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STATEWIDE BICYCLE
MOBILITY PLAN
APPENDIX

DECEMBER 2020

PREPARED FOR



PREPARED BY



IN ASSOCIATION WITH





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MOBILITY PLAN

APPENDIX

A1. Established Planning Framework

RHODE ISLAND BIKE MOBILITY PLAN PROCESS

TECHNICAL TASKS + DELIVERABLES

High Level Policy Goals

Existing Conditions

- Inventory of Facilities + Programs
- Bike Counts
- Policy Review
- Crash Assessment

DRAFT Vision, Goals + Objectives

FINAL Vision, Goals + Objectives

Needs Assessment

- Crash / Safety Analysis
- Review of Barriers
- Gap Analysis
- Interactive Bike Map Input

Funding Strategy + Performance Measures

Rhode Island Bicycle Network

- Candidate Bikeway Treatments
- Draft Candidate Bikeway Network

DRAFT Bicycle Mobility Plan Report

DRAFT Prioritization

- Candidate Bikeway Network Corridor Evaluation

FINAL Bicycle Mobility Plan Report

FINAL Prioritization

- Final Candidate Bikeway Network Corridor Prioritization

PUBLIC ENGAGEMENT

- State Planning Council
- Technical Advisory Committee

Bicycle Mobility Plan Advisory Committee

September 2017 Public Workshops

Bicycle Mobility Plan Advisory Committee

January 2018 Public Workshops

Bicycle Mobility Plan Advisory Committee

Stakeholder and Municipal Meetings

Bicycle Mobility Plan Advisory Committee

Statewide Municipal Meetings

Bicycle Mobility Plan Advisory Committee



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A2. Detailed Recommendations

1. Assessment of Current Policies and Programs

To encourage bicycling in local communities and throughout Rhode Island, the state must critically assess its current laws, policies and programs related to bicycling in general, and for bicycle facility planning and design. A critical part of the Bicycle Mobility Plan is to follow up the assessment with a series of recommendations for policy changes and revisions to various documents and design manuals. The sections below include an analysis of laws promoting bicycling and bicycle safety, an analysis of the state's existing education and encouragement programs, and suggested alterations to RIDOT's various design manuals used for roadway projects.

1.1. Laws Promoting Bicycling and Bicycle Safety

In addition to the general recommendations related to complete streets in Chapter 4 of the Bicycle Mobility Plan, suggested revisions to the RIGL § 31-18-21, along with a proposed new law related to Vulnerable Road Users are shown below. RIDOT created DPM 10-37 based on passage of RIGL 31-18-21.

<http://webserver.rilin.state.ri.us/Statutes/TITLE31/31-18/31-18-21.HTM>

Modify the State's General Laws 31-18-21 (Pedestrian and Bike Facilities)

Current text:

Pedestrians and bike facilities. – Except in the cases of limited access roads, and/or roads of less than twenty-three feet (23') in width, the director of the department of transportation is authorized and directed to provide for the accommodation of bicycle and pedestrian traffic in the planning, design, construction, and reconstruction, and to consider this in the resurfacing and striping of any project undertaken by the department, unless the director, after appropriate review by the director or his or her designees, determines that the inclusion of bike facilities and pedestrian access would be contrary to acceptable standards of public safety, degrade environmental or scenic quality, or conflict with existing right-of-way. In his or her deliberations, the director shall take into consideration the cost of the facilities in relationship to available funding. Bike facilities may include bicycle lanes, routes, paths, or trails; permeable paved shoulders and/or signage.

Proposed new text:

Pedestrians and bike facilities. – Except in the case of limited access roads, the director of the department of transportation is authorized and directed to provide for the accommodation of bicycle and pedestrian traffic in the planning and scoping of roadway projects undertaken by the department, unless the director, after appropriate review by the director or his or her designees, determines that the inclusion of bike facilities and pedestrian access would conflict with existing right-of-way. In his or her deliberations, the director shall take into consideration the safety benefits of pedestrian and bicycle facilities as weighed against cost of the facilities in

relationship to available funding. Bike facilities may include bicycle lanes, routes, shared-use paths, permeable paved shoulders and/or signage.

Create a Vulnerable Road User (VRU) law in Rhode Island

Vulnerable Road User (VRU) laws provide important legal protection to bicyclists (and other road users) by creating general deterrence: knowledge that certain road behaviors leading to injury or death of bicyclists, walkers, and other vulnerable road users will be subject to increased penalty will deter motorists from performing those behaviors.

Rhode Island should adopt a VRU law. Model language can be seen here:

<https://bikeleague.org/content/model-vulnerable-road-user-law>

The sample found at the link above, written for the League of American Bicyclists by lawyers specializing in bicycle law, is based on the State of Oregon's version. Presently, nine states have VRU laws, including three others in the New England region (Connecticut, Maine, and Vermont).

1.2. Current Education and Encouragement Programs

The section below includes an overview of the existing Education and Encouragement programs that currently exist in Rhode Island, with some general recommendations for how to strengthen them in order to promote bicycling.

RIDOT Office on Highway Safety Section 405 Grant Program

Section 405 Grant Program grants to the Rhode Island Bicycle Coalition (RIBike) underwrite the teaching of bicycle education classes. This includes the Smart Cycling curriculum created by the League of American Bicyclists, taught by League Certified Instructors (LCIs). Expansion of this program, particularly for youth programs in schools and recreation centers, should be a goal of the BMP.

RIPTA's "Commuter Resource RI" program

This program organizes and helps sponsor events encouraging bicycling, including Bike to Work Day. As part of the BMP, a goal would be to expand the program, which could include: 1) installing bike parking at more Park-and-Ride locations, and 2) providing opportunities for potential bus-bike commuters to use the Sportworks racks in a stress-free environment (such as currently available at Bike Newport).



Sportworks bike racks are available to bus-bike commuters throughout the State

RIPTA’s Bus Stop Design Guide

The design guide (<https://www.ripta.com/rhode-island-bus-stop-design-guide-2017>) provides excellent guidance on how to route bicycle facilities around bus stops (p. 41-43) and install proper bicycle parking (p. 55-56).

RIPTA does not yet have policy regarding installation of bike parking at bus stops or transit stations. It is recommended that RIPTA develop such policy. RIPTA does provide special education to its drivers on how to operate when bicyclists (and other vulnerable road users) are present, however.

In principle, bus drivers are advised to drop back, drive slowly if necessary, and to be especially cautious around bicyclists. Anecdotally, this may not occur with every interaction and likely more training for drivers is needed.



Graphic showing the design of bike lane bypass around a bus stop from the RIPTA Bus Stop Design Guide, courtesy of RIPTA

RI’s Health Equity Zone (HEZ) program

This program is a partnership of local agencies and the RI Department of Health, and currently operates ten programs around the state. The program’s goal is to create healthier communities by supporting “innovative approaches to prevent chronic diseases, improve birth outcomes, and improve the social and environmental conditions of neighborhoods across the state.” Nearly all of the programs involve promotion of physical activity; bicycling can be included. Because this round of the program ends in 2018 or 2019, it is recommended that the program be renewed with greater funding, and that youth bicycle skills classes and Safe Routes to Schools programs be explicitly mentioned as programs eligible for funding.

- Bristol HEZ includes bike and walk audits, which should lead to safer conditions and more biking and walking
- Olneyville HEZ allowed several neighborhood kids to attend the Red Shed Bike Camp, giving them bikes at no cost and teaching them riding skills.

STORY SPOTLIGHT: STUDENTS OF OLNEYVILLE

Some kids take getting their first new bike for granted. This is not the case with Jordanny, Arly, and Rose. Where they live, a new bike may be out of reach for some families. And, at times some may find life a little scary. Thanks to the partnerships created by the Providence - Olneyville HEZ, the **Woonasquatucket River Watershed Council’s Red Shed bike program** gave Jordanny, Arly, and Rose newfound confidence, and they learned the value of perseverance. Each were given a new mountain bike, and taught how to ride.

“I got my bike and they helped me to keep on going. They kept cheering me on, and once I was riding on my own, it was like magic.” - Arly

In tandem with **Manton Avenue Project**, biking opens the door to dreams. With the help of his classmates, Jordanny wrote a play about why bikes are important for the community, and how they can help save the world. When asked what this meant to him, Jordanny confidently said, **“I think it will help me follow my dream of becoming an author.”**

Arly Jordanny Rose

Bicycle-related program detail from the Olneyville Health Equity Zone fact sheet, courtesy of the RI Department of Health

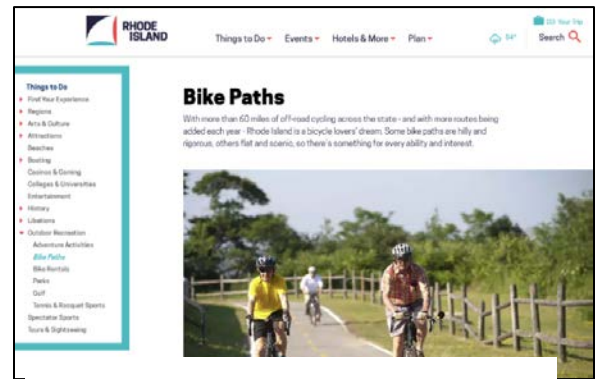
- Providence Citywide HEZ enrolled 65 elementary school students in an afterschool bike education class, “Pedal Power”, led by the Education Director of Recycle-A-Bike.

RIDOT’s BikeRI web page

The BikeRI web page (<http://www.dot.ri.gov/community/bikeri/index.php>) has several platforms for bicycle education and encouragement. The site: (a) publishes the state bike map, highlighting shared-use paths and suitable roadways, (b) lists bike shops around the state, (c) lists a description of the benefits of commuting by bike, (d) publishes the bicycle commuter guide, (e) keeps a list of bike-related laws, (f) describes funding of the Safe Routes to Schools program. It should be noted that some of the information on the site is out of date.

RI Tourism web site

The RI Tourism agency promotes bicycling via its website, visitrhodeisland.com. There are “bike paths” and “bike rentals” subsections found under the “Outdoor Recreation” menu. It should be noted that some of the information on the site is out of date as well.



Webpage for bike path promotion found at visitrhodeisland.com

Safe Routes to School Program

Fifteen of the state’s 39 cities and towns have had, or currently have, Safe Routes to School (SRTS) programs funded through RIDOT with Federal dollars. While the SRTS program includes bicycle facilities and education programs as eligible projects, the state’s SRTS projects have primarily focused on walking facilities (sidewalks, crosswalks, walking school buses).

Safe Routes Partnership, the nonprofit organization advocating for more and better SRTS projects nationwide, scored Rhode Island with 73 points out of a possible 200 in its latest report card (2016). The report identifies best practices and details a number of steps that Rhode Island can take to improve its Safe Routes program, including the following:



Bike parking at a school in Barrington, funded by the Safe Routes to School Program. Photo credit: <http://www.barrington.ri.gov/>

- Identify the Governor’s RI Outdoor Recreation Council as the equivalent of a “governor’s council on physical activity”

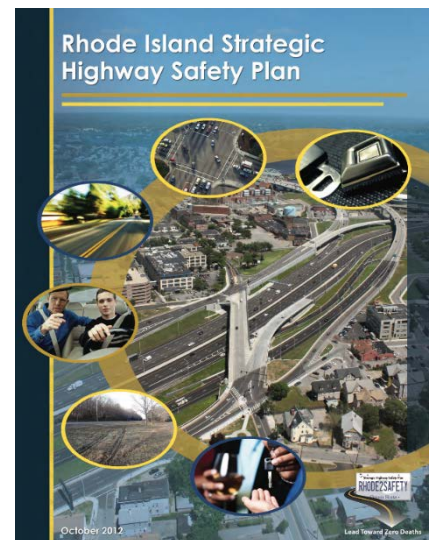
- Reconstitute that council; make it permanent, with a focus on bicycling and walking
- Combine recommendations of RI Department of Health’s Physical Activity and Nutrition Program with recommendations of the RI Outdoor Recreation Council to write a state physical activity plan with a focus on bicycling and walking
- The Governor, RI Department of Health, and RI Department of Education should work with municipalities to make school outdoor recreational facilities available to neighborhood residents outside of school hours for recreational and health purposes
- Obligate all SRTS funds currently available
- State DOT endorse NACTO’s Urban Bikeway Design Guide and/or Urban Street Design Guide

The Rhode Island Strategic Highway Safety Plan

The 2017 update to the Rhode Island Strategic Highway Safety Plan (SHSP) represents a significant improvement in how bicycling is addressed over the prior version published in 2012. Most significant is how Vulnerable Road Users (VRUs) are addressed. The 2012 plan made mention of VRUs in only a few places, including listing some action steps. The 2017 update elevates how VRUs are addressed by creating a new emphasis area just for them, with three pages of statistics, strategies, and action items related to infrastructure, prevention, law enforcement, and more. Recommendations including creation of a VRU Task Force to engage different agencies, better implementation of RI’s Complete Streets policy, improved law enforcement, and more could all lead to improved bicyclist safety. It is

recommended that the action item, “enforce pedestrian and bicycle laws particularly at locations where vulnerable road user crashes are a problem” be clarified and strengthened by altering it slightly to read “enforce the law, particularly at locations where vulnerable road user crashes are a problem”.

In the “Run-Off-The-Road” section, infrastructure subsection, language regarding protection of VRUs is strong. Action items related to complete streets and road diets could enhance bicyclist safety if pursued. This section also encourages implementation of systemic-type improvements, including rumble strips. Special attention must be paid when evaluating a road for rumble strip installation to ensure that bicyclist safety and comfort would not be reduced. The “Speeding” emphasis area also elevates the needs of VRUs (including bicyclists) by encouraging the implementation of the state’s Complete Streets policy.



Education and Encouragement Programs led by Nonprofit Organizations

Rhode Island has several nonprofit organizations that bring bicycle education and encouragement to their communities and the State. RIBike coordinates Smart Cycling classes around the state with grants from RIDOT, and offers bicycle valet service at farmers markets and other events. Bike Newport also offers Smart Cycling classes, as well as bike maintenance classes, and administers the state's most in-demand bike valet service, offered during the Newport Jazz Festival and Newport Folk Festival. Recycle-A-Bike offers bike maintenance classes as well, at its Providence facility. The Woonasquatucket River Watershed Council teaches youth cycling skills and bicycle maintenance skills through its Red Shed bike camp, located in Providence's Riverside Park. The Steel Yard, an industrial arts and small business incubator located in Providence's Valley neighborhood, builds bicycle parking "hitching posts" found all over the state, often designed to fit the context of their location.

1.3. The Rhode Island Department of Motor Vehicles Driver's Manual

Rhode Island DMV's Driver's Manual should be updated with a series of changes that aim to better instruct Rhode Island's drivers on how to navigate our streets when bicyclists are present.

Overall assessment: the Rhode Island DMV Driver's Manual does a fair job of explaining to motorists how they should drive around bicyclists, but there is much room for improvement. In Chapter 8, "Sharing the Road Fairly", the Manual explains how to operate around school buses, large trucks, blind pedestrians, and at night. Part F of that chapter (Bicycle Riders) describes to readers how to operate their motor vehicles around bicycle riders, while also describing how bicycle riders themselves should operate. On both counts, some information is lacking and some is not entirely correct. What follows are proposed additions and removals of content for the Driver's Manual.

Part IV-B, Roadway Markings

Current text:

Sharrows and "Share the Road" with bicycles and bike lanes: A shared-lane marking, installed in the center of a travel lane to indicate that a bicyclist may use the full lane. It is to alert motorists of the lateral location bicyclists are likely to occupy within the traveled way and reduce the incidence of wrong-way bicycling.

Change to:

Sharrows and "Share the Road" with bicycles: A shared-lane marking, installed in the center of a travel lane, indicates that a bicyclist may use the full lane. It is to

alert motorists of the lateral location bicyclists are likely to occupy within the traveled way and reduce the incidence of wrong-way bicycling.

Add this bullet:

Bicycle lanes: roadway lanes typically 5' or 6' wide for the exclusive use of bicyclists, marked off with white lines, green paint (at intersections) and with a bicycle icon stenciled onto the pavement of the lane. Motorists shall not drive or park in bicycle lanes and shall yield to bicyclists in the bicycle lane when turning.

Also, add diagrams showing shared-lane markings and various types of bicycle lanes (standard, buffered, parking-separated).

Part IV-C, Rotary/Roundabout Diagram

Current text:

Generally, bicyclists should walk their bicycles across the pedestrian crosswalk. Experienced bicyclists may navigate roundabouts like motorists. Bicyclists should ride in the middle of the lane, not near the curb line, to prevent vehicles from passing them. As with following the same laws as motor vehicles, bicyclists must yield to pedestrians in crosswalks.

Change to:

To safely navigate a roundabout, bicyclists may either operate as a vehicle in the proper roundabout lane, or use the crosswalks. Bicyclists in a crosswalk must yield to pedestrians. Confident bicyclists who navigate roundabouts in the roadway should ride in the middle of the lane, not near the curb line, to prevent vehicles from passing them. Just like operators of motor vehicles, bicyclists must yield to pedestrians in crosswalks.

Part VIII-F, Bicycle Riders

The first paragraph of this section includes bulleted items that should be edited.

Current text:

- Bicycle riders should ride as close to the right of the road as they can do safely. They should only cross the lane of vehicle travel to make a left turn.
- No more than two (2) bicycles may ride side by side.
- When there is a safe bicycle path near the roadway, riders should use the path rather than the road, but it is not required unless adjacent to a limited access highway.

Change to:

- Bicycle riders should ride as close to the right of the road as is practicable. Bicyclists may operate in the center of the lane (also known as "taking the

lane”) if they feel that doing so is the safe option. They should only cross the adjacent lane of vehicle travel to make a left turn, to avoid hazards or stopped/slower moving vehicles in the right lane, or to become properly positioned at a multi-lane intersection.

- No more than two (2) bicycles may ride side by side when operating on Rhode Island’s roadways.
- *Delete the bullet stating that bicyclists should use an adjacent path rather than the road.*

Page 51: Share the Road with Bicyclists

Current text:

Road hazards not easily seen by automobile drivers or trucks may hamper a bicyclist or cause them to crash. These hazards could include potholes, glass, litter, storm grates, and railroad crossings, as well as opened doors of parked vehicles. Any of these items could cause a bicyclist to move into your path or to slow down. Give bicyclists plenty of clearance on the street so they will have room to move around these hazards.

Change to:

Road hazards not easily seen by automobile drivers or trucks may hamper a bicyclist or cause them to crash. These hazards could include potholes, glass, litter, storm grates, and railroad crossings, longitudinal cracks or pavement joints as well as opened doors of parked vehicles. Any of these items could cause a bicyclist to move into your path or to slow down. Give bicyclists plenty of clearance on the street so they will have room to move around these hazards. State law requires that motorists provide enough space while passing bicyclists such that if the bicyclist fell over, the car would still be clear of the bicyclist.

Page 52: Shared Lane Markings

Current text:

Have you seen this road marking? Well, be aware. They have been installed on some local and state roadways over the past few years. The road marking in the picture is a “shared lane” marking. What does the road marking mean? What purpose does it serve? The points below explain the purpose of the Shared Lane markings:

- Assist bicyclists with lateral positioning in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist’s impacting the door of a parked vehicle.

- Assist bicyclist with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane.
- Alert road users of the lateral location bicyclists are likely to occupy within a traveled way.
- Encourage safe passing of bicyclists by motorists.
- Reduce the incidence of wrong-way bicycling.

Change to:

The road marking in the picture is a “shared lane” marking, sometimes called a “sharrow”. These are the purposes of Shared Lane markings:

- Assist bicyclists with lateral positioning in a shared lane next to on-street parallel parking in order to reduce the chance of a bicyclist crashing into the opened doored of a parked vehicle.
- Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to safely travel side-by-side within the same traffic lane.
- Alert road users of the lateral location bicyclists are likely to occupy.
- Encourage safe passing of bicyclists by motorists.
- Reduce the incidence of wrong-way bicycling.

Page 52: Seven Things to Know When Sharing the Road with Bicyclists

Current text:

1. When passing bicyclists leave adequate space and be aware of road surface conditions like potholes, puddles or debris which may force bicyclists to move further left than usual.

- Don't blast your horn as you approach a bicyclist as the loud noise can startle them and cause them to swerve.
- Avoid talking on a cell phone, text messaging, or being otherwise distracted when approaching or passing a bicyclist.
- Avoid driving or swerving into bicycle lanes.

2. When approaching or passing a bicycle be prepared to stop suddenly if a person enters the driver's lane.

- In bad weather give bicyclists extra trailing and passing room like you would give other motorists.
 - Allow as much clearance as possible (3-5 feet) when passing to prevent contact with a bicyclist and be prepared to stop suddenly if the person were to fall into the driver's lane.
3. When a road is too narrow for cars and bicycles to travel safely side by side, be prepared to slow down or stop when the bicyclist ahead of you "takes the travel lane," (i.e., proceeds in the center of the road).
4. Do not pass bicyclists if oncoming traffic is near. Wait until there are no oncoming automobiles before you pass.
- After you have passed a bicyclist, do not slow down or stop quickly directly in front of them.
5. When turning left at an intersection, yield to oncoming bicyclists just as you would to an oncoming motorist.
6. Before turning right at an intersection or driveway, check for bicyclists on your right or behind you who are continuing straight ahead.
7. Look behind you for a bicyclist approaching your parked car before you open the door into a traffic lane.

Change to:

1. When passing bicyclists, leave adequate space and be aware of road surface conditions like potholes, puddles or debris which may force bicyclists to move further to the left than usual.
- Don't blast your horn as you approach a bicyclist as the loud noise can startle them and cause them to swerve or crash.
 - Avoid talking on a cell phone, text messaging (which is illegal while driving), or being otherwise distracted when approaching or passing a bicyclist.
 - Avoid driving or swerving into bicycle lanes.
2. When approaching or passing a bicycle be prepared to stop suddenly if a bicyclist unexpectedly enters the driver's lane due to debris in the bicycle lane, a parked car's door suddenly opening in the path of the bicyclist, or any other reason.
- In bad weather give bicyclists extra trailing and passing room like you would give other motorists.

- Allow as much clearance as possible (at least 5 feet) when passing to prevent contact with a bicyclist and be prepared to stop suddenly if the person were to fall into the driver's lane.
3. When a road is too narrow for cars and bicycles to travel safely side by side, be prepared to slow down or stop when the bicyclists ahead of you "takes the lane," (i.e., proceeds in the center of the road).
 4. Do not pass bicyclists in a shared lane if oncoming traffic is near. Wait until there are no oncoming automobiles before you pass.
 - After you have passed a bicyclist, do not slow down or stop quickly directly in front of them.
 5. When turning left at an intersection, yield to oncoming bicyclists just as you would to an oncoming motorist.
 6. Before turning right at an intersection or driveway, check for bicyclists on your right or behind you who are continuing straight ahead.
 7. Look behind you for a bicyclist approaching your parked car before you open the door into a traffic lane. A good practice is to use the "Dutch Reach" when opening the car door. Use your hand farthest from the door and check for approaching bicyclists and other vehicles before you open the door. Opening the door applies to both sides of the vehicle.

Page 52: Driving on Roads with Bicycle Lanes

Current text:

In Rhode Island, bicycle lanes on the road are clearly marked with a solid white line, with the words "Bicycle Lane" and include bicycle symbols. Do not drive in a bicycle lane. You may cross a bicycle lane when you are turning a corner or entering or leaving an alley, private road or driveway. Yield to bicyclists in a bicycle lane or on a sidewalk before you turn into the lane or sidewalk.

Change to:

In Rhode Island, bicycle lanes on the road are clearly marked with a solid white lane line, green paint, with bicycle symbols marked on the pavement, and with "Bicycle Lane" signs posted. Do not drive in a bicycle lane. You may cross a bicycle lane when you are turning a corner or entering or leaving an alley, private road or driveway. Yield to bicyclists in a bicycle lane or on a sidewalk before you cross the lane or sidewalk. Bicycle lanes are usually to the right of the right-most travel lane, but can also be between the curb and the parking lane, in a travel lane to the left of a right-turn-only lane, or on the left side of a one-way street in a contraflow bike lane (which allows bicyclists to ride in the opposite direction of motor vehicles). Sometimes bicycle lanes are separated from travel lanes with wide painted buffer zones, flexible posts, parked cars, planters, or a

combination of the above. Bicycle lanes are also sometimes highlighted with green paint. Bicycle lanes are sometimes used in tandem with “bike boxes”, which are designated areas at the head of a traffic lane at a signalized intersection, providing bicyclists with a safe and highly visible way to get ahead of queuing traffic during a red light.

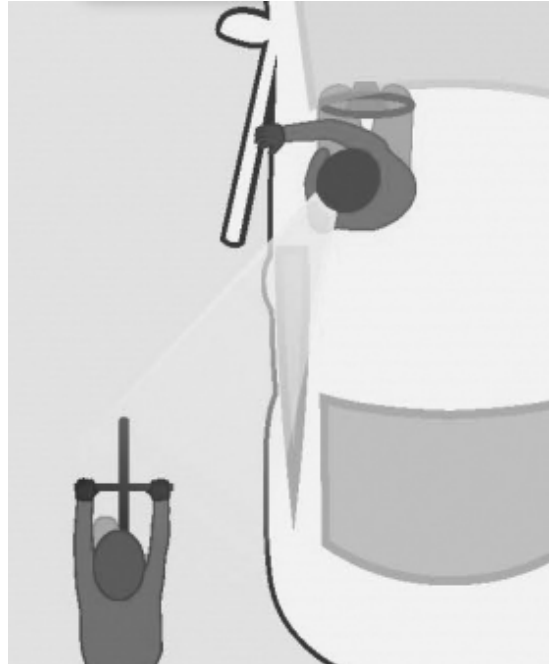
Page 53: Dooring

Current text:

“Dooring” is when the driver or passenger carelessly opens the door of a parked or stopped vehicle and collides with a passing bicyclist. Every passenger of a stopped or parked vehicle should check their surroundings before opening the door of a vehicle.

Change to:

“Dooring” is when the driver or passenger suddenly opens the door of a parked or stopped vehicle and causes a passing bicyclist to crash. Every passenger of a stopped or parked vehicle should check their surroundings before opening the door of a vehicle. When preparing to open your car door, always check the rearview and sideview mirrors first. If no one is approaching from the rear, use your opposite hand (i.e., the driver’s right hand or the front-seat passenger’s left hand) to pull the door latch, as this causes your body to twist and better see approaching bicyclists and other roadway users that might crash into an open car door. This is referred to as the “Dutch Reach”.



The “Dutch Reach” method of opening a car door is considered safer for bicyclists, as it improves the driver’s ability to see the passing bicyclist. Image courtesy of the Massachusetts Registry of Motor Vehicles Drivers Manual

2. Review of Current RIDOT Design Guidance

As part of the Bicycle Mobility Plan effort, design guidance typically used by RIDOT and local departments of public works for roadway implementation projects was considered. The primary documents in use are the RIDOT Traffic Design Manual, published in 2004 and the RIDOT Highway Design Manual, published in 2008.

In November 1997, RIDOT developed a design policy memorandum (DPM) #10-37 based on General Assembly approval of RIGL 31-18-21 – Relating to Motor Vehicle and Other Vehicles – Pedestrians. When RIDOT developed the new DPW numbering system/PMP; the 1997 DPM 10-37 was not assigned a new DPM#. DPM 10-37 remains active, and is posted to the PMP DPM document file under “old active DPM’s.

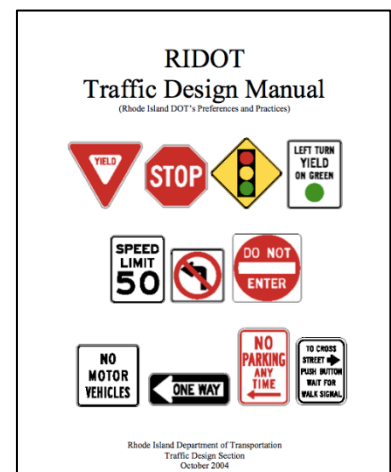
RIDOT’s current Statewide Short Term Traffic Counting Services consultant contract is with Connecticut Counts and includes bicycle/pedestrian counts on an as-needed basis. This RIDOT contract can be used when needed for bicycle counts.

RIDOT DPM 10-37 was developed in 1997 based on passage of RIGL § 31-18-21 (Pedestrians and bike facilities) which states that ... “Except in the cases of limited access roads, and/or roads of less than twenty-three feet (23’) in width, the director of the department of transportation is authorized and directed to provide for the accommodation of bicycle and pedestrian traffic in the planning, design, construction and reconstruction, and to consider this in the resurfacing and striping of any project undertaken by the department, unless the director, after appropriate review by the director or his or her designees, determines that the inclusion of bike facilities and pedestrian access would be contrary to acceptable standards of public safety, degrade environmental or scenic quality, or conflict with existing right-of-way. In his or her deliberations, the director shall take into consideration the cost of the facilities in relationship to available funding. Bike facilities may include bicycle lanes, routes, paths or trails; permeable paved shoulders; and/or signage.”

2.1. RIDOT Traffic Design Manual

An assessment of the RIDOT Traffic Design Manual led to several suggested edits that aim to accommodate bicycle transportation more effectively. **It is noted that at the time of the Bicycle Mobility Plan publication, updates are currently (2019) being made to RIDOT’s Traffic Design Manual (TDM).**

In addition to the details provided below, it is noted that several "Interim Approvals" issued by the Federal Highway Administration (FHWA) are not yet in the Manual of Uniform Traffic Control Devices (MUTCD). Jurisdictions must request permission to use devices or applications covered by an Interim Approval. However,



agencies may apply to FHWA for permission to use the Interim Approvals across their jurisdictions. It is recommended that RIDOT seek that permission, and once received, add language to the Traffic Design Manual indicating blanket statewide approval for all current FHWA Interim Approvals for bicycle-related signals, markings, and signs.

Cover of the RIDOT Traffic Design Manual, courtesy of RIDOT

Part 1.3: Traffic Signal Approval

Current text on page 1-2:

For signal warrant analysis, bicyclists may be counted as either vehicles or pedestrians. When performing a signal warrant analysis, bicyclists riding in the street with other vehicular traffic are usually counted as vehicles and bicyclists who are clearly using pedestrian facilities are usually counted as pedestrians.

Change to:

For signal warrant analysis, bicyclists should be counted as vehicles whether the bicyclists are riding in the street with other vehicular traffic or using pedestrian facilities. Signal timing and actuation shall be reviewed and adjusted to provide for bicyclists.

Current text on page 1-2:

Vehicular volumes for each traffic movement from each approach, classified by vehicle type (heavy trucks, passenger cars and light trucks, public-transit vehicles, and, in some locations, bicycles) during each 15-minute period of the two hours in the morning and the two hours in the afternoon during which total traffic entering the intersection is greatest.

Change to:

Vehicular volumes for each traffic movement from each approach, classified by vehicle type (heavy trucks, passenger cars and light trucks, public-transit vehicles, and, in all locations except for roadways where bicycle riding is prohibited such as limited-access highways, bicycles) during each 15-minute period of the two hours in the morning and the two hours in the afternoon during which total traffic entering the intersection is greatest.

Part 3.3:

Current text:

Street Name Signs – Overhead mounted street name signs shall be called for at all signalized intersections. The lettering should be 12 inches high in capital letters. If upper and lower-case letters are called for they should be 12 and 9 inches high, respectively. All ground mounted street name signs shall be 8 inches in capital letters or 8 inch upper-case with 6 inch lower case.

Change to:

Street Name Signs – Overhead mounted street name signs shall be called for at all signalized intersections, including shared-use path crossings. The lettering should be 12 inches high in capital letters. If upper and lower-case letters are called for they should be 12 and 9 inches high, respectively. All ground mounted street name signs shall be 8 inches in capital letters or 8 inch upper-case with 6 inch lower case.

Part 3.6:*Current text:*

Sign Placement – Directional, Regulatory, Warning signs should be placed per Figures 2A-1 and 2A-2 in section 2A-16 of the MUTCD.

Change to:

Sign Placement – Directional, Regulatory, Warning signs should be placed per Figures 2A-1 and 2A-2 in section 2A-16 of the MUTCD, except for signs on shared-use paths which should be placed per Part 9 of the MUTCD.

Part 4.0 (Work Zone Traffic Control):*Add new section:*

4.7 Non-motorized road users - attention shall be paid to the safety needs of walkers, bicyclists, and other vulnerable roadway users in work zones. Standards, Guidance and Typical Applications for accommodating bicycles in work zones are provided in Part 6 of the MUTCD.

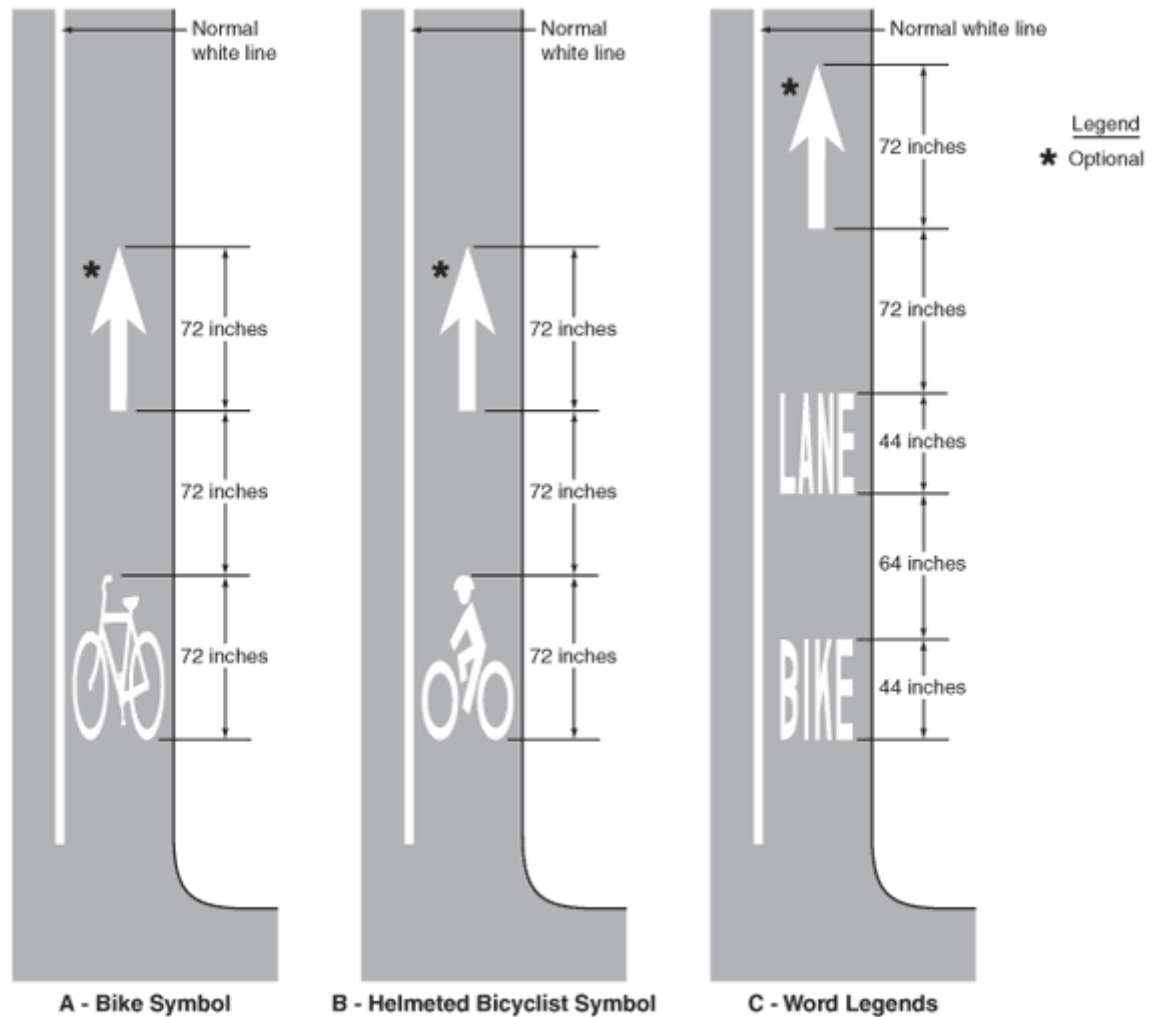
Part 5 (Traffic Signal Projects):*Add new text:*

Reference should be added for over-roadway detectors (video, infrared, etc.), with proviso that such detectors must be aligned to detect bicyclists. Regarding under-roadway loop detectors: add clause requiring use of bicycle loop detectors, in tandem with MUTCD Bicycle Detector Pavement Marking (Figure 9C-7), in every instance that calls for presence of loop detectors, except on limited-access highways.

RIDOT Standard Item Codes:

The RIDOT Std. Items Codes will be updated to include standard items for “BIKE LANE (HELMETED BICYCLIST AND ARROW)” pavement marking symbol sets, which will in effect standardize RIDOT’s preference for the MUTCD Figure 9C-3 - Option B Bike Lane Markings:

Figure 9C-3. Word, Symbol, and Arrow Pavement Markings for Bicycle Lanes



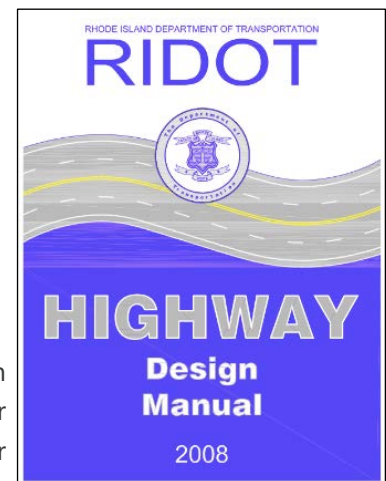
2.2. RIDOT Highway Design Manual

The RIDOT Highway Design Manual has been assessed and a number of edits are suggested. A global suggested change is to replace the word accident with crash. This is consistent with other state DOTs, including MassDOT.

Section 110.01 Definitions of Terms:

Current text:

Bicycle Path: A bikeway physically separated from motorized vehicular traffic by an open space or barrier, either within the highway right-of-way or



within an independent right-of-way. **Often used interchangeably with Shared-Use Path. See also Shared-Use Path**

Cover of the RI Highway Design Manual, courtesy of RIDOT

Change to:

Bicycle Path: A bikeway physically separated from motorized vehicular traffic by an open space or barrier, either within the highway right-of-way or within an independent right-of-way. Often used interchangeably, erroneously, with Shared-Use Path. See also Shared-Use Path

Add these new terms and definitions:

Bikeway: a generic term for any road, street, path or way that in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Bicycle Facilities: a general term denoting improvements and provisions that accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically defined for only bicycle use.

Shared-Use Path: a bikeway outside the traveled way and physically separated from motorized vehicular traffic by an open space or barrier, either within a highway right-of-way or within an independent right-of-way, and usable for transportation purposes. Shared use paths are also used by pedestrians, bicyclists, skaters, equestrians, and other non-motorized users.

Separated Bicycle Lane: an exclusive facility for bicyclists that is located within or directly adjacent to the roadway and that is physically separated from motor vehicle traffic with a vertical element. See the *FHWA Separated Bike Lane Planning and Design Guide* and the *MassDOT Separated Bike Lane Planning and Design Guide* for guidance and more information.

Protected Intersection: an at-grade road junction in which bicyclists and pedestrians are separated from motor vehicles. See *MassDOT Separated Bike Lane Planning and Design Guide*, Chapter 4, for guidance and more information.

Section 210.03.01

Current text:

Regarding Context-Sensitive Solutions (CSS): “The incorporation of CSS into a project can, in many cases, be accomplished without the need to reduce design criteria. The designer must consider the input from the stakeholders; however, not all recommendations can be incorporated into the design. The engineer will determine which CSS recommendations to include.”

Change to:

Regarding Context-Sensitive Solutions (CSS): “The incorporation of CSS into a project can, in many cases, be accomplished without the need to reduce design criteria. The designer must consider the input from the stakeholders; however, not all recommendations must be incorporated into the design. The engineer will determine which CSS recommendations to include.”

Section 220.01.2 Project types and descriptions:

Current text:

Bicycle Facilities: these projects involve new construction or rehabilitation of existing bike paths, trails or greenways, and/or the addition of bike lanes and bike routes (by signing and striping).

Enhancement: these projects consist of improvements beyond those considered typical of a highway improvement project. Such elements may include, but are not limited to, streetscape improvements, new sidewalks, signage, minor landscape enhancements, bicycle paths/trails stormwater retrofits, and water access projects.

Change to:

Bicycle Facilities: these projects involve new construction or rehabilitation of existing bike paths, greenways, shared-use paths, and/or the addition of bike lanes and bike routes (by signing and striping, and in the case of separated bike lanes, addition of a vertical element).

Enhancement: these projects consist of improvements beyond those considered typical of a highway improvement project. Such elements may include, but are not limited to, streetscape improvements, new sidewalks, signage, minor landscape enhancements, bicycle paths or shared-use paths, greenways, stormwater retrofits, and water access projects.

Section 450.02: Lane and Shoulder Widths

Current text:

Although the AASHTO Green Book acknowledges lane widths ranging from 9 to 12 feet, it is RIDOT policy to require a minimum width of 11 feet for travel lanes.

Change to:

Although the AASHTO Green Book acknowledges lane widths ranging from 9 to 12 feet, it is RIDOT policy to require a minimum width of 11 feet for travel lanes. Lanes 10' wide are acceptable on low-speed facilities, and lanes 9' wide may be appropriate on low-volume roads in rural and residential areas. In some instances, on multilane facilities in urban areas, narrower inside lanes may be utilized to permit wider outside lanes for bicycle use.

Section 620.05.03 (rumble strip installation criteria)

Add to the numbered list:

7. Rumble strips should not be installed on highways designated as bicycle routes, or on highways noted on the state bicycle map as “suitable” or “most suitable” for bicycling, if doing so leaves less than 5’ of rideable space between the curb and the rumble strip, or, on roads without curbs, 4’ of space between the outside edge of the pavement and the rumble strip. For highways meeting these criteria, but where incidences of ROR crashes demand attention, “rumble stripes” (also called “edge line rumble strips”; narrower than rumble strips, and co-located with the edge line) should be considered instead. Best practices recommendations for rumble strip design can be found in the FHWA Technical Advisory on Shoulder and Edge Line Rumble Strips, T 5040.39, Revision 1.

Section 910.01: Introduction

Current text:

Paragraph 1: “Providing for safe and efficient travel for both bicycles and pedestrians should be an integral part of the design process.”

Paragraph 3: “Except in the cases of limited access roads, and/or two-way roads of less than twenty- three feet (23’) in width, the director of the Department of Transportation is authorized and directed to provide...”

Change to:

Paragraph 1: “Providing for safe and efficient travel for both bicycles and pedestrians shall be an integral part of the design process.”

Paragraph 3: “Except in the cases of limited access roads, the director of the Department of Transportation is authorized and directed to provide...” **Note: this will require a change to RIGL 31-18-21**

Section 910.03: Bicycle Facilities

Current text of paragraph 1:

Bicycle facilities may include bike lanes, routes or paths, permeable paved shoulders, and/or signage. In addition, protect intersections are preferable when feasible in certain urban contexts. All projects whether resurfacing, 1R, or reconstruction should consider provisions for bicycles especially in those areas where bicycle usage may be expected to be increased. Areas of increased bicycle demand may include roads near or leading to bike paths, schools, parks, and recreational areas.

Change to:

Bicycle facilities may include bike lanes (including separated bicycle lanes), shared-use paths, paved shoulders, and/or signage. All projects as part of the

early scoping process whether resurfacing, 1R, or reconstruction should consider provisions for bicycles especially in those areas where bicycle usage may be expected to be increased. Areas of increased bicycle demand may include (but are not restricted to) roads near or leading to shared-use paths, schools, parks, residential areas, commercial districts, business parks, and recreational areas.

Add final paragraph:

For additional guidance on bicycle facility design, see the Federal Highway Administration memo dated August 20, 2013, with subject line "Guidance: Bicycle and Pedestrian Facility Design Flexibility."

Section 910.03.1: Shared Roadway Facilities

Current text in paragraph 1:

Providing proper shoulder widths to promote safe bicycle travel should be part of any design where it is determined that promoting the use of a highway by bicycles is appropriate.

Change to:

Providing proper shoulder widths to promote safe bicycle travel should be part of highway design except on limited-access highways.

Current text of item #2 on page 9-3:

...the percent of AADT that is truck traffic, accident rates, and roadway grades should also be considered when evaluating a roadway for signing as a bike route."

Change to:

...the percent of AADT that is truck traffic and crash rates should also be considered when evaluating a roadway for signing as a bike route.

Current text of item #3 on page 9-3:

All signs on State roadways must conform to the MUTCD D11-1 (Bike Route) sign. Signs are typically placed at .5-mile intervals and at intersections where bike routes change direction. In certain cases, a local municipality may design and install a special sign logo for those roadways under city and/or town maintenance responsibility.

Change to:

The default bicycle route sign for State roadways is the MUTCD D11-1 (Bike Route) sign. Signs are typically placed at 0.5-mile intervals and at intersections where bike routes change direction. In certain cases, a local municipality may design and install a special sign logo for those roadways under city and/or town maintenance responsibility as per provisions in MUTCD Chapter 9B for local or regional bicycle routes. RIDOT may also designate bicycle routes as intrastate or

U.S. Bicycle Routes per AASHTO procedures, and mark them with signs per MUTCD chapter 9.

Current text of item #4, paragraph 2, on page 9-4 :

“Share the Road” sign assemblies should be used, in place of the “Bike Route” sign for short roadway segments in otherwise contiguous bike routes that do not meet the minimum criteria, or where sight distance is inadequate.

Change to:

“Bikes May Use Full Lane” sign assemblies should be used, and “Bikes On Roadway” sign assemblies may be used, in place of the “Bike Route” sign for short roadway segments in otherwise contiguous bike routes that do not meet the minimum criteria, or where sight distance is inadequate. A “Bikes May Use Full Lane” sign assembly will consist of a R4-11 bicycle traffic sign, and a “Bikes on Roadway” sign assembly will consist of a W11-1 bicycle warning sign and an “ON ROADWAY” advisory plaque.

Strike item #4, paragraph 3, as that language is added to paragraph 2

Current text of item #4, paragraph 4, on page 9-4:

Bicycle lanes are portions of roadways that are designated for the preferential use by bicycles. Bike lane delineation assigns right of way to bicycles and motorists in a shared facility. Bicycle lanes are designated by a combination of signing, striping, and pavement markings. Designated bicycle lanes may be considered when demand is high, or when there is a need to provide clear instructions and/or expectations of the movements of the bicyclist. This delineation can benefit both the bicyclist and the motorist.”

Change to:

Bicycle lanes are portions of roadways that are designated for the preferential use by bicycles. Bike lane delineation assigns right of way to bicycles and motorists in an otherwise shared facility. Bicycle lanes are designated by a combination of signing, striping, and pavement markings, and may also include separation from the travel lane, becoming a “separated bicycle lane”, if a vertical element (e.g., a row of flexible delineator posts, parked vehicles or planters) is placed between the bicycle lane and the travel lane. Designated bicycle lanes should be considered when demand is high, when there is a need to provide clear instructions and/or expectations of the movements of the bicyclist, or where the engineer concludes that addition of a bicycle lane will enhance road safety. This delineation can benefit both the bicyclist and the motorist.

Highway Design Manual Appendix, TAC-0040

The TAC-0040 section on overpasses refers only to roadways. A sentence should be added regarding clearance for bridges that span shared-use paths:

For bridges over shared-use paths, the W12-2 sign shall be placed in advance of clearances under 8' (or W12-2P placed on the bridge structure).

Highway Design Manual Appendix, TAC-0183

Current text:

The minimum bridge shoulder width to accommodate bicyclists shall be 4' (5' is preferred). The minimum bridge lane width shall be 12'. If the 12' lane width cannot be accommodated due to site restrictions, it is preferable to use 11' lane widths in order to maintain the minimum 4' shoulder width.

Change to:

The minimum bridge shoulder width to accommodate bicyclists shall be 4'. However, at least 5' is preferred so as to allow for a bicycle lane. The preferred bridge lane width shall be 12'. If the 12' lane width cannot be accommodated due to site restrictions, it is preferable to use 11' lane widths in order to maintain the minimum 4' shoulder width. Where the adjoining roadway sections have lanes narrower than 12', those narrower widths should be maintained over the bridge span.

4/12/19 RIDOT To All Consultants (TAC) 0326 directive, *Traffic Counts*, following page. Future Scoping process for ALL RIDOT bridge and roadway improvement projects should consider including a task for *Current and projected traffic volumes including non-motorized traffic.*

RIGL 24-16-2. *Complete street design*

RIGL 24-16-2. *Complete street design.*

(a) When the state of Rhode Island constructs or modifies roads and highways, the relevant department must consider complete street design features that facilitate safe travel by all users that expands upon currently accepted state and federal design requirements to accommodate all users, including current and projected users, particularly pedestrians, bicyclists and individuals of all ages and mobility capabilities. These features of complete street design shall include, but not be limited to, sidewalks, paved shoulders suitable for use by bicyclists, lane striping, bicycle lanes, share the road signage, "road diets," roundabouts, crosswalks, pedestrian control signalization, bus pull outs, curb cuts, raised crosswalks and ramps and traffic calming measures.

(b) Exceptions to subsection (a) of this section shall be permissible only after the agency with jurisdiction over the project, fully demonstrates with supporting documentation which shall be available to the public, that one of the following exists:

(1) Use by bicyclists and pedestrians is prohibited by law, such as within interstate highway corridors; or

(2) The cost would be disproportionate to the need as determined by factors including, but not limited to, the following: (i) Land use context; (ii) Current and projected traffic volumes including non-motorized traffic; and (iii) population density; or

(3) Demonstrated lack of need as determined by factors, including, but not limited to: (i) Land use; (ii) Current and projected traffic volumes including non-motorized traffic; and (iii) population density.

History of Section.

(P.L. 2012, ch. 315, § 1; P.L. 2012, ch. 355, § 1.)



Department of Transportation
Two Capitol Hill
Providence, RI 02903

To: All Consultants **TAC – 0326**
Date: April 12, 2019
Subject: Traffic Counts

Traffic counts (pedestrian, bicycle, vehicle classification, and traffic volume counts) collected for all state and federally funded RIDOT contracts shall be submitted to the Office of Safety, Traffic Research Unit no later than 45 days after the counts have been collected. Common types of traffic counts include Turning Movement Counts (TMCs) and Portable Automatic Traffic Recorder Counts (ATRs).

It is preferred that counts be submitted as a PRN file but Excel format and/or pdf will also be acceptable.

Historical Counts from calendar year 2016 forward shall also be submitted.

All data should be submitted to dot.trafficdata@dot.ri.gov.

All traffic counting personnel working in the field should wear reflective vests and carry identification. Traffic counting firms should notify the Chief of Police in the appropriate Town of the location, date, and time the count will take place at least 48 hours in advance.

Should you have any questions regarding implementation, please send an email to dot.trafficdata@dot.ri.gov or contact your Project Manager or Project Engineer. Thank you for your cooperation with this matter.

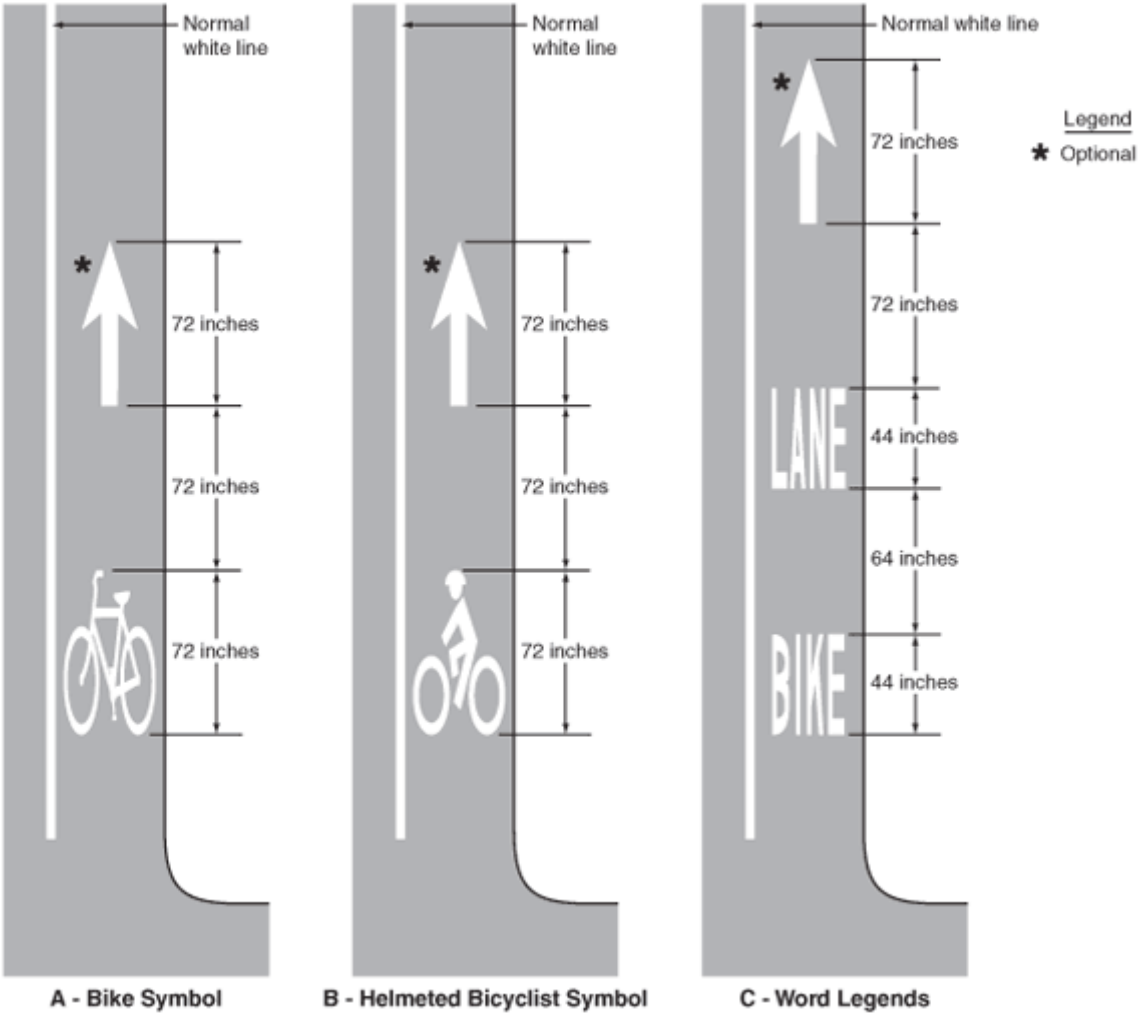
Sincerely,

Robert Rocchio, P.E.
Chief Engineer of Infrastructure

Updates are currently being made to RIDOT's Traffic Design Manual (TDM). The RIDOT Std. Items Codes will be updated to include standard items for "BIKE LANE (HELMETED BICYCLIST AND ARROW)" pavement marking symbol sets, which will in effect standardize RIDOT's preference for the MUTCD Figure 9C-3 - Option B Bike Lane Markings:

See Figure 9C below.

Figure 9C-3. Word, Symbol, and Arrow Pavement Markings for Bicycle Lanes





Rhode Island's Complete Streets Action Plan



RI
dot

FEBRUARY 2015

Complete Streets are road systems designed to accommodate all users to include pedestrians, bicyclists, automobiles, and transit. They are designed to balance the safety and access needs of all road users. Streets designed with this principle in mind will help create a more multi-modal street network. Complete Streets promote more livable communities.

Integrating Complete Streets . . . the RIDOT project lifecycle experience

Planning

Engage stakeholders during project visioning

Enact reforms and updates to policies

Scoping

Include stakeholders in scope of work development

Integrate new and revised policies in project scope development

Design

Incorporate Road Safety Audits and public outreach in design process

Formalize updated policy through design directives

Implementation

Include stakeholder and public outreach throughout implementation

Develop project implementation plans

Legislation and Policy Updates

In June 2012, the Rhode Island General Assembly passed the Complete Streets law to integrate multiple transit options into the design and construction of the state's transportation system. This provides safe access to all users, regardless of how they traveling.

This report presents several case studies that showcase the progress the Rhode Island Department of Transportation (RIDOT) has made in implementing the Complete Streets design principles.

JUN 2012

The Rhode Island General Assembly enacted General Law 24, Chapter 16, "to address Complete Streets Design Principles." The guiding principle of the law states:

These features of Complete Street design shall include, but not be limited to: sidewalks, paved shoulders suitable for use by bicyclists, lane striping, bicycle lanes, share the road signage, road diets, roundabouts, crosswalks, pedestrian signals, bus pull outs, raised crosswalks, and traffic calming measures.

JUL 2012

RIDOT issued a policy directive on Complete Streets design consideration.

It required that all consultants working on RIDOT transportation improvement projects consider people of all ages and abilities, and all appropriate forms of transportation.

Community Involvement...the key to success

RIDOT's experience has been coordinating with the community and our partners is the foundation for a successful Complete Streets program. RIDOT has forged relationships with many key stakeholders to help propel Complete Streets implementation forward:

Grow Smart Rhode Island

Rhode Island Coalition for Transportation Choices

Rhode Island Statewide Planning

Aquidneck Island Planning Commission (AIPC)

Sierra Club – Rhode Island Chapter

Providence Bicycle and Pedestrian Advisory Commission (BPAC)

Rhode Island Public Transit Authority (RIPTA)

Bike Newport

American Association of Retired Persons (AARP)

Federal Highway Administration (FHWA)

Municipalities, local community groups, elected officials, business owners, residents, and other stakeholders tailored to each project

AUG 2012

RIDOT launched the Vulnerable Road Users Safety Action Program. RIDOT offered training for municipalities on how to complete a safety action plan for vulnerable road users, including pedestrians, bicyclists, moped operators and motorcyclists. The training included a case study in the City of Newport that can be used as a template for other communities to follow. The template provides a menu of options for communities that are designed to increase safety and awareness of all road users.

RIDOT also participated in numerous public workshops and conferences focused on Complete Streets and how planners, engineers, and other stakeholders can embrace Complete Streets.

OCT 2013

RIDOT approved the Institute of Transportation Engineer's (ITE) Designing Walkable Urban Thoroughfares: A Context Sensitive Approach as standard operating procedure. This design manual can be referenced for the design of any road. This manual considers transportation needs beyond motorized vehicles and offers solutions such as narrower lane widths, slower design speeds, bicycle lanes, road diets, roundabouts, raised crosswalks, curb extensions, bus pull-outs, and pedestrian signalization.

NOV 2013

RIDOT issued a policy directive on the consideration and use of proven crash countermeasures in projects. These crash countermeasures include roundabouts, managing curb cuts and access to properties, road diets, and pedestrian crossing beacons.

RIDOT issued a policy directive on the implementation of accessible pedestrian signals. The directive calls for the installation of accessible pedestrian signals on all new projects involving upgrades of pedestrian signal accommodations. All consultants working on RIDOT transportation improvement projects must consider people of all ages and abilities, and all appropriate forms of transportation.

Progress To Date

50+ Road Safety Audits (RSAs) conducted

3 RSAs at transit hubs – Interlink, Wickford Junction, and Kennedy Plaza

10+ road diets implemented with **10+** planned

5+ miles of new bike lanes

20+ miles of roadways with shared lane markings

5+ miles of trails/shared use paths

30+ Complete Street intersection improvements

10 roundabouts installed; **33** in planning or design



Aquidneck Island Improvements

Portsmouth, Middletown, Newport, RI

The Aquidneck Island Transportation Study (AITS), completed in July 2011, identified opportunities to incorporate Complete Streets design principles across the island. One major element of the study was the construction of the Aquidneck Island Bikeway. This bikeway will connect existing bicycle facilities with planned facilities, ultimately providing an 18-mile, non-motorized connection on the west side of Aquidneck Island from the Sakonnet River Bridge in Tiverton/Portsmouth to Easton's Beach in Newport. The bikeway will connect to the new Sakonnet River Bridge bike path in the north, and to the East Bay Bike Path and the Blackstone River Bikeway over the Mount Hope Bridge to the west.

Construction of this bikeway will provide access to educational and recreational opportunities. A centerpiece is the proposed 15-acre Greene Lane Park facility, which is planned to offer an ADA-accessible salt water fishing pier, swimming, picnicking, bird watching, interpretive signs, adjacent walking trails, bikeway connections, and an Old Colony Railroad stop.

Additional educational opportunities include a mussel aquaculture farm, the Battle of Rhode Island historic site, the Patriots Park Memorial site, and Fort Butts – the site of a major Revolutionary War land battle.

During the development of the AITS and subsequent design stages of various projects, a comprehensive outreach campaign was conducted with stakeholder groups, including: AIPC, RIPTA, Bike Newport, City of Newport, state representatives, AARP, and the Sierra Club.

Several components of the bikeway have been installed. RIDOT has used the following implementation mechanisms to facilitate the overall Complete Streets connection: Rhode Island Strategically Targeted Affordable Roadway Solutions (RI*STARS), RIDOT work orders/maintenance activities, resurfacing contracts, and programmed projects.



Enhanced pedestrian crossings



Memorial Boulevard road diet



Pedestrian countdown timers



Comprehensive outreach



Marked Shared Lanes

- Anthony Road (proposed)
- Boyd's Lane (proposed)
- Cory's Lane (proposed)
- Coddington Highway
- Memorial Boulevard



Bike Lanes/ Paved Shoulders

- West Main Road (North of Rt. 24)
- Burma Road
- Coddington Highway
- America's Cup Avenue
- Memorial Boulevard



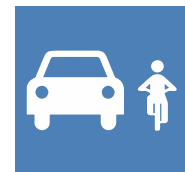
Shared Use Paths

- Sakonnet River Bridge
- Between Cory's Lane & Burma Road



Enhanced Pedestrian Crossings

- America's Cup Avenue
- Memorial Boulevard



Road Diets

- Bristol Ferry Road
- West Main Road
- Coddington Highway
- Memorial Boulevard
- East Main Road



Exchange Street Bus Livability

Providence, RI

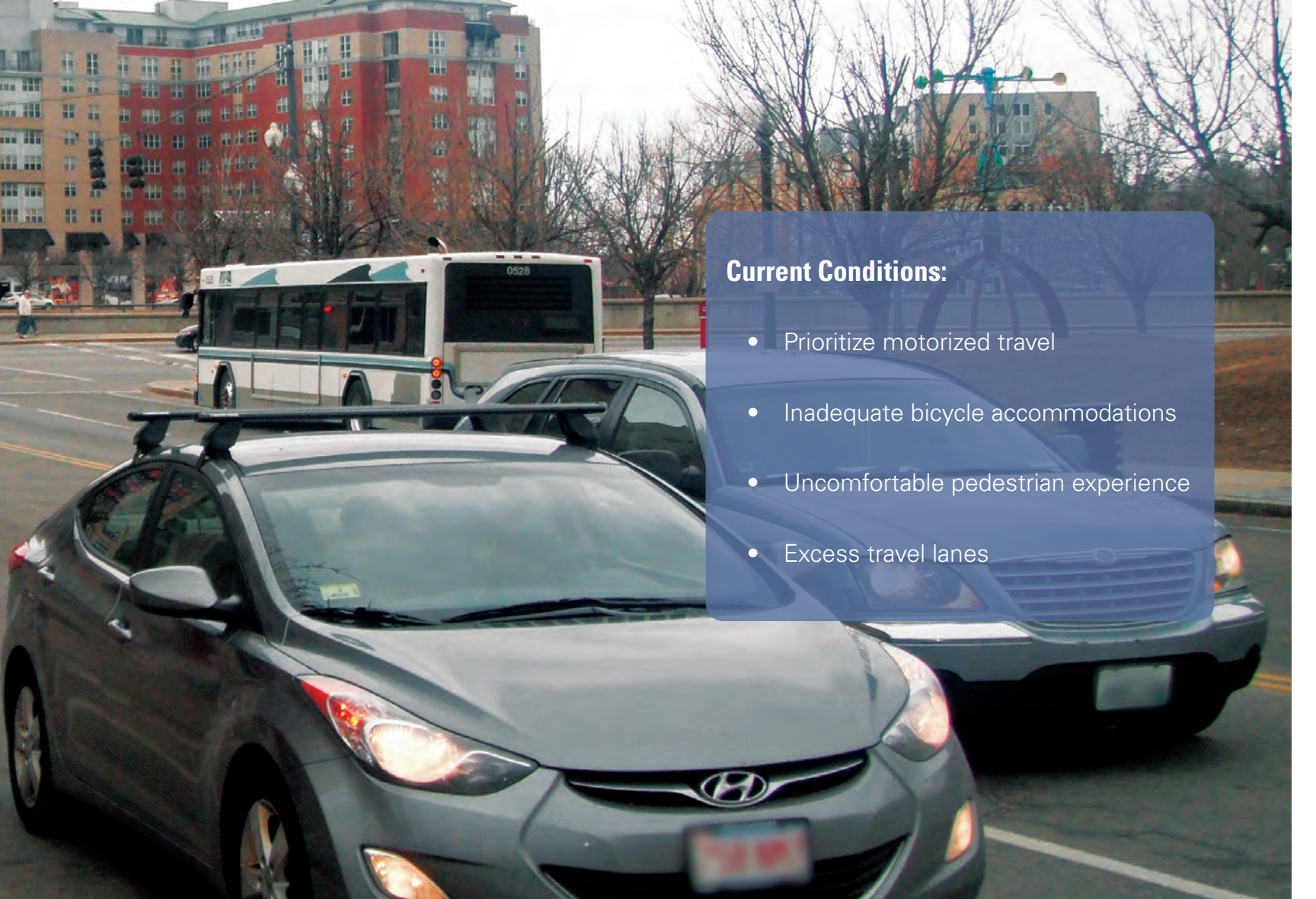
The intent of the Exchange Street Bus Livability Project is to improve the access and safety for pedestrians, bicyclists, and users of RIPTA buses and trolleys. The project extends from Providence Station to Burnside Park/Kennedy Plaza.

The Providence train station currently hosts AMTRAK and MBTA commuter rail service. Providence Station ranks 14th nationwide in terms of AMTRAK passenger volume and is ranked as one of the top three busiest stations in the MBTA commuter rail system. Over the last decade, the trackside/platform capacity of the station has been expanded by lengthening the passenger platforms, however, the curbside intermodal capacity remains as originally constructed in the early 1980s.

The project objectives include design and construction of ADA compliant sidewalks, crosswalk improvements, street furnishings, plantings, and pavement graphics on Exchange Street. The project also incorporates features complementary

to the new RIPTA R-Line shelter at the station plaza, along with the coordination of downtown wayfinding signage to promote a friendlier connection between the station and RIPTA facilities at Kennedy Plaza.

This project provides improved non-motorized connections between the two major transportation hubs in Providence. It promotes a friendlier and ADA-compliant travel path for pedestrians who use commuter rail and bus transit services. A centerpiece for bicyclists will be a bicycle lane and the first bus/bike lane in the state providing a highly visible designated space for bicyclists. The Exchange Street project will be coupled with the planned intermodal improvements at Providence Station, including expanded bicycle parking and enhanced pedestrian accommodations.



Current Conditions:

- Prioritize motorized travel
- Inadequate bicycle accommodations
- Uncomfortable pedestrian experience
- Excess travel lanes



Marked Shared Lanes
Bus/Bike Lanes

Integrates RIPTA Rapid Bus (R-Line)



Bike Lanes/ Paved Shoulders

Along Exchange Street corridor

Added bicycle parking



Enhanced Pedestrian Crossings

Crosswalk upgrades

High-visibility signing



Road Diets

Along Exchange Street corridor



Atwells Avenue

Providence, RI

Atwells Avenue is a central artery through historic Federal Hill in Providence. It is a vibrant urban street where people drive, walk and bike to the various shops, restaurants, jobs and housing located in the area.

In 2010, the Federal Hill Commerce Association convened RIDOT, elected officials, city officials and other stakeholders to discuss pedestrian safety along Atwells Avenue; this was in response to a series of crashes involving pedestrians. RIDOT collaborated with the City of Providence to conduct a pedestrian Roadway Safety Assessment (RSA), which included a team of safety, traffic and highway engineers, as well as local law enforcement and commerce association members.

RIDOT and FHWA presented its preliminary findings to elected officials, city officials and business owners at the Providence Safety Complex in December 2010. A wide range of suggestions addressed all road users. The installation of bump-outs at

unsignalized intersections along the corridor was proposed to have the greatest impact as they narrow the roadway to calm traffic speeds, reducing crossing widths and pedestrian exposure. This work also helps reduce obstructions, provide improved visibility of intersections, and help enhance signing treatments.

To facilitate the implementation of the RSA options, a Recommendation and Action Plan was developed that identified responsible parties and timelines. Over the last couple of years, we have put out several projects with the cooperation of the City of Providence that have implemented pedestrian safety and traffic calming measures along this stretch of road.



Current Conditions:



Pedestrian crosswalks were faded and inconspicuous



This resulted in pedestrians crossing midblock



Space for parked vehicles was limited, which resulted in crashes



Pedestrian signs were installed making crosswalks more visible



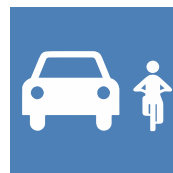
Marked Shared Lanes

Buffer between travel lanes and on-street parking to protect bicyclists



Enhanced Pedestrian Crossings

Curb extensions along the corridor
 Enhanced crossings with high-visibility signing and flashing beacons
 Pedestrian countdown timers



Road Diets

Reduced pedestrian crossing widths
 Narrower travel lanes, reduced travel speeds to improve safety



Roundabouts

Statewide Implementation

Roundabouts are designed to accommodate mobility for all users. By reducing speeds and requiring all vehicles to yield, roundabouts balance the needs of vehicles, pedestrians, and bicyclists. In addition to enhancing safety, roundabouts improve air quality through reduced vehicle emissions and complement aesthetics through landscaping. Vehicles circulating through the roundabout do so at lower speeds equivalent to a bicyclist.

Benefits

Slower vehicle speeds and fewer conflict points

Under 30 MPH

Conflict points reduced from 32 to 8

Community benefits

Traffic calming

Aesthetics and more green spaces

Reduced paved areas

More efficient traffic flow

30-50% increase in traffic capacity

65% reduction in vehicle delays

52% reduction in vehicle stops

Reduced vehicle emissions and fuel consumption:

32% reduction in carbon monoxide

34% reduction in nitrous oxide

37% reduction in carbon dioxide

42% reduction in hydrocarbons

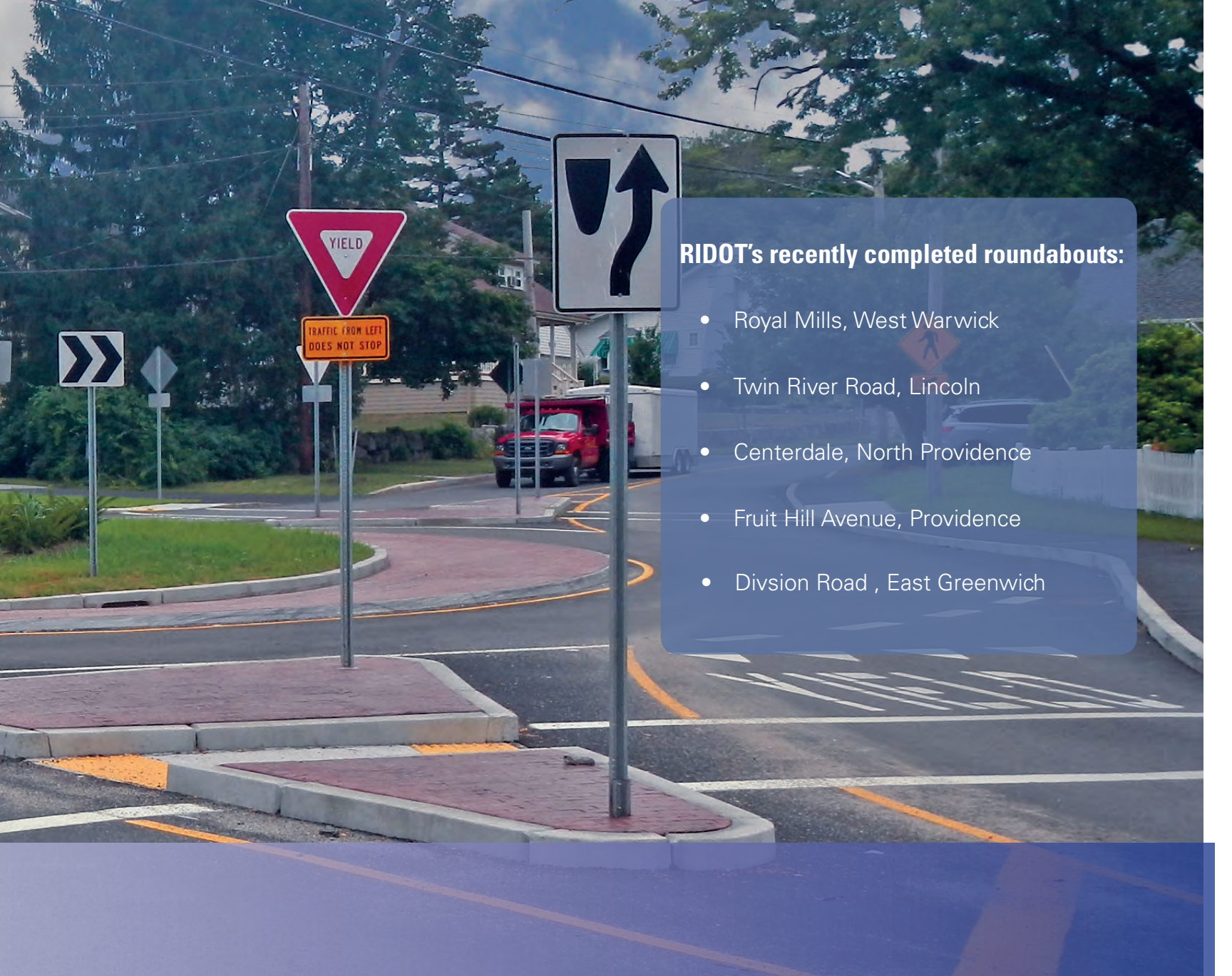
Reduced number and severity of crashes

30-40% reduction in pedestrian crashes

39% reduction in all crashes

76% reduction in injury crashes

90% reduction in fatal crashes



RIDOT's recently completed roundabouts:

- Royal Mills, West Warwick
- Twin River Road, Lincoln
- Centerdale, North Providence
- Fruit Hill Avenue, Providence
- Divsion Road , East Greenwich



**Marked Shared Lanes
Bus/Bike Lanes**

Bicyclists use the roundabouts like a vehicle



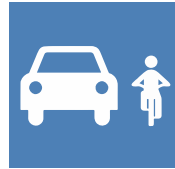
**Bike Lanes/
Paved Shoulders**

Slower vehicle speeds
Enhanced bicycle accommodations



Enhanced Pedestrian Crossings

Slower vehicle speeds
Improved crosswalks where vehicles yield
Splitter/refuge islands



Road Diets

Narrowed travel lanes at the roundabouts



Integrating Complete Streets into General Roadway Resurfacing (1R Projects)

Statewide implementation

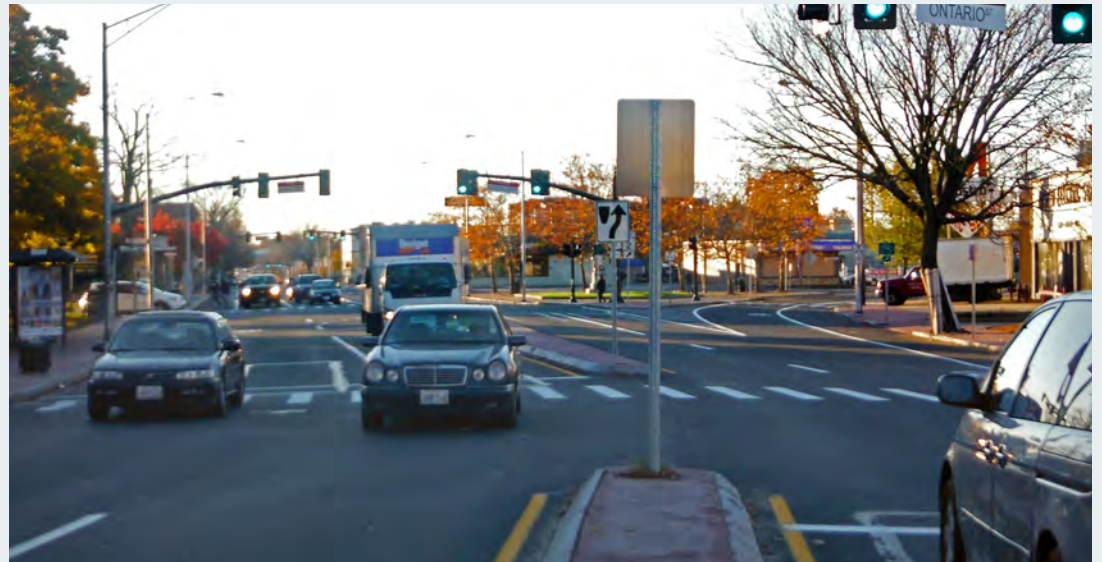
Route 44 - Chepachet

Streetscape enhancements include upgraded sidewalks, granite curb crosswalks, period-style light posts, mid-block stamped concrete crosswalks, wood sign posts and a minimalistic approach to signage.

The design considerations included traffic calming, parking, reduced signage, and future expansion of street lighting. Currently under design is the construction of a roundabout at the intersection of Route 44 and Route 100 (Money Hill Road) to replace the existing traffic signal, eliminate turning movement conflicts, and create a green space as a focal point.

1R, or Resurfacing, projects involve:

- New pavement surface
- Curb and sidewalk replacement
- Drainage improvements
- Traffic signal installation
- Guardrail improvements
- Signage & striping



Elmwood Avenue – Cranston/Providence

As part of a typical resurfacing project, RIDOT performed a Road Safety Assessment to address safety concerns for students crossing Elmwood Avenue at various points along the corridor. The Department worked with numerous stakeholders, including community and neighborhood members, local crossing guards, school department officials, and the Providence Police Department.

Hartford Avenue – Johnston/Providence

Along Hartford Avenue, RIDOT performed a Road Safety Assessment to address safety concerns, and worked with stakeholders, including community members, RIPTA, and the Providence Police Department.



Bike Lanes/ Paved Shoulders

Elmwood Avenue

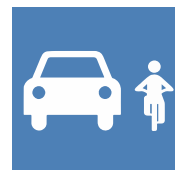
Aquidneck Island projects



Enhanced Pedestrian Crossings

HAWK signals

School zone flashing lights



Road Diets

Elmwood Avenue

Hartford Avenue

Complete Streets in Rhode Island:

10

Roundabouts Constructed

5+

Miles of New Bike Lanes

5+

Miles of New Shared Use Paths

5

Enhanced Pedestrian Crossings

10+

Road Diets Implemented



www.ridot.gov

**BIKE ROUTE SIGNING
STATEWIDE, RHODE ISLAND**

For

**Rhode Island Department of Transportation
RI Contract No. 2002-EI-008**



M4-11



M4-12



M4-13



MAY 3, 2006

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OVERVIEW

Introduction

The Rhode Island Department of Transportation (RIDOT) has retained Pare Engineering Corporation (PARE) to submit a summary of the bike route signage that exists throughout the State. The location of the existing bike routes and bike lanes as well as constraints and opportunities for connecting this network of bike facilities is investigated. The intent of this review is to present to RIDOT the opportunity to reconsider its policy regarding the selection of roadways as bike routes.

Bicycle route and destination signs are considered traffic control devices by the “*Manual of Uniform Traffic Control Devices for Streets and Highways, 2003 Edition*” (MUTCD). In Part 1, GENERAL, of the MUTCD, the purpose, principle, placement and operation and maintenance of traffic control devices is described.

This section states that sound engineering study and judgment should be exercised in the selection and application of traffic control devices.

According to the MUTCD:

To be effective, a traffic control device should meet five basic requirements:

- A. Fulfill a need;*
- B. Command attention;*
- C. Convey a clear simple meaning;*
- D. Command respect from road users; and*
- E. Give adequate time for proper response.*

Design, placement, operation, maintenance, and uniformity are aspects that should be carefully considered in order to maximize the ability of a traffic control device to meet the five requirement listed in the previous paragraph.



CRITERIA

General Guidelines

The 1999 American Association of State Highway and Transportation Officials (AASHTO) “*Guide for the Development of Bicycle Facilities*” defines three bicycle user types that are a helpful guide in assisting highway designers in determining the impact of different facility types and roadway conditions on bicyclists:

- Group A – Advanced Bicyclists: These are experienced riders who can operate under most traffic conditions. They are typically comfortable riding with motor vehicle traffic; however they need sufficient operating space on the traveled way or shoulder to eliminate the need for either them or a passing vehicle to shift position.
- Group B – Basic Bicyclists: These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Thus, basic riders are comfortable riding on neighborhood streets and Shared Use Paths and prefer designated facilities such as Bike Lanes or wide shoulder lanes on busier streets.
- Group C – Children: These bicyclists ride on their own or with their parents. Residential streets with low motor vehicle speeds, linked with Shared Use Paths and busier streets with well-defined pavement markings between bicycles and vehicles, can accommodate children without encouraging them to ride in the travel lane of major arterials.

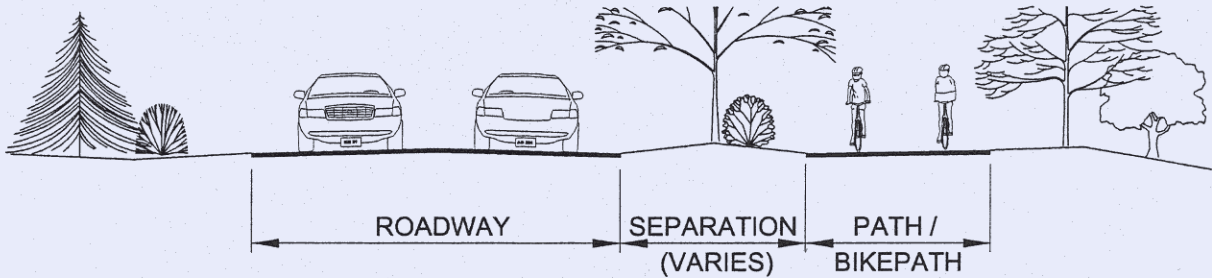
Bicycle Facility Design

Bikeway classification is based on AASHTO’s description of each of the four bike facility types as explained below. Figure 1, Bike Facility Class, illustrates three of these types. The recommended bicycle facility is based on several factors including the ability of the users, specific corridor conditions, existing roadway conditions, and associated costs necessary to upgrade the roadway to an acceptable bicycle facility.

Shared Use Path:

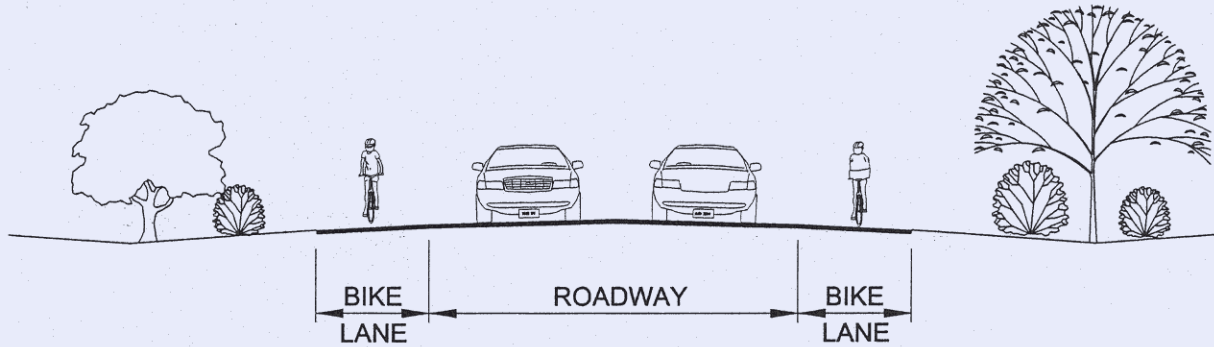
Shared Use Paths should be thought of as a complementary system of off-road transportation routes for bicyclists and others that serve as a necessary extension to the roadway network. Most Shared Use Paths are facilities on exclusive right-of-way, are designed off-road, and are physically separated from motor vehicle traffic. Shared Use Paths can be located along rivers, ocean fronts, canals, abandoned or active railroad and utility right-of-way, limited access freeways, within college





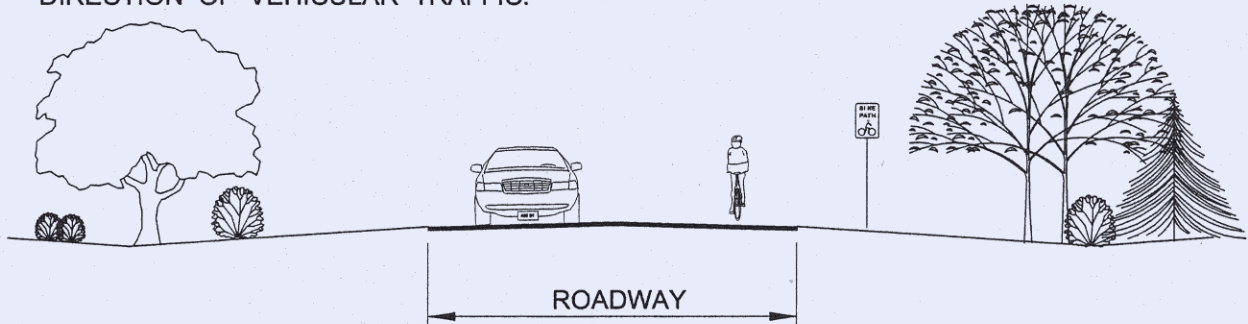
SHARED USE PATH / BIKE PATH - CLASS I

A BIKEWAY PHYSICALLY SEPARATED FROM MOTORIZED VEHICLUAR TRAFFIC BY AN OPEN SPACE OR BARRIER WITHIN THE HIGHWAY RIGHT - OF - WAY OR WITHIN AN INDEPENDENT RIGHT - OF - WAY. THESE PATHS WILL ALSO BE USED BY PEDESTRIANS, SKATERS, WHEELCHAIRS, JOGGERS AND OTHER NON - MOTORIZED USERS.



BIKE LANE - CLASS II

A PORTION OF A ROADWAY WHICH HAS BEEN DESIGNATED BY STRIPING, SIGNING, AND PAVEMENT MARKINGS FOR THE PREFERENTIAL OR EXCLUSIVE USE OF BICYCLISTS. BIKE LANES ARE ONE - WAY DIRECTIONAL TRAVEL LANES, CORRESPONDING WITH THE DIRECTION OF VEHICULAR TRAFFIC.



SIGNED SHARED ROADWAY / SIGNED BIKE ROUTE - CLASS III

A SHARED ROADWAY WHICH HAS BEEN DESIGNATED BY SIGNING AS A PREFERRED ROUTE FOR BICYCLE USE. THE SHARED ROADWAY, WHICH IS OPEN TO BOTH BICYCLE AND MOTOR VEHICLE TRAVEL, MAY BE WITH OR WITHOUT PAVED SHOULDERS AND/OR CURBING. BICYCLISTS TRAVEL IN THE SAME DIRECTION AS VEHICLES SHARING THE SAME SIDE OF THE ROADWAY.

Not To Scale



PARE ENGINEERING CORPORATION
8 BLACKSTONE VALLEY PLACE
LINCOLN, RI 02865
401 - 334 - 4100



BIKE FACILITY CLASS

campuses or within and between parks. Shared Use Paths are designed to work with the on-road bicycle facilities to provide the greatest opportunities to bicyclists and pedestrians. For Shared Use Paths to be successful, it is very important to provide users with connections to the roadway network. A critical component of Shared Use Paths are the transitions to and from the roadway network.

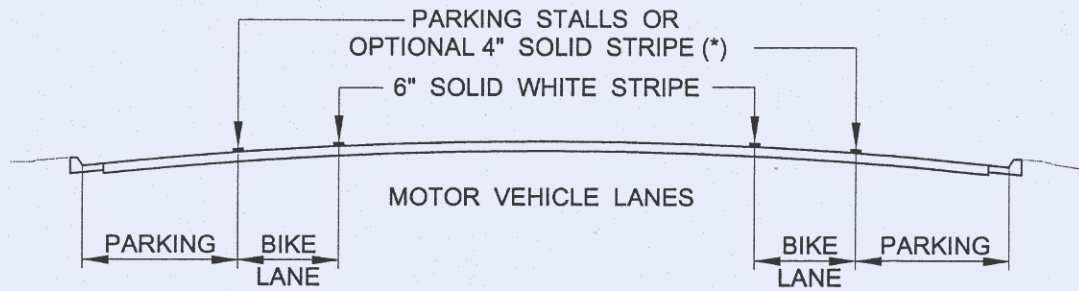
Bike Lane:

A Bike Lane is a portion of roadway that has been designated with striping, signing, and pavement markings for preferred or exclusive use by bicyclists. Bike Lanes should always be one-way, carrying bicyclists in the same direction as the adjacent travel lane and on the right side of the road. Minimum motor vehicle travel lane width is the same as for that of the Shared Roadway, 12 feet minimum, 14 feet desirable. Widths greater than 14 feet may encourage the undesirable operation of two motor vehicles in one lane and therefore is not recommended. In areas where 15 feet or more of pavement width exists, striping of lanes for bikes or shoulders should be considered. Width requirements for Bike Lanes vary according to roadway conditions. Bike Lanes may have a minimum width of 4 feet, where the area beyond the paved shoulder can provide additional maneuvering width. A width of 5 feet or greater is preferred where truck traffic is present or where motor vehicle speeds exceed 50 MPH. Where parking is permitted, the Bike Lane should be placed between the parking area and the travel lane and have a minimum width of 5 feet. A Bike Lane should be delineated from motor vehicle travel lanes with a 6-inch solid white line. Figure 2, Typical Bike Lane Cross Sections, is the standard provided by AASHTO for the delineation and designations of Bike Lanes for different situations.

Signed Shared Roadway:

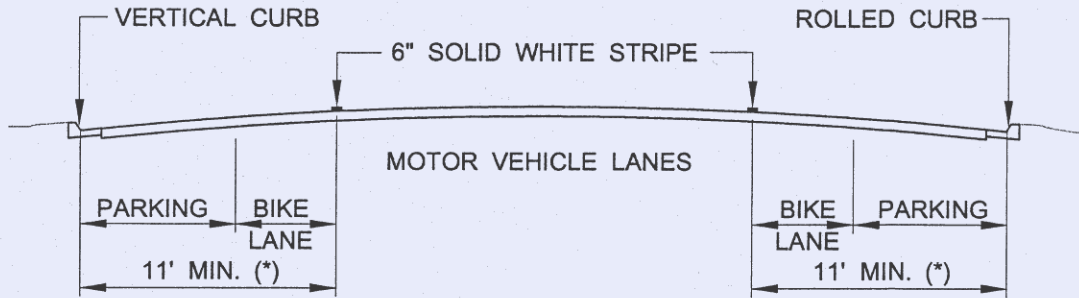
Signed Shared Roadways are those roads that have been identified by signing only as preferred bike routes through high demand corridors. Certain criteria must be considered prior to signing a Signed Shared Roadway. These include, but are not limited to, the removal or restriction of on-street parking, smooth riding surface, regularly maintained roadways that meet the needs of bicyclists, and have wide shoulders.





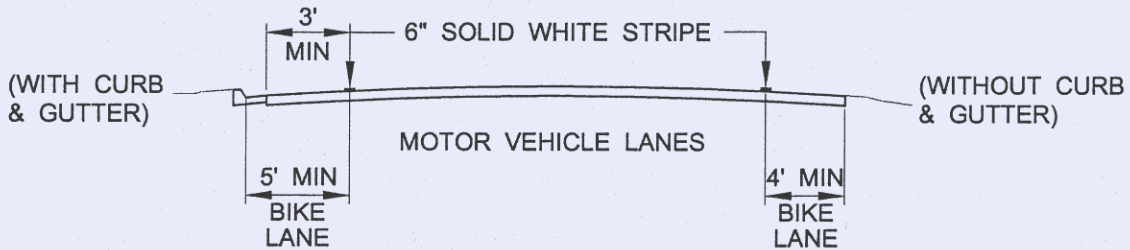
ON STREET PARKING

*THE OPTIONAL SOLID WHITE STRIPE MAY BE ADVISABLE WHERE STALLS ARE NECESSARY (BECAUSE PARKING IS LIGHT) BUT THERE IS CONCERN THAT MOTORISTS MAY MISCONSTRUE THE BIKE LANE TO BE A TRAFFIC LANE.

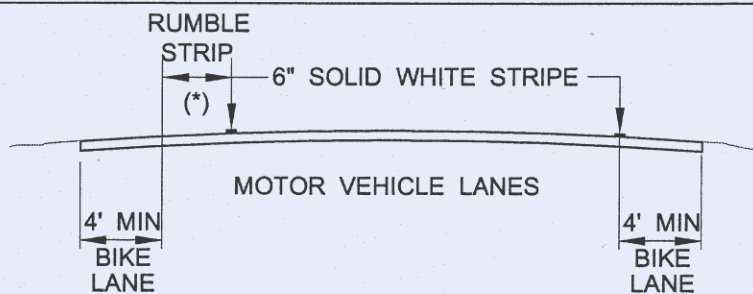


PARKING PERMITTED WITHOUT PARKING STRIPE OR STALL

* 13' IS RECOMMENDED WHERE THERE IS SUBSTANTIAL PARKING OR TURNOVER OF PARKED CARS IN HIGH (e.g. COMMERCIAL) AREAS.



PARKING PROHIBITED



TYPICAL ROADWAY IN OUTLYING AREAS PARKING PROTECTED

*IF RUMBLE STRIPS EXIST THERE SHOULD BE 4' MINIMUM FROM THE RUMBLE STRIPS TO THE OUTSIDE EDGE OF THE SHOULDER.

Not To Scale



PARE ENGINEERING CORPORATION
8 BLACKSTONE VALLEY PLACE
LINCOLN, RI 02865
401 - 334 - 4100



TYPICAL BIKE LANE CROSS SECTIONS

A Signed Shared Roadway should have particular advantages for bicyclists over alternative routes. According to AASHTO, Signed Shared Roadways should provide through and direct travel, connect to other bicycle facilities, and give priority to bicyclists. Signing also advises motorists that bicycles are present.

According to AASHTO, “width is the most critical variable affecting the ability of a roadway to accommodate bicycle traffic. In order for bicycles and motor vehicles to share the use of a roadway without compromising the level of service and safety for either, the facility should provide sufficient paved width to accommodate both modes.” AASHTO recommended paved widths vary with the roadway conditions. Like that of a “Shared Roadway,” minimum lane width of 12 feet is required but 14 feet is desirable to accommodate both bicyclists and motorists. These minimum useable lane widths provide maneuvering room for drivers exiting from or in areas with limited sight distances.

Signed Shared Roadways should be signed approximately every ¼ mile and at signalized intersections with both guide and supplemental signs. Also, directional signs are to be placed at every turn to both mark the road and to confirm that the rider has made the correct turn. Bicycle warning signs should be installed to warn bicyclists of conditions not readily apparent, such as “HILL” or “CURVE”, along the route. Roadways that do not meet the criteria for a Signed Shared Roadway should not be signed as such. However, destination signs may be posted if the roadway leads to a logical destination such as a park, school, or municipal offices. Crossing signs and crosswalks can be proposed at locations where it is necessary to cross the road to access Signed Shared Roadways, Shared Use Paths, or other destinations.

AASHTO provides the following reasons for designating a road as a Signed Shared Roadway as follows:

Signed Shared Roadways are those that have been identified by signing as preferred bike routes.

There are several reasons for designating signed bike routes:

- a. The route provides continuity to other bicycle facilities such as bike lanes and shared use paths.*
- b. The road is a common route for bicyclists through a high demand corridor.*
- c. In rural areas, the route is preferred for bicycling due to low motor vehicle traffic volume or paved shoulder availability.*



-
- d. *The route extends along local neighborhood streets and collectors that lead to an internal neighborhood destination such as a park, church, school or commercial district.*

Signing also advises motorists that bicycles are present. Once a route has been signed it means that the responsible agencies have taken action to ensure these routes are suitable as shared routes for both the bicyclist and motorist and that they will be maintained regularly. Maintenance of the route will be at a higher standard than that of other comparable streets (e.g. more frequent street sweeping, tree trimming and removal of edge of road obstructions). The agency or municipality is ultimately responsible for prioritizing a recurring maintenance schedule for this roadway that has been designated as a Signed Shared Roadway, or Bike Route.

RIDOT recently established and instituted Design Policy Memo (DPM) Number 920.06 A-1 – titled Bicycle Routes & Share the Road Signs, with Attachment: Bicycle Route Suitability Report, Revision 2, dated 11/08/05. It specifically addresses setting standards for the signing of roadways as bike routes throughout the State. Its description states that *“this DPM serves as general technical guidance for the signing of state and local roadways as bike routes that are constructed utilizing federal and state funds. The intent of this DPM is to sign such roadways as an aid to navigation for experienced and /or commuter cyclists in determining those roadways that may be designated as bike routes, utilizing the parameters of sound engineering judgment by considering a given roadway posted speed limit, Average Annual Daily Traffic (AADT) Volume, minimum useable width in feet and other factors. This DPM is not intended to indicate the relative safety of the roadways that are signed as bike routes.”*

Item number 5 in Section 920.06.05.01 of the DPM, titled Bicycle Route Sign Criteria, refers to a “Bicycle Route Suitability Recommendation Report”. This report contains 24 items that are investigated and documented in a report. The report is provided to RIDOT for review by various departments for consideration of signing a road as a bike route. This information is to be evaluated prior to providing an opinion on the posting of bike route signs on the subject road.

The MUTCD provides sign and pavement markings standards. In contrast, RIDOT specifies that *“all signs on state roadways must conform to the Manual on Uniform Traffic Control Devices (MUTCD) D11-1 (Bike Route) sign, to be typically placed at .5 mile intervals”* in item number 4 of the DPM.



Shared Roadways:

A Shared Roadway facility has no bikeway classification or designation. This facility is not shown on Figure 1 since this is any roadway that does not prohibit bicycle traffic. According to AASHTO, different types of roadway conditions can result in a Shared Roadway designation. One condition is that the existing street system is currently being used for efficient bicycle travel without signing and striping. A second condition is that the existing roadway is not deemed suitable for bicycle travel and, therefore, bicycle travel should not be encouraged by designating the Signed Shared Roadway by means of signing and/or marking as an approved bikeway. Another condition that could lead to a Shared Roadway classification is that the roadway is not considered a high demand bicycle corridor and as such the road should not be designated as another bikeway classification, regardless of roadway conditions. On roadways without designated bikeways, a minimum lane width of 12 feet, 14 feet desirable, can best accommodate both the bicyclist and motorist.





STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Rhode Island Department of Transportation
ENGINEERING DIVISION
Two Capitol Hill, Rm. 226
Providence, RI 02903-1124
PHONE 401-222-2023
FAX 401-222-3006; TDD 401-222-4971

Date: November 8, 2005

TAC 0054

To: All Consultants

Subject: DPM 920.06 - Bicycle Routes Share the Roads Signs
Attachment: Bicycle Route Suitability Report, Revision 2
Revised: 11/08/05

Attached for your use is the revised Bicycle Route Suitability Report. Effective November 8, 2005, all Designers will use the attached report when reviewing the suitability of a route for use by bicyclists.

As the Department continues its DPM review process, different DPMs will be issued upon their completion. Once a DPM is released, a copy of it will be posted on the Department's website, <http://www.ridot.us/PMP>. As a reminder, the DPMs may not be issued in sequential order. Therefore, we recommend a working binder be maintained until the entire Design Policy Memo and Procedures Manual is completed.

If you have any questions or require additional information, please contact this office or RIDOT Project Manager. Questions/comments may also be directed to RIDOTDesign@dot.state.ri.us. Electronic copies of all recently released Design Policy Memo's, To All Consultants letters, and attachments may be found on the Department's website <http://www.ridot.us/PMP>.

Sincerely,

Kazem Farhoumand, P.E.
Deputy Chief Engineer

Attachment



STATE OF RHODE ISLAND
DEPARTMENT OF TRANSPORTATION
BICYCLE ROUTE SUITABILITY REPORT

PROJECT: _____

CONSULTANT: _____ REVIEW DATE: _____

ROUTE NAME & NUMBER: _____ CITY/TOWN: _____

ROADWAY LIMITS: _____

Technical Paper No. 130 Roadway Classification _____

"Guide to Cycling in the Ocean State 2003" Roadway Designation _____

The State Highway noted above is being considered for signage as a "Signed Shared Roadway" in accordance with the criteria set forth in RIDOT DPM No. 920.06. The following information is to be provided to the Deputy Chief Engineer of the Design Section for consideration:

ITEM NO.	DESCRIPTION	COMMENT NO. (SEE ENDNOTES)
1	Posted Speed Limit	
2	85 th Percentile Speed (Radar speed study)	
3	Average Annual Daily Traffic (AADT) Volume	
4	Percent Truck Traffic Volume	
5	Number of Travel Lanes	
6	Width of Travel Lanes	
7	Width of Shoulders	
8	Delineation of Centerline & Shoulders	
9	Sidewalk	
10	Curbing	
11	On-Street Parking	

920.06A-1

Created: 5/26/04 Revised: 11/08/05

DPM Attachment

Electronic copies of all Design Policy Memos and attachments may be found at
<http://www.ridot.us/PMP>



ITEM NO.	DESCRIPTION		COMMENT NO. (SEE ENDNOTES)
12	Frequency of Curb Cuts	Moderate	
		Heavy	
		Commercial	
		Residential	
13	Horizontal Alignment Constraints		
14	Vertical Alignment Constraints		
15	Intersections & Corresponding Stopping Sight Distances		
16	Stop Controls Along Roadway		
17	General Roadway Conditions	Surface	
		Potholes	
		Cracking	
		Catch Basin Types	
		Sand & Debris	
18	Are all grates bicycle-safe? (If no, please indicate which ones)	Yes: _____	No: _____
18A	Total Number of Grates: _____		
18B	Location of Grates (list): _____		
19	Off-Road Obstacles	Mailboxes, signs	
		Poles	
		Outcrops	
		Hanging Limbs	

920.06A-2

Created: 5/26/04 Revised: 11/08/05

DPM Attachment

Electronic copies of all Design Policy Memos and attachments may be found at

<http://www.ridot.us/PMP>



ITEM NO.	DESCRIPTION		COMMENT NO. (SEE ENDNOTES)
20	Facilities List on Roadway	Parks	
		Schools	
		Recreational Fields	
		Historical Districts	
		Commercial Establishments	
21	Expected Bike User Type	A – Advanced	
		B – Basic	
		C – Children	
22	Location of nearest Bike Route/Path as potential link		
23	Additional Observations		
24	Accident History (Provide Crash Data for the previous three years according to type, location, injury, roadway surface and time)		

COMMENTS

(Expand/Delete as needed)

920.06A-3

Created: 5/26/04 Revised: 11/08/05

DPM Attachment

Electronic copies of all Design Policy Memos and attachments may be found at
<http://www.ridot.us/PMP>



Based on the information contained in the above "Bicycle Route Suitability Report", the reviewing engineer:

Recommends ()

Does not recommend ()

designation of this roadway as a Rhode Island Bicycle Route

Reviewing Engineer:	Date:
Approved Deputy Chief Engineer:	Date:
Approved Chief Engineer:	Date:

920.06A-4

Created: 5/26/04 Revised: 11/08/05

DPM Attachment

Electronic copies of all Design Policy Memos and attachments may be found at
<http://www.ridot.us/PMP>



EXISTING CONDITIONS

As part of this report, the existing statewide bike routes (Signed Shared Roadways) as shown on the RIDOT Bike RI Map (Figure 3) were investigated. A field review and general survey of these bike routes was conducted. A list was created that recorded existing roadway conditions pertinent to bike route signing criteria. In particular, close attention was paid to the approximate spacing, location, and the type of sign that was installed. Subsequently, Table 1 was created that lists the existing statewide Signed Shared Roadway and provides corresponding information in regards to the approximate measured bike route length, spacing of signs, and the existence or non existence of Begin and End signage. Photos accompany the table documenting the existing conditions. The following analysis provides a broad overview and discussion of the existing bike route signing policy implemented by RIDOT.

A number of begin and /or end bike route signs were found at places with no noticeable or apparent reason to begin or end at that specific location. This situation was evident on the Statewide Signed Shared Roadways along Routes 2 and 3 in North Kingstown and Exeter in the southern part of the State and along portions of Route 12 in Cranston and Scituate in the northern section of the State. Missing signs contribute to the bicyclist's confusion while riding either route. This is primarily a result of poor maintenance.

Additionally, observations revealed that the majority of the existing state bike route signs were regularly located approximately ½ mile apart. This was the case in areas of continuous roads where intersections and other physical features did not interrupt the landscape. Where the surroundings permit, the space between the signs has been increased to approximately one mile.

Referring to Figure 3, the logic for installing termini bike signs, such as on the Warwick-East Greenwich Bicycle Network at Potowomut near the Sandy Point Beach and at Apponaug Cove, is obvious and clear. Additionally, the Statewide Signed Shared Roadway along Route 1A from Point Judith, Narragansett to Wickford, North Kingstown is scenic from beach to village. These routes support a methodology that the signing should be based on a logical beginning and last stop points; a park, town centers, schools, and churches with places for parking available for single day usage.



The end of a signed bike route could be at a location to provide connections to other modes of transportation by the use of bicycle. These could include Shared Use Paths or the availability of extended transportation by means of car, train, bus, or boat. This multimodal approach would be a strong case for the extension of a bike route. This could be considered for providing bike access to the numerous ferry services in the State. The location of some start and end points of bike routes do not necessarily follow the AASHTO recommendations.

Another notable observation made regarding bike route signage is the overlap that happens on some of the Local Neighborhood and Statewide Bike Routes. This situation exists on the Warwick – East Greenwich Bicycle Network. The separation of the two different bike routes where they are in close proximity to each other is at times unclear. Keeping track of the two separate sign logos is particularly tricky in residential neighborhoods where the roadway network is intertwined



TABLE 1
EXISTING STATEWIDE SIGNED SHARED ROADWAYS

Bike RI Map Designation	Signed Shared Roadway	Begin/End	Approx. Total Measured Length (mile)	Approx. sign spacing (mile)	Bike Route Begin Sign Exists?	Photo No.	Bike Route End Sign Exists?	Photo No.
1	Scituate Avenue	Rt. 5, Cranston to Scituate Reservoir, Scituate	5.7	Varies-average distance between sign is .5 or 1 mile intervals	YES*	1-BEGIN	NO	N/A
2	Route 2	Rt. 102, N.Kingstown to Rt. 138, S. Kingstown	6.5		NO	N/A	YES	2-END
3	Route 3	Division Rd., W. Greenwich to Bakers Pine Rd., Hopkinton	10.5		YES	3-BEGIN	NO	N/A
4	Route 102	Rt. 14/102, Foster to Breakneck Hill Rd., W. Greenwich	9.5		YES*	4-BEGIN	YES	4-END
5	Route 1A	Town Hall, N. Kingstown to Sprague Park, Narragansett	11.3		YES	5-BEGIN	YES	5-END
6	Route 14	Pippin Orchard Rd., Cranston to Rt. 116, Scituate	1.5		YES	6-BEGIN	YES	6-END
7	Pippin Orchard Road	Rt. 14 to Rt. 12, Cranston	1.5		NO	N/A	NO	N/A
8	Route 117	Rt. 102 to Coventry Greenway, Coventry	7.2		YES	8-BEGIN	YES	8-END
9	Route 91 Alton Bradford Rd.	Rt. 112, Charlestown to Bradford Fishing Area, Westerly	6.2		YES	9-BEGIN	YES**	9-END
10	Route 120 Nate Whipple Hgwy.	Mendon Rd., Cumberland to MA State Line	4.8		YES	10-BEGIN	YES	10-END

* "Bike Route" Sign exists but attached "Begin" sign is missing.

** In opposite direction - at Mendon Road - "Bike Route" sign is missing but "Begin" sign exists.



Photograph No. 1 Begin on the Scituate Avenue Signed Shared Roadway at Route 5, Cranston

No End Bike Route Sign on the Scituate Avenue Signed Shared Roadway at Scituate Avenue, Scituate

No End on the Scituate Avenue Signed Shared Roadway at Scituate Avenue, Scituate



**No Begin Bike Route Sign on the Route 2
Signed Shared Roadway at Route 102, North
Kingstown**

**No Begin – Route 2 Signed Shared
Roadway at Route 102, North Kingstown**



**Photograph No. 2: End - Route 2 Signed
Shared Roadway at Route 138, South
Kingstown**





**Photograph No. 3 Begin on the Route 3
Signed Shared Roadway at Division Road,
West Greenwich**

**No End Bike Route Sign on the Route 3
Signed Shared Roadway at Bakers Pine
Road, Hopkinton**

**No End on the Route 3 Signed Shared
Roadway at Bakers Pine Road, Hopkinton**





**Photograph No. 4 Begin on the Route 102
Signed Shared Roadway at Route 14/102,
Foster**



**Photograph No. 4 End on the Route 102
Signed Shared Roadway at Breakneck Hill
Road, West Greenwich**





Photograph No. 5 Begin on the Route 1A Signed Shared Roadway at the Town Hall, North Kingstown



Photograph No. 5 End on the Route 1A Signed Shared Roadway at Sprague Park, Narragansett





Photograph No. 6 Begin on the Route 14 Signed Shared Roadway at Pippin Orchard Road, Cranston



Photograph No. 6 End on the Route 14 Signed Shared Roadway at Route 116, Scituate



No Begin Bike Route Sign on the Pippin Orchard Road Signed Shared Roadway at Route 14, Cranston

No Begin on the Pippin Orchard Road Signed Shared Roadway at Route 14, Cranston

No End Bike Route Sign on the Pippin Orchard Road Signed Shared Roadway at Route 12, Cranston

No End on the Pippin Orchard Road Signed Shared Roadway at Route 12, Cranston





Photograph No. 8 Begin on the Route 117 Signed Shared Roadway at Route 102, Coventry



Photograph No. 8 End on the Route 117 Signed Shared Roadway at Coventry Greenway, Coventry





Photograph No. 9 Begin on the Route 91 Alton Bradford Road at Route 112, Charlestown



Photograph No. 9 End on the Route 91 Alton Bradford Road at the Bradford Fishing Area, Westerly





**Photograph No. 10 Begin on the Route 120
Nate Whipple Highway at Mendon Road,
Cumberland**



**Photograph No. 10 End on the Route 120
Nate Whipple Highway at the
Massachusetts State Line**



MASSACHUSETTS

LEGEND

EXISTING BIKE FACILITIES

- BIKE LANE
- BIKE PATH
- SHARE THE ROAD
- LOCAL SIGNED SHARED ROADWAY
- STATEWIDE SIGNED SHARED ROADWAY
- ◇ REFER TO TABLE 1

-27-

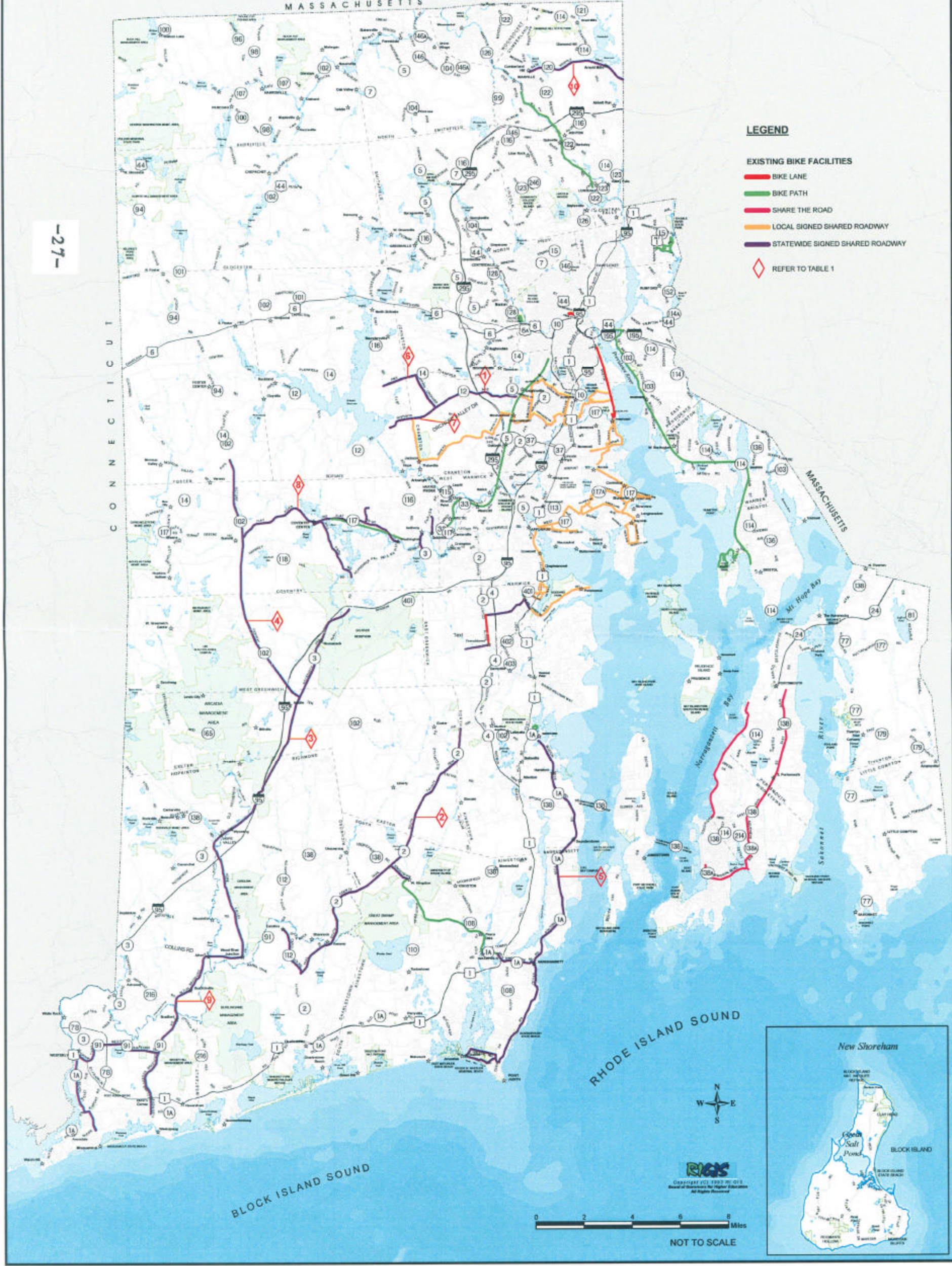


FIGURE 3. BIKE RI MAP

REFERENCES

Opinions on the subject of the bike route signage issue were solicited from professional individuals and agencies that are associated with the bicycle transportation industry. Their expert opinion on this matter is considered a valuable addition to this study. Their viewpoints about the subject should be considered when making decisions in the future.

Mr. Michael P. Ronkin, Bike Coordinator for the Oregon Department of Transportation (ODOT) was contacted and offered the following information. In general, ODOT requires no signs for Shared Roadways. Referencing ODOT's website, "*Bicyclists should be expected on all urban local streets, which are mostly shared roadways. Bicyclists riding on shoulder bikeways are well served with adequate width and a smooth pavement. On narrow rural roads heavily used by cyclists, it may be helpful to install bike-warning signs (W11-1) with the rider "ON ROADWAY" or "ON BRIDGE ROADWAY", where there is insufficient shoulder width for a significant distance. This signing should be in advance of the roadway condition. If the roadway condition is continuous, an additional rider "NEXT XX MILES" may be used.*"



Sign W11-1 with riders

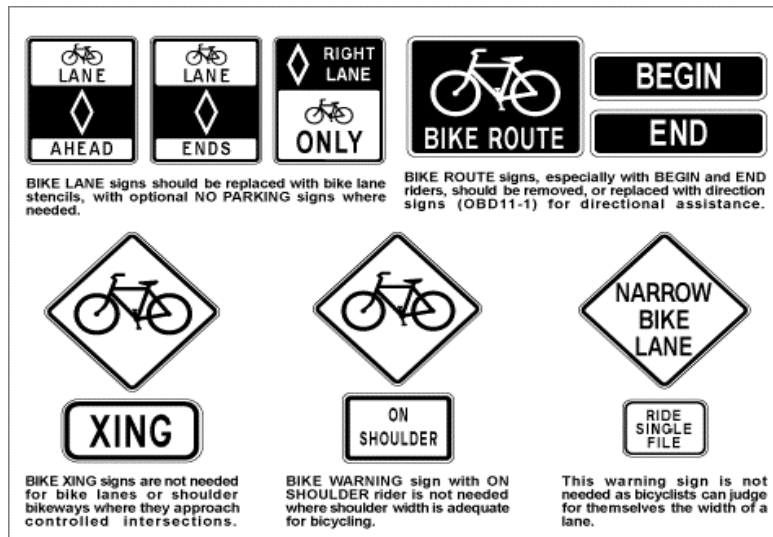
ODOT strongly recommends **against** the use of Bike Route signs and arrows like those being used along streets in Rhode Island because there is no indication to cyclists as to where they are being directed. The claim is that cyclists will usually ignore these signs if they send them off direction. Instead ODOT encourages the installation of directional signs as shown below. They claim that they are useful where it is recommended that bicyclists follow a routing that differs from the routing recommended for motorists. This may be for reasons of safety, convenience, or because bicyclists are banned from a section of roadway (the routing must have obvious advantages over other routes).





Sign OBD11-1, Destination

The ODOT recognizes that well-designed roads make it clear to users how to proceed, and require very little signing. Conversely, ODOT considers that an over-abundance of installed warning and regulatory signs may indicate a failure to have addressed problems. The attention of drivers, bicyclists and pedestrians should be on the road and other users, not on signs on the side of the road. Regarding the maintenance of existing signs and pavement markings for bike facilities, ODOT requires periodic review of existing signs, to upgrade and standardize signing. All existing signs and markings are inventoried and recommendations are made to the appropriate office. In most cases, this results in a net decrease in the total number of signs. ODOT is in the process of removing signs that are not appropriate for the situation and bike lane stencils on rural shoulder bikeways. A table of the unwanted signs is given below.



John Forester is a professional engineer and an avid bicyclist. He has combined these interests in founding the discipline of cycling transportation engineering. Mr. Forester is author of several cycling books that addresses many topics associated with bicycle riding. Among those subjects covered are the demographics and economics of cycling, accidents, the effects of bicyclists on traffic, effective educational programs, improving bicycling facilities, and dealing with government cycling policy. Foremost, the author's opinion is that bicyclists do best when they act, and are



treated in return, as drivers of vehicles, with the same rights and responsibilities that motorists have. As such, the intent of signs should be to function effectively for both users, rather than single out one over the other.

Bicycle signs and signing policies in Rhode Island do not appear to currently meet these requirements. States such as Oregon, who are on the leading edge of bicycle advocacy, are heading in a different direction from Rhode Island. Examination of the policies involved with signage should be reviewed to see that these conditions are met.

Through the development of this report the DPM has been created to implement a more effective method of sign control for bicycle use.



RECOMMENDATIONS

RIDOT's Traffic Engineering section provided comments on the need for better sign control as a relatively inexpensive option for improving a community's appearance and providing a more effective message for vehicle and bicycle users on the road. Well-designed roads usually require very little signing, because they are built so all users understand how to proceed. Conversely, an overabundance of warning and regulatory signs may indicate a failure to have addressed problems. The attention of drivers, bicyclists and pedestrians should be on the road and other users, not on signs along the side of the road. Oversigning of roadways is ineffective and can degrade sign effectiveness. Too many signs are distracting and a visual blight, they may be a waste of resources. The message conveyed by the sign should be easily understandable by all roadway users. The use of symbols is preferred over the use of text.

A recently released Providence Bicycle Network draft report on bike route signing for the City of Providence prepared by Vanasse Hangen Brustlin, Inc. was submitted to RIDOT for review and comment. Figure 4, Proposed Bicycle Routes, Providence, Rhode Island, indicates the proposed route locations. Comments from the Traffic Engineering section of RIDOT in regards to signing indicated that *"the proposed bike routes and lanes be studied to ensure that each selected bike travel path is indeed suitable for signing as a preferred bike route"*. Additionally, the comment was made *"that the large number of proposed signed bike routes is excessive.... And, therefore, it is our recommendation that only the most suitable and practical routes be selected for signing"*.

Having evaluated and discussed the current bike route sign methodology in Rhode Island, it is concluded that the Bicycle Route Suitability Report does address the termini points in Item Number 19, Facilities List on Roadway and in Item Number 21, Location of Nearest Bike Route/Path as potential link. This attempts to have the designer evaluate the logic of recommending a Signed Shared Roadway.

Additionally, the Bike RI Map provides a source for the State, Engineer and bike enthusiasts to examine, review and recommend bicycle network connections that are logical.

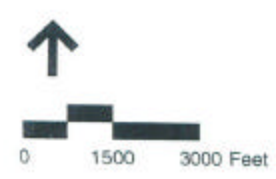
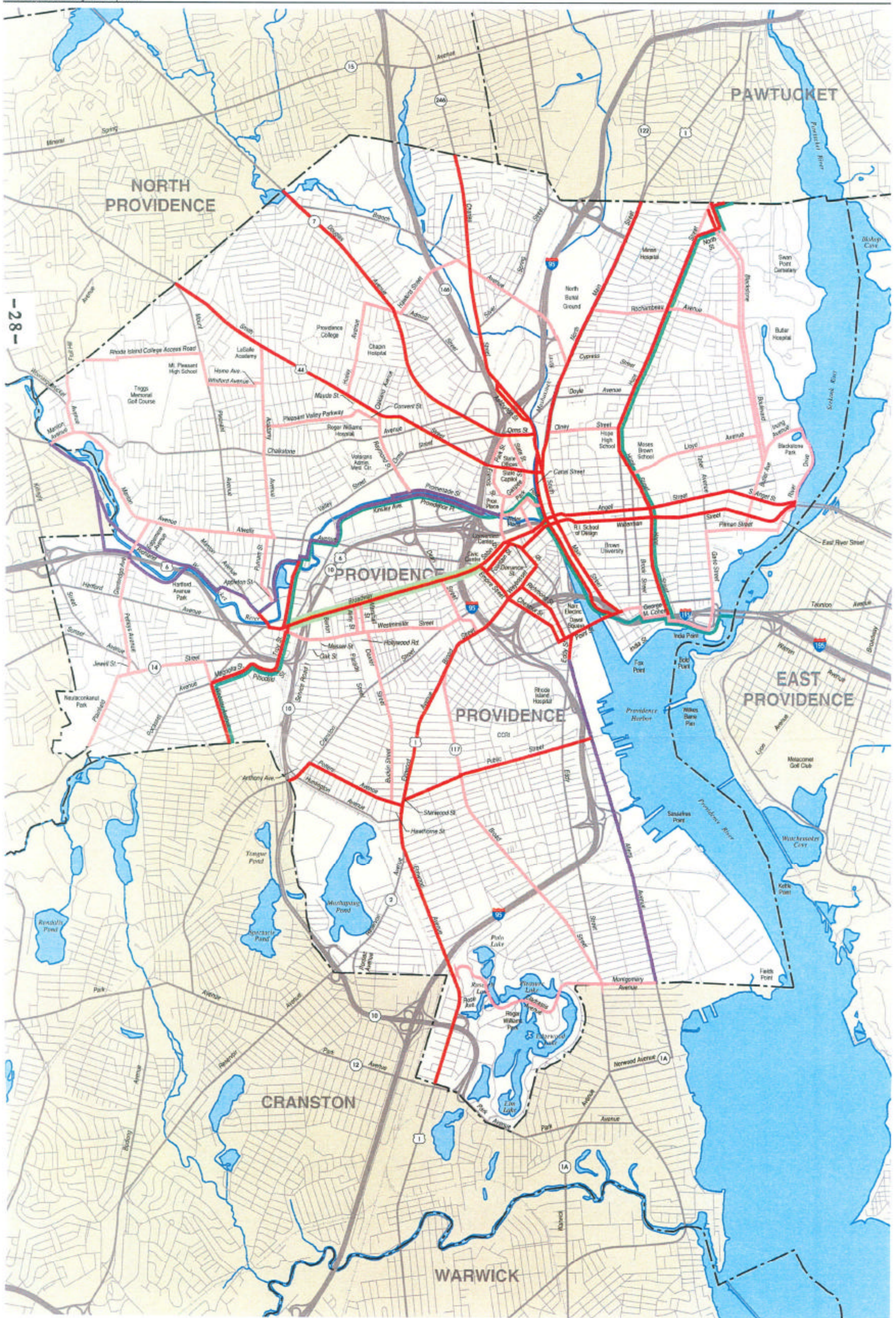


On the federal level, AASHTO recognizes the need to address the bicycle route signing and other related bicycle issues that exist throughout the country. The organization is attempting to offer consistency in terms of the designation of bike facilities by recommending design standards. The AASHTO Standing Committee on Highways has established an ad hoc Task Force on US Bicycle Routes to encourage the development of a coordinated system of US Bicycle Routes across the country. The task force's first step is to collect, compile, and review information on existing and proposed multi-state bicycle routes designated by states, local jurisdictions and other groups. Once that information is in hand, a proposed corridor plan and numbering system will be developed and reviewed with the key AASHTO technical committees. The endorsed US Bicycle Route Corridor Plan may be used as a tool by the State DOTs in proposing the designation of appropriate roads and highways as part of an interconnected system of US Bicycle Routes. Included in this study will most likely address the bike route signing concerns. This is an opportunity for the State of Rhode Island to contribute, participate, and monitor the committee's proposal in this regard.

Signs need to be an asset to both the motorist and bicyclist. Better sign control is a relatively inexpensive and simple option for improving a community's appearance and providing a more effective message for vehicle and bicycle users on the road. Restricting the installation of bike signs is an opportunity to accomplish these objectives.

Through the development of this report the DPM 920.06 has been created to implement a more effective method of sign control for bicycle usage.





Key:	
—	Phase I Bicycle Route
—	Striped Bicycle Lane
—	Phase II Bicycle Route
—	Existing/Under Development
—	East Coast Greenway

Vanasse Hangen Brustlin, Inc.

Proposed Bicycle Routes
Providence, Rhode Island

FIGURE 4. PROPOSED



ENGINEERS
SCIENTISTS
PLANNERS

www.parecorp.com



▶ RHODE ISLAND
**MOVING
FORWARD**

STATEWIDE BICYCLE
MOBILITY PLAN

APPENDIX

A3. Counts and Crash Data



CURRENT BICYCLE RIDERSHIP

The BMP process reviewed bicycle counts from on-street and off-street locations conducted throughout the state, including:

- A 21-location count completed in September 2017 as part of the planning process
- RIDOT, the City of Providence, and University of Rhode Island (URI) counts between 2014-2017 at 18 locations, 8 of which corresponded with the September 2017 locations
- Supplemental data from Strava, a smart-phone app used by many recreational bicyclists and some bicycle commuters

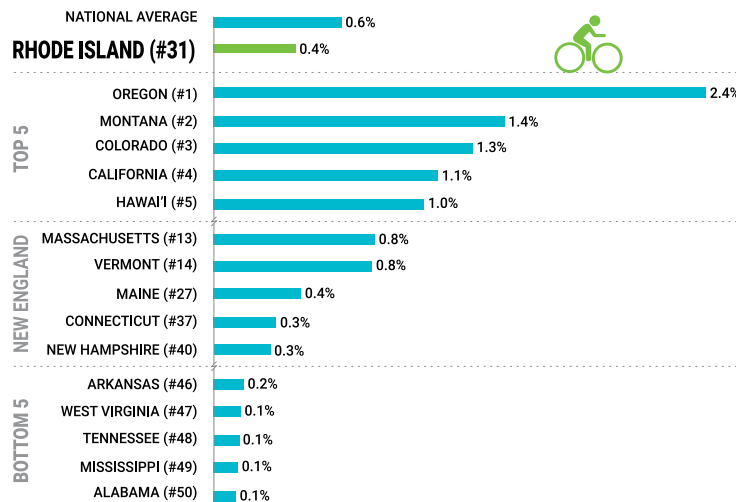
It is also worth noting that Providence is one of the 10 U.S. cities participating in the Big Jump program by PeopleForBikes. The Big Jump initiative aims to double or triple bike ridership in specific neighborhoods over the course of just three years, proving that when cities make smart changes, more people ride bikes and communities become better places to live, work and play. Providence's new bike share system launched in Fall 2018 provides another data source for ridership and utilization.

2014 to 2017 Bicycle Counts

Beginning in 2014, the RIDOT, the City of Providence, and URI tracked bicycle ridership at a variety of locations throughout the state. Of the 18 count locations, most were conducted along prominent shared-use paths, including the Blackstone River Bikeway and the East Bay Bike Path. The map and table on the following page illustrates the locations and count totals at 13 of the count sites. The remaining five 2014-2017 count locations were focused on the City Walk corridors in Providence and are not included in the table.

Eight of the 18 locations from the 2014-2017 counts were maintained as appropriate sites for continued data collection as part of the BMP process. The previously-collected data provides insight into bicycle ridership levels at a number of important locations throughout the state.

2012-2016 Bicycle Commute Share



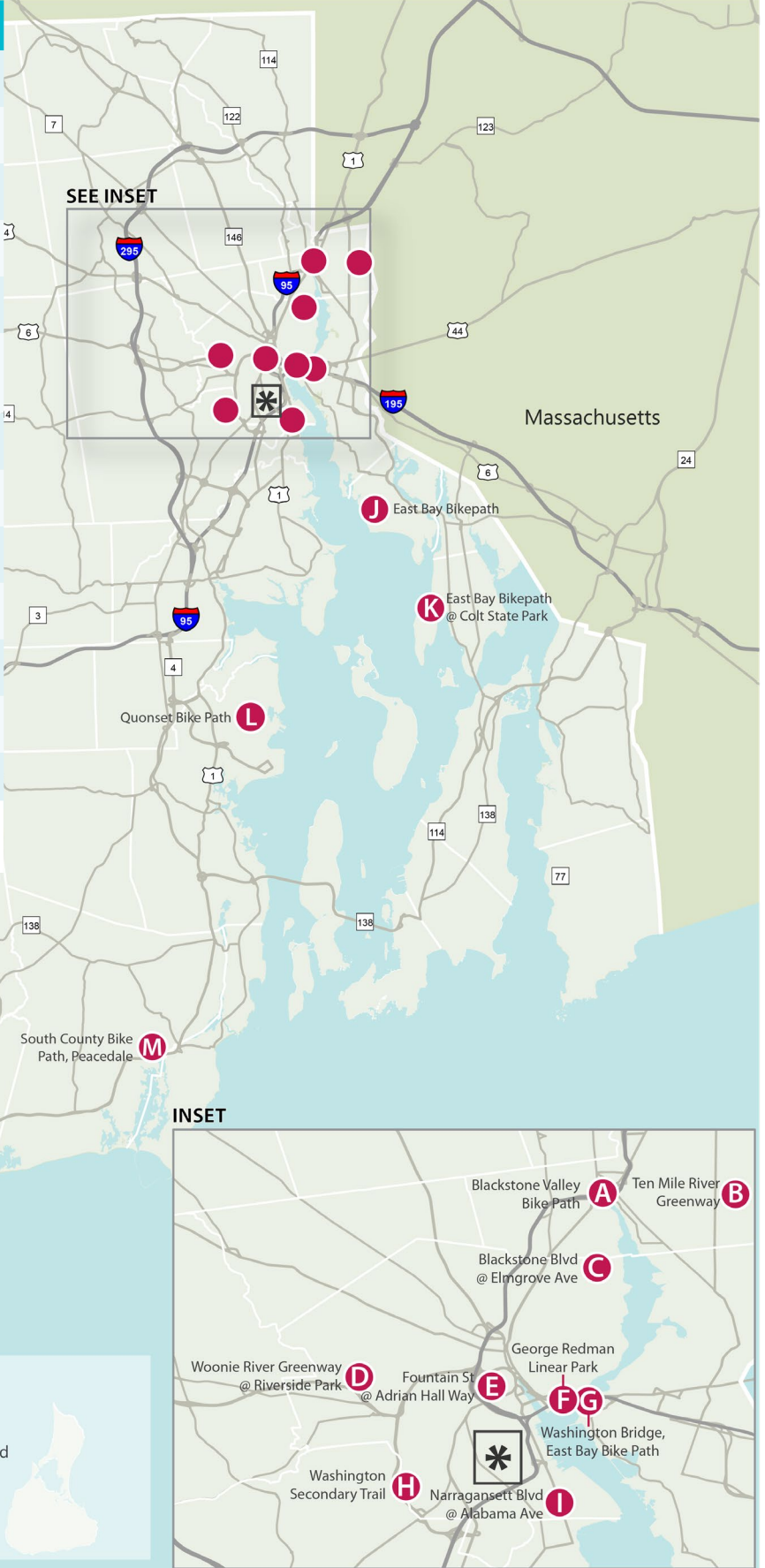
SOURCE: TABLE B08301, 5-YEAR ESTIMATES, AMERICAN COMMUNITY SURVEY (2012-2016)

2014-2017 RIDOT, URI, and City of Providence Bicycle Counts

2014-2017 LOCATION	WEEKDAY AVERAGE	WEEKEND AVERAGE	SEPT. 2017 LOCATION
A	1,748*	N/A	4
B	183*	N/A	N/A
C	160	N/A	N/A
D	22	92	6
E	50	83	8
F	174	368	9
G	256	421	N/A
H	433*	N/A	10
I	46	43	11**
J	1,705*	N/A	N/A
K	1,454	3,008	19
L	200*	N/A	N/A
M	383*	N/A	17

* Count included bicyclists and pedestrians

** Approximately 1/2 mile north on same corridor



2014 - 2017 Count Locations

- Count location (RIDOT, URI, + City of Providence)
- * Five counts conducted on Prairie Ave (2) and Broad St (3) as part of the City Walk planning process





September 2017 Bicycle Counts

The 21 bicycle counts observed in September 2017 as part of the BMP planning process included both on- and off-street locations. Counts were made during two-hour periods in the morning and afternoon “rush hour” and during two-hour midday periods on the weekend. The count totals are shown in the map on the following page. This data was used to make a projection of the estimated annual number of riders at the 21 path and roadway locations (see table at right).

The bicycle counts should be continued on an annual or biannual basis so that the State is able to use the data to assess changes in the number of bicyclists over time. Future data collection will also help local and State policymakers understand bicycle usage patterns and be better prepared for grant applications.



September 2017 bicycle counts were conducted on a mix of on-street and off-street locations in diverse regions throughout the state

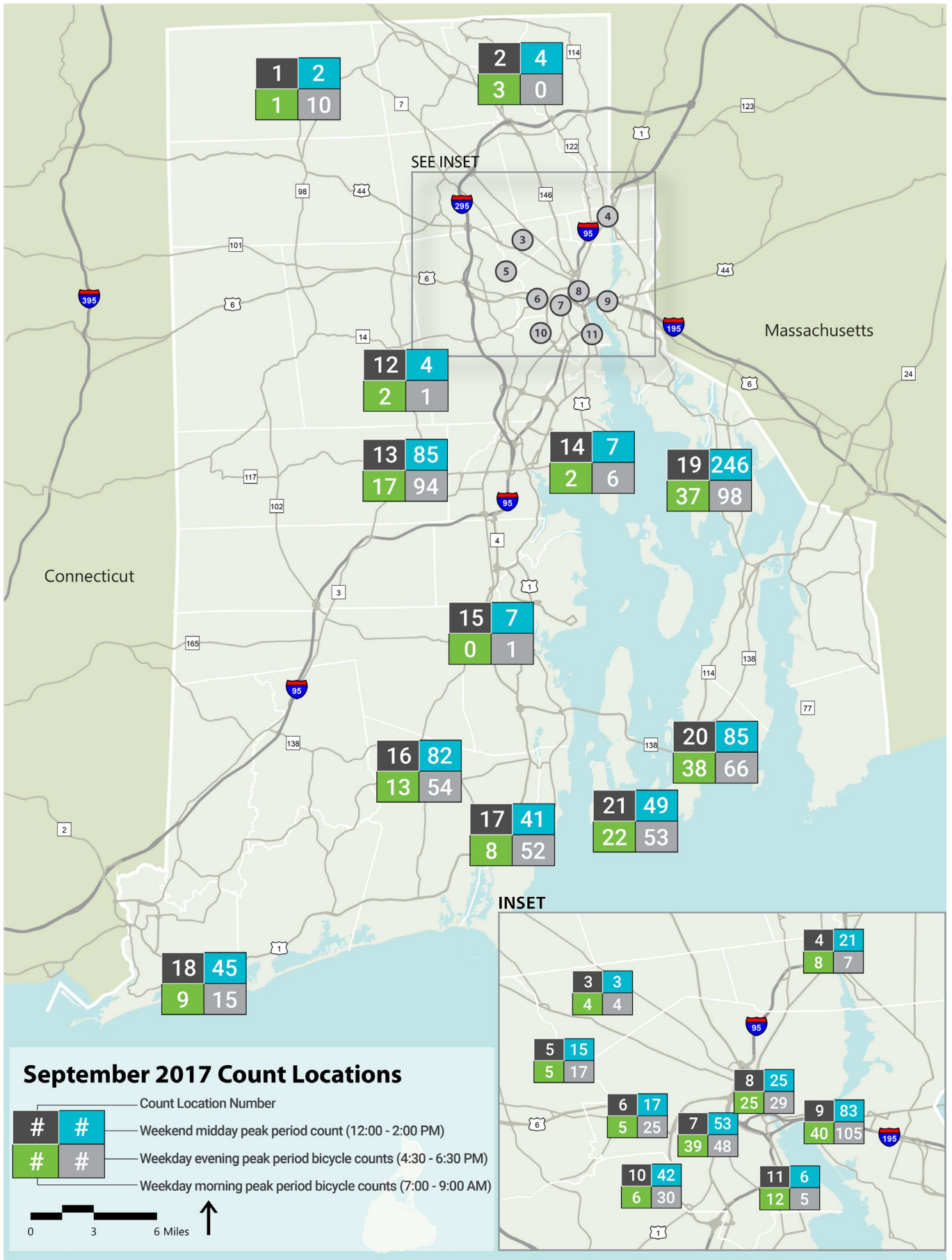
The 21 locations chosen for the September 2017 counts should be considered a starting point with additional count locations added in the future to accommodate new bicycle facilities and communities not originally included.



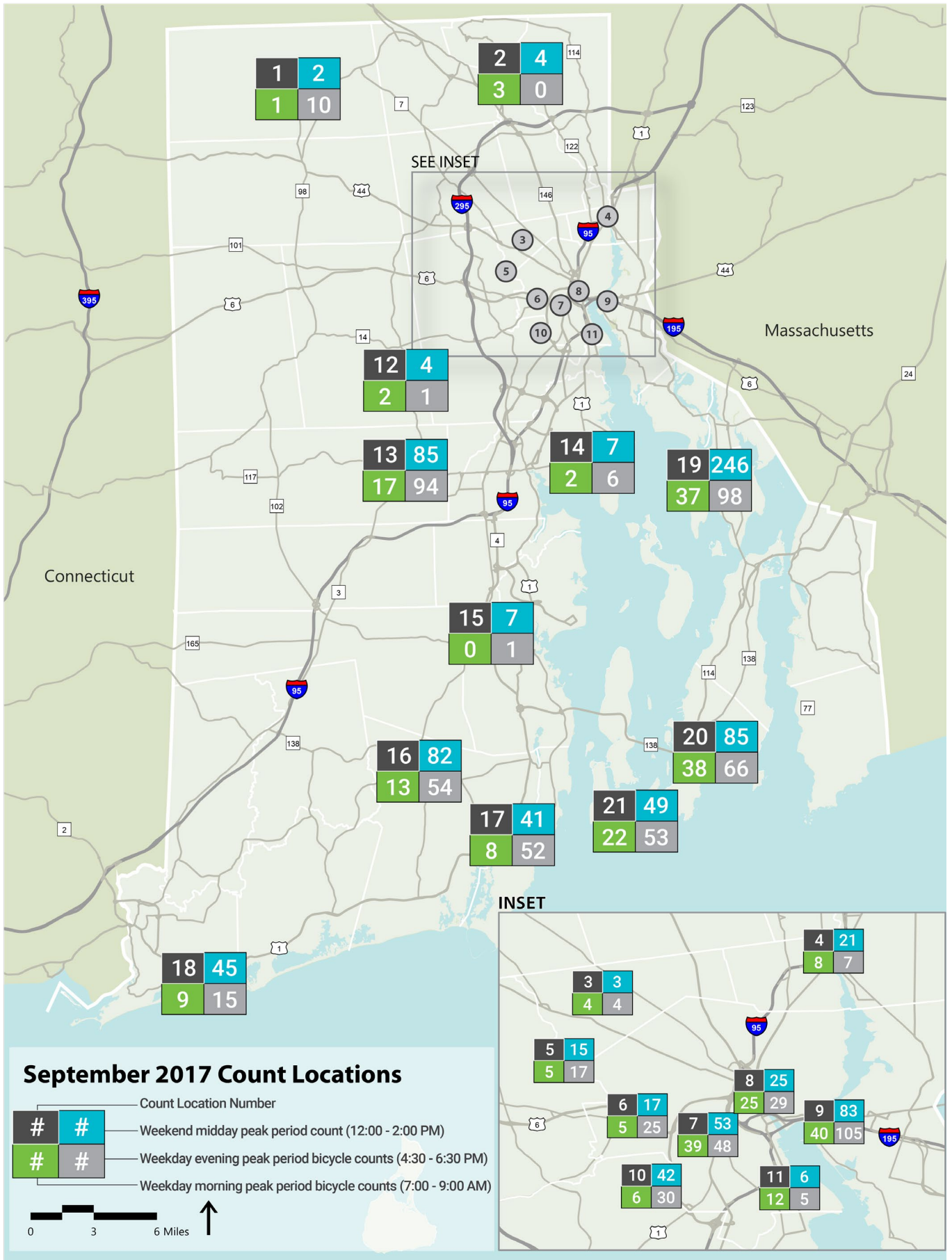
LOCATION	ESTIMATED ANNUAL NUMBER OF BICYCLE TRIPS
1 Main St. @ East Ave., Burrillville	4,000
2 Nate Whipple Hwy. @ Mendon Rd., Cumberland	2,000
3 Smithfield Rd. @ Mineral Spring Ave., N. Providence	16,000
4 Roosevelt Ave. @ Slater Mill, Pawtucket	11,000
5 Woonasquatucket River Greenway @ Lyman St., Johnston	15,000
6 Woonasquatucket River Greenway @ Riverside Park, Providence	16,000
7 Broadway @ Dean St., Providence	169,000
8 Fountain St. @ Empire St., Providence	104,000
9 East Bay Bike Path @ Warren Ave., East Providence	109,000
10 Washington Secondary Bike Path @ Garfield Ave., Cranston	26,000
11 Allens Ave. @ Ernest St., Providence	47,000
12 Scituate Ave. @ Route 116, Scituate	5,000
13 Coventry Greenway @ Flat River Rd., Coventry	62,000
14 Oakland Beach Ave. @ West Shore Rd., Warwick	11,000
15 Victory Hwy. @ Wickford Junction Rail Station, N. Kingston	3,000
16 South County Bike Path @ Kingston Station, Kingstown	53,000
17 South County Bike Path @ Mumford Rd, Narragansett	30,000
18 Atlantic Ave. @ Weekepaug Rd., Westerly	54,000
19 East Bay Bike Path @ Asylum St., Bristol	156,000
20 82 Broadway, Newport	95,000*
21 Ocean Dr. @ Brenton Point, Newport	46,000*

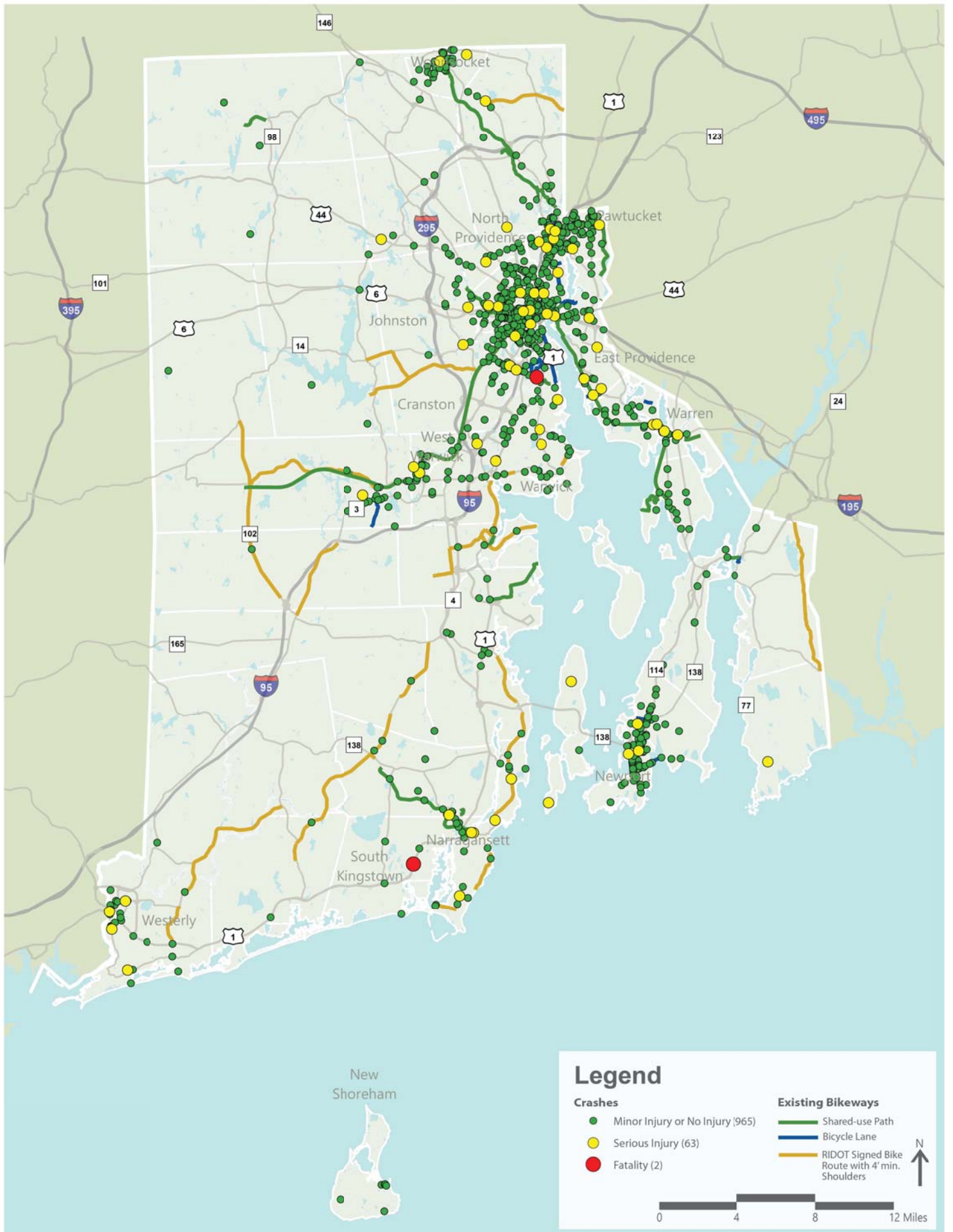
*Extrapolation did not account for spikes in the number of bicyclists along Ocean Loop and elsewhere in Newport during the area’s peak tourist season in late summer.

September 2017 Bicycle Counts



RHODE ISLAND MOVING FORWARD



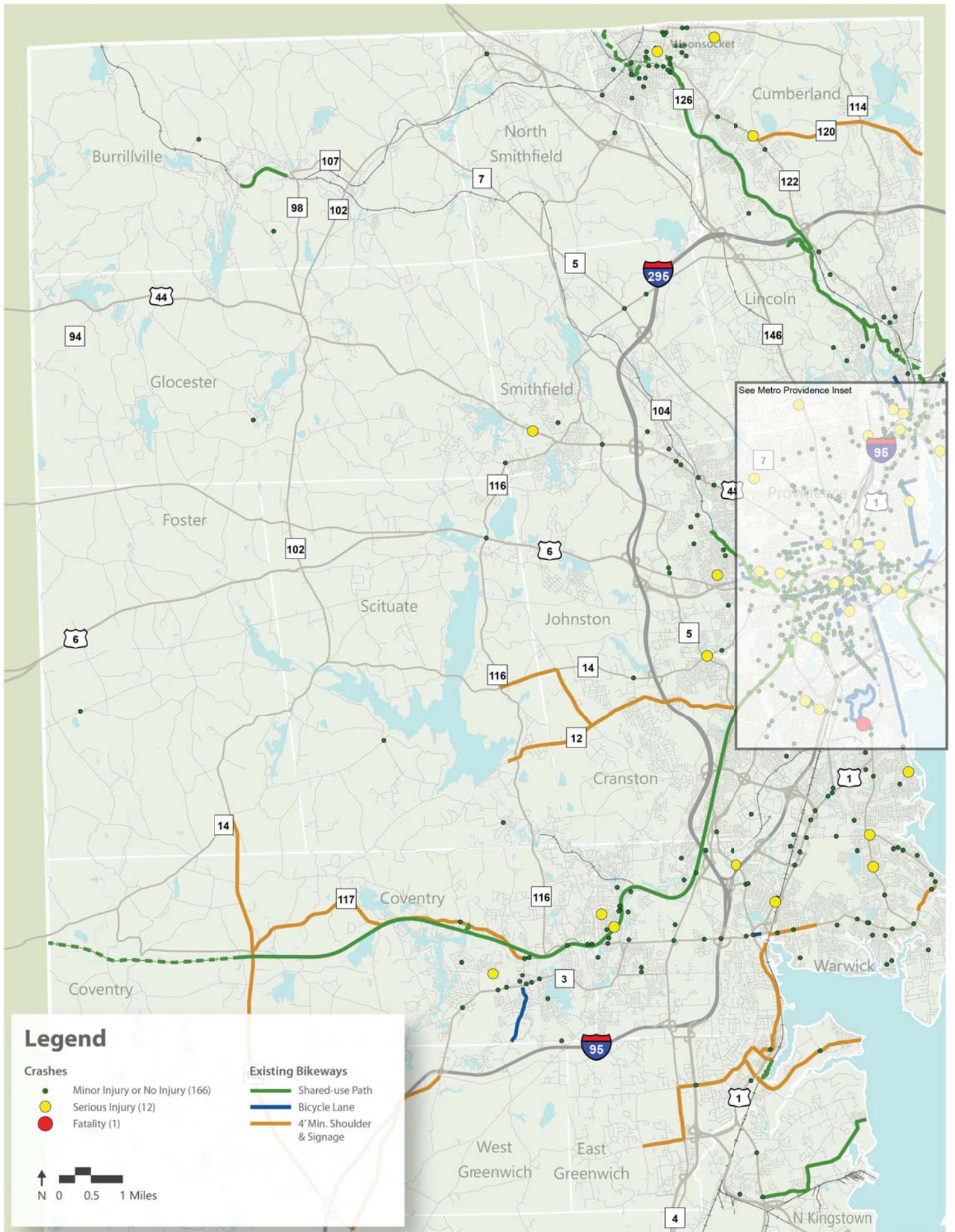


Legend

Crashes		Existing Bikeways	
●	Minor Injury or No Injury (965)	—	Shared-use Path
●	Serious Injury (63)	—	Bicycle Lane
●	Fatality (2)	—	RIDOT Signed Bike Route with 4' min. Shoulders

N ↑

0 4 8 12 Miles



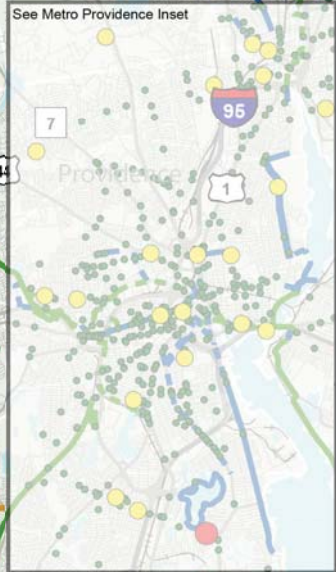
Legend

Crashes

- Minor Injury or No Injury (166)
- Serious Injury (12)
- Fatality (1)

Existing Bikeways

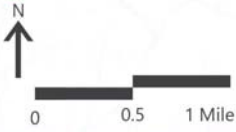
- Shared-use Path
- Bicycle Lane
- 4' Min. Shoulder & Signage



Legend

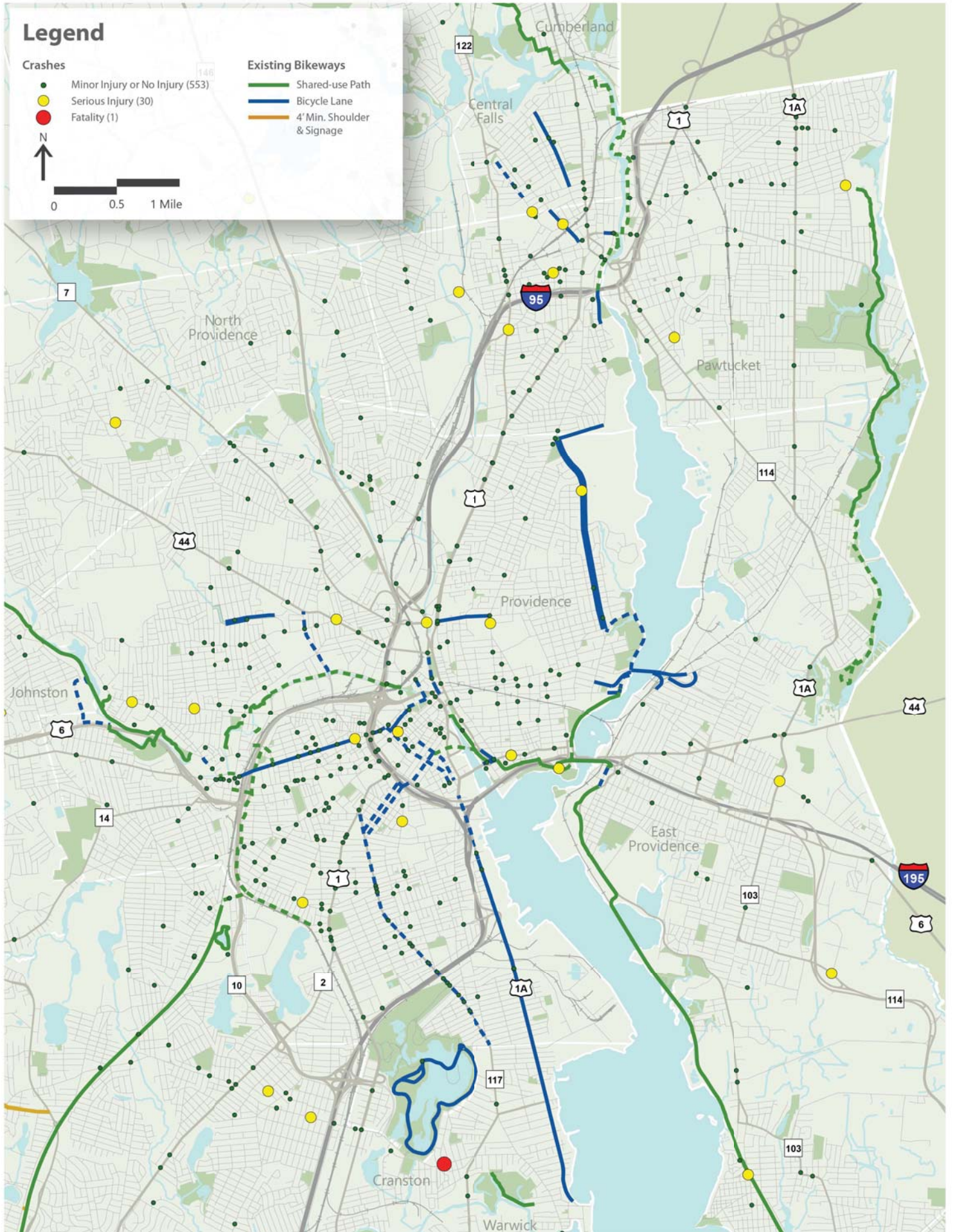
Crashes

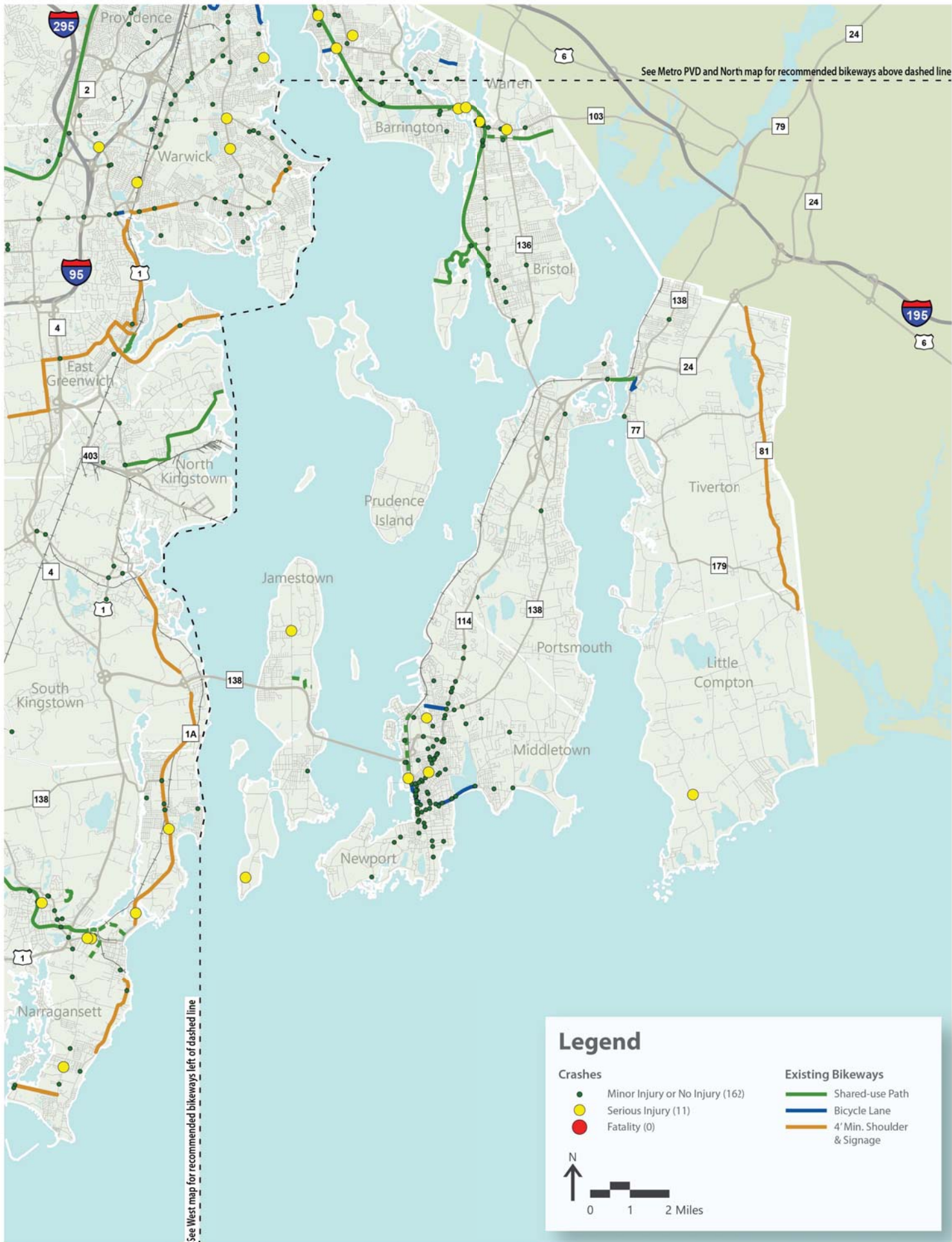
- Minor Injury or No Injury (553)
- Serious Injury (30)
- Fatality (1)

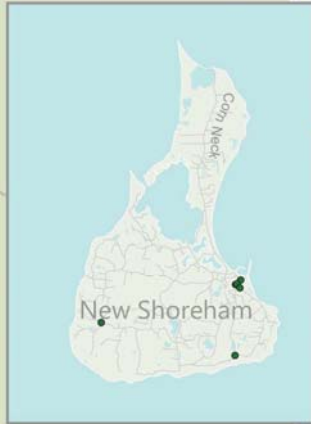


Existing Bikeways

- Shared-use Path
- Bicycle Lane
- 4' Min. Shoulder & Signage







Coventry

West Greenwich

West Warwick

Warwick

East Greenwich

Exeter

Hopkinton

North Kingstown

Richmond

South Kingstown

Charlestown

Narragansett

Westerly

New Shoreham

Legend

Crashes

- Minor Injury or No Injury (85)
- Serious Injury (10)
- Fatality (1)

Existing Bikeways

- Shared-use Path
- Bicycle Lane
- 4' Min. Shoulder & Signage



State Controlled Roadways

Refer to this website for the RI Scenic Roadways

<http://www.dot.ri.gov/community/scenicroadways.php>

BARRINGTON

Barneyville Road

Soams Road to the Mass SL

County Road (Rte. 103)
(Rte. 103/114)

E. Prov CL to Wampanoag Tr
Wampanoag Tr to Warren TL (Warren Bridge #124)

Massasoit Avenue

County Road to New Meadow Road

Metropolitan Park Drive

East Providence TL to Haines Memorial Park Road

Middle Highway

Primrose Hill Road to Nayatt Road

Nayatt Road

Rumstick Rd. to Washington Rd.

New Meadow Road

County road to the Mass SL

Primrose Hill Road

Wampanoag Trail to Middle Highway

Rumstick Road

Nayatt Road to County Road

Sowams Road

County Road to New Meadow Road

Wampanoag Trail (Rte. 114)

East Providence CL to County Road

Washington Road

From County Road to Nayatt Road

BLOCK ISLAND (NEW SHOREHAM)

Beach Avenue

Corn Neck Road to Center Road

Center Road

West Side Road to Lakeside Drive

Chapel Street

Water Street to the Square Deal Garage

Cooneymus Road

West Side Road to Lakeside Drive

Corn Neck Road

Chapel Street to 0.6 miles South of Brush Hill

Dodge Street

Corn Neck Road to Water Street

High Street

Water Street to Payne Road

Lakeside Drive

Cooneymus Road to Mohegan Trail

Mohegan Trail

Lakeside Drive to Spring Street (South East Light Road)

Ocean Avenue

Corn Neck Road to New Harbor Dock

Spring Street

High Street to Mohegan Trail

Water Street

Dodge Street to East of Old Harbor Dock

West Side Road

Ocean Avenue to Cooneymus Road

BRISTOL

Ferry Road (Rte. 114)

Hope Street/Wood Street to Mount Hope Bridge App.
Rte. 114 to Bristol Ferry Slip

Gooding Avenue

Metacom Avenue to Main Street

Griswold Avenue

Ferry Road to Old Metacom Avenue

Hope Street (Rte. 114)

Warren TL to Ferry Road/Wood Street

Metacom Avenue (Rte. 136)

Warren TL to Ferry Road

Old Metacom Avenue

Metacom Avenue to Griswold Avenue

Poppasquash Road

Hope Street to the Southeast end of Colt's Drive

BURRILLVILLE

Bronco Highway (Rte. 102)	Glocester TL to North Smithfield TL
Buck Hill Road	Wallum Lake road to Connecticut SL
Chapel Street (Rte. 107)	.11 mile west of Railroad AV to Main Street
Church Street (Rte. 100)	High Street to Wallum Lake Road
Douglas Pike (Rte. 7)	Joslin Road to North Smithfield TL
East Avenue (Rte. 107)	South Main Street to .11 mile west of Railroad Avenue
(Rte. 98)	School Street to East Avenue
High Street	Church St. to South Main St.
Main Street (Rte. 107)	South Main St. to .11 mile west of Railroad Ave. School St. to East Ave.
Reservoir Road	Glocester TL to South Main Street
River Street	Chapel Street to Round Top Road
Round Top Road (Rte. 96)	School Street/Whipple Road Mass SL
School Street (aka Callahan School Rd.)	Sherman Farm Rd. to Round Top Rd.
Sherman Farm Road (Rte. 98)	Main Street to Mass SL
South Main Street (Rte. 100)	Main Street to Glocester TL
Steere Farm Road (Rte. 98)	East Avenue to Glocester TL
Victory Highway (Rte. 102)	Glocester TL to North Smithfield TL
Wallum Lake Road (Rte. 100)	Church Street to Mass SL

CENTRAL FALLS

Dexter Street

Pawtucket CL to Lonsdale Avenue

Lonsdale Avenue (Rte. 122)

Dexter Street to Walker Street (Lincoln TL)

CHARLESTOWN

Alton Carolina Road (Rte. 91)

Carolina Back Road to Richmond TL

Carolina Back Road (Rte. 112)

South County Trail to Richmond TL

Kenyon Road
(aka Sherman Road)

RR Bridge to South County Trail

Kings Factory Road

Richmond TL to .10 miles south of Narragansett Trail

Narragansett Trail

Kings Factory Road east 3000 feet

Old Post Road (US 1)

Post Road to South Kingstown TL

Post Road (US 1)

Westerly TL to South Kingstown TL

Ross Hill Road (Rte. 216)

Post Road to Westerly TL

Shannock Road

Rte. 2 to Carolina Back Road

South County Trail (Rte. 2)

Richmond TL to Carolina Back Road

(Rte. 2/112)

Carolina Back Road to Old Post Road

COVENTRY

Coventry Greene Road (117) (aka Summit Greene Road)	Plainfield Pike to Victory Highway
Fairview Avenue	Washington Street to W. Warwick TL
Flat River Road (117) (117)	South Main Street to Rte. 102 Summit Greene Road to Plainfield Pike (14)
Harkney Hill Road (118)	Victory Highway to Nooseneck Hill Road
Hill Farm Road	Harkney Hill Road to Phillips Hill Road
Phillips Hill Road	Flat River Road to Hill Farm Road
Hopkins Hollow Road	Summit Greene Road to .03 mile south of Bridge 80
Knotty Oak Road (116)	Washington Street to Scituate TL
Main Street (117) (115)	South Main Street to Knotty Oak Road Cranston CL to W. Warwick TL
Nooseneck Hill Road (3)	South Main Street to W. Greenwich TL
Old Flat River Road	Flat River Road to Flat River Road (Coventry Center)
Peckham Lane	Flat River Road to Old Flat River Road
Plainfield Pike (14)	Foster TL to Connecticut SL
Sandy Bottom Road (33)	Washington Street to Tiogue Avenue
South Main Street	Tiogue Avenue to Washington Street/Main Street
Summit Green Road (117)	Rte. 102 west to Flat River Road
Tiogue Road (3)	W. Warwick TL to South Main Street
Victory Highway (102)	Foster TL to W. Greenwich TL
Washington Street (117/33)	Knotty Oak Road t W. Warwick TL
Wood Street	South Main to Tiogue Road

CRANSTON

Atwood Avenue (Rte. 5)	Johnston TL to Cranston Street
Bald Hill Road (Rte. 2)	Warwick TL to Rte. 5/2 Interchange
Dean Parkway	Oaklawn Avenue to Meshanticut Valley Parkway
East Avenue	Mayfield Street to Pontiac Avenue
Elmwood Avenue (US 1)	Warwick CL to Providence CL
Fletcher Avenue	Plainfield Street to Atwood Avenue
Howard Avenue	New London Avenue to Pontiac Avenue
Interstate 95	Providence CL to Warwick CL
Interstate 295	Johnston TL to Warwick CL
Mayfield Avenue	Oaklawn Avenue to East Street
Meshanticut Valley Parkway	Dean Parkway to New London Avenue
New London Avenue (Rte. 2/33)	Reservoir Avenue to W. Warwick TL
Oaklawn Avenue (Rte. 5)	Atwood Avenue to Warwick CL
Pippin Orchard Road	Plainfield Pike to Hope Road
Plainfield Pike (Rte. 14)	Atwood Avenue to Johnston TL
Pontiac Avenue	East Street to Hershey road
Reservoir Avenue (Rte. 2)	Providence CL to New London Turnpike
Route 10	Providence CL to Providence CL
Route 37	Phenix Avenue to Warwick CL
Scituate Avenue(Rte. 12) Old Scituate Avenue	Phenix Avenue to Scituate TL
Wayland Avenue	Phenix Avenue to Oaklawn Avenue
Warwick Avenue (Rte. 117)	Warwick TL to Broad Street
Wilbur Avenue (Underpass)	Bridge #420

CUMBERLAND

Albion Road	Lincoln TL (Albion Br) to Mendon Road
Angell Road (Rte. 116)	Mendon Road to Diamond Hill Road
Broad Street	Central Falls CL to Mendon Road
Chambers Street	Broad Street to John Street (one-way west loop)
Dexter Street (Rte. 123)	Broad Street to Mass SL
Diamond Hill Road (Rte. 114)	Pine Swamp Road to Hines Road
High Street (Rte. 114)	Hines Road to Broad Street
Interstate 295	Lincoln TL to Mass SL
John Street	Lincoln TL (Blackstone River) to Broad Street
Little Pond County Road	Whipple Highway to Scott Road
Manville Road (Rte. 120)	Lincoln TL to Mendon Road
Marshall Avenue	Mendon Road to Diamond Hill Road
Mendon Road (Rte. 122)	Lincoln TL to Woonsocket TL
Mill Street (aka Ann-Hope Way)	Mendon Road to Broad Street
Nate Whipple Highway (Rte. 120)	Mendon Road to Mass SL
Old Sneece Pond Road	Loops at Nate Whipple Highway; 1 mile E of 114 at Arnold Mills
Pine Swamp Road (Rte. 114) (aka W Wrentham Road)	Woonsocket CL to Diamond Hill Road
West Wrentham Road	Mendon Road to Pine Swamp Road
Wrentham Road (Rte. 121)	Pine Swamp Road t Mass SL

EAST GREENWICH

Carr Pond Road	Frenchtown Road to South County Trail
Cedar Avenue	Division Street to Middle Road
Cedar Road	Post Road to Middle Road
Davisville Road (Rte. 403)	Rte. 4/Frenchtown Road to N. Kingstown TL
Division Street (Rte. 401)	First Avenue to W. Greenwich TL
Division Street	First Avenue to Post Road
First Avenue (Rte. 401)	Post Road/Main Street to Division Street
Frenchtown Road (Rte. 402)	South County Trail to N. Kingstown TL
Frenchtown Road	South County Trail to Carr Pond Road
I-95	Warwick CL to W. Greenwich TL
Main Street (US 1)	Warwick CL to Forge Road
Middle Road	Carr Pond Road to Moosehorn Road
Middle Road	Moosehorn Road to Rte. 2
Middle Road U-Turn	Rte. 2 to Middle Road
Moosehorn Road	Middle Road to Division Street
Route 4	Warwick CL to North Kingstown TL
Old Post Road (?)	
Post Road (US 1)	Forge Road to N. Kingstown TL
South County Trail (Rte. 2)	Warwick TL to N. Kingstown TL

EAST PROVIDENCE

Bishop Avenue	Pawtucket Avenue South .07 miles (396')
Bullock's Point Avenue	Pawtucket Avenue to Crescent View Avenue
East Shore Expressway	I-195/Warren Avenue to Wampanoag Trail
Highland Avenue (US 6)	Warren Avenue/Skycrest Drive to Mass SL
I-195	Providence CL to Mass SL
Metropolitan Park Drive	Willet Avenue to Barrington TL
Mink Road/School Street	Wampanoag Tr to Mass SL
Henderson Bridge/Approaches	Providence CL to Broadway
Newman Avenue (Rte. 152)	Pawtucket Avenue to Mass SL
Newport. Avenue (US 1A)	Pawtucket CL to Pawtucket Avenue
Pawtucket Avenue (Rte. 114) (Rte. 114/1A) (Rte. 114/103) (Rte. 103)	Pawtucket TL to Newport Avenue Newport. Avenue to I-195 I-195 to Wampanoag Trail Wampanoag Trail to Willet Avenue
Pleasant Street (Rte. 114A)	Pawtucket Avenue to Mass SL
Taunton Avenue (US 44)	N. Broadway to Mass SL
Veteran's Memorial Parkway	I-195/Warren Avenue to Pawtucket Avenue
Wampanoag Trail (Rte. 114)	Pawtucket Avenue to Barrington TL
Warren Avenue (US 6/Rte. 103) (US 6)	Broadway to Pawtucket Avenue Pawtucket Avenue to Highland Avenue Highland Avenue to Mass SL
Waterman Avenue	Massasoit Avenue to Warren Avenue
Willett Avenue (Rte. 103)	Pawtucket Avenue to Barrington TL

EXETER

Allentown Road	Rte. 2 to N. Kingstown TL
Arcadia Road	Ten Rod Road (165) to Richmond TL
Austin Farm Road	Black Plain Road to Nooseneck Hill Road
Beach Pond Road (Rte. 138)	Hopkinton TL to Conn SL
Black Plain Road	Ten Rod Rd (165) to Austin Farm Road
Bridge Road	New Road to N. Kingstown TL
Cul-de-sac	New Road to end
Escoheag Hill Road	Ten Rod Road (165) to W. Greenwich TL
I-95	W. Greenwich TL to Richmond TL
Liberty Road	New Road to N. Kingstown TL
New Road (Connector Rd. Mill Pond Rd, Chipuxet Rd)	Liberty Road to Yawgoog Valley Road
Nooseneck Hill Rd (Rte. 3)	W. Greenwich TL to Richmond TL
South Road (aka Slocumville Road)	Ten Rod Rd. to Rte. 2
South County Trail (Rte. 2)	N. Kingstown TL to S. Kingstown TL
Ten Rod Road (Rte. 102) (Rte. 165)	N. Kingstown TL to Victory Highway Rte. 3 to Connecticut SL
Victory Highway (Rte. 102)	Ten Rod Road to W. Greenwich TL

FOSTER

Anna Wade Road

Hartford Pike to Gloucester TL

Central Pike

Foster Center Rd. to Scituate TL

Cucumber Hill Road

Danielson Pike to Mooseup Valley Road

Danielson Pike (US 6)

Scituate TL to Conn SL

Foster Center Road (Rte. 94)

Danielson Pike to Plainfield Pike

Hartford Pike (Rte. 101)

Scituate TL to Conn SL

Mooseup Valley Road

Cucumber Hill Rd. to Plainfield Pike

Mount Hygeia Road (Rte. 94)

Danielson Pike to Gloucester TL

Old Danielson Pike

US-6 to US-6 Loop

Plainfield Pike (Rte. 14/102)

Scituate TL to Coventry TL

Victory Highway (Rte. 102)

Plainfield Pike to Coventry TL

GLOCESTER

Anne Wade Road	Snake Hill Rd. to Foster TL
Douglas Hook Road	Putnam Pike to Whipple Rd (Steeres Farm)
Hartford Pike (Rte. 101)	Small piece
Mt. Hygeia Rd (Rte. 94) (aka Renolds Road) (aka Sheldon Road)	Putnam Pike to Hartford Pike
Old Putnam Pike	At Pine Orchard Road
Money Hill Road (Rte. 100) (aka Pascoag Road)	Victory Highway to Burrillville TL
Putnam Pike (Rte. 44)	Smithfield TL to Conn SL
Reservoir Road	Putnam Pike to Burrillville TL
Saw Mill Road	Putnam Pike to Scituate TL
Snake Hill Road	W. Greenville Rd. to Anan Wade Rd.
Steere Farm Road (Rte. 98)	Money Hill Rd. to Burrillville TL
West Greenville Rd (116)	Scituate TL to Smithfield TL (2 pieces)
Victory Highway (Rte. 102) (aka Chompmist Hill Road)	Scituate TL to Burrillville TL

HOPKINTON

Arcadia Road/Bank Street	Exeter TL to Nooseneck Hill Rd
Bridge Street	Arcadia Rd. to Rte. 3/138
Alton-Bradford Rd. (Rte. 91)	Richmond TL to Westerly TL
Ashaway-Bradford Rd. (Rte. 216)	Main St. to Alton-Bradford Rd.
Spring Street (Rte. 138) (aka Beach Pond Rd, Rockville Rd.)	Nooseneck Hill Rd. to Exeter TL
Clarks Fall Road	Nooseneck Hill Rd. to Connecticut SL
Grey Lane	Wellstown Rd. to dead end (I-95)
High Street	Nooseneck Hill Rd. (Main St). to Connecticut SL
I-95	Richmond TL to Connecticut SL
Laurel Hill Road	Westerly TL to High St.
Mechanic Street	Nooseneck Hill Rd. to Hopkinton TL
Nooseneck Hill Rd. (Rte. 3) (Main Street)	Richmond TL to Westerly TL
Old Nooseneck Hill Road	Connecticut SL to Exit 1 I-95
Wellstown Road	High St. to Nooseneck Hill Rd.
Woodville Road	Nooseneck Hill Rd. to Richmond TL
Yawgoog Road	Spring St. to Camp Yawgoog
Wincheck Pond Road	Spring St. to Spring St.

JAMESTOWN

Beavertail Road	Southwest Ave. to State Park Entrance
Conanicus Avenue	East Shore Rd. to Narragansett Ave.
East Shore Road (Rte. 138)	Summit Ave. to Eldred Ave. Eldred Ave. to Newport Bridge
Eldred Avenue (Rte. 138)	Jamestown Bridge to East Shore Rd.
Hamilton Avenue	Beavertail Rd. to Walcott Ave.
Jamestown-Verranzano Bridge	
Narragansett Avenue	Conanicus Ave. westerly to end
North Road	Eldred Ave. to Narragansett Ave.
Southwest Avenue	Narragansett Ave. to Hamilton/Beavertail Rd.
Walcott Avenue	Ocean St. to Narragansett Ave.

JOHNSTON

Atwood Avenue (Rte. 5)	Greenville Ave to Cranston CL
Borden Avenue	Killingly St. to Hartford Ave.
Central Avenue	Atwood Ave. to Providence CL
Cherry Hill Road	Atwood Ave. to Greenville Ave.
Dean Avenue	Putnam Pike to Smithfield TL
George Waterman Rd. (Rte. 128)	Greenville Ave to Putnam Pike
Greenville Avenue (Rte. 5)	Smithfield TL to Spragueville Rd. Spragueville Rd. to Atwood Ave. Atwood Ave. to Providence CL
Hartford Avenue (US-6A)	Providence CL to Scituate TL
Hopkins Avenue	Hartford Pike to Winsor Ave.
I-295	Smithfield TL to Cranston TL
Killingly Street (Rte. 128)	Greenville Ave. to Providence TL
Orchard Avenue	Smithfield TL to Winsor Avenue
Plainfield Pike (Rte. 14)	Providence CL to Scituate TL
Putnam Pike (US 44)	N. Providence TL to Smithfield TL
Simmons ville Road	Plainfield Pike to Atwood Ave.
Spragueville Road (Rte. 5) (aka Sanderson Road)	Smithfield TL to Greenville Ave.
US-6 Expressway	I-295 to Providence TL
Winsor Avenue	Greenville Ave. to Scituate TL

LINCOLN

Albion Road (Rte. 123)	Smithfield TL to George Washington Hwy Old River Rd west to end
Breakneck Hill Road (Rte. 123)	Louisquisset Pike (246) to Great Rd.
Front Street (Rte. 123)	Breakneck Hill Rd. to Lonsdale Ave.
George Washington Hwy (116)	Smithfield TL to Mendon Rd.
Great Road (Rte. 123)	Front Street to Breakneck Hill Rd. Breakneck Hill Rd. to .7 m north of Sherman Ave.
Interstate 295	Smithfield TL to Cumberland TL
Jenckes Hill Road (Rte. 123)	Louisquisset Pike (246) to Smithfield TL
John Street (Rte. 123)	Lonsdale Ave to Cumberland TL (Blackstone River)
Limerock Road	Jenckes Hill Road to Smithfield TL
Lonsdale Avenue (Rte. 122)	Central Falls CL to Cumberland TL
Main Street (aka Manville Road)	New River Rd. to Cumberland TL
New River Road (aka Railroad Avenue)	Old River Rd. to School St.
(Old) Louisquisset Pike (246)	N. Providence TL to Rte. 146
Old River Road (Rte. 126)	N. Smithfield TL to River Rd.
River Road (Rte. 126)	Old River Rd. to Front St.
Route 99	Rte. 146 to Cumberland TL
Route 146	N. Providence TL to N. Smithfield TL
Sayles Hill Road (aka Manville Road)	N. Smithfield TL to Old River Rd.
School Street (aka Albion Road)	Old River Rd. to Cumberland TL
Smithfield Avenue (Rte. 126)	Pawtucket CL to Front St.
Twin River Road	Smithfield TL to Olney Rd. – Lincoln Woods
Walker Street	Smithfield Ave. to Lonsdale Ave.

LITTLE COMPTON

Adamsville Road	Crandall Rd. to Mass SL
Bramblewood Crossroad	Crandall Rd. to Church
Colebrook Road	Long Hwy to Stone Church Rd.
Little Compton Commons Commons Road	South of Commons Rd. to Meetinghouse Lane
Crandall Road (Rte. 81)	Tiverton TL to Adamsville Rd/Stone Church Rd.
East Main Road	Peckham Rd. to Simmons Rd.
Long Highway	Peckham Rd. to Colebrook Rd.
Meeting House Lane	West Main Rd. to south of Commons Rd.
Mullen Hill Road	Pottersville Rd. to Mass SL
Peckham Road	West Main Rd. to Long Hwy.
Pottersville Road	Long hwy to Mullen Hill Rd.
Sakonnet Point Road (Rte. 117)	West Main Rd. to end
Simmons Road	East Main Rd. to south of Commons Rd.
Snell Road	East Main Rd. to Long Hwy.
South of Commons Road	Commons Rd. to Swamp Rd.
Stone Church Road (Rte. 179) Main Street	Tiverton TL to Crandall Rd.
West Main Road (Rte. 77) Main Street	Tiverton TL to Crandall Rd.
West Main Road (Rte. 77)	Tiverton TL to Sakonnet Point Rd.
Westport Harbor Road	Adamsville Rd. to Mass SL

MIDDLETOWN

Aquidneck Avenue (Rte. 138A)

E. Main Rd. to Newport CL

Coddington Highway

W. Main Rd. to Newport. CL

East Main Road (Rte. 138)

Portsmouth TL to W. Main Rd.

Gate 17, Naval Access

W. Main Rd. to Navy Base

Green Lane

W. Main Rd. to Navy Base Entrance

Sachuest Point Road
(aka Hanging Rock Road)

Paradise Ave. to end at Naval Reservation

Valley Road (Rte. 214)

W. Main Rd. to Aquidneck Ave.

West Main Road (Rte. 114)
(Rte. 114/138)

Portsmouth TL to E. Main Rd.

NARRAGANSETT

Beach Street (US 1A)	Boston Neck Rd. to Ocean Rd.
Boston Neck Road (US 1A)	N. Kingstown TL to Beach St.
Bridgetown Road	Boston Neck Rd. to S. Kingstown TL
Burnside Avenue	Pt. Judith Rd. to Ocean Rd.
Galilee Connector Road	Great Island Rd. to Sand Hill Cove Rd.
Galilee Escape Road	Pt. Judith Rd. to Great Island Rd.
Great Island Road	Galilee Escape Rd. to Sand Hill Cove Rd.
Kingstown Road (US 1A)	Narragansett Ave. to S. Kingstown TL
Knowlesway	Pt. Judith Rd. to Ocean Ave.
Narragansett Avenue (US 1A) (Caswell or Ouida Ave.)	Kingstown Rd. to Beach St.
Ocean Road	Beach St. to Pt. Judith Coast Guard Station
Point Judith Road (Rte. 108)	Kingstown Rd. to Ocean Rd.
Sand Hill Cove Road	Great Island Rd. to Point Judith Rd.
State Street	Great Island Rd. to State Pier
Succotash Road	S. Kingstown TL to end (State Pier)
Towerhill Road (US 1) (Post Road)	S. Kingstown TL to S. Kingstown TL

NEWPORT

Admiral Kalbfus Road (Rte. 138)

America's Cup Avenue (Rte. 138A)

Farewell Street (Rte. 138)

Goat Island Connector

J. T. Connell Highway

Memorial Boulevard (Rte. 138)

Newport Bridge Approaches

Third St. to W. Main Rd. (One Mile Corner)

Farewell St. to Memorial Blvd.

Van Zandt Ave. to America's Cup Blvd.

America's Cup Ave. to Washington St.

Middletown TL to Cul-de-sac

Thames St. to Middletown TL

Admiral Kalbfus Rd. to Newport. Bridge

NEW SHOREHAM (BLOCK ISLAND)

Beach Avenue	Corn Neck Rd. to Center Rd.
Center Road	West Side Road to Lakeside Drive
Chapel Street	Water Street to the Square Deal Garage
Cooneymus Road	West Side Road to Lakeside Drive
Corn Neck Road	Chapel St. to 0.6 miles south of Brush Hill
Dodge Street	Corn Neck Rd. to Water St.
High Street	Water St. to Payne Rd.
Lakeside Drive	Cooneymus Rd. to Mohegan Trail
Mohegan Trail	Lakeside Dr. to Spring St. (south East Light Rd.)
Ocean Avenue	Corn Neck Rd. to New Harbor Dock
Spring Street	High St. to Mohegan Trail
Water Street	Dodge St. to east of Old Harbor Dock
West Side Road	Ocean Ave. to Cooneymus Rd

NORTH KINGSTOWN

Boston Neck Road (US 1A)	Phillips St. to Narragansett TL
Bridge Road (aka New Road)	Slocum Rd. to Exeter TL
Brown Road (US 1A)	Boston Neck Rd./Phillips Rd. to W. Main Rd.
Davisville Road (Rte. 403)	E. Greenwich TL to School St.
Devil's Foot Road (Rte. 403)	School St. to Post Rd/Roger Williams Way
Exeter Road	Exeter TL to Layfayette Rd.
Ferry Road (aka Saunderstown Road)	Boston Neck Rd. east to end
Frenchtown Road (Rte. 402)	E. Greenwich TL to Post Rd.
Liberty Road	Exeter TL to Slocum Rd.
Namcook Road (Old Post Road)	Devil's Foot Rd. to Post Rd.
Phillips Street (Rte. 102)	Post Rd. to Boston Neck Rd.
Post Road (US 1)	E. Greenwich TL to Huling Rd. (south int)
Quaker Lane (Rte. 2) (aka S. County Trail)	E. Greenwich TL to Rte. 102
Railroad Avenue	Exeter Rd. to Liberty Rd.
Roger Williams Way	Post Rd/Devil's Foot Rd. to Pier
Route 4	E. Greenwich TL to US 1
Route 138	US 1 to Jamestown TL
Slocum Road	Liberty Rd. to Stony Fort Rd.
South County Trail (Rte. 2)	Rte. 102 Ten Rod Rd. to Exeter TL
Ten Rod Road (Rte. 102) (Rte.102/2)	Post Rd. to Rte. 4
Tower Hill Road (US 1) (US 1/Rte.e. 138)	Rte. 4 to S. County Tr/Exeter TL
West Main Street (US 1A)	Huling Rd. to Rte. 138
	Rte. 138 to S. Kingstown TL
	Post Rd. to Brown St.

NORTH PROVIDENCE

Centredale By-Pass (US 44WB)	US 44 to US 44
Charles Street	Providence CL to Rte. 146
Douglas Pike (Rte. 7)	Providence CL to Smithfield TL
High Service Avenue	Smith St. to Smithfield Rd.
Mineral Spring Avenue (Rte. 15)	Centredale Bypass to Pawtucket CL
Route 146	Providence CL to Lincoln TL
Smith Street (US 44)	Providence CL to Johnston TL
Smithfield Road	Providence CL to Mineral Spring Ave.
Waterman Avenue (Rte. 104)	Smith St. (EB) to Smithfield TL
Woonasquatucket Avenue	Smith St. (EB) to Providence CL
(Old) Louisquisset Pike (Rte. 246)	Rte. 146 to Lincoln TL

NORTH SMITHFIELD

Central Avenue	Great Rd. to Mass SL
Douglas Pike (Rte. 7)	Smithfield TL to Burrillville TL
Farnum Pike (Rte. 104/5) (Rte. 104)	Smithfield TL to Providence Pike Providence Pike to Woonsocket CL
Great Road (Rte. 146A)	Park Ave. to Central St.
Ironstone Street (Rte. 146A)	Great Rd. to Mass SL
Main Street	Victory Hwy. To Providence Pike
North Main Street	Main St. to Great Rd.
North Smithfield Industrial Highway	Providence Pike to Pound Hill to Rte. 146
Old Louisquisset Pike	Loop at Landmark Hospital (off E. Dowling Mem. Hwy.)
Providence Pike (Rte. 5) Railroad Avenue	Smithfield TL to Great Rd./Victory Hwy.
Rte. 146 (aka Louisquisset Pike) (aka N. Smithfield Exp.)	Lincoln TL to Rte. 146A (E. Dowling Mem. Hwy) Rte. 146A to Mass SL
Rte. 146A (E. Dowling Highway)	Rte. 146 to Woonsocket CL
Saint Paul Street	Great Rd. to south of Mendon Rd.
Sayles Hill Road	Rte. 146 to Cumberland TL
School Street (aka Branch River Road)	Providence Pike to Great Road
Steele Street	N. Smithfield Ind. Hwy. To end
Victory Highway (Rte. 102)	Burrillville TL to Great Road

PAWTUCKET

Armistice Boulevard (Rte. 15)

York Ave. to Mass SL

Central Avenue/Benefit Street

Broadway to Mass SL

Dexter Street

Goff Ave. to Central Falls CL

Interstate 95

Providence CL to Mass SL

Newport Avenue (US 1A)

E. Providence CL to Mass SL

Smithfield Avenue (Rte.e.126)

Providence CL to Lincoln TL

Pawtucket Avenue

Hillside Avenue to George Street

PORTSMOUTH

Boyd's Lane	Bristol Ferry Rd. to Park Ave.
Bristol Ferry Road (Rte. 114)	Bristol TL to West Main Rd./Turnpike Ave.
East Main Road (Rte. 138)	Rte. 24 to Middletown TL
Hummocks Avenue	Rte. 24 to Point Rd. Bridge
Middle Road	Union Ave. to School House Lane
Park Avenue	East Main Rd. to Stone Bridge Appr/Point Rd.
Point Road	Park Ave. to Hummocks Ave.
Rte. 24/138	Tiverton TL to Boyd Lane
Rte. 24	Boyd Lane to W. Main Rd.
School House Lane	Middle Rd. to E. Main Rd.
Sprague Street	Bristol Ferry Rd/Turnpike Ave. to E. Main Rd.
Turnpike Road	Bristol Ferry Rd./W. Main Rd. to E. Main Rd.
Union Street	W. Main Rd. to E. Main Rd.
West Main Road (Rte. 114)	Bristol Ferry Rd./Turnpike Ave. to Middletown TL

PROVIDENCE

Allens Avenue (US 1A)
Narragansett Avenue

Cranston CL to Eddy St.

Broad Street (US 1)

Elmwood Ave. to Weybosset St. (Service Rd.)

Elmwood Avenue (US 1)

Cranston CL to Broad St.

Hartford Avenue (US 6A)

US 6 (old Rte. 195) exit ramp outside of Olneyville to
Johnston TL

I-95

Cranston CL to Pawtucket CL

I-195

I-95 to E. Providence CL

New Red Bridge
(aka Henderson Bridge)

E. Providence CL to S. Angell St.

Niantic Avenue

Cranston St. to Reservoir Ave.

North Main Street (US 1)

Smith St. to Pawtucket CL

Route 10

Cranston TL to US 6

Route 146

I-95 to N. Providence TL

Smith Street (US 44)

N. Providence TL to N. Main St.

South Main Street/N. Main St.
(US 44)

Wickenden St./I-195 to Smith St.

US 6

Johnston TL to I-95/Civic Center Interchange

RICHMOND

Alton-Carolina Road (Rte. 91) (aka Church St.)	Charlestown TL to Hopkinton TL
I-95	Exeter TL to Hopkinton TL
Kings Factory Road	Alton-Carolina Rd. to Charlestown TL
Kingstown Road (Rte. 138)	S. Kingstown TL to I-95
Main Street (Rte. 138)	I-95 to Hopkinton TL
New Kings Factory Road	Alton-Carolina Rd. to Charlestown TL
Nooseneck Hill Road (Rte. 3)	Exeter TL to Hopkinton TL
Old Switch Road	Switch Rd. to dead end
Richmond Town House Road (Rte. 112)	Kingstown Rd. to Charlestown TL
Shannock Road	Charlestown to Charlestown Loop
South County Trail (Rte. 2)	S. Kingstown TL to Charlestown TL
Switch Road (aka Hope Valley Road)	Alton-Carolina Rd. to Hopkinton TL
Old Usquepaug Road (Rte. 138)	Loop at Rte. 138/S. Kingstown TL
Woodville Road	Switch Rd. to Hopkinton TL

SCITUATE

Bathey Meeting House Road	Danielson Pike to Central Pike
Central Pike	Bathey Meeting House Rd. to Foster TL
Chopmist Hill Road (Rte. 102) (aka Victory Highway)	Glocester TL to Plainfield Pike/Rockland Rd.
Danielson Pike	Hartford Pike (6, 101) to Foster TL
East Road (Rte. 116)	Hartford Pike to Coventry TL
Elmdale Road	Saw Mill Rd. to Polebridge Rd.
Hartford Pike (US 6/Rte. 101) (Rte. 101)	Johnston TL to US 6 Bypass By-pass to Foster TL
US 6 (Scituate By-Pass)	Hartford Pike to Danielson Pike
Old Scituate Avenue	Scituate Ave. to Tunk Hill Rd. Loop
Plainfield Pike (Rte. 14)	Johnston TL to Foster TL
Polebridge Road	Elmdale Rd. to W. Greenville Rd.
Rockland Road	Danielson Pike to Victory Highway
Sawmill Road	Elmdale Rd. to Glocester TL
Scituate Avenue (Rte. 12)	East Rd. to Cranston TL
Tunk Hill Road (Rte. 12)	East Rd. to Plainfield Pike
West Greenville Road (Rte. 116)	Hartford Pike to Glocester TL
Winsor Road	Johnston TL to W. Greenville Rd.

SMITHFIELD

Albion Road/Jenckes Hill Road	Lincoln TL to Lincoln TL
Cedar Swamp Road (Rte. 5)	Putnam Pike to Pleasant View Ave.
Dean Avenue	Johnston TL to Old County Road
Douglas Pike (Rte. 7)	N. Providence TL to N. Smithfield TL
Esmond Road	US 44 to Dean Ave.
Farnum Pike (Routes 104) (Rte. 104/5)	Esmond St. to Pleasant View Ave. Pleasant View Ave. to N. Smithfield TL
George Washington Highway (116)	Farnum Pike to Lincoln TL
Greenville Avenue	Johnston TL to Putnam Pike
Limerock Road	Douglas Pike NE 1.10 miles (Lincoln TL)
I-295	Lincoln TL to Johnston TL
Old County Road	Dean Ave. to Farnum Pike (104)
Orchard Avenue	Smith Ave (116) to Johnston TL
Pleasant View Avenue (Rte. 116) (Rte. 116/5)	Putnam Pike to Cedar Swamp Road Cedar Swamp Rd. to Farnum Pike
Providence Pike	Douglas Pike to N. Smithfield TL
Putnam Pike (US 44)	Johnston TL to Gloucester TL
Sanderson Road (Rte. 5)	Johnston TL to Putnam Pike
Smith Avenue (Rte. 116)	Gloucester TL to Putnam Pike
Twin River Road	Douglas Pike to Lincoln TL
Waterman Avenue (Rte. 104)	N. Providence TL to Esmond St.
West Greenville Road	Smith Ave. to Putnam Pike (2 pieces)

SOUTH KINGSTOWN

Bridgetown Road (Rte. 138)

Tower Hill Rd. to Narragansett TL

High Street

Kingstown Rd. (108) to Main St.

Kingstown Road (Rte. 138)
(Rte. 108)

S. County Trail to Mooresfield Rd.
Mooresfield Rd. to Post Rd. (US 1)

Main Street (Old Post Road)

Kingstown Rd. to Old Post Rd.

Ministerial Road (Rte. 110)

Kingstown Rd. (138) to Post Rd. (US 1)

Mooresfield Road (Rte. 138)

Kingstown Rd. to Tower Hill Rd.

Old Post Road (US 1A Main Street)

Main St. to US 1 Post Road
US 1 to US 1 (by Rte. 110)
US 1 to Charlestown TL

Post Road (US 1)

Wakefield Exit to Charlestown TL

South County Trail (Rte. 2)

Exeter TL to Richmond TL

Succotash Road

Post Rd. (US 1) to Narragansett TL

Tower Hill Road (US 1)

N. Kingstown TL to Wakefield Exit

Old Tower Hill Rd.

Wakefield Exit to Kingstown Rd. (Dale Carlia Corner)

Usquepaug Road (Rte. 138)

S. County Tr. to Richmond TL

Old Usquepaug Road

Rte. 138 at Richmond TL

TIVERTON

Bridgeport Road	Highland Rd. to Main Rd.
Bulgarmarsh Road (Rte. 177)	Main Rd. to Mass SL
Crandall Road (Rte. 81)	Bulgarmarsh Rd. to Little Compton TL
East Road (Rte. 179)	Main Rd. to Crandall Rd.
Evans Avenue	Riverside Dr. to Main Rd.
Highland Road	Main Rd. to Old Main Rd./Bridgeport. Rd.
Main Rd. (138) (77)	Mass SL to Rte. 24 Rte. 24 to Little Compton TL
Nannaquaket Road	Main Rd. north to Main Rd./Bridgeport. Rd.
Old Main Road	Main Rd. to Highland Rd./Bridgeport. Rd.
Rhode Island Avenue (Canning Blvd.)	Stafford Rd. to Mass SL
Riverside Drive	Evans Rd. to Main Rd.
Route 24	Mass SL to Portsmouth TL
Stafford Road (Rte. 81)	Mass SL to Bulgarmarsh Rd.
Stone Church Road	East Rd. to Tiverton TL

WARREN

Arlington Avenue (Rte. 136S)

Kickemuit Rd. to Metacom Ave.

Birch Swamp Road

Market St. to School House Rd.

Child Street (Rte. 103)

Main St. to Mass SL

Kickemuit Road (Rte. 136)

Market St. to Metacom Ave.

Main Street (Rte. 103/114)

Barrington TL to Child St.

(Rte. 114)

Child St. to Bristol TL

Market Street (Rte. 136)

Mass SL to Kickemuit Rd.
Kickemuit Rd. to Main St.

Metacom Avenue (Rte. 136)

Kickemuit Rd. to Bristol TL

Old Market Street

Market St. to Market St.

School House Road
(Handy Rd.)

Birch Swamp Rd. to Mass SL

Vernon Street

Metacom Ave. to Main St.

WARWICK

Airport. Connector	I-95 to Post Rd.
Airport. Road	Post Rd. to Warwick Ave.
Bald Hill Road (Rte. 2)	Cranston CL to Quaker Lane
Centerville Road (Rte. 117)	Post Rd. to W. Warwick TL
East Avenue (Rte. 113)	Bald Hill Rd. to Greenwich Ave.
Elmwood Avenue (US 1)	Post Rd. to Cranston CL
Forge Road	Post Rd. to Ives Rd.
Greenwich Avenue (Rte. 5)	I-95 to Centerville Rd.
Ives Road	Forge Rd. to end
I-95	Cranston TL to E. Greenwich TL
I-295	Cranston TL to I-95
Lambert Lind Highway (Rte. 5)	I-95 to Cranston TL
Main Avenue (Rte. 113)	Greenwich Ave. to West Shore Rd.
Narragansett Parkway	Fair St. to Post Rd.
Oakland Beach Avenue	West Shore Rd. to Warwick Ave.
Old Greenwich Avenue	Lambert. Lind Hwy to Lambert. Lind Hwy
Post Road (US 1A) (US 1)	Narragansett Pkwy to Warwick Ave. Warwick Ave. to Elmwood Ave. Elmwood Ave. to E. Greenwich TL
Post Road Extension	Main Ave. to Post Rd.
Quaker Lane (Rte. 2)	Centerville Rd. (W. War. TL) to E. Greenwich TL
Route 37	Cranston CL to Post Rd.
Route 4	I-95 to E. Greenwich TL

WARWICK CONT'D

Veteran's Memorial Highway (Rte.1, 117)	Post Rd. to Greenwich Ave.
Warwick Avenue (Rte. 117)	Cranston CL to Airport. Rd.
(Rte. 117A)	Airport. Rd. to West Shore Rd.
Warwick Industrial Drive	Main Ave. north .57 miles
West Natick Road	Bald Hill Rd. to Lambert. Lind Highway
West Shore Road (Rte. 117)	Warwick Ave/Airport. Rd. to Post Rd.

WESTERLY

Airport. Road	Post Rd. to Winnapaug Rd.
Beach Street (US 1A)	Clarke St. to Watch Hill Rd./East Ave.
Broad Street (US 1)	Conn. SL to Elm St.
Dunn's Corner-Bradford Road	Post Rd. to Westerly-Bradford Rd. (91)
East Avenue	Watch Hill Rd. to Franklin St./Post Rd.
Franklin Street (US 1)	Airport. Rd. to East Ave.
Granite Street (US 1)	East Ave. to Elm St.
Grove Street (Rte. 3)	Granite St. to Oak St.
High Street (Rte. 3)	Oak St. to Nooseneck Hill Rd.
Langworthy Road	Post Rd. to Shore Rd.
Main Street (Rte. 91, 216)	Westerly-Bradford Rd./Church St. to Riverside Dr.
Nooseneck Hill Rd. (Rte. 3) (aka Ash away Rd.)	Hopkinton TL to High St./Upper High St.
Post Road (US 1)	Charlestown TL to Airport. Rd.
Potter Hill Road	Upper High St. to Hopkinton TL
Riverside Drive	Westerly-Bradford Rd./Main St. to Hopkinton TL
Ross Hill Road./Church Street (Rte. 216)	Charlestown TL to Westerly-Bradford Rd/Main St.
Route 78	Post Rd. to Conn SL
Shore Road (US 1A)	Watch Hill Rd. to Post Rd.
Tower Street (Rte. 91)	Oak St. to Granite St.
Upper High Street	Nooseneck Hill Rd. to Potter Hill Rd.
Watch Hill Road (US 1A)	East Ave. to Watch Hill (Ninigret Ave.)
Westerly-Bradford Road (Rte. 91)	Main St./Church St. to Tower St./Oak St.
Winnapaug Road	Watch Hill Rd. to Shore Rd.

WEST GREENWICH

Division Road (Rte. 410)

E. Greenwich TL to Nooseneck Hill Rd.

Escoheag Hill Road

Exeter TL to Picnic Area Parking Lot

I-95

E. Greenwich TL to Exeter TL

Lake Shore Drive

Lake Dr. to Maccue Point Rd.

Nooseneck Hill Road (Rte. 3)

Coventry TL to Exeter TL

Town Hall Road

Loop at Rte. 3

Victory Highway (Rte. 102)

Coventry TL to Exeter TL

Weaver Hill Road/
Big River Access Road

Rte. 3 to end

WEST WARWICK

Cowesett Avenue (Rte. 3)	Warwick TL to Main St.
East Main Street	Main St. to Providence St.
Fairview Avenue	Coventry TL to Main St. (115)
Legion Way	Roberts St/Main St. to Providence St./Main St.
Legris Avenue (Rte.117)	Warwick CL to Veteran's Square
Main Street (Rte. 115)	Coventry TL to E. Main St. E. Main St. to Providence St.
Main Street (Rte. 33)	Providence St. to Washington St./Main St.
Main Street (Rte. 3)	Cowesett Rd. to Tiogue Rd./New London Turnpike
Pike Street	E. Main St. to Main St.
Providence Street (Rte. 33) (Rte. 115, 33) (Rte. 33)	Cranston CL to Tollgate Rd. Tollgate Rd. to E. Main St. E. Main St. to Main St.
Roberts Street	Washington St. to Main St. (non-state)
Tiogue Avenue (Rte. 3)	Main St./New London Turnpike to Coventry TL
Veteran's Square (Rte. 117)	Legris Ave. to W. Warwick Ave.
Washington Street (Rte. 33)	Main St. to Coventry TL
West Warwick Avenue (Rte. 117)	Veteran's Square to Washington St.

WOONSOCKET

Cumberland Hill Rd. (Rte. 122)

Mendon Rd. to Hamlet Ave.

Diamond Hill Road (Rte. 114)

Cumberland TL to Mass SL

Manville Road

N. Smithfield TL to Hamlet Ave.

Mendon Road (Rte. 122)

Cumberland TL to Cumberland Hill Rd.
Cumberland Hill Rd. to Mass SL

Great Road (Rte. 146 A)

Park Ave. to Smithfield Line

Photo # 1



Bridge # 083801

South elevation, looking northeast

08/03/17

Photo # 2



Bridge # 083801

North elevation, looking south

08/03/17

Photo # 3

**Sidewalk
closed signs**

Bridge # 083801

Bridge from west approach, looking east

08/03/17



Photo # 4

**Missing orange
construction barrels**

**Missing sidewalk
closed signs**

Bridge # 083801

Bridge from east approach, looking west

08/03/17



Photo # 5

**Missing orange
construction barrels**

Bridge # 083801

Top of deck overview, looking east

08/03/17



Photo # 6

C

B

Underside of deck in span 1, looking west

Bridge # 083801

08/03/17



Photo # 7

Pier 8

**Overview of spans 8 thru 20, looking
northeast**

Bridge # 083801

08/03/17

Photo # 8

**Narrow checks
and splits**

**Gaps up to
1-1/2" high**

**Damaged
plank**

**Warped and
loose planks**

Bridge # 083801

Top of deck, looking northwest

08/03/17

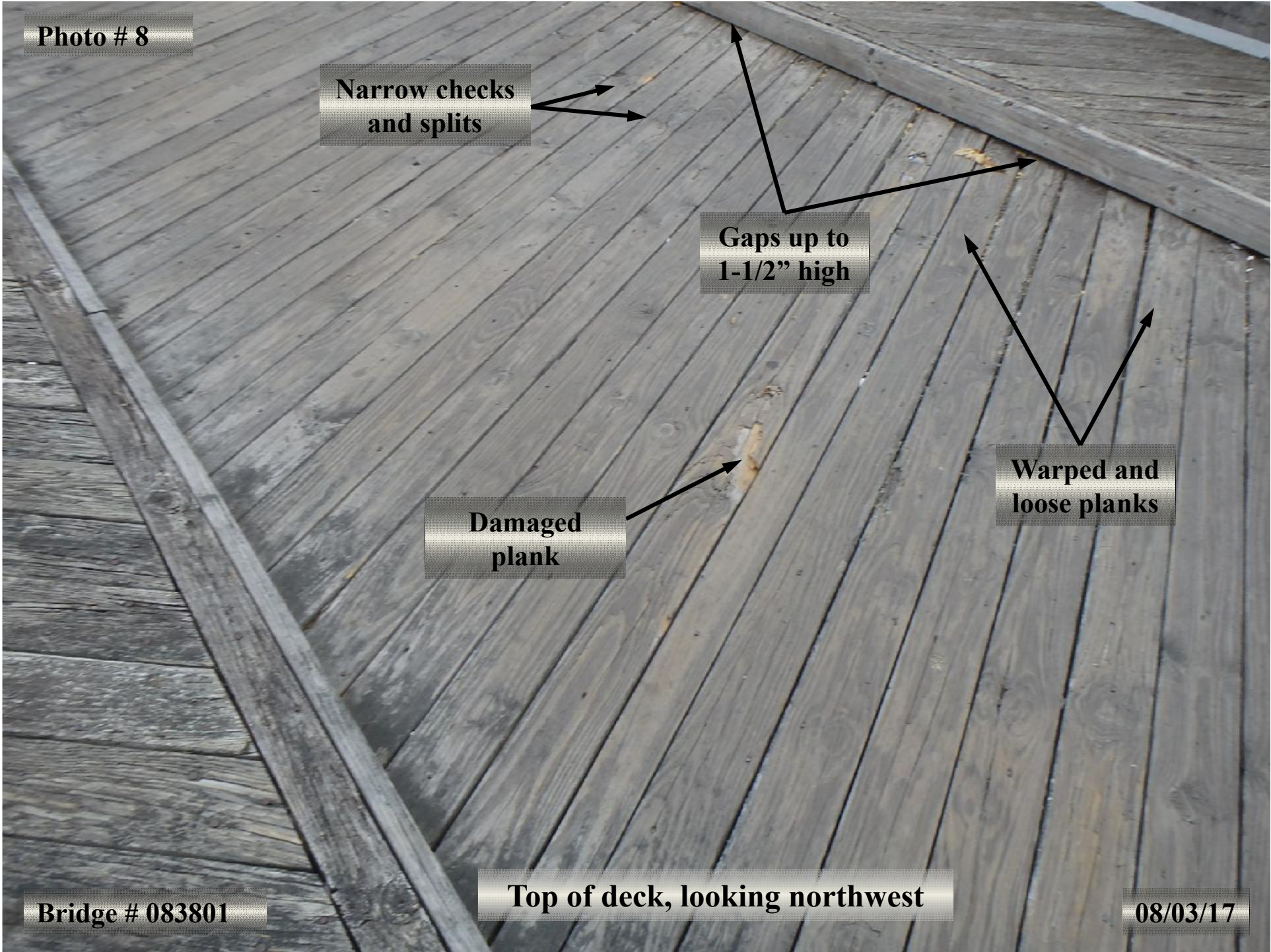


Photo # 9



**Gaps up to
1-1/2" high**

**Narrow checks
and splits**

**Warped and
loose planks**

Bridge # 083801

Top of deck, looking northeast

08/03/17

Photo # 10

**5' long x up to full height
x 3/16" deep section loss**

**1" high x 3"
wide rust hole**

**6" high x 2"
wide rust hole**

**Up to 10" long x
7" wide hole**


Bridge # 083801

Girder D, south face, span 8, bent 8, looking north

08/03/17

Photo # 11

**45" long x up to 8" high
x 1/16" deep section loss**




Bridge # 083801

Girder E, south face, span 10, bent 9, looking northwest

08/03/17

Photo # 12



**Up to 2' long x ¼" thick
remaining at top flange**

Bridge # 083801

Girder C, south face, span 11, bent 11, looking northeast

08/03/17

Photo # 13

Areas of heavy laminated rust

Span 11

4" high x full width rust hole

Span 12

1-1/2" high x 2" wide rust hole

Bridge # 083801

Girder C, north face, span 11 and 12, bent 11, looking east

08/03/17



Photo # 14

**4" high x full
width rust hole**

**Girder E, south face , span 12, bent 11,
looking northwest**

Bridge # 083801

08/03/17

Photo # 15

**7" high x up to full
width rust holes**

**Full length x up to 8"
high x 3/16" deep section
loss in lower web**

Bridge # 083801

Girder E, south face, span 14, bent 13, looking west

08/03/17

Photo # 16

2-1/2' long x up to 10" high x
up to 1/8" deep section loss

3" high x 2" wide
rust hole

Girder B, north face, span 14, bent 13,
looking east

Bridge # 083801

08/03/17

Photo # 17



**Up to 68" long x 10" high x
8" deep area of heavy rot
with two exposed bolts**


Poison Ivy

Bridge # 083801

Girder D, south face, span 1, looking northwest

08/03/17

Photo # 18

A close-up photograph of a wooden girder structure. A metal bracket with three bolts is attached to the left side of the girder. A white arrow points to a dark, damaged area of the wood. The text '1-1/2' long x 3" wide x 7" deep area of rot' is overlaid on the image, pointing to this area. The background shows other wooden planks and a metal bracket with three bolts on the right side.

**1-1/2' long x 3" wide
x 7" deep area of rot**

Bridge # 083801

Girder A, span 2, bent 2, looking east

08/03/17

Photo # 19

**Full length x
3/8" wide split**

**44" long x up to 7"
high area of rot**

Bridge # 083801

Girder D, south face, span 2, looking northeast

08/03/17

Photo # 20

**38" long x full width x up
to full depth heavy rot**



Bridge # 083801

Girder A, north face, span 3, bent 3, looking southwest

08/03/17

Photo # 21



**Up to 6' long x 9" high x
3" deep area of heavy rot**

Bridge # 083801

Girder A, north face, span 5, bent 4, looking southwest

08/03/17

Photo # 22

**2-1/2' long x 5" high x 6"
deep area of heavy rot**


Bridge # 083801

Girder C, south face, span 6, bent 6, looking northeast

08/03/17

Photo # 23

**2' long x 8" high x 16"
deep area of heavy rot**



Bridge # 083801

Girder B, north face, span 7, bent 6, looking southwest

08/03/17

Photo # 24



3' long x full height x full width area of heavy rot

Bridge # 083801

Girder D, span 7, bent 7, looking west

08/03/17

Photo # 25



28" long x 1/16" wide
diagonal check

Bridge # 083801

Girder D, north face, span 16, bent 16, looking south

08/03/17

Photo # 26

**24" long x 1/4"
wide split**



Bridge # 083801

**4th floor beam, span 17, bent 16, looking
northwest**

08/03/17

Photo # 27



**100% section loss up to full length
x full height in bracing members**

Bridge # 083801

Bent 8, east face, looking west

08/03/17

Photo # 28



Bridge # 083801

Bent 9, east face, looking west

08/03/17

Photo # 29



**100% section loss up to full length
x full height in bracing members**

Bridge # 083801

Bent 10, east face, looking west

08/03/17

Photo # 30



100% section loss up to full length
x full height in bracing members

Rock anchor
severed

Bridge # 083801

Bent 12, east face, looking west

08/03/17

Photo # 31



**100% section loss up to full length
x full height in bracing members**

Bridge # 083801

Bent 13, east face, looking northwest

08/03/17

Photo # 32



10" high x 1'
wide rust hole

Bridge # 083801

Bent 9, north face, column A, looking south

08/03/17

Photo # 33



Pile E

Pile C

Pile B

Pile D

Bridge # 083801

Bent 1, east face, looking southwest

08/03/17

Photo # 34

Pile B

Pile C

Pile D

Pile E

Pile A is missing

Cross bracing is broken

Bridge # 083801

Bent 6, west face, looking east

08/03/17



Photo # 35

Up to 3" high x full width x 1' deep rot

Pile C

Pile D

Pile E

Pile A is missing

Pile F is missing up to 3' long

Cross bracing is broken and rotting

Bridge # 083801

Bent 7, east face, looking northwest

08/03/17



Photo # 36

3' long x 1/8"
wide split

Pile D

Pile E

Pile F is
disconnected

Pile A

Pile B

Pile C

Bridge # 083801

Bent 14, west face, looking east

08/03/17



Photo # 37

Fire damage

4" high x 6" wide x 1.5" deep rot

Splits at top up to 1" wide

Pile E

3' high x 1' wide x 1' deep area of heavy rot

Pile F

Pile D

Pile C

Pile B

Pile A

4" high x 6" wide x 1-1/2" deep area of heavy rot

Bridge # 083801

Bent 14, east face, looking southwest

08/03/17

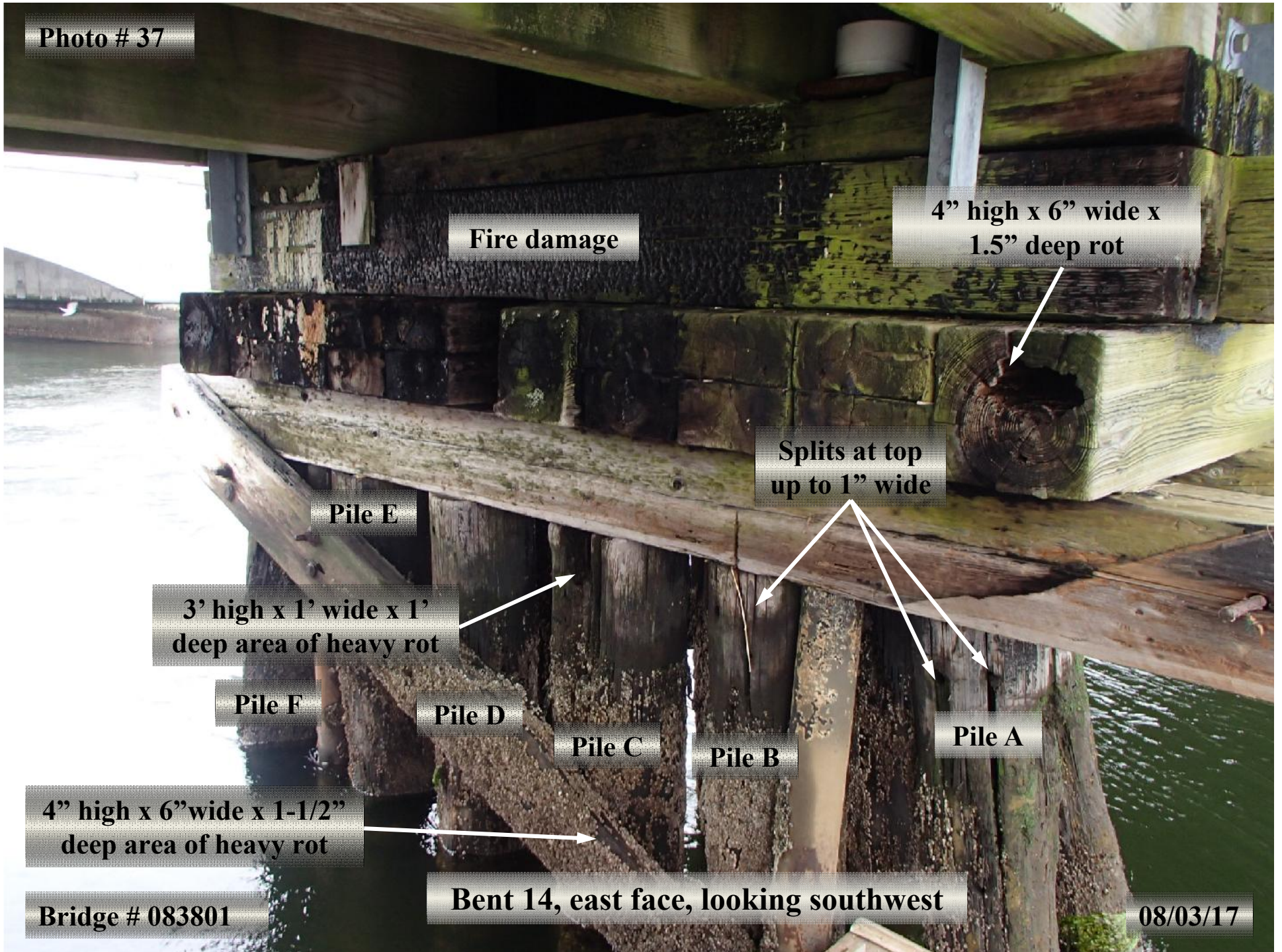


Photo # 38

Fire damage

Pile B

Pile D

Pile C

Pile E

Pile A

Repair has heavy rot

Cross bracing is broken

Bridge # 083801

Bent 15, west face, looking southeast

08/03/17



Photo # 39

Fire damage

Pile C

Pile D

Pile E

Pile B

Pile A

Heavy rot with up to
100% section loss



Bridge # 083801

Bent 16, west face, looking east

08/03/17

Photo # 40

**Heavy rot up to 2'
high x full width x
8" deep**

**Shims between
piles and pile caps**

Bridge # 083801

Bent 4, east face, pile E, looking west

08/03/17



Photo # 41

Pile B

**16" high x 6" wide
x 3" deep heavy rot**

Bridge # 083801

Bent 1, pile A, east face, looking west

08/03/17



Photo # 42



Pile E

1' high x 4" wide x 8" deep area of heavy rot

Bridge # 083801

Bent 3, pile D, east face, looking west

08/03/17

Photo # 43

B

A

C

Poison Ivy

Bridge # 083801

West abutment #1, looking southwest

08/03/17



Photo # 44



**42" high x up to $\frac{3}{4}$ "
wide vertical crack**

Bridge # 083801

Bent 10, rock anchor A, looking northeast

08/03/17

Photo # 45

Two rust holes 1-1/2" high x 3-1/2" wide and a 1-1/2" high x 2" wide

Full length x 6" high x up to 1/16" deep section loss

6' long x full width x 1/8" remaining section loss

Bridge # 083801

Bent 8, west face, looking east

08/03/17

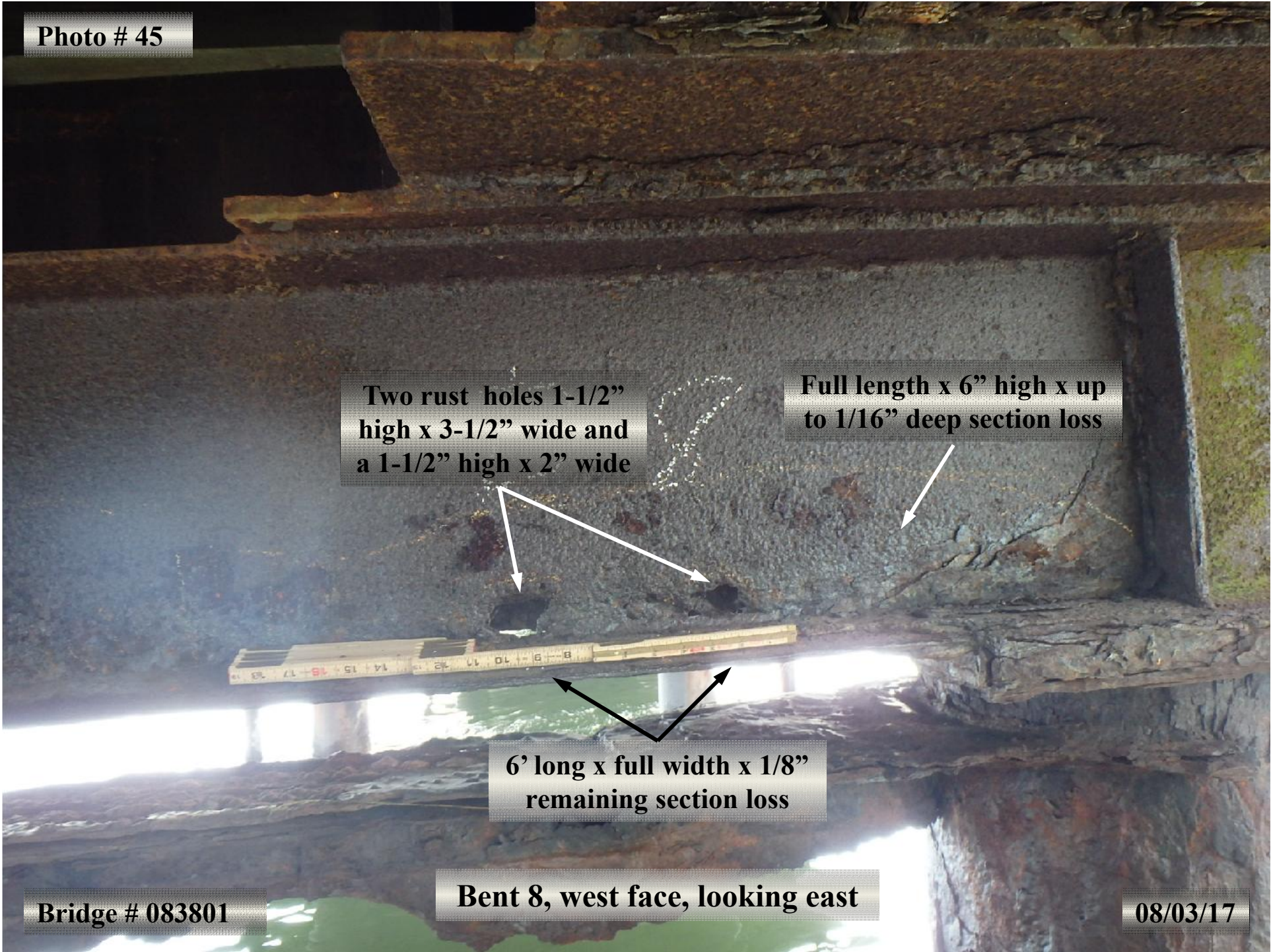


Photo # 46

**5-1/2' long x 8" high x 1/8"
deep section loss with a 2"
high x 3" wide rust hole**

**5' long x full width x 1/8"
remaining section loss**

Bridge # 083801

Bent 10, east face, looking west

08/03/17



Photo # 47



**Full height x full width
x 2' deep area of rot**

Bent 5, south face, looking north

Bridge # 083801

08/03/17

Photo # 48



Full height x 27"
deep heavy rot


Bent 15, north face, looking south

Bridge # 083801

08/03/17

Photo # 49

**Heavy laminated rust
and section loss up to
1/8" throughout**



Bridge # 083801

Bent 9, fixed bearing, looking east

08/03/17

Photo # 50

Garbage

Sealed transverse cracks

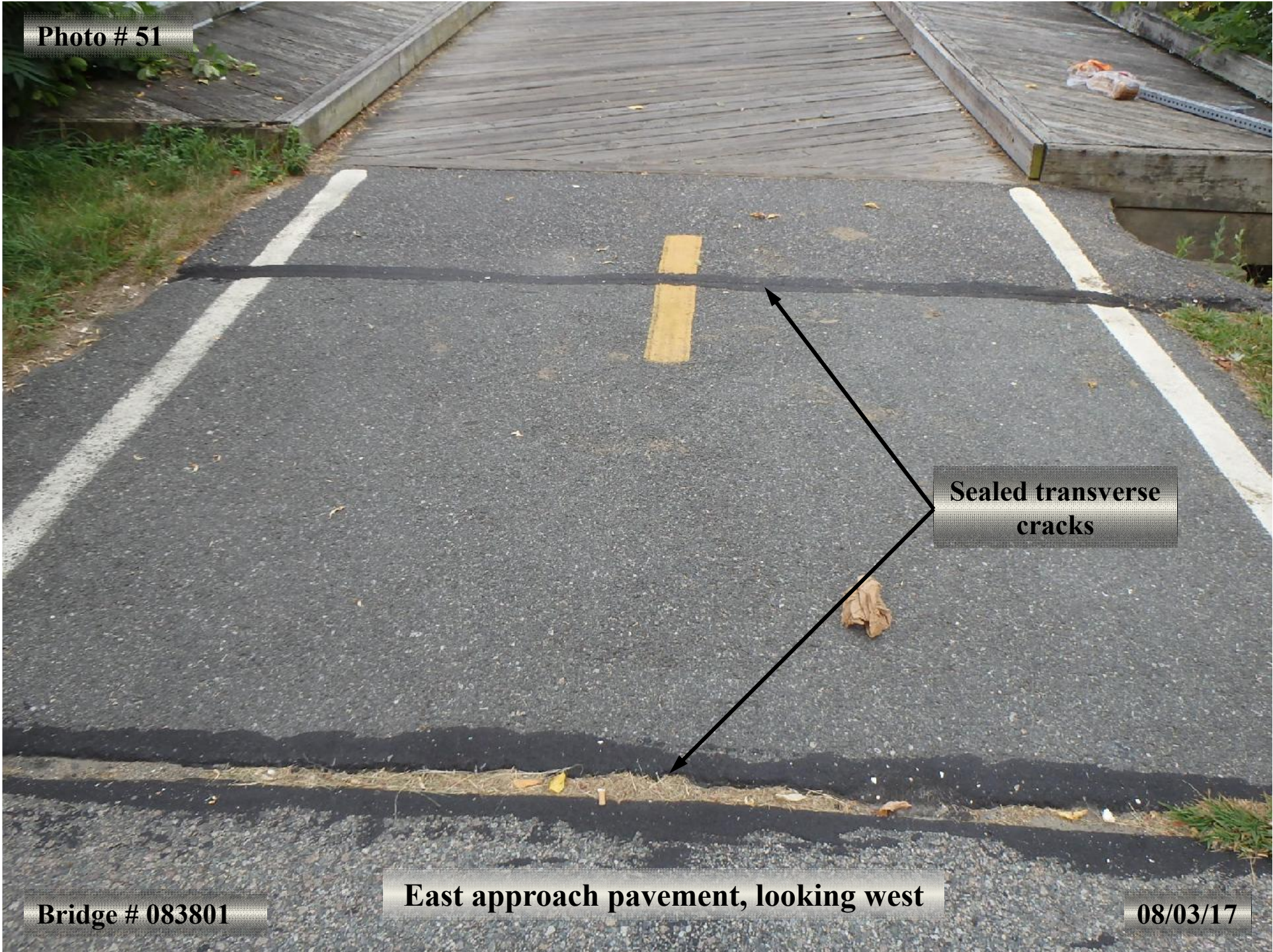
Bridge # 083801

West approach pavement, looking east

08/03/17



Photo # 51



**Sealed transverse
cracks**

Bridge # 083801

East approach pavement, looking west

08/03/17

Photo # 52

Garbage

Garbage

Up to 4' long x 2' wide
x 3" deep erosion

Bridge # 083801

Southwest approach corner, looking south

08/03/17

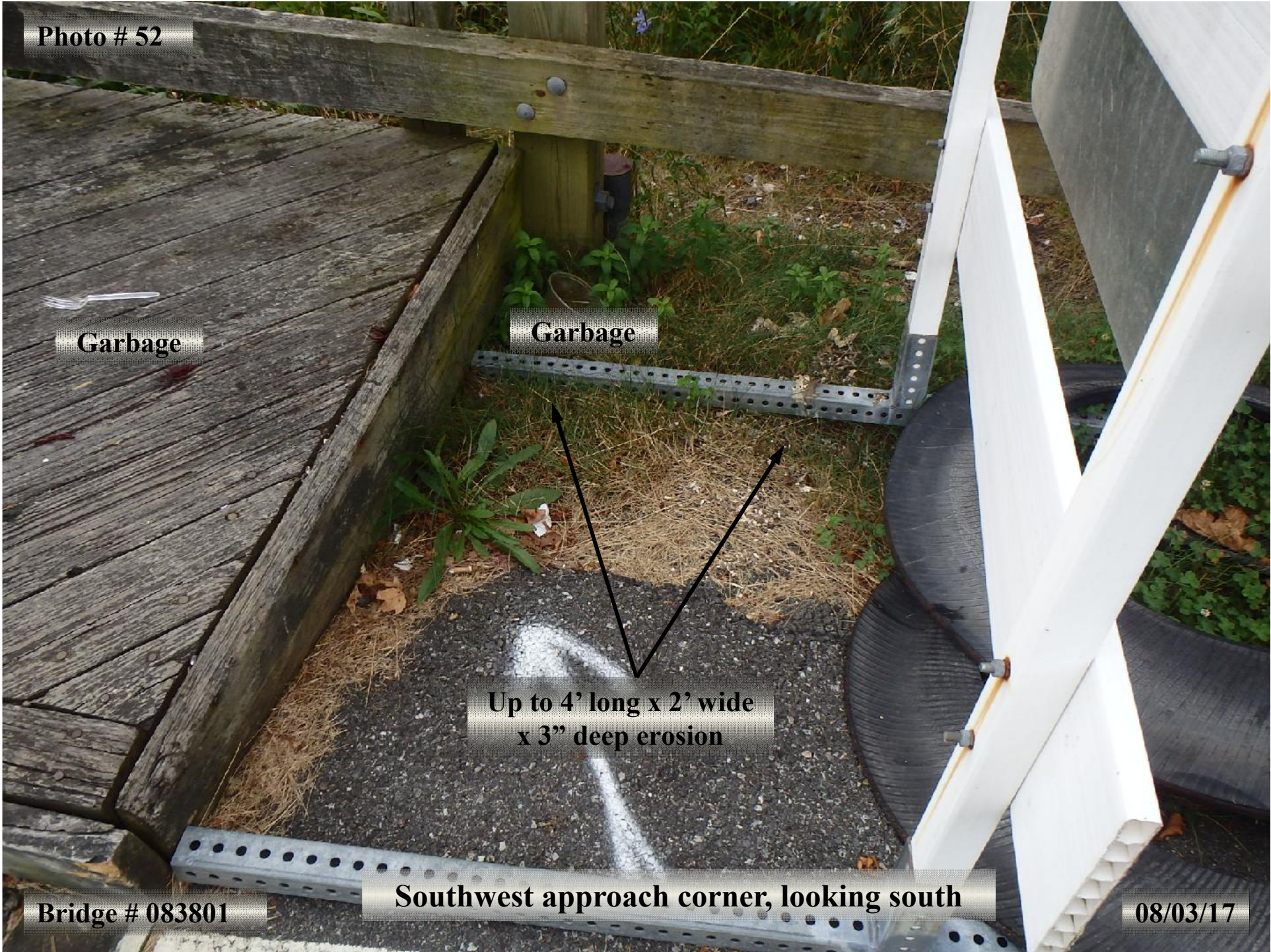


Photo # 53

Poison Ivy

Garbage

Garbage

Up to 3' long x 3' wide
x 1' deep erosion

Bridge # 083801

Northwest approach corner, looking north

08/03/17

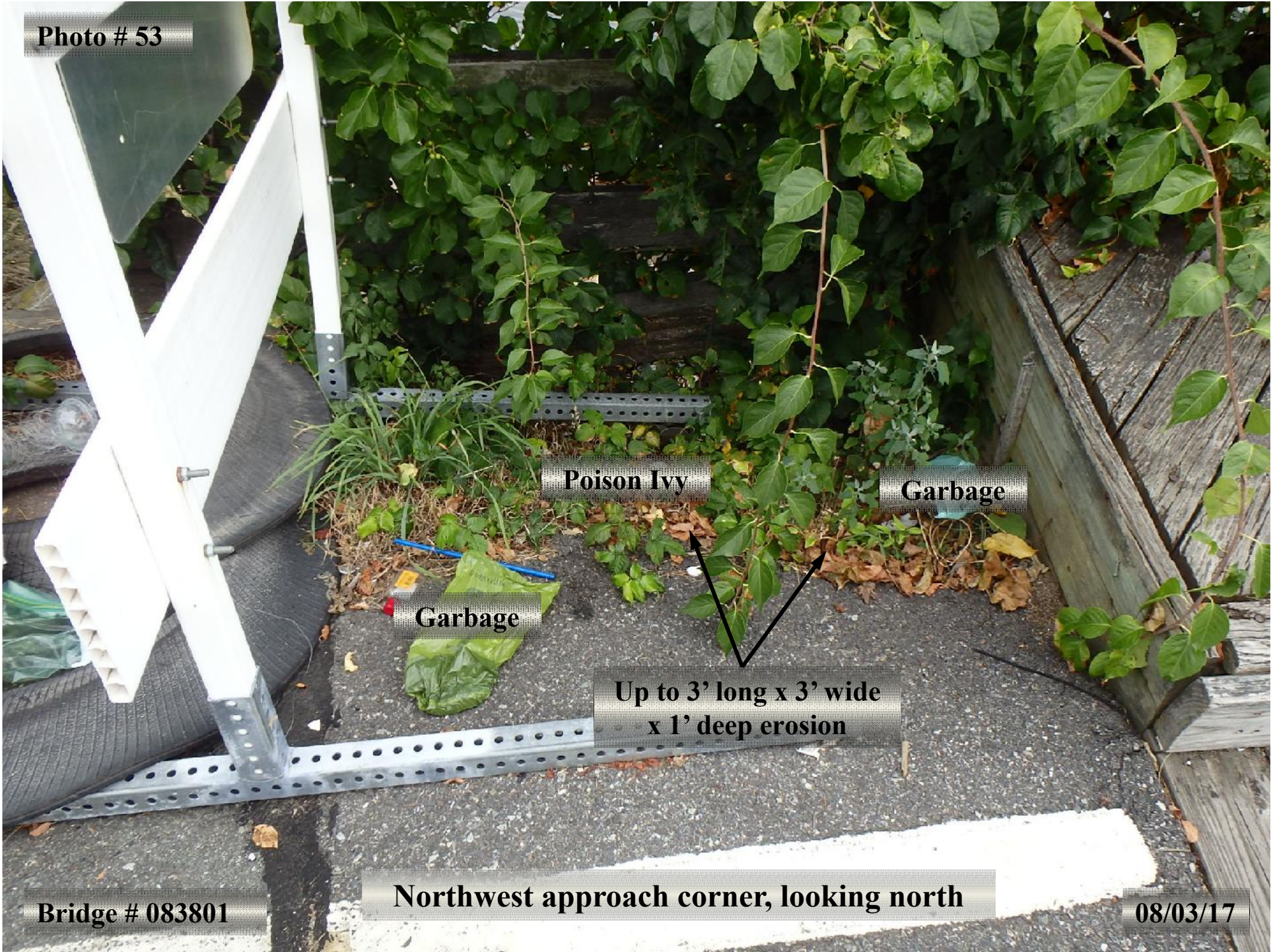


Photo # 54

Garbage

5" high x 20" wide x
full depth undermining

3-1/2' long x 1-1/2'
wide erosion

80% of the concrete
base undermined for
11" high x 5" deep

Bridge # 083801

Northeast approach corner, looking west

08/03/17

Photo # 55

**Checks and
splits**

**Removed orange
construction barrels**

Bridge # 083801

Timber bridge railings overview, looking east

08/03/17



Photo # 56



Missing connection bolts

Bridge # 083801

South railing, span 5, looking southeast

08/03/17

Photo # 57

**Checks and
splits**



Bridge # 083801

Northeast rip rap, looking southeast

08/03/17



Photo # 58

Checks and
splits



East abutment #2 retaining wall
and fill, looking north

Bridge # 083801

08/03/17

Photo # 59



**Checks and
splits**

**East abutment#2 wingwall and fill, looking
northeast**

Bridge # 083801

08/03/17

Photo # 60

**Vegetation growth in
the embankment**

Displaced riprap

Bridge # 083801

Southwest rip rap, looking northwest

08/03/17



Photo # 61



Vegetation growth in the embankment

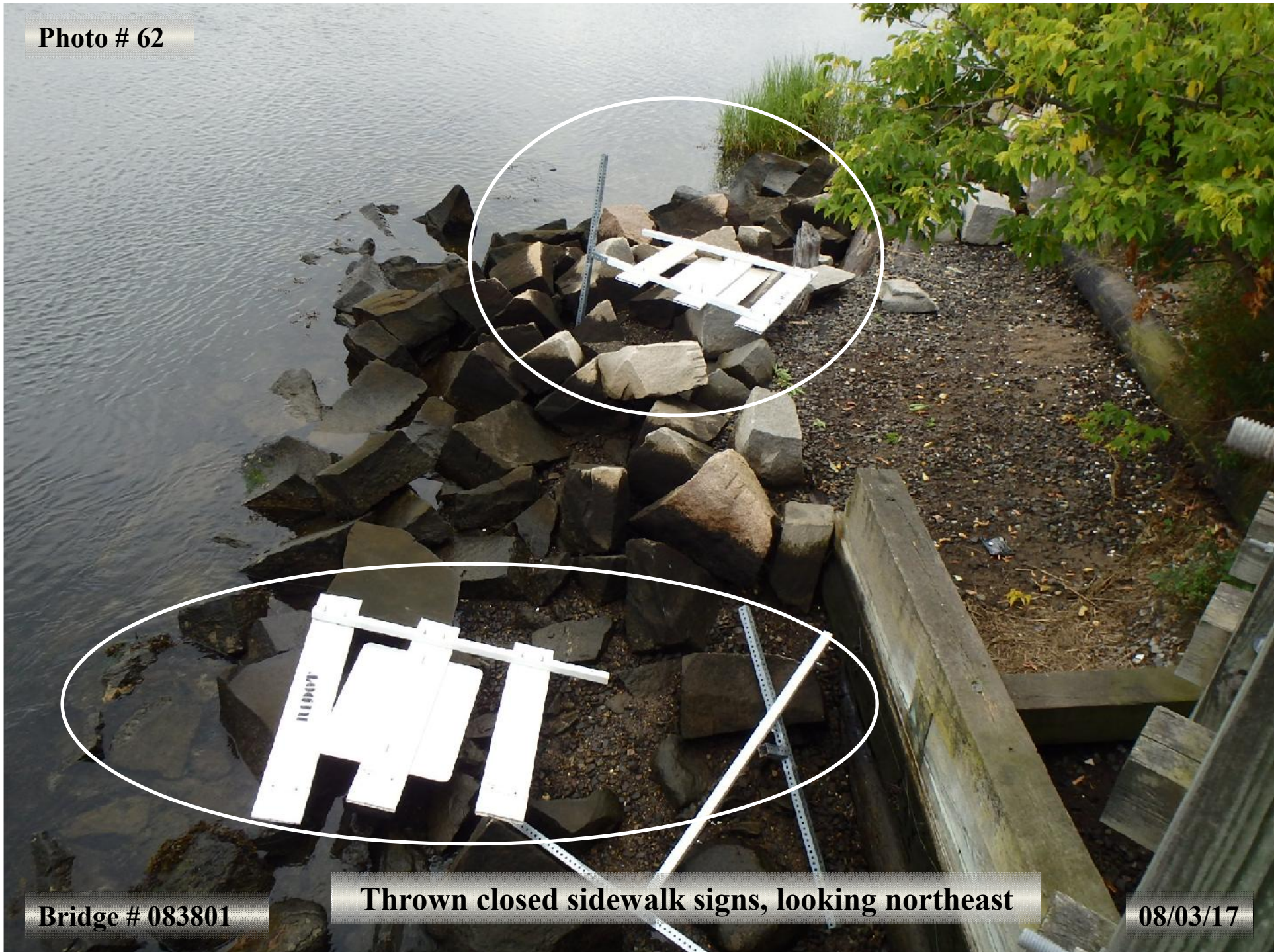
Displaced riprap

Bridge # 083801

Northwest rip rap, looking southwest

08/03/17

Photo # 62



Bridge # 083801

Thrown closed sidewalk signs, looking northeast

08/03/17

Photo # 63

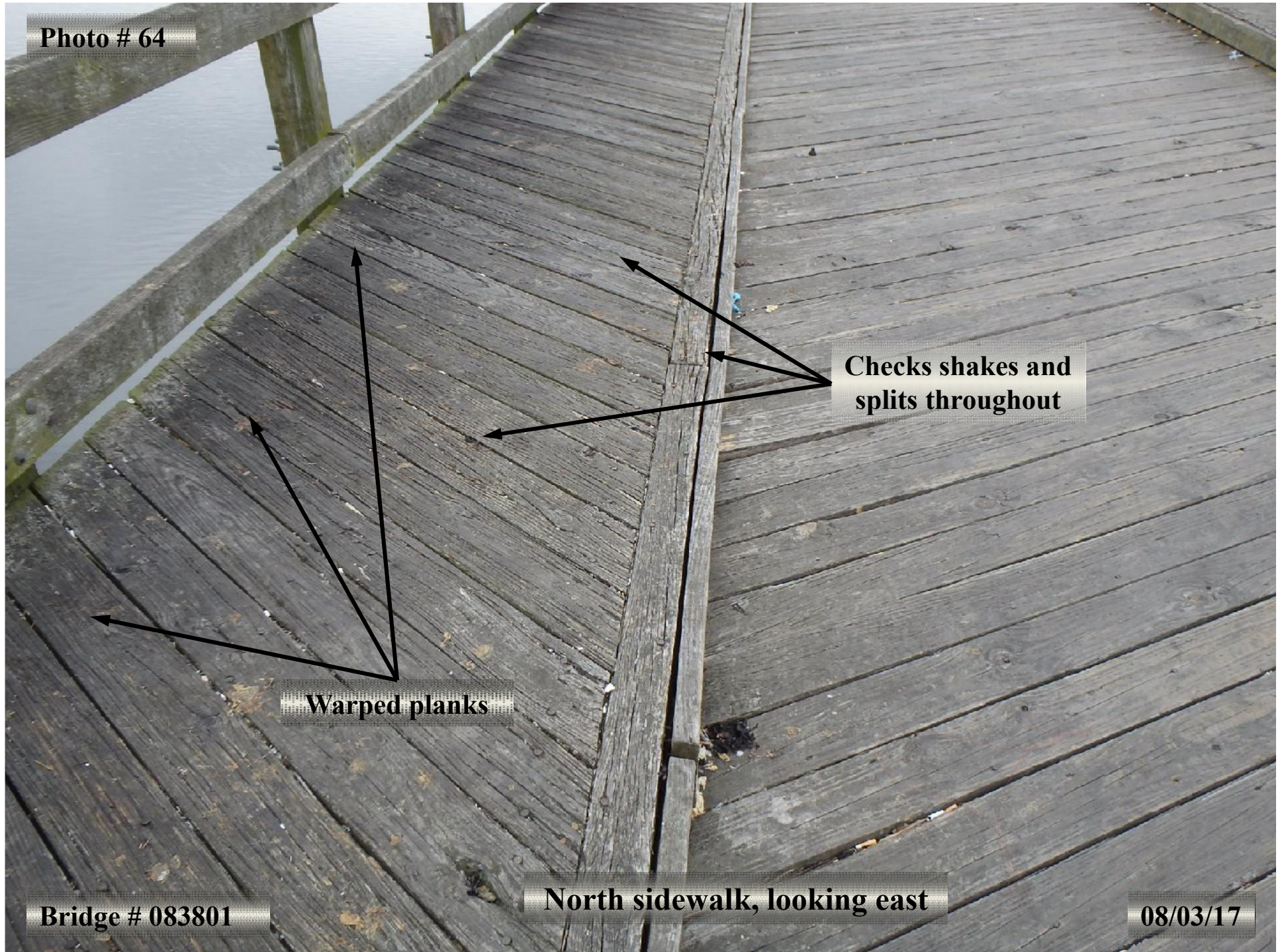


**Thrown plastic barrels in the channel, looking
north**

Bridge # 083801

08/03/17

Photo # 64



Checks shakes and splits throughout

Warped planks

Bridge # 083801

North sidewalk, looking east

08/03/17

Photo # 65



Bridge # 083801

Chain link fence on south railing, looking southeast

08/03/17

Photo # 66



Bridge # 083801

Downstream, looking southeast

08/03/17

Photo # 67



Bridge # 083801

Upstream, looking north

08/03/17

Photo # 68

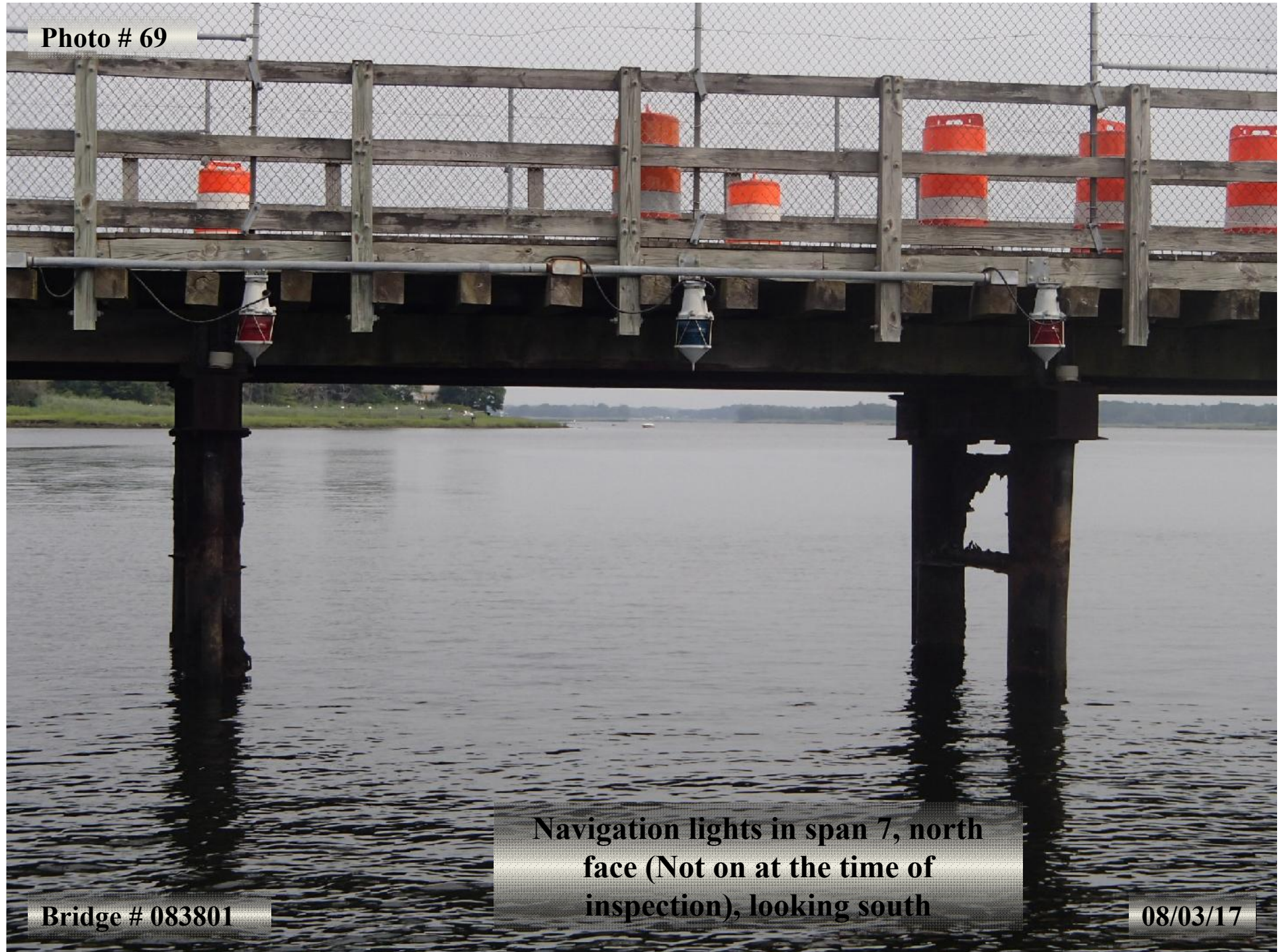


Bridge # 083801

Upstream, looking north

08/03/17

Photo # 69

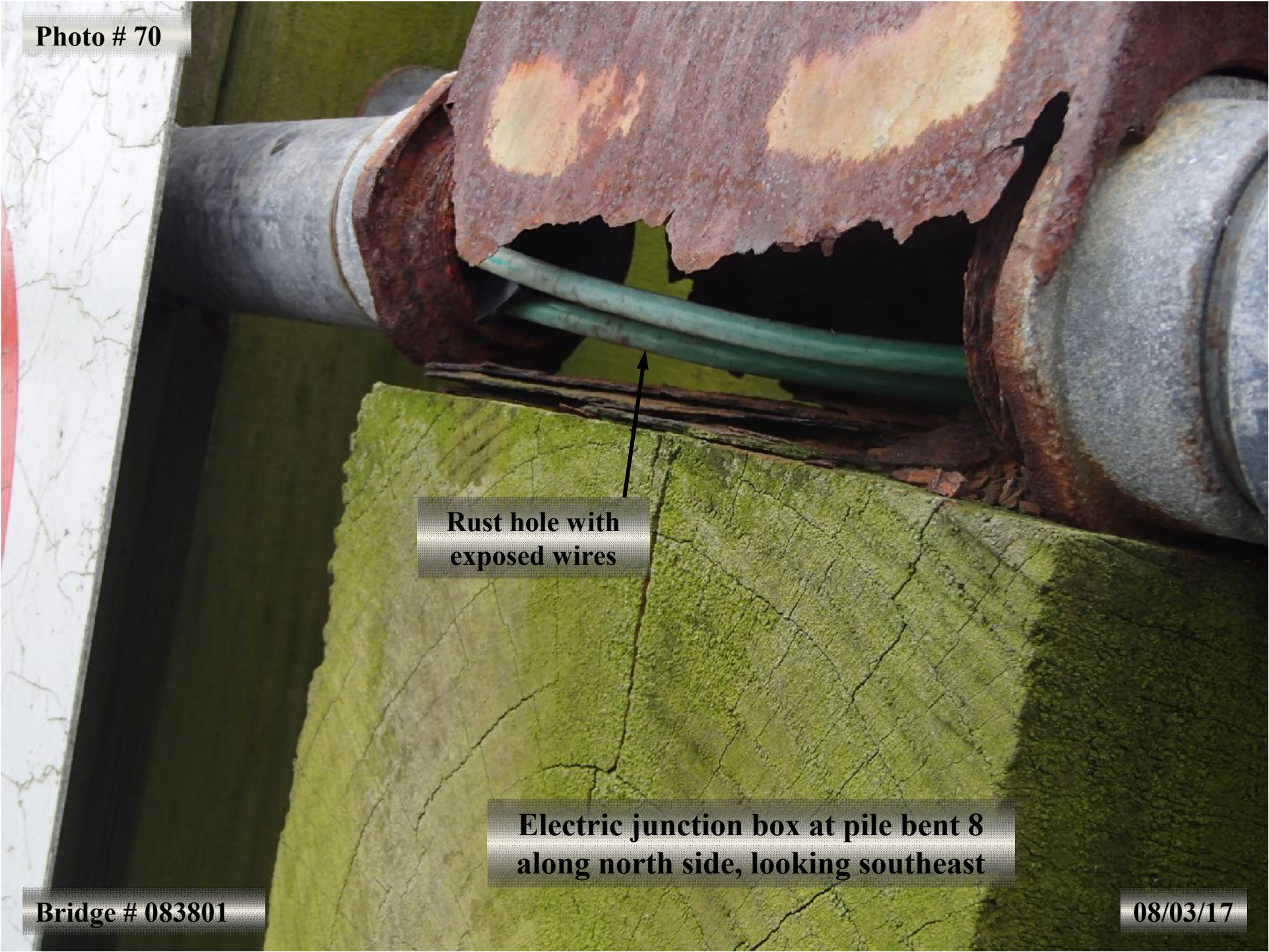


**Navigation lights in span 7, north
face (Not on at the time of
inspection), looking south**

Bridge # 083801

08/03/17

Photo # 70



**Rust hole with
exposed wires**

**Electric junction box at pile bent 8
along north side, looking southeast**

Bridge # 083801

08/03/17

Photo # 71

Checks and splits throughout

Heavy rot up to full length x full width x 7" deep

South timber railing, looking east

Bridge # 083801

08/03/17



Key bicycle facility design guidance:

- AASHTO *GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES* https://nacto.org/wp-content/uploads/2015/04/AASHTO_Bicycle-Facilities-Guide_2012-toc.pdf
- MUTCD PART 9 Bicycle Facilities, https://mutcd.fhwa.dot.gov/htm/2009/part9/part9_toc.htm
- FHWA'S FEBRUARY 2019 *BIKEWAY SELECTION GUIDE*, https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwas18077.pdf
- FHWA's *Separated Bike Lane Planning and Design Guide*, https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm#notice
- CHAPTER 31-19 Operation of Bicycles <http://webserver.rilin.state.ri.us/Statutes/TITLE31/31-19/INDEX.HTM>
- [Crossing Bicycle Lane](#)
- [Operating a Motor Vehicle on a Bicycle Lane](#)
- [Opening Vehicle Doors](#)
- [Places Where Parking or Stopping Prohibited](#)
- [Types of Roads](#)
- [Yielding to Riders on Bicycle Lane](#)
- [Wheelchairs - Rights and Duties](#)
- [§ 31-41.1-4 Schedule of violations](#)