	Proposed	None	0.55	

Appendix A - Table of Existing, Previously Proposed and Newly Proposed Bikeway Facilities (continued)

This table shows the previously built bikeways, previously proposed bikeways and newly proposed bikeways within the downtown study area of this review. The data in the table was compiled from GIS data provided by the City of Columbus. A blank space in the table indicates no information or bikeway exists. **Yellow highlighted rows** indicate that the recommendation in this Review is different from the most recent proposal.

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Segment	Start	Stop	Existing Bikeway	Year Built	Previously Proposed Bikeway	Status	BBP Review Proposed Bikeway	Miles within Study Area	Notes
Lazelle St	Chestnut St	Town St			Bike Route	Proposed	None	0.61	
Lazelle St	Rich St	Noble St			Bike Route	Proposed	None	0.14	
Lester Dr*	Long St	Town St.			Bike Lanes	Construction	Bike Lanes	0.60	East Interchange reconstruction will build new one-way south-bound collector-distributor street Lester Dr on the west side of I-71 between E Long St and E Spring St with a bike lane. Construction is in progress and is expected to be completed in 2014
Lester Dr*	Town St.	Main St.			Bike Lanes	Construction	Path or two-way bike lanes	0.20	East Interchange reconstruction will build new one-way south-bound collector-distributor street Lester Dr on the west side of I-71 between E Long St and E Spring St with a bike lane. Construction is in progress and is expected to be completed in 2014
Long St	SR-315	Jefferson Ave			Bike Lanes	Committed	Path	1.91	
Long St*	Jefferson Ave	Hamilton Ave			Bike Lanes	Construction	Path	0.07	
Main St	I-71	Grant Ave			Bike Route	Committed	None	0.37	
Main St	Grant Ave	Second St			Bike Route	Committed	Path	0.70	Currently under study by B&N for a bicycle facility from I-71 to Scioto River
Main St †	Second St	Scioto St			Bike Route	Committed	Path	0.13	Currently under study by B&N for a bicycle facility from I-71 to Scioto River
Main St Bridge Path	West Bank Scioto River	East Bank Scioto River	Path	2010	Path	Existing	Path	0.18	
Marconi Blvd	Broad St	Spring St			Shared Lane Markings	Committed	Bike Boulevard	0.29	
McCoy St	N Grant Ave	Cleveland Ave	Shared Lane Markings	2010	Path	Existing	Path	0.08	
McKee St	Fourth St	Cleveland Ave			Bike Route	Proposed	Bike Route	0.35	
Mound St	Short St	Second St			Shared Lane Markings	Committed	Bike Lanes	0.11	

Appendix A - Table of Existing, Previously Proposed and Newly Proposed Bikeway Facilities (continued)

This table shows the previously built bikeways, previously proposed bikeways and newly proposed bikeways within the downtown study area of this review. The data in the table was compiled from GIS data provided by the City of Columbus. A blank space in the table indicates no information or bikeway exists. **Yellow highlighted rows** indicate that the recommendation in this Review is different from the most recent proposal.

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† indicates proposal changed between the 2008 BBP proposals and Columbus 2012-2014 proposals.

Segment	Start	Stop	Existing Bikeway	Year Built	Previously Proposed Bikeway	Status	BBP Review Proposed Bikeway	Miles within Study Area	Notes
Mound St*	Second St	Front St			Bike Lanes	Committed	Bike Lanes	0.08	
Mound St*	Front St	Washington Ave			Bike Lanes	Committed	Bike Lanes	0.65	I-70/I-71 improvement project will make Mound St a continuous facility with a bike lane from Front St to Fourth St (expected as soon as 2014)
Mt Vernon Ave	Grant Ave	Cleveland Ave			Path	Proposed	Bike Boulevard	0.08	
Mt Vernon Ave	Cleveland Ave	Spring St			Bike Route	Proposed	Bike Boulevard	0.17	
Mt Vernon Ave	Fourth St	Grant Ave	Shared Lane Markings	2010	Path	Existing	Path	0.29	
Naghten St	Fourth St	Grant Ave	Shared Lane Markings	2010	Path	Existing	Path	0.28	
Nationwide Blvd	Fourth St	High St	Shared Lane Markings	2010	Path (Both Sides)	Existing	Path (Both Sides)	0.24	
Nationwide Blvd	High St	Front St	Shared Lane Markings	2010	Path	Existing	Path	0.51	
Neil Ave	Spring St	Lower Scioto Bikeway	Shared Lane Markings		Bike Boulevard	Existing	Shared Lane Markings	0.09	
Neil Ave	Long St	11Th Ave	Path	2010	Path	Existing	Path	0.55	
Neil Ave	Long St	Nationwide Blvd	Shared Lane Markings	2011	Bike Route	Existing	Shared Lane Markings	0.21	
Noble St (discontinuous alley)	Civic Center Dr	Washington Ave			Bike Route	Proposed	None	0.71	
North Bank Park Bicycle-Pedestrian Bridge	North Bank Park	Vets Memorial Building			Path	Committed	Path	0.14	
Oak St	Grant Ave	Sherman Ave			Bike Boulevard	Committed	Bike Boulevard	0.43	
Olentangy Trail	Third St	Rickenbacker Park	Path	unknown	Path	Existing	Path	1.51	
Pearl St	Locust St	Broad St			Bike Route	Proposed	None	0.52	
Pearl St	Noble St	Mound St			Bike Route	Proposed	None	0.05	
Rich St	Civic Center Dr	Washington Ave			Bike Lanes	Committed	Path	0.16	Currently under study by B&N for a bicycle facility from I-71 to Scioto River

Appendix A - Table of Existing, Previously Proposed and Newly Proposed Bikeway Facilities (continued)

This table shows the previously built bikeways, previously proposed bikeways and newly proposed bikeways within the downtown study area of this review. The data in the table was compiled from GIS data provided by the City of Columbus. A blank space in the table indicates no information or bikeway exists. **Yellow highlighted rows** indicate that the recommendation in this Review is different from the most recent proposal.

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† indicates proposal changed between the 2008 BBP proposals and Columbus 2012-2014 proposals.

Segment	Start	Stop	Existing Bikeway	Year Built	Previously Proposed Bikeway	Status	BBP Review Proposed Bikeway	Miles within Study Area	Notes
Rich St	Washington Ave	I-71			Bike Lanes	Committed	Bike Boulevard	0.89	Currently under study by B&N for a bicycle facility from I-71 to Scioto River
Rich St	SR-315	Grubb St			Bike Lanes	Committed	Bike Lanes	0.07	
Rich St †	Grubb St	Belle St			Shared Lane Markings	Committed	Bike Lanes	0.46	Two-way conversion with Shared Lane Markings in design, to be completed in late 2013
River Confluence Bridge	Scioto Greenway North Bank	Scioto Greenway South Bank			Path	Proposed	Path	0.14	
Scioto - Alum Creek Connector - Neil Ave	Vine St	Nationwide Ave	Path	unknown	Path	Existing	Path	0.21	
Scioto Trail	I-71	West Extents	Path	unknown	Path	Existing	Path	1.81	
Second St	Mound St	Rich St			Shared Lane Markings	Committed	Bike Boulevard	0.19	
Short St	Mound St	Liberty St			Shared Lane Markings	Committed	Bike Boulevard	0.06	Sharrows will not be installed on Short St between Liberty St and Mound St in 2013 as previously planned. Share the Road signs only will be installed for now. Sharrows are planned to be installed when the roadway is re-surfaced following the completion of the OARS Deep Sewer Tunnel and the corresponding phase of I-70/71
Spring St	SR-315	Jefferson Ave			Bike Lanes	Committed	Path	1.86	
Spring St*	Jefferson Ave	I-71			Bike Lanes	Construction	Path	0.09	
Starling St	Main St	Town St			Bike Lanes	Committed	None	0.11	Starling St. right-of-way was vacated by the City with the Main Street Bridge project
State St	Grant Ave	Front St			Shared Lane Markings	Committed	Bike Lanes	0.61	

Appendix A - Table of Existing, Previously Proposed and Newly Proposed Bikeway Facilities (continued)

This table shows the previously built bikeways, previously proposed bikeways and newly proposed bikeways within the downtown study area of this review. The data in the table was compiled from GIS data provided by the City of Columbus. A blank space in the table indicates no information or bikeway exists. **Yellow highlighted rows** indicate that the recommendation in this Review is different from the most recent proposal.

* indicates that the proposal will be implemented as a result of collaboration between the city of Columbus and the Ohio Department of Transportation on the I-70/71 Columbus Crossroads Project.

† indicates proposal changed between the 2008 BBP proposals and Columbus 2012-2014 proposals.

Segment	Start	Stop	Existing Bikeway	Year Built	Previously Proposed Bikeway	Status	BBP Review Proposed Bikeway	Miles within Study Area	Notes
Sullivant Ave †	Demorest Rd	Gift St			Shared Lane Markings	Committed	Shared Lane Markings	0.19	Installation of Shared Lane Markings between Yale Ave and Grubb St in design, to be completed in late 2013
Sullivant Ave †	Gift St	Scioto Trail			Path	Committed	Path	0.15	
Third St	Chestnut St	Fulton St			Bike Lanes	Proposed	Bike Lanes	0.85	
Third St*	Fulton St	Livingston Ave			Bike Lanes	Proposed	Bike Lanes	0.08	The South Innerbelt project will rebuild S Third St between Livingston Ave and E Fulton St as a one-way southbound arterial street with a bike lane. The current ramp to I-70 eastbound will be removed. Construction could begin as soon as 2016 or as late as 2026
Town St †	Third St	Parsons Ave	Shared Lane Markings	2012	Shared Lane Markings	Committed	Shared Lane Markings	0.79	
Town St	Washington Blvd	Belle St			None	None	Bike Lanes	0.10	
Town St†	Belle St	Grubb St			Bike Lanes	Committed	Bike Lanes	0.46	Two-way conversion with Shared lane markings in design, to be completed in late 2013
Town St	Grubb St	SR-315			Bike Lanes	Committed	Bike Lanes	0.07	
WAD Path - Convention Center Dr	I-670 Path	Vine St	Path	unknown	Path	Existing	Path	0.58	
WAD Path - Vine St	Convention Center Dr	Neil Ave	Path	unknown	Path	Existing	Path	0.11	
WAD to Fourth St Connector	WAD Path	Fourth St			Path	Committed	Path	0.07	
Wall St	Spring St	Mound St			Bike Route	Proposed	None	0.80	
Washington Ave	Spring St	Long St			Bike Route	Proposed	Bike Boulevard	0.10	
Washington Ave	Long St	Mound St			Bike Boulevard	Committed	Bike Boulevard	0.71	
Westbank Walkway	Dodge Park	Souder Ave	Path	unknown	Path	Existing	Path	1.82	
Willow Alley*	Long St	Spring St			Bike Lanes	Construction	None	0.11	Proposed bike lanes will now be on Lester Dr as a result of the East Interchange reconstruction project