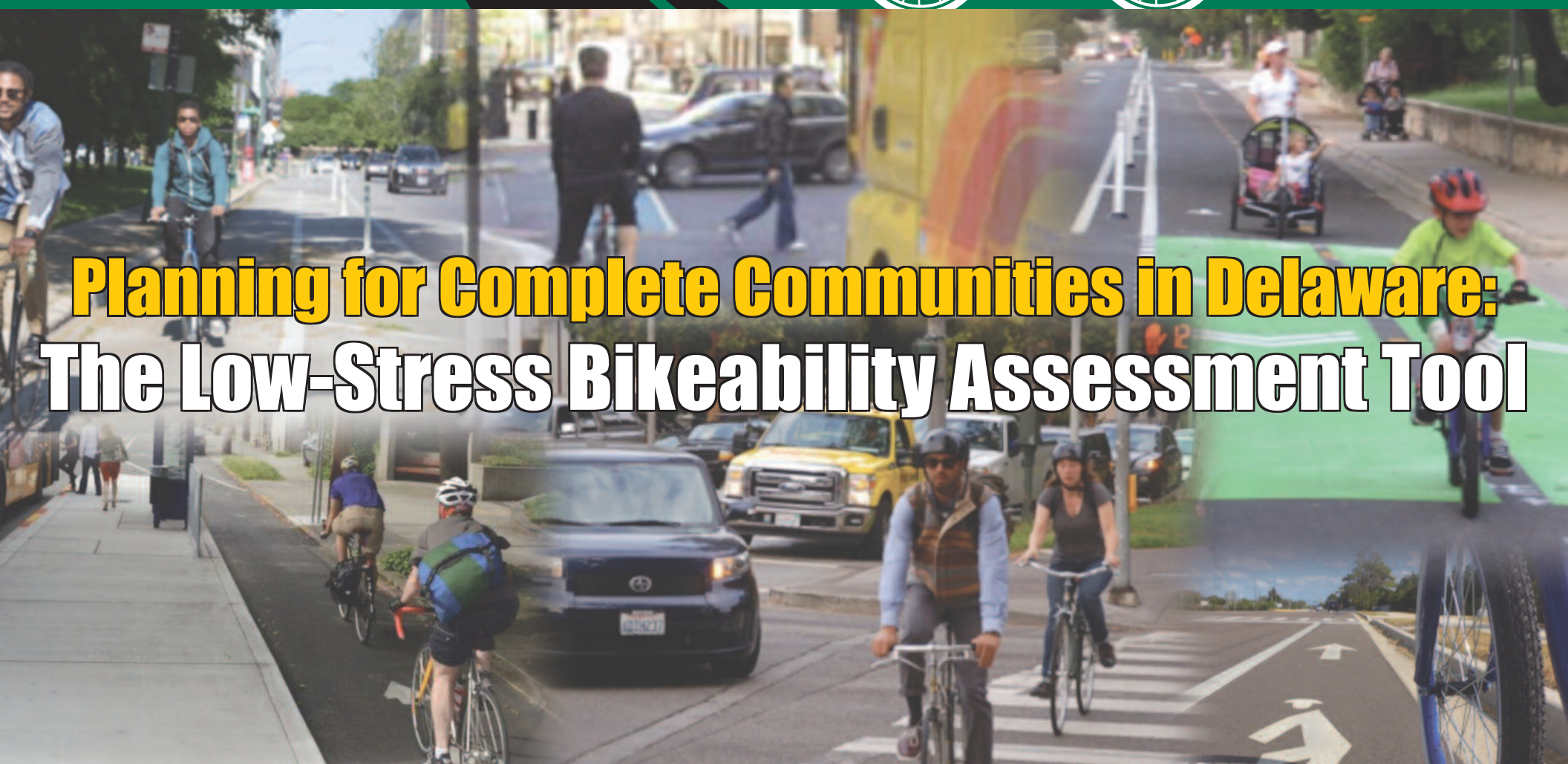




Planning for Complete Communities in Delaware: The Low-Stress Bikeability Assessment Tool

December 2015

written by William J. DeCoursey, Kirsten Jones, and Marcia S. Scott
prepared by Institute for Public Administration, School of Public Policy & Administration,
College of Arts & Sciences, University of Delaware
funded by the Delaware Department of Transportation



www.ipa.udel.edu

serving the public good, shaping tomorrow's leaders



Planning for Complete Communities in Delaware: The Low-Stress Bikeability Assessment Tool

December 2015

written by

**William J. DeCoursey, Assistant Policy Scientist
Kirsten Jones, Public Administration Fellow
Marcia S. Scott, Policy Scientist**

prepared by

**Institute for Public Administration
School of Public Policy & Administration
College of Arts & Sciences
University of Delaware**

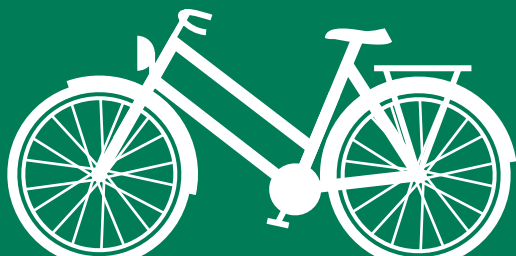


www.ipa.udel.edu

serving the public good, shaping tomorrow's leaders

funded by the

Delaware Department of Transportation



PREFACE

As the Director of the Institute for Public Administration (IPA) at the University of Delaware, I am pleased to provide *Planning for Complete Communities in Delaware: The Low-Stress Bikeability Assessment Tool*. The Low-Stress Bikeability Assessment Tool is designed to guide local governments 1) in evaluating the extent to which average bicycle riders can easily access low-stress areas, and 2) in developing strategies to leverage state investments to improve local cycling networks and bicycle infrastructure. Preparation of this assessment tool is part of a larger Planning for Complete Communities in Delaware initiative that is an ongoing collaboration between IPA and the Delaware Department of Transportation (DelDOT), which provided funding for this project. Associate policy scientist William DeCoursey, public administration fellow Kirsten Jones, and policy scientist Marcia Scott led the project team that researched several low-stress approaches to attract the mainstream population in Delaware to bicycle networks, gained input from stakeholder groups, and prepared the assessment tool. This tool is a resource for Delaware local governments that are considering ways to improve low-stress bikeability for areas within their community. It will be available as a downloadable document on IPA's online [Delaware Complete Communities Toolbox](#) and [Toolkit for a Healthy Delaware](#). I hope that local government officials and stakeholders will use this assessment tool to foster complete streets and active-transportation opportunities for community members.

Jerome R. Lewis, Ph.D.

Director, Institute for Public Administration

The Low-Stress Bikeability Assessment Tool



ACKNOWLEDGEMENTS

IPA Project Team

Authors: **William DeCoursey, Kirsten Jones, and Marcia Scott**
with assistance from public administration fellows **Savannah Edwards, Scott Eisenhart, and Gemma Tierney**

Project Support

The project team thanks the following individuals/organizations for their valuable insight and contributions to the development of this assessment tool:

Anthony Aglio, DelDOT Planning
Mark Deshon, Newark Bicycle Committee
Heather Dunigan, WILMAPCO
Bernie Gilbert, DelDOT Planning
Peter Haag, DelDOT Traffic
Patrick Kennedy, Federal Highway Administration
Michael Krumrine, Delaware State Parks
Paul Moser, DelDOT Planning
Ralph Reeb, DelDOT Planning
Richard Vetter, Dover/Kent County MPO
Adam Weiser, DelDOT Traffic
The Newark Bicycle Committee
WILMAPCO's Non-Motorized Working Group
Dover/Kent County MPO's Technical and Public Advisory Committees
State of Delaware Pedestrian/Bicycle Safety Working Committee

Editing, design, and production by **Deshon & Associates Graphic Design** (Newark, Del.)

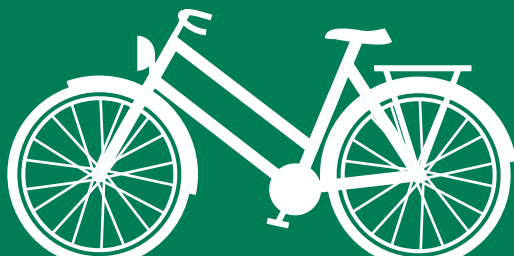


TABLE OF CONTENTS

Introduction	1
What is Low-Stress Cycling?	1
Purpose of Tool and Three-Step Process	3
 Why Bike?	 4
Bicycling Promotes “Activity-Friendly” Environments	4
Bicycling Fosters Active Transportation	5
Cycling Benefits Local Communities	5
Cycling Provides “First- and Last-Mile” Connections to Transit	6
Bicycling Advances Complete Streets and Transportation Equity	6
Support for Bikeability	7
National-Level Support	7
Support for Bike-Friendly Environments in Delaware	8
Delaware Policy Framework Support	8
Advocacy and Advisement	10
Education and Outreach	11
Barriers to Bikeability	11
 Step 1: The Pre-Assessment	 12
Identify and Involve Stakeholders	12
Review Existing Plans, Policies, and Programs	12
Local Plans, Policies, and Programs	12
Federal, State, and Regional Planning Resources	14
Gather Data and Select an Area for a Low-Stress Bicycle Assessment	15
Obtain the Area’s Low-Stress Bikeability Basemap from DelDOT	15
Apply Local Knowledge and Select a Priority Area	16

The Low-Stress Bikeability Assessment Tool



iv

Prepare for the Low-Stress Bikeability Assessment and Workshop	17
Pre-Tour the Selected Area	17
Plan Workshop Logistics	18
Prepare Workshop Materials	18
Review the Low-Stress Bikeability Assessment Visual Prompts – “What to Look For”	19
Low-Stress Bikeability Assessment Visual Prompts	21
Consider Supplemental Data-Collection Methods	46
 Step 2: The Low-Stress Bikeability Assessment	 48
Facilitate the Workshop	48
Explain Use of the Low-Stress Bikeability Assessment Checklist	49
Low-Stress Bikeability Assessment Checklist	50
Conduct the In-Field Assessment	56
Conduct a Debriefing and Mapping Exercise	56
 Step 3: Post-Assessment	 58
Identify and Prioritize Concerns	58
Prepare a Written Statement	58
Present Findings	59
Gain Support and Strengthen Partnerships	59
Provide Outreach and Education	60
Stay Engaged	61

The Low-Stress Bikeability Assessment Tool



1

INTRODUCTION

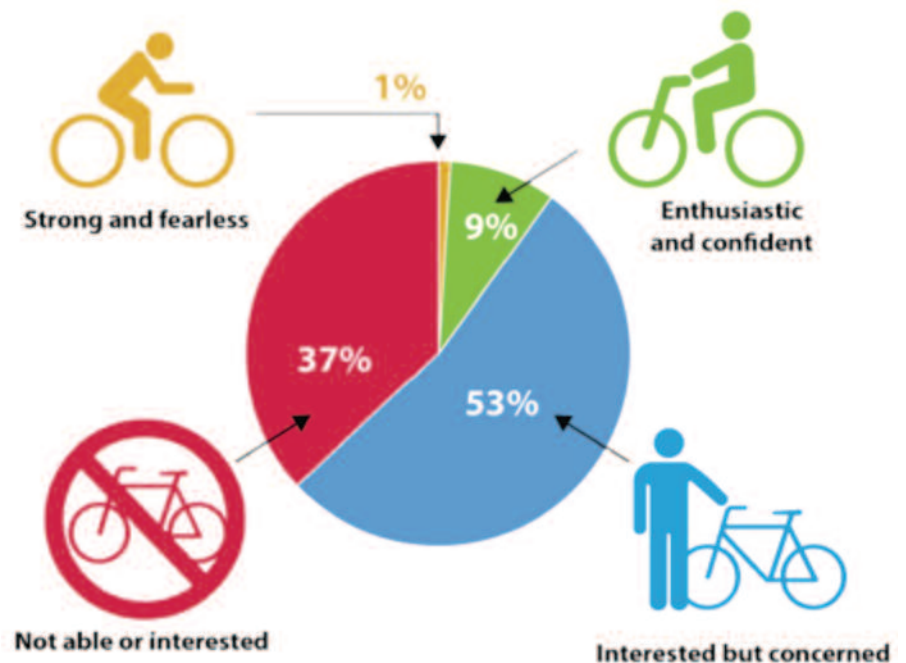
After decades of building car-oriented roadway networks, many streets lack connectivity and do not safely accommodate pedestrians or bicyclists. Individuals from no-car households, students, migrant or seasonal workers, youth, and people who are unable to drive (for various reasons)—so-called “no-choice” bicycle riders—face substantial challenges and transportation inequities in such a car-dominated culture. In recent years, there has been a growing recognition of the need to create Complete Streets by planning, designing, constructing, and maintaining streets to meet the needs of multi-modal roadway users of all ages and abilities. Improving conditions and opportunities for walking and bicycling, as well as integrating walking and bicycling into local-transportation networks, is critical to instituting Complete Streets, one of five elements identified in a framework to plan for **Complete Communities** in Delaware. In addition to fostering active transportation and transportation equity, bicycling promotes activity-friendly environments, environmental and economic sustainability, and “first- and last-mile” connections to transit.

What is Low-Stress Cycling?

Low-Stress Cycling (LSC) refers to the idea that a network may be established to ensure that there are ways in which a cyclist can easily access areas throughout a transportation network, without being an extremely confident rider.

To ensure that people are able to take advantage of low-stress cycling conditions, the network must be defined according to user tolerance and likelihood of use.

Extensive **research** has been conducted on how types of bike riders may be classified into four distinct groups according to 1) levels of confidence of the bicyclists, and 2) conditions of the roadways. Potential riders may be classified as 1) not able or interested (37%), 2) interested but concerned (53%), 3) enthusiastic and confident (9%), or 4) strong and fearless (1%).



Percentage of cyclists categorized by tolerance for levels of stress (MassDOT, 2015)



Planning for Complete Communities in Delaware:

A [study](#) by the Mineta Transportation Institute asserts “for a bicycling network to attract the widest possible segment of the population, its most fundamental attribute should be low-stress connectivity.... [It should] provide routes between people’s origins and destinations that do not require cyclists to use links that exceed their tolerance for traffic

stress, and that do not involve an undue level of detour.” While a small fraction of the population will tolerate sharing a road with heavy or fast traffic, most individuals are “interested but concerned,” willing to accept only a small degree of traffic stress. In addition, a [Bicycle Access Vision Plan](#) for Northern Santa Clara County, Calif.,



Visualization of how Levels of Traffic Stress may be applied to Delaware’s transportation system

The Low-Stress Bikeability Assessment Tool



suggests that “interested but concerned” cyclists will be deterred by traveling long distances to access low-stress routes, cycling on high-speed streets with no bike lanes, and gaps in network connectivity.

A goal of bicycle-network planning is to improve connectivity to key destinations and other transportation modes and provide low-stress routes that attract “interested but concerned” and “no-choice” riders. “No-choice” riders may be defined as individuals who ride bikes as a primary mode of transportation or ride to/from a transit location. Examples of “no-choice” riders include individuals from non-car households, students, migrant or seasonal workers, youth, and people who are unable to drive (for various reasons). Creating a bike lane alone is not enough to create a low-stress network.

Purpose of Tool and Three-Step Process

The purpose of the Low-Stress Bikeability Assessment Tool is to assist local government officials and community members in assessing the low-stress bikeability of a priority roadway segment to address the needs of “interested but concerned” and “no-choice” riders. The assessment tool and three-step process are designed for use in a facilitated workshop setting to engage stakeholders—either a formal committee appointed by a local government or an informal or ad hoc group comprising diverse community representatives. It is recommended that the workshop be organized and facilitated by a designated workshop leader/facilitator

who is an authorized representative of a Delaware local government (e.g., planner, consultant, or municipal staff member). The three-step process is designed for use by the workshop facilitator to engage stakeholders.

Step 1: The Pre-Assessment – provides an advanced preparation process to ensure the success of the low-stress bikeability assessment. The process helps identify and engage community members and recommends reviewing plans and planning resources, gathering data, selecting a study area, and using a series of visual prompts to prepare for the workshop and in-field bikeability assessment.

Step 2: The Low-Stress Bikeability Assessment – prepares workshop participants, using a narrated presentation that provides an overview of “what to look for” during the assessment. A Low-Stress Bikeability Assessment Checklist, which corresponds to the visual prompts and narrated presentation, is provided for participants to record observations and bikeability conditions during the in-field bikeability assessment. Upon completing the in-field assessment, participants immediately reconvene in a facilitated workshop setting for a debriefing and mapping exercise.

Step 3: Post-Assessment – entails carrying out a process that involves prioritizing concerns, preparing a written summary, presenting findings to stakeholders and funding entities, gaining support, and developing an action plan that considers the need for plans, policies, design changes, funding support, maintenance plans/agreements, and technical assistance.



Planning for Complete Communities in Delaware:

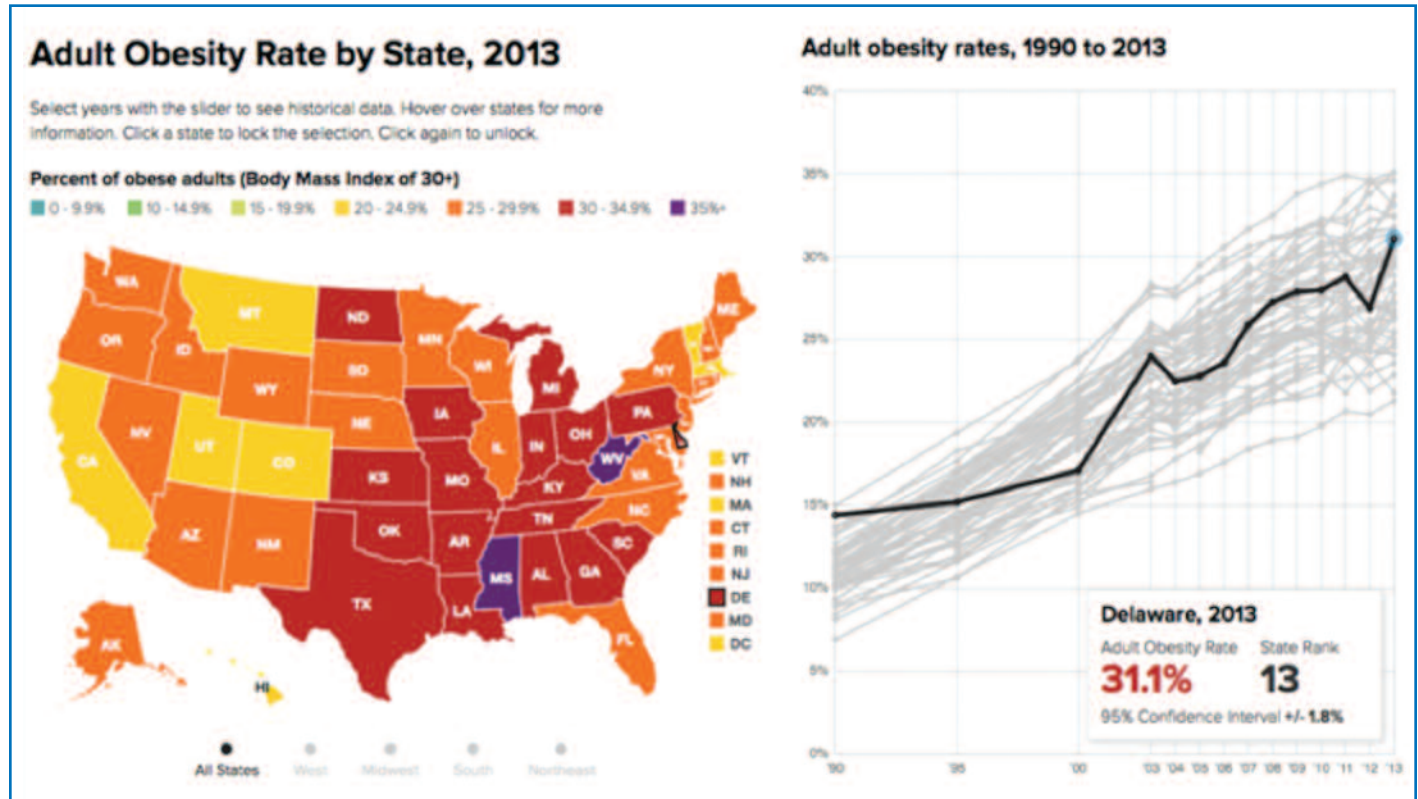
WHY BIKE?

Bicycling Promotes “Activity-Friendly” Environments

Physical inactivity has increasingly become a product of America’s automobile-centric built environments. The U.S. Department of Health and Human Services’ [2008 Physical Activity Guidelines for Americans](#) recommends that children be physically active for at least 60 minutes a day and adults get 30 minutes of moderate-intensity aerobic activity daily, five days a week. Yet, most Americans don’t meet these recommended guidelines, and that lack of activity is posing a great threat to the health of our nation.

A U.S. Surgeon General’s [report](#) indicates that “one out of every two U.S. adults is living with a chronic disease,

such as heart disease, cancer, or diabetes.” These diseases contribute to disability, premature death, and healthcare costs. Delaware’s problem is apparent. According to a [2014 State of Obesity](#) report, Delaware has the 17th highest adult obesity rate in the nation. Adult obesity in Delaware has escalated from 17.1 percent in 2000 to 30.7 percent in 2014. Childhood obesity in Delaware is also a concern. A [Delaware Survey of Children’s Health](#), sponsored by



Adult obesity, state-by-state, 2014 (RWJF, 2015)

The Low-Stress Bikeability Assessment Tool



5

Nemours Health and Prevention Services, indicates that 40 percent of children between the ages 2 and 17 were overweight or obese in 2011.

According to the [U.S. Department of Health & Human Services](#), “increasing people’s physical activity levels will significantly reduce their risk of chronic diseases and related risk factors.” The [U.S. Surgeon General](#) has proposed a [Call to Action](#) for Americans to be healthier by increasing their levels of physical activity. Improving the built environment to provide opportunities for walking and biking is one way to increase people’s physical activity. Bicycling can improve both physical and mental health by reducing the risk of chronic diseases associated with being overweight and obese, lowering blood pressure, and relieving depression.

Bicycling Fosters Active Transportation

[Active transportation](#) is any human-powered mode of transportation. Bicycle infrastructure and facilities that are well designed, constructed, and maintained can promote active transportation. Cycling as recreation, sport, and means of transportation—particularly for commuting—is growing in popularity. A [survey](#) by People for Bikes found that of the 318 million people living in the U.S., almost 104 million Americans rode a bicycle at least once in 2014; that year 45 million used bicycling as a means of transportation. However, along with the increase in cycling, is a rise in cycling-related injuries from 1998 to 2012, as documented



in a September 2015 [Journal of the American Medical Association](#) (JAMA) research letter. Safe cycling is also a concern in Delaware, where there were 15 bicycle-related fatalities between 2009 and 2013. Because bicyclists are expected to ride on most roadways, it’s essential that bicycle facilities safely accommodate and encourage cycling.

Cycling Benefits Local Communities

In addition to public health and active transportation benefits, bicycling enhances both the environmental and



Planning for Complete Communities in Delaware:

economic sustainability of communities. As an environment-friendly mode of transportation, bicycling can decrease car mode share, vehicle miles traveled (VMT), auto emissions, and air pollution. In addition, studies show that communities with multi-modal transportation systems, including cycling, experience higher property values, higher levels of retail activity and employment, and lower-cost transportation options. A [*Journal of Physical Activity and Health* article](#), which reported on the studied costs and benefits of cycling investments in Portland, Ore., cites the economic payoffs of bicycle facilities—investments in cycling provide long-term costs savings in health care, fuel, and lives saved.

Cycling Provides “First- and Last-Mile” Connections to Transit

Transportation planners wrestle with the dilemma of how to address first- and last-mile connections to public transit. Research suggests most people will only walk a distance of one-quarter mile, or five to ten minutes, but are capable of cycling up to three miles. Therefore, bicycling may be a viable option to bridge gaps in first- and last-mile connections to transit. Most public transportation systems are better accommodating cyclists by providing secure parking and allowing riders to bring bicycles on trains and buses.

Bicycling Advances Complete Streets and Transportation Equity

Historically, transportation planning, policy, and investments have focused on auto-centric roadway improvements. A new transportation policy and planning framework—“Complete Streets”—focuses on moving people instead of cars. Complete Streets emphasizes the need for transportation systems to be designed, built, and maintained for motorized and non-motorized transportation users of all ages and abilities. Providing a choice of transportation modes advances transportation equity, where transportation policy achieves fair and equitable investment and

access to a range of transportation options. This approach recognizes the value of transportation-system diversity and the need to prioritize investment to affordable modes, such as bicycling. Low-income and minority communities are more likely to utilize non-automotive



The Low-Stress Bikeability Assessment Tool



modes. Therefore, a lens toward transportation equity ensures that different socioeconomic, minority, and ethnic groups are being equitably represented in transportation decision-making processes. Emphasis is placed on development of a transportation system that is accessible, efficient, affordable, and offers safe alternatives to car travel, including bicycling.

Support for Bikeability

National-Level Support

Creating connected transportation networks is one of four overarching policy priorities for the U.S. Department of Transportation (USDOT). Federal legislation and regulations require inclusion of convenient, safe, accessible, and **context-sensitive** bicycle and pedestrian components into all transportation plans and projects to meet the needs of people of all ages and abilities. Recent federal policy initiatives have increased an emphasis on bikeable environments, or “bikeability,” which describes the extent to which individuals feel comfortable navigating their community by bike.



In 2010, USDOT issued a **policy statement** that articulates the need to develop fully integrated active-transportation systems, which include bicycling facilities and networks. The policy encourages transportation agencies to plan, fund, and implement improvements to their walking and bicycling networks, including linkages to transit. Federal statutes also that require state transportation agencies and metropolitan planning organizations (MPOs) integrate walking and bicycling facilities and programs in their transportation plans “to ensure the operability of an intermodal transportation system.”

The **Federal Highway Administration** (FHWA), an agency within USDOT, supports a flexible approach to bicycle and pedestrian facility design. It advocates the use of American Association of State Highway and Transportation Officials’ (AASHTO) **Guide for the Development of Bicycle Facilities** as the primary national resource for planning, designing, and operating bicycle and pedestrian facilities. It also advocates the use of provisions within the **federal Manual of Uniform Traffic Control Devices** and the National Association of City Transportation Officials (NACTO) **Urban Bikeway Design Guide** to build upon the flexibilities provided in the AASHTO Guide. These resources support a framework to plan and design safe and convenient facilities for bicyclist and non-motorized transportation networks.

USDOT has also launched a comprehensive and coordinated approach to improve pedestrian and bicycle safety. The strategy promotes design improvements to ensure safe and



Planning for Complete Communities in Delaware:



Toward Zero Deaths®
National Strategy on Highway Safety

efficient routes for pedestrians and bicycles, promote behavioral safety, and provide education to help individuals make safer travel choices. The national safety campaign, **Toward Zero Deaths**, articulates the goal of “working toward no fatalities across all modes of travel.”

Support for Bike-Friendly Environments in Delaware

According to the League of American Bicyclists, a Bicycle Friendly CommunitySM has essential elements across five categories, known as the “**Five E’s**”:

1. **Engineering** – presence of infrastructure that provides an interconnected, and well-maintained bicycling network
2. **Education** – delivery of a bicycle-safety education program that builds cycling skills, provides training, and improves awareness of cycling/motorist rights and responsibilities
3. **Encouragement** – institution of a strong bike culture
4. **Enforcement** – adoption and enforcement of laws to treat bicyclists equitably within the transportation system
5. **Evaluation and planning** – creation of an interconnected

and well-maintained cycling network that emphasizes short-trip distances, fosters multi-modal trips, and integrates educational programs

Delaware Policy Framework Support

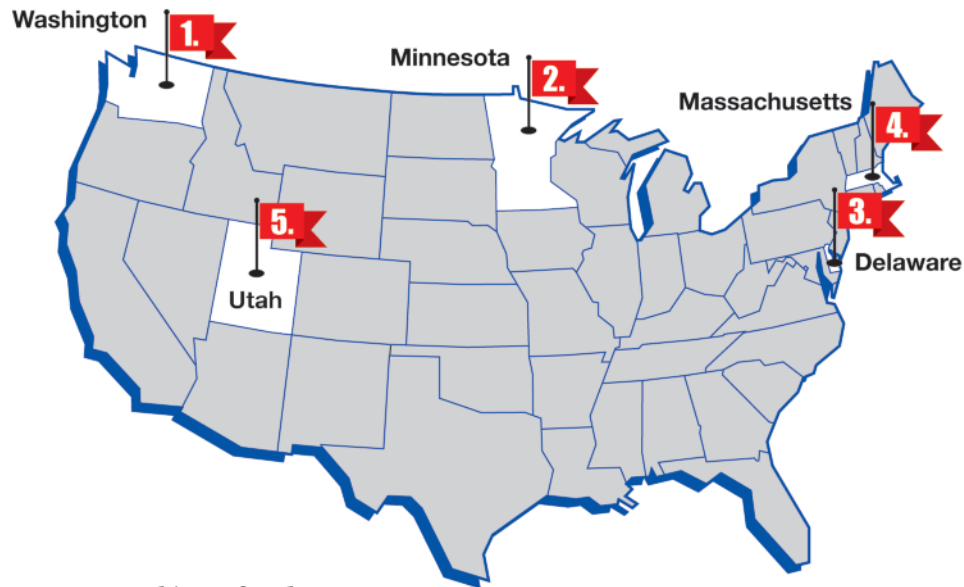
The State of Delaware has long-recognized the benefits of developing an integrated multi-modal transportation system to improve the economic and environmental sustainability of communities and quality of life for all Delawareans. The state has prioritized the need to plan for an integrated, non-motorized pathway and recreational trail network for recreational and transportation purposes. In 2015, the League of American Bicyclists named Delaware as the **3rd best Bike Friendly State** in the U.S., thanks to state policies, dedicated funding for cycling projects, safety campaigns, and strong advocacy.

Delaware has worked for more than two decades to improve bikeability in Delaware. Consistent with federal transportation investment policies and directives, DelDOT has shifted away from an auto-centric transportation system to one that provides safe, efficient, and multi-modal options. Formed in 1990, the **Delaware Bicycle Council** has been instrumental in integrating bicycling into Delaware’s transportation network. Appointed by the Governor, its members consist of state agency officials and private citizens who are charged with reviewing and improving upon bicycling, bicycle safety, and bicycle-safety education in Delaware. In 1995, a Statewide Facilities Master Plan was

The Low-Stress Bikeability Assessment Tool



2015 Bicycle Friendly State Rankings



2015 ranking of Delaware as the third most Bicycle Friendly State (League of American Bicyclists)

approved, which recognizes bicycling as an integral part of the transportation system and includes bicycles within transportation planning. DelDOT appointed its first bicycle/pedestrian coordinator in 2001 to address transportation issues of non-motorized users. Delaware's strong policy framework for bikeability includes adoption/implementation of the following:

Statewide Bicycle Policy – Issued in 2000, this policy requires a minimum of a five-foot-wide shoulder for cyclists as the transportation system expands and encourages the

placement of new facilities in transportation-improvement projects.

Delaware's Safe Routes to School (SRTS) Program – This program was established in 2002 to allocate state funding toward infrastructure projects that directly support increased safety and convenience for elementary and middle school children to bicycle and/or walk to and from school.

Complete Streets – On April 24, 2009, Delaware Governor Jack A. Markell issued **Executive Order No. 6**, and DelDOT subsequently adopted a Complete Streets policy in 2010. A complete street is a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for users of all ages and abilities, including bicyclists, pedestrians, transit riders, and motorists, appropriate to the function and context of the facility. Complete streets facilitate active transportation.

Vulnerable Users Law – Delaware became the second state to sign this into law in August 2010. The law increases penalties for drivers convicted of careless driving that results in the injury of a vulnerable user of the state's roads. A "vulnerable user" includes pedestrians, individuals working on the road, cyclists, skateboarders, and anyone on roller skates, scooters, mopeds, motorcycles, farm tractors, or those riding animals.

Walkable Bikeable Delaware – The Delaware General Assembly unanimously passed this initiative in May 2011.



Planning for Complete Communities in Delaware:

Walkable Bikeable Delaware

It calls for Delaware to strategically invest in walking and biking connectivity—to design, build, maintain, and link non-motorized transportation networks both within and among Delaware communities. Since 2011, the Delaware General Assembly and the Wilmington Area Planning Council (WILMAPCO) have invested considerable **state and federal funding** in statewide pedestrian and bicycle improvements, greenways, and trails projects.

Delaware Trails and Pathways Initiative – In 2011, Delaware Governor Markell challenged a team of state agencies to “create a world-class statewide network of pathways and trails for Delaware’s citizens and visitors, to promote biking, hiking, walking and active living.” To meet this challenge, **DelDOT** and the **Department of Natural Resources and Environmental Control** (DNREC) led and formed a partnership with regional and local organizations and government to create the Delaware Trails and Pathways Initiative. Its goal is to create an interconnected network of shared-use trails and pathways that will support non-motorized travel and recreation opportunities for Delawareans and visitors. The focus is on bicycling and walking and providing safe and convenient ways to reach local work, shops, schools, recreational sites and transit.

To support the Initiative, the Delaware General Assembly passed **Senate Concurrent Resolution 13** in June 2011. This resolution approved the study of the building and maintaining of non-motorized travel connections within and between communities, cities, and towns in Delaware and to link these connections to form uninterrupted networks for walking and bicycling.

Advocacy and Advisement

Statewide advocacy is strong, thanks to a network of partner organizations that seek to promote healthy lifestyles, improve opportunities for active transportation, and help plan effective, safe, and well-connected bikeway networks. **Bike Delaware**, a non-profit advocacy organization, has been working to make bicycling a safe, convenient, and fun transportation option in Delaware. The **Delaware Council on Health Promotion and Disease Prevention** (CHPDP) was established in May 2010 by Governor Jack Markell “to advise the Governor and Executive Branch on the development and coordination of strategies, policies, programs and other actions statewide to promote healthy lifestyles.” Other groups/initiatives working to support active lifestyles include the **Delaware Coalition for Healthy Eating and Active Living** (DE HEAL), the **Get Up and Do Something** campaign, **Delaware Greenways**, **Sussex Outdoors**, and **Nemours Health & Prevention Services** (NHPS).

The Low-Stress Bikeability Assessment Tool



11

Education and Outreach

Delaware has also utilized education and outreach to ramp-up support for safe cycling. The [Delaware Strategic Highway Safety Plan](#) is a statewide coordinated safety plan that aims to eliminate fatalities on Delaware roadways through a multi-agency approach. In 2013, DelDOT formed the Pedestrian/Bicycle Safety Working Group. Comprising various highway safety stakeholders, its goal is to identify, evaluate, and implement pedestrian/bicycle-related safety improvements throughout the state and along several corridors that exhibit higher-than-average pedestrian crash rates. Several municipalities have also appointed bicycle committees to improve cycling facilities and infrastructure to enhance bikeability.

Barriers to Bikeability

Despite strong support for cycling in Delaware, obstacles still exist. Major barriers to bicycling include geographical or access barriers (e.g., highways, railroad tracks, terrain), high-stress streets with high traffic volume and speeds, and intersection issues. End-of-trip facilities, such as places to shower and change and secure, sheltered parking that protects bikes from theft and poor weather, can be a deterrent to cyclists—particularly those who commute to

work. Other bicycling hurdles include perceptions that facilities or conditions are unsafe, absence of traffic-calming measures, lack of law enforcement, and insufficient education and outreach to promote bicycling as a viable form of transportation. Addressing these barriers to bikeability is critically important to “no-choice” riders, i.e., those who rely on biking as their primary form of transportation or bike as a first- or last-mile connection to transit.





STEP 1: THE PRE-ASSESSMENT

Advanced preparation is critical to ensuring the success of the low-stress bikeability assessment process and achieving meaningful outcomes. While the assessment process may be organized by a formal committee or *ad hoc* group, the overall process should be planned, lead, and facilitated by an individual (e.g., planner, consultant, or municipal staff member) that is designated by a local government.

Identify and Involve Stakeholders

Public involvement is a fundamental part of the low-stress bikeability assessment process. Stakeholders should be identified and involved throughout the process, whether the assessment is led and facilitated in-house or by a consultant. Participants in the assessment process/workshop will vary, depending on the size and composition of the jurisdiction and the outreach effort. For example, larger municipalities may already have and wish to involve a bicycle committee that comprises interested stakeholders working to improve bicycling conditions. Other jurisdictions may wish to involve Planning Commission members and/or consider forming an *ad hoc* committee consisting of stakeholders and/or volunteers who are interested/invested in improving the low-stress bikeability of a specific area.

In either case, additional outreach should be conducted to make sure participants are diverse and represent community

interests. The workshop should be publicized at least 4–6 weeks in advance of the meeting through a mix of print and digital media. Notifications can be posted in local gathering spots or destinations such as schools, town hall/municipal building, library, and recreation or community centers. Websites of the local government, schools, and community and civic organizations can provide outreach via social media or online “news.” Direct, personal contact can be made to target participation from key stakeholders, including local government staff members, local elected and appointed officials, state legislators, public safety agencies, health- and safety-advocacy groups, bicycle and recreation enthusiasts, local school leaders, leaders of neighborhood civic associations, citizen organization representatives, local business representatives, members of the media, officials from DelDOT and MPOs, and other identified stakeholders. Ideally, the targeted group should consist of approximately 20–40 people. Identifying champions and gaining advocacy can help build support for plans, policies, funding, and technical assistance to improve bicycle infrastructure and conditions.

Review Existing Plans, Policies, and Programs

Local Plans, Policies, and Programs

Local government **comprehensive plans** are the foundation for land-use planning in Delaware. The comprehensive plan communicates a community’s goals and vision for the future, provides a blueprint for future land use, and provides

The Low-Stress Bikeability Assessment Tool



13



The City of Newark's Pomeroy Trail

guidance for establishing the laws, policies, and programs to achieve implementation. The comprehensive plan, particularly relevant maps and the transportation and recreation elements, should be reviewed prior to the workshop and in-field assessment. As described in [*Healthy Communities: The Comprehensive Plan Assessment Tool*](#), the goals, objectives, and recommendations within the comprehensive plan should be reviewed to determine whether the comprehensive plan addresses the need to accomplish the following:

- Provide or improve bicycle accessibility, safety, and facilities.
- Start a Safe Routes to School Program.
- Conduct a bicycle study.
- Institute [**Complete Streets**](#) principles.
- Adopt policy initiatives or design guidelines to increase physical activity, active transportation, and recreation opportunities that include cycling.

If initiatives are already planned or underway, efforts should avoid being duplicated but should build on current initiatives. If the comprehensive plan identifies deficient bicycle facilities or infrastructure, these areas may be targeted for a low-stress bikeability assessment. The status of other relevant local government plans should be reviewed, such as parks and recreation master plans, bicycle plans, transportation and circulation plans to gain knowledge of:

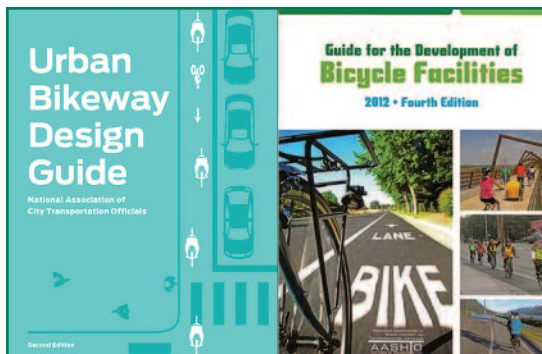
- Previous assessments of existing bicycle conditions
- Identified gaps in the network
- Existing or needed links/connections to other modes of transportation, particularly transit, greenways, trails, multi-use paths, parks, and primary community destinations
- Proposed policies, programs, and projects to achieve stated goals
- Proposed or underway plans for implementation that detail a timetable, funding sources, and partnership opportunities



Federal, State, and Regional Planning Resources

Federal

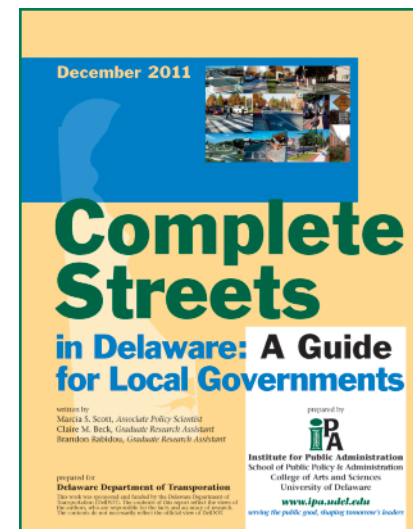
The FHWA supports a flexible approach to bicycle-facility design. AASHTO's *Guide for the Development of Bicycle Facilities* (AASHTO Bike Guide) is the primary national resource for planning, designing, and operating bicycle and pedestrian facilities. In addition, the National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide* builds upon the flexibilities provided in the AASHTO guidelines, which can help communities plan and design safe and convenient facilities for bicyclists. The revised, 2009 version of *Manual on Uniform Traffic Control Devices* (MUTCD) includes **Part 9 – Traffic Control for Bicycle Facilities** provides guidance on signs, pavement markings, and highway traffic signals specifically related to bicycle operation on both roadways and shared-use paths. The **National Highway Institute** (NHI) provides leadership and resources to guide the development and delivery of transportation-related training, including **bicycle-facility design**.



State

DelDOT has established a comprehensive approach to the establishment of a statewide bicycle network. Its **Bicycle Facility Master Plan** establishes bicycle facilities as an integral part of the transportation network. Delaware's **Complete Streets Policy**, implemented by DelDOT in 2010, ensures that transportation system improvements are planned, designed, constructed, operated, and maintained in a way that enables safe and efficient access for users of all ages and abilities.

DelDOT's **Delaware Rail-to-Trail & Rail-with-Trail Facility Master Plan** discusses the need to interconnect rail-trail corridors with both existing and proposed statewide trail systems, greenways, and pedestrian/bicycle networks in conjunction with the existing state policies, programs, and guidelines. It underscores the need to collaborate with state agencies, such as DNREC and the state Department of Education (DOE), nonprofit organizations (e.g., **Delaware Greenways** and **Bike Delaware**), and local governments to accomplish this goal and programs, such as **Delaware's Safe Routes to School Program** and **Delaware Trails and Pathways Initiative**. In addition, DelDOT prepares both a



The Low-Stress Bikeability Assessment Tool



15

Long Range Transportation Plan (LRTP) and a six-year Capital Transportation Program (CTP) to implement the LRTP. The plan communicates the vision of a statewide transportation network that reflects the [State Strategies for Policies and Spending](#), which is intended to coordinate local land-use decision-making with the provision of state infrastructure and services. Practitioners at DelDOT can offer guidance and technical assistance to local government officials on bicycle-facility planning, design, and geographic information system (GIS) and low-stress bicycle-route mapping.

Regional

MPOs are federally designated agencies, made up of representatives from local government and governmental transportation authorities, that are responsible for coordinating regional transportation planning and programming. MPO advisory committees or working groups make recommendations on its long-range Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), which represents the first four years of the RTP, and prioritizes funding investments for transportation-system improvements for roads, buses, rail, and bicycle/pedestrian networks and infrastructure. All projects selected by the MPOs for inclusion in the TIP are coordinated with the DelDOT CIP.

MPO staff may be contacted to obtain guidance or assist with public outreach and engagement, workshops, training, and the provision of GIS maps and data. [WILMAPCO](#) assists

New Castle County jurisdictions, the [Dover/Kent County MPO](#) assists Kent County communities, and a portion of Sussex County is serviced by the [Salisbury/Wicomico MPO](#).

Gather Data and Select an Area for a Low-Stress Bicycle Assessment

Once stakeholders have been enlisted to participate in the workshop for the low-stress bicycle assessment and relevant resources have been reviewed, additional data must be gathered to select an area to assess. This process includes gathering the jurisdiction's low-stress basemap, obtaining local knowledge, and preparing for the workshop and in-field assessment.

Obtain the Area's Low-Stress Bikeability Basemap from DelDOT

The low-stress cycling approach is designed to identify areas within the local transportation network that have on-road bike travel-safety concerns, lack connectivity for bicyclists, are stressful for the “interested but concerned” rider, and are critical routes to destinations, particularly for “no-choice” riders and commuters. DelDOT has developed low-stress bikeability basemaps for most areas within the state of Delaware. The methodology uses statewide data on traffic, lane width, traffic speed, traffic volume, the availability of shoulders and/or separate cycling facilities, and safety. It then designates road segments and



Planning for Complete Communities in Delaware:

intersections as Level of Traffic Stress (LTS) 1 & 2 (relatively safe and bikeable) and LTS 3 & 4 (more challenging and less accessible to the “interested but concerned” cyclist).



Low-stress bikeability basemap for Newark, Del.

In this example (see map graphic), the statewide analysis shows roads in light green as easy and safe to cycle. Those suitable for the “enthused and confident” rider are shown blue. Roads where only a “strong and fearless” cyclist would dare to venture are left out. This leaves the appearance of disconnected areas or “holes” in the street network, or roads where the average bicyclists probably would not ride. The City of Newark chose to focus its bikeability improvements within the oval area of the map highlighted

in blue. An area that appears to have disconnected or “missing” roads includes Main St. and Delaware Ave., two of the most popular routes for many “no-choice” bicycle riders (e.g., non-driving residents, commuters, and students) who travel east and west through the city.

A jurisdiction that wishes to conduct a low-stress bikeability assessment should obtain the low-stress bikeability basemap(s) from DelDOT to target a high-priority area that appears to have missing roads within the street network. DelDOT plans to publish the low-stress basemaps for areas within Delaware on its website. Maps that are not available online may be requested by [contacting the Planning Division of DelDOT](#). Obtaining the low-stress basemap(s) eliminates the need for the jurisdiction to conduct traffic-volume counts, measure vehicular speeds, or measure the width of lanes of a roadway that may be targeted for a low-stress bikeability assessment.

Apply Local Knowledge and Select a Priority Area

Consider Key Questions

No one knows a community better than the residents/property owners. Once the basemap is obtained, the designated workshop leader/facilitator should communicate with prospective workshop participants to clearly articulate and present viable options for conducting the low-stress bikeability assessment. The basemap should be made

The Low-Stress Bikeability Assessment Tool



17

available and/or distributed electronically to the stakeholder group. They should be asked to review and apply local knowledge to “ground truth” the low-stress bikeability basemap(s). To prioritize an area targeted for the low-stress bike assessment, group members/prospective workshop participants should be asked to consider several key questions when reviewing the map:

- Where are known issues or problem spots for primary routes used by bicyclists?
- Does the low-stress basemap accurately depict these known problem areas or are there inconsistencies?
- Does the map accurately reflect problem areas when compared to public-safety incident/accident reports?
- In relation to the basemap, where are primary destinations and routes for the average bicyclist (e.g., residential areas, schools, shops, parks, libraries, restaurants, recreation, services, places of employment)?
- Where are segments that lack connectivity to primary destinations?
- Where are concentrations of “no-choice” riders? Are there known routes that may be used by “no-choice” riders within the mapped area?
- Are there locations within the low-stress basemap that pose barriers to first- and last-mile connectivity to transit?

Reach Consensus on an Area to Conduct the Low-Stress Bikeability Assessment

If the targeted group is a standing local government

committee (e.g., a bike committee or Planning Commission), it may be possible to hold a meeting prior to the workshop to gain consensus on the assessment area. If an in-person meeting with prospective workshop participants is not possible, an informal poll via email, or the use of participatory web-based technology (such as social media and/or use of municipal websites) may be used to conduct a survey and/or engage and gain consensus from stakeholders. In either case, the boundaries of the selected assessment area should reflect top stakeholder concerns related to bicycle infrastructure and facility needs, safety issues (which include public safety incident/accident reports), mode and route connectivity, and the needs of both the average “interested and concerned” cyclists and “no-choice” riders. The selected assessment area should have specific issues that can be realistically addressed through plans, policies, educational, and built-environment improvement strategies.

Prepare for the Low-Stress Bikeability Assessment and Workshop

Pre-Tour the Selected Area

Once an area has been selected for the assessment, a pre-tour—physically biking and/or walking the area in advance of the workshop—should be conducted with volunteers and/or key representatives of the jurisdiction. During the pre-tour:



Planning for Complete Communities in Delaware:

- Identify any safety issues and locations where the group may make critical observations.
- Consider the route length. For their Walkability Community Workshops, WILMAPCO recommends aiming for a route length of no more than six blocks for walking and a talking time of approximately one hour.
- Consider the time of day to conduct the assessment. For example, if a primary concern is bikeability for a Safe Routes to School initiative, the low-stress bikeability assessment should be conducted when children ride to/from school, rather than a weekend or during evening hours.

Plan Workshop Logistics

- Select and reserve a public workshop venue near the selected bikeability-assessment route to conduct the workshop.
 - Ideal venues include town halls, firehouses, libraries, senior centers, schools, or community meeting rooms.
 - The workshop venue should:
 - ✓ Meet ADA accessibility requirements.
 - ✓ Allow for set up of a pre-downloaded, narrated PowerPoint/video presentation to be shown prior to the in-field bikeability assessment; have Internet connectivity if the online YouTube version is shown.
 - ✓ Provide tables/chairs arranged to facilitate a mapping exercise for break-out groups of 6–8 people following the assessment.
 - ✓ Permit serving of refreshments for workshop participants.

- Schedule and publicize the low-stress bikeability–assessment workshop at least 4–6 weeks in advance of the event.
- Invite the selected committee, group, and/or prospective workshop participants at least 4–6 weeks in advance and provide contact information for participants to RSVP.
- Advertise the workshop at least 7 days in advance in order to meet [Freedom of Information Act](#) (FOIA) requirements if participation by a public body (e.g., town’s elected or appointed officials) will constitute a quorum. Check with the town clerk or solicitor for jurisdiction-specific procedures.

Prepare Workshop Materials

Collect and prepare the following materials and supplies to bring to the workshop:

- IPA’s downloadable, narrated presentation on “Conducting a Low-Stress Bikeability Assessment: An Overview of What to Look for.” The presentation should be downloaded in advance from IPA’s [Delaware Complete Communities Planning Toolbox](#) and saved to a laptop computer or USB device. If Internet is available at the venue, it may be accessed via IPA’s [Complete Communities YouTube Channel](#).
- Projector and screen to display the PowerPoint presentation



Use of table-sized map and markers in workshop setting

- Two sizes of maps:
 - Letter-sized (8.5-in. x 11-in.) street maps for each participant, showing the proposed assessment route
 - Table-sized, large-scale maps (1 in.=200 ft. preferred) of the assessment area for each table of 6–8 people
 - Colored markers, stickers, and pens to mark up the table-sized map
 - Masking tape to hang completed large-scale maps
- Workshop supplies (sign-in sheet, agendas, clipboards, nametags, safety vests, cameras, easels with pads, and refreshments)
- Bikeability Assessment Checklists (described in Step 2) to document observations during the in-field assessment

Review the Low-Stress Bikeability Assessment Visual Prompts— “What to Look For”

As described in the previous section, the University of Delaware IPA has produced a narrated presentation, “Conducting a Low-Stress Bikeability Assessment: An Overview of What to Look for,” which can be downloaded from the IPA’s [Delaware Complete Communities Planning Toolbox](#) and [Complete Communities YouTube Channel](#). Workshop participants may view the YouTube presentation before attending the workshop. In addition, the presentation should be shown at the workshop before participants conduct the in-field bikeability assessment. This section of the assessment tool also provides the Low-Stress Bikeability Visual Prompt with descriptions of what participants should look for during the in-field bikeability assessment. Because the visual prompts are lengthy, participants will receive electronic copies (instead of hard copies) of this section for review prior to the workshop. Each prompt is color-coded to match topics in the Low-Stress Bikeability Assessment Checklist that will be distributed and used during the in-field bikeability assessment. Topics include **Facilities, Network, Road Conditions, Visibility, Intersections, and Transit Interaction** (see next page for descriptions).



Planning for Complete Communities in Delaware:

FACILITIES Focuses on types of bicycle facilities, facility width, access, bike parking, safety hazards, and facility design features.

NETWORK Examines the suitability of the entire roadway network for bicyclists. Can a cyclist get from point A to point B without using a roadway segment that would expose them to significant traffic stress, and is that lower-stress route reasonably direct? Also, does the network sufficiently accommodate “interested but concerned” cyclists, or is it geared for the more skilled “strong and fearless” and “enthusiastic and confident” cyclists?

ROAD CONDITIONS Emphasizes the physical condition of the bicycle facility’s surface, common obstructions, maintenance issues, and concerns. This topic also focuses on the behavior of drivers, including awareness of cyclists and observance of speed limits.

VISIBILITY Addresses the need for motorists and cyclists to view and be aware of one another on the roadway. Highlights the need for appropriate lighting, pavement and caution markings, and warning signs.

INTERSECTIONS Focuses on the need for the design of intersections to account for bicyclists. Suggests that moderate improvements (e.g., type and timing of signals, crossing design, protected refuge areas) can have a significant impact on levels of felt stress.

TRANSIT INTERACTION Focuses on the need to advance multi-modal connectivity and safe interactions between the bicyclist and public transit.



Two-way protected bicycle lane–assessment exercise in Newark, Del.

The Low-Stress Bikeability Assessment Tool



21

Low-Stress Bikeability Assessment Visual Prompts

FACILITIES	1. Are bicycle facilities present? There are many types of bicycle facilities, and even within the following categories, there are variations.		
			
	None: Cyclists interact with traffic. There is no separation or signage to alert drivers to the presence of cyclists.	Sharrow: Signage is present that alerts drivers to the fact that cyclists may use the full road and they have the right of way.	Shoulder: While not marked exclusively for cyclists, it is wide and smooth for riding. Cars may also use the space for parking or idling.
			
	Dedicated Bike Lane: A space on the road is specifically marked for cyclists.	Protected Bike Lane: There is some sort of physical barrier between vehicular traffic and cyclists.	Separated Bike Path: Cyclists travel on a separate roadway than cars, but follow similar routes.



Low-Stress Bikeability Assessment Visual Prompts (continued)

FACILITIES

2. Are the facilities wide enough to accommodate bicyclists?

Different sizes are appropriate under different conditions. However, narrow lanes should always be avoided.



Narrow: When a bike lane is 3 feet wide or narrower, it can be difficult to navigate. Pedals can clip curbs, tires get stuck in the gutters, and cars come very close to cyclists.



Acceptable: The average bike lane should be between 4– 6 feet wide.



Wide: These are ideal when the speed or volume of traffic is very high, there is on-street parking next to the bike lane, there are numerous cyclists using the road, or the bikeway has two-way traffic on it.



Low-Stress Bikeability Assessment Visual Prompts (continued)

FACILITIES	3. Can you easily enter/exit the facilities? It is important that it is easy to get onto and off of the facility, regardless of the direction from which cyclists are coming.	
		
	Difficult to Access: Facilities may be present, but getting onto them is difficult or impossible. In this example, to cross the bridge, cyclists must use the sidewalk. However, there is no way to cross the street from the bike lane to access the one-sided facility.	Easy to Access: Entering the bicycle facility is simple. No foresight is needed to plan how or when entry will be possible.

**Low-Stress Bikeability Assessment Visual Prompts** (continued)

FACILITIES	4. Is there secure bike parking or storage at meaningful destinations? Once a bicyclist has traveled to a destination, he/she should be able to easily leave his/her bike in a secure location.		
			
	Not Useful Bike Racks: Bike frame cannot easily be locked to the rack. Narrow slots make it difficult to use and for tires to fit within the rack.	Useful Bike Racks: Bike racks should be easy to access and use. Ideally, there will be two points of contact on which to lock a bike.	Bike Lockers: Provide a covered and locked facility to store a bicycle. Can be provided free-of-charge or rented. Very useful in high-traffic areas and places where people lock their bikes for long periods of time, such as outside of office buildings and transit stops.
			
	Not Useful Locations: Racks are difficult to access, too close to buildings or other obstructions to fully utilize, or out of the way from meaningful destinations.	Useful Locations: Close to places people frequent, such as restaurants, shops, schools, libraries, community centers, and transit stops. They are approachable while on a bike (i.e., no stairs, grass, or other impediments).	



Low-Stress Bikeability Assessment Visual Prompts (continued)

FACILITIES	5. Do drainage grates run in a direction that will prevent fall-through hazards for cyclists? Grates serve as a serious, yet common, threat to cyclists. It is necessary to ensure that bike tires cannot easily get stuck. To do so, it is vital to ensure that drainage grates do not run parallel to cyclist direction of travel.		
			
	Dangerous grates: Grates are wide and/or run in the same direction of cyclist travel. This makes it easy for tires to get stuck, resulting in accidents and injuries.	Good: Grates have narrow openings and run in a perpendicular direction as cyclist travel so bicycle tires will not get stuck.	Best: Facilities are wide enough and grates are placed strategically so that cyclist does not have to cross over drainage grates at all.



Low-Stress Bikeability Assessment Visual Prompts (continued)

FACILITIES	6. Are there design features that may adversely affect cyclist safety (e.g., curbs, railings, and/or other structures)? Ensuring that bike facilities are clear of possible conflicts is important to ensuring that accidents are reduced.		
			
	Dangerous Parking Design: Car parking is located directly adjacent to bike lane, creating a constant threat to cyclists. Drivers could easily open their door onto a passing cyclist and cause great injury.	Better Parking Design: Provide more space between parked cars and the bike lane. This will allow drivers to open their doors while giving cyclists space to stay clear of the dangerous impact zone.	Best Parking Design: Car parking is placed between traffic and bike lanes. This limits car doors from being opened onto the bike lane, and protects cyclists from moving cars.
			
	Dangerous Design Features: Posts, railings, bump-outs, or other unexpected impediments, which are in the way of bicycle facilities, can be easily hit by cyclists, resulting in injury.	Improperly Placed Features: Some design features should be present but placed outside of the bicycle facilities. Reflectors and bumps can alert drivers to stay out of bicycle facilities, as long as a bicycle tire will not hit one of these features and result in an accident.	
			
	Problematic Curb Design: High curbs that are close to bike facility can serve as dangerous obstacles that could easily be struck by moving pedals and tires.	Better Curb Design: Rounded curbs that allow safer and gentler impact with curbs. Cyclists could also easily move up the curb to avoid hitting other objects in the bike lane.	

The Low-Stress Bikeability Assessment Tool



27

Low-Stress Bikeability Assessment Visual Prompts (continued)

NETWORK	7. Are bicycle facilities located in areas that are near destinations of daily living? People should be able to travel to the places that they would normally access by car.		
			
	Proximities to Homes: Bike routes should be located close to homes so that people are able to use their bikes from the moment they leave their driveway.	Proximity to Schools: Bike facilities should be provided on routes surrounding schools to ensure that children can safely bike to school.	Proximity to Jobs, Mixed-Use, and Commercial Areas: It should be easy to access numerous shops, restaurants, entertainment, and destinations from a bike route.



Low-Stress Bikeability Assessment Visual Prompts (continued)

NETWORK	8. Are there any abrupt endings for the bicycle facility? If a route exists, it must continue so that people can ride it through to their destinations. Otherwise, the route becomes useless.		
			
	No Warning: Cyclist is told to use the facility, but then it disappears, preventing his/her ability to safely continue on the route.	Warning: “Bike Lane Ends” signs provide warning that the facility will disappear but do not allow the cyclist an alternative way of traveling, and they provide warning far too late for the cyclist to account for the ending.	Bike Lane Taken Over by Turning Lane: Bike lane disappears when approaching intersections to make room for an auto right-turn lane.

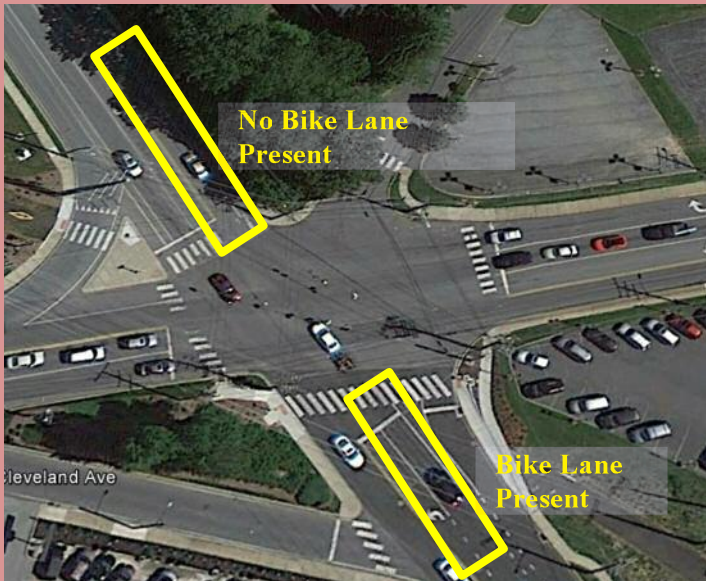


Low-Stress Bikeability Assessment Visual Prompts (continued)

9. Do bike lanes continue through all intersections?

Cyclists must be assured that if there is a facility on one side of the intersection, it will continue on the other side.

NETWORK



Discontinuous: Cyclists traveling on the road entering the intersection do not have a place to continue their travel on the other side.



Continuous: Bike lanes are consistent on both sides of the intersection, so it is clear as to where cyclists should safely travel.



Low-Stress Bikeability Assessment Visual Prompts (continued)

ROAD CONDITIONS

10. Are the facilities smooth and free of potholes?

Potholes can be inconvenient to drivers but dangerous to those on bikes. Cyclists easily can lose control of their bikes and fall or enter traffic lanes when hitting uneven surfaces.



Irregular: Even small bumps or potholes create dangerous cycling environments that can turn tires into traffic or cause cyclists to flip over their handlebars.



Smooth: When surfaces are smooth and well maintained, cyclists are able to travel at a consistent and fast pace.

The Low-Stress Bikeability Assessment Tool



31

Low-Stress Bikeability Assessment Visual Prompts (continued)

ROAD CONDITIONS	11. Are the bike facilities free from obstacles (e.g., leaves, snow, ice, rocks, debris, tree limbs, etc.)? When obstacles are in the way of cyclists, they must enter traffic lanes to maneuver around them, causing numerous potential hazards.	
		
	Bike Lane as Storage: Trashcans and other items placed in bike lanes create unnecessary obstacles around which it is difficult to navigate.	Bike Lane Not Cleared: Rocks, leaves, snow, standing water, and other natural elements that are not cleaned out of the bike lane make for very difficult areas to traverse by bicycle.
		
	Dangerous Debris: Many times, bike lanes are refuge for garbage and broken glass, creating obstacles as well as impediments to easy travel. While small garbage may be inconsequential to travel over on a car, it may cause serious accidents on a bicycle.	Cleaned Bike Lanes: Bike lanes should be consistently swept and cleaned so as to create a safe environment in which cyclists may travel.



Low-Stress Bikeability Assessment Visual Prompts (continued)

ROAD CONDITIONS	12. Do vehicles seem to be following the posted speed limit? The impression of cars' speed that you detect is very important. If it feels as though cars are traveling at a speed that creates an unsafe environment for anyone outside of a car, cyclists will not feel safe sharing the road.	
		
	Disregard for Speed Limits: Speeding cars create dangerous road conditions, wherein drivers are unable to closely look for cyclists or provide ample stopping time if the need were to arise.	Speed-Limit Observance: Cars are traveling at a slow pace, making it possible for cyclists to easily and safely share the road with them.



Low-Stress Bikeability Assessment Visual Prompts (continued)

ROAD CONDITIONS	13. Are drivers cautious and respectful of people on bikes? The acceptance of cycling must be shared by drivers. Drivers must be concerned with the safety of cyclists and treat them with respect on the road.			
	<table border="1"> <tr> <td data-bbox="210 454 1081 1023">  </td><td data-bbox="1081 454 2009 1023">  </td></tr> <tr> <td data-bbox="210 1023 1081 1154"> Infringement of Space: Bad driver behaviors, such as honking, following too closely, or not providing enough space when passing, are key deterrents for hesitant cyclists. These actions feel threatening and can be very dangerous for those on bicycles. </td><td data-bbox="1081 1023 2009 1154"> Cautious/Respectful: Providing at least 3 feet when passing, allowing cyclists to occupy the road without any form of harassment will enable cyclists to feel safe. </td></tr> </table>			Infringement of Space: Bad driver behaviors, such as honking, following too closely, or not providing enough space when passing, are key deterrents for hesitant cyclists. These actions feel threatening and can be very dangerous for those on bicycles.
				
Infringement of Space: Bad driver behaviors, such as honking, following too closely, or not providing enough space when passing, are key deterrents for hesitant cyclists. These actions feel threatening and can be very dangerous for those on bicycles.	Cautious/Respectful: Providing at least 3 feet when passing, allowing cyclists to occupy the road without any form of harassment will enable cyclists to feel safe.			



Low-Stress Bikeability Assessment Visual Prompts (continued)

ROAD CONDITIONS	14. Are there any cars driving, stopped, or parked in bike lane? Cars using bike lanes for vehicular travel or storage is highly problematic.	
		
	Cars Parked in Bike Lane: Cars stopped or parked in bike lanes pose a hazard and inconvenience to cyclists. It also sends a message to cyclists that they are not as important as cars.	Cars Using Bike Lane as Turning Lane: Drivers of cars sometimes enter and use bike lanes as turning lanes. This poses a dangerous threat to cyclists, who can easily get side-swiped or cut off.



Low-Stress Bikeability Assessment Visual Prompts (continued)

VISIBILITY	15. Are there clear sight lines for cyclists to see vehicles/pedestrians and vice versa? In order to create safe intersections, it is important to enable all road users to see one another.		
			
	Poor Visibility: Trees, poles, and tight corners can make it difficult for drivers and cyclists to see one another. These types of designs also make it difficult to figure out who has the right-of-way.	Better: Mirrors can be used in a variety of settings to make it easier for drivers to see cyclists and vice versa. For example, when buildings have a small setback and create poor visibility, mirrors can enable people see what is around the corner.	Best: Intersections can be designed to allow all users to easily see and be seen. This design forces cars to make a wider turn, so drivers cross bike and pedestrian facilities perpendicularly, allowing easier sight lines.



Low-Stress Bikeability Assessment Visual Prompts (continued)

VISIBILITY	16. Is there lighting throughout the entire bike facility? High visibility at night is essential for safety. Cyclists can provide their own lights and reflectors, but ensuring that the facilities are lit from above is also necessary.	
		
	Poor Illumination: Bike paths and lanes that are not lit are unsafe and unwelcoming, discouraging people from using the routes after sunset.	Well-Lit Paths: Well-lit paths with bright lights allow for safe passage and a welcoming environment.



Low-Stress Bikeability Assessment Visual Prompts (continued)

VISIBILITY

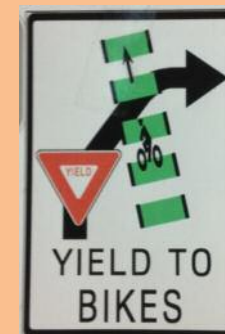
17. Are there pavement and caution signs along the roadway?

Cautionary symbology can come in a variety of styles, including various types of road markings and street signs. All are intended to alert drivers to the presence of cyclists and create safe encounters among all modes of travel.



Painted Bike Markings: Markings can come in a variety of styles. Full painted lanes may only be necessary in concentrated areas, but all bike facilities should be clearly marked to ensure that everyone understands how they are to be used.

Intersection Markings: Marking intersections with solid paint to call attention to the lane is necessary to ensure that drivers are aware of where to look for cyclists. The use of reflectors or lights for better night visibility is especially helpful.



Warning Signs: signs with yellow backgrounds have a warning effect, meant to call attention to hazard conditions. These signs are especially important in areas where to hazards would not otherwise be apparent. These signs are useful in alerting drivers to possible bicycle conflicts.

Regulatory Signs: Signs with white backgrounds have a regulatory effect, meaning that impose legal restrictions. To ensure that motorists and cyclists are adhering to all laws related to cyclist action and safety, these signs must be visible and clear throughout the bike network so as to easily enforce the laws.



Low-Stress Bikeability Assessment Visual Prompts (continued)

VISIBILITY	18. Are warning signs posted at entrances and driveways? In areas with many entrances and driveways, it is sometimes difficult to be aware of locations from which all cars and bikes may be coming. Therefore, signage and clear warnings are important to alert everyone to potential dangers.		
			
	Warning for Drivers: Signs encouraging drivers to watch for cyclists, especially in areas of high traffic or low visibility, is critical.	Warnings for Cyclists: Alerting cyclists to entrances and driveways is important to ensure that they know to look out for possible danger.	Mirrors: In addition to mirrors being used to help see around buildings, they can also be employed at intersections. When cyclists may have to wait in a driver's blind spot, mirrors can help ensure that they are easy to see.



Low-Stress Bikeability Assessment Visual Prompts (continued)

INTERSECTIONS	19. Do the traffic signals account for bicyclist movements? Traffic signals should provide one way to ensure that everyone can safely move through the intersection in the most efficient manner possible.		
			
	Short Signals: If bikes have to wait through signals, it is best to ensure that they do not have to wait for long. This is especially important for those who may be biking on days with inclement weather or in hilly areas where momentum is important.	Bike Signals: Ideally, intersections will have specific signal phases for cyclist movement. This will reduce the number of conflicts encountered with cars and pedestrians.	Green-Wave Timings: Traffic signals can be set for the average speed of cyclists instead of cars (e.g., 13 MPH). This creates an environment in which cycling is encouraged and becomes faster and more efficient than driving. Reducing the amount of stops that cyclists have to make is vital in making cycling a more attractive mode of transportation.



Low-Stress Bikeability Assessment Visual Prompts (continued)

INTERSECTIONS	20. Are there any conflicting traffic movements during bicycle-crossing phases? It is best to ensure that motor vehicles are stopped when cyclists are moving through an intersection in order for everyone to have sufficient time to safely traverse the area.
	Conflicting Movements: Conflicting movements occur when cars and bikes are both trying to move through an intersection at the same time. This creates confusion, as to who must yield to whom, and potential aggression, as cars attempt to speed around cyclists. Non-Conflicting Movements: When cyclists have to cross traffic or move through an intersection, it is best to create traffic signals and timing specific to such movements. During this time, all motor vehicles are stopped.



Low-Stress Bikeability Assessment Visual Prompts (continued)

INTERSECTIONS	21. Has the need been minimized for cyclists to stop unnecessarily? Reducing barriers to easy cycling is key to encouraging people to want to bike as a normal mode of transportation.	
		
Unsuitable Crossing Design: A stop bar requires cyclists to stop, even though there are no safety concerns or conflicts at T-intersections.	Suitable Crossing Design: At T-intersections where cyclists have their own lane both before and after the intersection and cars do not need to cross the bike lane for any reason, removing the stop bar or marking the pavement to allow cyclists to move through without stopping is very useful. This allows cyclists to keep their momentum. Furthermore, many cyclists already have a tendency to run these types of red-light stops; removing the barrier will add consistency and predictability to cyclist behavior.	



Low-Stress Bikeability Assessment Visual Prompts (continued)

INTERSECTIONS	22. Are all railroad crossings safe for cyclists? Bicycle tires can easily get stuck in the grooves associated with railroad tracks.		
			
	Unsuitable Design: Wide, bumpy joints, or traveling at a non-perpendicular angle to or parallel with bike lanes. This type of design causes tires to get stuck in the tracks, resulting in serious injury.	Better: The slight turnout allows cyclists to approach the tracks from more of a right angle without having to enter the traffic lanes. This prevents tires from getting stuck in the tracks.	Best: Coverings between tracks are used to create a smooth and level crossing. The tracks are exactly perpendicular to direction of bike travel.



Low-Stress Bikeability Assessment Visual Prompts (continued)

23. Is there a protected space (i.e., bike boxes and/or median refuge island) to facilitate safe crossing of cyclists and pedestrians? It is important to ensure that the infrastructure allows cyclists to easily cross the street.			
INTERSECTIONS			
	Unprotected Crossing: No median or refuge for pedestrians and cyclists results in unsafe street crossings, in which both groups are forced to walk long distances without any protection and may be completely unable to cross on busy streets.	Median: Allows cyclists and pedestrians to cross part of the street safely and wait for an opportunity to continue crossing after traffic has cleared.	Bike Box: Cyclists are able to move to the front of the queue at a red light. This increases their visibility and enables safer left turns.



Low-Stress Bikeability Assessment Visual Prompts (continued)

TRANSIT INTERACTION	24. Are bike facilities separated from mass-transit stops? The best design features allow these forms of transportation to co-exist without intruding on other spaces.		
			
	Buses as Impediments: Buses commonly overtake bike lanes. Bikes then must stop behind the bus or enter the lanes of traffic.	Better: Bike lane has a painted stop stripe at bus stops to indicate that cyclists must yield to pedestrians. This establishes order and safety.	Best: Bike lane and bus stop are physically separated, eliminating any space for conflict.



Low-Stress Bikeability Assessment Visual Prompts (continued)

25. Are there bicycle accommodations (e.g., as bike parking or storage) at transit stops? Providing space for bike storage at bus stops allows people to use bikes and buses easily.			
TRANSIT INTERACTION			
	Bike racks: Providing space to store bikes at bus stops is necessary to ensure that a modal split between bike and bus is easy and efficient.	Bike lockers: Transit users who access bus stops by bike are commonly commuting to work. Bikes may be left for 8+ hours a day. It's optimal to provide secure lockers to protect bikes from the elements and theft.	Ramps: When bicycles are allowed on trains, it is advisable to create spaces where cyclists can easily maneuver their bikes onto the cars.



Consider Supplemental Data-Collection Methods

Step 1: The Pre-Assessment supports the use of tools designed and produced by IPA, including a narrated PowerPoint presentation on “Conducting a Low-Stress Bikeability Assessment: An Overview of What to Look for” and the Bikeability Assessment Visual Prompts (previous section). These tools are designed to help participants become familiar with bikeability concepts and conditions before data are collected during the in-field assessment, using the Bikeability Assessment Checklist. Designated workshop leaders/facilitators may also wish to supplement the use of the Bikeability Assessment Checklist with other alternative data methods, which are briefly described below. It should be noted that, because technology continues to evolve, there will continue to be new innovative and interactive methods of data-collection options available to assess the low-stress bikeability of an area.

Advanced GIS Technology

With the advent of new capabilities in Geographic Information Systems (GIS), mapping tools have become both more powerful and accessible. [Explorer for ArcGIS](#) is a free, downloadable digital-map browser available from ESRI, the same developer that sells high-end GIS software to many professional planning agencies. However, unlike the costly professional software version, the free general-purpose mapping application (app) is available for use on desktop

computers as well as on iOS and Android smartphones and tablets. Maps and points of interest may be shared as pictures with group members. In addition, the app allows users to sketch ideas on top of maps, turn on/off data layers to get clearer, unobstructed views of bikeability assessment areas, and zoom in/out to create maps of a more appropriate scale.

Crowdsourcing and Social Media

Collaborative online mapping platforms, such as WikiMaps, allow for collection of data from actual bike riders within a specific area. DelDOT used WikiMaps bikeatthebeach.com to better understand preferred bike routes, ride experiences, and route barriers or challenges for bicyclists in Delaware beach communities. The information is being used to produce maps to help direct less-experienced cyclists and families to safer, more comfortable routes. Information will also help identify opportunities for low-stress improvements to the



WikiMapping was used to gather data on biking in Delaware's resorts.

The Low-Stress Bikeability Assessment Tool



47

bicycle network. This online public-input tool could easily be used to supplement in-field bikeability-assessment data with actual user experience, display results of an in-field assessment, or track interested users' preferred routes and concerns over time.

To foster real-time dialogue and collaboration on issues of concern, local governments are harnessing the power of social media. Facebook, Twitter, and other platforms can be used to identify problem areas, such as bikeability conditions. Instagram, the photo-oriented social media app, is being used by public entities to document the appearance and location of infrastructure issues. Crowdsourcing—engaging the crowd to identify or develop innovative solutions to public problems—is also becoming a viable data-collection tool in the public sector. Cities have used crowdsourcing to report infrastructure conditions, hazardous-traffic zones, and map “near-miss” accident trouble spots.

Google Street View & Google Maps

One of the most accessible, commonly used, and simplest mapping tools is [Google Maps](#) with Google Street View. Users can type in a street address and click on the Street View icon to view of a particular street segment or intersection. It is an excellent tool for covering larger areas without having to physically organize a group to conduct an in-field bikeability assessment and may prove useful in prioritizing potential assessment areas. Both are capable of



Google Street View in Smyrna, Del.

importing and displaying geographic points of interest. Users can also add photos to associated points on a map.

Bike Score™

Similar to Walk Score®, [Bike Score™](#) measures whether a location is good for biking on a scale from 0–100, based on four equally weighted components: 1) bike lanes, 2) hills, 3) destinations and road connectivity, and 4) bike-commuting mode share. Bike Score™ continues to be refined and evolve. While it's not readily available for most locations in Delaware, it's poised to become an important supplemental data source to help communities assess the bikeability and quality of bike infrastructure.



STEP 2: THE LOW-STRESS BIKEABILITY ASSESSMENT

Facilitate the Workshop

The facilitated-workshop setting provides an opportunity for participants to learn more about what constitutes a low-stress environment for the majority of bicyclists who are “interested but concerned” riders. Once participants arrive, sign-in, and informal introductions are made, the designated workshop leader/facilitator should show the narrated presentation and explain the process for observing and documenting bikeability conditions.

The in-field bikeability assessment allows participants to evaluate actual bikeability conditions of the selected area and “walk and talk” about observations with workshop leaders and participants. It is followed by a debriefing and mapping exercise that allows participants to share ideas and viewpoints, connect with other stakeholders, explore and document current bikeability conditions, gain new perspectives, and gain consensus about improvements strategies.

Prior to the workshop:

The workshop leader/facilitator should contact participants via email to do the following:

- Affirm the date, time, and location of the Low-Stress Bikeability Assessment workshop.
- Attach to the email an electronic copy of the workshop agenda and Low-Stress Bikeability Assessment Visual Prompts. Ask participants to review the prompts prior to attending the workshop to become familiar with “what to look for” during the in-field assessment.
- Remind participants to wear comfortable shoes and clothing appropriate for the weather.

The workshop leader/facilitator should also:

- Enlist volunteers (or key committee members/staff) to arrive at the workshop at least 45 minutes early to help greet and sign in participants, distribute hand-outs, and set up materials and refreshments.
- Designate key roles (such as in-field group leaders, photographers, and workshop presenters/facilitators).
- Download (on a laptop computer or USB device) the narrated presentation on “Conducting a Low-Stress Bikeability Assessment: An Overview of What to Look for”—available online on IPA’s [Delaware Complete Communities Planning Toolbox](#) and [Complete Communities YouTube Channel](#).

One-hour before the workshop:

- Set up the equipment to show the narrated presentation.
- Arrange tables/chairs to accommodate 6–8 people; provide one large-scale map at each table.

The Low-Stress Bikeability Assessment Tool



49

- Arrange easels with pads to take notes during debriefing with facilitated map exercise.
- Set up a table for refreshments and a table to sign in/ provide hand-outs to workshop participants.

To initiate the workshop:

- Sign in workshop participants and provide name tags, copies of the agenda, 8.5-in. x 11-in. street maps, and copies of the Bikeability Assessment Checklist.
- Make introductions and explain the purpose of the workshop, roles of participants, and agenda.
- Show the narrated presentation “Conducting a Low-Stress Bikeability Assessment: An Overview of What to Look for.”
- Prior to the conducting the in-field bikeability assessment:
 - Address questions regarding the narrated presentation and what to observe.
 - Distribute reflective safety vests.
 - Introduce the Bikeability Assessment Checklist (beginning on the next page), procedures for conducting the in-field assessment, and the plan to reconvene immediately following the in-field assessment for a debriefing and mapping exercise.

Explain Use of the Low-Stress Bikeability Assessment Checklist

The Bikeability Assessment Checklist—the following six

pages (pp. 50-55) of this assessment tool—is designed to be printed out in color, distributed to participants at the workshop, and used during the in-field bikeability assessment.

The color-coded topics:

FACILITIES

NETWORK

ROAD CONDITIONS

VISIBILITY

INTERSECTIONS

TRANSIT INTERACTION

These topics correspond with those described in the Low-Stress Bikeability Assessment Visual Prompts: “What to Look for” and narrated presentation. Once the presentation is viewed and questions have been addressed, participants should use the checklist to record their observations during the in-field assessment. The “walk and talk” will enable participants to use maps for reference, observe existing bikeability conditions, and discuss possible improvements. Participants should use the checklist to document the presence, absence, and locations of bikeability features, conditions, and locations.



Low-Stress Bikeability Assessment Checklist

Low-Stress Bikeability Assessment Checklist							Date:	Jurisdiction:
FACILITIES							Location	
1. What types of bicycle facilities are present?	None	Sharrow	Shoulder	Dedicated Bike Lane	Protected Bike Lane	Separated Bike Path		
2. The facilities are wide enough to accommodate cyclists.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree			
3. The facilities are easily accessible.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree			
4. There is bike parking or storage at all meaningful destinations.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree			
5. The facilities are safe and easy to navigate.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree			
6. Are there design features that may obstruct cyclist movement or cause safety concerns? (check all that apply) ☐ Drainage grates that prevent fall through hazards for cyclists ☐ Lampposts or other obstructions in the bike lane ☐ Railings or tall curbs close to the bike lane								
Comments:								

The Low-Stress Bikeability Assessment Tool



51

Low-Stress Bikeability Assessment Checklist (continued)

NETWORK						Location
7. Bicycle facilities are located in areas that are useful to riders.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
8. There are abrupt endings for the bicycle facilities.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
9. Bike lanes continue through all intersections.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Comments:						



Low-Stress Bikeability Assessment Checklist (continued)

ROAD CONDITIONS						Location
10. Facility surfaces are smooth and free of potholes or other impediments.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
11. Bike facilities are free from obstacles (e.g., leaves, snow, ice, rocks, debris, etc.).	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
12. Drivers are following the posted speed limit.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
13. Drivers are cautious and respectful of people on bikes.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
14. Cars do not drive, stop, or park in the bike lane.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Comments:						

The Low-Stress Bikeability Assessment Tool



53

Low-Stress Bikeability Assessment Checklist (continued)

VISIBILITY						Location
15. There are clear sight lines for cyclists to see vehicles and pedestrians, and vice versa.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
16. Sufficient lighting is present throughout the entire bike facility.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
17. Sufficient caution signs and pavement markings are present along the roadway.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
18. Adequate warning signs are posted at entrances and driveways.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Comments:						



Low-Stress Bikeability Assessment Checklist (continued)

INTERSECTIONS						Location
19. Traffic signals account for bicyclist movements.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
20. Conflicting traffic movements have been eliminated during bicycle crossing phases of a traffic light.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
21. The need for cyclists to unnecessarily stop has been minimized.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
22. Railroad crossings are safe for cyclists.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
23. There is a protected space (i.e., median refuge island and/or bike box) to facilitate safe crossing of both cyclists and pedestrians.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Comments:						



Low-Stress Bikeability Assessment Checklist (continued)

TRANSIT INTERACTION						Location
24. Bicycle facilities are separated from transit stops.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
25. Bicycle accommodations (i.e., bike parking or storage) are made at transit stops.	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
Comments:						



Conduct the In-Field Assessment

Ideally, the route selected for the in-field assessment has been pre-toured, as discussed in Step 1: The Pre-Assessment. Aim for a route length of no more than six blocks for walking, and a talking time of approximately one hour. Provide safety vests for participants to wear. If there are more than 20 people, split them into two groups that are each led by a workshop leader/facilitator. As participants “walk and talk” during the in-field assessment, group leaders should pause strategically at locations where



Workshop participants during in-field assessment

participants can observe and discuss critical issues. Time should be allotted to allow for participants to reference street maps, ask questions, take photos, and record their observations within each section of the Low-Stress Bikeability Checklist (e.g., facilities, network, road conditions, visibility, intersections, and transit interactions).

Conduct a Debriefing and Mapping Exercise

Following the in-field assessment, participants will immediately reconvene in the workshop setting for a debriefing and facilitated mapping exercise. Participants



Mapping exercise following the in-field assessment

should break into groups of 6–8 people and go to tables set up with large-scale maps, markers, and stickers. Within each group setting, participants should discuss their observations and the information they’ve documented on their Low-Stress Bikeability Assessment Checklists. Participants can use markers and place stickers on the large-scale maps to note locations of issues, concerns, and possible improvements that may require changes in engineering, signage, policies, law enforcement, and educational programs.

The Low-Stress Bikeability Assessment Tool



57

Following the mapping exercise, the workshop leader/facilitator should ask each group to report on ideas and suggestions for low-stress bikeability improvements. As a whole, the workshop participants can discuss conditions observed and build consensus on key issues and recommendations for improvements. Collectively, agreed upon issues and ideas for improvements can be summarized on flip charts or notepads.



Mapping exercise following the in-field assessment



Mapping exercise following the in-field assessment



STEP 3: POST-ASSESSMENT

The in-field assessment and mapping exercise during the workshop are designed to engage participants and build a consensus on the need to improve low-stress bikeability. The workshop, however, is just a starting point to build interest and momentum for long-term improvements. Each community is unique, and there is not a one-size-fits-all approach to initiate low-stress bikeability improvements. However, the following post-assessment steps are suggested to initiate plans, policies, programs, and design improvements to enhance low-stress bikeability.

Identify and Prioritize Concerns

With assistance from professional planners, consultants, and/or workshop facilitators:

- ☐ **Compile** all pre-assessment data and in-field assessment outcomes (mapping exercises, individual assessments, photos).
- ☐ **Analyze** all compiled information and look for themes related to the low-stress bikeability assessments of facilities, network, road conditions, visibility, intersections, and transit interactions.
- ☐ **Identify and prioritize** the issues that:
 - Require immediate attention to address safety concerns.
 - Reflect the consensus of the group in terms of the greatest low-stress bikeability issue(s).

- Are “low-hanging fruit” or improvements that can be easily achieved with minimal funding, technical assistance, plan/policy changes, or engineering design (e.g., signage, signalization, education, enforcement).
- Would achieve the “most bang for the buck” or most impactful improvements in low-stress cycling with least investment.
- Would serve a specific population of low-income or “no-choice” riders particularly well, such as routes surrounding schools or low-income neighborhoods.
- Most significantly improve connectivity by overcoming a major barrier or filling in a large gap in the bicycle network.

- ☐ **Establish** the goals for necessary for plan, policy, and program improvement.

Prepare a Written Summary

With assistance from designated workshop leaders/facilitators to do the following:

- ☐ **Summarize outcomes** of the low-stress bikeability assessment/workshop to include:
 - Purpose – Why was the assessment undertaken?
 - Location – How was the area selected and why?
 - Special needs of targeted populations (e.g., commuters and “no-choice” riders, including school-aged children, seasonal workers, and students)
 - Description of outreach effort, including list of workshop participants

The Low-Stress Bikeability Assessment Tool



59

- Types of pre-assessment data that were used/collected
- Map of the low-stress bikeability–assessment area(s)
- Identification and prioritization of issues
- Ideas for improvements
- Suggested “next steps”

Present Findings

Present findings to:

- ☐ **Key local officials**
 - Get on the agenda to make a public presentation at the jurisdiction’s Planning Commission meeting, relevant advisory board/committee meeting(s), and/or town/city council meeting.
 - Arrange to meet with the local jurisdiction’s staff members who are involved in planning, public works, public safety, finance, and parks and recreation.
- ☐ **Agencies/entities/organizations** that provide technical assistance, funding, and/or grants
 - Get on committee meeting agendas for regional MPOs, DelDOT, DNREC’s Division of Parks and Recreation.
 - Meet with representatives of local foundations and companies that provide community grants.
- ☐ **Entities concerned with public safety and health**

Get on meeting agendas to present findings to task forces, committees, or auxiliary groups for local public safety agencies, school boards, community healthcare systems, and non-profit organizations to gain support for education and outreach campaigns.

- ☐ **General public** via press releases, newsletter articles, social media, and “news” sections of local government and partner websites
- ☐ **Advocacy groups**

Attend meetings and community events hosted by civic or home owners’ associations, bicycle-advocacy groups, school associations (PTAs), non-profit groups, faith-based organizations, Main Street and business-interest groups to raise awareness, engage, and recruit other interested community members.

Gain Support and Strengthen Partnerships

Establish:

- ☐ **Plans**
 - Incorporate provisions for low-stress bikeability within the vision, recreation, and/or transportation element of the local government’s [Comprehensive Plan](#).
 - Create or update a bike plan to reflect new goals.
 - Consider the need for specialized plans that emphasize safety, access, bikeway linkages, improve multimodal connections, maintenance, or foster interconnectivity among the state’s network of [shared-use trails and pathways](#), such as transportation circulation–system plans, trail studies, [parks and recreation master plans](#), streetscape plans, and Complete Streets plans.
- ☐ **Policies**
 - Evaluate existing policies, need for new policies, or consistency with state policies (e.g., [Complete Streets](#))



Planning for Complete Communities in Delaware:

to ensure that transportation infrastructure is designed, built, constructed, and maintained to safely accommodate travelers of all ages and abilities, including bicyclists.

- Advocate policy changes to address barriers to and support safe conditions for bikeability.

□ Design standards

- Work with DelDOT officials to seek guidance on regulations that support the state's [Complete Streets policy](#).
- Consider the need for [context-sensitive transportation solutions](#) that fit within the context of the road use and setting. For example, traffic-calming measures can be incorporated in roadway design based on the use and classification of the roadway (e.g., urban, suburban, and rural roadway contexts).
- If a [streetscaping](#) project is planned, consider the need to design spaces that balance needs of all roadway users and wherein people can safely walk, bicycle, drive, take transit, and mingle. Well-designed and well-maintained streetscapes create comfortable, beautiful streets that align with Complete Streets principles.
- Work with partners to design safe and attractive multi-modal environments near major transit corridors and stations that provide linkages for pedestrians and bicyclists to/from origins and destinations to transit.

□ Funding support

- Seek support for bicycle-facility improvements and maintenance costs within the local jurisdiction's annual budget and/or long-term capital-improvement plan.

- Seek support for bicycle-facility improvements from DelDOT or the MPOs via federal funding programs, such as the Transportation Alternatives Program (TAP), Congestion Mitigation and Air Quality (CMAQ), or Safe Routes to School (SRTS).
- Contact state legislators to seek Community Transportation Funding for small transportation projects that don't meet state agency-funding priorities.
- Consider tying non-motorized improvements into already planned transportation system-improvement projects.
- Leverage funding support for grants or other sources from non-profit entities and/or private organizations.

□ Facility-maintenance plans

- Ensure that the jurisdiction plans for facility maintenance that is consistent with and complements municipal-maintenance agreements with DelDOT.
- Ensure that bicycle infrastructure is well maintained and free from hazardous conditions/obstructions.
- Consider winter-maintenance needs.

□ Technical assistance

Contact [WILMAPCO](#), [Dover/Kent County MPO](#), [Salisbury/Wicomico MPO](#), and/or [DelDOT](#) for further assistance and support.

Provide Outreach and Education

Education and awareness are tools that reshape the travel behavior of motorists, pedestrians, and bicyclists. Seek support and assistance from public safety officials, bicycle

The Low-Stress Bikeability Assessment Tool



61

committees, advocacy groups, parks and recreation departments, the private sector, and non-profit organizations to do the following:

- ☐ Teach and advocate safe bicycling behavior and proper use of bicycle facilities.
- ☐ Educate motorists and enforce safe driving.
- ☐ Explore a possible bike-sharing program.
- ☐ Maintain and improve bicycle facilities and amenities.
- ☐ Plan for route expansion and connectivity to adjacent bicycle routes, trails, and facilities.
- ☐ Support local “Safe Routes to School” programs that address bicycling and walking safety for school students.
- ☐ Consider the need for bicycle-sharing programs.
- ☐ Develop programs aimed at motorists to improve awareness of the needs and rights of bicyclists.

Stay Engaged

Develop strategic actions, initiatives, and a public-engagement plan to involve community members, advocacy groups, local leaders, and partner agencies and achieve implementation/funding. Continue working with all stakeholders to ensure that progress is sustained.



DelDOT's summer education programs provide bicycle checkpoints and training to resort-area residents, tourists, and summer employees.



Institute for Public Administration
School of Public Policy & Administration
College of Arts & Sciences
University of Delaware

180 Graham Hall University of Delaware Newark, DE 19716-7380
phone: 302-831-8971 e-mail: ipa@udel.edu fax: 302-831-3488
www.ipa.udel.edu

The University of Delaware's Institute for Public Administration (IPA) addresses the policy, planning, and management needs of its partners through the integration of applied research, professional development, and the education of tomorrow's leaders.

Please also visit our Delaware Complete Communities Planning Toolbox at CompleteCommunitiesDE.org.