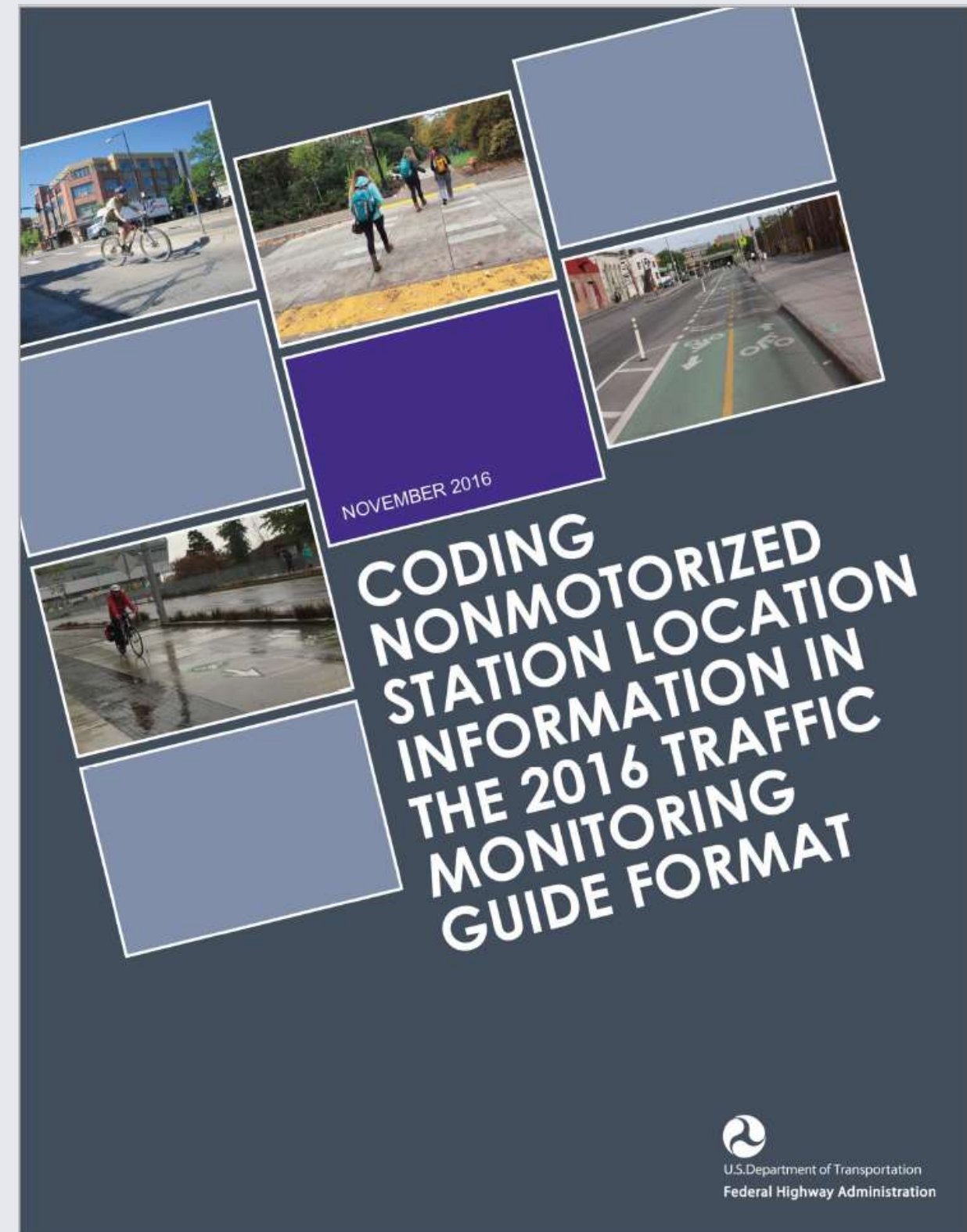


The Traffic Monitoring Guide: Counting Bicyclists and Pedestrians

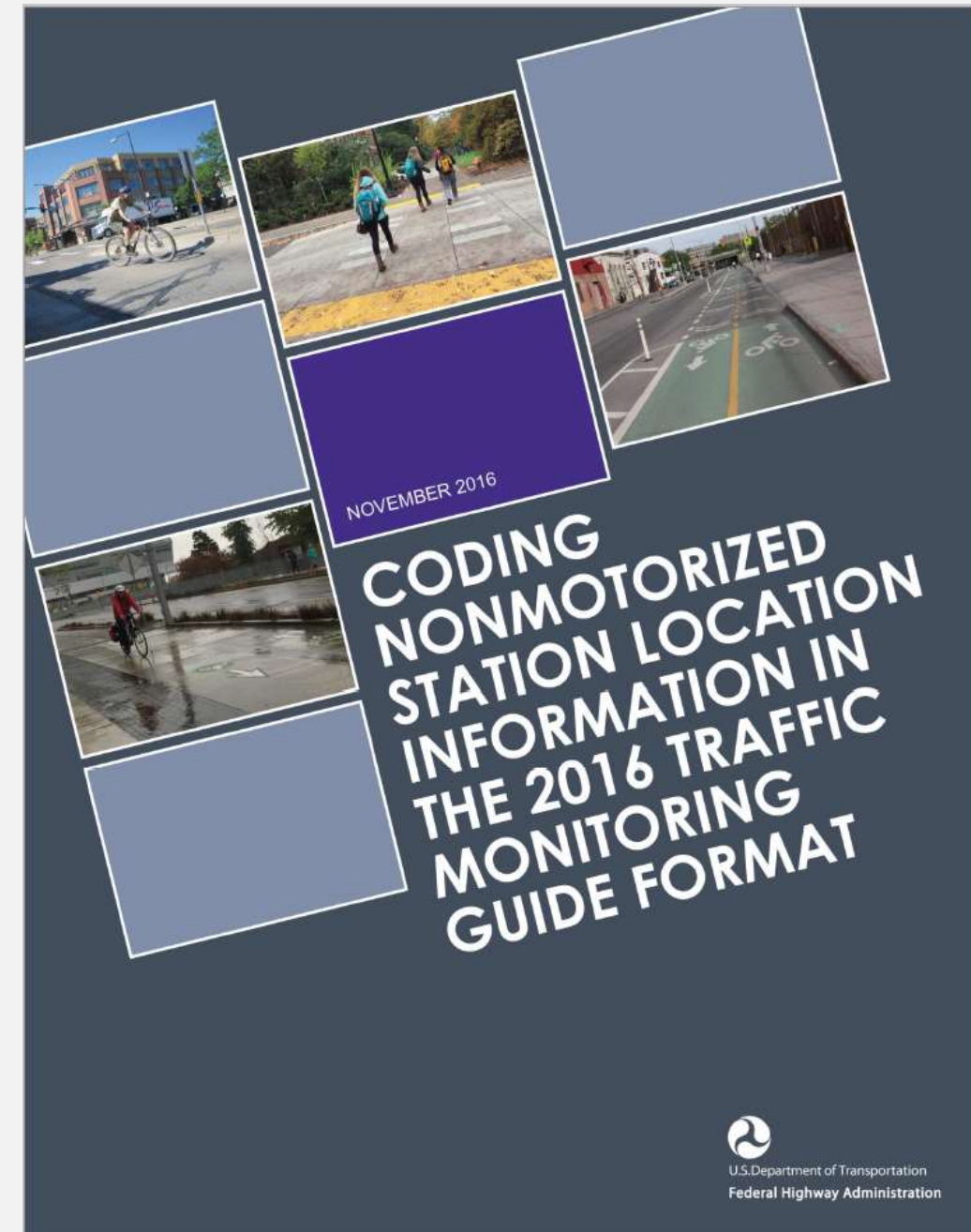
APBP 2017

June 28: 11:15am-12:45pm



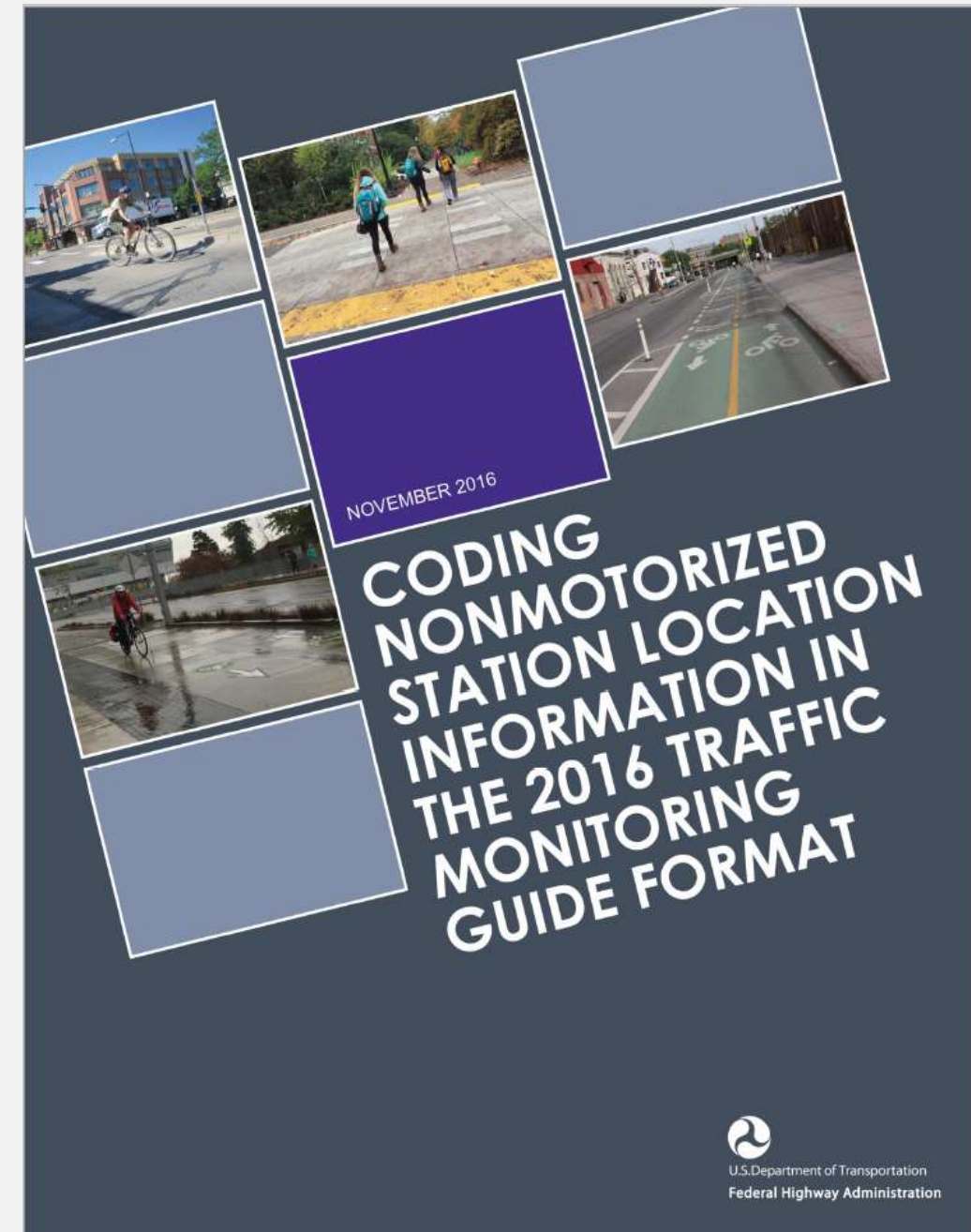
Presentation Organization

- Why count bicyclists and pedestrians?
- Why report count data?
- What resources are available?
- How do I record counts?



Before We Begin a Few Questions...

- Do you currently collect bicycle and pedestrian data? Why or why not?
- If you collect data, how do you use it?
- What are barriers to collecting data (or more data)?
- How do you store and manage data?
- What resources do you need you don't have?



Why count bicyclists and pedestrians?

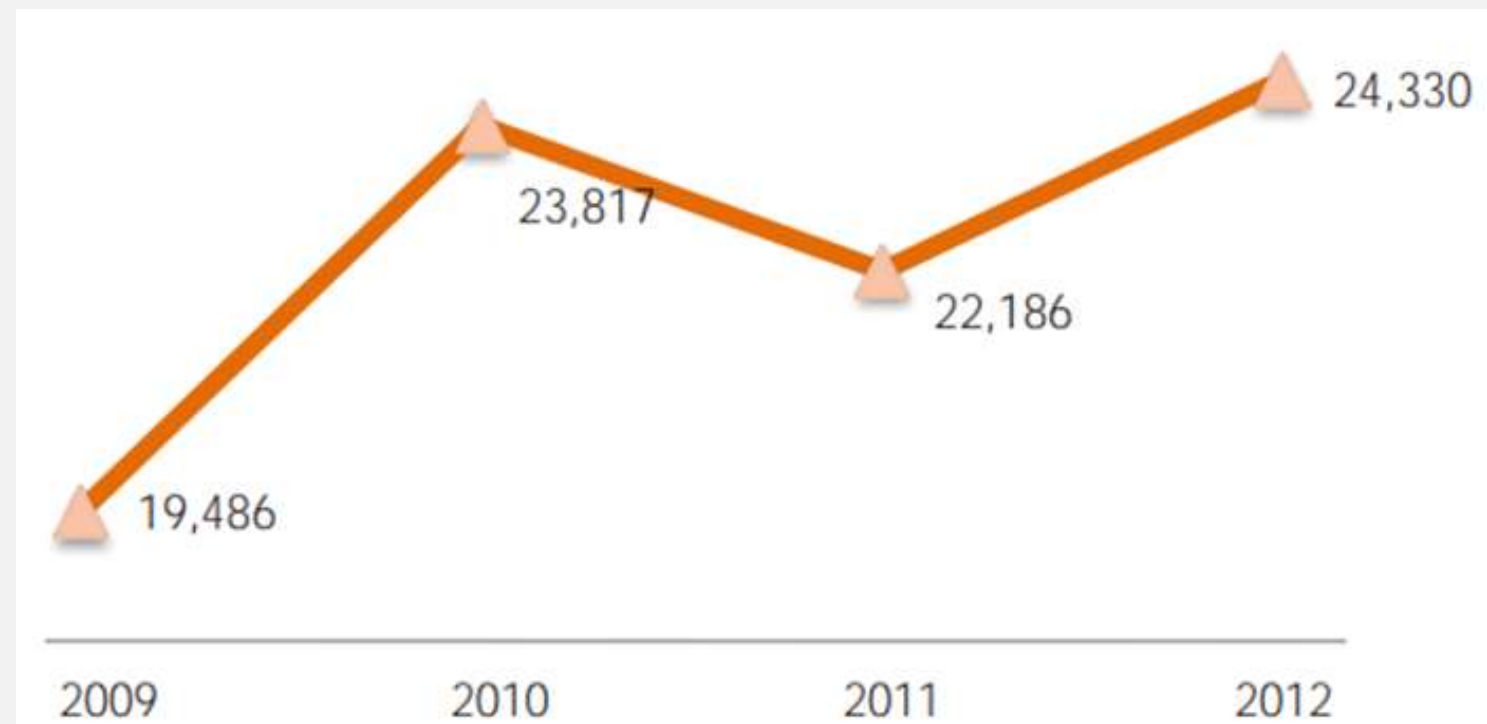
- Measure facility usage
- Evaluate before & after volumes
- Analyze safety
- Identify user characteristics
- Estimate network volumes
- Prioritize projects
- Assess mode split
- Identify activity patterns



Measure Facility Usage

- Transportation system monitoring program
- Typically requires collecting counts at set locations and regular intervals
- Critical for tracking progress, measuring success

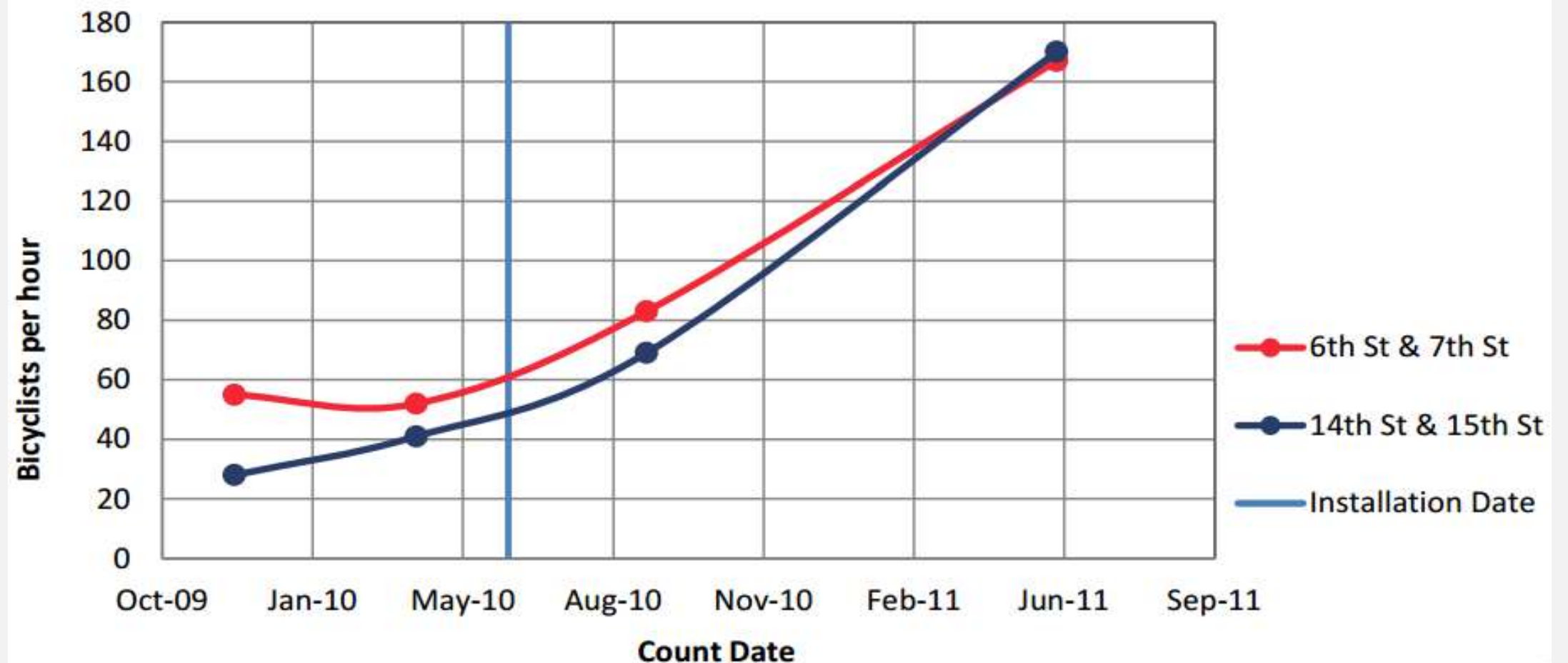
Change in walking and bicycling activity at Washington State count sites, 2009–2012
Source: Washington State DOT (2012)



Evaluate Before-and-After Volumes

- Measure volumes before and after facility is opened
- Forecast usage of planned facilities

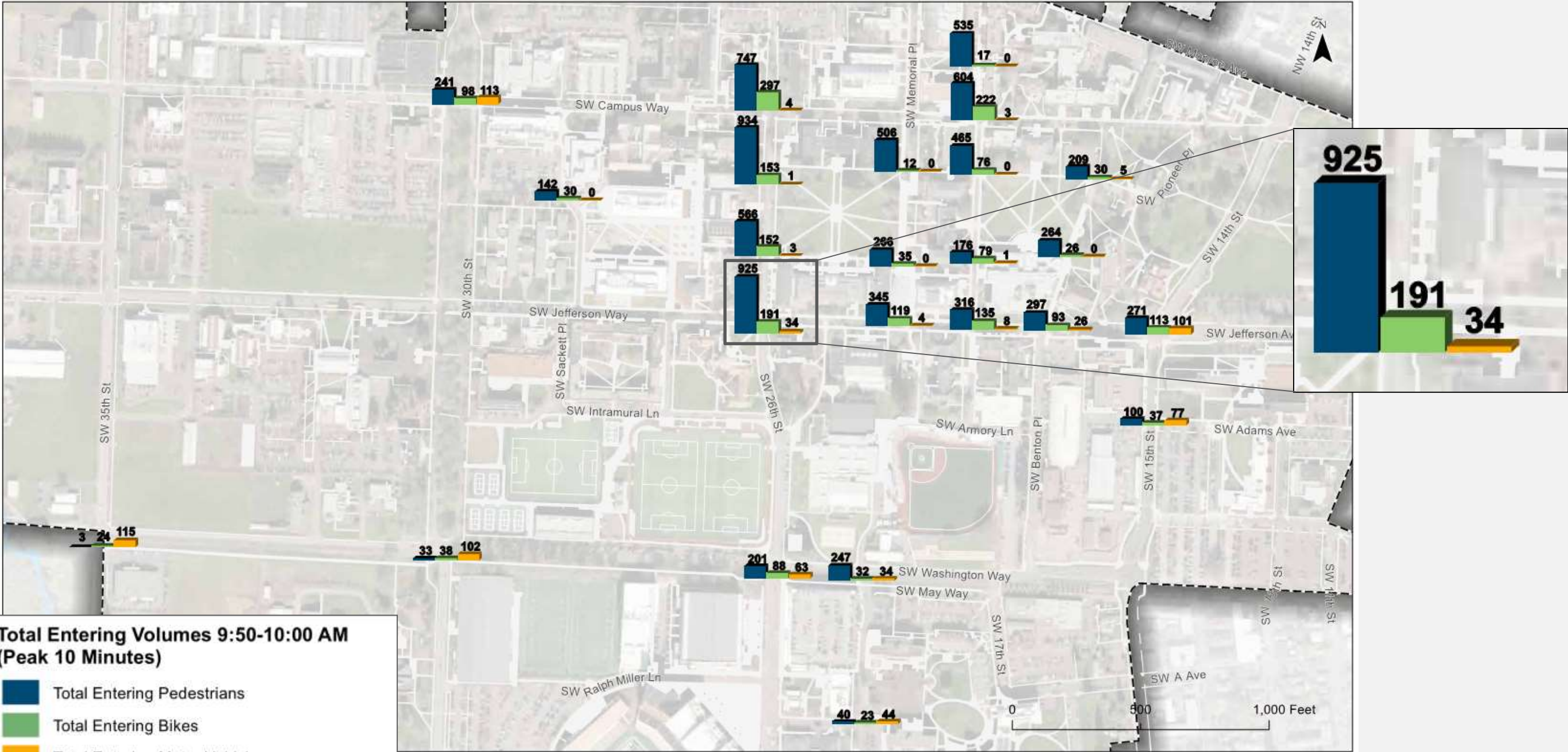
*Before-and-after
bicycle facility usage:
buffered bicycle lanes
on Pennsylvania Ave.,
Washington, DC
Source: Kittelson &
Associates, Portland
State University, and
Toole Design Group
(2012)*



Analyze Safety

- Quantifying exposure
 - *Challenge*: in general, more pedestrian & bicycle activity at a location → more reported crashes
 - Variety of methods proposed to quantify exposure
 - One method compares pedestrian–vehicle collisions to average annual pedestrian volumes
- Assessing friction between modes

Analyze Safety



Total Entering Volumes | Figure

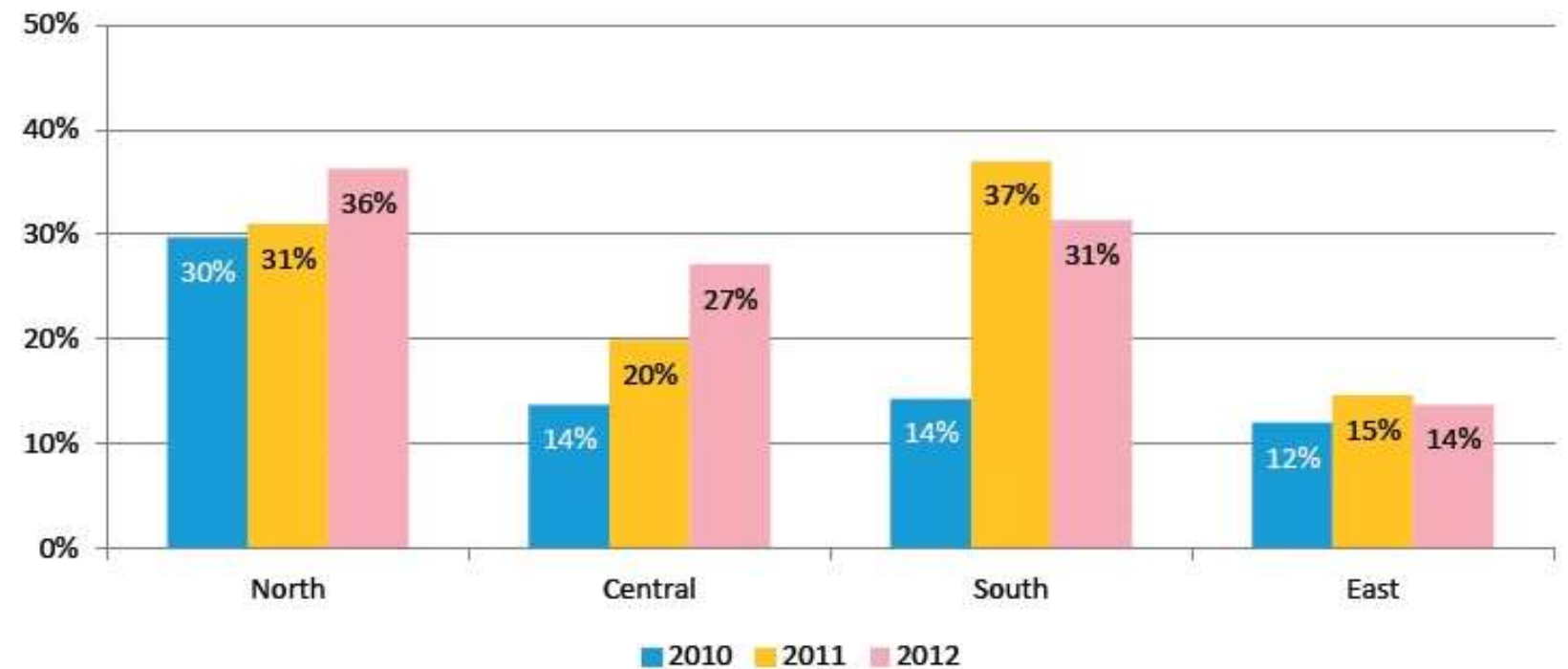
Analyze Safety

	Location	Pedestrian-Bicyclist Exposure (Cars*(Peds+Bikes))	Pedestrian-Bicyclist Friction (Peds*Bikes)	Pedestrian Exposure (Cars*Peds)	Bicyclist Exposure (Cars*Bikes)
R	14th Street-15th Street & Jefferson Way	38.78	30.62	27.37	11.41
B	30th Street & Campus Way	38.53	23.81	27.46	11.07
N	26th Street & Jefferson Way	38.11	177.63	31.62	6.49
W	26th Street & Washington Way	18.21	17.69	12.66	5.54
S	15th Street & Adams Ave	10.63	3.74	7.78	2.85
Q	Benton Place & Jefferson Way	10.14	27.62	7.72	2.42
X	Stadium Avenue & Washington Way	9.49	7.90	8.40	1.09
U	30th Street & Washington Way	7.24	1.25	3.37	3.88
C	26th Street & Campus Way	4.20	223.34	3.01	1.19
P	Waldo Place & Jefferson Way	3.68	43.88	2.60	1.08
T	35th Street & Washington Way	3.11	0.07	0.35	2.76
D	Waldo Place & Campus Way	2.72	152.07	2.06	0.67
J	26th Street & Southern MU Quad Walkway	2.15	86.03	1.70	0.46
O	Langton Place & Jefferson Way	1.86	41.06	1.38	0.48
I	Pioneer Place & Northern Library Quad Walkway	1.20	6.27	1.05	0.15
F	26th Street & Northern MU Quad Walkway	1.09	142.90	0.93	0.15
L	Waldo Place & Southern Library Quad Walkway	0.26	13.90	0.18	0.08
H	Waldo Place & Northern Library Quad Walkway		35.34		
K	Memorial Place & Southern MU Quad Walkway		9.31		
A	SE Corner Weniger Hall		9.15		
M	SE Corner Library Quad Walkway		6.86		
G	Memorial Place & Northern MU Quad Walkway		6.52		
E	West of the Learning Innovation Center		4.26		

Identify User Characteristics

- Demographics
 - Gender
 - Age
 - Disabilities
- Behaviors
 - Helmet use
 - Looking before crossing
 - Yielding to pedestrians

Figure 3-14: Percent Female Bicyclists by Planning Area (2010, 2011, 2012; weekday mid-day, school and PM periods; 63 sites)

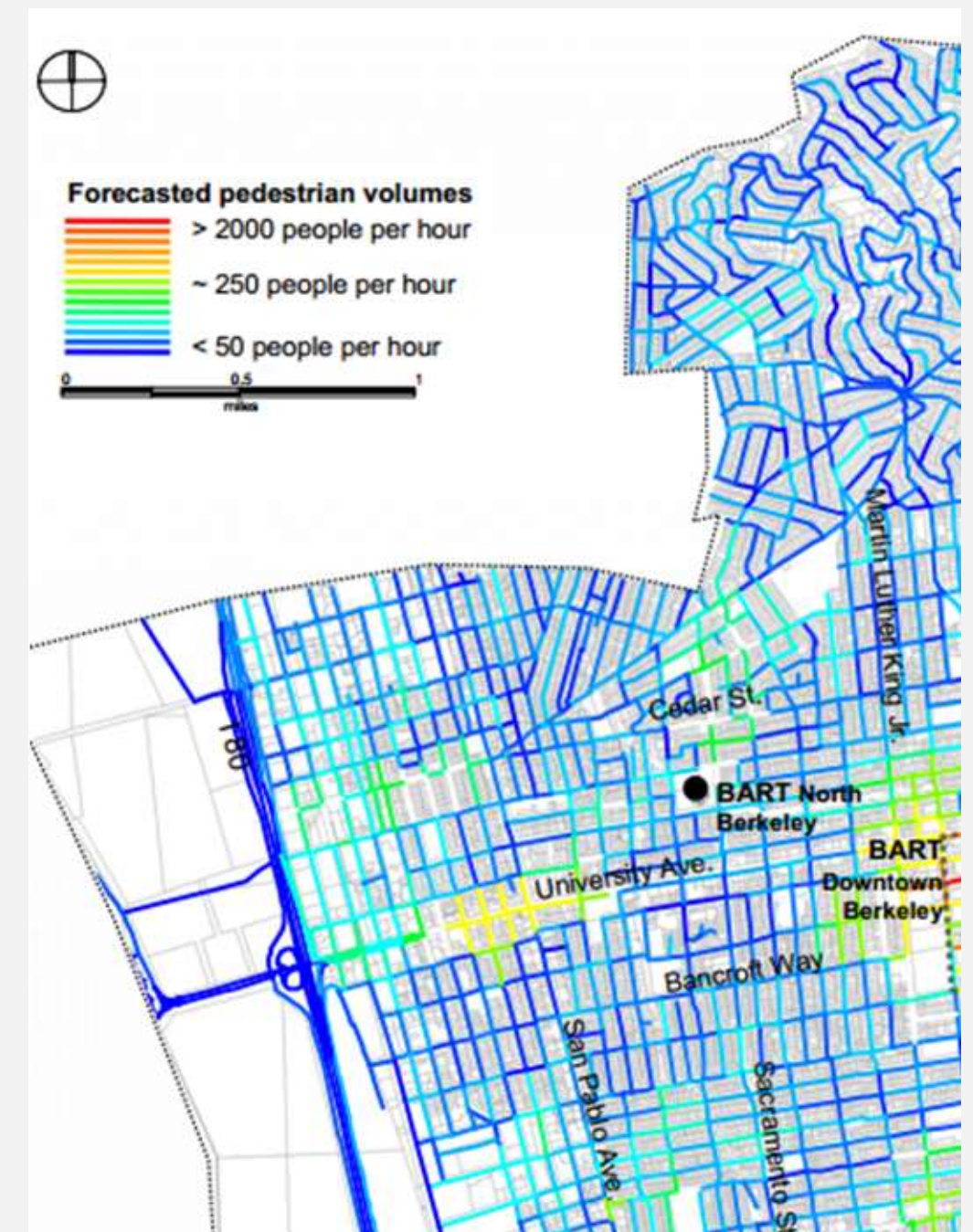


Source: Alameda County Transportation Commission. Pedestrian and Bicycle Manual Counts Report: 2002-2012, Prepared by Wheeler Consulting and Switchpoint Planning, August 2013.

Estimate Network Volumes

- Multimodal travel demand modeling is an emerging field
- Potential to estimate demand over a large area and forecast influence of infrastructure changes

*Source: City of Berkeley, CA
Pedestrian Master Plan*



Prioritize Projects

- Identify high-priority locations for improvements
- Counts & estimated network volume can be used as a demand factor for ranking locations

	A	B
1	Step 2: Select Factors	
2	Factor	Select?
3	Stakeholder Input	Yes
4	Constraints (Cost and Legal)	No
5	Opportunities (Upcoming Projects)	Yes
6	Safety	Yes
7	Existing Conditions	No
8	Demand	Yes
9	Connectivity	No
10	Equity	Yes
11	Compliance	No

	ID	Location	Prioritization Score	Prioritization Rank
6				
7	3	3RD ST	275.3	1
8	1	CENTRAL AVE	164.0	2
9	7	OSBORN RD	158.2	3
10	19	24TH ST	142.2	4
11	10	3RD/5TH	142.2	5
12	4	12TH ST	141.2	6
13	9	20TH ST	137.9	7
14	5	15TH AVE	120.3	8
15	2	WASHINGTON/JEFFERSON C	117.8	9
16	8	OAK ST	111.0	10
17	37	MARYLAND AVE	96.2	11
18	36	MISSOURI AVE	95.5	12
19	35	GRAND CANAL	91.1	13
20	26	RAY RD	88.6	14
21	25	48TH ST	81.9	15
22	16	7TH AVE	78.3	16
23	29	INDIAN BEND WASH	76.6	17

Source: Toole Design Group, NCHRP 07-17 Report, ActiveTrans Prioritization Tool (APT)

Assess Mode Split

- Mode split can help define priorities and select appropriate facilities
- Assess changes over time

*New York City Department of Transportation
(2013)*



Peak hour traffic volumes:

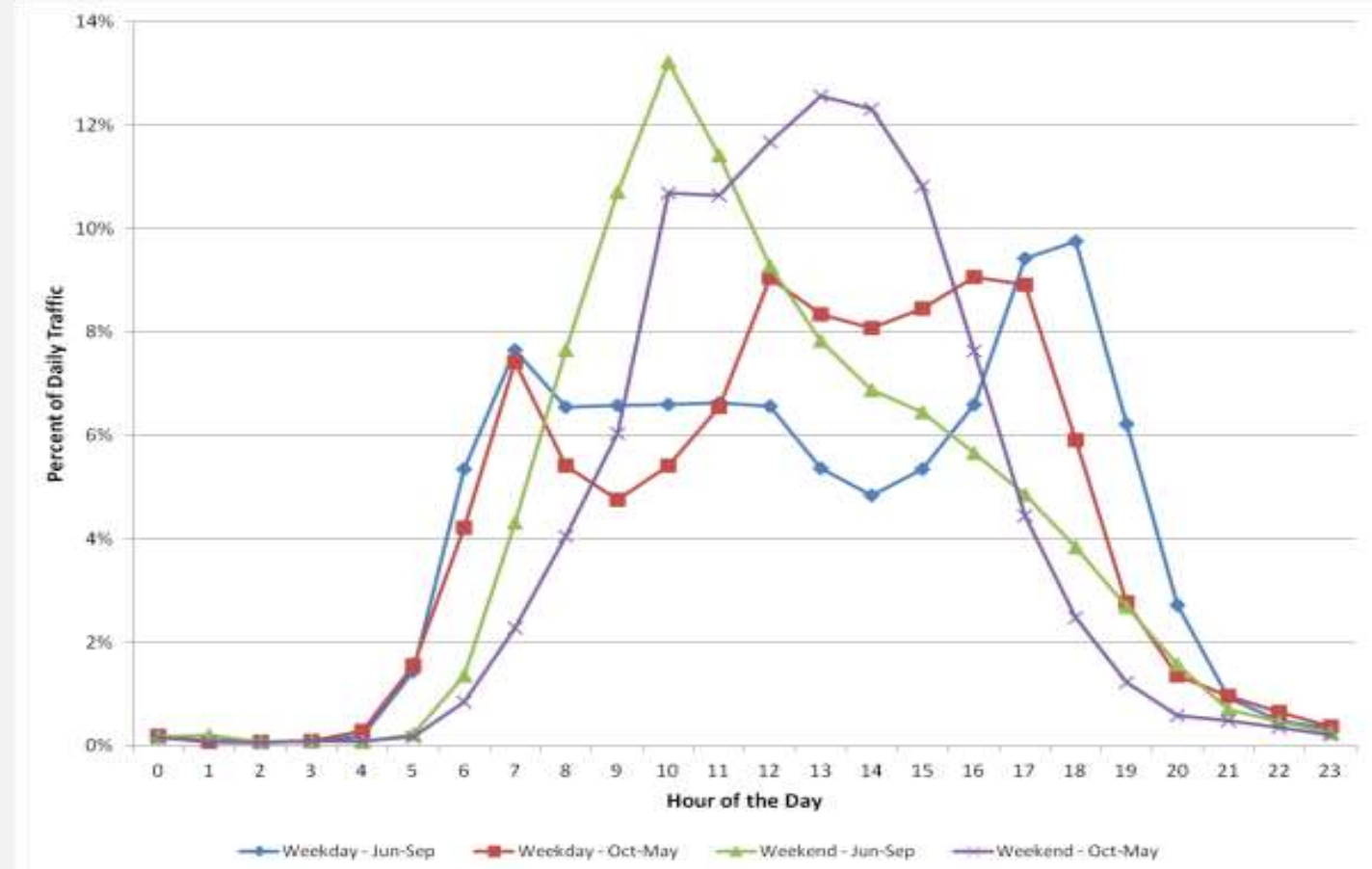
- 1,559 vehicles (Brooklyn-bound, 4:30-5:30pm)
- 1,556 vehicles (Queens-bound, 8-9am)

Pulaski Bridge Weekday Bicycle/Pedestrian Counts
7-11am & 2-7pm

Mode	April 2009	April 2013	% change
Bicyclists	487	1,004	+106%
Pedestrians	1,077	1,586	+47%

Why Report Count Data?

- Understand time-of-day, day-of-week, and monthly variations in nonmotorized travel
- Estimate annual average daily bicycle traffic (AADBPT), AADPT, AADNT from short duration counts
- Report and compare facility use



*Cherry Creek Trail continuous count data,
Colorado Department of Transportation,
2010*

Why Report Count Data?

- Contribute to national repository of data for researchers
- Develop accurate and consistent demand and usage figures to measure impact of investments
- Understand trends between bicycle and pedestrian volumes and other factors (facility type, land use, vehicle volumes, etc.)

What Resources are Available?

- National Bicycle and Pedestrian Documentation Project (NBPD)
- NCHRP 797
- Traffic Monitoring Guide
- Coding Nonmotorized Station Location Information in the 2016 TMG Format
- Many examples from agencies!

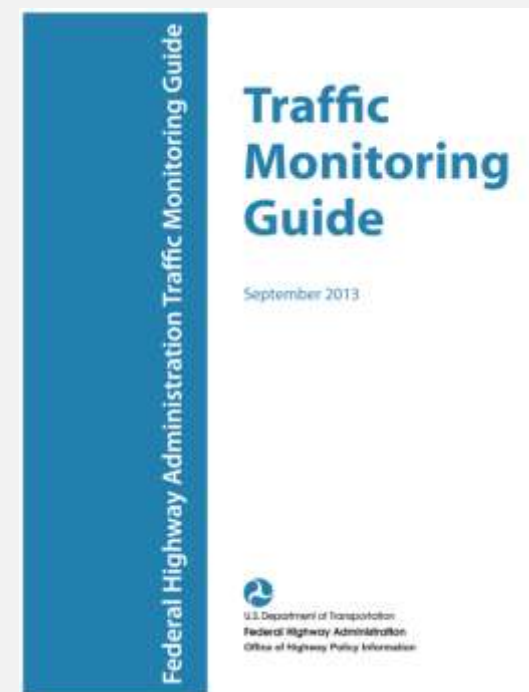
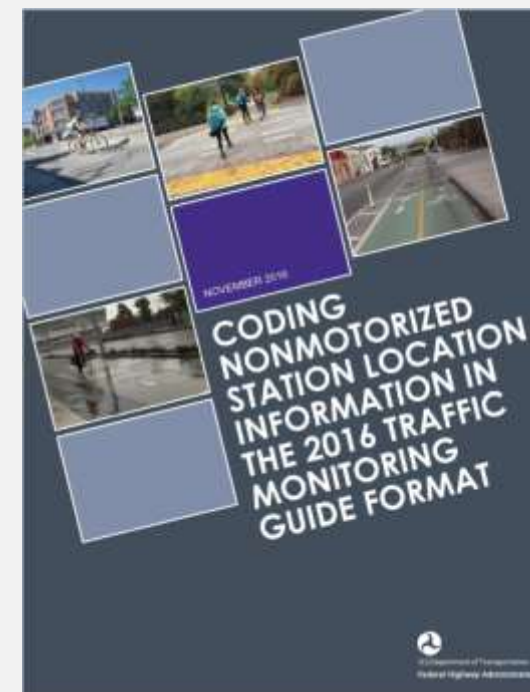


NCHRP
REPORT 797

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

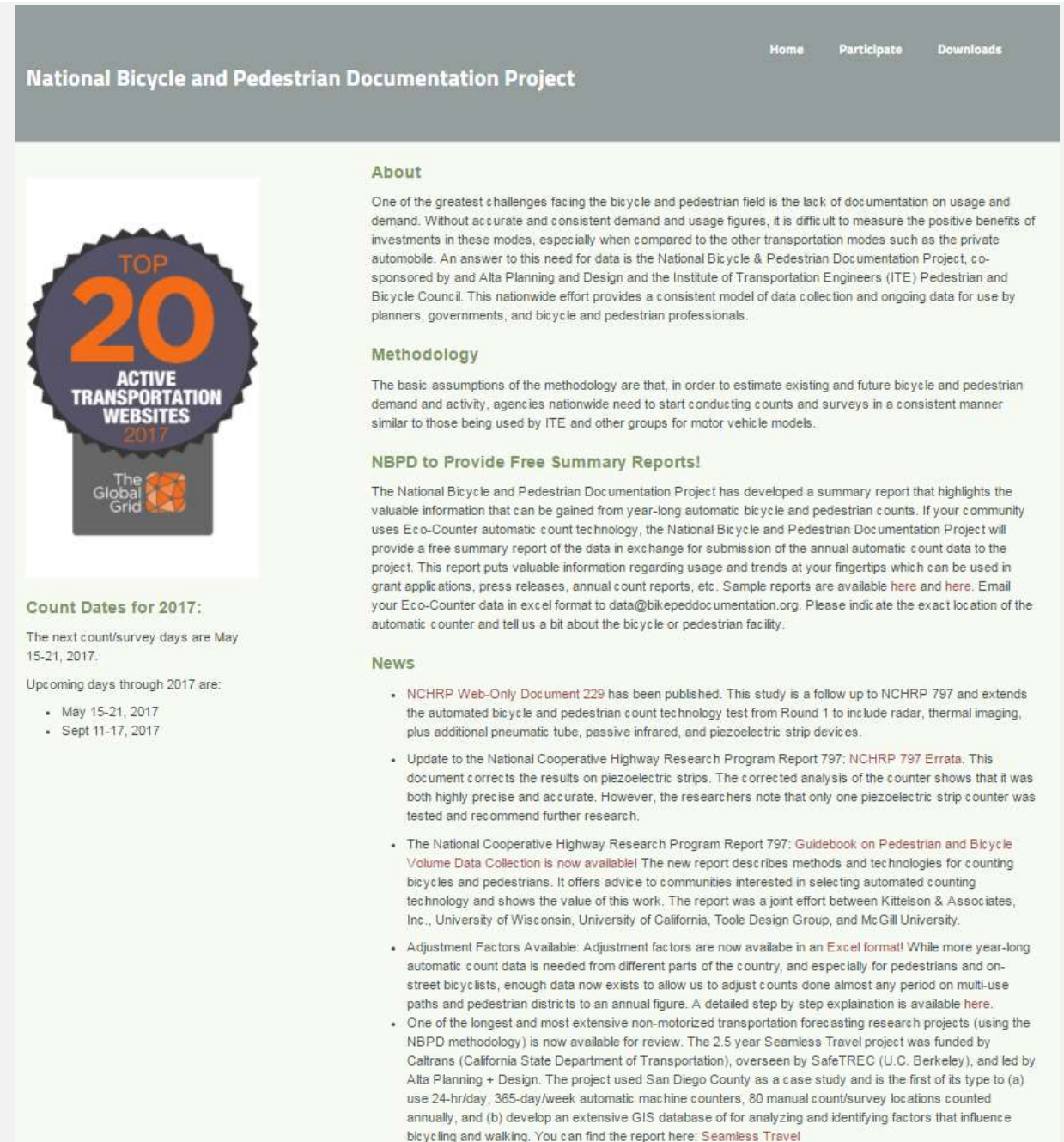
Guidebook on Pedestrian and
Bicycle Volume Data Collection

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES



NBPD

- Started in 2014
- Led by Alta Planning + Design in collaboration with ITE Pedestrian & Bicycle Council
- One of first attempts to create national repository for walking and bicycling data
- Includes resources for collecting manual counts



Home Participate Downloads

National Bicycle and Pedestrian Documentation Project

TOP 20 ACTIVE TRANSPORTATION WEBSITES 2017
The Global Grid

Count Dates for 2017:

The next count/survey days are May 15-21, 2017.

Upcoming days through 2017 are:

- May 15-21, 2017
- Sept 11-17, 2017

About

One of the greatest challenges facing the bicycle and pedestrian field is the lack of documentation on usage and demand. Without accurate and consistent demand and usage figures, it is difficult to measure the positive benefits of investments in these modes, especially when compared to the other transportation modes such as the private automobile. An answer to this need for data is the National Bicycle & Pedestrian Documentation Project, co-sponsored by Alta Planning and Design and the Institute of Transportation Engineers (ITE) Pedestrian and Bicycle Council. This nationwide effort provides a consistent model of data collection and ongoing data for use by planners, governments, and bicycle and pedestrian professionals.

Methodology

The basic assumptions of the methodology are that, in order to estimate existing and future bicycle and pedestrian demand and activity, agencies nationwide need to start conducting counts and surveys in a consistent manner similar to those being used by ITE and other groups for motor vehicle models.

NBPD to Provide Free Summary Reports!

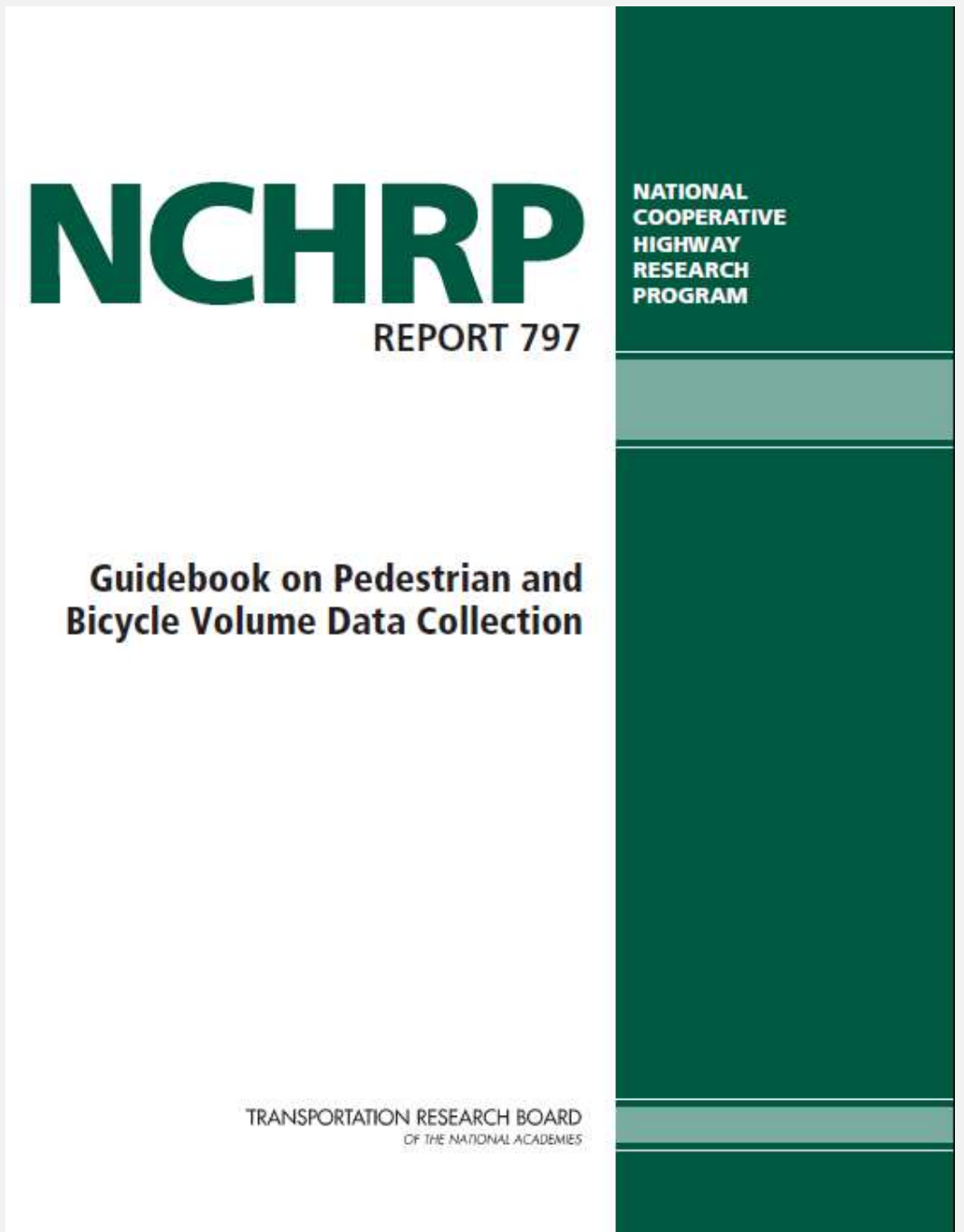
The National Bicycle and Pedestrian Documentation Project has developed a summary report that highlights the valuable information that can be gained from year-long automatic bicycle and pedestrian counts. If your community uses Eco-Counter automatic count technology, the National Bicycle and Pedestrian Documentation Project will provide a free summary report of the data in exchange for submission of the annual automatic count data to the project. This report puts valuable information regarding usage and trends at your fingertips which can be used in grant applications, press releases, annual count reports, etc. Sample reports are available [here](#) and [here](#). Email your Eco-Counter data in excel format to data@bikepeddocumentation.org. Please indicate the exact location of the automatic counter and tell us a bit about the bicycle or pedestrian facility.

News

- NCHRP Web-Only Document 229 has been published. This study is a follow up to NCHRP 797 and extends the automated bicycle and pedestrian count technology test from Round 1 to include radar, thermal imaging, plus additional pneumatic tube, passive infrared, and piezoelectric strip devices.
- Update to the National Cooperative Highway Research Program Report 797: NCHRP 797 Errata. This document corrects the results on piezoelectric strips. The corrected analysis of the counter shows that it was both highly precise and accurate. However, the researchers note that only one piezoelectric strip counter was tested and recommend further research.
- The National Cooperative Highway Research Program Report 797: Guidebook on Pedestrian and Bicycle Volume Data Collection is now available! The new report describes methods and technologies for counting bicycles and pedestrians. It offers advice to communities interested in selecting automated counting technology and shows the value of this work. The report was a joint effort between Kittelson & Associates, Inc., University of Wisconsin, University of California, Toole Design Group, and McGill University.
- Adjustment Factors Available: Adjustment factors are now available in an Excel format! While more year-long automatic count data is needed from different parts of the country, and especially for pedestrians and on-street bicyclists, enough data now exists to allow us to adjust counts done almost any period on multi-use paths and pedestrian districts to an annual figure. A detailed step by step explanation is available [here](#).
- One of the longest and most extensive non-motorized transportation forecasting research projects (using the NBPD methodology) is now available for review. The 2.5 year Seamless Travel project was funded by Caltrans (California State Department of Transportation), overseen by SafeTREC (U.C. Berkeley), and led by Alta Planning + Design. The project used San Diego County as a case study and is the first of its type to (a) use 24-hr/day, 365-day/week automatic machine counters, 80 manual count/survey locations counted annually, and (b) develop an extensive GIS database of for analyzing and identifying factors that influence bicycling and walking. You can find the report [here: Seamless Travel](#)

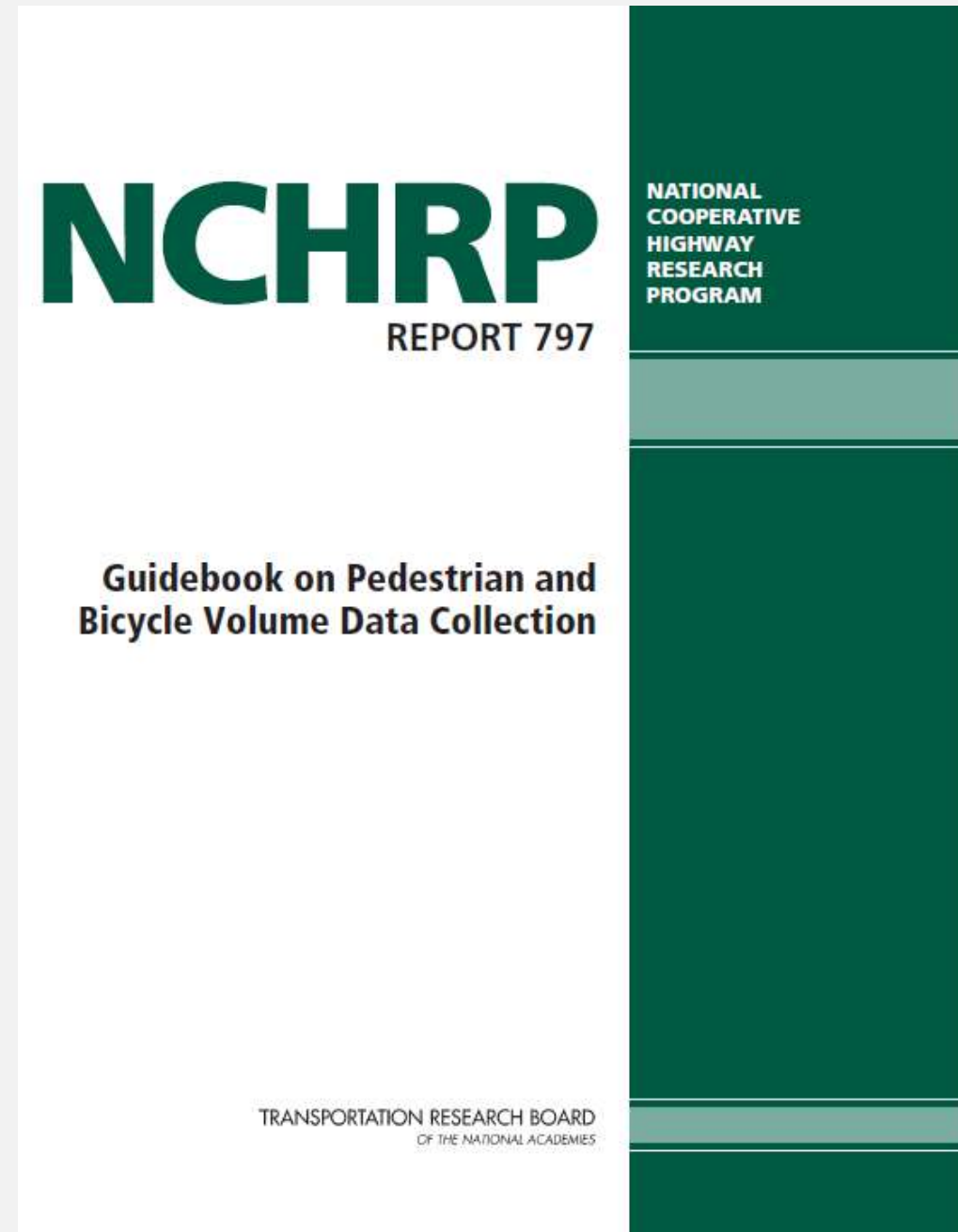
NCHRP 797

- NCHRP 797: Guidance for Practitioners
- NCHRP Web-only Document 205: documentation of the research effort



NCHRP Report 797 Topics

- Count applications with case studies
- Planning and implementing a count program, with checklists and case studies
- Correcting raw count data for to account for site- and product-specific counting errors
- Expanding short-term count data to estimate longer-duration volumes
- Typical applications, strengths/limitations, relative cost, installation needs, and accuracy of counting technologies

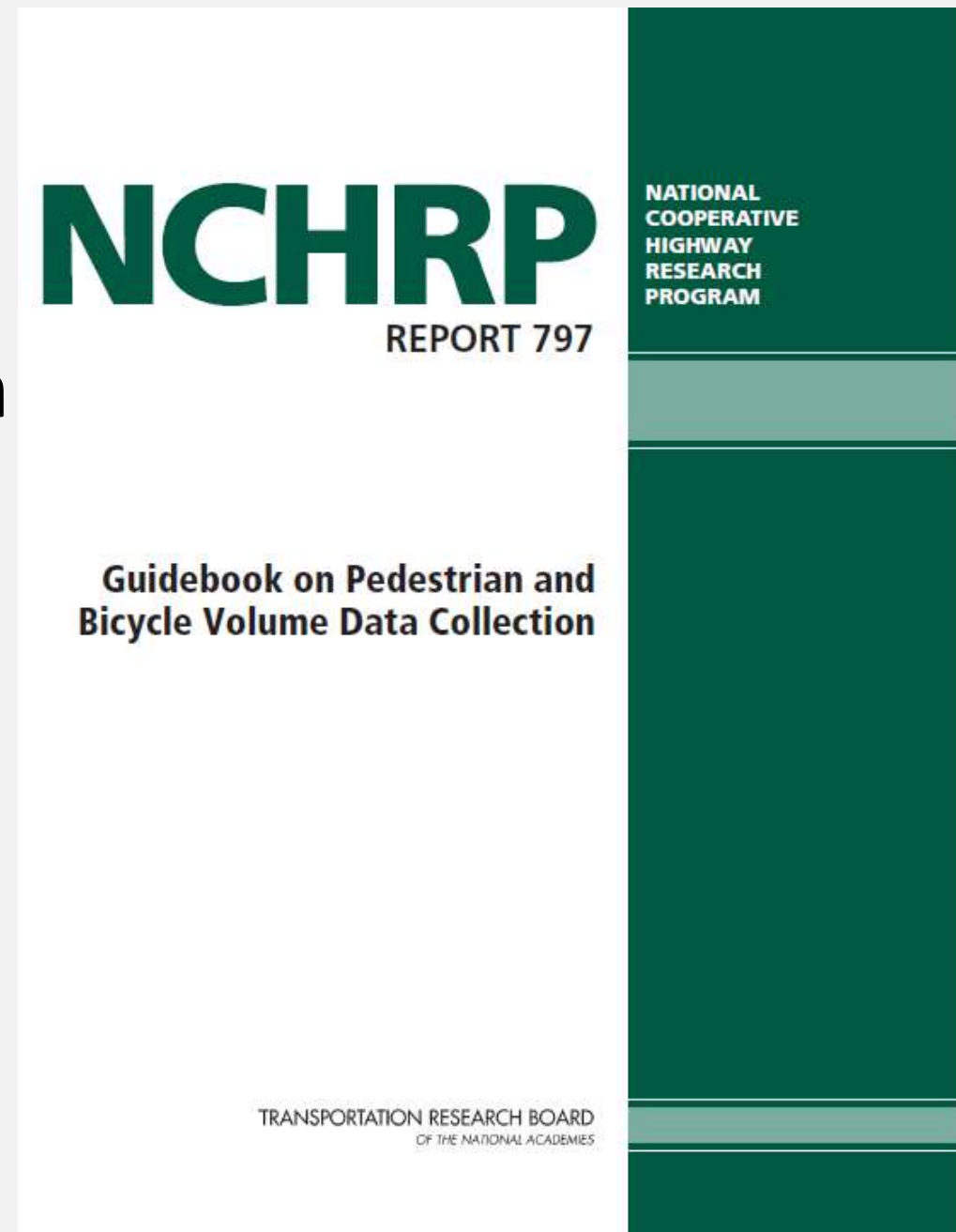


NCHRP Report 797 Contents

Quick Start Guide

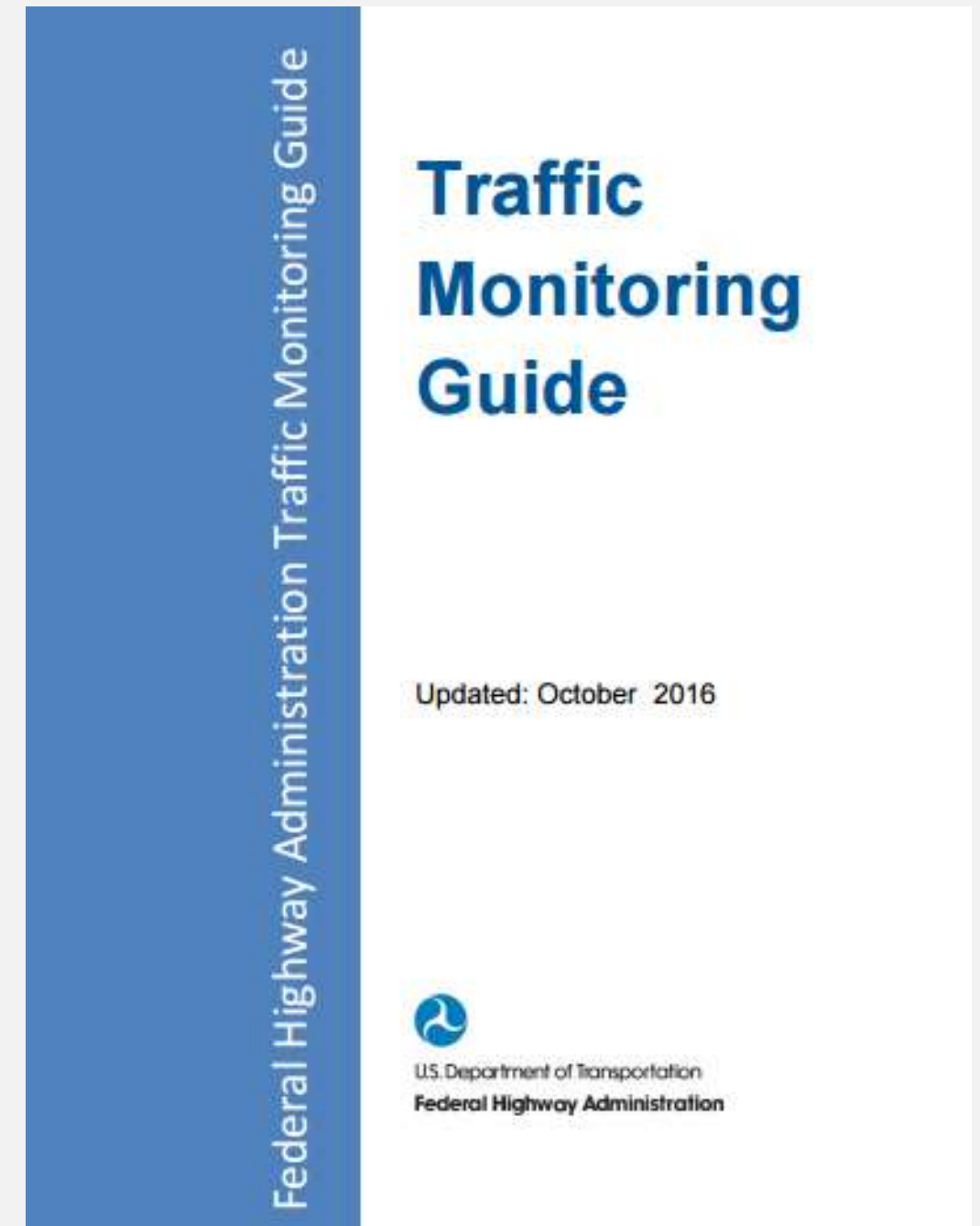
1. Introduction
2. Non-Motorized Count Data Applications
3. Data Collection Planning and Implementation
4. Adjusting Count Data
5. Sensor Technology Toolbox

- Appendices*
- Case Studies
 - Manual Pedestrian and Bicyclist Counts: Example Data Collector Instructions
 - Count Protocol Used for NCHRP Project 07-19
 - Day-of-Year Factoring Approach



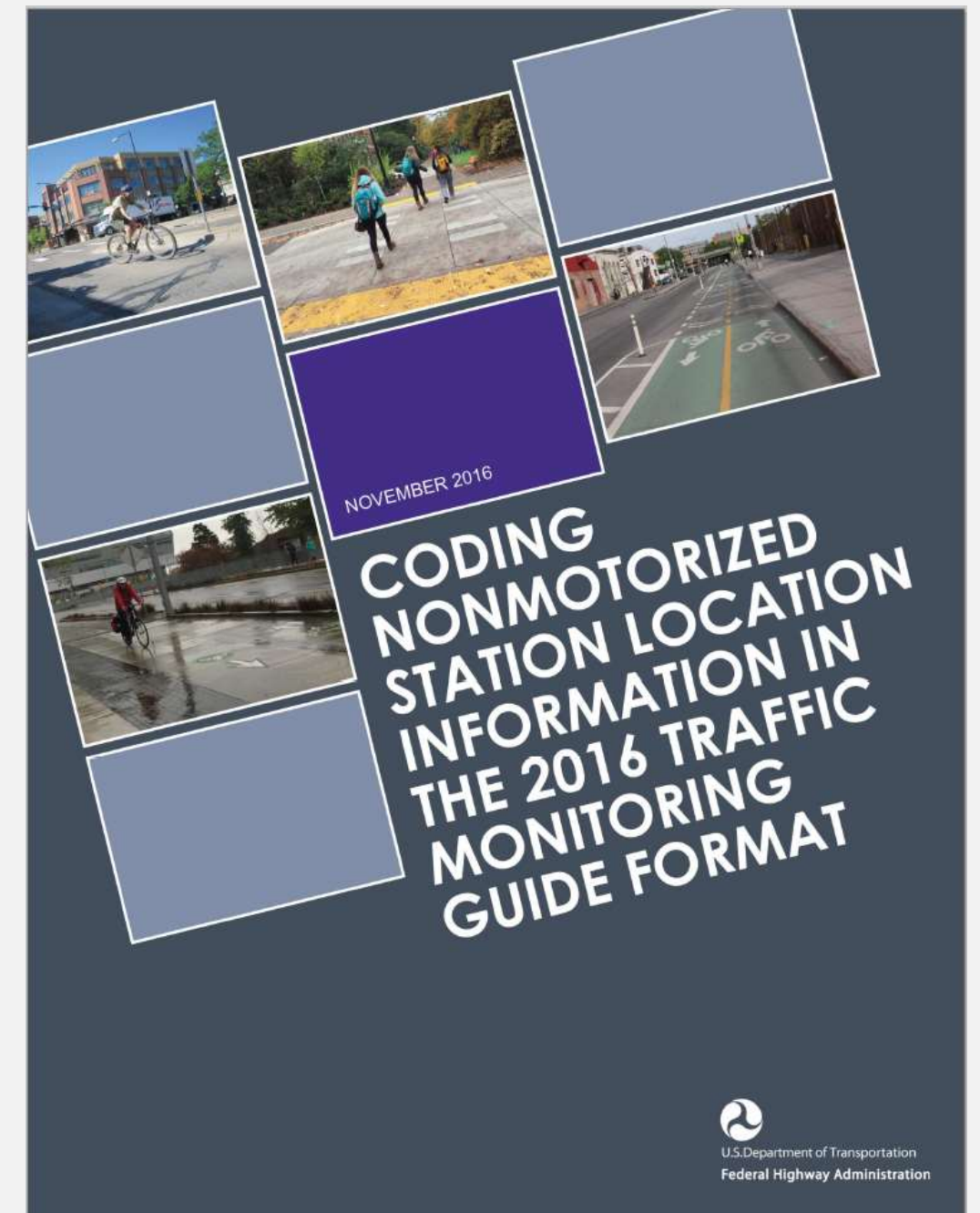
Traffic Monitoring Guide

- Chapter on nonmotorized traffic introduced in 2013 guide
- 2016 guide includes updates to nonmotorized data format
- Guidance on collecting and reporting data



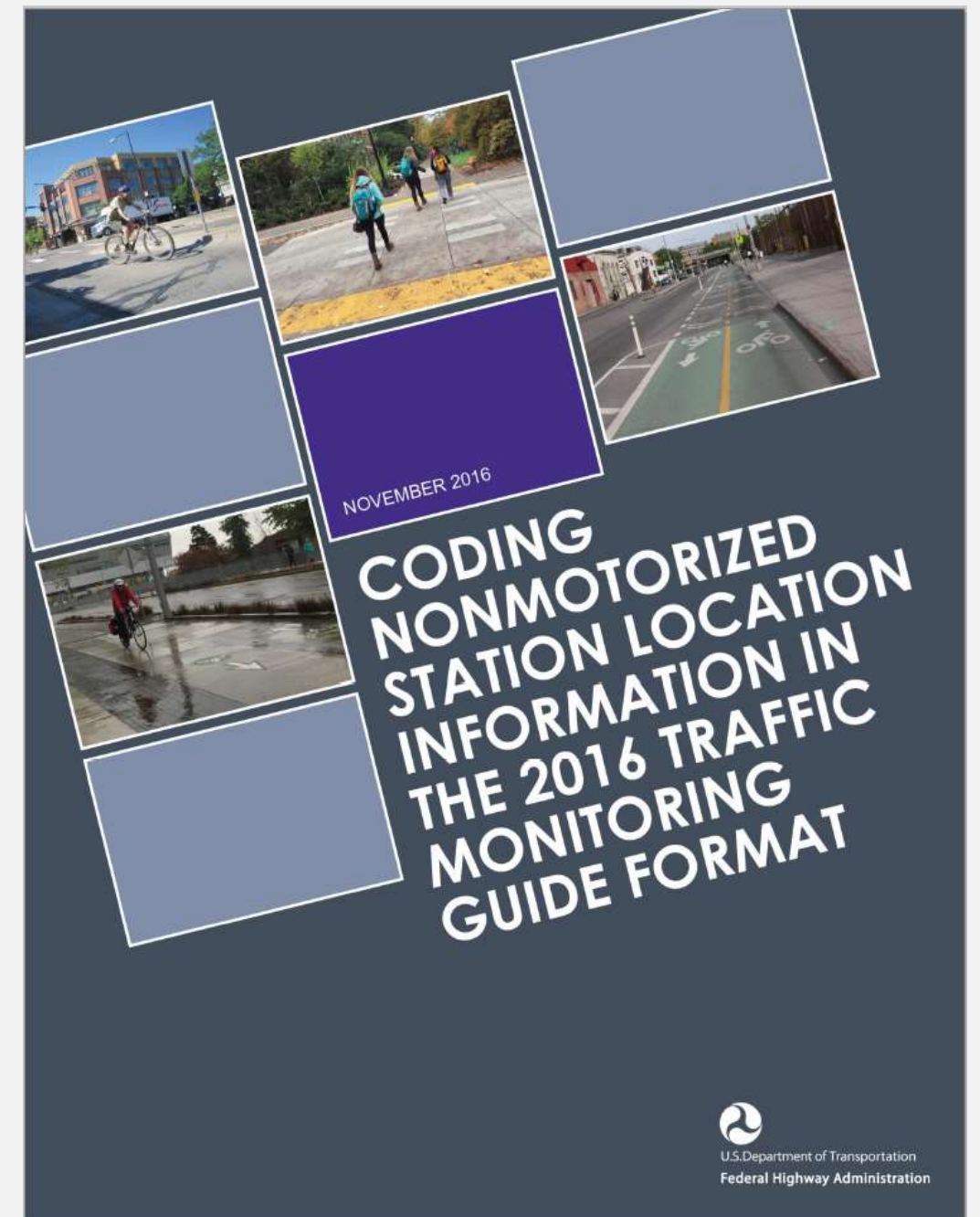
TMG Format Guidance

- Guidebook for TMG Format
- Intent to create flexible, comprehensive data format
- This guidebook's goal is to make the format accessible
- Focus of today's presentation



How Do I Report Counts?

- Systematically
- Consistently
- Using the TMG Format



TMG Format



**Nonmotorized
count record (N)**

When counts are collected
How many users are counted

Where counts are collected
What is counted
How counts are collected

**Count station
description record (L)**

Count Station Description (Location)

- Describes primarily where the count was collected, as well as what was counted and how it was counted

Location: shared use path with pedestrians and cyclists traveling in both directions

To count:

- Total number of multimodal users = **1** station location record
- Total number of cyclists and total number of pedestrians = **2** station location records
- Number of pedestrians in each direction = **2** station location records



Count Station Description (Location)










10. INTERSECTION (FIELD 10/COLUMN 19) – OPTIONAL

- Indicates whether count is at an intersection and if so whether it is a roundabout or not.
- When deciding whether a location is located at an intersection or not, consider the context of the count. If the point is to count people using/negotiating an intersection (i.e. we're interested in the movements through/across the intersection), code the location as at an intersection. If the point is to count people using a through facility (and we just happened to set up near an intersection because that is where the best physical location was), code the location as not at an intersection. Exhibit 10 provides an example of each scenario.

Exhibit 10. INTERSECTION CODING OPTIONS

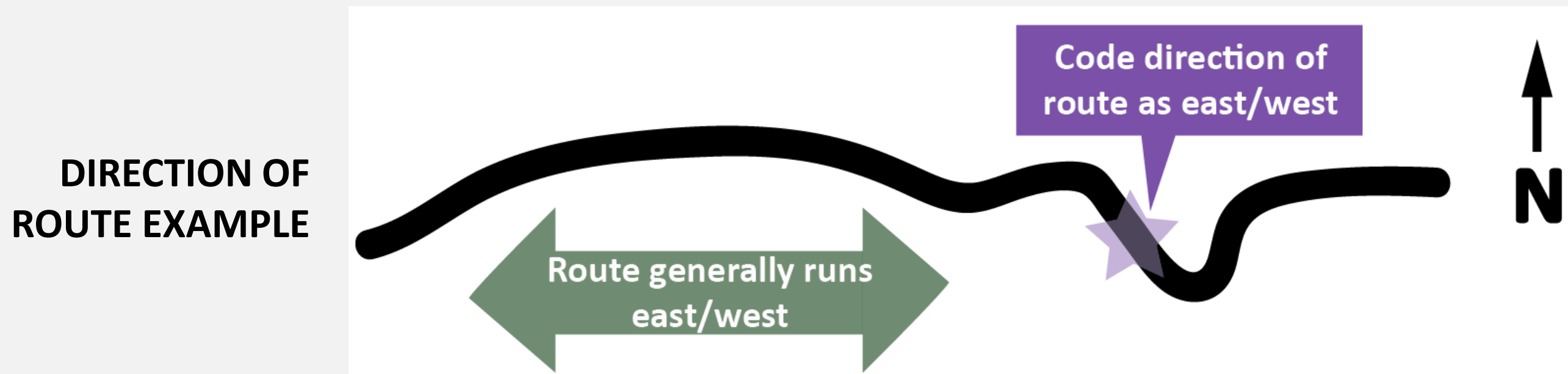
<p>Temporary inductive loops are used to count cyclists using NW Banks Road. The bicycle lane shown ends farther east, so the point of the count is to assess use of the roadway by cyclists.</p>	<p>Road tubes are temporarily set-up to capture cyclists on Dunsmuir Street just south of Howe. The purpose of the count is to assess bicyclist exposure through the intersection, utilizing vehicle counts at the intersection.</p>
<p>Intersection: 0 (not at an intersection)</p>	<p>Intersection: 1 (at an intersection)</p>

- Example: 0 (not at an intersection)

Code	Type of Count
0	Other animals specify in Field 32, Other Notes
1	Pedestrians (only) 
2	Bicycles (only) 
3	Equestrians (only) 
4	Person in Wheelchairs 
5	Persons using other pedestrian assistive devices i.e. skates, skateboards, Segway®, hoverboards, etc. 
6	Motorized vehicles on a trail e.g. snowmobiles, all-terrain vehicles, etc. 
7	All pedestrians and bicycles Sum code 1 and 2 
8	All nonmotorized traffic Sum codes 1-5 
9	All traffic on a trail Sum codes 1-6 

Count Station Description (Location)

- Key element of format is to describe the location of count, which includes:
 - Direction of route (field 6)
 - Location of count relative to roadway (field 7)
 - Direction of movement (field 8)

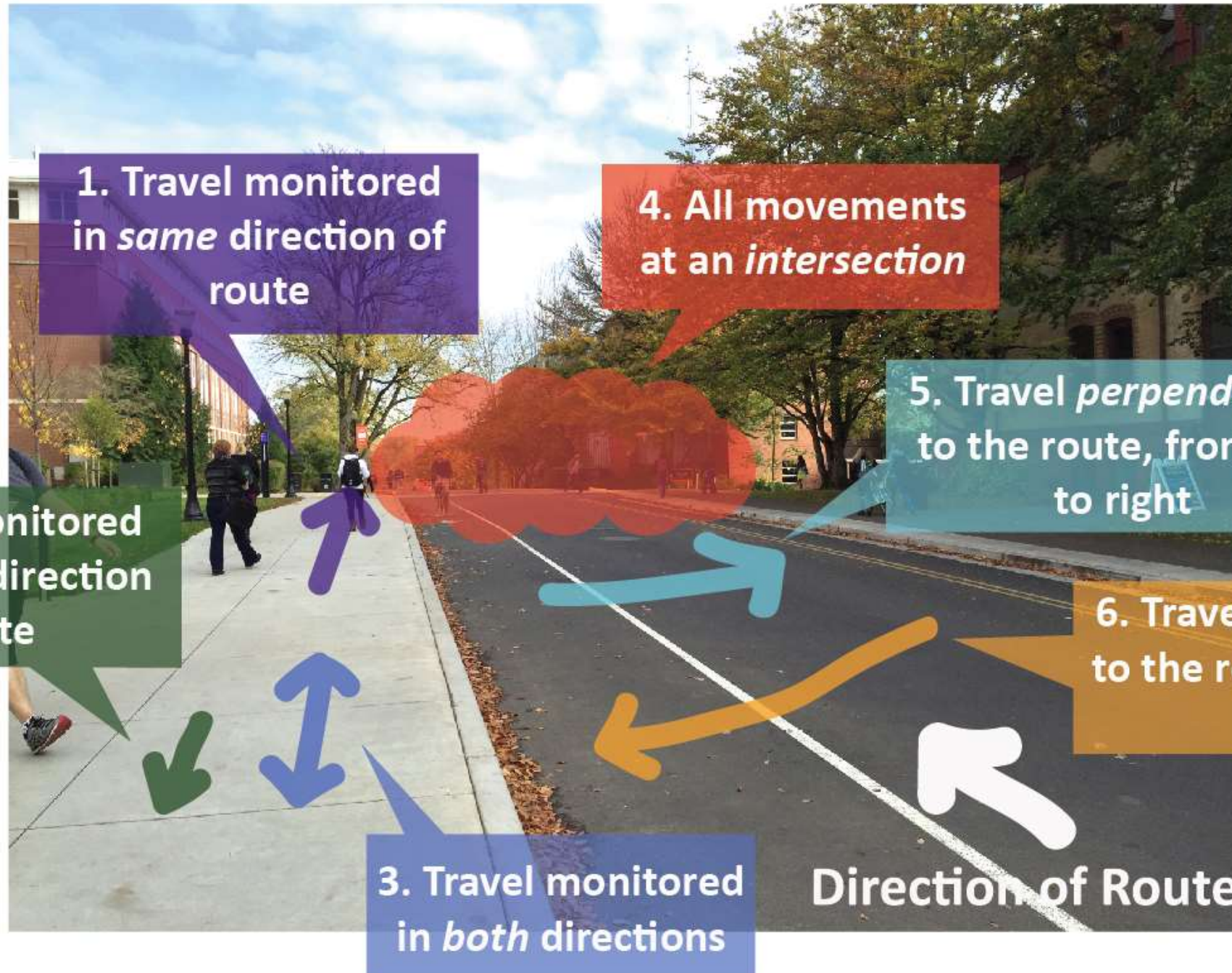


Count Station Description (Location)



LOCATION OF
COUNT RELATIVE
TO ROADWAY

Count Station Description (Location)



DIRECTION OF MOVEMENT

Direction of Route






Count Station Description (Location)



DIRECTION OF ROUTE, LOCATION OF COUNT RELATIVE TO ROADWAY, AND DIRECTION OF MOVEMENT ILLUSTRATION





Count Station Description (Location)

FACILITY TYPES

		Short		
		Code	Description	Examples
FACILITY TYPES	0	Trail not associated with a roadway		
	1	In roadway right of way (shared space)		 





Count Station Description (Location)

FACILITY TYPES

		Short	
Code	Description	Examples	
2	Crosswalk (legal crossing)		
3	Sidewalk (for pedestrians)		



Count Station Description (Location)

FACILITY TYPES

Short			
Code	Description	Examples	
4	Striped bike lane		
5	Overpass		



Count Station Description (Location)

FACILITY TYPES

Short			
Code	Description	Examples	
6	Underpass		
7	Separated bicycle lane		

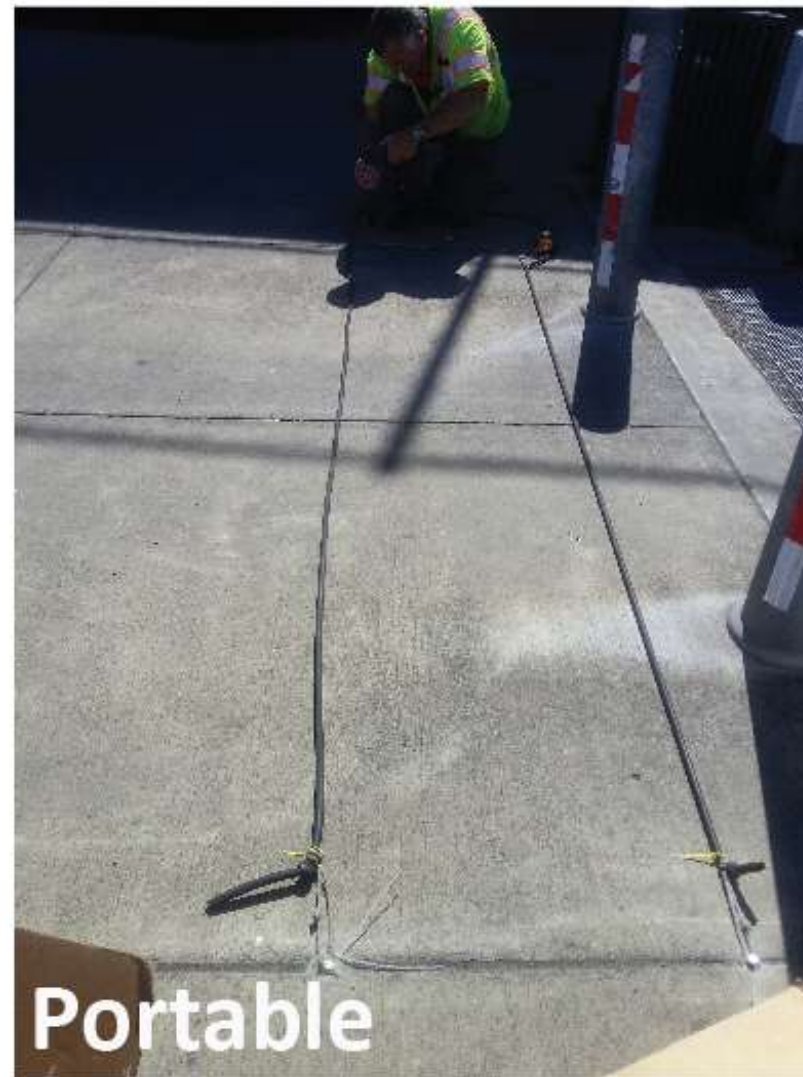
Count Station Description (Location)

FACILITY TYPES

		Short		
		Code	Description	Examples
	8		Sidepath adjacent to roadway	
	9		General area count	

Count Station Description (Location)

**METHOD OF
COUNTING
EXAMPLES**

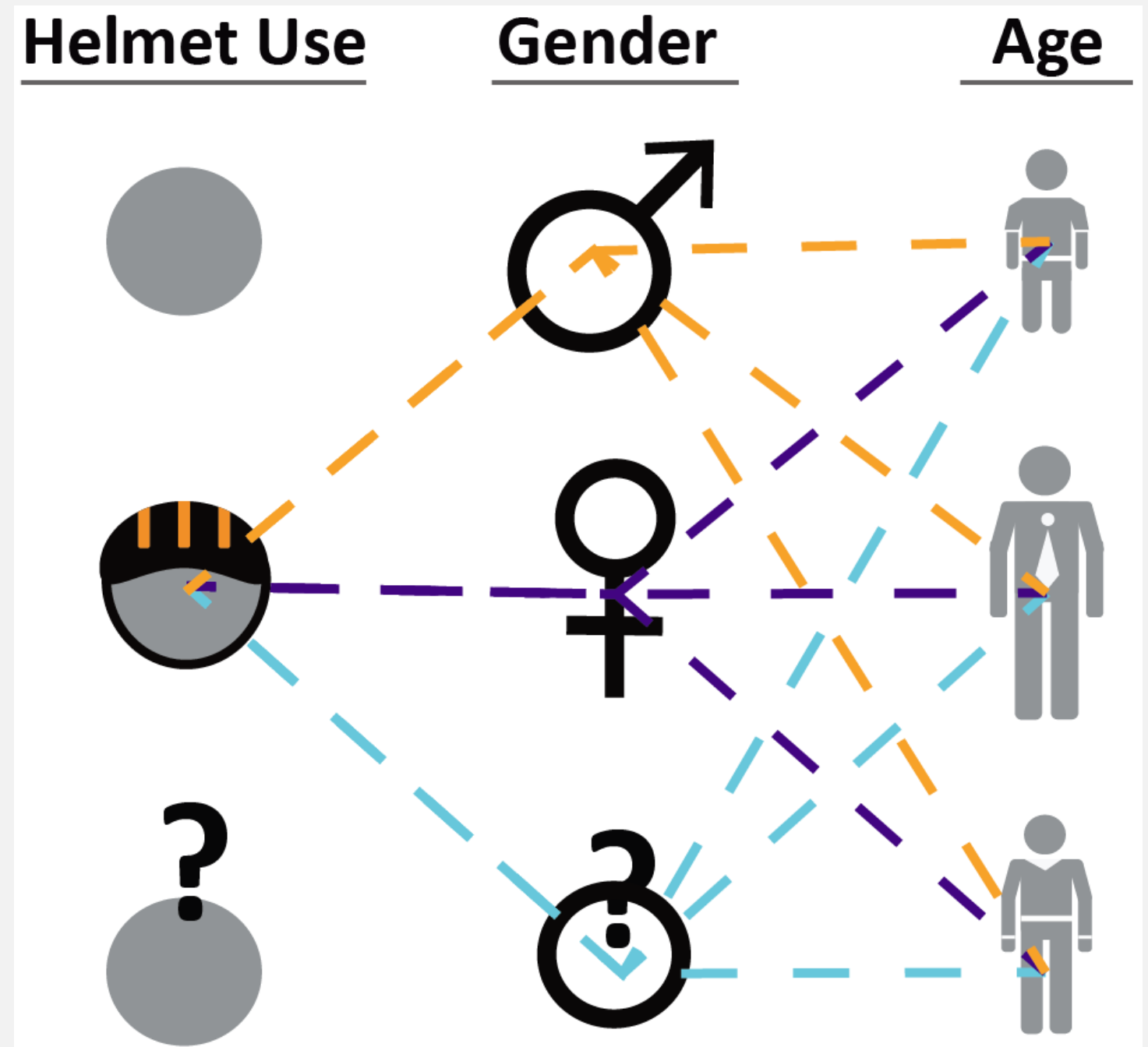


Count Data

- Describes the count data collected
- Repeats some fields from the Station Location record
- Describes conditions of count (i.e. weather)
- Option to include additional data about count subject

Count Data

- Count subject – can include data on helmet use, gender, and/or age



Collecting Multiple Counts

- A separate count station description (location) record is needed for each direction, side of the roadway, and mode for which counts are collected

Field	Description	Type	Notes
7	Location of count relative to roadway	C	May change if counts taken on a different side of the roadway
8	Direction of movement	C	Change if counts taken in a different direction
11	Type of count	C	Change if different type of traveler counted
12	Method of counting	C	May change if different method used to count user

Collecting Multiple Counts

- Number of count records required per year:

Number of *directions* counted separately (i.e. northbound and southbound)

×

Number of *locations* counted separately (i.e. east and west side of roadway)

×

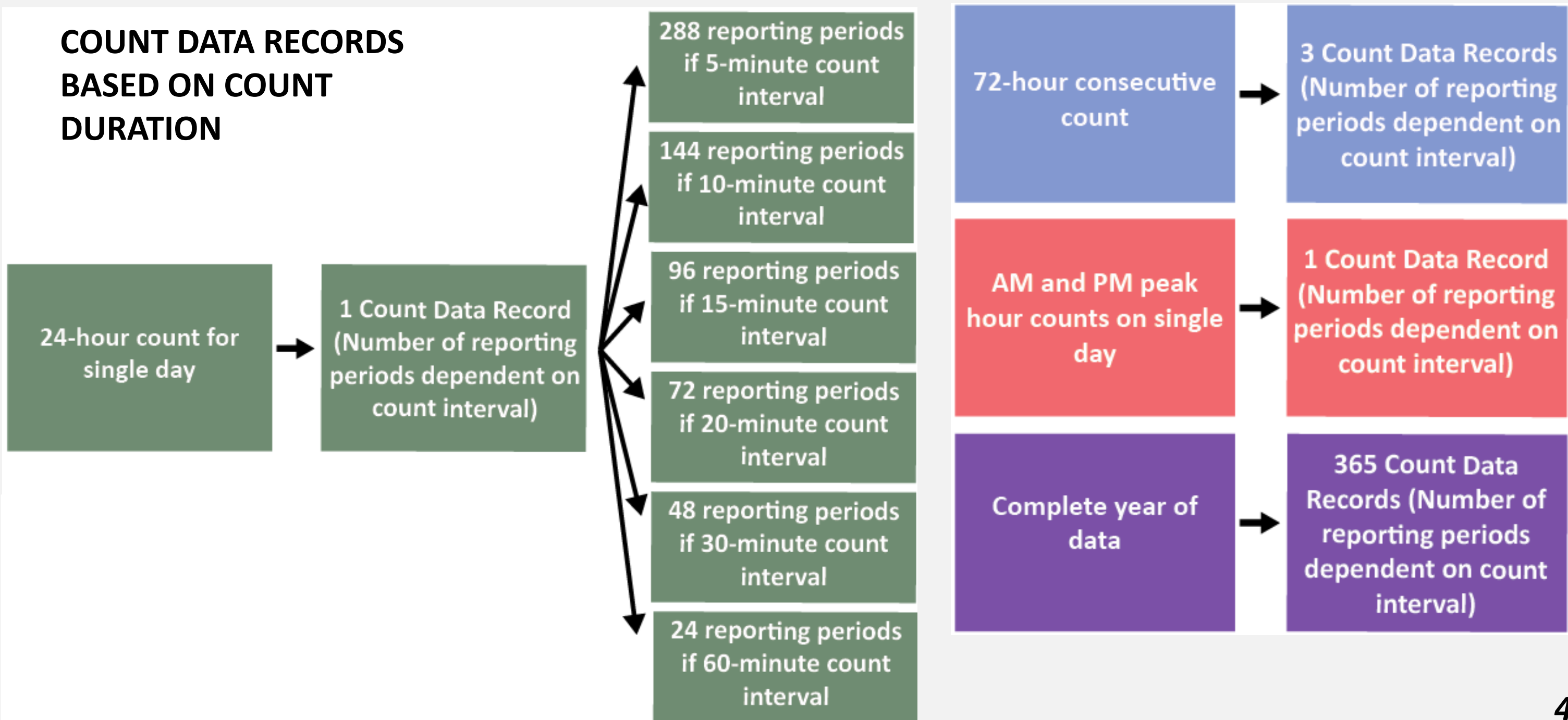
Number of *modes* counted separately (i.e. bicyclists and pedestrians)

=

Number of station location records required per year

















Collecting Multiple Counts

COUNT DATA RECORDS BASED ON COUNT DURATION



Station Location Examples

- Guidebook includes 29 examples organized by type
- Provides guidance specific to each example type

	Typical Users	Facility Type	Direction of Movement	Example
Shared Use Paths		0 - trail 5 - overpass 6 - underpass 8 - sidepath	1 - travel in same direction of route 2 - travel in opposite direction of route	
Shared Vehicle Lanes		1 - roadway right of way	1 - travel in same direction of route 2 - travel in opposite direction of route	
Bicycle Lanes		4 - striped bicycle lane 7 - separated bicycle lane	1 - travel in same direction of route 2 - travel in opposite direction of route	
Contraflow Bicycle Lanes		4 - striped bicycle lane 7 - separated bicycle lane	1 - travel in same direction of route 2 - travel in opposite direction of route	
Sidewalks		3 - sidewalk	1 - travel in same direction of route 2 - travel in opposite direction of route	
Roadway Shoulders		1 - roadway right of way	1 - travel in same direction of route 2 - travel in opposite direction of route	
Roadway Crossings		1 - roadway right of way 2 - crosswalk 5 - overpass 6 - underpass	3 - travel in both directions 5 - travel left to right 6 - travel right to left	
Intersections		2 - crosswalk 9 - general area	4 - travel at an intersection 5 - travel left to right 6 - travel right to left	

Station Location Examples

EXAMPLE 1: NE MULTNOMAH STREET BUFFERED BIKE LANE

The example below walks through setting up the station location record for a count collected on NE Multnomah Street, a roadway with buffered bicycle lanes. The roadway generally runs east/west and the direction will be considered east since the building numbers increase heading east. For this example, cyclists traveling in the westbound direction are being counted. A second count station description would be needed to report eastbound riders, with the same station ID used to link the counts to the same place. Exhibit 29 illustrates the location of count relative to the roadway and direction of movement.

Exhibit 29. NE MULTNOMAH STREET LOOKING WEST (TOP), GRAPHIC SHOWING AERIAL VIEW (BOTTOM)

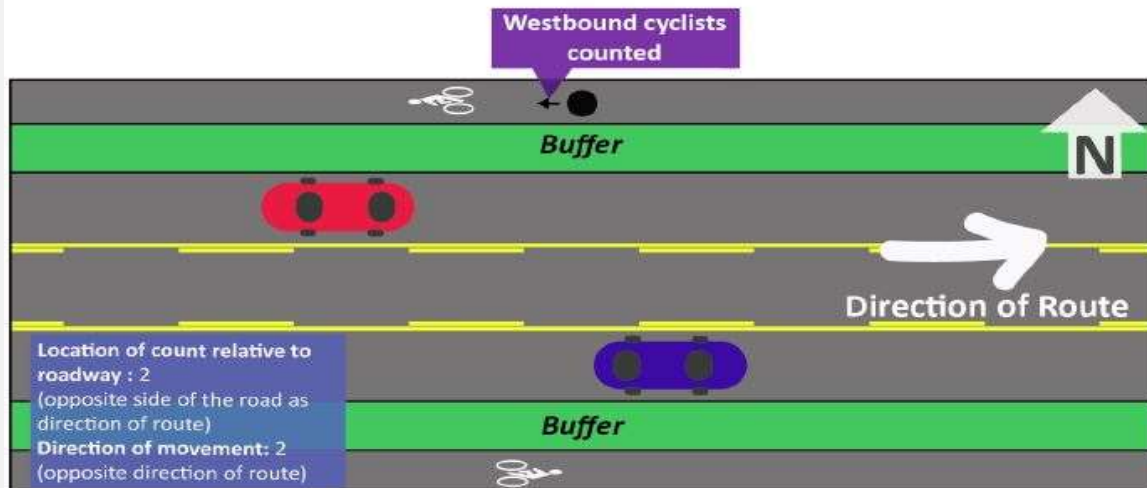


TABLE 23. STATION LOCATION DATA FIELDS – NE MULTNOMAH STREET BUFFERED BIKE LANE

Field	Description	Type	Entry	Notes
1	Nonmotorized station/location record identifier (L)	C	L	L indicates this is a count station/location
2	State FIPS Code	C	41	Oregon's code is 41
3	County FIPS Code	C	051	Multnomah County's code is 051
4	Station ID	C	MULTBB	Indicates count on NE Multnomah Street buffered bike lanes (this ID is used to link other counts taken at the same "place," like eastbound bicyclists)
5	Functional classification of the roadway	C	7U	An urban, local roadway
6	Direction of route	C	3	East, to correspond with increasing building numbers
7	Location of count relative to roadway	C	2	Count is taken on the opposite side of the road from the listed direction of route (left side of the road when facing east)
8	Direction of movement	C	2	Travel westbound (occurring opposite the direction of route) is being counted
9	Facility type	C	7	Count is collected in a physically separated bicycle lane
10	Intersection	O	0	Not at an intersection
11	Type of count	C	2	Only bicycles are counted
12	Method of counting	C	2	Portable traffic recording device used for the counts
13	Type of Sensor	O	R	Air tube is used for the counts
14	Year of Data	C	2016	
15	Factor Group 1	O		
16	Factor Group 2	O		
17	Factor Group 3	O		
18	Factor Group 4	O		
19	Factor Group 5	O		
20	Primary count purpose	O	P	Count taken to report use of corridor by bicyclists
21	Posted speed limit	O	25	25 miles per hour posted speed limit
22	Year station established	C	2016	
23	Year station discontinued	O		
24	National highway system	O	N	
25	Latitude	C	45531594	
26	Longitude	C	122659219	Indicates location of device for data collection
27	Posted route signing	O	_1	Route is not signed
28	Posted signed route number	O		
29	LRS identification	O		There is no LRS for this location
30	LRS location point	O		
31	Station location	O		Multnomah St E. of NE 6 th Ave, buffered bike lane
32	Other notes	O		Dir of route based on ascending building numbers

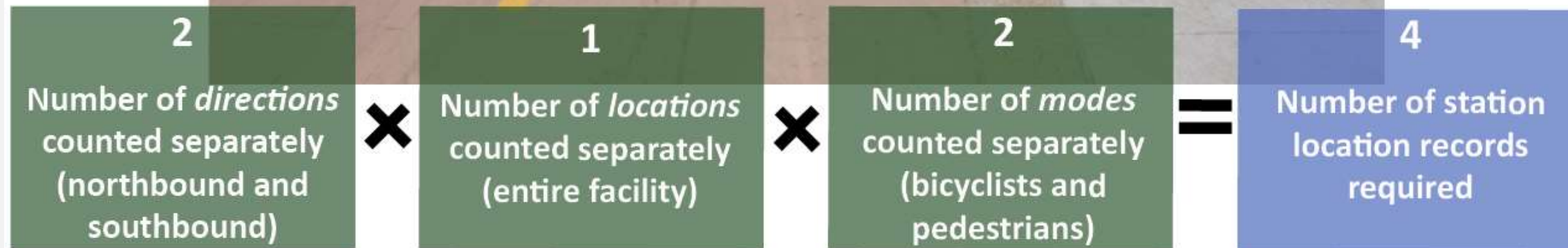
A Few Examples

A video camera is used to collect data which is then manually reduced. Pedestrians and bicyclists are counted separately and direction is recorded

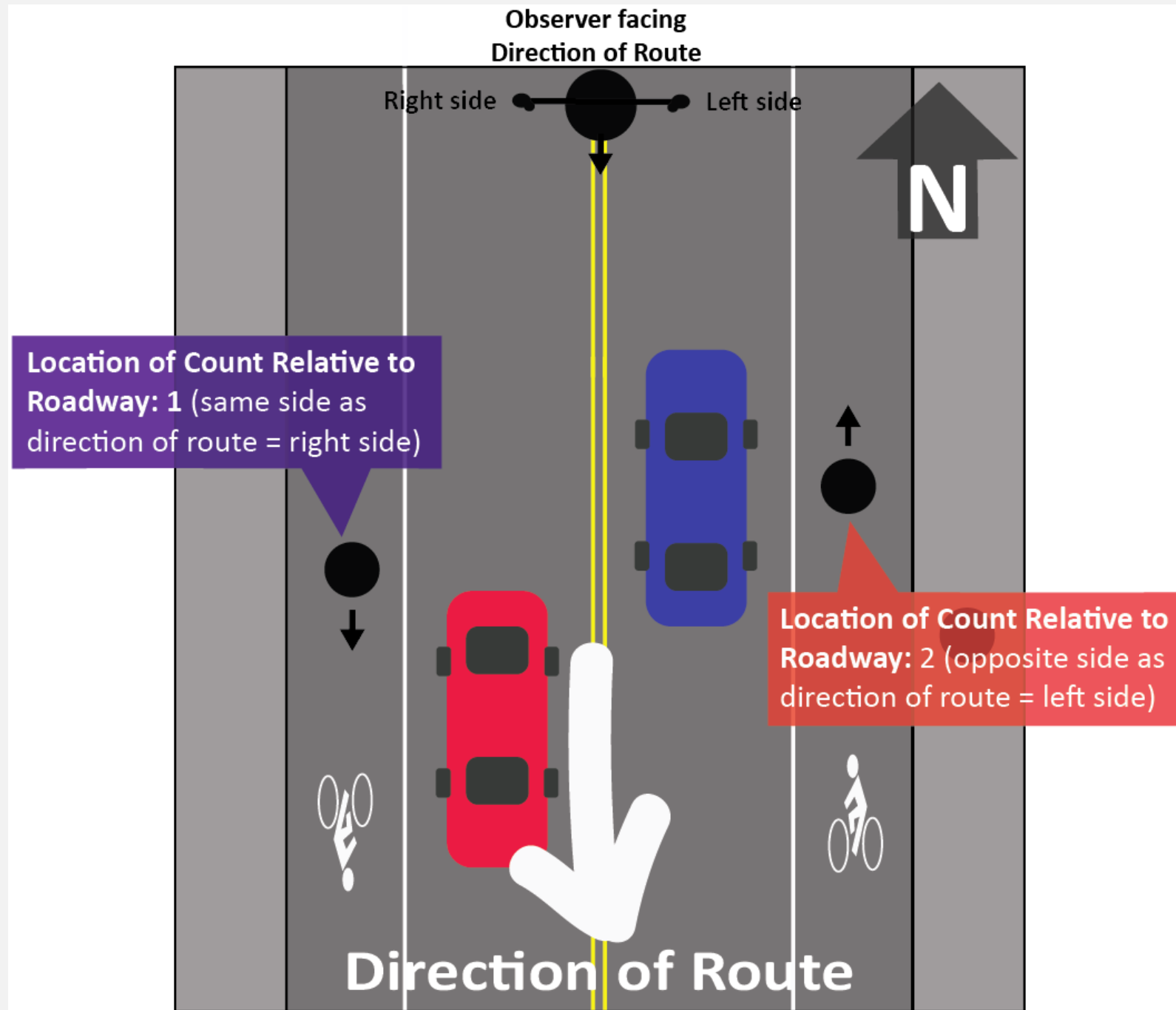


BROADWAY SIDEPATH LOOKING EAST

A Few Examples



A Few Examples



LOCATION OF COUNT RELATIVE TO ROADWAY FOR BICYCLE LANES

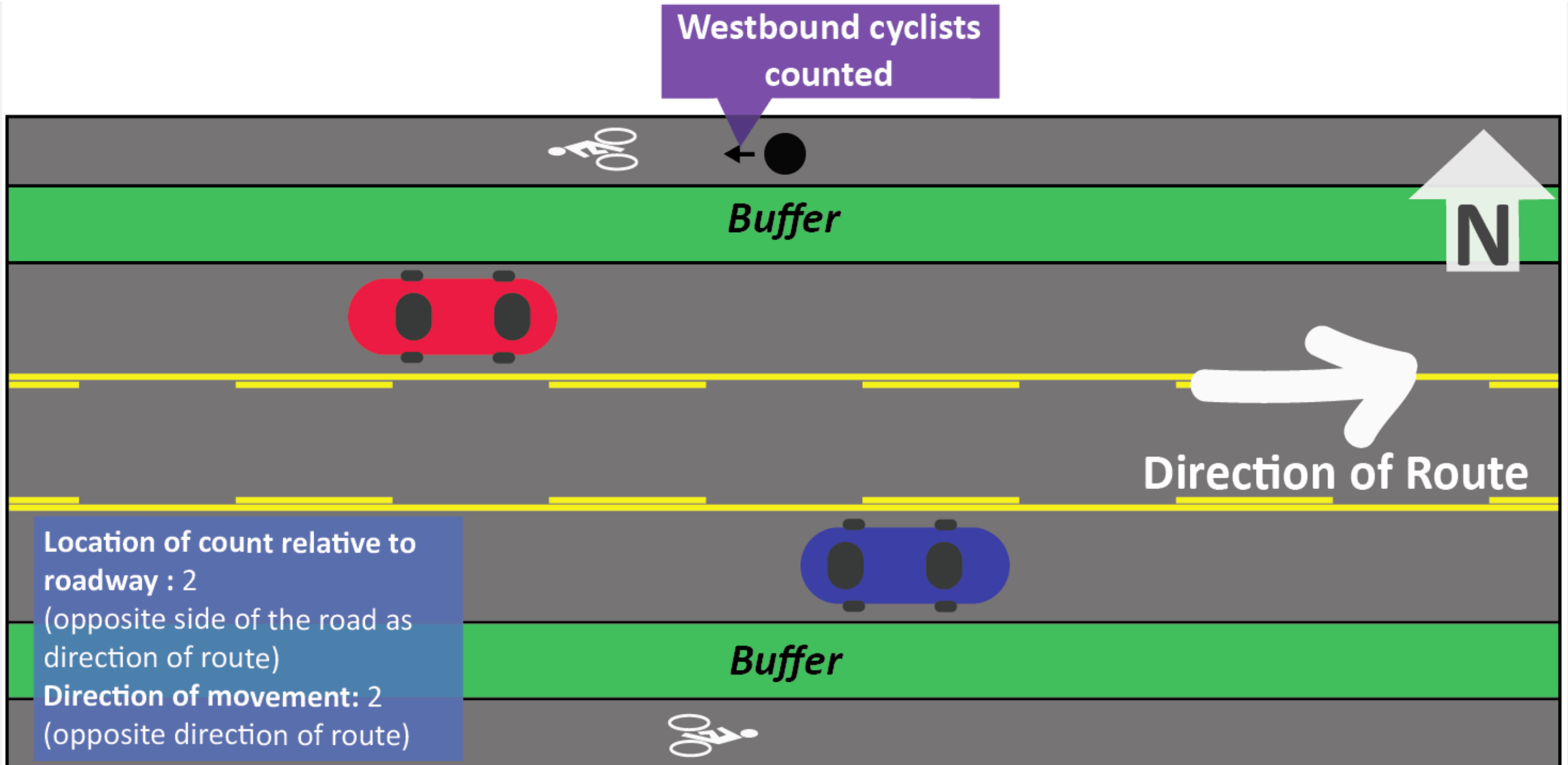
A Few Examples



NE MULTNOMAH STREET LOOKING WEST

The roadway generally runs east/west and the direction will be considered east since the building numbers increase heading east. For this example, cyclists traveling in the westbound direction are being counted

A Few Examples



A Few Examples

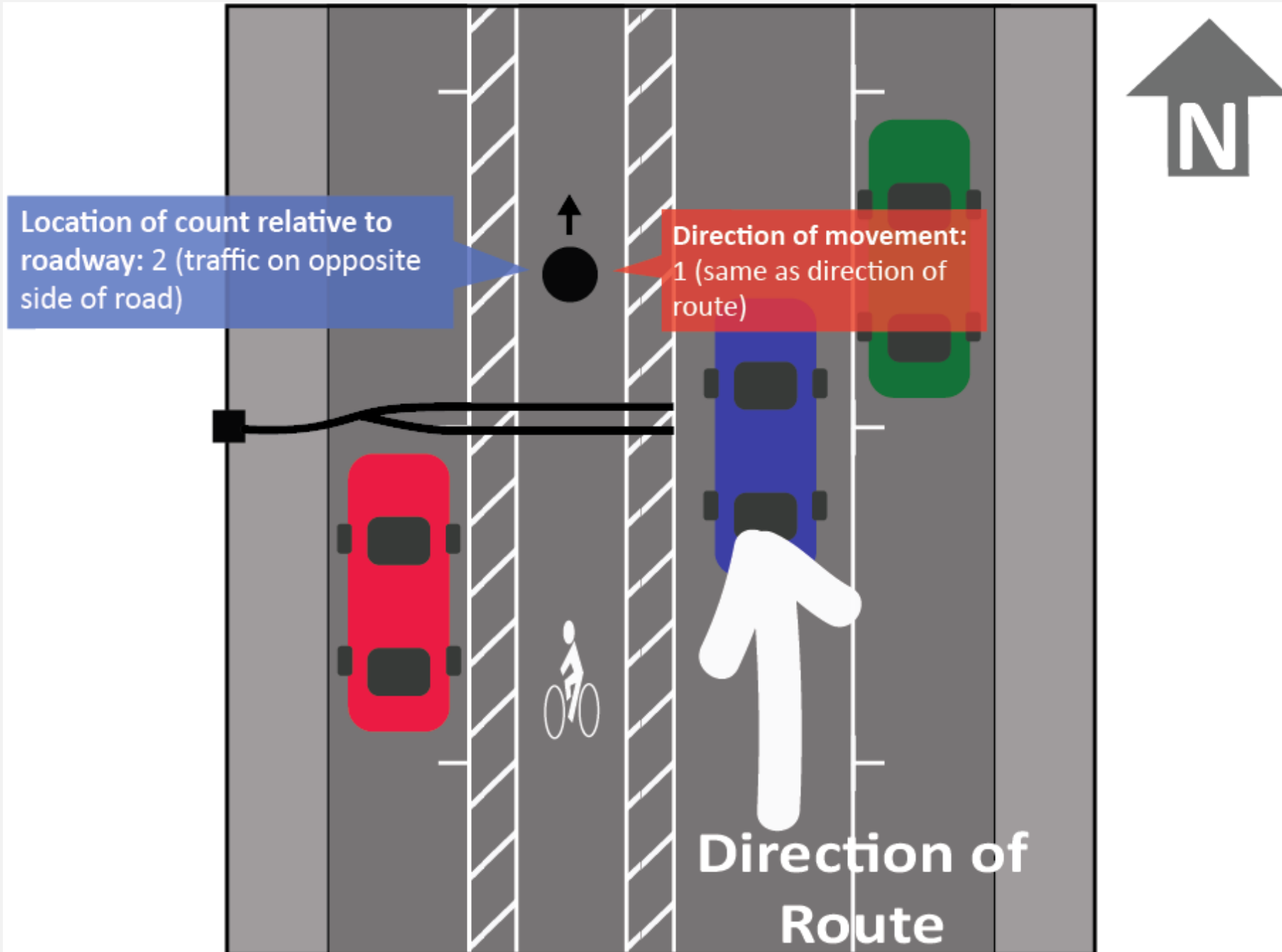


**N WILLIAMS AVENUE
LOOKING NORTH**

The roadway runs north/south with travel northbound, so the direction of route is considered north.

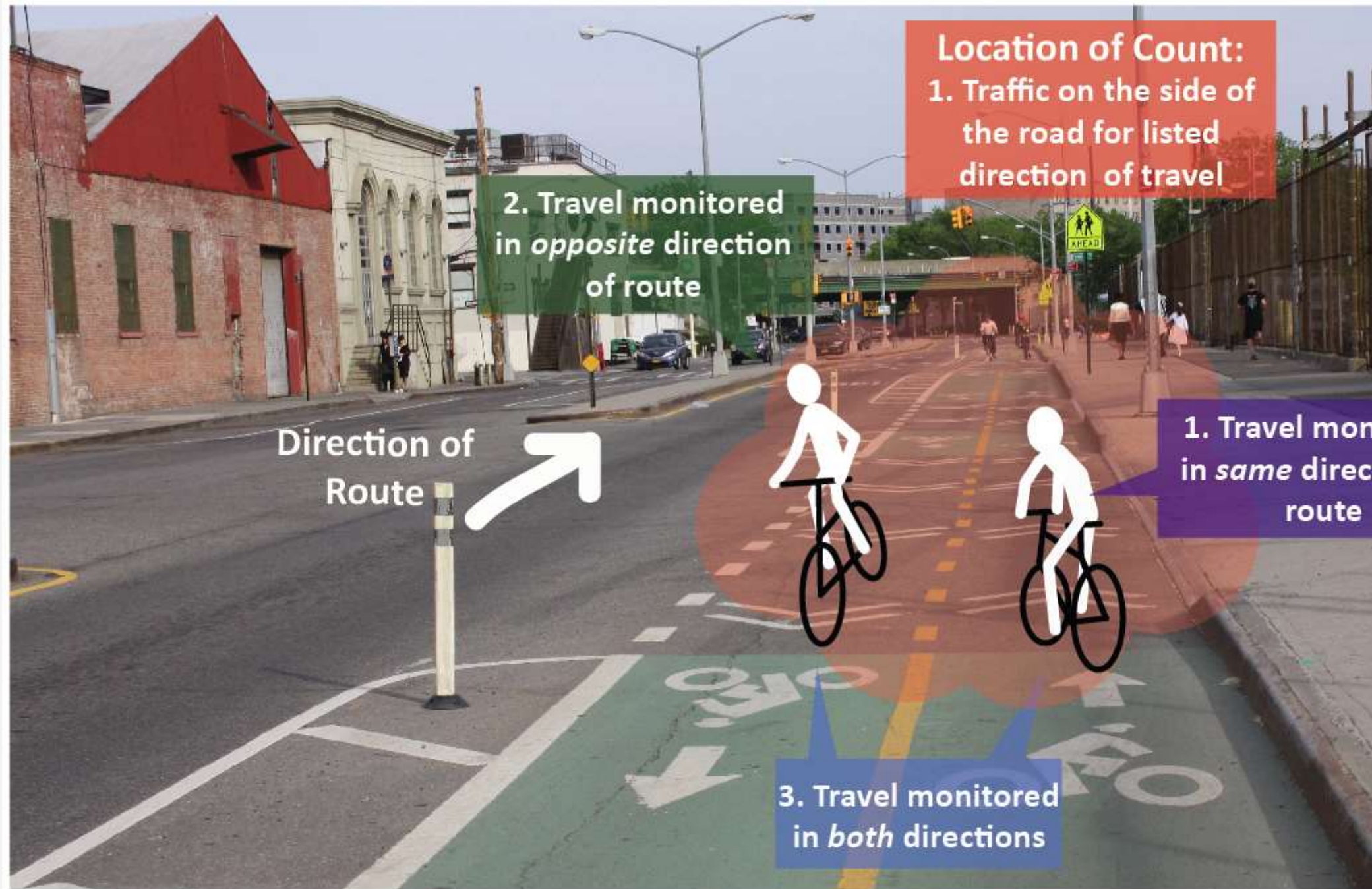
The bicycle lane is separated from vehicles with a painted buffer -> facility type 4 “in a striped (painted) bicycle lane” (because there is no physical separation other than paint)

A Few Examples



The location of the count relative to the roadway is coded on the opposite side of the road to indicate the bicycle lane is on the left-side of the roadway relative to the direction of route, while the direction of movement is coded as the same as the direction of route.

A Few Examples



Location of Count:
1. Traffic on the side of the road for listed direction of travel

2. Travel monitored in *opposite* direction of route

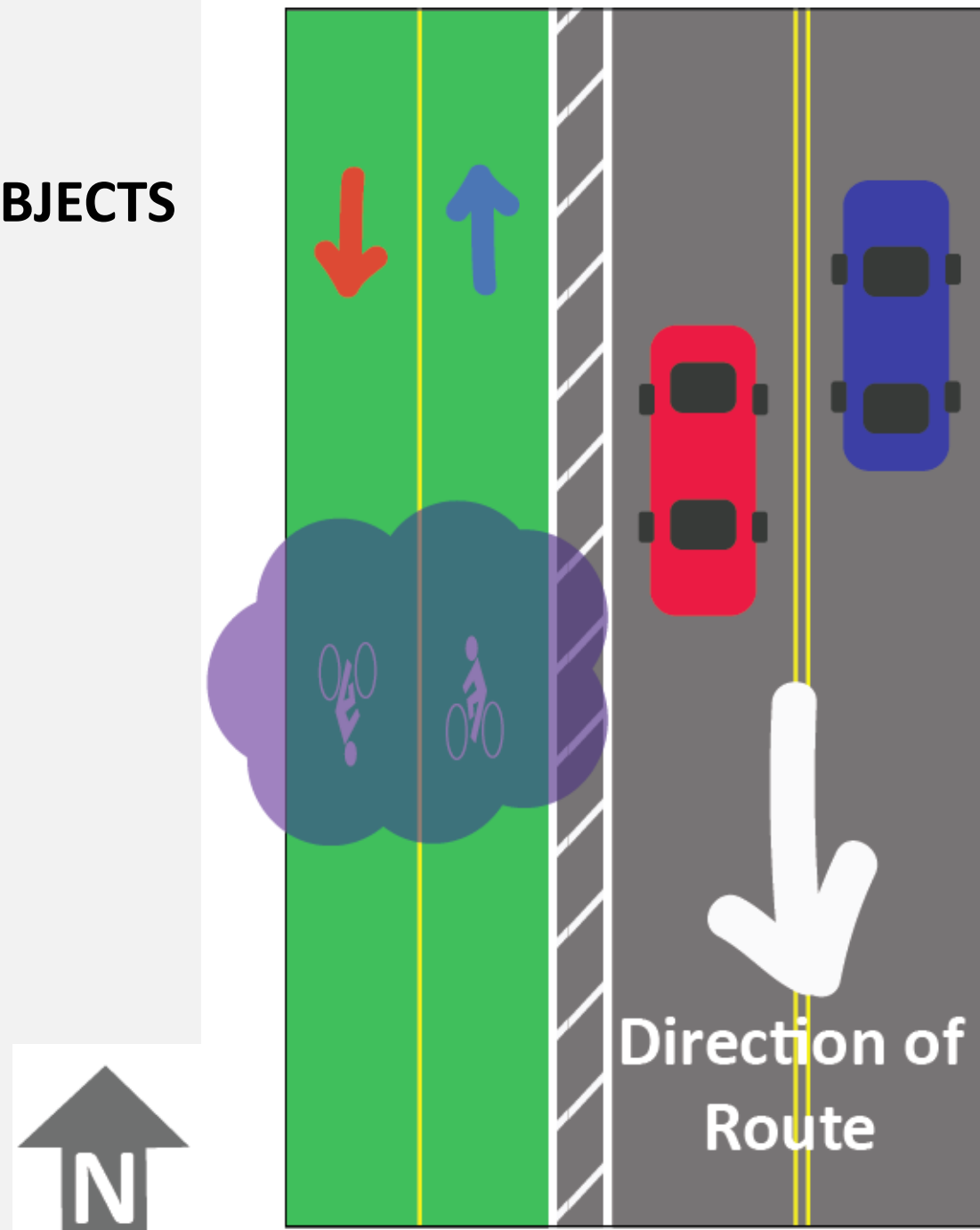
1. Travel monitored in *same* direction of route

3. Travel monitored in *both* directions

**LOCATION OF COUNT
RELATIVE TO ROADWAY
FOR TWO-WAY
CONTRAFLOW BICYCLE
LANES**

A Few Examples

CODES BASED ON COUNT SUBJECTS



If counting cyclists in both lanes:

Location of count relative to roadway: 1
(same side of the road as direction of route)

Direction of movement: 3
(travel in both directions)

Facility type: 7 (in a separated bicycle lane)

If counting northbound cyclists:

Location of count relative to roadway: 1
(same side of the road as direction of route)

Direction of movement: 2
(travel in opposite direction of route)

Facility type: 7 (in a separated bicycle lane)

If counting southbound cyclists:

Location of count relative to roadway: 1
(same side of the road as direction of route)

Direction of movement: 1
(travel in same direction as route)

Facility type: 7 (in a separated bicycle lane)

“Other Notes” (Field 32) can be used to help explain the specific scenario and provide additional details

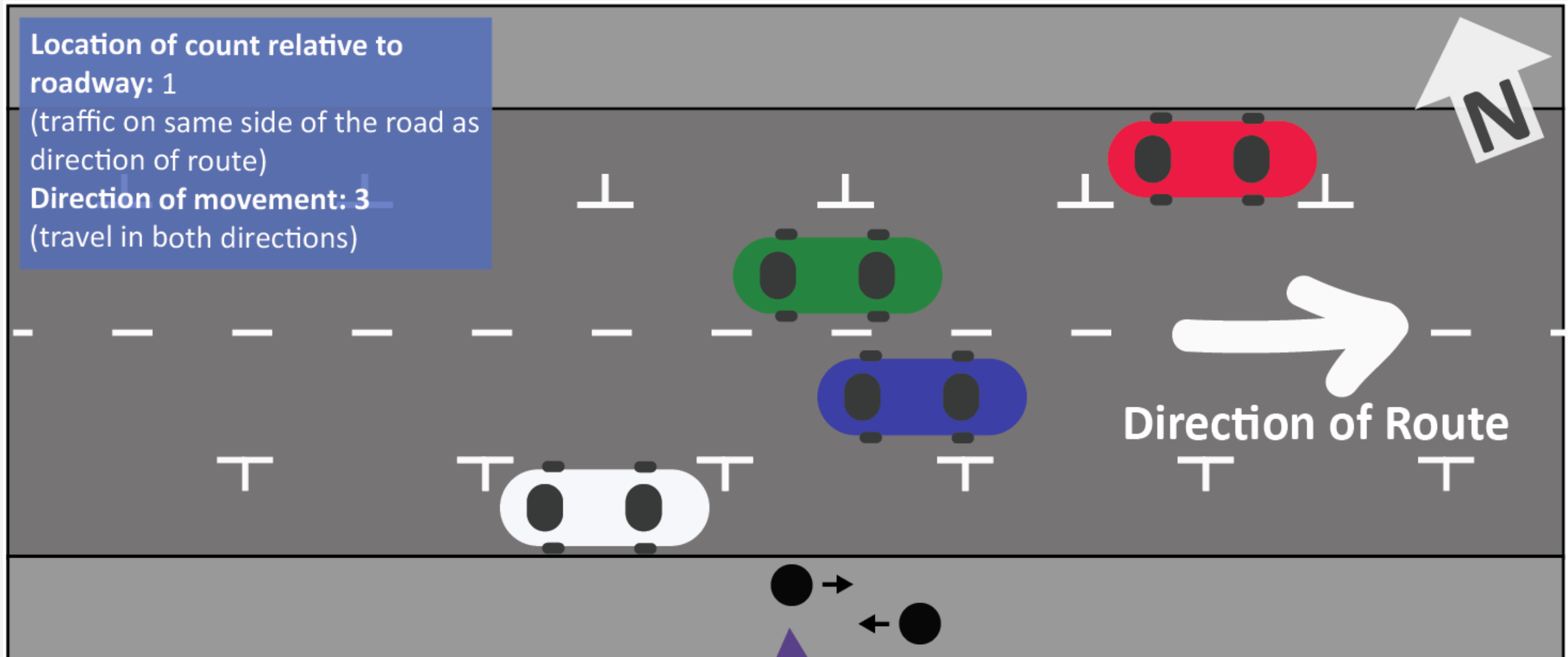
A Few Examples

SW Alder Street is one-way,
with traffic moving in the
southeast direction towards
the river, so this is
considered the direction of
route.



ALDER STREET LOOKING NORTHEAST

A Few Examples



Pedestrians in both directions counted

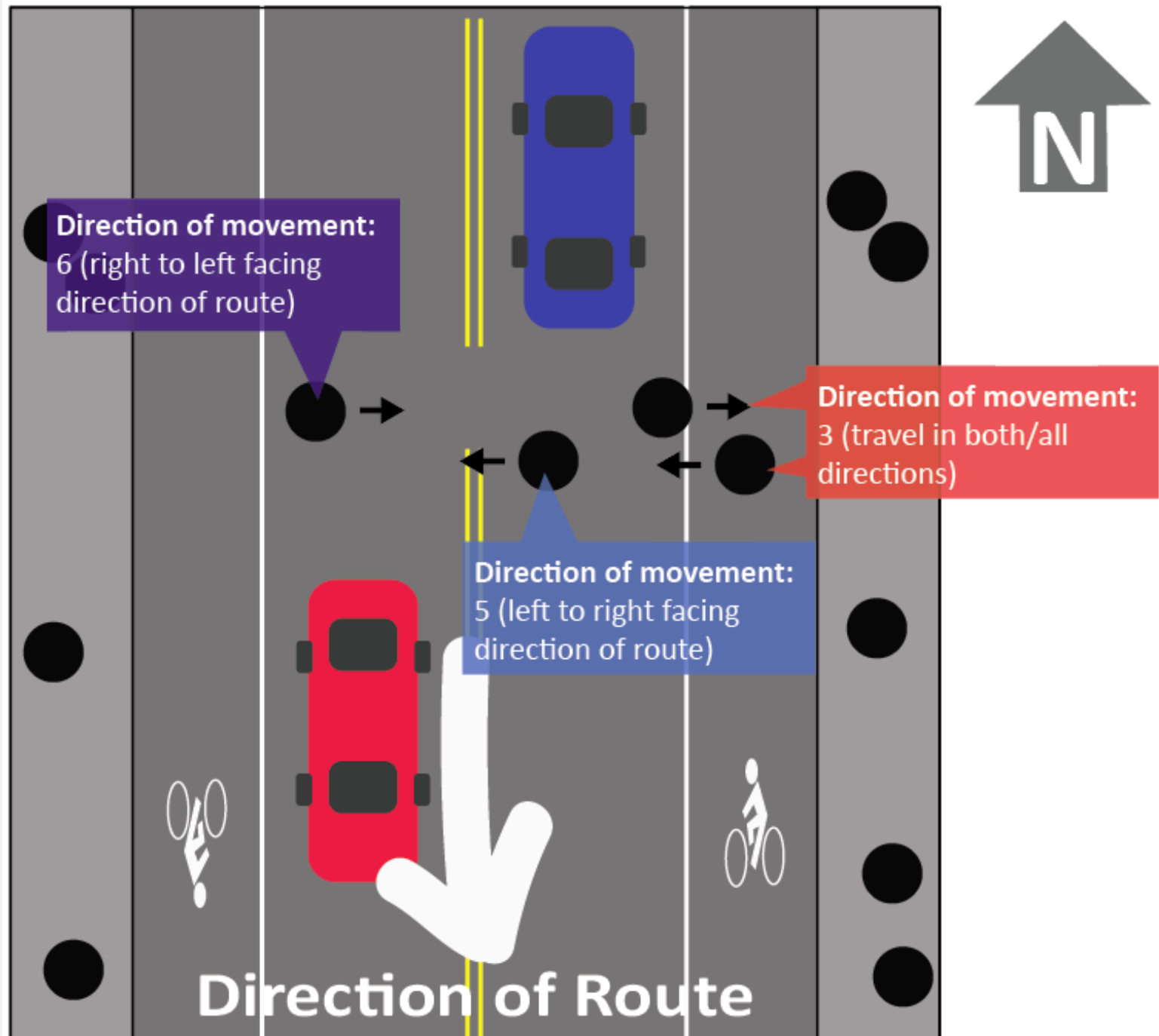
A Few Examples

SW 15TH STREET LOOKING NORTH



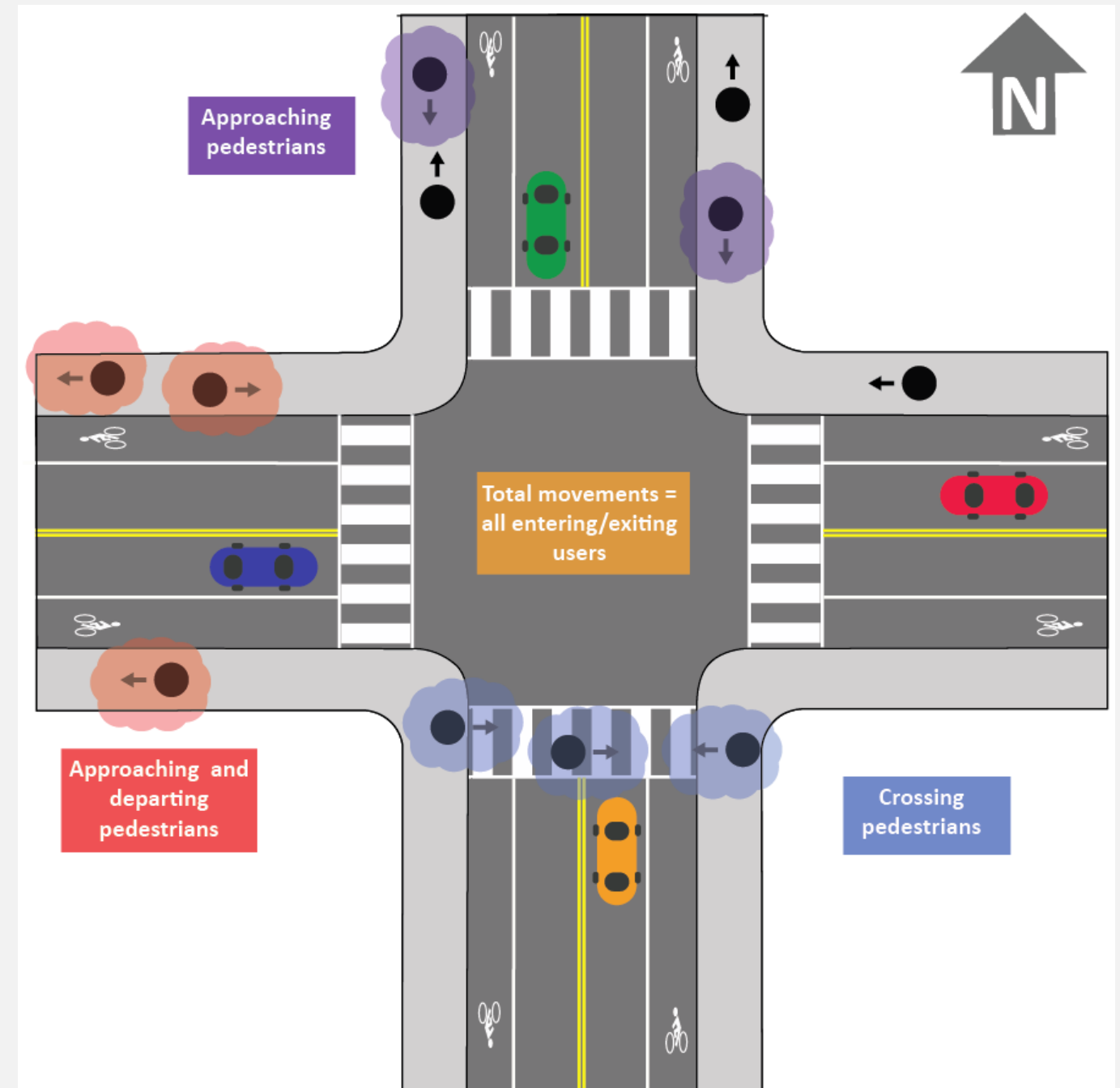
SW 15th Street is a north/south roadway with ascending street numbers in the southbound direction, so south is considered the direction of route.

A Few Examples



Intersections

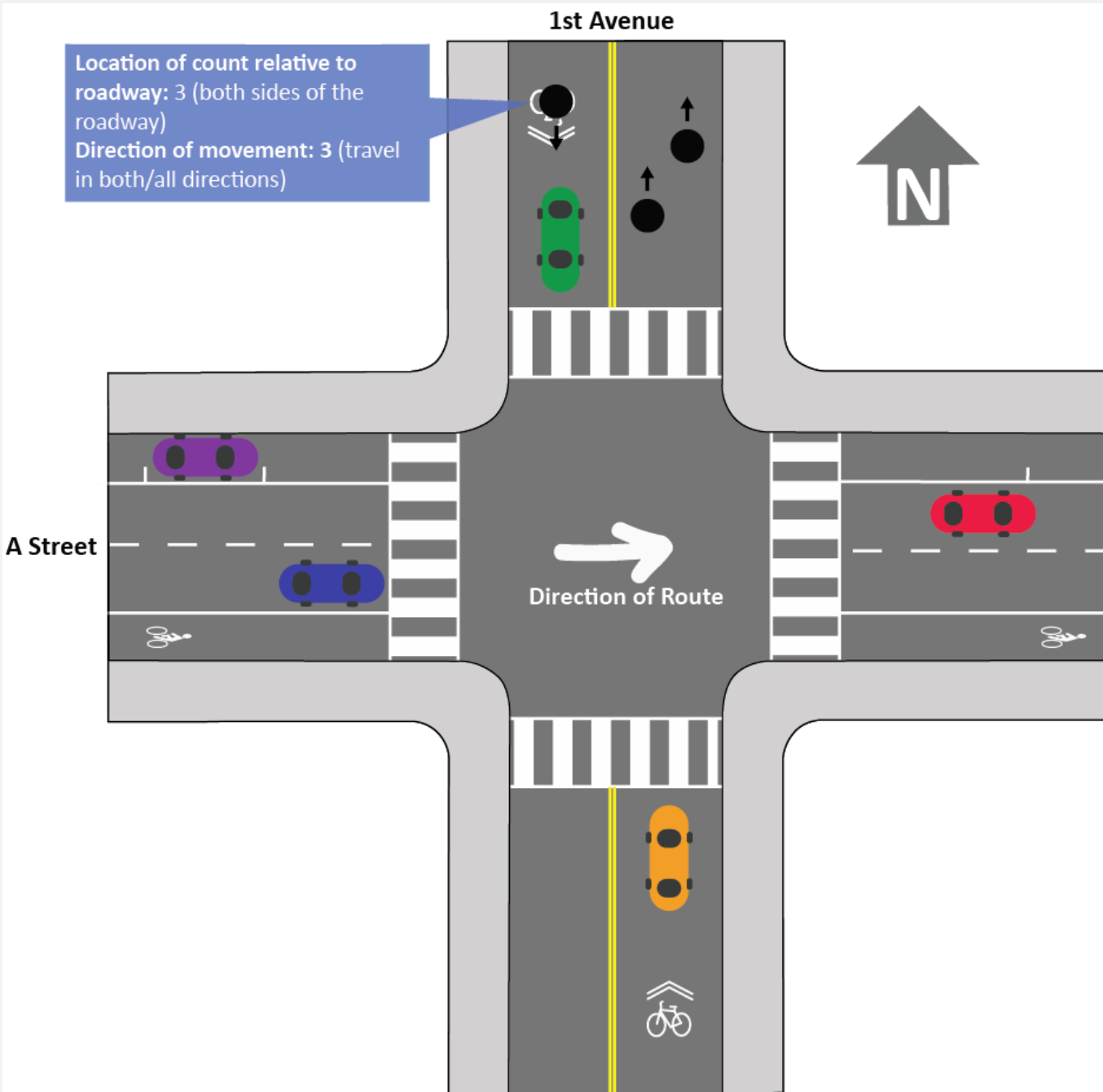
- Format directly supports counts of total movements through intersections
- Format can be adapted to report movements approaching or departing intersections, or crossing in specific directions
- Format does not support explicit turning movement counts



Intersections

Field	Total Movements	Approaching/Departing Movements	Crossing Movements
5. Functional Classification of the Roadway	9 (general activity count)	Code the functional classification of the roadway users are on	Code the functional classification of the roadway users are crossing
6. Direction of Route	Code based on higher order roadway	Code based on roadway users are on	Code based on roadway users are crossing
7. Location of Count Relative to Roadway	3 (both sides of the road)	1 (traffic on side of road for direction of route), 2 (opposite side of road) or 3 (both sides of road)	4 (perpendicular to roadway)
8. Direction of Movement	4 (travel at an intersection including all movements)	1 (direction of route), 2 (opposite direction of route), or 3 (travel in both directions)	3 (travel in both directions), 5 (crossing left to right), or 6 (crossing right to left)
9. Facility Type	9 (general area count)	Based on facility (e.g. whether bike lanes, shared roadway, etc.)	2 (exclusively in a crosswalk)
10. Intersection	1 (intersection) or 2 (roundabout)	1 (intersection) or 2 (roundabout)	1 (intersection) or 2 (roundabout)

Intersections

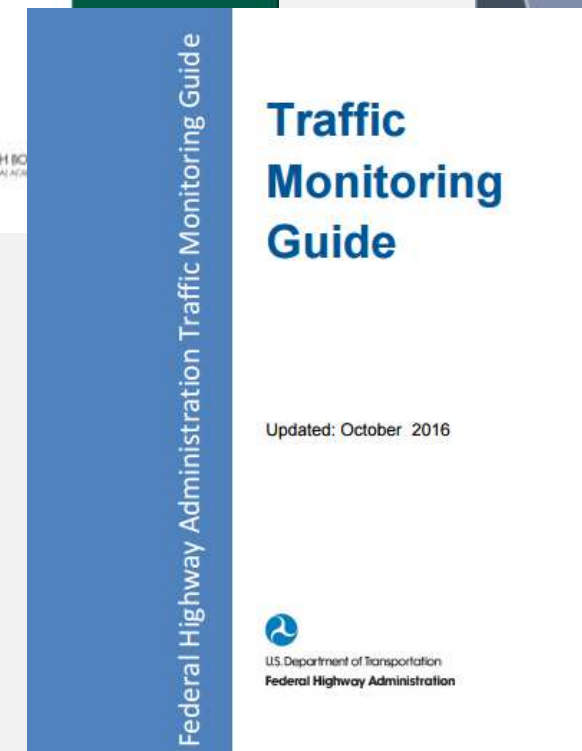
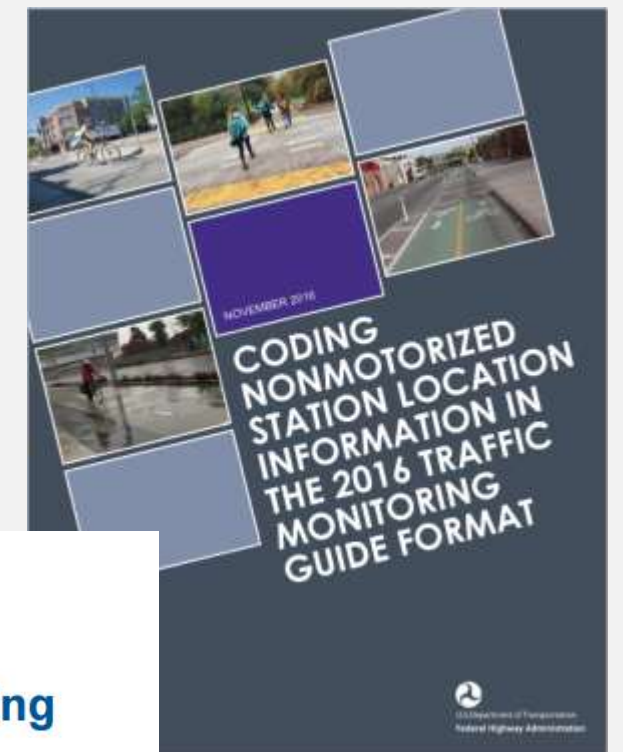


BICYCLISTS ON NORTH LEG

	Description	Entry	Notes
5	Functional classification of the roadway	7U	An urban, local roadway (based on 1 st Avenue)
6	Direction of route	5	South, to correspond with increasing building numbers on 1 st Avenue
7	Location of count relative to roadway	2	Traffic on the opposite side of the road for listed direction of route
8	Direction of movement	2	Travel in opposite direction of route
9	Facility type	1	Count is collected in a shared roadway
10	Intersection	1	Count is taken at an intersection (not a roundabout)
11	Type of count	2	Only bicycles are counted
21	Posted speed limit		
27	Posted route signing	1	
28	Posted signed route number		Refers to 1 st Avenue
29	LRS identification		
30	LRS location point		
32	Other notes		NB bicyclists on 1 st Ave approaching A St counted

In Closing...

- Check out these resources for more information, all available online for download
- Talk to others – learn what they are doing!



Thank you!

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