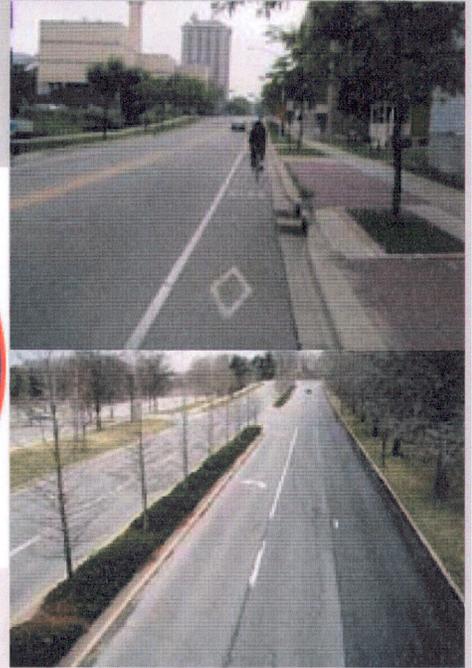
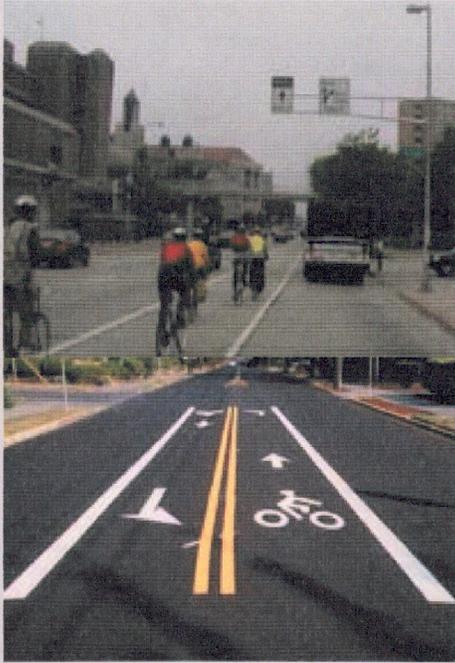


# City of Pittsburgh Bicycle Facility Guidelines and Policies



Prepared For:



CITY OF PITTSBURGH  
DEPARTMENT OF CITY PLANNING

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February 17, 2005

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# City of Pittsburgh

## Bicycle Facility Guidelines and Policies

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### Introduction

Through research of nationally accepted standards, as well as review of the guidelines and policies of other cities that have implemented successful bicycle facility programs, the City of Pittsburgh has developed these guidelines and policies to aid in the planning and development of bicycle facilities within the City. These guidelines and policies are to be used in conjunction with the most recent national standards such as the American Association of State Highway and Transportation Officials (AAHSTO) *Guide for the Development of Bicycle Facilities*, and the Manual on Uniform Traffic Control Devices (MUTCD), as well as the Pennsylvania Department of Transportation *Statewide Bicycle and Pedestrian Master Plan Bicycle Guidelines*. This document should also be used in conjunction with the City of Pittsburgh Bicycle Plan, which outlines the goals and objectives of the City in regards to the planning and development of bicycle facilities within the City of Pittsburgh. Users of this document should reference the above-mentioned reports where subjects are not specifically addressed under these guidelines and policies.

### Types of Bicycle Users

The amount of experience and ability of each bicyclist can vary substantially. An experienced rider who bicycles frequently will typically be in better shape and have better control of their bicycle, as opposed to a cyclist who rides only occasionally. The experience, strength, and ability of each bicyclist usually determines to what extent a cyclist is comfortable with riding his/her bicycle on streets and in traffic. Consideration should be given to the variation in abilities, skills, and strengths of bicyclists when planning and designing bicycle facilities. The Federal Highway Administration (FHWA) has developed a classification system based upon ability and age. This classification system, as defined in a 1994 FHWA report titled *Selecting Roadway Design Treatments to Accommodate Bicycles*, divides bicyclists into the following three groups:

#### Group A – Advanced Adult Bicyclists

Group A bicyclists are experienced cyclists who typically operate their bicycle as they would a motor vehicle. These cyclists ride for convenience and speed and want direct access to destinations with minimum detour or delay. They are typically comfortable

riding with traffic; however they prefer to have sufficient operating space within the street cross section to eliminate the need for either themselves or a passing motor vehicle to shift position. The Bicycle Federation of America estimates that 5% of all bicyclists fall into the Group A category.

#### Group B – Basic Adult Bicyclists

Group B bicyclists are less confident adult cyclists who may still use their bicycles for transportation purposes, e.g. to get to the store or to visit a friend, but prefer to avoid roads with fast operating speeds and busy traffic unless there is sufficient roadway width to allow for easy overtaking by faster motor vehicles. These cyclists typically prefer neighborhood streets and shared-use paths and prefer bicycle lanes or wide shoulder lanes on busier streets.

#### Group C – Children Bicyclists

Group C bicyclists are children, either cycling on their own or with their parents. They do not travel as far as adults, however, they still require access to key destinations in their community, such as school, parks, and stores. Residential streets with low vehicle speeds and volumes, linked with shared use paths and busier streets with well-defined separation between bicycles and motor vehicles, can accommodate children without encouraging them to ride in the travel lane of busier streets.

Based on this classification system, it is clear that the type and location of the bicycle facility will determine the user groups serviced by the facility, and ultimately the level of use of the facility. A bicycle facility that is well planned can service most, if not all, bicyclists. Therefore, if the bicycle facility can service all groups (A, B, and C), then the investment in the implementation of the facility will be offset by the number of users. It is recommended that when planning bicycle facilities, Group B and Group C cyclists should be the basis of analysis, since the majority of cyclists fall under these two categories.

### **Types of Facilities**

There are two types of bicycle facilities that are included in these guidelines and policies: shared use roadways and bicycle lanes. **Shared use roadways, also known as shared use lanes**, are roadways on which both motor vehicles and bicycles operate. Technically, all roadways where bicycle travel is permitted can be considered shared use roadways, since bicycles are considered vehicles in the Pennsylvania Motor Vehicle Code. However, for the purposes of this document, shared use roadways will only be considered where they are specifically planned using these guidelines. Shared use

roadways should be designated accordingly with signage such as “Share the Road” or “Bicycle Route” to make cyclists and motorists aware of the bicycle route. Shared use roadways usually do not require special pavement markings. Shared use pedestrian/bicycle facilities, which are essentially sidewalks that are utilized as part of a bicycle route, and designated for both pedestrian and bicycle travel, are discussed later in this document.

**Bicycle lanes** are lanes solely dedicated to bicycle travel. They are usually located on the right side of the automobile travel lane(s), either against the curb or a lane of parking. Pavement markings and signage are required for bicycle lanes.

### **Policies on Bicycle Facilities**

Bicycle lanes and shared use roadways should have definitive destinations. Bicycle lanes/shared use roadways should not be installed on a block-by-block basis, except for the purpose of providing connectivity between bicycle lanes and/or shared use roadways. Designing bicycle facilities on a block-by-block basis will only encourage the installation of segments of bicycle lanes, which in many cases will have no definitive termini. Bicycle lanes/shared use roadways should only terminate under one of the following conditions: a definitive destination/attraction, another bicycle lane, or another shared use roadway. While some bicycle facilities may seem better than none to some cyclists, the design of bicycle facilities should be done with the Group B/C cyclists in mind. Establishing only block-long segments of bicycle facilities can mislead people into riding into conditions where they are not comfortable operating their bicycle once the bicycle facility terminates.

When a bicycle facility begins or terminates, whether it is the beginning/end of a bicycle lane/shared use roadway, a bicycle lane that leads to a shared use roadway, or a shared use roadway leads to a bicycle lane, advance warning should be provided to bicyclists and to vehicular traffic. Signage such as “Bicycle Lane Ends” and “Share the Road” will alert motorists of the presence of bicyclists, and will alert bicyclists to upcoming change in roadway conditions.

**Figure 1**

Example of appropriate signage for the beginning or end of bicycle lanes/shared use roadways



Source: MUTCD

### Shared Use Roadways

As stated above, by definition, all roadways where bicycle travel is permitted are shared use roadways, since bicycles are considered vehicles in the Pennsylvania Motor Vehicle Code. However, for the purposes of this document, shared use roadways will only be considered where they are specifically planned using these guidelines.

Shared use roadways are roads on which both motor vehicles and bicycles operate. These facilities should only be used when there is not enough room for a separate bicycle lane, but connectivity to other bicycle facilities is necessary, or existing bicycle patterns indicate that the route is preferred among cyclists. Automobiles traveling on shared use roadways typically will not be required to cross into the adjacent travel lane to pass a bicyclist; however, larger vehicles such as buses and trucks may be required to change lanes. Shared use roadways should be designated with appropriate signage such as “Share the Road” and “Bicycle Route” signs indicating the presence of a bicycle

route to cyclists, as well as to provide notification to motorists that a higher number of bicyclists may be present.

It should be noted that when a shared use roadway is signed as such, this indicates to cyclists that the route is more desirable than other routes. Bicyclists will then assume that the necessary studies and precautions have been taken when planning the facility, and will select routes with shared use roadways over routes without shared use roadways or bicycle lanes.

## **Shared Use Roadway Design Guidelines**

The following guidelines should be followed when planning a shared use roadway:

### **Implementation Criteria**

Shared use roadways should be used only when the roadway width does not allow for a separate bicycle lane. These shared use roadways should be designated with appropriate signage such as “Share the Road” and “Bicycle Route” signs indicating the presence of a bicycle route to cyclists, as well as to provide notification to motorists that a higher number of bicyclists may be present. Shared use roadways should typically only be used to connect bicycle lanes, or where a section of roadway along a bicycle route does not meet bicycle lane width criteria. However, if a segment or roadway is not wide enough for a bicycle lane, but historically bicyclists have used the roadway due to its connectivity to destinations, shared use roadways may be considered. Shared use roadways should only terminate under the following conditions: a definitive destination/attraction, a bicycle lane, or another shared use roadway.

### **Lane Location**

The shared use lane(s) of a roadway should only be located on the outside lane(s), or curb lane(s), of a roadway.

### **Grades**

Although AASHTO does not address grades, due to the City of Pittsburgh’s topography, roadway grades should be kept in mind when designating a bike route. Group B/C cyclists may not be strong enough to climb steep grades for extended periods of time, and may not be comfortable descending steep grades. While there are no definitive limits to acceptable grades, careful attention should be paid to grades that exceed eight (8) percent.

### **Accident History**

Accident data should be reviewed for each roadway on which a shared use roadway is proposed. Based on the accident history of the roadway, it should be determined if the roadway is safe for bicyclists for such a facility. While there are no specific accident history criteria for determining if a roadway is suitable for a shared use facility, the number of accidents, frequency, and type of accidents will be taken into consideration. The latest three consecutive years of available accident data should be used for the accident history review.

### **Maximum Roadway Speed Limit**

35 miles per hour. If speeds appear to exceed the speed limit, or if a history of speed-related accidents or violations occurring along the proposed shared use roadway exists, a speed study should be conducted to determine the 85<sup>th</sup> percentile speed. The 85<sup>th</sup> percentile speed should not exceed 35 miles per hour.

### **Required Shared Roadway Lane Width (travel lane adjacent to curb, no parking)**

13 feet minimum, 14 feet recommended if roadway is fairly level, 15 feet if steep grades, drainage grates, or a high percentage of heavy vehicles are present. If a gutter pan is present, its width should not be included in the usable lane width. If available lane widths are greater than the ones mentioned above for a continuous section of roadway, a bicycle lane should be considered.

### **Required Shared Roadway Lane Width (parking lane)**

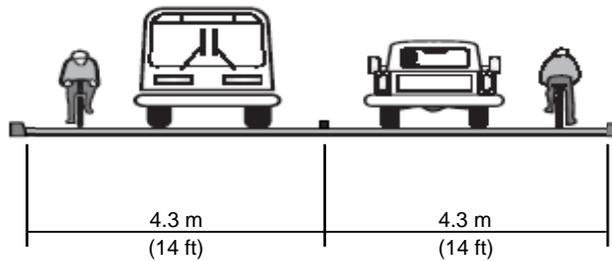
12 feet minimum for the parking lane/bicycle travel lane.

### **Required Adjacent Travel Lane Width**

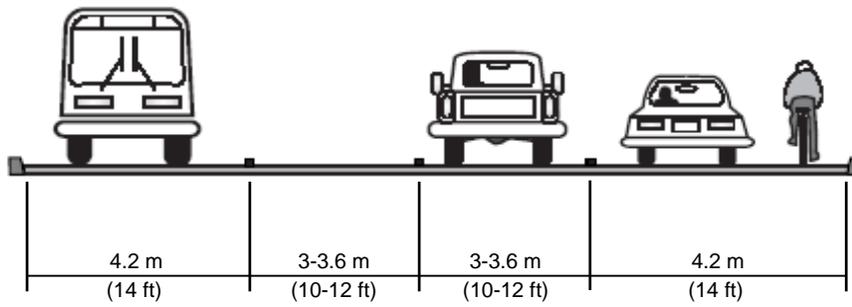
10 feet minimum.

**Figure 2**

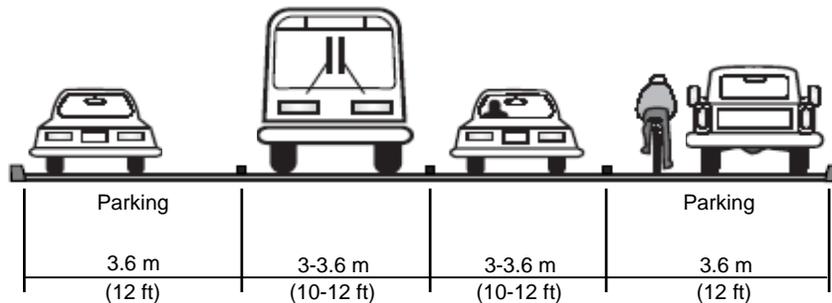
Cross-sections of roadways with shared use roadways



Two-lane roadway with wide outside lanes and no parking  
(Recommended lane width, level terrain, speeds less than 35 mph)



Four-lane roadway with wide outside lanes and no parking  
(Recommended outside lane width, level terrain, minimum to optimal adjacent travel lane width, speeds less than 35 mph)



Two-lane roadway with parking  
(Minimum parking lane width, level terrain, minimum to optimal adjacent travel lane width, speeds less than 35 mph)

Source: Modified from *Oregon Bicycle and Pedestrian Plan* (Oregon DOT, 1995)

### Signage Guidelines

Shared use roadways should be marked with appropriate “Bike Route” and “Share the Road” signage. Destination signage may be placed under the “Bike Route” signage to indicate destinations with high demand. Wayfinder signs may also be used to indicate destinations and attractions. Refer to current AASHTO and MUTCD standards for more details.

**Figure 3**

Example of appropriate shared use roadway signage



Source: MUTCD and City of Pittsburgh Wayfinder standards

### Bicycle Lanes

Bicycle lanes are lanes solely dedicated to bicycle travel. They are usually located on the right side of the outside automobile travel lane, against either the curb or a lane of parking, except at intersections with right turn lanes. Pavement markings are required for bicycle lanes, and signage should also be provided. Bicycle lanes should carry bicycle traffic one-way, in the same direction in which adjacent motorized vehicular traffic is traveling. Permitting or encouraging bicycle traffic to travel against the flow of adjacent motorized vehicular traffic is not recommended, unless necessary for a very short segment.

Bicycle lanes should always be placed on the right side of the street when installed on one-way streets, unless installation on the left side of the street provides obvious

benefits such as decreased conflicts between cyclists and buses, or cyclists and heavy turning movements. Contra-flow bicycle lanes on a one-way street may be necessary or beneficial in some scenarios.

Bicycle lanes should never be installed between the parking lane and the curb/sidewalk, due to obstructions from opening car doors and lack of sight distance at intersections and driveways.

## **Bicycle Lane Design Guidelines**

The following guidelines should be followed when planning a bicycle lane:

### **Implementation Criteria**

Bicycle lanes should be used over shared use lanes where the roadway width permits. They should have definitive destinations, or at least connect to another bicycle lane/shared use roadway. Bicycle lanes should not be installed on a block-by-block basis, unless for the purpose of providing connectivity between bicycle lanes and/or shared use roadways. Bicycle lanes should be designed with an ultimate destination in mind, and should only terminate under the following conditions: a definitive destination/attraction, another bicycle lane, or a shared-use roadway.

### **Lane Location**

Bicycle lanes should always be placed on the right side of the street, even on one-way streets, and should always travel in the direction of traffic. They are usually located on the right side of the outside automobile travel lane, against either the curb or a lane of parking, except at intersections with right turn lanes (See Figure 7). Installation of a bicycle lane on the left side of a one-way street may be permitted if it provides obvious benefits such as decreased conflicts between cyclists and buses, or cyclists and heavy turning movements. A contra-flow bicycle lane on a one-way street for a short distance may be necessary or beneficial in some scenarios, such as if it provides significantly less automobile/bicycle conflicts, or if it significantly reduces the distance a cyclist must travel.

### **Grades**

Although AASHTO does not address grades, due to the City of Pittsburgh's topography, roadway grades should be kept in mind when designating a bike route. Group B/C cyclists may not be strong enough to climb steep grades for extended periods of time, and may not be comfortable descending steep grades. While there are no definitive

limits to acceptable grades, careful attention should be paid to grades that exceed eight (8) percent.

### **Accident History**

Accident data should be reviewed for each roadway on which a bicycle lane is proposed. Based on the accident history of the roadway, it should be determined if the roadway is safe for bicyclists for such a facility. While there are no specific accident history criteria for determining if a roadway is suitable for a bicycle lane, the number of accidents, frequency, and type of accidents will be taken into consideration. The latest three consecutive years of available accident data should be used for the accident history review.

### **Required Bicycle Lane Width (no curb/gutter)**

4 feet minimum, 5 feet minimum on uphill sections.

### **Required Bicycle Lane Width (with curb/gutter, no parking)**

5 feet minimum from the face of the curb. A minimum 3-foot rideable surface should be provided where gutter pans exist, assuming that the joint between the gutter pan and pavement is smooth. This minimum 3-foot rideable surface should include the width of the gutter pan. For steep grades, 1 to 2 feet additional width is recommended.

### **Required Bicycle Lane Width (with curb/gutter, parking permitted and stalls striped)**

5 feet minimum width. For high-turnover parking areas or steep grades, 1 to 2 feet additional width is recommended.

### **Required Bicycle Lane Width (parking permitted, but stalls not striped)**

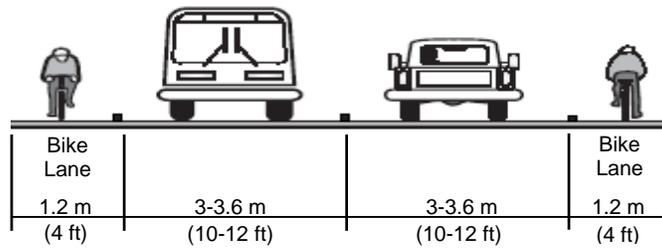
11 feet minimum combined parking/bicycle lane without curb and 12 feet minimum with curb. For high-turnover parking areas or steep grades, 1 to 2 feet additional width is recommended.

### **Adjacent Motorized Vehicle Travel Lane Width**

10 feet minimum. Where speeds are posted above 30 miles per hour, or transit/truck traffic is high, 11 feet minimum is recommended.

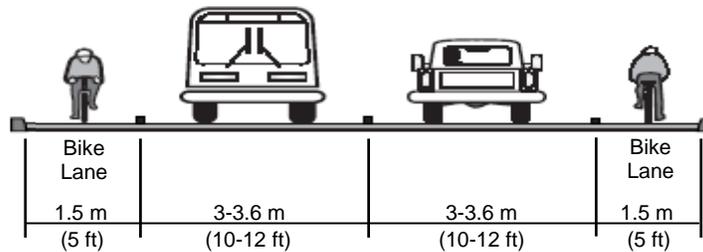
**Figure 4**

Cross-sections of roadways with bicycle lanes



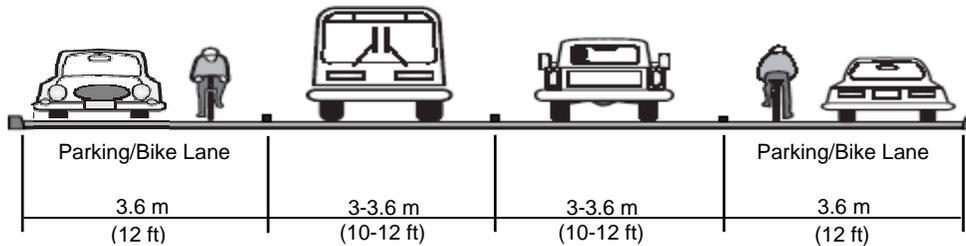
Two-lane roadway without curbs or parking

(Minimum bike lane width, level terrain, minimum to optimal adjacent travel lane width)



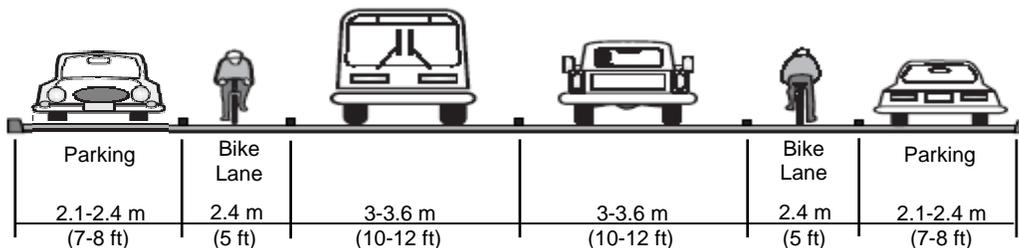
Two-lane roadway with curbs and no parking

(Minimum bike lane width, level terrain, minimum to optimal adjacent travel lane width)



Two-lane roadway with curbs and shared parking/bike lane

(Minimum bike/parking lane width, low parking turnover, level terrain, minimum to optimal adjacent travel lane width)



Two-lane roadway with curbs, parking lane and bike lane

(Minimum to recommended parking lane width, minimum bike lane width, level terrain, minimum to optimal adjacent travel lane width)

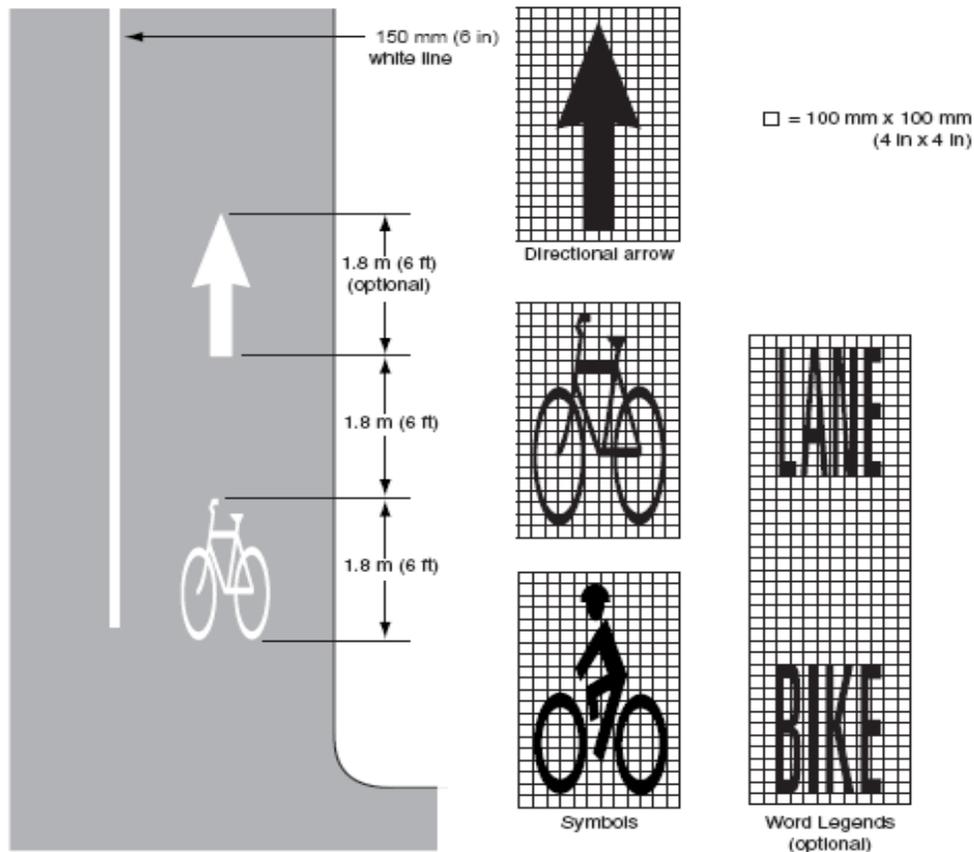
Source: Modified from *Oregon Bicycle and Pedestrian Plan* (Oregon DOT, 1995)

## Pavement Markings

Bicycle lanes should be separated from motorized vehicle lanes by a 6-inch wide solid white line. A 4-inch solid white line can be used to separate the bicycle lane and the parking lane, which will help encourage parking closer to the curb and out of the bicycle lane. A standard bicycle symbol or the words “Bike Lane” and an arrow should be painted on all far sides of intersections and at intervals during long uninterrupted sections. It should be noted that where broken sections of bicycle lane striping are applied, the dashes should be 2 feet long, while the spaces should be 6 feet long. General guidance for pavement markings can be found in Part 9, Chapter 9C of the MUTCD and in Chapter 2 of AASHTO’s *Guide for the Development of Bicycle Facilities*.

**Figure 5**

Bicycle lane pavement markings



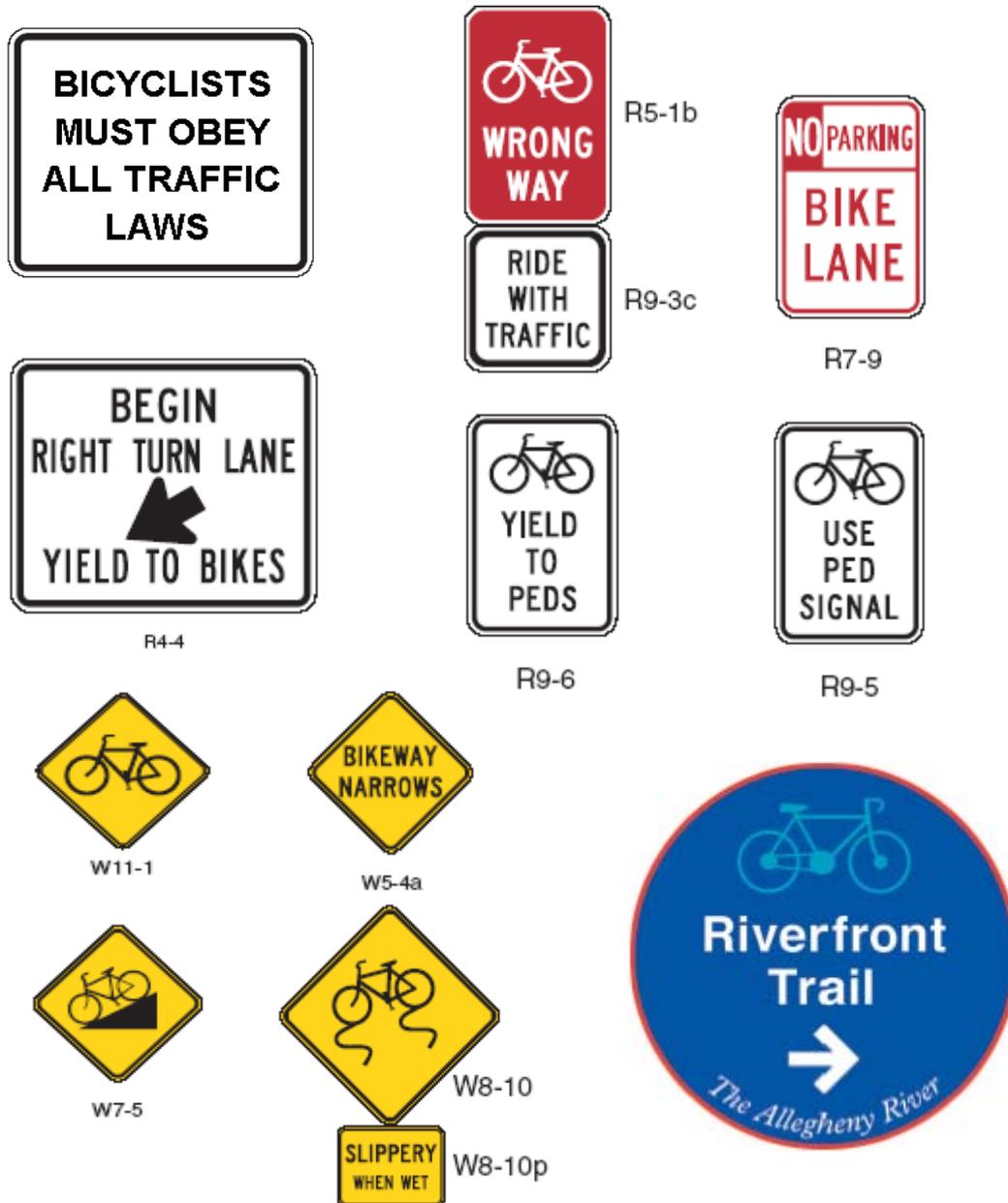
Source: MUTCD

## Signage Guidelines

Bicycle lanes should be marked with appropriate signage. When bicycle lanes begin or terminate, advance warning should be given to the cyclist. Refer to Part 9, Chapter 9B of the MUTCD and Chapter 2 of AASHTO's *Guide for the Development of Bicycle Facilities* for more details.

**Figure 6**

Some standard MUTCD bicycle lane regulatory signage (Exceptions-City of Pittsburgh Wayfinder sign and bicyclist traffic law sign)



Source: MUTCD and City of Pittsburgh standards

## Intersection Design

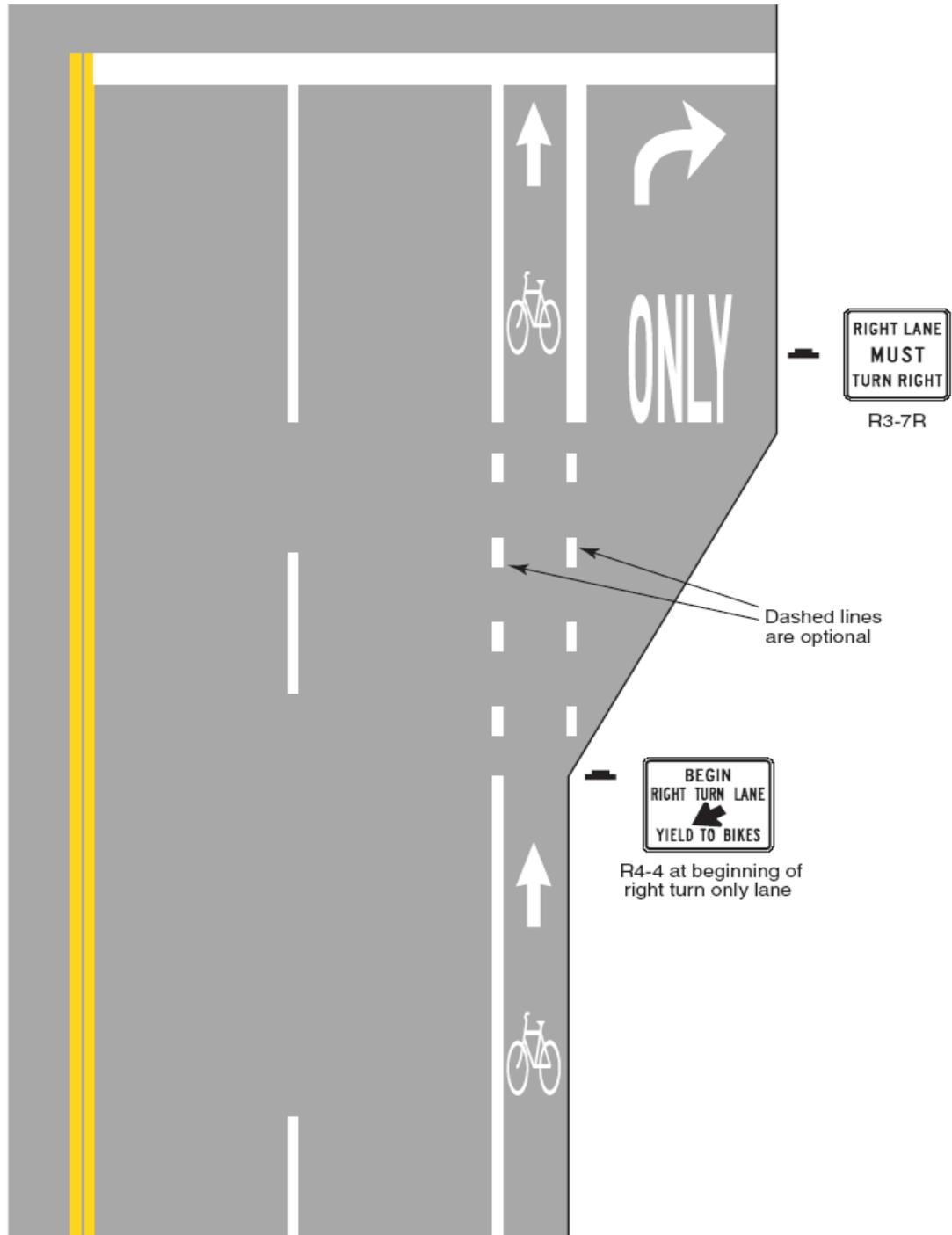
Intersections introduce a host of bicycle/motorized vehicle conflicts, created by both turning bicycles and turning motorized vehicles. Both of these types of vehicles may need to cross paths, thus introducing numerous points of conflict and weaving maneuvers. There are numerous turning and weaving scenarios that can occur at intersections, which require a variety of techniques to ensure that a bicycle lane is correctly and safely carried through an intersection. AASHTO's *Guide for the Development of Bicycle Facilities*, Chapter 2, and the MUTCD, Part 9, Chapters 9B and 9C should be consulted for in-depth guidelines, particularly for pavement markings and signage. However, the following are some general guidelines for the treatment of bicycle facilities at intersections.

- Bicycle lane pavement markings should not be installed through crosswalks;
- Bicycle lane pavement markings should not continue through intersections, unless the intersection is a T-intersection, in which case the pavement markings across from the intersecting roadway should continue through the intersection;
- Bicycle lane pavement markings at intersections should end at the near side of the cross street and resume on the far side of the cross street if crosswalks are not present. If crosswalks are present, then the pavement markings should stop at the near side of the crosswalk and resume on the far side of the crosswalk on the opposite side of the intersection;
- The striping for bicycle lanes at signalized or stop-controlled intersections should be broken anywhere from 50 to 200 feet from the intersection if right turns are permitted at the intersection on that approach. If the intersection is minor and the approach does not have any stop control measures, then the striping should remain solid up until the crosswalk or near side of the intersection, unless right turn volumes are high;
- The striping for bicycle lanes should be broken where bus stops are present for at least 80 feet;
- Where turn lanes at an intersection exist, particularly right turn lanes, or where bicyclists must turn left at the intersection, advance notice through signage should be provided for both bicyclists and motorists of the potential conflict or merging movement; and
- If width through the intersection is not sufficient to provide a bicycle lane, then signage indicating the approaching merge of bicycle and vehicular traffic should be provided prior to the termination of the bicycle lane pavement markings.

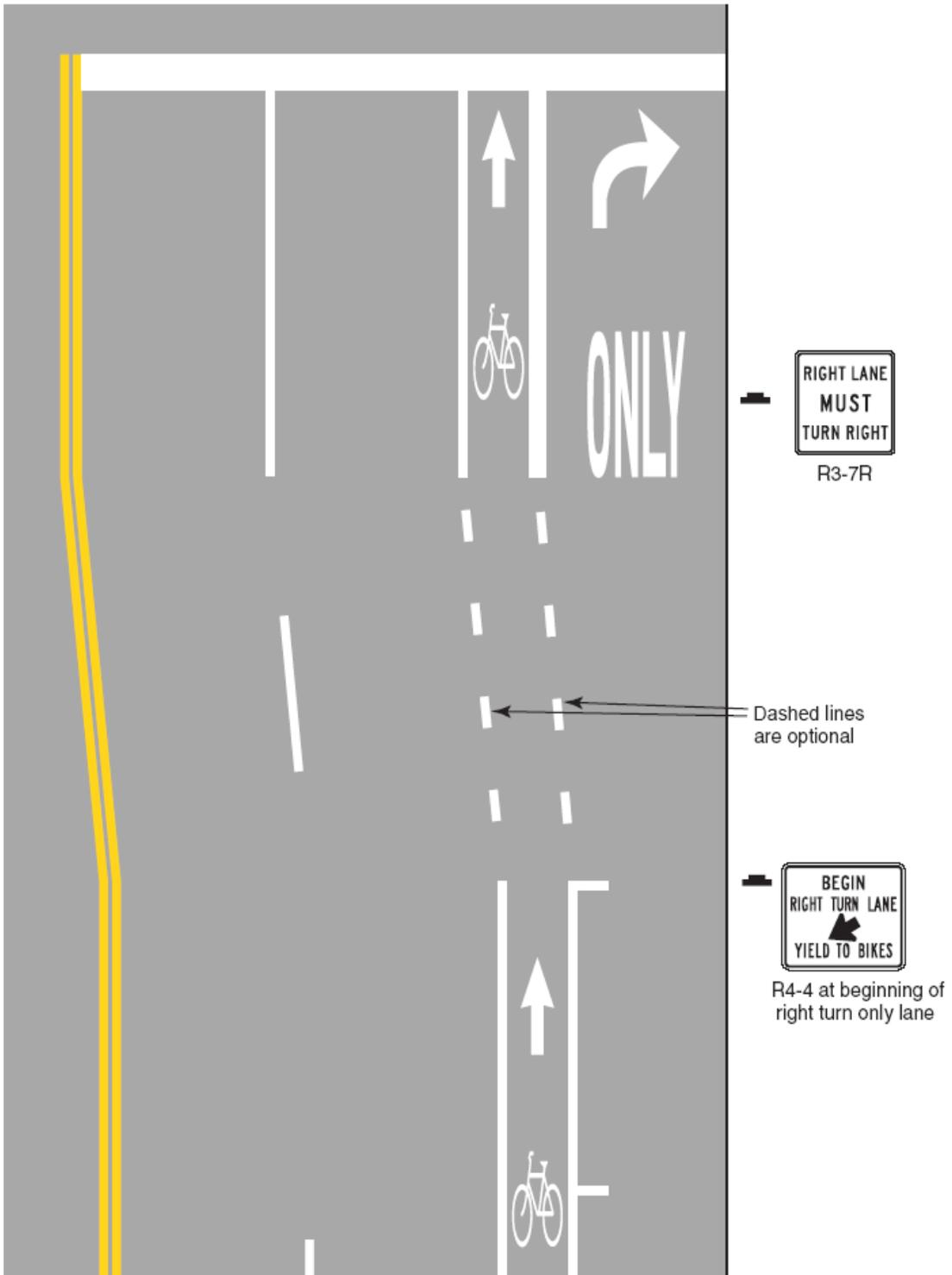
As stated above, AASHTO's *Guide for the Development of Bicycle Facilities*, Chapter 2, and the MUTCD, Part 9, Chapters 9B and 9C should be consulted for in-depth guidelines, particularly for pavement markings and signage.

**Figure 7**

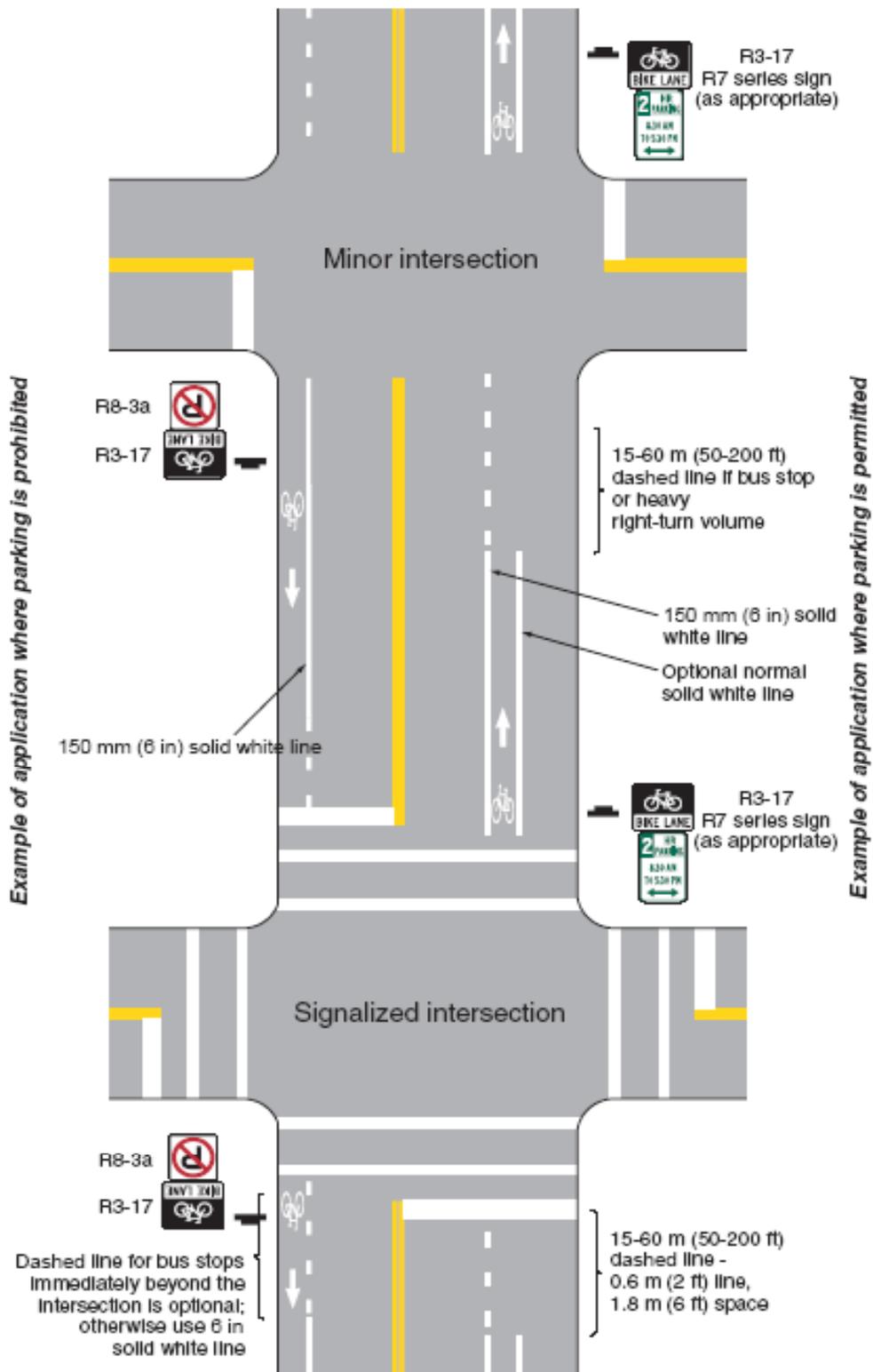
Examples of pavement markings and signage of bike lanes at intersections



Bicycle lane treatment at right turn only lane



Bicycle lane treatment at a parking lane into a right turn only lane



Treatment of bicycle lanes at intersections on two-lane street

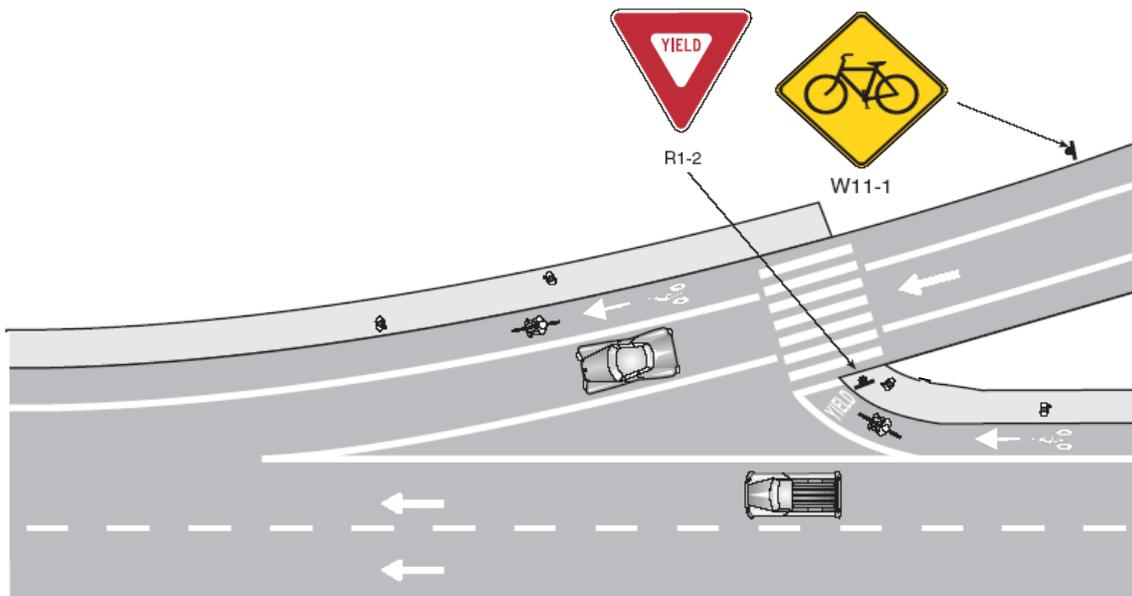
Source: Modified from MUTCD

## Interchanges

Due to the substantial difference in speed between motorized vehicles and bicycles, particularly when motorized vehicles are entering or exiting highways, interchange areas are typically dangerous areas for bicyclists. Bicycle lanes at interchange on/off ramps should be addressed by designing the bicycle lane to cross the on/off ramp perpendicular to the ramp where possible. This makes it easier for the cyclist to look for entering/exiting traffic, and requires the cyclist to travel a shorter distance through the conflict area. Refer to Chapter 2 of AASHTO's *Guide for the Development of Bicycle Facilities*, for more details.

**Figure 8**

Example of bicycle lane alignment, pavement markings and signage at interchange off-ramp



Source: Modified from *Oregon Bicycle and Pedestrian Plan* (Oregon DOT, 1995)

## General Design Criteria

### Pavement Surface Quality

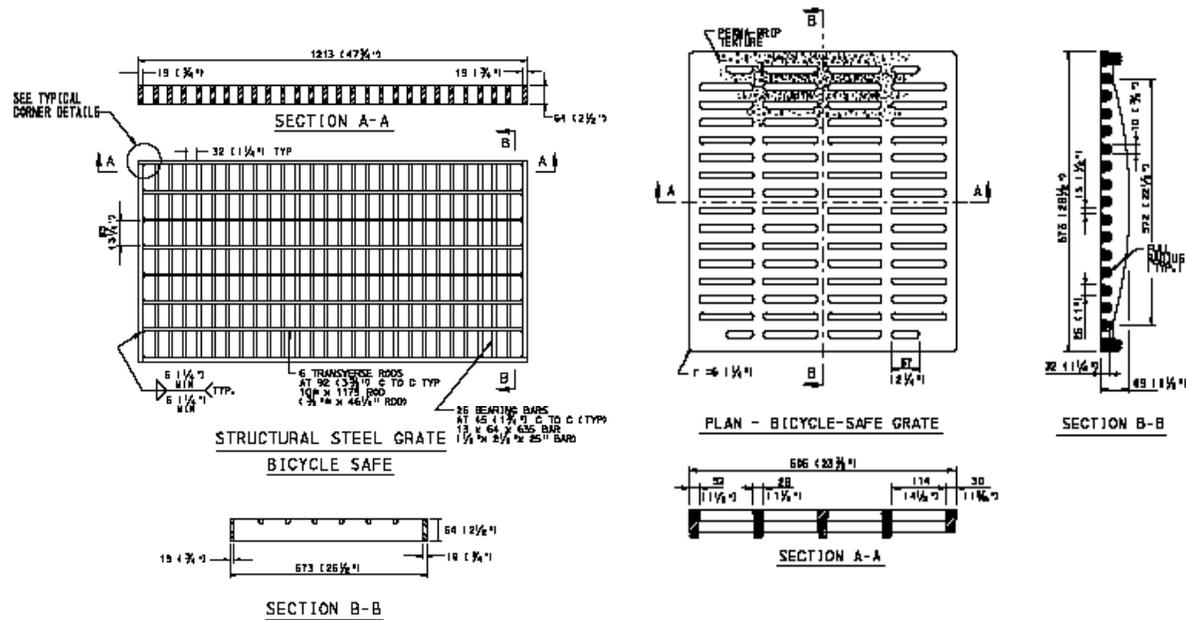
Pavement surfaces should be smooth and free of potholes, cracks, etc. Utility covers should be even with the pavement surface. Expansion joints on bridges should be a bicycle-friendly type. The pavement surface should be kept clean and free of debris.

## Drainage Inlet Grates

Drainage inlet grates should be replaced with bicycle-friendly types. Grates that have bars that are parallel to the direction of travel can trap the wheel of a bicycle. Even grates with diagonal bars can be hazardous to bicyclists. These types of grates can trap a bicycle wheel if, when located on the corner of an intersection, the bars are oriented so that the slots are parallel to the wheel of a turning bicycle. If bicycle-friendly grates cannot be installed in a timely fashion, then steel straps should be welded to the existing drainage inlet grates at 4-inch intervals, center-to-center, perpendicular to the parallel bars. Drainage inlets should also be flush with the pavement surface.

**Figure 9**

Examples of bicycle-friendly inlet grates



Source: Pennsylvania Department of Transportation

## Sidewalks as Signed Bicycle Facilities

Although the City of Pittsburgh's Code of Ordinances, which refers to Title 75 of the Pennsylvania Statutes, prohibits bicycles on sidewalks only in commercial districts (Pennsylvania Consolidated Statutes, Title 75, Part III, Chapter 35, §3508(b)), sidewalks should preferably not be used for bikeways, even in residential areas. Sidewalks are designed for pedestrians, who move at significantly slower speeds than bicyclists. The

potential for conflicts between pedestrians and bicyclists is high, especially on narrow sidewalks or sidewalks with numerous obstacles. In addition, bicycles are considered vehicles under the Pennsylvania Motor Vehicle Code, and therefore bicycle use should be restricted to facilities that are designed for such uses.

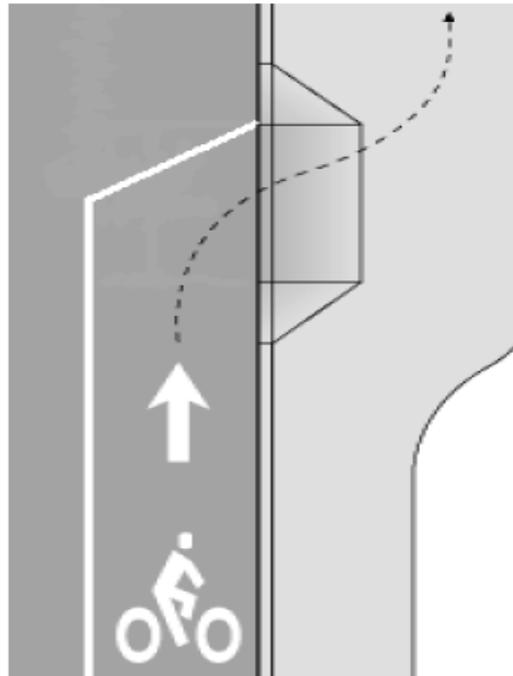
However, it is sometimes appropriate or necessary to use sidewalks as part of a bicycle route. These shared use pedestrian/bicycle facilities are appropriate in the following situations:

- Where it is necessary or desirable to provide continuity to a bicycle route along a high-speed roadway, which does not have adequate space for bicyclists, whether by means of a shared use lane or a bicycle lane; and
- On narrow bridges.

Curb cuts should be provided at the beginning and end of the shared use pedestrian/bicycle lane, as well as at all intersections. These curb cuts should be wide enough to accommodate bicycles with trailers. If the curb cut is located perpendicular to the direction of bicycle travel, the curb cut should be wide enough so that tandem bicycles and bicycles with trailers can easily negotiate their bicycle onto the sidewalk. A curb cut of approximately four (4) to eight (8) feet in width should be provided, depending on the location of the curb cut. Directional signage should direct the bicyclist on/off of the sidewalk at the location of the curb cuts. Stop and yield signs should be provided for the shared use pedestrian/bicycle lane at all intersections. Obstacles in the sidewalk should be removed, if possible.

## Figure 10

Example of transition from bicycle lane to shared use pedestrian/bicycle lane



**Source:** Modified from *Oregon Bicycle and Pedestrian Plan* (Oregon DOT, 1995)

## Traffic Signals

When planning bicycle facilities, consideration should be given to the operation of traffic signals along the planned bicycle route. Sufficient clearance interval (yellow and red) timings should be provided, as bicyclists entering the intersection at the end of the green phase should be able to travel through the intersection before opposing traffic receives a green phase. At intersections controlled by actuated signals, loop detectors should be able to sense the presence of a bicycle. Detectors should be placed in the bicycle lane, or where bicycles are likely to be located. Pavement markings should be located where the detector is located so that bicyclists know where to stop. Push-button actuators can be used for bicyclists, but they should be placed where a cyclist can reach them without dismounting. Refer to Chapter 2 of AASHTO's *Guide for the Development of Bicycle Facilities*, for more details.

## Railroad Crossings

Railroad, or light rail, grade crossings can be dangerous to cyclists. Rail crossings that are rough and in poor condition, which can be unpleasant for automobile occupants, can be extremely dangerous for bicyclists. The tracks alone can present a danger, since a bicycle wheel is narrow and will typically try to follow the flangeway of the track. All crossings of bicycle facilities over rail road/light rail tracks should occur at 90 degrees perpendicular to the tracks. If this is not possible, the minimum permissible angle at which a bikeway can cross tracks is 45 degrees. In this case, additional width to the bikeway should be provided so that cyclists can chose their approach angle. Compressible flangeway fillers, which can help reduce the likelihood of a bicycle wheel catching in the flangeway, are available, but they typically can only be used where train speeds are very low (approximately 5 miles per hour). Pavement approaching, and through, the rail crossing should be smooth and at grade with the rails and in good condition. Advance warning signage should be provided to bicyclists in advance of the rail crossing.

### Figure 11

Standard MUTCD regulatory signage for rail crossings



W10-1



R15-1

Source: MUTCD

## Maintenance

Bicycle lanes/shared use roadways should be kept clean and free of debris. Frequent street cleaning is necessary to ensure that debris such as gravel and glass do not build up on the bicycle lane/shared use roadway, since these facilities are typically located to the right of motorized vehicle travel lanes, which is where roadway debris typically gets pushed by traffic. Debris can be dangerous to bicyclists, especially branches, gravel, glass, etc., and can cause the cyclist to either fall or swerve into traffic. Even leaves,

when wet, can be hazardous to cyclists. Pavement surfaces should be maintained so that cracks and potholes are filled when necessary. Overlaying may be necessary as the pavement ages. If a pavement is overlaid, drop-offs from utility covers, drainage inlets, bridge expansion joints, etc., should be eliminated. Particular attention to asphalt pavement should be paid where bus stops are located, since transit vehicles can create 'shoving' of asphalt, which can be dangerous for cyclists since this typically creates an uneven surface that may cause a cyclist to lose control or strike their pedal on the hump of asphalt created by the asphalt 'shoving'. Snow should be removed from the bicycle lane in a timely fashion.

### **Data Collection Guidelines**

A significant amount of data must be collected in the field in order to determine if a roadway is suitable for a bicycle facility. To make the data collection task easier, a Bicycle Facility Field Data Collection Form has been developed. This form should be completed in the field by a qualified technician or engineer. A form should be completed for each block along a proposed bicycle route. In addition to the data required on the form, photos should be taken at each location. The information from the form(s) will then be used to determine if a bicycle facility is possible in the selected location, and, if so, what type of facility would be appropriate.

File 03117-pghcp00/nlpro1551

**City of Pittsburgh**  
**Bicycle Lane Field Data Collection Form**

Note: A form should be completed for each block of a proposed bikeway

Street Name: \_\_\_\_\_

Block location: between streets \_\_\_\_\_ and \_\_\_\_\_

Street orientation (Check one) \_\_\_ North/South \_\_\_ West/East

Permitted traffic movement (Check one) \_\_\_ Two-way \_\_\_ One-way

If one-way, what is direction of travel? \_\_\_ North to south \_\_\_ South to north

\_\_\_ West to east \_\_\_ East to west

Number of travel lanes: North/West \_\_\_\_\_ South/East \_\_\_\_\_

Turn bays present? (Check one) \_\_\_ Yes \_\_\_ No

If yes, what type of turn bays (Check all that apply) \_\_\_ Left \_\_\_ Right \_\_\_ Other

If other, please describe: \_\_\_\_\_

On-street parking permitted? (Check one) \_\_\_ Yes \_\_\_ No

If yes, what type of parking (Check all that apply) \_\_\_ Metered \_\_\_ Permit

\_\_\_ Free \_\_\_ Loading zone

If yes, on both sides of the street? (Check one) \_\_\_ Yes \_\_\_ No

If no, what side of the street is parking? (Check one) \_\_\_ North \_\_\_ South

\_\_\_ West \_\_\_ East

Street width, overall (feet): \_\_\_\_\_

Comment: \_\_\_\_\_

Speed Limit (miles per hour): \_\_\_\_\_

Do vehicular speeds appear to exceed the posted speed limit? (Check one) \_\_\_ Yes \_\_\_ No

If yes, a speed study must be performed. 85<sup>th</sup> percentile speed: \_\_\_\_\_

Comment: \_\_\_\_\_

Street surface material (Check one): \_\_\_ Concrete \_\_\_ Asphalt \_\_\_ Brick/Cobblestone

Comment: \_\_\_\_\_

Street pavement condition (Check one): \_\_\_ Excellent \_\_\_ Good \_\_\_ Fair \_\_\_ Poor

Comment: \_\_\_\_\_

Roadway Grade (percent): \_\_\_\_\_

Comment: \_\_\_\_\_

Bus stops present? (Check one) \_\_\_ Yes \_\_\_ No

Comment: \_\_\_\_\_

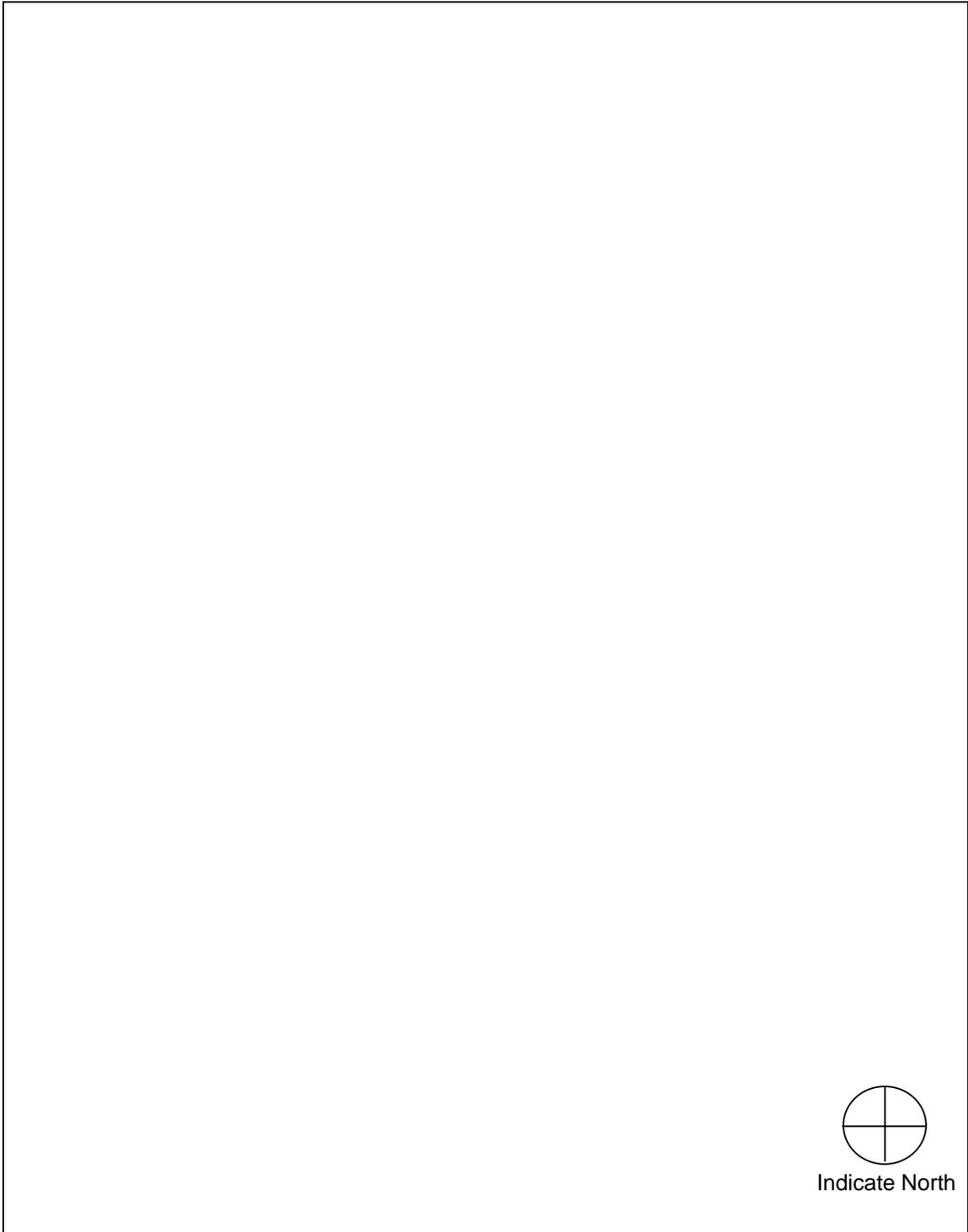
Type of curb/shoulder (Check one): \_\_\_ Curb/sidewalk \_\_\_ Curb w/gutter pan \_\_\_ No curb

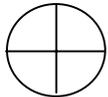
Comment: \_\_\_\_\_

Other comments: \_\_\_\_\_

\_\_\_\_\_

Street plan-view sketch (include number of lanes, lane widths, location of parking, parking lane widths, parking and traffic control signage, traffic signals, bus stops):



  
Indicate North