PHILADELPHIA
COMPLETE STREETS DESIGN HANDBOOK

2024

LETTER FROM THE DEPUTY MANAGING DIRECTOR

Under Mayor Cherelle L. Parker's leadership, the Office of Transportation and Infrastructure Systems (OTIS) and the Department of Streets have committed to creating Safer, Cleaner, and Greener Streets for all Philadelphians. This update to the Complete Streets Design Handbook provides guidance for all projects in our public right of way to realize that promise.

Every Philadelphian deserves to be able to travel safely throughout our city and return home unharmed. Every Philadelphian deserves clean streets that give residents pride in their city. Every Philadelphian deserves green streets that beautify their neighborhood and protect them from the seasonal elements. It doesn't matter where you live or work, your age, race, ethnicity, ability, income, or how you choose to travel, every Philadelphian deserves to be safe traveling on our streets.

This updated Complete Street Design Handbook builds from the progress the city has made since the first edition was published in 2013. In that time, we have built transformative projects like American Street, quick-build projects like bus lanes and separated bike lanes on Market Street and JFK Boulevard, development improvements like new sidewalks and ADA ramps, and community-led improvements like the plaza at South Street and Grays Ferry Avenue. These improvements are all guided by this document. The additions and updated guidance in this document reflect the lessons learned from this progress.

In the past 12 years, we have measured the effectiveness of Complete Streets projects and we know that Complete Streets work! For the first 3-year period where data was available, we saw a 34% reduction in serious and fatal injury crashes on streets that have received Complete Streets interventions. On those corridors we have also see and 20% reduction in injury crashes when compared to the High Injury Network trends from 2012-2022. These projects are making our neighborhoods safer. In this time, we have also seen innovation around the country on Complete Streets work, and this document applies those new ideas to Philadelphia streets.

Our streets belong to the residents of Philadelphia and this is a guide for community groups, developers, and City employees to help make our streets work for all of us. We know what works and this handbook will help us get it down. Together, we are making Philadelphia Safer, Cleaner, and Greener for everyone. We are One Philly, A United City!

Michael Carroll
Philadelphia Deputy Managing Director
Office of Transportation and Infrastructure Systems

LETTER FROM THE DEPUTY MAYOR

Philadelphia has nearly 3,000 miles of streets, and every day Philadelphians use them to walk, drive, bike, or ride transit. Some streets were first built in the 1600's and others laid down in the 1950's. Our streets come in a diversity of widths and serve a variety of different purposes and neighborhoods.

Public streets are one of the most valuable assets a city has. The competition for the use of the public way is constant and varied. From serving emergency vehicles to automobiles, from accommodating pedestrians to delivery trucks, from bicyclists to buses, the management of these vital and constantly changing spaces is crucial and needs to be balanced in order to minimize congestion and maximize safety.

No matter when the pavement was first laid down, it is our responsibility to ensure that our streets serve the needs of all Philadelphians today and in the future. In 2009, Mayor Michael Nutter issued an executive order, ensuring that the City's streets would accommodate "all users of the transportation system, be they pedestrians, bicyclists, public transit users, or motor vehicle drivers." In doing so he made a promise that all of the City's streets would be designed, built, and maintained as "Complete Streets." I am excited to present this *Complete Streets Design Handbook* as a fulfillment of this promise. The Handbook builds on decades of work by the Streets Department and the Planning Commission to make Philadelphia's streets and transportation system safe and efficient. The Handbook incorporates the Street Type Classification System outlined in the Planning Commission's *Pedestrian and Bicycle Plan*, as well as design features already implemented by the Streets Department. The *Complete Streets Design Handbook* represents best practices in street design from Philadelphia and other major cities.

The Handbook is a tool box and guide for community groups looking to improve their neighborhood streets, developers looking to build a new project, and for City employees designing a new street to meet 21st Century transportation standards. Every Philadelphian deserves streets that improve their life by providing safe, convenient, and efficient transportation choices. I urge you to use the Handbook to become an advocate for better streets and increased mobility choices.

Rina Cutler
Philadelphia Deputy Mayor for Transportation and Utilities

ACKNOWLEDGEMENTS

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GUIDE TO GOVERNMENT AGENCIES AND ABBREVIATIONS

STATE AGENCIES

Pennsylvania Department of Environmental Protection	PADEP
Pennsylvania Department of Transportation	PennDOT
Pennsylvania Historical and Museum Commission	PHMC
Pennsylvania Public Utility Commission	PAPUC

REGIONAL AGENCIES

Delaware Valley Regional Planning Commission	DVRPC
Southeastern Pennsylvania Transportation Authority	SEPTA

CITY AGENCIES

Mayor's Office of Sustainability	MOS
Mayor's Office of Transportation and Utilities	MOTU
Office of Housing and Community Development	OHCD
Philadelphia's City Council	PCC
Philadelphia City Planning Commission	PCPC
Philadelphia Department of Commerce	Commerce
Philadelphia Department of Licenses and Inspections	L&I
Philadelphia Department of Public Health	PDPH
Philadelphia Gas Works	PGW
Philadelphia Historical Commission	PHC
Philadelphia Housing Authority	PHA
Philadelphia Parking Authority	PPA
Philadelphia Parks and Recreation Department	PPR
Philadelphia Police Department	Police
Philadelphia Streets Department	Streets
Philadelphia Streets Department Right of Way Unit	ROW
Philadelphia Water Department	PWD
Redevelopment Authority of Philadelphia	RDA
School District of Philadelphia	SDP
Zoning Board of Adjustment	ZBA
Zoning Code Commission	ZCC

QUASI-GOVERNMENT AGENCIES

Delaware River City Corporation	DRCC
Delaware River Port Authority	DRPA
Delaware River Waterfront Corporation	DRWC
Philadelphia Cultural Fund	PCF
Philadelphia Industrial Development Corporation	PIDC
Philadelphia Regional Port Authority	PRPA
Schuylkill River Development Corporation	SRDC

OTHER ABBREVIATIONS

American Association of State Highway Organizations	AASHTO
Manual on Uniform Traffic Control Devices	MUTCD
Americans with Disabilities Act	ADA
Public Right-of-Way Accessibility Guidelines	PROWAG

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INTRODUCTION

SECTION 01

PHILADELPHIA'S COMPLETE STREETS EXECUTIVE ORDER (NO. 5-09 - ESTABLISHMENT OF A COMPLETE STREETS POLICY)

WHEREAS, road and sidewalk space is a limited public good that must be shared by public transit service, pedestrians, taxicabs, bicycles, personal, emergency, commercial and utility vehicles, parked vehicles, sidewalk vending and cafes, bicycle racks, newsstands, bus stops and shelters, newspaper boxes and planters, among other things; and

WHEREAS, increasing public transit use, walking and bicycling offers the potential for a healthier citizenry, cleaner air, reduced traffic congestion, more livable neighborhoods, less reliance on fossil fuels and imported sources of energy, and more efficient use of road space and resources;

NOW THEREFORE, I, Michael Nutter, by the authority vested in me by the Philadelphia Home Rule Charter, do hereby order as follows:

Section 1. COMPLETE STREETS POLICY

All City departments and agencies shall, in connection with input into and decisions regarding all transportation and development projects:

A. Give full consideration to accommodation of the safety and convenience of all users of the transportation system, be they pedestrians, bicyclists, public transit users, or motor vehicle drivers;

B. Balance the needs of all users in planning, design, construction, maintenance, and operation; and

C. Prioritize the safety of those traveling in the public right of way, and in particular the safety of children, the elderly, and persons with disabilities. Such efforts shall be known as the City's "Complete Streets Policy."

Section 2. IMPLEMENTATION OF COMPLETE STREETS

All departments shall make the Complete Streets Policy an integral part of their planning and programming wherever practicable. Examples of how the Complete Streets Policy may be implemented include, but are not limited to:

A. Use of good geometric design and features such as median refuges and curb extensions (bumpouts) in connection with streetscape design, in order to minimize crossing distances and increase visibility between pedestrians and motorists;

B. Timing of traffic signals to minimize pedestrian delay & conflicts;

C. Discouraging limited pull-off lanes, driveways, and obstructions that narrow sidewalks to the detriment of a comfortable pedestrian environment;

D. Promotion of an expanded and improved bicycle network, including bike lanes, off-road trails, and bicycle parking at automobile parking facilities;

E. Reviewing motor vehicle traffic lanes to determine whether additional space for other lower-impact uses could be reasonably accommodated;

F. Improving the rights-of-way in compliance with ADA accessibility guidelines; and

G. Addressing the needs of bicycles, pedestrians, and public transit, as well as automobiles, when authorizing street and sidewalk closures for construction projects.

DATE June 4, 2009

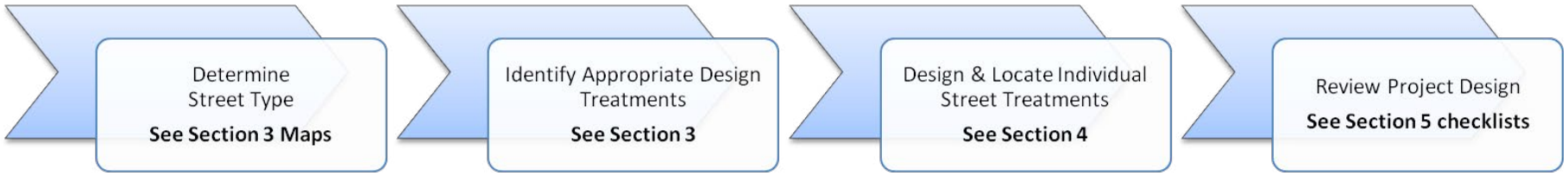
1.1 HOW TO USE THE COMPLETE STREETS HANDBOOK

The Philadelphia Complete Streets Design Handbook should be used by City and State agency staff, design professionals, private developers, community groups, and others involved in the planning and design of streets in Philadelphia. The Handbook will inform all projects that impact the public right-of-way in Philadelphia, including construction of new streets and improvements to existing streets. Streets Department will review projects for consistency with the Handbook. The guidance in this Handbook does NOT establish strict standards and does not supersede any existing federal, state, or city laws, rules, or regulations. All projects remain subject to relevant statutes, reviews, and approvals.

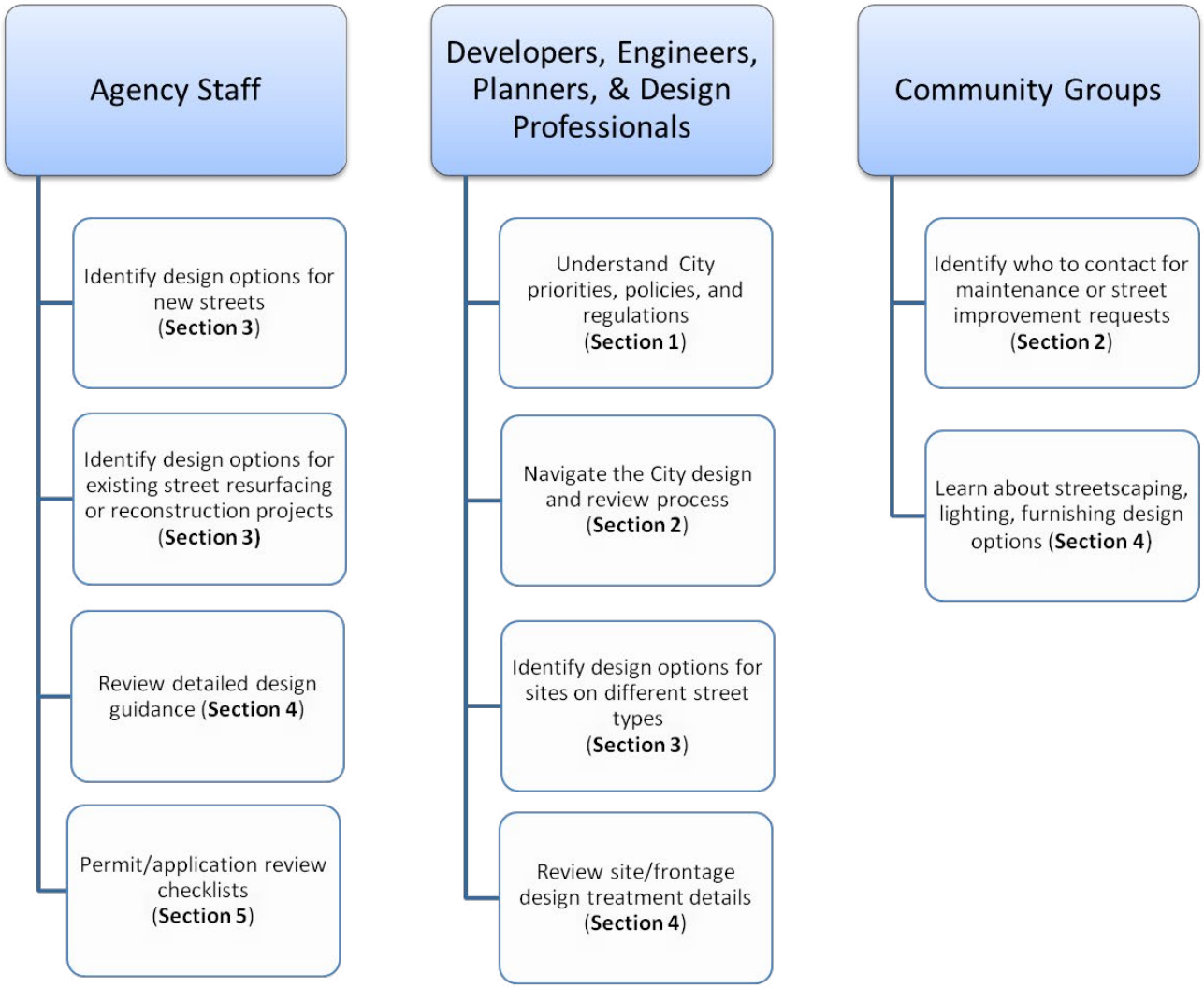
The Handbook is divided into five sections:

- **Section 1 – Introduction**
  Overview of the Handbook, complete streets principles, and related documents.
- **Section 2 - Philadelphia's Street Planning and Design Process**
  Overview of Philadelphia's street planning and design process and agency responsibilities.
- **Section 3 - Philadelphia Street Types**
  Description of the street types established in the *Philadelphia Pedestrian and Bicycle Plan*, map of street type designations, and summary of appropriate design treatments for each street type.
- **Section 4 - Complete Streets Components and Design Guidance**
  Introduction to the components of complete streets, design fundamentals, and a "toolbox" of design treatment to enhance safety, mobility, access, and vitality.
- **Section 5 – Implementation and Enforcement**
  Provides complete streets project review checklists for a variety of applications.

To use this document to arrive at a preferred street design, follow the steps illustrated in below:



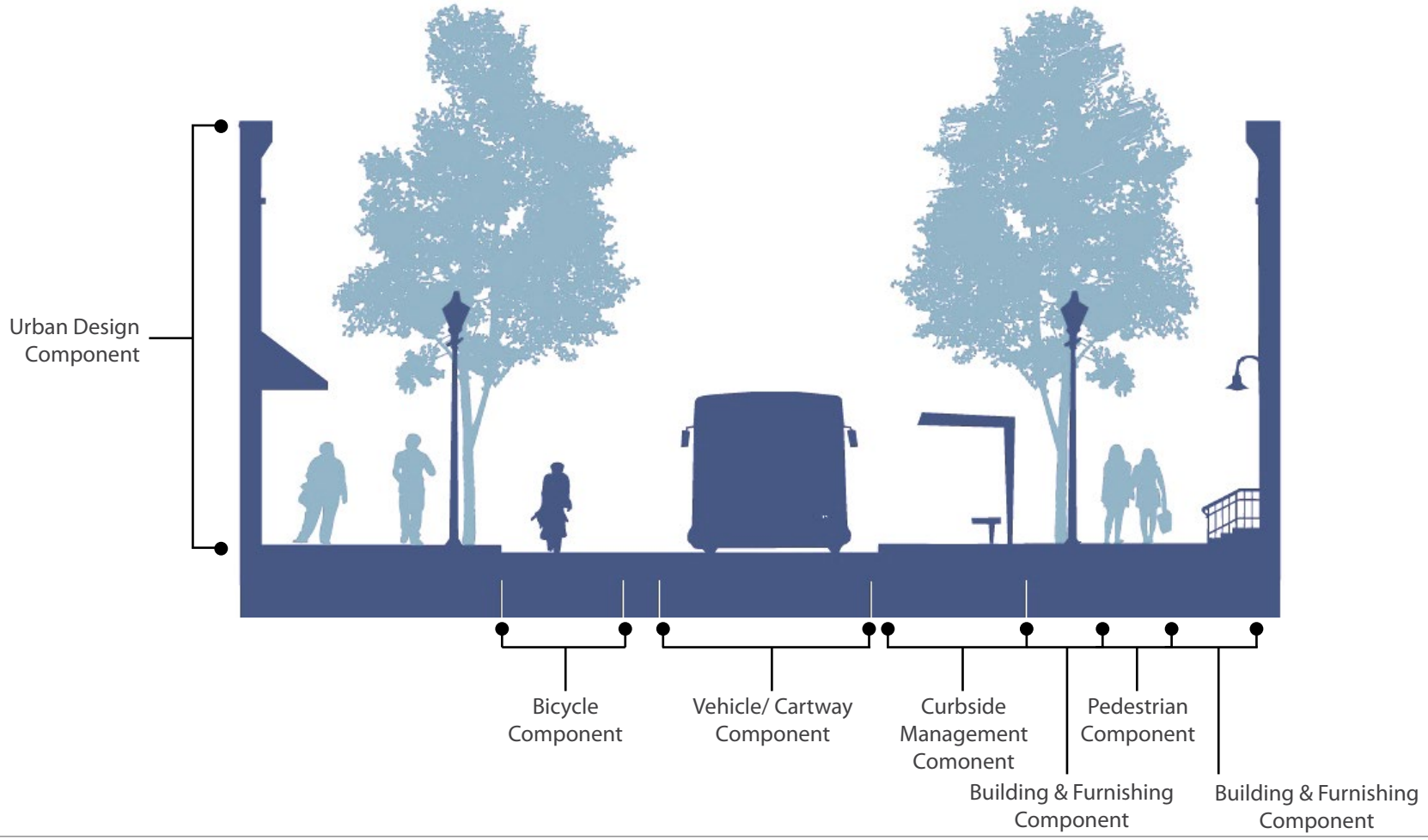
The Handbook is intended to provide resources for a variety of users and applications. The diagram below identifies the relevant section(s) of the Handbook where various users can locate information for common applications.



Note: Many of the design treatments in this Handbook are identified as "Green Infrastructure Opportunities," meaning they can be designed to help manage stormwater runoff and reduce the environmental impact of streets. For more detailed design guidance on green street infrastructure, please review PWD's Green Streets Design Manual.

1.1.1 COMPONENTS OF COMPLETE STREETS

Complete streets design considers the interaction of many different roadway users, elements of street design, and surrounding land uses. To ensure that each of these elements are considered during street project design, the *Philadelphia Complete Streets Design Handbook* identifies seven conceptual complete street "components" that make up the public right-of-way: Pedestrian (see Section 4.3); Building & Furnishing (see Section 4.4); Bicycle (see Section 4.5); Curbside Management (see Section 4.6); Vehicle/Cartway (see Section 4.7); Urban Design (see Section 4.8); and Intersections & Crossings (see Section 4.8). The figure below illustrates the approximate locations within the right-of-way that are addressed by each of these components. Throughout the Handbook, these components are used to ease identification of design treatments that are appropriate for different types of projects and different street types. Section 4 of this Handbook presents an overview of each complete street component, including design "fundamentals," relevant policies, responsible parties, and resources for more information. Detailed design guidance for different treatments within each component of the right-of-way is also provided in Section 4. Appropriate design treatments for different street types and components are also summarized in the Design Treatment Suitability Matrix (Section 1.1.2) and Section 3.



1.1.2 DESIGN TREATMENT SUITABILITY MATRIX

Tables 1 and ***2*** summarize the suitability of various design treatments for application on different types of streets and intersections in Philadelphia. Additional information about each street type and design treatment is provided in Sections 3 and 4 of this Handbook, respectively. For each street and intersection type, design treatments are classified into five categories:

- **Required** – These design treatments must be incorporated into all street improvement projects on designated street types.
- **High Priority** – These design treatments should be incorporated into all street improvement projects on designated street types if adequate clear sidewalk width can be maintained in compliance with ADA requirements and *Philadelphia Pedestrian and Bicycle Plan* guidelines.
- **Low Priority** – These design treatments should be considered for incorporation into all street improvement projects on designated street types if adequate clear sidewalk width can be maintained in compliance with ADA requirements and *Philadelphia Pedestrian and Bicycle Plan* guidelines. Additional consideration should be given to how the design treatment complements the surrounding context and desired function of the street.
- **Appropriate in Limited Circumstances** – These design treatments may be incorporated into street improvement projects on designated street types in a limited number of circumstances, such as locations near schools, transit stops, trails, or other non-auto-oriented trip generators.
- **Not Recommended** – These design treatments are generally not recommended for use on designated street types due to space constraints, safety concerns, or incompatibility with surrounding uses or the desired function of the street.

PennDOT approval and/or consultation must be obtained for all design treatments on state highways or facilities.

Table 1 - Street Segment Design Matrix

Street Component (See Section 4)	Design Treatment (See Section 4)		Street Type (see Section 3)										
			3.1 High-Volume Pedestrian	3.2 Civic/Ceremonial Street	3.3 Walkable Commercial Corridor	3.4 Urban Arterial	3.5 Auto-Oriented Commercial/ Industrial	3.6 Park Road	3.7 Scenic Drive	3.8 City Neighborhood	3.9 Low-Density Residential	3.10 Shared Narrow	3.11 Local
4.3 Pedestrian	4.3.1	Sidewalk Width	≥16'	≥ 20'	≥12'	≥12'	≥12'	≥8'	≥9'	≥12'	≥10'	≥5'	≥10'
	4.3.2	Walking Zone Width	≥8'	≥10'	≥6'	≥6'	≥6'	≥5'	≥6'	≥6'	≥5'	≥5'	≥5'
	4.3.3	Curb Ramps	●	●	●	●	●	●	●	●	●	●	●
	4.3.4	Shared/Pedestrian Priority Street	-	-	-	-	-	-	-	○	○	■	○
	4.3.5	Festival (Curbless) Street	○	○	○	○	-	○	○	○	○	○	○
	4.3.6	Pedestrian Plaza	■	■	■	□	-	-	-	□	□	-	○
4.4 Building & Furnishing	4.4.1	Building Zone Width	No minimum requirement										
	4.4.2	Furnishing Zone Width	≥4'	≥5'	≥4'	≥4′	≥5'	≥3′	≥3′	≥4′	≥3.5′	No. Min.	≥3.5′
	4.4.3	Bicycle Parking	■	●	■	■	□	□	■	○	○	-	○
	4.4.4	Lighting	■	■	■	■	□	□	□	■	□	□	□
	4.4.5	Benches & Street Furniture	□	■	■	□	○	□	□	○	○	-	○
	4.4.6	Sidewalk Cafes	○	□	□	○	○	○	○	○	○	-	○
	4.4.7	Street Trees	■	■	■	■	■	■	■	■	■	■	■
	4.4.8	Planters	□	□	□	○	○	○	○	○	○	○	○
	4.4.9	Stormwater Planters	□	□	□	□	□	□	□	□	□	□	□
	4.4.10	Trash Bins, Honor Boxes, Etc.	■	■	■	□	□	□	□	○	○	-	○
	4.4.11	Newsstands	○	□	□	□	-	-	-	○	-	-	-
	4.4.12	Vendors	○	○	○	○	○	○	○	○	-	-	○
	4.4.13	Architectural Features	○	○	○	○	○	-	-	○	○	○	-
4.5 Bicycle	4.5.1	Conventional Bike Lane	□	○	■	○	○	□	○	■	■	○	○
	4.5.2	Left-Side Bike Lane	Consider on one-way streets serving transit where bike lanes are appropriate										
	4.5.3	Buffered Bike Lane	■	□	■	□	□	□	□	■	■	-	-
	4.54	Contra-Flow Bike Lane	Consider on one-way streets where alternate route is unsafe or excessively long and where bike lanes, buffered bike lanes, or separated bike lanes are appropriate.										
	4.5.5	Climbing Bike Lane	Consider on streets with steep grades where bike lanes or marked shared lanes are appropriate										
	4.5.6	Street Level Separated Bike Lanes	■	■	■	■	■	■	■	□	○	-	-
	4.5.7	Raised Separated Bike Lanes	■	■	■	■	■	■	■	□	○	-	-

Legend

- ● Required
- ■ High Priority (Include if width permits)
- □ Low Priority (Should be considered)
- ○ Appropriate in Limited Circumstances
- \- Not Recommended

Table 1 - Street Segment Design Matrix (Cont.)

Street Component (See Section 4)	Design Treatment (See Section 4)		Street Type (see Section 3)										
			3.1 High-Volume Pedestrian	3.2 Civic/Ceremonial Street	3.3 Walkable Commercial Corridor	3.4 Urban Arterial	3.5 Auto-Oriented Commercial/ Industrial	3.6 Park Road	3.7 Scenic Drive	3.8 City Neighborhood	3.9 Low-Density Residential	3.10 Shared Narrow	3.11 Local
	4.5.8	Shared-Use Path	-	⭘	⭘	□	□	■	■	-	□	-	-
	4.5.9	Neighborhood Bikeway	-	-	⭘	-	-	⭘	-	■	■	■	■
	4.5.10	Marked Shared Lanes	-	-	□	-	-	⭘	⭘	□	□	■	■
	4.5.11	Green Colored Pavement	■	■	■	■	■	■	■	□	□	□	□
	4.5.12	Bike Route Signs	■	■	■	■	■	■	■	■	□	□	□
	4.5.13	Bicycle Facility Transitions	see guidelines										
4.6 Curbside Management	4.6.1	On-Street Parking	■	■	■	□	□	⭘	⭘	■	□	-	□
	4.6.2	In-Street Bicycle Parking	□	⭘	□	⭘	-	⭘	⭘	⭘	-	-	-
	4.6.3	Lay-By Lanes	⭘	⭘	⭘	⭘	-	-	-	-	-	-	-
	4.6.4	Loading Zones	■	■	■	□	□	⭘	⭘	■	□	-	□
	4.6.5	Transit Stops	■	■	■	■	■	□	□	■	□	-	⭘
	4.6.6	Alternative Uses of Parking Lanes	⭘	⭘	⭘	⭘	⭘	⭘	⭘	⭘	⭘	-	⭘
4.7 Cartway/ Vehicle	4.7.1	Lane Width	see guidelines										
	4.7.2	Traffic Calming	■	□	■	□	□	■	□	■	■	-	■
	4.7.3	Raised Speed Reducers	■	□	■	-	-	⭘	⭘	■	■	-	■
	4.7.4	Medians	□	□	□	■	■	□	□	⭘	⭘	-	-
	4.7.5	Chicanes	-	-	⭘	-	-	⭘	-	⭘	⭘	-	⭘
	4.7.6	Bus Lanes	⭘	⭘	⭘	⭘	⭘	-	-	-	-	-	-
	4.7.7	Floating Bus Stop	■	■	■	■	■	■	■	□	⭘	-	-
4.8 Urban Design	4.8.1	Driveways	see guidelines										
	4.8.2	Utilities	see guidelines										
	4.8.3	Construction Disruption	see guidelines										
	4.8.4	Stormwater Management	●	●	●	●	●	●	●	●	●	●	●

Legend

- ● Required
- ■ High Priority (Include if width permits)
- □ Low Priority (Should be considered)
- ⭘ Appropriate in Limited Circumstances
- \- Not Recommended

Intersection design is highly dependent upon the context of the individual intersection, including its geometry, surrounding land uses, speed and volume of traffic at each approach, turning movements, and the desired function of the intersection within the street network. The type of traffic control (e.g., signalized, two- or all-way stop controlled, roundabout) at an intersection also informs the types of appropriate design treatments. ***Table 2*** summarizes the suitability of various design treatments for application on different types of intersections in Philadelphia. Additional information about each design treatment is provided in Section 4.9 of this Handbook. For the purposes of this Handbook, "major" streets are generally considered to be streets with a functional classification of freeway, collector, or arterial. Coordination with PennDOT is necessary for intersections involving state facilities or ramps to/from state highways.

Table 2 - Street Design Matrix

Street Component (See Section 4)	Design Treatment (See Section 4)		Traffic Control	Major/Major	Local/Major	Local/Local	Complex Geometry (>4 legs, skewed, etc.)
4.9 Intersection & Crossing	4.9.1	Marked Crosswalks	All	■	■	■	■
	4.9.2	Uncontrolled Crossings	None	see guidelines			
	4.9.3	Curb/Corner Radii	All	see guidelines			
	4.9.4	Curb Extensions	All	⭘	□	□	□
	4.9.5	Pedestrian Refuge Islands	All	■	□	⭘	■
	4.9.6	Signal Timing and Operations	Signalized	■	■	■	■
	4.9.7	Traffic Signal Priority	Signalized	■	■	■	■
	4.9.8	Pedestrian Hybrid Beacon (HAWK)	Unsignalized	-	⭘	-	⭘
	4.9.9	Rectangular Rapid Flash Beacon (RRFB)	Unsignalized	see guidelines			
	4.9.10	Bicycle Signals	Signalized	see guidelines			
	4.9.11	Bicycle Crossing Treatments	All	■	■	□	■
	4.9.12	Mixing Zones	Signalized	■	■	□	■
	4.9.13	Bike Boxes	Signalized	■	□	⭘	□
	4.9.14	Raised Crossings	All	-	⭘	⭘	⭘
	4.9.15	Two-Stage Left Turn Queue Boxes	Signalized	□	⭘	⭘	□
	4.9.16	Traffic Diverters	All	-	⭘	⭘	⭘
	4.9.17	Neighborhood Traffic Calming Circles	Unsignalized	-	-	⭘	-
	4.9.18	Roundabouts	Unsignalized	⭘	⭘	-	⭘
	4.9.19	Protected Intersections	Signalized	■	■	□	■

Legend

- ● Required
- ■ High Priority (Include if geometry permits)
- □ Low Priority (Should be considered)
- ⭘ Appropriate in Limited Circumstances
- \- Not Recommended

1.2 PURPOSE & BACKGROUND

In June 2009, Mayor Nutter issued the Complete Streets Executive Order, requiring all City departments and agencies to balance the needs of pedestrians, bicyclists, public transit users, and motorists when making decisions regarding the transportation system and development projects. The Order places a high priority on increasing safety and convenience for those traveling in the public right-of-way, particularly children, the elderly, and persons with disabilities. The Philadelphia Complete Streets Design Handbook *provides City agencies, design professionals, private developers, and community groups the design guidance necessary to implement the Complete Streets Executive Order. The Handbook will inform all changes to the public right-of-way in Philadelphia, including construction of new streets and improvements to existing streets. The Handbook will also promote more efficient project implementation by serving as a comprehensive resource to guide Streets Department review of all projects within the public right-of-way.*

The Philadelphia Complete Streets Design Handbook illustrates preferred multimodal street design and management practices within the City of Philadelphia and provides project review checklists to ensure these designs and practices are applied to City streets. The Handbook catalogues existing local policies and design standards related to design of streets, sidewalks, intersections, and other facilities in the public right-of-way. It also provides recommended policies and practices where they did not previously exist. All design treatments presented in this Handbook have been tailored to the unique needs and dimensions of Philadelphia streets and provide flexibility for adaptation to local contexts. The Handbook encourages the use of engineering judgment and provides flexibility for adaptation of designs to specific conditions; however, the guidelines contained in this document should be followed wherever practicable to create a street environment that promotes safety, comfort, and access for all users. All designs remain subject to case-by-case Streets Department approval based on established engineering standards and professional judgment.

The Philadelphia Complete Streets Design Handbook was developed through a collaborative effort led by the Mayor's Office of Transportation and Utilities (MOTU) and a Steering Committee including the Pennsylvania Department of Transportation (PennDOT), Philadelphia Water Department (PWD), Philadelphia City Planning Commission (PCPC), SEPTA, Delaware Valley Regional Planning Commission (DVRPC), Center City District, and University City District. Community groups, business organizations, developers, and other stakeholders were also engaged in development of the Handbook through interviews, focus groups, and reviewing draft content.

1.2.1 STATE AND FEDERAL POLICY CONTEXT

The Philadelphia Complete Streets Design Handbook is intended to supplement rather than replace existing engineering and design standards, including but not limited to the *Manual on Uniform Traffic Control Devices* (MUTCD). Some of the design treatments described in this Handbook are not directly referenced in the current editions of these documents, but best practices are provided based on

these treatments' use in Pennsylvania, nationally, and/or internationally. The U.S. Access Board's *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way* and other Americans with Disabilities Act (ADA) design standards are addressed as a component of most design treatments in the Handbook. All modifications to the public right-of-way and applications of the design guidance in this Handbook should consider accessibility for disabled Philadelphia residents, workers, and visitors.

At the State level, the Handbook supports PennDOT's Design Manual 2 (DM-2).

1.2.2 LOCAL POLICY CONTEXT

The *Philadelphia Complete Streets Design Handbook* builds on and supports several major City policy and planning initiatives, including:

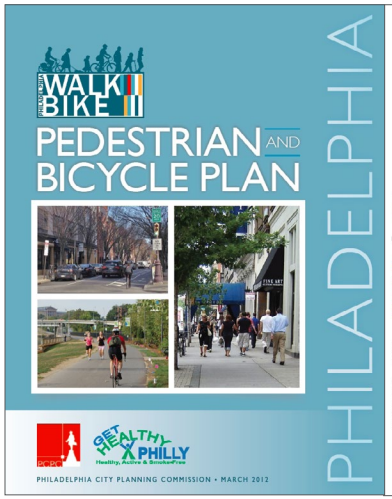
- **Philadelphia Pedestrian and Bicycle Plan** – This Plan, completed in April 2012, identifies policies, programs, and implementation strategies to increase walking and bicycling in the City by improving the connectivity, safety, convenience, and attractiveness of pedestrian and bicycle networks. The Plan also presents a street classification system with design standards for sidewalks that reflects the interplay between roadway function, pedestrian activity, and adjacent land use. *This Handbook builds upon the classification system and sidewalk standards established in the Pedestrian and Bicycle Plan.*
- **Philadelphia 2035** – The *2035 Comprehensive Plan* is part of an integrated planning and zoning process. Organized around three major themes – Thrive, Connect, and Renew – the Plan includes a long-range citywide plan and 18 strategic district plans. The *Philadelphia 2035 District Plans* are "in process" and will be for the next several years, but the larger citywide document was completed in June 2011. *This Handbook provides design options that will support implementation of the 2035 citywide vision and district plans.*
- **Philadelphia Zoning Code Commission Report** – The Zoning Code Commission's revision of the Zoning Code was adopted by City Council in December 2011. The new zoning classifications follow the land-use and transportation goals, principles, and recommendations of the Comprehensive Plan. *This Handbook builds upon the new Zoning Code's standards for new streets and provides recommendations for improving the interface between the public right-of-way and surrounding land uses.*
- **Greenworks Philadelphia** – Released by the Mayor's Office of Sustainability in April 2009, *Greenworks Philadelphia* sets 15 targets to make Philadelphia the greenest city in the United States by 2015. Together, they are intended to reduce the City's vulnerability to rising energy prices, limit its environmental footprint, and reposition its workforce and job development strategies to build on Philadelphia's competitive advantages in the emerging green economy. *This Handbook was identified as a task to complete the Greenworks initiative and provides design options that will support achievement of the Greenworks targets.*
- **Green City, Clean Waters (Stormwater Management Plan)** – This Plan, developed by the Philadelphia Water Department (PWD), identifies strategies for dealing with rainwater through "green infrastructure" (e.g., rain gardens, green roofs, porous pavement, planted curb extensions, vegetated parking-lot swales, street trees) to avoid the cost of boring large stormwater tunnels or greatly expanding sewage plants to hold overflow for subsequent treatment. *This Handbook incorporates PWD's recommendations and identifies opportunities to incorporate green infrastructure into street improvements that also serve pedestrians, bicyclists, and transit users.*

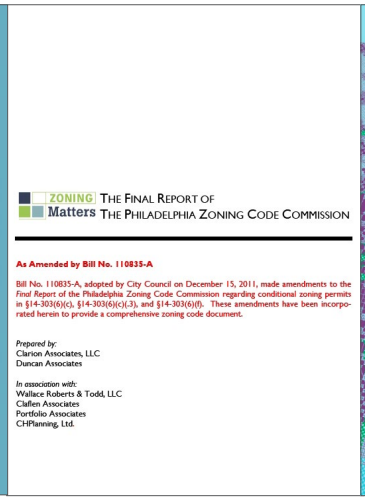
1.2.3 CONCURRENT PROJECTS

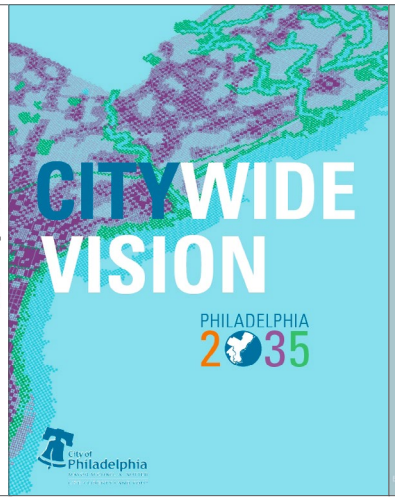
The *Philadelphia Complete Streets Design Handbook* was developed concurrently with two additional documents that will impact the design of Philadelphia's streets and multimodal facilities in the future:

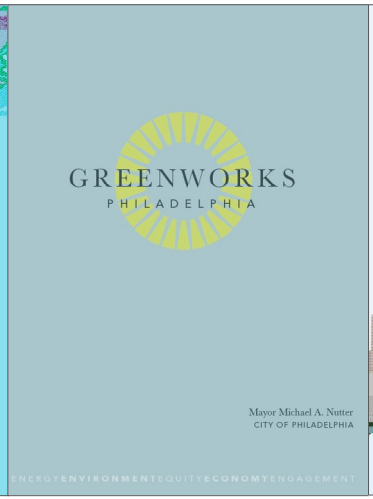
- **Green Streets Design Manual** – This manual, currently under development by the Philadelphia Water Department, provides design guidance for "green infrastructure" stormwater management features currently being implemented or considered on Philadelphia's streets. Design treatments addressed include: stormwater curb extensions, tree trenches, stormwater planters, rain gardens, permeable paving, green gutters, and other innovative treatments. For each treatment, the manual provides a typical design and discussion of benefits, constraints, and other design issues. For more information, go to: www.phillywatersheds.org.
- **SEPTA Transit Stop Design Standards** – This guide, currently being developed jointly by SEPTA and DVRPC, will provide a consistent set of standards for designing surface transit stops in Philadelphia and the surrounding region. The guidelines will address four primary aspects of transit stop design: stop location (placement relative to other stops, intersections, and development), in-street design (street space allocated for transit vehicle operation), curbside design (space reserved for passengers to wait for and board transit vehicles), and passenger amenities (e.g., shelters, lighting, seating). For more information, go to: www.septa.org.

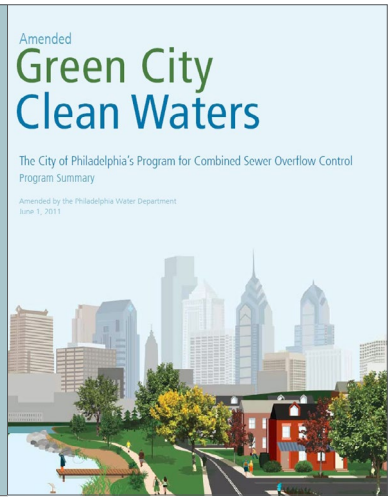
These design manuals will serve as companion documents to the *Philadelphia Complete Streets Design Handbook* and have been developed in coordination to avoid duplicative or conflicting guidance. Although this Handbook addresses many design issues and treatments related to green infrastructure and transit facilities, readers will be directed to these documents for more detailed guidance on these issues wherever appropriate.











1.3 WHY DOES PHILADELPHIA NEED COMPLETE STREETS?

"Complete streets are streets for everyone. They are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across a complete street. Complete streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations."

\- Complete Streets Coalition

Philadelphia's streets have historically served many functions. Many of the City's streets were originally designed in the early twentieth century to serve horses, carriages, and pedestrians. These streets served important civic, cultural, and economic functions for Philadelphians, housing public markets, parade routes, plazas, and venues for socializing in addition to facilitating travel and movement of goods. As personal and freight transportation became more focused on motor vehicles over time, however, street designs also evolved to focus primarily on facilitating efficient movement of cars and trucks.

This focus created benefits as well as challenges for the City. In some areas, streets were constructed or expanded without accommodations for non-motorized modes or transit, creating an unwelcoming or unsafe environment for pedestrians and bicyclists with limited transportation options. Additional impacts include pollution, increased stormwater runoff from ever-widening roadways, and decreased opportunities for social and physical activity on streets. In other areas, widening narrow streets to accommodate increasing vehicle traffic has proven difficult or impossible without disturbing existing neighborhoods and historic buildings.

Complete streets design represent a return to the historic, multi-faceted role of streets in Philadelphia. The *Philadelphia Complete Streets Design Handbook* presents an updated approach to street design drawing from the recent experiences of New York City, San Francisco, and other peer communities' efforts to create a transportation network that promotes community vitality and provides safe, convenient options for motorists, pedestrians, bicyclists, transit users, and freight carriers. This approach also considers the role of Philadelphia's streets in achieving citywide goals beyond transportation and mobility, such as improved public health, environmental quality, quality of life, and economic development. This Handbook provides City staff, community organizations, developers, and others the tools needed to make our city's streets better.

1.3.1 COMPLETE STREETS PRINCIPLES

This Handbook contains guidance on a wide range of street design treatments and provides flexibility for the designer to adapt to the diverse contexts found throughout Philadelphia. Complete streets come in many shapes and forms, but adhere to the following overarching complete streets principles:

- **Design to accommodate all users** – Complete streets provide appropriate space for all street users to coexist. Street design should accommodate pedestrians, bicyclists, transit users, automobiles, and commercial vehicles. (For additional information on transit stop design, see the SEPTA *Transit Stop Design Standards Guide*.)
- **Design for safety** – The safety of all street users, especially the most vulnerable users (children, the elderly, and disabled) and modes (pedestrians and bicyclists) should be paramount in any street design. The safety of streets can be dramatically improved through appropriate geometric design and operations.

- **Prioritize pedestrian movement** – Complete streets are built to pedestrian scale and privilege pedestrian movements, recognizing the critical role pedestrians play in urban vitality and because all trips include a pedestrian component (e.g., walking to/from parking, transit).
- **Complement surrounding land uses, environment, and community** – Complete streets respect the surrounding built and natural environment. Well-designed streets promote travel speeds, modes, and sidewalk activities that are desired and appropriate for the surrounding context.
- **Incorporate green design** – Complete streets should incorporate green infrastructure such as street trees and stormwater curb extensions wherever practicable to simultaneously improve the pedestrian environment and mitigate the environmental impact of runoff and other transportation impacts. (For additional information on green streets and stormwater design, see the PWD *Green Street Design Guide*.)
- **Create public spaces** – Complete streets promote streets as public spaces and incorporate designs to maximize social and economic activity.

DESIGN PRIORITIES FOR MULTIPLE ROADWAY USERS

Pedestrian Design Priorities

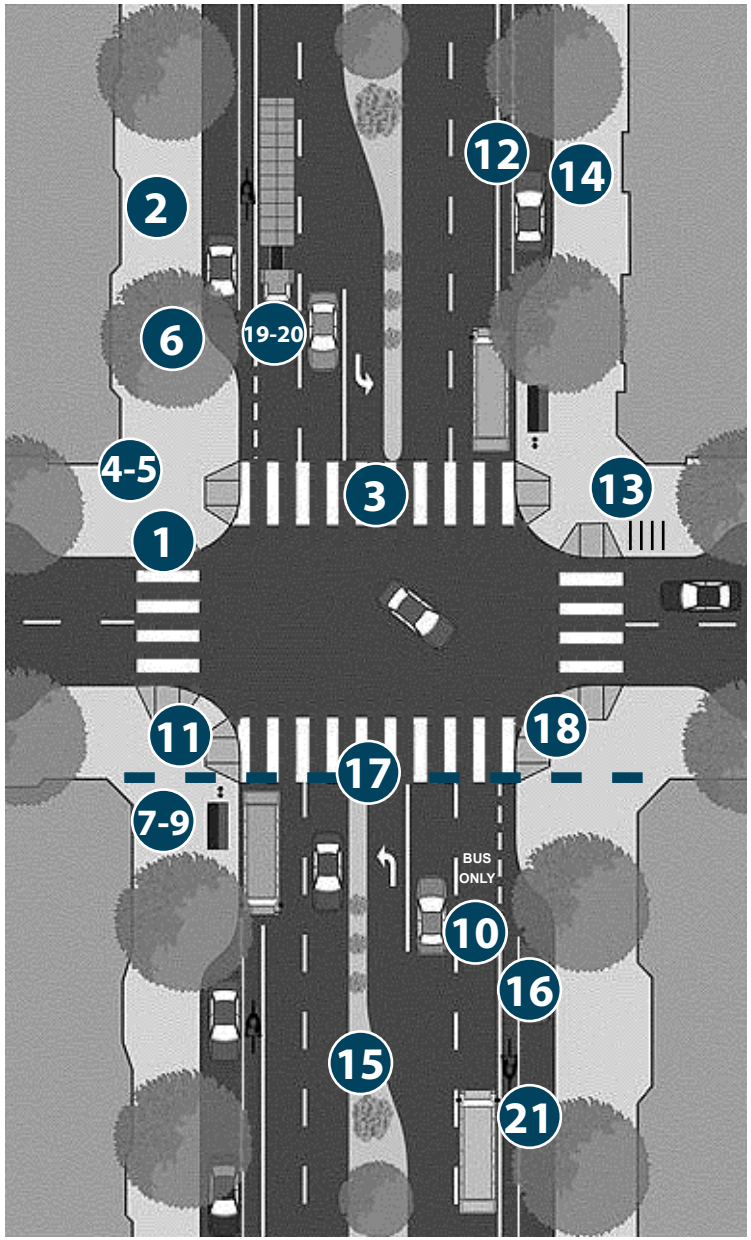
1. Accessible curb ramps
2. Ample, unobstructed walkways
3. Safe, visible crossings
4. Public plazas and street-level activities
5. Pedestrian-scale lighting & urban design
6. Streetscaping and green space

Transit Design Priorities

7. Convenient pedestrian access to stops
8. Connections to surrounding destinations
9. Safe, secure waiting areas with passenger amenities
10. In-road facilities to increase service speed and reliability
11. Adequate curb radii

Bicycle Design Priorities

12. Safe designated facilities
13. Ample, secure bike parking
14. Connected, well-marked network



Automobile Design Priorities

15. Appropriate design speed (traffic calming)
16. Parking management
17. Appropriate distribution of road space

Freight and Emergency Services Design Priorities

18. Adequate curb radii
19. Adequate lane width
20. Designated routes without disturbances
21. Loading zones

1.3.2 EMERGING TREATMENTS

Emerging treatments are those that have not been installed broadly yet in the city, but in many cases have a long track record of success in other jurisdictions. Implementation of these treatments can enhance safety and improve the comfort and effectiveness of the multimodal transportation network. Including these treatments in the Handbook offers a menu of possible solutions for building out Complete Streets in Philadelphia. Emerging treatments might be most appropriate where other standard treatments are not successful due to constraints or limitations.

Additional testing and analyses are needed to best implement and ultimately standardize these emerging treatments for future application in Philadelphia. Emerging treatments can be installed using temporary materials, such as temporary pavement markings, flexible delineator posts, water filled barriers, and/or planters. This allows for evaluation and adjustment to occur before permanent improvements are made.

PROCESS FOR IMPLEMENTING EMERGING TREATMENTS

This emerging treatment concept review process is intended to help City Staff identify whether an emerging treatment is applicable prior to the detailed design review process. This process is applicable for development projects as well as city-led projects.

1. Check Best Practices. Applicants should first verify that any proposed emerging treatments are applicable as per the guidelines offered herein, context-specific street character, best practices identified in other cities, and guidance offered by national publications. Applicants should submit rationale regarding the pertinence of the emerging treatment in the subject context. Rationale might include relevant case studies, before and after data from treatment installation, and/or previous research on the treatment.

2. Submit Concepts. All emerging treatment concepts must first be reviewed by the Office of Complete Streets and the Right-of-Way Unit for applicability. Applicants shall submit a concept plan that demonstrates high-level compliance with standard engineering requirements, such as sight distance. The concept plan should also identify potential impacts to grading, draining, and vehicular operations. The concept plan should note the need for acceptance by MUTCD, whether Subject to Experimentation, or available through Interim Approval, as applicable.

3. Address Comments. The Streets Department will circulate the emerging treatment concept plan to applicable city divisions for review as needed. Applicants shall refine the concept as per comments received and resubmit for subsequent reviews as needed.

4. Evaluate Effectiveness. The Applicant shall submit a plan for study and evaluation of the emerging treatment(s). This study should include relevant before and after data collection, such as speed, volume, and crash data. Data collection parameters shall be discussed and agreed upon by the Applicant and Streets Department Staff. The Applicant shall submit a memorandum documenting the analysis results to be reviewed by Streets Department Staff.

5. Adjust and Monitor. Under direction from Streets Department Staff, adjustments might be required during emerging treatment implementation to address any negative impacts that are identified through the study process, through City Staff review, and/or by the public. If negative impacts cannot be mitigated, the treatment may be deemed inappropriate in such context and might require removal. A memorandum of understanding may be needed to assign responsibilities and ensure completion of the evaluation process.

6. Adopt Standards. As emerging treatments are implemented more broadly in the city and study results show successful outcomes, treatments should be considered for standardization.

EXAMPLES

The following treatments are examples of emerging treatments in the City of Philadelphia and thus, shall be implemented following the process outlined herein.

- Chicane (4.7.5)
- Diagonal Traffic Diverter (4.9.16)
- Raised Median Traffic Diverter (4.9.16)
- Protected Intersection (4.9.19)
- Raised Separated Bike Lane (4.5.7)

These treatments are marked with an Emerging Treatment icon. 

PHILADELPHIA'S STREET PLANNING & DESIGN PROCESS

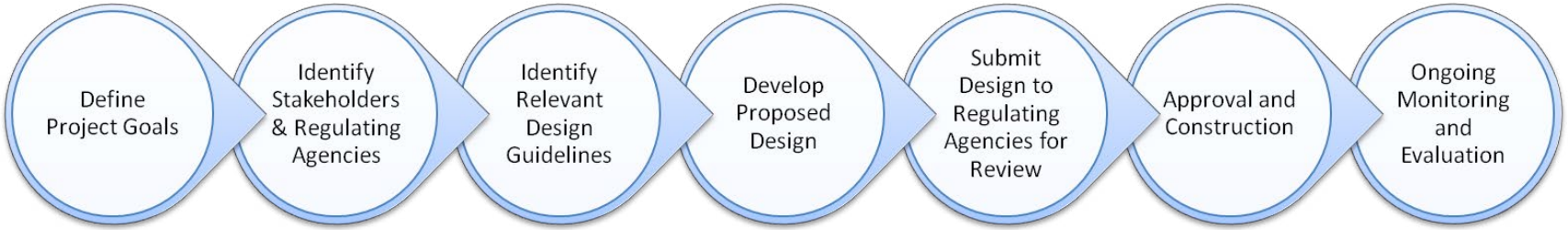
SECTION 02

2.1 OVERVIEW OF PHILADELPHIA'S STREET PLANNING AND DESIGN PROCESS

The process of planning, designing, operating, and maintaining high-quality streets requires consideration of many interconnected elements of the urban environment and involves many actors. This section provides a brief overview of the larger planning and design process that street design follows and how the *Philadelphia Complete Streets Design Handbook* fits into that process. It also identifies the various agencies and partners involved in the street planning and design process, and their specific roles and responsibilities.

2.1.1 STREET CONSTRUCTION, RECONSTRUCTION, AND DEVELOPMENT PROJECTS

The Philadelphia Complete Streets Design Handbook provides guidance for the design of new streets and improvements to existing streets, including resurfacing, reconstruction, or changes associated with development outside the public right-of-way. The planning and design process varies slightly for each of these different project types, but generally follows a similar framework. The flow chart below illustrates the planning and design process that most street improvement projects follow and how the Handbook fits into this process.



- See relevant policies and plans
- See Handbook Section 2.2
- See Handbook Section 3 for street type
- See Handbook Section 4 for design specifics
- See Handbook Section 2.2 for list of agencies
- See Handbook for Section 5.1 for complete streets review checklist

2.1.2 STREET IMPROVEMENTS AND SIDEWALK ENCROACHMENTS

The Handbook also provides information for community groups, residents, and business owners on the permitting process and design standards for minor improvements within the public right-of-way such as benches, bicycle racks, and sidewalk cafes. These types of improvements can help to create a sense of place and increase the attractiveness of streets for pedestrians and cyclists, but also encroach on the sidewalk and can create obstructions for pedestrians as well as potential maintenance or liability issues. As a result, these improvements must be reviewed and permitted by a City agency or allowed through passing of a Council ordinance. Once compliance with Handbook recommendations is established and approval is received, project sponsors must identify funding to purchase, install, and maintain improvements. The following section identifies the agencies responsible for permitting various minor street improvements. Section 4 of this Handbook provides design guidelines for many minor street improvements and directs readers to specific resources for more information.

SIDEWALK ENCROACHMENTS – THE PERMITTING & ORDINANCE PROCESSES

The Philadelphia Code regulates what types of improvements that encroach on the sidewalk may be permitted by City agencies. All encroachments addressed in the Code must be approved by the Streets Department Right-of-Way Unit (ROW) prior to Department of Licenses and Inspections (L&I) zoning variance approval, building permit approval, or license issuance. All other improvements may only be made to the public right-of-way through an ordinance of the City Council.

Approved Encroachments:

Require Streets Dept. ROW Unit approval, but no additional permit or license

- Bicycle racks
- Planters (Center City District only)

Permitted Encroachments:

May be licensed or allowed as part of a Zoning Variance or Building Permit by L&I after approval by Streets Dept. ROW Unit

- **Require Zoning Variance or Building Permit:**
  - Awnings or canopies
  - Steps or wheelchair lifts/ramps
  - Balconies
  - Bay windows
  - Cellar doors and vaults
- **Require License:**
  - Licensed dumpsters (not roll-off type)
  - Newsstands
  - Sidewalk cafes

Prohibited Encroachments:

Are not allowed in the right-of-way under the Philadelphia Code without an ordinance from City Council

- Benches
- Art or architectural embellishments (e.g., gates, sculptures)
- Building additions of any kind
- Enclosed sidewalk cafes
- Planters (outside Center City District)
- Fences or retaining walls

2.2 WHO'S INVOLVED?

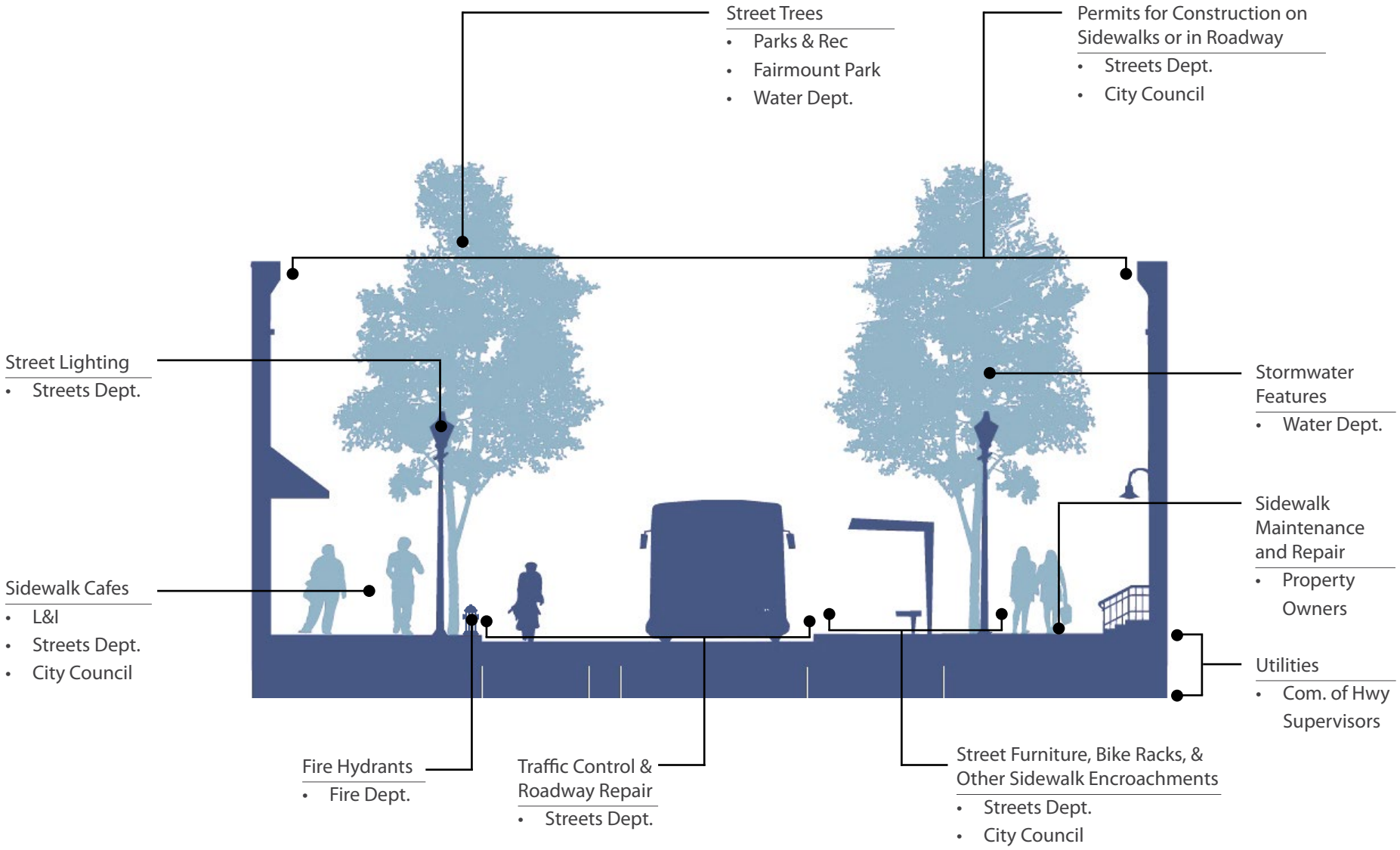
The following are agencies and other organizations that are frequently involved in the creation, review, and approval of elements of street design in Philadelphia. This list is provided as a reference tool, for informational purposes and is not an exhaustive list. A Lane Closure Permit must also be obtained from the Streets Department Right-of-Way Unit in order to perform any work within the right-of-way.

- **District Councilperson** By established tradition, only the district councilperson can introduce an ordinance to alter a street or rezone a parcel in his or her district.
- **City Council** must approve any ordinance for a street change. Under the Home Rule Charter, City Council must approve the laying, striking, or redesign of any street.
- **Mayor** must sign any ordinance for a street change after approved by Council.
- **Zoning Board of Adjustment (ZBA)** must hear all variance requests. Very few administrative adjustments are allowed (see list of permitted encroachments on previous page).
- **Office of Transportation, Infrastructure, and Sustainability (OTIS)** is responsible for coordinating all street improvements and houses the Philadelphia Streets Department.
- **Streets Department** is responsible for permitting alterations to the public right-of-way by private property owners; engineering roadway and bridge improvements; designing traffic controls including signals, signs, and pavement markings; and maintaining roadways, bridges, traffic controls and street lights (including plowing and salting)
  - **Right-of-Way Unit** issues approvals for all encroachments into the right-of-way. All permits to open, break, or tunnel any street must be approved by the Streets Department Right-of-Way Unit.
  - **Board of Surveyors** must approve any new streets, street dimension changes, or street location changes. The unit also prepares ordinances for proposed streets and paving for City Council approval.
  - **Highway Division** carries out street construction, reconstruction, and maintenance activities.
  - **Traffic Division** approves all curb cuts and driveways more than 20' wide and all parking facilities with more than two spaces.
  - **Committee of Highway Supervisors** is composed of utility, Streets Department, and Planning Commission representatives. Per Title 11 of the Philadelphia Code, permits for opening, breaking, or tunneling any street must be obtained from Licenses & Inspections after approval is obtained from Department of Streets and the department in charge of affected underground services.
- **Licenses & Inspections** determines zoning restrictions, conducts inspections, approves/denies zoning and building permits, and inspects stormwater systems based upon Plumbing Code standards. Philadelphia Home Rule Charter gives L&I responsibility for the review, issuance, and

inspection of every permit or license required by the City of Philadelphia. Per Title 11 of the Philadelphia Code, permits for opening, breaking, or tunneling any street for water, sewer, and stormwater connections must be obtained from L&I after approval is obtained from Department of Streets and the department in charge of affected underground services.

- **Planning Commission** provides plat review and approval for subdivisions. Reviews Streets bills (changes to lines and grades), Property bills (acquisition and sales), changes to the Zoning Code, public development proposals, and all development plans that require variances. Performs facade reviews where required by Zoning Code. Planning Commission developed the *Philadelphia Pedestrian and Bicycle Plan* and is responsible for integrating proposed changes to ped/bike networks into development proposals and neighborhood or district level planning efforts. Planning Commission does Complete Streets Review for Civic Design Review.
- **PennDOT** must approve changes to a street if it is also a state highway (typically PennDOT is only involved in ADA and right-of-way dimension changes).
- **Water Department** creates specifications for all stormwater detention and retention systems and conducts percolation standards testing based on their own specifications. PWD will review green stormwater infrastructure improvements in accordance with the process outlined in the *Green Streets Manual*.
- **Developers** construct any new streets and sidewalks. May request permission for driveways, lay-bys, and/or sidewalk encroachments.
- **Parks and Recreation and Fairmount Park Commission** set street tree requirements, supervise street tree installation, and maintain street trees and landscaping within parks properties. Section 14-2104(13) of Philadelphia Code requires street trees be planned in all residential and apartment house subdivisions, including land abutting any street previously opened.
- **Accessibility Advisory Board** reviews designs for appeals on requirements for handicapped accessibility.
- **Fire Department** if new streets are required, Fire Department must approve location of fire hydrants on new streets.
- **Community Groups** may have maintenance responsibilities and can testify during the design review process,
- **Developer Services Team** this informal group of management personnel from the Office of Housing and Neighborhood Preservation, Planning Commission, L&I, Streets Department, and Water Department can be engaged to meet early in the design process to review and comment on plans.
- **Art Commission** must approve any awnings, signs, or other encroachments on the public right-of-way.
- **Center City District** owns and maintains pedestrian lighting, street trees, signage, trash bins, and other streetscape elements in select areas.

The diagram below illustrates the roles and responsibilities of city agencies and other entities related to the most visible aspects of the City's streets. It does not include all agencies with street design review, approval, construction, or maintenance roles and is not intended to be a literal representation of appropriate street furniture locations.



PHILADELPHIA STREET TYPES

SECTION 03

Good complete street design takes into account the differing conditions and contexts of each street. Streets with different surrounding land uses, constraints, and significance for different modes require different design considerations and treatments.

The Philadelphia Pedestrian and Bicycle Plan established a new street classification that considers the functional roadway classification, land-use characteristics, development density, and pedestrian activity level of streets. The new street types are intended to inform planning decisions when altering existing streets and sidewalks and when reviewing new streets and sidewalks as part of development projects. The classification is not intended to replace the City's functional classification system, but provides a more context-sensitive classification to aid in the planning and design of complete streets that provide appropriate accommodations for all roadway users.

The eleven street types addressed in this plan are:

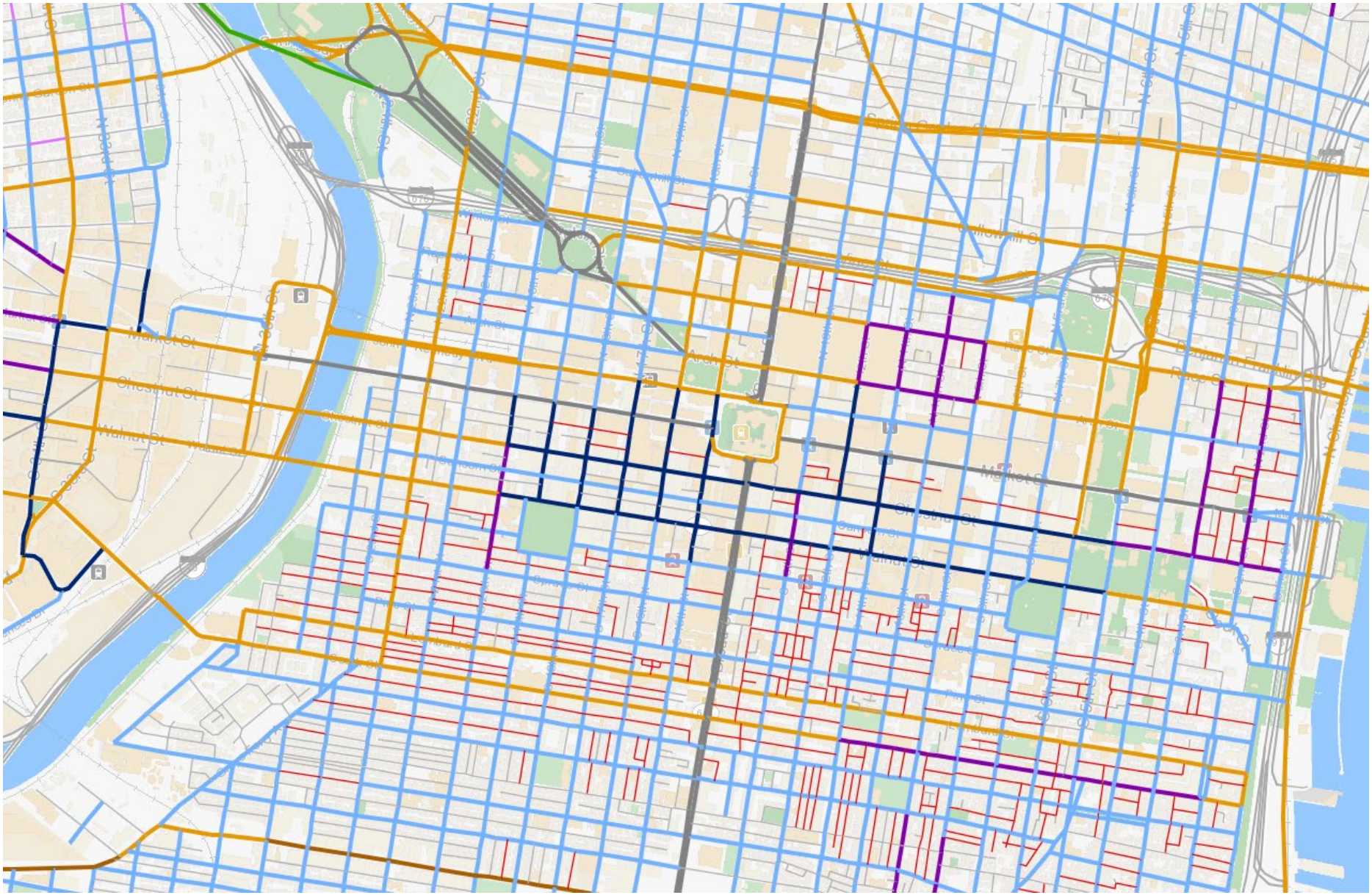
- High-Volume Pedestrian (section 3.1)
- Civic/Ceremonial Street (section 3.2)
- Walkable Commercial Corridor (section 3.3)
- Urban Arterial (section 3.4)
- Auto-Oriented Commercial/Industrial (section 3.5)
- Park Road (section 3.6)
- Scenic Drive (section 3.7)
- City Neighborhood (section 3.8)
- Low-Density Residential (section 3.9)
- Shared Narrow (section 3.10)
- Local (section 3.11)

A street's type may change from one block to another, but streetscape improvements should be implemented to provide consistent design along routes and smooth transitions from one street type to another. When identifying design treatments, the ultimate role of the street should be considered as well as its current function. On some streets, traffic calming or other design improvements may be necessary to alter the function of the street. For all street types, additional special roles or designations of streets should be considered when determining appropriate design treatments. Special roles and designations may include: priority transit, freight, or emergency service routes; streets of particular cultural, historic, or ecological significance, or streets that serve large numbers of vulnerable roadway users (e.g., near schools, senior housing, or parks).

The following pages provide a summary for each street type, including:

- A general description;
- Ranking of pedestrian and vehicle significance (high, medium, low);
- Functional classification (used to determine access and mobility standards);
- Typical land use and characteristics;
- General design considerations;
- Appropriate design treatments for each complete street "component" with links to more detailed design guidance (provided in Section 4); and
- Example photos and cross sections.

Below is a portion of the Complete Street Types map, which is housed on the City of Philadelphia's OpenMaps Portal. This map is frequently updated and can be accessed at https://openmaps.phila.gov/. It designates each street in the city according to one of the eleven complete street types.



3.1 HIGH-VOLUME PEDESTRIAN

These streets are important pedestrian destinations and connections in high-density commercial, residential, and mixed use neighborhoods. High-Volume Pedestrian streets serve more than 1,200 pedestrians per hour during the midday. Many of these streets also provide important connections for vehicle traffic and serve high vehicle volumes. As a result, these streets must often be designed to prioritize pedestrian movement and accommodate high vehicle traffic volumes.

PEDESTRIAN SIGNIFICANCE

High

VEHICLE SIGNIFICANCE

High to Medium

FUNCTIONAL CLASSIFICATION

Major or Minor Arterial

TYPICAL LAND USE & CHARACTERISTICS:

- Commercial, mixed use, higher-density residential (R10+)

CONSIDERATIONS:

- Primarily located in Center City
- High levels of pedestrian activity. Focus on pedestrian environment and public realm.
- Buildings set at edge of street line and commercial uses create high potential for sidewalk encroachments.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 16' sidewalk width (4.3.1)
- Min. walking zone width 8' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 12' (4.3.2)
- Pedestrian plaza (4.3.6)

Appropriate in Limited Circumstances

- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 4' furnishing zone (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 6' furnishing zone (4.4.2)
- Bicycle parking (4.4.3)
- Street trees (4.4.7)
- Trash bins, honor boxes, etc. (4.4.10)

Low Priority (consider if width permits)

- Benches & street furniture (4.4.5)
- Planters (4.4.8)
- Stormwater planters (4.4.9)

Appropriate in Limited Circumstances

- Sidewalk cafes (4.4.6)
- Newsstands (4.4.11)
- Vendors (4.4.12)
- Architectural features (4.4.13)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Buffered bike lane (4.5.3)
- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Conventional bike lane (4.5.1)

4.6 CURBSIDE MANAGEMENT COMPONENT

High Priority (include if width permits)

- On-street parking (4.6.1)
- Transit stops & shelters (4.6.5)
- Loading zones (4.6.4)

Low Priority (consider if width permits)

- In-street bicycle parking (4.6.2)

Appropriate in Limited Circumstances

- Lay-by lanes (4.6.3)
- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 10-11 lane width (4.7.1)
- Floating bus stop (4.7.7)

Low Priority (consider if width permits)

- Traffic calming (4.7.2)
- Median (4.7.4)

Appropriate in Limited Circumstances

- Raised speed reducers (4.7.3)
- Bus lanes (4.7.6)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Appropriate in Limited Circumstances

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: 17th at Sansom St

Below: 16th St at Market St

3.2 CIVIC/CEREMONIAL STREETS

This small group of streets includes some of the first mapped streets in the city (e.g., Broad Street, Market Street). These streets have great symbolic importance, house major ceremonial functions, and play a unique role in the life of the City (e.g., the Parkway). Sidewalks on Civic/Ceremonial streets operate as generous pedestrian promenades. As major arterials, these streets also have high vehicle significance.

PEDESTRIAN SIGNIFICANCE

High

VEHICLE SIGNIFICANCE

High

FUNCTIONAL CLASSIFICATION

Major Arterial

TYPICAL LAND USE & CHARACTERISTICS:

- High density, governmental, cultural, institutional, and retail.
- Some of the first mapped streets, grand buildings, parade route

CONSIDERATIONS:

- High levels of pedestrian activity. Focus on pedestrian environment and public realm.
- Use green infrastructure to improve pedestrian environment, calm traffic, and manage stormwater.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 20' sidewalk width (4.3.1)
- Min. walking zone width 10' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 14' (4.3.2)
- Pedestrian plaza (4.3.6)

Appropriate in Limited Circumstances

- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 5' furnishing zone (4.4.2)
- Bicycle parking (4.4.3)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 8' furnishing zone (4.4.2)
- Benches & street furniture (4.4.5)
- Street trees (4.4.7)
- Trash bins, honor boxes, etc. (4.4.10)

Low Priority (consider if width permits)

- Sidewalk cafes (4.4.6)
- Planters (4.4.8)
- Stormwater planters (4.4.9)
- Newsstands (4.4.11)

Appropriate in Limited Circumstances

- Vendors (4.4.12)
- Architectural features (4.4.13)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Buffered bike lane (4.5.3)

Appropriate in Limited Circumstances

- Conventional bike lane (4.5.1)
- Shared use path (4.5.8)

4.6 CURBSIDE MANAGEMENT COMPONENT

High Priority (include if width permits)

- On-street parking (4.6.1)
- Loading zones (4.6.4)

- Transit stops & shelters (4.6.5)

  Appropriate in Limited Circumstances
- In-street bicycle parking (4.6.2)
- Lay-by lanes (4.6.3)
- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 10-12 lane width (4.7.1)
- Floating bus stop (4.7.7)

Low Priority (consider if width permits)

- Traffic calming (4.7.2)
- Median (4.7.4)

  Appropriate in Limited Circumstances
- Bus lanes (4.7.6)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

  Appropriate in Limited Circumstances
- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Market St at 16th St

Below: Benjamin Franklin Parkway at 20th St

3.3 WALKABLE COMMERCIAL CORRIDOR

These streets are active commercial corridors with pedestrian-friendly physical development patterns (e.g., commercial sections of Germantown Ave. and Girard Ave.) On these streets, parking and access needs of local businesses often compete for limited right-of-way with pedestrian and bicycle facility needs. These streets have lower pedestrian volumes than High-Volume Pedestrian Streets, but are more pedestrian friendly than Auto-Oriented Commercial areas.

PEDESTRIAN SIGNIFICANCE

High

VEHICLE SIGNIFICANCE

High to Medium

FUNCTIONAL CLASSIFICATION

Major or Minor Arterial or Collector

TYPICAL LAND USE & CHARACTERISTICS:

- Retail, commercial mixed use, residential, some institutional.

CONSIDERATIONS:

- High levels of pedestrian activity. Focus on pedestrian environment and public realm.
- Buildings set at edge of street line and commercial uses create high potential for sidewalk encroachments.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 12' sidewalk width (4.3.1)
- Min. walking zone width 6' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 8' (4.3.2)
- Pedestrian plaza (4.3.6)

Appropriate in Limited Circumstances

- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 4' furnishing zone (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 6' furnishing zone (4.4.2)
- Bicycle parking (4.4.3)
- Benches & street furniture (4.4.5)
- Street trees (4.4.7)
- Trash bins, honor boxes, etc. (4.4.10)

Low Priority (consider if width permits)

- Sidewalk cafes (4.4.6)
- Planters (4.4.8)
- Stormwater planters (4.4.9)
- Newsstands (4.4.11)

Appropriate in Limited Circumstances

- Architectural features (4.4.13)
- Vendors (4.4.12)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Conventional bike lane (4.5.1)
- Buffered bike lane (4.5.3)
- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Marked shared lane (4.5.10)

Appropriate in Limited Circumstances

- Shared use path (4.5.8)
- Neighborhood bikeway (4.5.9)

4.6 CURBSIDE MANAGEMENT COMPONENT

High Priority (include if width permits)

- On-street parking (4.6.1)
- Transit stops & shelters (4.6.5)
- Loading zones (4.6.4)

Low Priority (consider if width permits)

- In-street bicycle parking (4.6.2)

Appropriate in Limited Circumstances

- Lay-by lanes (4.6.3)
- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 10-11 lane width (4.7.1)
- Traffic calming (4.7.2)
- Floating bus stop (4.7.7)

Low Priority (consider if width permits)

- Median (4.7.4)

Appropriate in Limited Circumstances

- Raised speed reducers (4.7.3)
- Chicanes (4.7.5)
- Bus lanes (4.7.6)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Appropriate in Limited Circumstances

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Lancaster Ave at 36th St

Below: Girard Ave at Front St

3.4 URBAN ARTERIALS

Urban Arterials are major and minor arterials that carry high through traffic volumes. These streets usually have surface transit routes and must provide adequate pedestrian facilities to allow safe and comfortable access and waiting areas for transit users. Urban Arterials generally have more travel lanes and higher speeds, compared to City Neighborhood Streets. They may have commercial uses, but are not as pedestrian-friendly as Walkable Commercial Corridors.

PEDESTRIAN SIGNIFICANCE

Medium

VEHICLE SIGNIFICANCE

High to Medium

FUNCTIONAL CLASSIFICATION

Major or Minor Arterial

TYPICAL LAND USE & CHARACTERISTICS:

- Commercial, mixed use, higher-density residential (R10+).

CONSIDERATIONS:

- Use green infrastructure to improve pedestrian environment, calm traffic, and manage stormwater.
- Driveways may create frequent conflict points for pedestrians and bycilists.
- Use signal timing, pedestrian refuges, crosswalks and other treatments to create safe and convenient crossings and routes between transit stops and surrounding destinations.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 12' sidewalk width (4.3.1)
- Min. walking zone width 6' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 8' (4.3.2)

Low Priority (consider if width permits)

- Pedestrian plaza (4.3.6)

Appropriate in Limited Circumstances

- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 4' furnishing zone (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 6' furnishing zone (4.4.2)
- Bicycle parking (4.4.3)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Benches & street furniture (4.4.5)
- Stormwater planters (4.4.9)
- Trash bins, honor boxes, etc. (4.4.10)
- Newsstands (4.4.11)

Appropriate in Limited Circumstances

- Sidewalk cafes (4.4.6)
- Planters (4.4.8)
- Vendors (4.4.12)
- Architectural features (4.4.13)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Buffered bike lane (4.5.3)
- Shared use path (4.5.8)

Appropriate in Limited Circumstances

- Conventional bike lane (4.5.1)

4.6 CURBSIDE MANAGEMENT COMPONENT

High Priority (include if width permits)

- Transit stops & shelters (4.6.5)

Low Priority (consider if width permits)

- On-street parking (4.6.1)
- Loading zones (4.6.4)

Appropriate in Limited Circumstances

- In-street bicycle parking (4.6.2)
- Lay-by lanes (4.6.3)
- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 10-11 lane width (4.7.1)
- Median (4.7.4)
- Floating bus stop (4.7.7)

Low Priority (consider of width permits)

- Traffic calming (4.7.2)

Appropriate in Limited Circumstances

- Bus lanes (4.7.6)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Low Priority (consider if width permits)

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Spring Garden St at Ridge Ave

Below: Le High Ave at American St

3.5 AUTO-ORIENTED COMMERCIAL / INDUSTRIAL

These streets are characterized by an auto-oriented development pattern with buildings set back significantly from the street, generally with parking lots in front of commercial uses. Auto-oriented streets generally do not provide a pedestrian-friendly environment and are not likely to attract high levels of pedestrian activity other than at transit stops and individual activity centers.

PEDESTRIAN SIGNIFICANCE

Low

VEHICLE SIGNIFICANCE

High

FUNCTIONAL CLASSIFICATION

Major or Minor Arterial or Collector, others as selected

TYPICAL LAND USE & CHARACTERISTICS:

- Automobile services, drive-ins, "big box" retail and shopping centers, industrial.

CONSIDERATIONS:

- Use green infrastructure to improve pedestrian environment, calm traffic, and manage stormwater.
- Driveways may create frequent conflict points for pedestrians and bicyclists.
- Use signal timing, pedestrian refuges, crosswalks and other treatments to create safe and convenient crossings and routes to transit and activity centers.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 12' sidewalk width (4.3.1)
- Min. walking zone width 6' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 8' (4.3.2)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 5' furnishing zone (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 6' furnishing zone (4.4.2)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Bicycle parking (4.4.3)
- Stormwater planters (4.4.9)
- Trash bins, honor boxes, etc. (4.4.10)

Appropriate in Limited Circumstances

- Benches & street furniture (4.4.5)
- Sidewalk cafes (4.4.6)
- Planters (4.4.8)
- Vendors (4.4.12)
- Architectural features (4.4.13)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Buffered bike lane (4.5.3)
- Shared-use path (4.5.7)

Appropriate in Limited Circumstances

- Conventional bike lane (4.5.1)

4.6 CURBSIDE MANAGEMENT COMPONENT

High Priority (include if width permits)

- Transit stops & shelters (4.6.5)

Low Priority (consider if width permits)

- On-street parking (4.6.1)
- Loading zones (4.6.4)

Appropriate in Limited Circumstances

- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 10-12 lane width (4.7.1)
- Median (4.7.4)
- Floating bus stop (4.7.7)

Low Priority (consider if width permits)

- Traffic calming (4.7.2)

Appropriate in Limited Circumstances

- Bus lanes (4.7.6)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Low Priority (consider if width permits)

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Columbus Blvd at Snyder Ave

Below: American St and Le High Ave

3.6 PARK ROAD

Park roads provide transportation routes for vehicles and pedestrians within local parks. These streets typically have lower speed limits compared to Scenic Drives. These streets may include shared-use side paths for pedestrians and bicyclists and/or sidewalks and bike lanes or shared roadway facilities.

PEDESTRIAN SIGNIFICANCE

High to Medium

VEHICLE SIGNIFICANCE

Medium

FUNCTIONAL CLASSIFICATION

Minor Arterial, Collector or Local

TYPICAL LAND USE & CHARACTERISTICS:

- Parks

CONSIDERATIONS:

- Use green infrastructure to improve pedestrian environment, calm traffic, and manage stormwater.
- Sidewalk and/or sidepath width should be based on expected use.
- High use areas and/or streets serving recreational and transportation users may use both on and off-street bicycle facilities.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 8' sidewalk width (4.3.1)
- Min. walking zone width 8' if side path or 5' if sidewalk (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 10' if side path or 6' if sidewalk (4.3.2)

Appropriate in Limited Circumstances

- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 3' clear right-of-way on opposite side of path from road (4.4.1)
- Min. 3' furnishing zone (4.4.2)

High Priority (include if width permits)

- Rec. 5' furnishing zone (4.4.2)
- Bicycle parking (4.4.3)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Lighting (4.4.4)
- Benches & street furniture (4.4.5)
- Stormwater planters (4.4.9)
- Trash bins, honor boxes, etc. (4.4.10)

Appropriate in Limited Circumstances

- Sidewalk cafes (4.4.6)
- Vendors (4.4.12)
- Planters (4.4.8)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Shared use path (4.5.8)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Conventional bike lane (4.5.1)
- Buffered bike lane (4.5.3)
- Green colored pavement (4.5.11)

Appropriate in Limited Circumstances

- Neighborhood bikeway (4.5.9)
- Marked shared lane (4.5.10)

4.6 CURBSIDE MANAGEMENT COMPONENT

High Priority (include if width permits)

- Transit stops & shelters (4.6.5)

Low Priority (consider if width permits)

- On-street parking (4.6.1)
- Loading zones (4.6.4)

Appropriate in Limited Circumstances

- Lay-by lanes (4.6.3)
- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE / CARTWAY COMPONENT

High Priority (include if width permits)

- 10-11 lane width (4.7.1)
- Traffic calming (4.7.2)
- Floating bus stop (4.7.7)

Low Priority (consider if width permits)

- Raised speed reducers (4.7.3)
- Median (4.7.4)

Appropriate in Limited Circumstances

- Chicanes (4.7.5)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Low Priority (consider if width permits)

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Reservoir Dr at Diamond St

Below: Landsdowne Ave at 75th

3.7 SCENIC DRIVE

Scenic Drives are major or minor arterials that provide a scenic view along parks or waterways. These streets typically have higher speeds than Park Roads and local streets. Scenic Drives often accommodate pedestrian travel via Shared-use paths. Shared-use paths and/or bike lanes or shared roadway facilities may be used to accommodate bicyclists.

PEDESTRIAN SIGNIFICANCE

High to Medium

VEHICLE SIGNIFICANCE

High to Medium

FUNCTIONAL CLASSIFICATION

Major Arterial, some Minor Arterials

TYPICAL LAND USE & CHARACTERISTICS:

- Parks or waterways, may include low density residential with heavy tree canopy.

CONSIDERATIONS:

- Use green infrastructure to improve pedestrian environment, calm traffic, and manage stormwater.
- Sidewalk and/or sidepath width should be based on expected use.
- High use areas and/or streets serving recreational and transportation users may use both on and off-street bicycle facilities.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 9' sidewalk width (4.3.1)
- Min. walking zone width 6' if walkway is separate from bikeway (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 10' if side path or 6' if sidewalk (4.3.2)

Appropriate in Limited Circumstances

- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 3' clear right-of-way on opposite side of path from road (4.4.1)
- Min. 3' furnishing zone (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 5' furnishing zone (4.4.2)
- Bicycle parking (4.4.3)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Benches & street furniture (4.4.5)
- Trash bins, honor boxes, etc. (4.4.10)
- Stormwater planters (4.4.9)

Appropriate in Limited Circumstances

- Planters (4.4.8)
- Sidewalk cafes (4.4.6)
- Vendors (4.4.12)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Shared use path (4.5.8)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Buffered bike lane (4.5.3)
- Green colored pavement (4.5.11)

Appropriate in Limited Circumstances

- Conventional bike lane (4.5.1)
- Marked shared lane (4.5.10)

4.6 CURBSIDE MANAGEMENT COMPONENT

Low Priority (include if width permits)

- Transit stops & shelters (4.6.5)

Appropriate in Limited Circumstances

- On-street parking (4.6.1)
- In-street bicycle parking (4.6.2)
- Loading zones (4.6.4)

- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 10-12 lane width (4.7.1)
- Floating bus stop (4.7.7)

Low Priority (consider if width permits)

- Traffic calming (4.7.2)
- Median (4.7.4)

Appropriate in Limited Circumstances

- Chicanes (4.7.5)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Appropriate in Limited Circumstances

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Kelly Dr at Waterworks Dr

Below: Lincoln Dr at Henry Ave

3.8 CITY NEIGHBORHOOD STREET

City Neighborhood Streets include the majority of the grid streets in older sections of Philadelphia. These streets serve an equally important role for local vehicle and pedestrian traffic. The fronts of buildings on these streets typically meet the street line (edge of sidewalk), unlike Lower Density Residential Streets where dwellings are set back from the sidewalk.

PEDESTRIAN SIGNIFICANCE

Medium

VEHICLE SIGNIFICANCE

Medium

FUNCTIONAL CLASSIFICATION

Minor Arterial or Collector

TYPICAL LAND USE & CHARACTERISTICS:

- Commercial, mixed use, higher density residential (R10+).

CONSIDERATIONS:

- Use green infrastructure to improve pedestrian environment and manage stormwater.
- Buildings set at edge of street line create high potential for sidewalk encroachments.
- Appropriateness of bike lanes or marked shared lanes should be evaluated based on expected use, vehicle speeds and volumes.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 12' sidewalk width (4.3.1)
- Min. walking zone width 6' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 8' (4.3.2)

Low Priority (include if width permits)

- Pedestrian plaza (4.3.6)

Appropriate in Limited Circumstances

- Shared/Pedestrian Priority Street (4.3.4)
- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Min. 4' furnishing zone (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 6' furnishing zone (4.4.2)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Bicycle parking (4.4.3)
- Stormwater planters (4.4.9)

Appropriate in Limited Circumstances

- Benches & street furniture (4.4.5)
- Sidewalk cafes (4.4.6)
- Planters (4.4.8)
- Trash bins, honor boxes, etc. (4.4.10)
- Newsstands (4.4.11)
- Vendors (4.4.12)
- Architectural features (4.4.13)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Conventional bike lane (4.5.1)
- Buffered bike lane (4.5.3)
- Neighborhood bikeway (4.5.9)
- Bike route signs (4.5.12)

Low Priority (consider if width permits)

- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)
- Marked shared lane (4.5.10)
- Advisory bike lanes (4.9.11)
- Green colored pavement (4.5.11)

4.6 CURBSIDE MANAGEMENT COMPONENT

High Priority (include if width permits)

- On-street parking (4.6.1)
- Transit stops & shelters (4.6.5)
- Loading zones (4.6.4)

Appropriate in Limited Circumstances

- In-street bicycle parking (4.6.2)
- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 10-11 lane width (4.7.1)
- Traffic calming (4.7.2)

Low Priority (consider if width permits)

- Floating bus stop (4.7.7)

Appropriate in Limited Circumstances

- Raised speed reducers (4.7.3)
- Median (4.7.4)
- Chicanes (4.7.5)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Low Priority (consider if width permits)

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Pine St at 18th St

Below: 12th St at Clay St

3.9 LOW-DENSITY RESIDENTIAL

Lower Density Residential Streets include most residential streets outside Center City, North, South Philadelphia, and West Philadelphia. These streets were generally constructed more recently than City Neighborhood Streets and are characterized by dwellings that are set back from the sidewalk. These streets serve local vehicle, pedestrian, and bicycle traffic.

PEDESTRIAN SIGNIFICANCE

Medium

VEHICLE SIGNIFICANCE

Low

FUNCTIONAL CLASSIFICATION

Collector or Local

TYPICAL LAND USE & CHARACTERISTICS:

- Residential, some retail, recreational, or institutional.

CONSIDERATIONS:

- Furnishing zone should be permeable. Use green infrastructure to improve pedestrian environment and manage stormwater.
- Driveways may create frequent conflict points for pedestrians and bicyclists.
- Appropriateness of bike lanes or marked shared lanes should be evaluated based on expected use, vehicle speeds and volumes.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 10' sidewalk width for new development (4.3.1)
- Min. walking zone width 5' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 6' (4.3.2)

Low Priority (consider if width permits)

- Pedestrian plaza (4.3.6)

Appropriate in Limited Circumstances

- Shared/Pedestrian Priority Street (4.3.4)
- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- Building setback is building zone (4.4.1)
- Min. 3.5' furnishing zone for new development, should be permeable (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 4' furnishing zone for new development, should be permeable (4.4.2)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Stormwater planters (4.4.9)

Appropriate in Limited Circumstances

- Bicycle parking (4.4.3)
- Benches & street furniture (4.4.5)
- Sidewalk cafes (4.4.6)
- Planters (4.4.8)
- Trash bins, honor boxes, etc. (4.4.10)
- Architectural features (4.4.13)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Conventional bike lane (4.5.1)
- Buffered bike lane (4.5.3)
- Neighborhood bikeway (4.5.9)
- Advisory bike lanes (4.9.11)

Low Priority (consider if width permits)

- Shared use path (4.5.8)
- Marked shared lane (4.5.10)
- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Appropriate in Limited Circumstances

- Street level separated bike lane (4.5.6)
- Raised separated bike lane (4.5.7)

4.6 CURBSIDE MANAGEMENT COMPONENT

Low Priority (consider if width permits)

- On-street parking (4.6.1)
- Loading zones (4.6.4)
- Transit stops & shelters (4.6.5)

Appropriate in Limited Circumstances

- Alternative uses of parking lane (4.6.6)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 9-11 lane width (4.7.1)
- Traffic calming (4.7.2)

Appropriate in Limited Circumstances

- Raised speed reducers (4.7.3)
- Median (4.7.4)
- Chicanes (4.7.5)
- Floating bus stop (4.7.7)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Low Priority (consider if width permits)

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Chester Ave at 46th St

Below: Drexel Rd at 64th St

3.10 SHARED NARROW

These streets are very narrow local streets, primarily located in older areas of the City. Sidewalks also tend to be narrow on these streets, but pedestrians and bicyclists can generally walk and ride comfortably in the street similar to pedestrian priority streets. On-street parking is precluded on streets with cartways of 13' or less.

PEDESTRIAN SIGNIFICANCE

Medium

VEHICLE SIGNIFICANCE

Low

FUNCTIONAL CLASSIFICATION

Local, ADT less than 500,

Right-of-Way less than 30'.

TYPICAL LAND USE & CHARACTERISTICS:

- Mostly residential.

CONSIDERATIONS:

- Building steps and stoops may create frequent obstructions that make it difficult to maintain minimum sidewalk clear widths.
- Pedestrians and vehicles may share the roadway on most shared narrow streets.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 5' sidewalk width (4.3.1)
- Min. walking zone width 5' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 6' (4.3.2)
- Shared/Pedestrian Priority Street (4.3.4)

Appropriate in Limited Circumstances

- Festival (curbless) street (4.3.5)

4.4 BUILDING & FURNISHING COMPONENT

Required

- No building zone obstructions beyond line of steps or stoops (4.4.1)

High Priority (include if width permits)

- Rec. 4' furnishing zone for new development, should be permeable (4.4.2)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Lighting (4.4.4)
- Stormwater planters (4.4.9)

Appropriate in Limited Circumstances

- Planters (4.4.8)
- Architectural features (4.4.13)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Neighborhood bikeway (4.5.9)
- Marked shared lane (4.5.10)
- Advisory bike lanes (4.9.11)

Low Priority (consider if width permits)

- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Appropriate in Limited Circumstances

- Conventional bike lane (4.5.1)

4.6 CURBSIDE MANAGEMENT COMPONENT

No Curbside Management treatments are recommended on shared narrow streets

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 9-11 lane width (4.7.1)

4.8 URBAN DESIGN COMPONENT

Required

- - Stormwater management (4.8.4)

Appropriate in Limited Circumstances

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Perot St at 25th St

Below: Manning St at 17th St

3.11 LOCAL

Local streets are streets in residential or non-residential neighborhoods that are smaller than City Neighborhood Streets and Low Density Residential Streets. This classification includes service streets and minor residential streets. Parking is provided on at least one side of the street and sidewalks are usually present.

PEDESTRIAN SIGNIFICANCE

Low

VEHICLE SIGNIFICANCE

Low

FUNCTIONAL CLASSIFICATION

Local

TYPICAL LAND USE & CHARACTERISTICS:

- Residential, some retail, recreational, or institutional.

CONSIDERATIONS:

- Use green infrastructure to improve pedestrian environment and manage stormwater.
- Driveways may create frequent conflict points for pedestrians and bicyclists.
- Appropriateness of bike lanes or marked shared lanes should be evaluated based on expected use, vehicle speeds and volumes.

DESIGN TREATMENTS:

4.3 PEDESTRIAN COMPONENT

Required

- Min. 10' sidewalk width for new development (4.3.1)
- Min. walking zone width 5' or half total sidewalk width, whichever is greater (4.3.2)
- Curb ramps (4.3.3)

High Priority (include if width permits)

- Rec. walking zone width 6' (4.3.2)

Appropriate in Limited Circumstances

- Shared/Pedestrian Priority Street (4.3.4)
- Festival (curbless) street (4.3.5)
- Pedestrian plaza (4.3.6)

4.4 BUILDING & FURNISHING COMPONENT

Required

- No building zone obstructions beyond line of steps or stoops (4.4.1)
- Min. 3.5' furnishing zone for new residential development (4.4.2)
- Lighting (4.4.4)

High Priority (include if width permits)

- Rec. 4' furnishing zone for new residential development (4.4.2)
- Street trees (4.4.7)

Low Priority (consider if width permits)

- Stormwater planters (4.4.9)

Appropriate in Limited Circumstances

- Bicycle parking (4.4.3)
- Benches & street furniture (4.4.5)
- Sidewalk cafes (4.4.6)
- Vendors (4.4.12)
- Planters (4.4.8)
- Trash bins, honor boxes, etc. (4.4.10)

4.5 BICYCLE COMPONENT

High Priority (include if width permits)

- Neighborhood bikeway (4.5.9)
- Marked shared lane (4.5.10)
- Advisory bike lanes (4.9.11)

Low Priority (consider if width permits)

- Green colored pavement (4.5.11)
- Bike route signs (4.5.12)

Appropriate in Limited Circumstances

- Conventional bike lane (4.5.1)

4.6 CURBSIDE MANAGEMENT COMPONENT

Low Priority (consider if width permits)

- On-street parking (4.6.1)
- Loading zones (4.6.4)

Appropriate in Limited Circumstances

- Alternative uses of parking lane (4.6.6)
- Transit stops & shelters (4.6.5)

4.7 VEHICLE/CARTWAY COMPONENT

High Priority (include if width permits)

- 9-11 lane width (4.7.1)

Appropriate in Limited Circumstances

- Traffic calming (4.7.2)
- Raised speed reducers (4.7.3)
- Chicanes (4.7.5)

4.8 URBAN DESIGN COMPONENT

Required

- Stormwater management (4.8.4)

Low Priority (consider if width permits)

- Driveways (4.8.1)

4.9 INTERSECTIONS & CROSSINGS

See Intersection Design Treatment Matrix (Table 2) and Intersection Design Treatment Guidelines (Section 4.9)

Above: Chancellor St at 17th St

Below: Mt Vernon St at Lowber St

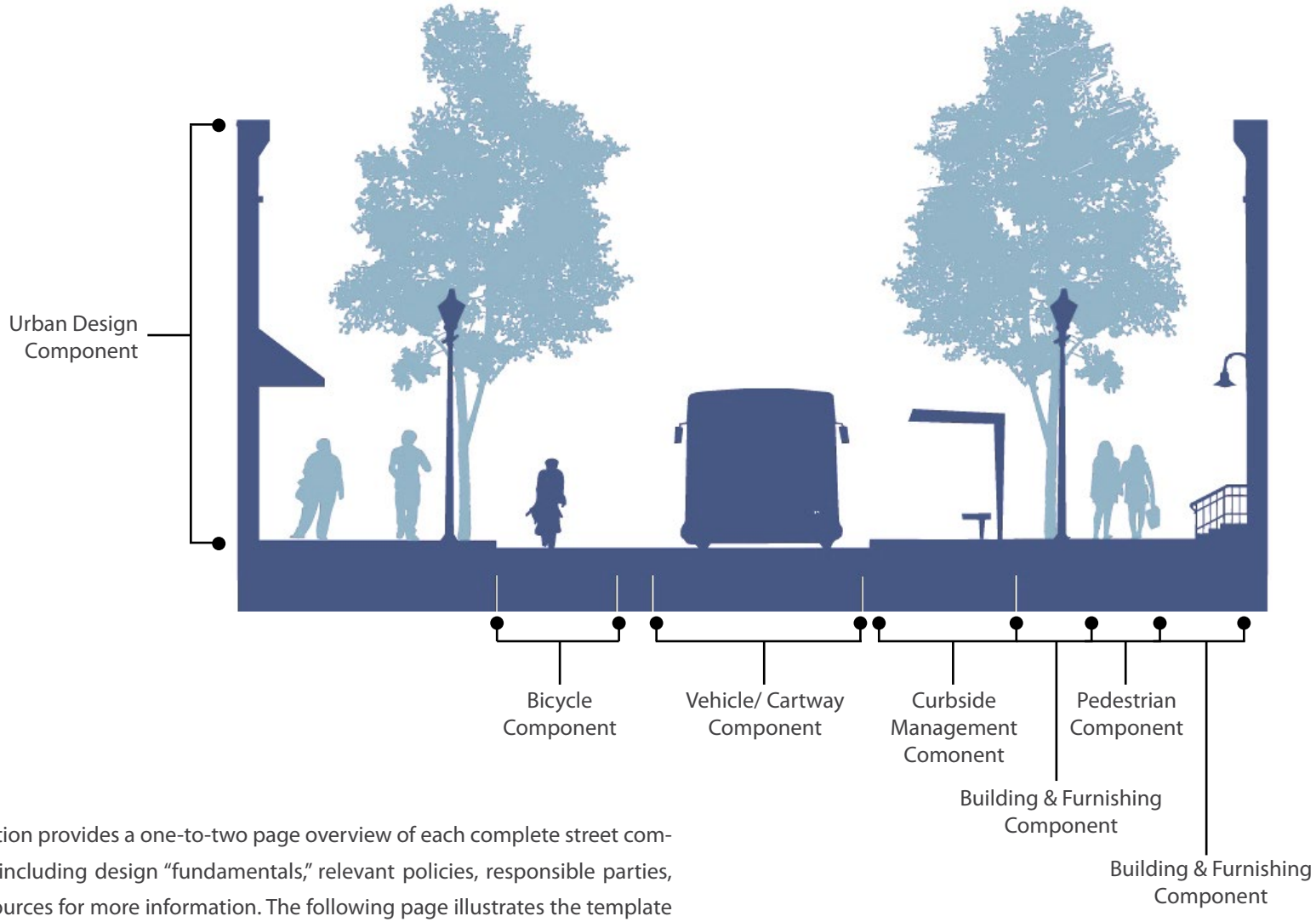
COMPLETE STREETS COMPONENTS AND DESIGN TREATMENTS

SECTION 04

4.1 OVERVIEW OF COMPLETE STREETS COMPONENTS

As discussed in Section 1.3.1, the *Philadelphia Complete Streets Design Handbook* identifies seven conceptual complete street "components" that make up the public right-of-way: Pedestrian (section 4.3), Building & Furnishing (section 4.4), Bicycle (section 4.5), Curbside Management (section 4.6), Vehicle/Cartway (section 4.7), Urban Design (section 4.8), and Intersections & Crossings (section 4.9).

The figure below illustrates the approximate locations within the right-of-way that are addressed by each of these components. Throughout the Handbook, these components are used to ease identification of design treatments that are appropriate for different types of projects and different street types.



This section provides a one-to-two page overview of each complete street component including design "fundamentals," relevant policies, responsible parties, and resources for more information. The following page illustrates the template for each component overview .

Component Icon

EXAMPLE COMPONENT OVERVIEW

Description of component, including which portions of the public right-of-way it addresses and its relationship to other components.

Graphic illustrating location of component in typical street cross section.

Example Photo 1

Photo Caption

Example Photo 2

Photo Caption

FUNDAMENTALS:

- Complete street design basics.

POLICY:

- Summary of relevant existing federal, state, and local policies.

ROLES & RESPONSIBILITIES:

- Summary of parties responsible for permitting, construction, operation, and maintenance.

CONTACTS:

- Who to contact in the City of Philadelphia for more information.

OTHER RESOURCES:

- Plans, guidebooks, websites, and other resources for more information.

4.2 OVERVIEW OF DESIGN TREATMENTS

All street design should include a consistent set of design treatments that are easily understandable to motorists, bicyclists, and pedestrians. These treatments should be carefully selected to accommodate all roadway users, encourage predictable and desirable travel behavior, and account for the different uses and contexts of various street types throughout the City. Good complete street design should also provide for and balance the multiple functions of streets as spaces for travel, social/cultural events, commerce, and stormwater management. Wherever possible, the City should coordinate street improvement projects so that related improvements can be made simultaneously. This approach helps to increase efficiency of street project implementation, decrease construction costs and construction interruptions, and helps ensure that improvements create a more cohesive street design. However, standalone projects should also be pursued whenever opportunities arise to make quick, cost effective improvements.

The following section provides specific design guidance for individual complete street design treatments that are appropriate on various street types throughout the City. The Design Treatment Suitability Matrix (Section 1.1.2) of the Handbook provides a summary of each design treatment, and whether it is required, high priority, low priority, appropriate in limited circumstances, or not recommended on each street type presented in Section 3.

Each design treatment discussed in this chapter is grouped based on the complete street component it is most closely related to (e.g., where it is typically located in the public right-of-way). For example, bike lanes are discussed as "Bicycle" component design treatments; bike boxes and signals as "Intersection & Crossing" design treatments, bike parking as a "Building & Furnishing" design treatment, and in-street bike parking as a "Curbside Management" design treatment. Each design treatment is also given a treatment number (4.X.X) that is used as a cross reference throughout this document.

For each design treatment, a one-to-two page summary is provided.

The following page illustrates the template for each design treatment description.

The design guidance provided throughout this Handbook is intended to be consistent with relevant local and national standards and laws (e.g., Philadelphia Code, MUTCD, ADA) and provides specific references to these documents wherever possible. The Handbook does not provide guidance on specific construction materials (e.g., granite vs. concrete curbs), but references relevant Philadelphia requirements where available.

Curb extensions, pedestrian refuges, and other treatments may be addressed in multiple components since they serve pedestrian, stormwater management, crossing, and other functions in complete streets.

Component Icon

TREATMENT ID#

EXAMPLE DESIGN TREATMENT DESCRIPTION

Design treatment overview and description.

Example Photo 1

Photo Caption

Example Photo 2

Photo Caption

APPLICATION:

- Street types on which design treatment is appropriate.
-
-
-

CONSIDERATIONS:

- Context specific factors to consider when evaluating the advantages, disadvantages, and appropriateness of design treatments at a specific site.
-
-
-

DESIGN:

- Design details, including City Code requirements, design standards, and national best practices etc.
-
-
-

ROLES & RESPONSIBILITIES:

- Summary of parties responsible for permitting, construction, operation, and maintenance.
- General level of maintenance required.
-
-
-

GREEN STREET OPPORTUNITIES:

- Green infrastructure (stormwater management) features that can be incorporated into design.
-
-
-

OTHER RESOURCES:

- Plans, guidebooks, websites, and other resources for more information.
-
-

EXAMPLES:

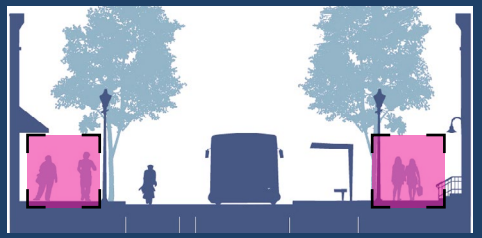
- Locations within Philadelphia where design treatment has been used.
-

RESOURCES:

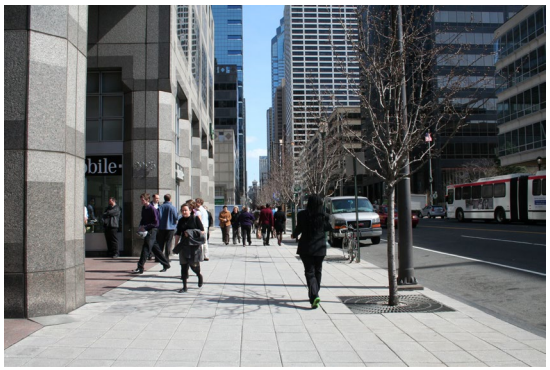
- Plans, guidebooks, websites, and other resources for more information.
-

4.3 PEDESTRIAN COMPONENT

The Pedestrian Component addresses the clear area located between the curb and the adjacent building frontage where pedestrians travel, also known as the "clear zone" or "walking zone." Related items: Street furniture, trees, planters, architectural features, and sidewalk cafes (4.4 Building & Furnishing Component), pedestrian crossings (4.9 Intersection Component), lay-by lanes (4.6 Curbside Management Component), driveways and urban design (4.8 Urban Design Component).



Sidewalk space is typically divided into Building, Walking, and Furnishing zones. The Pedestrian Element primarily addresses the Walking Zone (4.3.2).



Areas with high pedestrian traffic and significance require special design consideration.

FUNDAMENTALS:

- Provide sidewalks that are designed and maintained to create an attractive pedestrian environment and provide safe access for all citizens.
- Use pedestrian volumes and the significance of a street within the pedestrian network as defined by the Street Typology (Section 3) to inform design decisions.
- Minimize vehicle intrusions into the pedestrian zone via driveways (4.8.1) and lay-by lanes (4.6.3).
- Provide direct pedestrian routes between destinations and frequent crossing opportunities (recommended every 300-500') wherever possible.

POLICY:

- *The Philadelphia Pedestrian & Bicycle Plan* identifies minimum or recommended sidewalk (4.3.1) and walking zone (4.3.2) widths for the 11 street types described in Section 3.
- Streets Department and Section 11-505 of the Philadelphia Code determine design specifications for all sidewalks, curbs, and driveways across sidewalks.
- The current *Federal Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way* provides standards for the design, construction, and alteration of pedestrian facilities to ensure accessibility for individuals with disabilities.

ROLES & RESPONSIBILITIES:

- Property owners are responsible for the maintenance and repair of sidewalks and curbs that abut their property.
- Streets Department may grade, pave, or repair sidewalks and set curbs on any public street in the City, but may only assess abutting property owners 30% of the cost of the work.
- City Planning Commission develops the pedestrian plan and integrates pedestrian facilities with development proposals and neighborhood and district plans.
- Sidewalks are generally improved through targeted streetscape projects. There is currently no dedicated capital funding for sidewalk repair (except in Department of Parks and Recreation).

CONTACTS:

- Mayor's Office of Transportation and Utilities
  Bicycle and Pedestrian Coordinator, (215) 686-9003
  www.phila.gov/streets/Bike_Network.html
- City Planning Commission
  Pedestrian and Bicycle Plan Project Manager,
  (215) 683-4643, www.philaplanning.org

OTHER RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan:
  www.philaplanning.org
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
- Public Right of Way Access Guidelines
  http://www.access-board.gov/prowac/
- MUTCD www.mutcd.fhwa.dot.gov

SIDEWALK ZONES

Sidewalks should provide an active and accommodating public realm that creates a pleasant pedestrian environment and serves multiple public functions, including: space for walking, landscaping and green infrastructure, lighting (4.4.4), seating (4.4.5) and other amenities, as well as commercial activities. To balance desire for amenities in the public realm with the need to maintain a safe and comfortable travelway for pedestrians, the sidewalk must be organized. This organization can be viewed as a series of sidewalk zones from the property line to the curb:

- **Building Zone (4.4.1)** – the transition area of the sidewalk between the right-of-way line and walking zone where awnings, stairs, storefront displays, and other building elements intrude into the walking zone. A minimum 1.5′ Building Zone is required from a vertical building face or fence.
- **Walking Zone (4.3.2)** – the clear portion of the sidewalk on which pedestrians travel.
- **Furnishing Zone (4.4.2)** – the portion of the sidewalk used for street furniture, trees and landscaping, transit stops, lights, fire hydrants, and other furnishings. The Furnishing Zone requires 1.5′ from the face of curb to a vertical element.

In this Handbook, these zones correspond to two complete streets components: the Building & Furnishing Component (4.4) and the Pedestrian Component (4.3). The table below shows the minimum and recommended sidewalk and sidewalk zone widths for each street type described in Section 3. Specified minimum widths are required for new development.

Table 3: Sidewalk Widths

Street Type	Minimum Total Sidewalk Width (4.3.1)	SIDEWALK ZONES				
		Furnishing Zone (4.4.2)		Walking Zone (4.3.2)		Building Zone (4.4.1)
		Minimum	Recommended	Minimum	Recommended	
3.1 High-Volume Pedestrian	≥16′	≥4′	≥6′	≥8′	≥12′	No min.***
3.2 Civic/ Ceremonial Street	≥20′	≥5′	≥8′	≥10′	≥14′	No min.***
3.3 Walkable Commercial Corridor	≥12′	≥4′	≥6′	≥6′	≥8′	No min.***
3.4 Urban Arterial	≥12′	≥4′	≥6′	≥6′	≥8′	No min.***
3.5 Auto-Oriented Commercial/ Industrial	≥12′	≥5′	≥6′	≥6′	≥8′	No min.***
3.6 Park Road	≥8′	≥3′	≥5′	≥5′	≥10′**	≥3′
3.7 Scenic Drive	≥9′	≥3′	≥5′	≥6′	≥10′**	≥3′
3.8 City Neighborhood	≥12′	≥4′	≥6′	≥6′	≥8′	No min.***
3.9 Low-Density Residential	≥10′*	≥3.5′	≥4′	≥5′	≥6′	Building setback
3.10 Shared Narrow	≥5′	No min.	≥4′	≥5′	≥6′	No min.***
3.11 Local	≥10′*	≥3.5′	≥4′	≥5′	≥6′	No min.***

* Minimum width refers to new development only ** Recommended width refers to a shared-use path facility *** Minimum 1.5′ required from a vertical building face or fence

TREATMENT 4.3.1

SIDEWALK WIDTH

Total sidewalk width refers to the distance between the building line and curb. This area includes the Building Zone (4.4.1), Walking Zone (4.3.2), and Furnishing Zone (4.4.2). Narrow sidewalks can make it difficult, uncomfortable, and unsafe for pedestrians to travel on a street. Wider sidewalks provide enough space for pedestrians to walk and for landscaping and amenities that contribute to an inviting streetscape and pedestrian environment.

Minimum sidewalk width is 12' on most street types, including Walkable Commercial Corridors.

On Local Streets, minimum total sidewalk width is 10'.

APPLICATION:

- Recommended and minimum total sidewalk widths are established in Table 3.

CONSIDERATIONS:

- Wider sidewalks should be prioritized in areas with:
  - High pedestrian volume or significance;
  - Street furnishings (4.4.5) and/or landscaping;
  - Transit stops (4.6.5);
  - Street-level commercial activity such as storefronts, vendors (4.4.12), or sidewalk cafes (4.4.6);
  - Civic or ceremonial functions;
  - Tall buildings that create shadow and require greater separation; and
  - High traffic volumes and/or speeds.
- "Ribbon sidewalks" that are separated from the roadway by a continuous unpaved planted strip are appropriate in residentially zoned areas. Full sidewalks should be used elsewhere.

DESIGN:

- Sidewalks should almost always be provided on both sides of the roadway.
- Sidewalks must conform to ADA requirements for minimum clear path (4.3.2) and provide spaces where wheelchair users can pass one another or turn around.
- Maximum sidewalk cross slope of 2.0% for a width of at least 5'.

GREEN STREET OPPORTUNITIES:

- Sidewalks should include planted areas and stormwater management features (4.8.4) wherever possible.
- Consider using permeable pavements.

ROLES & RESPONSIBILITIES:

- Property owners are responsible for the maintenance and repair of sidewalks and curbs that abut their property.
- Streets Department may grade, pave, or repair sidewalks and set curbs on any public street in the City, but may only assess abutting property owners 30% of the cost of the work.
- Sidewalks are generally improved through targeted streetscape projects. There is currently no dedicated capital funding for sidewalk repair (except in Dept. of Parks and Recreation).

EXAMPLES:

- Wide sidewalks on West Market St.
- Arch St at Convention Center

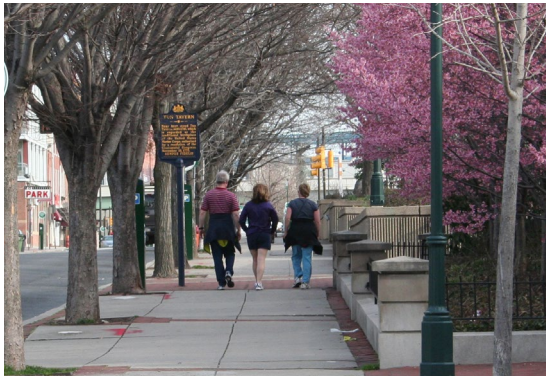
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan www.philaplanning.org
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
- Public Right of Way Access Guidelines http://www.access-board.gov/prowac/

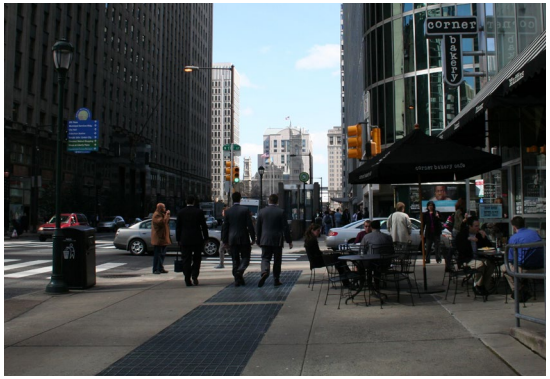
TREATMENT 4.3.2

WALKING ZONE WIDTH

Walking zone or "clear" width refers to the clear portion of the sidewalk where pedestrians can walk unobstructed. The standard walking zone width depends on the number of pedestrians using or expected to use a particular sidewalk. All sidewalks should provide at least 5' of clear space to allow wheelchair passage.



Two people walking side-by-side require 5' of clear sidewalk space.



Lighting and other furnishings should maintain adequate clear walking space. Ventilation grates and vault covers do not count as clear space.

APPLICATION:

- Recommended and minimum walking zone widths are established in Table 3.

CONSIDERATIONS:

- The average width of a pedestrian is 2.5' without encumbrances such as bags.
  - Two people need 5' of clear width to walk side-by-side, and when encountering another person will need about 8' to pass without moving single file.
  - Pedestrians walking near walls, obstructions, or the curb require extra "shy distance" of at least 1.5'.

DESIGN:

- Where feasible, walking zones should be straight and parallel to the curb.
- Minimum walking zone widths:
  - 5' or half the total sidewalk width (whichever is greater) in low pedestrian activity areas, including Park Roads, Low-Density Residential, Shared Narrow, and Local Streets
  - 6' or half the total sidewalk width (whichever is greater) in higher pedestrian activity areas, including Walkable Commercial Corridors, Urban Arterials, Auto-Oriented Commercial / Industrial Streets, Scenic Drives, and City Neighborhood Streets.
  - 8' or half the total sidewalk width (whichever is greater) on High Volume Pedestrian Streets.
  - 10' or half the total sidewalk width on Civic / Ceremonial Streets, which have great symbolic importance or ceremonial functions (e.g., Broad Street, Market Street, Benjamin Franklin Parkway).
- Walking zone encroachments are permitted on all street types except on High-Volume Pedestrian (3.1) and Civic /Ceremonial (3.2) Streets.
- Walking zone encroachments must always provide a minimum of 5' of walking zone width and must always meet ADA requirements. Where permitted, encroachments may include:
  - Tree pits or raised tree enclosures (4.4.7) that intrude into the walking zone a maximum width of 2', length of 5', and minimum spacing of 30'.
  - Stormwater planters (4.4.9) that may intrude into the walking zone a maximum width of 2', length of 10', and minimum spacing of 30'.
  - Transit shelters (4.6.5) that may intrude into the walking zone a maximum of 2'
  - Bikeshare kiosks and bicycles that may intrude into the walking zone a maximum of 2'.
- Ventilation grates and vault covers do not count as clear space.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavements.

ROLES & RESPONSIBILITIES:

- Property owners are responsible for the maintenance and repair of sidewalks and curbs that abut their property.
- Streets Department may grade, pave, or repair sidewalks and set curbs on any public street in the City, but may only assess abutting property owners 30% of the cost of the work.
- Maintenance issues have arisen with tree grates and trenches in the walking zone as they age.

EXAMPLES:

- Promenade sidewalks with wide walking zones on civic/ceremonial streets (3.2).

RESOURCES:

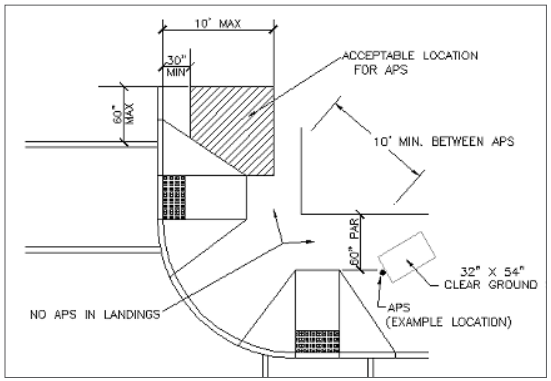
- Philadelphia Pedestrian & Bicycle Plan www.philaplanning.org
- Public Right of Way Access Guidelines http://www.access-board.gov/prowac/

TREATMENT 4.3.3

CURB RAMPS

Curb ramps enable persons with special mobility needs to safely cross the street at designated areas. The Americans with Disabilities Act (ADA) establishes detailed design standards for curb ramps, including minimum widths and maximum slopes and detectable warning surfaces to alert visually impaired pedestrians of the presence of a street crossing.

Color contrasting detectable warning strips must be provided at all ramps.



US Access Board curb ramp design and Accessible Pedestrian Signal (APS) placement guidance.

APPLICATION:

- Appropriate on all street types.
- Required with new development, reconstruction, or alteration of a street.

CONSIDERATIONS:

- When marked crosswalks (4.9.1 and 4.9.2) are provided, curb ramps should be located so that they are within the extension of the crosswalk markings.
- At T-intersections, curb ramps should be installed on the through street at the top of the T, even though there are no street corners.

DESIGN:

- City paving plan guidelines state side curb cut ramp must be installed at all pedestrian crossings.
- Ramps must include a detectable warning surface that complies with the *Public Right of Way Access Guidelines*. The color of warning strips should contrast with surrounding pavement.
- Curb ramps should be in-line with the direction of pedestrian travel to improve wayfinding for visually-impaired pedestrians.
- ADA curb cut ramp design must comply with PennDOT RC-67M and PennDOT Publication 13M (DM-2).
- All ramp designs must be reviewed for approval and acceptance prior to construction by the Streets Department.

GREEN STREET OPPORTUNITIES:

- Consider incorporating with stormwater bumpouts (4.9.4).

ROLES & RESPONSIBILITIES:

- PennDOT and Streets Department construct curb ramps at crossing locations.
- Per its ADA Transition Plan, PennDOT replaces non-ADA compliant curb ramps and removes other physical barriers to access identified by the Department or the public through the grievance procedure.

EXAMPLES:

- Broad St. (controlled crossings)
- 34th & Walnut (uncontrolled crossing)

RESOURCES:

- Streets Department
- PennDOT District 6-0 ADA Curb Design Guidance
- Public Right of Way Access Guidelines http://www.access-board.gov/prowac/
- PennDOT ADA Transition Plan

TREATMENT 4.3.4

SHARED/ PEDESTRIAN PRIORITY STREET

Pedestrian priority streets (also known as shared streets), are narrow streets or alleys that are shared by pedestrians, bicyclists, and low-speed vehicles. These streets create a very low-speed pedestrian-oriented environment that maintains bicycle, local vehicle, and delivery access while providing a high-quality pedestrian environment.

Many narrow streets in Philadelphia function as pedestrian priority streets (above: Elfreth's Alley)

Jessup Street

APPLICATION:

- Typically applied on Shared Narrow (3.10) or Local (3.11) streets in conjunction with traffic calming.
- High pedestrian and low vehicle traffic areas with supportive surrounding land uses and major pedestrian destinations.
- Not applicable on designated freight routes, emergency service routes, or high-volume streets.

CONSIDERATIONS:

- Street users generally negotiate right of way cooperatively, rather than relying on traffic controls.
- This treatment can be used to reduce sidewalk crowding on narrow streets by allowing pedestrians to walk in the street.
- Temporary or permanent street closure to vehicles may be considered on some streets to encourage pedestrian use.

DESIGN:

- Can provide additional public/open space in high-density neighborhoods.
- On right-of-ways greater than 15' wide, pedestrian-only zones should be differentiated from the shared zone using alternative pavement, landscaping, or other amenities. Right-of-ways less than 15' in width do not need to differentiate between separate zones.
- Shared public ways should utilize traffic control and calming strategies to slow traffic and emphasize pedestrian movement, such as:
  - Gateway treatments to emphasize the unique nature of pedestrian priority streets and discourage through traffic.
  - Raising the entrance to the pedestrian priority street to the level of adjacent sidewalks.
  - Posting speed limits and other signs that instruct vehicles to yield to pedestrians. Signs should incorporate design that reflects the unique nature/character of the street.
  - Using special paving, to distinguish the street's unique function compared to surrounding streets. May create a visual or textural contrast.
- May be curbless, providing a single surface shared by pedestrians, cyclists, and low-speed vehicles. If so, should be designed to drain toward the center of the street or to other stormwater drainage features (4.8.4).

GREEN STREET OPPORTUNITIES:

- Incorporate pervious pavements, stormwater tree pits (4.4.9), or planters (4.4.8).
-

ROLES & RESPONSIBILITIES:

- Pedestrian priority streets may have unique maintenance needs.
- Streets Department maintains pedestrian priority streets similar to other streets.
- Community organizations or other partners must be engaged to ensure proper programming and management of the space.

EXAMPLES:

- Elfreth's Alley

RESOURCES:

- NYC Street Design Manual
- San Francisco Better Streets Guide
- NACTO Urban Street Design Guide (forthcoming)

TREATMENT 4.3.5

FESTIVAL (CURBLESS) STREET

Festival streets are streets with a single surface shared by pedestrians, bicyclists, and low-speed vehicles. These streets create a very low-speed pedestrian-oriented street that maintains bicycle, local vehicle, and delivery access on most days and can easily be closed for community events or festivals.

Paving materials, landscaping, and street furniture can be used to emphasize the unique nature of festival streets.

A single surface is shared by pedestrians, bicyclists, and low-speed vehicles on festival streets.

APPLICATION:

- Appropriate on many street types with a maximum of two travel lanes in conjunction with traffic calming.
- High pedestrian and low vehicle traffic areas with supportive surrounding land uses and major pedestrian destinations, resulting in many desired pedestrian crossing locations.

CONSIDERATIONS:

- Street users generally negotiate right of way cooperatively, rather than relying on traffic controls.
- Special consideration needed to ensure street can be safely navigated by visually impaired citizens.
- Temporary or permanent street closure to vehicles may be considered on some streets to encourage pedestrian use.

DESIGN:

- Typically curbless, providing a single surface shared by pedestrians, cyclists, and low speed vehicles.
- Accessible path(s) must be provided per PROWAG guidelines and City walking zone recommendations (4.3.2).
- Bollards are often used to separate shared pedestrian-vehicle space from pedestrian-only space.
- Incorporate pedestrian amenities, such as seating (4.4.5), landscaping, pockets of on-street parking (4.6.1), pedestrian lighting (4.4.4), retail displays, or café seating (4.4.6) to help activate the space.
- Can provide additional public/open space in high density neighborhoods.
- On right-of-ways greater than 15' wide, pedestrian-only zones should be differentiated from the shared zone using alternative pavement, landscaping, or other amenities. Right-of-ways less than 15' in width do not need to differentiate between separate zones.
- Shared public ways should utilize traffic control and calming strategies to slow traffic and emphasize pedestrian movement, such as:
  - Narrowing the entrance to the festival street, using planters (4.4.8), delineator posts, or other elements. Gateway treatments emphasize the unique nature of festival streets and discourage through traffic.
  - Raising the entrance to the festival street to the level of adjacent sidewalks.
  - Posting speed limits and other signs that instruct vehicles to yield to pedestrians. Signs should incorporate design that reflects the unique nature/character of the street.
  - Using landscaping, parking (4.6.1), or other elements to create chicanes (4.7.3) for vehicle traffic.
- Walking zones at obstructions must always provide a minimum of 5' of walking zone width and must always meet ADA requirements.

GREEN STREET OPPORTUNITIES:

- Should be designed to drain toward the center of the street or to other stormwater drainage features (4.8.4)
- Incorporate pervious surfaces, planters (4.4.8), or other green infrastructure for stormwater management. May require street drainage or catch basin redesign/relocation due to absence of curbs.

ROLES & RESPONSIBILITIES:

- Festival streets may have unique maintenance needs.
- Streets Department maintains festival streets similar to other streets.
- Community organizations are typically required to maintain and assume liability for street furniture or other community facilities incorporated into the design.
- Community organizations or other partners must be engaged to ensure proper programming and management of the space.

EXAMPLES:

- Not currently used in Philadelphia

RESOURCES:

- San Francisco Better Streets Guide
- NACTO Urban Street Design Guide (forthcoming)

TREATMENT 4.3.6

PEDESTRIAN PLAZAS

Pedestrian Plazas create public space out of underutilized right-of-way that surrounding residents and businesses can use. These plazas can serve as space for art installations, performances, markets, and outdoor dining. Plazas can be designed using a variety of temporary low-cost materials, which can serve as a pilot before a more permanent curb reconstruction occurs. Plazas can also help realign skewed intersections.

Pedestrian plaza diagram (Source: NACTO)

Example of pedestrian plaza at South Street and Grays Ferry Avenue Plaza (Source: Drexel University)

APPLICATION:

- Appropriate in areas with high pedestrian volumes and limited public space.
- Skewed or complex intersections with under-used space and low vehicle volumes may have potential to create a pedestrian plaza to "T-up" the intersection.
- Pedestrian plazas often are associated with a business or neighborhood association that is willing to maintain the plaza.

CONSIDERATIONS:

- Pedestrian plazas have potential to make intersections safer, reduce crossing distances, and reduce vehicle speeds.
- Plazas may be designed with low-cost materials such as epoxied gravel, paint, and thermo-plastic. Winter weather should be considered when selecting materials.
- Consider the needs of people with visual or mobility disabilities.
- Consider liability and maintenance needs associated with design and materials.
- Plazas should include appropriate programming and activation of the space.

DESIGN:

- Plazas should have a clearly defined boundary that is reinforced with vertical elements such as flexible delineators, granite rocks, and/or planters.
- Parking should not be permitted within the pedestrian plaza.
- Bicycle parking may be included.
- Pedestrian plazas need to consider the needs of pedestrians with disabilities.
- Pedestrian plazas should be designed to have minimal impacts to delivery, drainage, and other public services.
- Pedestrian plazas should be designed to maintain corner clear sight distance for any side streets and/or driveways

GREEN STREET OPPORTUNITIES:

- Planters may be used along the edges and within the pedestrian plaza.

ROLES & RESPONSIBILITIES:

- Streets Department to sign a Memorandum of Understanding (MOU) with a local organization (e.g., RCO, BID, business association) who agrees to maintain improvements.
- Local organization to raise funds for improvements, which will be approved by the Streets Department. Maintenance agreement is needed before grant application for design
- Art Commission must approve any "accessory signage" which includes signs with corporate logos.
- Local organization seeking permit for pedestrian plaza must have insurance for workers and employers liability, general liability, and automobile liability.

EXAMPLES:

- SOSNA Triangle at South Street and Grays Ferry Avenue.

RESOURCES:

- NACTO Urban Street Design Guide
- Public Right of Way Access Guidelines http://www.access-board.gov/prowac/
- Philadelphia Pedestrian Plaza Program Application https://www.phila.gov/media/20220311153503/OTIS-pedestrian-plaza-application-rev.pdf

4.4 BUILDING & FURNISHING COMPONENT

Street furniture, elements of buildings that intrude into the sidewalk, and commercial activities that occur on the sidewalk (e.g., sidewalk cafes) are addressed in the Building & Furnishing Component. The two main purposes of furnishings and building elements are to (1) buffer pedestrians from traffic and (2) provide amenities and/or enhanced aesthetics. Related items: transit stops and shelters (4.6 Curbside Management Component), construction disruption (4.8 Urban Design Component).

Sidewalk cafes (4.4.6) and other commercial activities on the sidewalk must maintain adequate clear width (4.3.2) for pedestrians.

Awnings, stairs, heating/cooling units, and other architectural elements (4.4.13) can create obstacles for pedestrians on the sidewalk.

FUNDAMENTALS:

- Use furnishings, commercial activities, and architectural elements to enhance the pedestrian environment.
- Maintain adequate clear space (4.3.2) to ensure accessible and comfortable passage for all pedestrians. Building and furnishing elements should not create tripping hazards or pinch points.
- Ensure building, furnishing, and landscaping elements do not reduce visibility at intersections or otherwise decrease pedestrian safety.
- Consider opportunities to incorporate green infrastructure wherever possible in the Furnishing zone.
- Consider utility locations (above and underground) and potential complications when locating furnishings.

POLICY:

- The *Philadelphia Pedestrian & Bicycle Plan* does not include minimum building zone widths (4.4.1), because many existing sidewalks are so narrow.
- The *Philadelphia Pedestrian & Bicycle Plan* recommends minimum furnishing zone widths (4.4.2) of 3 to 5′ depending on traffic volume, speed, and the desire for landscaping and other amenities.
- Architectural features such as bay windows, awnings, marquees, steps, and railings are addressed in Philadelphia Code Sections 11-601 to 11-604.
- Commercial activities on streets are addressed in Philadelphia Code Section 9-200.
- The Philadelphia Zoning Code (Chapter 14) outlines requirements for street trees and landscaping (14-705), lighting (14-707), signs (14-900), and other furnishings on public walkways.
- The Philadelphia Green Street Design Manual establishes design guidelines for green infrastructure improvements in the furnishing zone.

ROLES & RESPONSIBILITIES:

- Streets Department Right-of-Way Unit reviews and approves sidewalk encroachments in accordance with section 11-600 of the Philadelphia Code.
- City Planning Commission reviews Streets bills for encroachments and performs façade reviews where required by the Zoning Code.
- Zoning Board of Adjustments must hear all variance requests. Very few administrative adjustments are allowed.
- City Council must approve an ordinance for any street change that is not allowed in section 11-600 of the Philadelphia Code, including variances from the standards for architectural obstructions in the Streets Code.
- The adjacent property owner or a local partner must obtain an ordinance of City Council, enter into a maintenance agreement with the Streets Department, and obtain approval for the installation of most furnishings in the public right-of-way (e.g., trees, benches, lighting).
- Water Department reviews stormwater infrastructure design.

Different pavement treatments can be used to create a pervious walking surface in the furnishing zone. (Note: this space may not count towards ADA clear space requirements.)

The furnishing zone provides a buffer from traffic and can accommodate bike parking, planters, and other amenities.

CONTACTS:

- City Planning Commission
  Urban Design Division
  Right-of-Way Planner
  (215) 686-4615
  www.phila.gov/departments/philadelphia-city-planning-commission/
- Philadelphia Streets Department
  Right-of-Way Unit
  (215) 686-5560
  www.phila.gov/street
- Zoning Board of Adjustments
  (215) 683-4615
  www.phila.gov/li

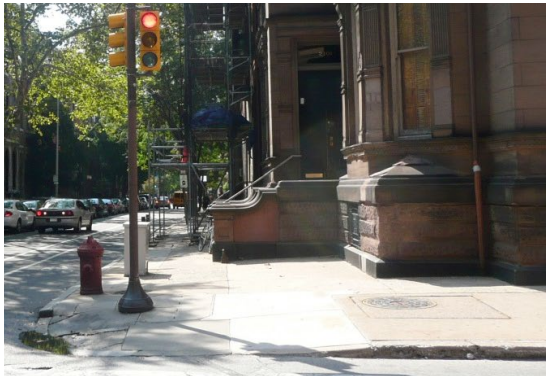
OTHER RESOURCES:

- Philadelphia Green Street Design Manual
- Public Right of Way Access Guidelines
  http://www.access-board.gov/prowac/

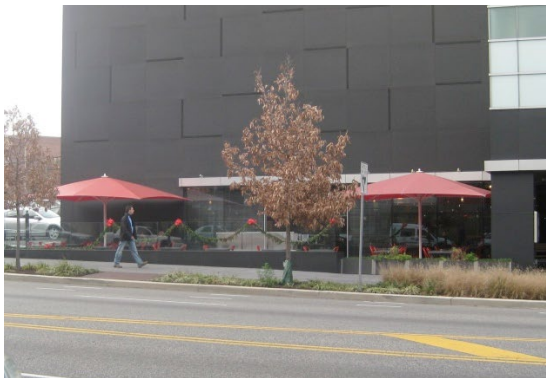
TREATMENT 4.4.1

BUILDING ZONE WIDTH

The Building Zone is the area of the sidewalk immediately adjacent to the building face, wall, or fence marking the property line, or a lawn in lower density residential areas. The Building Zone includes architectural elements such as steps, bay windows, or planters (4.4.8) and commercial activities such as sidewalk cafes (4.4.6) that intrude into the sidewalk. These elements can enhance the pedestrian environment, but also narrow the walking zone and can limit accessibility.



Stairs and stoops are common building elements extending into the sidewalk in Philadelphia's historic neighborhoods. Placement of street trees and furnishings must be planned around these features to ensure a clear walking path.



Building setbacks may be adjusted to provide space for street level amenities such as sidewalk cafes without obstructing the clear width of the sidewalk.

APPLICATION:

- No minimum building zone widths are recommended due to the narrow sidewalks in the City.

CONSIDERATIONS:

- Elements in the building zone should enhance the pedestrian environment, but maintain accessible paths for pedestrians.
- On streets where numerous permanent encroachments already exist in the building zone, new encroachments are allowed to the extent that they respect the prevailing alignment of existing encroachments.

DESIGN:

- Building zone obstructions must meet ADA guidelines and maintain the minimum walking/clear zone width on the sidewalk outlined in 4.3.2.
- 3' of clear right-of-way is needed on the side of paths opposite the road on Park Roads and Scenic Drives.
- Building setback serves as building zone on lower density residential streets.
- Additional building setback can be added to new development to create space for sidewalk cafes (4.4.6) and other active street-level uses.
- No obstructions are allowed beyond the line of steps or stoops on Shared Narrow (3.10) and Local (3.11) streets.

GREEN STREET OPPORTUNITIES:

- Consider incorporating planters (4.4.8) and pervious pavements.

ROLES & RESPONSIBILITIES:

- Property owners are responsible for obtaining permits for and maintaining obstructions in the Building Zone.
- Streets Department Right-of-Way Unit reviews and approves sidewalk encroachments.
- Zoning Board of Adjustments must hear all variance requests. Very few administrative adjustments are allowed.
- City Council must approve an ordinance for any street change, including variances from the standards for architectural obstructions beyond the property line in the Streets Code.

EXAMPLES:

- Residential and commercial neighborhood

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan

TREATMENT 4.4.2

FURNISHING ZONE WIDTH

The furnishing zone is the area of the sidewalk between the walking zone and curb. The furnishing zone provides pedestrians a buffer from traffic and provides a space for plantings, street furniture, and other amenities. These elements can enhance the pedestrian environment, but also narrow the walking zone and can limit pedestrian mobility and comfort.

Different materials may be used to differentiate the furnishing zone and allow stormwater infiltration.

The furnishing zone provides an area for street trees, planters, and green infrastructure.

APPLICATION:

- Minimum and recommended furnishing zone widths are established for all street types in the Philadelphia Pedestrian and Bicycle Plan.
- Enforcement of a minimum or recommended furnishing zone width in the absence of existing furnishings should be flexible when calculating sidewalk space available for temporary, seasonal, and movable encroachments, such as tables and chairs for outdoor cafes (4.4.6).

CONSIDERATIONS:

- Elements in the furnishing zone should enhance the pedestrian environment, but maintain accessible paths for pedestrians.
- Incorporate green infrastructure features in the furnishing zone wherever feasible.
- The importance of the furnishing zone varies depending on the adjacent land use, speed and volume of traffic, and the presence of on-street parking (4.6.1).
- Furnishings should be located so that they do not impede visibility at intersections or crossing locations.
- Placement of furnishings should consider location of underground utilities and potential complications.

DESIGN:

- A minimum of 3' is usually required just to accommodate utilitarian objects such as fire hydrants, utility poles, and road signs.
- For major arterials, a minimum 5-foot furnishing zone is recommended to ensure adequate separation of pedestrians from vehicles.
- Furnishing zone obstructions must meet ADA guidelines and maintain the minimum walking/clear zone width on the sidewalk outlined in 4.3.2.
- Trees, poles, and other obstructions should not be erected on the sidewalk within 15' of the street line of an intersecting street, unless approved by the Streets Department (Philadelphia Code 11-606)

GREEN STREET OPPORTUNITIES:

- Consider incorporating pervious pavement, planters (4.4.8), stormwater planters (4.4.9), trees, or tree pits (4.4.7).

ROLES & RESPONSIBILITIES:

- Furnishings such as trees, and lighting (4.4.4) may generally be placed in the public right-of-way provided the adjacent property owner or a local partner enters into a maintenance agreement with the Streets Department and obtains a right-of-way license or Council ordinance for the installation.
- Streets Department Right-of-Way Unit reviews and permits sidewalk encroachments including furnishings.
- In many residential areas, the furnishing zone consists of a planting strip.

EXAMPLES:

- Residential and commercial neighborhood

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan

TREATMENT 4.4.3

BICYCLE PARKING

Bicycle parking is an important "end of trip" facility that helps make bicycling a more viable transportation option for multiple trips. Bicycle parking is required in multiple types of developments in Philadelphia and can be permitted by the Streets Department, unlike many furnishings which require an ordinance from City Council.

Unlike "inverted U" or "staple" racks, many older bike rack styles do not allow both the frame and wheel of a bicycle to be easily locked to the rack.

As individual parking meters are replaced with "smart meters", meter poles may be repurposed as bicycle parking.

APPLICATION:

- Appropriate on all street types.
- Bike parking must be provided with most new development but is not required to be in the public right-of-way.

CONSIDERATIONS:

- Parking should provide adequate space for attached bicycles without impeding upon the minimum sidewalk clear width established in 4.3.2 or interfering with safe egress from buildings or facilities.
- Additional bicycle parking, beyond minimums established in the Code, should be provided in high demand areas.
- Streets Department can permit bicycle parking without a City Council ordinance.
- L&I and Streets Department may establish rules, standards, and regulations regarding bicycle parking.
- Bike shelters that provide covered bike parking may be used and should follow design guidance for bicycle parking and bus stop shelters (see SEPTA Manual).

DESIGN:

- Philadelphia Zoning Code Section 14-804 includes bicycle parking ratios and standards.
- All required bicycle parking spaces outside a building must be located within 50' of the primary building entrance, unless they would conflict with another Code provision or are located in the public right-of-way or an attended parking facility.
- Racks must support bicycle frames at two locations, preventing the bicycle from tipping over and enabling the frame and one or both wheels to be secured with a lock.
- If provided, bicycle storage facilities shall be provided with tamper-proof locks.
- Racks should be placed a minimum of:
  - 18 inches from the curb, 3' if poles or other items are in the furnishing zone (4.4.2);
  - 4' from taxi loading areas, poles, tree pits (4.4.7), planters (4.4.8), and fire hydrants;
  - 5' from the nearest bike rack (if both racks are parallel to the curb);
  - 5' from building entrances;
  - 6' from crosswalks; and
  - 30' from a bus stop (4.6.5) sign or the far side of a bus shelter (50' from the bus stop sign or near side of a shelter at stops served by articulated buses).

GREEN STREET OPPORTUNITIES:

- Consider using stormwater planters (4.4.9) or trees (4.4.7) to shade and buffer bicycle parking.

ROLES & RESPONSIBILITIES

- Racks may be placed in the public right-of-way provided the building owner enters into a maintenance agreement with the Streets Department and obtains approval for the installation.
- CCD owns and maintains bike racks and street furniture in select areas (e.g., Market East).

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

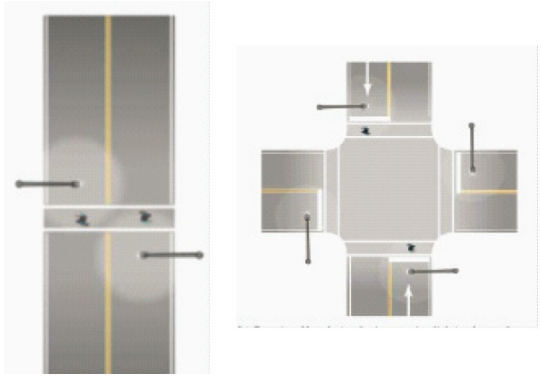
- Philadelphia Pedestrian & Bicycle Plan
- Philadelphia Building Code
- Association of Bicycle and Pedestrian Professionals Bicycle Parking Guidelines

TREATMENT 4.4.4

LIGHTING

Street lighting helps to increase visibility of pedestrians and bicyclists, thereby increasing their comfort and safety. Lighting is also viewed as a crime deterrent and can encourage more citizens to walk or bike. Pedestrian scale lighting can be used to supplement or replace standard lights on streets with high pedestrian significance, high expected night usage (e.g., colleges, commercial areas), high pedestrian or bicycle crash rates, and complex geometries (e.g., turns, tunnels).

Examples of pedestrian-scale lights and "Brown round" cobra head light (paired with decorative pedestrian – scale light).



Preferred lighting layout for pedestrian crossings at midblock and intersection locations (source: FHWA).

APPLICATION:

- Appropriate on all street types.
- Pedestrian-scale lighting is most appropriate on High Volume Pedestrian (3.1), Civic/Ceremonial (3.2), Walkable Commercial (3.3), and City Neighborhood Streets (3.8).

CONSIDERATIONS:

- There are no industry standard warrants for non-freeway lighting.
- Negative impacts of "light pollution," glare, and electricity consumption should be considered.
- Luminaires should be placed adjacent to facilities crossing roadways, as opposed to directly above the facility, to better illuminate pedestrians and bicyclists to approaching motorists.
- Lighting design and installation must be coordinated with relevant utilities (4.8.2).
- Poles should maintain adequate vertical (8') clearance and minimum clear zone width on sidewalks (See 4.3.2).
- Streets should be illuminated to two (2) foot-candles.
- Higher levels of illumination may be appropriate in high-volume pedestrian areas.
- Crosswalks should be located to provide the desired level of illuminance at the crosswalk for all travel directions

DESIGN:

- There are two standard streetlight fixtures used by the Streets Department:
  - "Brown round" improved cobra heads for lighting wider streets.
  - "Pedestrian-scale lights" for streets where pedestrian lighting is desired.
- Streets Department Street Lighting Engineer determines the exact locations of street light poles during construction.
- Standard distance between street light poles is 60' for pedestrian-scale lights and 90-100' for brown rounds.
- Lighting should meet IES standards.

GREEN STREET OPPORTUNITIES:

- Consider solar powered lights.

ROLES & RESPONSIBILITIES:

- Streets Department will only own, power, and maintain standard fixtures that illuminate the street. All other fixtures must be separately funded and maintained.
- Pedestrian-scale lights may be placed in the public right-of-way provided a local partner (e.g., property owner, community development group) enters into a maintenance agreement with the Streets Department and obtains approval for the installation.
- CCD has installed and maintains lights in select areas (e.g., Market East) where it has obtained funding through Council, property owners, or other means. CCD maintains their light globes; Streets maintains the light poles and pays for electricity.

EXAMPLES:

- Center City District

RESOURCES:

- Streets Department Street Lighting Division Contact
- New York Street Design Manual
- FHWA Report on Lighting Design for Midblock Crosswalks
- AASHTO or Illuminating Engineering Society (IES) Roadway Lighting Design Guide

TREATMENT 4.4.5

BENCHES & STREET FURNITURE

Street furniture includes benches, seating, and other furniture items located in the furnishing zone. Benches provide an important amenity for all pedestrians, but must be placed to preserve accessibility.

A wide variety of bench, trash receptacle, and other street furnishings are used throughout the City.

Large planters can be used to provide seating and green infrastructure in some areas.

APPLICATION:

- Appropriate on all street types.
- Most appropriate in areas with high pedestrian significance such as Walkable Commercial Corridors (3.3), transit stops (4.6.5), plazas, and Civic/ Ceremonial streets (3.2).

CONSIDERATIONS:

- Benches and street furniture should be located so that they maintain minimum clear walking space widths (see 4.3.2) and do not create pinch points or tripping hazards.
- Benches at transit stops (4.6.5) should not interfere with passenger boarding/alighting, including loading and unloading wheelchair lifts.
- Benches that are not anchored to the sidewalk should be stored inside the building when the associated business is closed.

DESIGN:

- There is no standard City design for benches in the right-of-way. Fairmount Park has a standard bench for park use.
- Advertisements on benches are prohibited.
- The SEPTA Stop Design Guidebook will include design guidance for benches at transit stops.
- Right-of-way permit required.

GREEN STREET OPPORTUNITIES:

- Consider using raised planters (4.4.8) to provide seating and green infrastructure.

ROLES & RESPONSIBILITIES:

- Benches may be placed in the public right-of-way provided an ordinance has been acquired and a local partner (e.g., property owner, community development group) enters into a maintenance agreement with the Streets Department and obtains approval for the installation.
- CCD owns and maintains benches and street furniture in select areas (e.g., Market East).

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- SEPTA Bus Stop Design Guidelines

TREATMENT 4.4.6

SIDEWALK CAFES

Sidewalk cafes consist of any seasonal and movable restaurant seating or furnishings that are located on sidewalks or in the public right of way. Sidewalk cafes help to "activate" the sidewalk and provide a valuable neighborhood amenity, but must be regulated to ensure that adequate clear width is maintained for the expected level of pedestrian activity, based on the street type.

No heaters, signs, umbrellas or other portions of sidewalk cafes may not extend onto or project over the minimum clear sidewalk width unless at least 7' vertical clearance is maintained

Sidewalk cafes on most streets should leave 6' or half the total sidewalk width clear at all times.

APPLICATION:

- Most appropriate on Civic/Ceremonial (3.2), Walkable Commercial Corridors (3.3), City Neighborhood Streets (3.8), and Urban Arterials (3.4).
- Also appropriate in some circumstances on most other street types, including High-Volume Pedestrian Streets (3.1).

CONSIDERATIONS:

- Placement should consider space needed to accommodate café furnishings, server and customer circulation, and pedestrians traveling along the sidewalk.
- Placement should consider nearby transit stop and subway entrance locations.
- No owner or operator of an establishment shall occupy any portion of a public sidewalk or other public right of way with tables and seats without first obtaining a Sidewalk Café Permit. Café permits are revocable based on changing conditions.
- Because open-air sidewalk cafes are seasonal and movable, the calculation of the required Walking Zone adjacent to a café may include space available in the Furnishing Zone; however, each year with the renewal application, the space available for any sidewalk café may change based on changing conditions in the Furnishing Zone.

DESIGN:

- Requirements for sidewalk cafes are addressed in the Philadelphia Code chapter 9-208, and include a minimum sidewalk clear width of no less than half the total sidewalk width or, on sidewalks less than 13' wide, no less than 5'.
- Minimum clear width recommended for sidewalk cafes, as outlined in 4.3.2, ranges from 5' on streets with few pedestrians, to 10' on Civic/Ceremonial Streets (3.2). Most streets need clear width of 6' or half the total sidewalk width. Minimum clear width is exclusive of grates and vault covers.
- Fixed markers, flush with the sidewalk, should be used to demarcate sidewalk cafes' maximum surface area.
- Sidewalk cafes at street intersections must maintain a minimum clearance of 10' from the point of tangency of the curb line.
- Platforms, railings, or other permanent fixtures for sidewalk cafes are not recommended.

GREEN STREET OPPORTUNITIES:

- Incorporate pervious pavement or utilize "parklet" design in parking lane (4.6.1).

ROLES & RESPONSIBILITIES:

- Property owners are responsible for maintaining and insuring sidewalk cafes.
- Streets Department Right-of-Way Unit reviews and provides preliminary approval of sidewalk cafe locations.
- The Department of Licenses and Inspections issues and enforces Sidewalk Cafe Permits.
- Streets Department and Licenses and Inspections approve and adopt regulations for the design and placement of permitted tables and seats.

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan

TREATMENT 4.4.7

STREET TREES & TREE TRENCHES

Street trees are trees planted in the public right-of-way, whether in individual tree pits or trenches. Street trees help beautify the urban environment, provide shade, filter noise and air pollution, and absorb storm water. Street trees planted between the sidewalk and curb in Philadelphia are managed by the Fairmount Park Commission Street Tree Management Division.

Tree pits should maintain adequate clear walking space and provide room for trees to grow without pushing up adjacent pavement.

Tree trenches can accommodate multiple trees and may be connected to an underground infiltration structure.

APPLICATION:

- Appropriate on all street types.

CONSIDERATIONS:

- Street trees and tree pits should be located so that they maintain minimum clear walking zone widths (see 4.3.2) at the time of installation and as trees grow.
- Walkable tree grates, permeable pavers, and structural soil should be used and maintained to ensure that tree pits do not create pinch points or tripping hazards.
- Trees with narrow canopies that do not reduce intersection visibility should be considered in curb extensions (4.9.4) and medians (4.7.3).
- Tree placement and species choice should consider the location of above and underground utilities (4.8.2) (e.g., use trees with low canopies under overhead wiring).
- Trees should not be planted in front of steps, doorways, or alleyways.

DESIGN:

- Tree pit and trench dimensions vary depending upon site conditions. Standard width for tree wells is 4′ from the face of the parallel curb, required minimum tree pit size is 3′x3′.
- Street trees shall not be placed within 55′ of the approach of an intersection where no parking or bike lane is present, 45′ where a parking or bike lane is present, or 35′ of the exit of any intersection.
- Location and type of street tree must be coordinated with the Department of Parks and Recreation (PPR).

GREEN STREET OPPORTUNITIES:

- Stormwater tree pits and trenches should be considered (see sidebar and Green Street Design Manual).

ROLES & RESPONSIBILITIES:

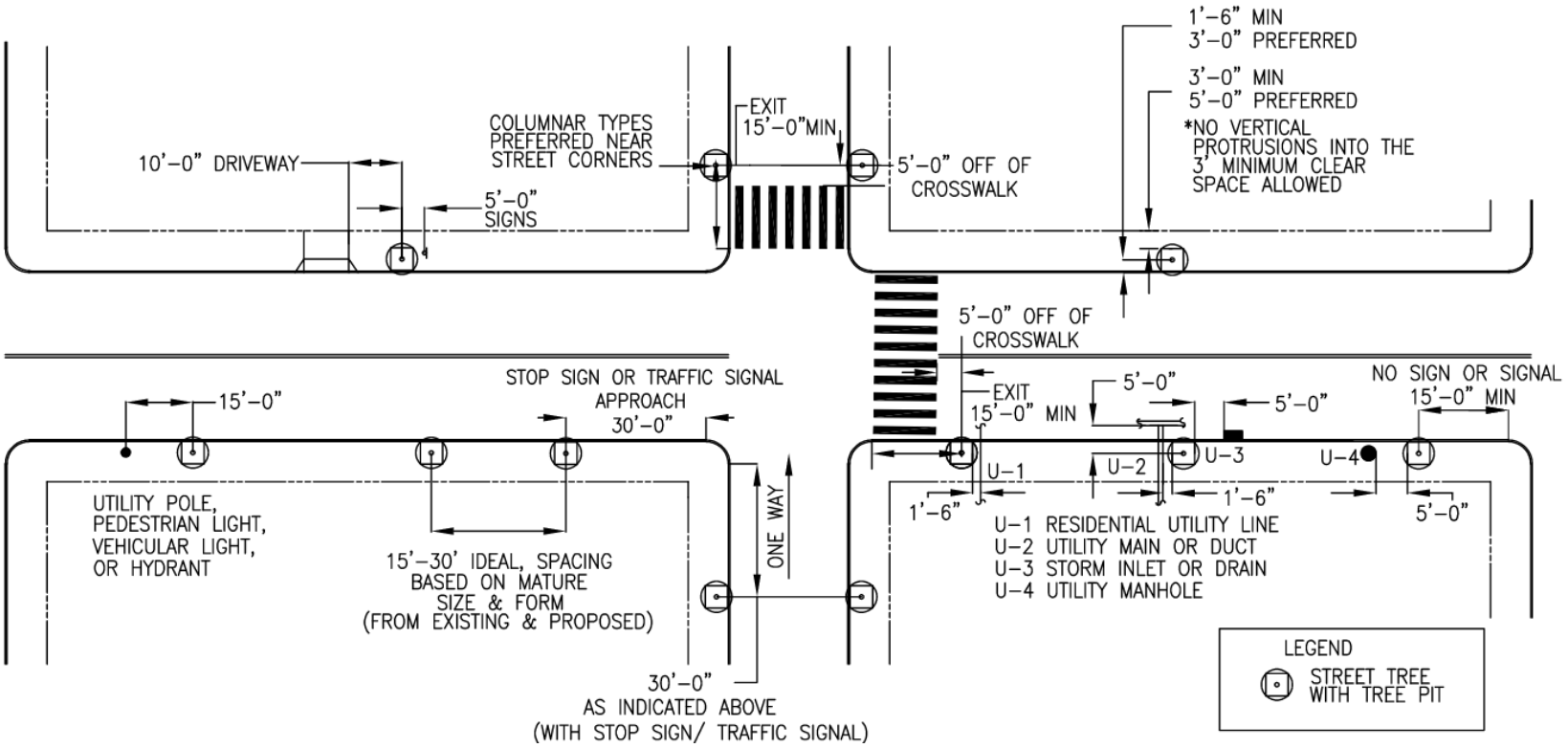
- Department of Parks and Recreation (PPR) manages all park and street trees in Philadelphia. The Street Tree Management Division plants new trees (after an arborist conducts an inspection and obtains a signed permission form from the adjacent property owner), inspects trees for removal or pruning, and removes fallen trees or branches blocking sidewalks or streets.
- Most tree planting, pruning, and removal is done by arborists contracted by PPR.
- Tree placement and species review is permitted and approved by Parks and Recreation.
- Street opening permits for new tree pits or trenches are approved by Streets Department.
- PPR inspects street trees that are breaking up the sidewalk on a case-by-case basis and may recommend the property owner replace the paving.
- Adjacent property owners are responsible for watering street trees and keeping tree pits clear, but must obtain a permit to prune or remove trees.
- L&I inspects and enforces tree problems in alleys and on private property.
- CCD maintains (waters and prunes) and replaces dead street trees in Center City.

EXAMPLES:

- Stormwater tree trench at West Mill Creek, Ogden and Ramsey Street

RESOURCES:

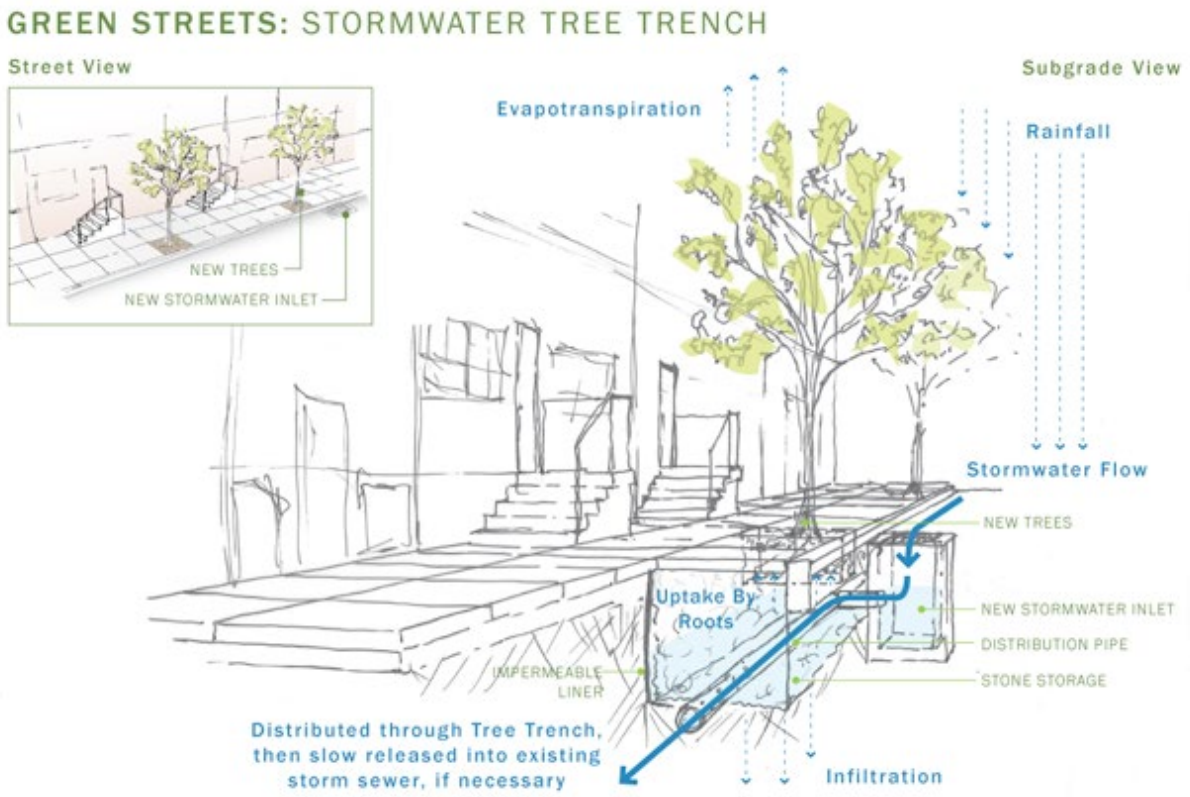
- Green Street Design Manual
- Recommended Street Tree List
- Fairmount Park Street Tree Management Division
- http://www.phillywatersheds.org/doc/ModelNeighborhoods/Street_Tree_FAQ.pdf
- http://www.phila.gov/green/buildersGuide.html
- http://phillywatersheds.org/what_were_doing/green_infrastructure/tools/stormwater_tree_trench



STORMWATER TREE TRENCHES

"A stormwater tree trench is a system of trees that are connected by an underground infiltration structure. On the surface, a stormwater tree trench looks just like a series of street tree pits. However, under the sidewalk, there is an engineered system to manage the incoming runoff. This system is composed of a trench dug along the sidewalk, lined with a permeable geotextile fabric, filled with stone or gravel, and topped off with soil and trees. Stormwater runoff flows through a special inlet (storm drain) leading to the stormwater tree trench. The runoff is stored in the empty spaces between the stones, watering the trees and slowly infiltrating through the bottom. If the capacity of this system is exceeded, stormwater runoff can bypass it entirely and flow into an existing street inlet."

- Phillywatersheds.org



TREATMENT 4.4.8

PLANTERS

Planters help to beautify streets by providing green space, buffering sidewalks from the street, and absorbing stormwater.

Planters can be used to provide seating and green infrastructure.

Planters should be located to maintain minimum walking zone widths (4.3.2).

APPLICATION:

- Appropriate on all street types.

CONSIDERATIONS:

- Planters should be located so that they maintain minimum clear walking zone widths (see 4.3.2) and do not create pinch points or tripping hazards.
- Planters should be considered in curb extensions (4.9.4) and medians (4.7.3), and the furnishing zone.
- Planter placement should consider the location of underground utilities (4.8.2).
- Planter design must consider passenger and wheelchair accessibility at transit stops (4.6.5).

DESIGN:

- Planter dimensions vary depending upon site conditions. Standard width for planting strips is 4' from face of parallel curb, required minimum width is 3'.
- The Philadelphia Zoning Code requires a 3' planter strip along all blocks in new subdivisions, but the Streets Code does not require planters on existing streets.

GREEN STREET OPPORTUNITIES:

- Consider incorporating stormwater planters (4.4.9).

ROLES & RESPONSIBILITIES:

- Street opening permits for planters and stormwater planters are approved by Streets Department.
- Raised planters in sections of the City require an ordinance from City Council.
- In Center City, the Streets Right-of-Way Unit may approve placement of planters without a City ordinance. (Section 10-611 (2)(k)) CCD owns and maintains over 100 planters in Center City.

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- Philadelphia Green Street Manual

TREATMENT 4.4.9

STORMWATER PLANTERS

Stormwater planters are specialized planters installed in the sidewalk area or median, and are designed to manage stormwater runoff by providing storage and infiltration.

Curb inlets allow stormwater to flow into planter strips.

APPLICATION:

- Appropriate on all street types.

CONSIDERATIONS:

- Stormwater planters should be located so that they maintain minimum clear walking zone widths (see 4.3.2) and do not create pinch points or tripping hazards.
- Stormwater planters should be considered in curb extensions (4.9.4) and medians (4.7.3), and the furnishing zone
- (4.4.2).
- Planter placement should consider the location of underground utilities (4.8.2).
- Planter design must consider passenger and wheelchair accessibility at transit stops (4.6.5).

DESIGN:

- Stormwater planters are generally rectangular with four concrete "curbed" sides and inlets that allow runoff to flow into the planter. The planter is lined with permeable fabric, gravel, and soil and filled with plants and/or trees. Soil in the planter is lower in elevation than the sidewalk to provide storage space for runoff.
- Planter dimensions vary depending upon site conditions. Standard width for planting strips is 4' from face of parallel curb, required minimum width is 3'.

ROLES & RESPONSIBILITIES:

- Philadelphia Water Department, Streets Department, and Parks and Recreation have partnered with communities to design stormwater planters.
- Street opening permits for planters and stormwater planters are approved by Streets Department.
- PWD maintains stormwater planters that are owned/operated by PWD.
- Stormwater planters installed without PWD approval are the responsibility of the installer.

EXAMPLES:

- Stormwater planters at Columbus Square (1300 Reed St.)
- Stormwater bumpouts at Queen Lane (3100-3300 W Queen Ln)

RESOURCES:

- Philadelphia Green Street Manual
- http://phillywatersheds.org/what_were_doing/green_infrastructure/tools

TREATMENT 4.4.10

TRASH BINS & HONOR BOXES

Trash bins, recycling bins, honor boxes, phones, and other service furnishings on the sidewalk provide a public service and amenity. They can help to keep streets clean, but also require regular maintenance and must be located so as not to obstruct the walking zone or limit accessibility.

Trash and recycling bins provide a convenience amenity but must generally be emptied at least once per week.

Honor box "corrals" in Center City are owned by the City and managed by the Center City District.

APPLICATION:

- Appropriate in areas with high pedestrian volumes such as Walkable Commercial Corridors (3.3) and transit stops (4.6.5).
- In residential zones, trash bins should be placed where they can be serviced along residential trash collection routes.

CONSIDERATIONS:

- Trash bins should not be installed without a maintenance plan for regular trash pick-up.
  - "Big Belly" bins, typically installed in commercial corridors with heavy pedestrian activity and near transit stops, must be emptied once per week.
  - Other bins generally must be emptied three times per week.
- Permanent or movable honor box "corrals" may be used to delineate the sidewalk area where honor boxes are permitted.
- "Condo style" newspaper boxes may be considered for use in high demand areas.

DESIGN:

- Trash bins and honor boxes must be located so that they maintain minimum clear walking zone widths (see 4.3.2), do not create pinch points or tripping hazards, and follow L&I regulations.
- Trash bins and honor boxes at transit stops should not interfere with passenger boarding/alighting, including loading and unloading wheelchair lifts.
- There is no standard City design for waste receptacles in the right-of-way.
- There is no standard City design for honor boxes.

GREEN STREET OPPORTUNITIES:

- Solar powered trash -ompacting waste receptacles may be used to reduce the frequency of collection.

ROLES & RESPONSIBILITIES:

- Streets Department Sanitation Unit is responsible for emptying trash bins and maintaining "Big Belly" bins, including removing graffiti.
- Honor boxes are owned by the newspaper and magazine publishers. Honor box owners are required to keep their boxes clean and free of graffiti.
- L&I is responsible for permitting and enforcing placement of honor boxes and trash bins.
- Honor box "corrals" in Center City are owned by the City and managed by CCD.

EXAMPLES:

- Honor box "corrals" on Arch St. near the Convention Center.
- Solar powered trash and recycling bins throughout Center City.

RESOURCES:

- Streets Department website

TREATMENT 4.4.11

NEWSSTANDS

Newsstands are stationary structures used for the sale and display of newspapers, magazines, and periodicals. Newsstands are staffed by an attendant, unlike honor boxes that can be operated by customers independently. Newsstands provide a convenient commercial service, but must be regulated to ensure that adequate clear width is maintained for the expected level of pedestrian activity, based on the street type.

This newsstand technically provides adequate clear walking space, but does not account for space needed for waiting customers.

This newsstand provides adequate space to serve customers, while allowing other pedestrians to pass by.

APPLICATION:

- Civic Ceremonial Streets (3.2), Urban Arterials (3.4), and Walkable Commercial Corridors (3.3).
- Appropriate on some High-Volume Pedestrian Streets and City Neighborhood Streets

CONSIDERATIONS:

- Placement should consider space needed to accommodate customers waiting in line and pedestrians traveling along the sidewalk.

DESIGN:

- Requirements for commercial activities on streets, including newsstands, are addressed in the Philadelphia Code chapter 9-200, and include a minimum clear width of 6' on the sidewalk.
- Minimum clear width recommended for newsstands, as outlined in 4.3.2, ranges from 5' on streets with few pedestrians, to 10' on Civic/Ceremonial Streets (3.2). Most streets need clear width of 6' or half the total sidewalk width.
- Only one newsstand can be located on any corner.
- No more than two newsstands can be located at any intersection or on any one side of a blockface.

ROLES & RESPONSIBILITIES:

- Streets Department Right-of-Way Unit reviews and approves sidewalk encroachments.
- Licenses and Inspections enforces newsstand licensing and placement.

EXAMPLES:

- Residential and commercial neighborhood

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan

TREATMENT 4.4.12

VENDORS

A vendor is any person or vehicle that travels from place to place, carrying, conveying, or transporting goods, wares or merchandise for sale or making sales and delivering articles to purchasers. Vendors include wagons, handcarts, pushcarts, motor vehicles, and mobile stands. Vendors provide a convenient commercial service, but must be regulated to ensure that adequate clear width is maintained for the expected level of pedestrian activity, based on the street type.

Like newsstands (5.2.2), vendors should be located to provide adequate space for customers to be served, while allowing other pedestrians to pass by.

APPLICATION:

- Most appropriate on Walkable Commercial Corridors (3.2), and Urban Arterials (3.4).
- Also appropriate in some circumstances on a range of other street types, including High-Volume Pedestrian Streets (3.1) and City Neighborhood Streets (3.8).

CONSIDERATIONS:

- Placement should consider space needed to accommodate customers waiting in line and pedestrians traveling along the sidewalk.

DESIGN:

- Requirements for commercial activities on streets, including vendors, are addressed in the Philadelphia Code chapter 9-200, and include a minimum clear width of 6′ outside Center City, and 6.5′ in Center City.
- Minimum clear width recommended for vendors, as outlined in 4.3.2, ranges from 5′ on streets with few pedestrians, to 10′ on Civic/Ceremonial Streets (3.2). Most streets need clear width of 6′ or half the total sidewalk width.
- Vendors in Center City may not operate at any location:
  - Within 10′ of building lines, or a newsstand;
  - Less than 25′ upstream of any bus stop sign;
  - 10′ upstream of any subway entrance/exit;
  - Within 15′ of any means of egress from a building, any midblock crosswalk, or any alley or driveway; or
  - Within 5′ of where curbs have been depressed to facilitate pedestrian or vehicular movement.
- Vendors outside Center City must be no closer than 10′ from "the intersection of the legal building line, produced of the intersecting streets or sidewalks."
- Special sidewalk vending districts with unique rules are located in the Central Germantown and University City Districts.

ROLES & RESPONSIBILITIES:

- Licenses and Inspections enforces vendor licensing and placement.

EXAMPLES:

- Residential and commercial neighborhood

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan

TREATMENT 4.4.13

ARCHITECTURAL FEATURES

Architectural features include bay windows, awnings, marquees, steps, railings, and other building elements that extend into the sidewalk or public right-of-way. Architectural features can enhance the visual interest of a street, but must be regulated to ensure that adequate clear width is maintained for the expected level of pedestrian activity, based on the street type.

Many entry stairways to Philadelphia rowhouses extend into the pedestrian zone.

Bay windows may not extend onto or project over the minimum clear sidewalk width unless at least 10' vertical clearance is maintained.

APPLICATION:

- All street types.
- Most common on City Neighborhood Streets (3.8) where stoops and stairs are prevalent on historic rowhomes.

CONSIDERATIONS:

- In many rowhome neighborhoods, stairs and stoops prevent streets from providing minimum clear sidewalk width. In these areas it is particularly important to carefully consider the placement of street trees (4.4.7) and other furnishings to provide the widest feasible walking zone (4.3.2).
- Wheelchair ramps (from the sidewalk to building entrances) are not currently addressed in the Philadelphia Code.
  - Ramps are considered by the right-of-way unit to be a form of "steps" and thus, a permittable encroachment under 11-604.
  - Ramps should be constructed to allow a minimum clear width in the walking zone, as outlined in 4.3.2, ranging from 5' on streets with few pedestrians to 10' on Civic/Ceremonial Streets. Most streets need clear width of 6' or half the total sidewalk width.

DESIGN:

- Requirements for architectural features in the right-of-way, including bay windows, marquees, awnings, steps, and railings, are addressed in the Philadelphia Streets Code sections 11-601 to 11-604.

ROLES & RESPONSIBILITIES:

- Streets Department Right-of-Way Unit reviews and approves sidewalk encroachments.
- City Planning Commission performs façade reviews where required by the Zoning Code.
- Zoning Board of Adjustments must hear all variance requests. Very few administrative adjustments are allowed.
- City Council must approve an ordinance for any street change, including variances from the standards for architectural obstructions beyond the property line in the Streets Code.

EXAMPLES:

- Residential and commercial neighborhood

RESOURCES:

- Zoning Code

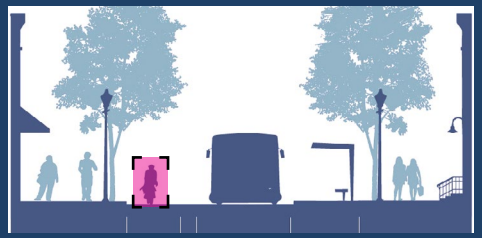
STREET SIGNS

Many signs are located in the right-of-way in Philadelphia that are owned, installed, and maintained by a variety of groups.

- Traffic control signs – (e.g., STOP signs, regulatory signs) - These signs are installed and maintained by Streets Department or PennDOT. The MUTCD regulates what traffic control signs can be used and their placement.
- District signs – Center City District and University City District own and maintain many signs in the right of way, including Walk Philadelphia, Direction Philadelphia, and Transit Portal signs. They also own and maintain hanging baskets and banners hung from light and sign poles.
- Parking signs – Signs and poles are owned and maintained by the Philadelphia Parking Authority.
- Historic markers – owned and maintained by PHMC.
- Fairmount Park Signs and Interpretive System – responsibility for these signs is shared by the City, CCD and Parks and Rec.

4.5 BICYCLE COMPONENT

The Bicycle Component addresses bikeways and other facilities within the public right-of-way that accommodate bicycle travel, such as pavement markings and signage. Related items: on-street bicycle parking (4.6 Curbside Management Component), off-street bicycle parking (4.4 Building & Furnishing Component), bike boxes and signals (4.9 Intersection Component).



Buffered bike lanes (4.5.3) on Pine Street provide additional protection and comfort for cyclists.

Colored pavement (4.5.11) can be used to increase visibility of potential bicycle/vehicle conflict zones. Green color must be used for all future applications.

FUNDAMENTALS:

- Connect bicycle facilities to local bicycle and transit networks.
- Provide convenient bicycle connections to residences, work places, and other destinations.
- Select appropriate bicycle facility design based on local street context; design should always be selected to maximize the comfort and safety of bicycling as a transportation option.

POLICY:

- The Philadelphia Pedestrian & Bicycle Plan recommends the following bicycle facility types for consideration in the City:
  - Bike Lanes (4.5.1 – 4.5.5)
  - Separated Bike Lanes (4.5.6-4.5.7)
  - Shared-Use Paths (4.5.8)
  - Neighborhood Bikeways (4.5.9)
  - Marked Shared Lanes (4.5.10)
- Bicycle specific signs may be installed in accordance with current MUTCD standards.

ROLES & RESPONSIBILITIES:

- Mayor's Office of Transportation and Utilities coordinates all improvements to the bicycle network.
- City Planning Commission develops the bicycle plan and integrates proposed bicycle network changes with development proposals and neighborhood and district plans.
- Streets Department constructs and maintains bicycle facilities in the public right-of-way and issues permits to property owners for bicycle facilities in the right-of-way.

CONTACTS:

- Mayor's Office of Transportation and Utilities
  Bicycle and Pedestrian Coordinator, (215) 686-9003
  www.phila.gov/streets/Bike_Network.html
- City Planning Commission
  Pedestrian and Bicycle Plan Project Manager,
  (215) 683-4643, www.philaplanning.org

OTHER RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan:
  www.philaplanning.org
- NACTO Urban Bikeway Design Guide
- www.nacto.org/cities
- AASHTO Guide for the Development of Bicycle Facilities
- MUTCD www.mutcd.fhwa.dot.gov

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BICYCLE FACILITY APPLICABILITY

Table 4 provides guidelines for applicability of bicycle facilities on various streets to create a bicycle environment that serves all ages and abilities. This guidance is derived from the National Association of City Transportation Officials' (NACTO) Designing for All Ages & Abilities Guidance. Applicability considers street context, including motor vehicle speeds, volumes, and lane configurations as well as other key operational considerations. These guidelines should be applied as part of a flexible, results-oriented design process for each street.

Table 4 assumes that the target motor vehicle speed is similar to the posted speed limit on a street. It offers minimum applicable facilities, which might be applied in constrained locations, as well as recommended applicable facilities.

Table 4: Bicycle Facility Applicability

Street Context				Minimum Applicable Facilities	Recommended Applicable Facilities
Target Motor Vehicle Speed	Target Motor Vehicle Volume (Single Direction ADT)	Motor Vehicle Lanes	Key Operational Considerations		
Any			Any of the following: • high curbside activity • high frequency bus service • high levels of motor vehicle congestion • high number of turning conflicts	Buffered Bike Lane	Separated Bike Lane*** or Shared Use Path
< 10 mph	Less relevant	Single lane each direction, or single lane one-way	Low curbside activity or low congestion pressure	Marked Shared Lane	Advisory Bike Lane
≤ 20 mph	≤ 1,000 - 2,000			Marked Shared Lane	Advisory Bike Lane or Neighborhood Bikeway
≤ 25 mph	≤ 500 - 1,500			Marked Shared Lanes*, Advisory Bike Lane, Neighborhood Bikeway	Conventional Bike Lane**, Buffered Bike Lane, Separated Bike Lane***
	≤ 1,500 - 6,000	Single lane each direction, or single lane one-way		Conventional Bike Lane** or Buffered Bike Lane	Separated Bike Lane*** or Shared Use Path
	≤ 6,000 - 20,000			Separated Bike Lane*** or Shared Use Path (in constrained locations, conventional or buffered bike lanes may be acceptable)	NA
	> 20,000			Separated Bike Lane*** or Shared Use Path	NA
	Any	Mulitiple lanes per direction		Buffered Bike Lane	Separated Bike Lane*** or Shared Use Path
> 25 mph	≤ 3,000 - 6,000	Single lane each direction	Low curbside activity or low congestion pressure	Separated Bike Lane***, or reduce speed	NA
		Multiple lanes per direction		Separated Bike Lane***, road diet, or reduce speed	NA
	> 6,000	Any	Any	Separated Bike Lane***, or Shared Use Path	NA
High-speed limited access streets	Any	Any	High pedestrian volume	Shared Use Path with Separate Walkway or Separated Bike Lane***	NA
			Low pedestrian volume	Shared Use Path*** or Separated Bike Lane	NA

* Short connections only

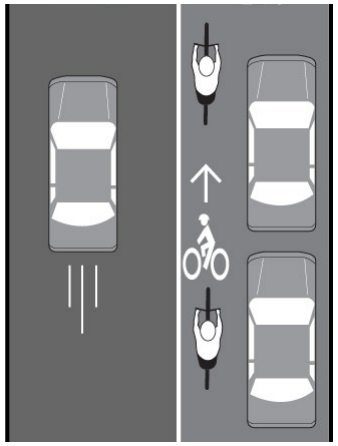
** Conventional Bike Lanes include Left-Side Bike Lanes, Contra-Flow Bike Lanes, and/or Climbing Bike Lanes as applicable

*** Separated Bike Lanes include Street Level Bike Lanes and Raised Separated Bike Lanes

TREATMENT 4.5.1

CONVENTIONAL BIKE LANES

Conventional bike lanes designate a portion of the roadway for the exclusive use of bicycles. Bike lanes are typically located on the right side of the road adjacent to motor vehicle traffic moving in the same direction.



Philadelphia Bicycle Map

Bike lane word and/or symbol pavement markings should be used to help define bike lanes per MUTCD guidance (MUTCD 9C-3).

APPLICATION:

- Bike lanes should be considered on two-way arterial and collector streets wide enough to accommodate a bike lane in both directions, and one-way streets with enough width for a single bike lane.
- As shown in Table 4, bike lanes are most appropriate on streets with average daily motor vehicle traffic (ADT) between 1,500 and 6,000 and posted speeds of 25 mph or less.
- On streets with speeds over 25 mph, bike lanes may be appropriate where there is a single lane in each direction and volumes are less than or equal to 3,000 ADT.
- Bike lanes may be a desirable addition on all but local and high-speed roads. The decision to install bike lanes should stem from a comprehensive bike plan.

CONSIDERATIONS:

- Bike lanes allow bicyclists to travel at their preferred speed with limited interference from motorists.
- Bike lanes increase bicyclist comfort and confidence, and remind motorists of bicyclists' right to the street.
- Like any other traffic lane located at the curb, a bike lane may be used for short-term loading activity unless it is posted for No Stopping Any Time.
- In areas of heavy vehicle congestion, wider bike lanes may be used illegally by motor vehicles.

DESIGN:

- Minimum and desired bike lane widths are established by the Philadelphia Bicycle Plan.
- When next to on-street parking (4.6.1) or roadways with speeds of 30 mph or more, bike lanes should be at least 5' wide. 6' wide lanes should be installed where feasible.
- A solid white lane line marking (6-8 inches) should be used to separate motor vehicle travel lanes from the bike lane.
- Bike lane markings should be dashed where vehicles are allowed to merge into the bike lane, such as for right turns or at bus stops.
- Bicycle lane word and/or symbol markings should be used to help define bike lanes.
- MUTCD bike lane signs may be used, but may create sign clutter.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Lanes should be kept free of potholes, broken glass, and other debris.
- Lane lines and markings should be maintained.
- Bike lanes should be plowed clear of snow.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

TREATMENT 4.5.2

LEFT-SIDE BIKE LANES

Left-side bike lanes are conventional bike lanes located on the left side of one-way streets or two-way streets divided by a median. They are typically used on streets with heavy activity on the right side of the roadway.

Typical left-side bike lane design (NACTO)

Potential Signage (NACTO, Modified MUTCD R3)

APPLICATION:

- Left-side bike lanes are typically used on one-way or median divided streets with the following:
  - Frequent bus stops or truck unloading on the right side;
  - High parking turnover;
  - High volume of right turns by motor vehicles;
  - Significant number of left-turning bicyclists; and
  - Traffic entering into an added lane on the right-hand side (e.g., from a freeway off-ramp).
- Left-side bike lanes can also be used to connect to a path or other bicycle facility.

CONSIDERATIONS:

- Avoids right-side bike lane conflicts on streets with buses, trucks, and parked vehicles; improves visibility of bicyclists by positioning them on the driver's side.
- Vehicles may not expect bicyclists on the left side of the road.
- Bicyclists may not expect bike lanes on the left side of the road and, out of confusion, ride the wrong way.
- Signs and special intersection treatments are needed to alert bicyclists and motorists to left-side bike lanes.
- Left-side bike lanes require additional design considerations and treatments where streets change from one-way to two-way travel.

DESIGN:

- Design guidelines for conventional bike lanes apply.
- Signs to clarify use recommended to reduce wrong-way riding.
- Bike boxes (4.9.13), bike signals (4.9.10), and other intersection treatments are recommended to transition between left-side bike lanes and right-side bike lanes.
- Bicycle through lanes should be provided to the right of left turn pockets at intersections to minimize conflicts between bicyclists and turning vehicles.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- 11th and 12th Street in North Philadelphia near streetcar tracks

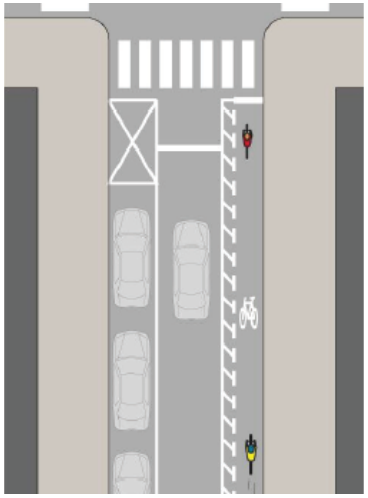
RESOURCES:

- DVRPC Bus/Bike Conflict Area Study
- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

TREATMENT 4.5.3

BUFFERED BIKE LANES

Buffered bike lanes are conventional bike lanes with a designated buffer space separating the bicycle lane from adjacent lanes for motor vehicles or parking. They can be used to create a larger space for bicyclists without potentially causing the bike lane to look like a travel lane or parking lane for motor vehicles.



Philadelphia Pedestrian & Bicycle Plan

Bike lane word and/or symbol pavement markings should be used to help define buffered bike lanes per MUTCD guidance (MUTCD 9C-3).

APPLICATION:

- Buffered bike lanes should be considered on streets with higher traffic volumes, speeds, or truck travel as compared to where conventional bike lanes are applicable. Refer to Table 4.
- Space may be reallocated on streets with extra lanes or lane width to accommodate buffered bike lanes.

CONSIDERATIONS:

- Buffered bike lanes provide greater comfort and perceived safety for bicyclists, increase shy distance between motor vehicles and bicyclists, and provide space for bicyclists to pass each other.

DESIGN:

- Buffers should be at least 2-3' wide.
- Buffer lane should be marked with 2 solid white lines with diagonal hatching.
- A wide (6-8 inch) solid white line may be used to mark the side of the buffer adjacent to the motor vehicle lane.
- Recommended bike lane width is 6', but 4-5' wide lanes may be acceptable where buffers are used because the shy distance function is assumed by the buffer. The combined width of the buffer(s) and bike lane should be considered the "bike lane width."
- The buffer markings should transition to conventional dashed lines at intersection approaches without right turn only lanes where vehicles will have to cross the buffer.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Buffer striping may require additional maintenance.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- Spruce and Pine Streets

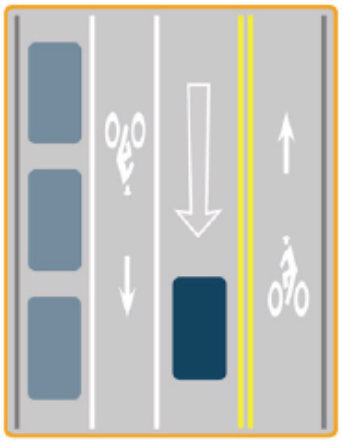
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

TREATMENT 4.5.4

CONTRA-FLOW BIKE LANES

Contra-flow bike lanes are used on one-way streets to serve bicyclists traveling in the opposite direction of motor vehicles. Bicyclists traveling in the same direction as motor vehicles may share the road, or be provided a bike lane on the other side of the street.



Philadelphia Pedestrian & Bicycle Plan

Potential Signage (NACTO, Modified MUTCD R6-1, R6-2)

APPLICATION:

- Contra-flow bike lanes should be considered on roadways where bikes are currently riding on the sidewalk or in the wrong direction.
- Contra-flow bike lanes should be considered on corridors where alternate routes would require excessive out-of-direction travel or include unsafe streets for bicycles.
- Most appropriate on streets with low speeds and volumes and low parking turnover to minimize the risk of severe crashes.
- Can be used where two-way connections between bicycle facilities are needed.

CONSIDERATIONS:

- Contra-flow bike lanes can allow bicyclists to use safer streets with lower traffic volumes. They can also reduce the length of bicycle routes and out-of direction travel by creating more direction connections for bicyclists.
- Contra-flow bike lines may create new challenges and conflict points, as motorists may not expect oncoming bicyclists.

DESIGN:

- A "One Way" sign with "Except Bikes" should be used to inform motorists to expect two-way bike traffic.
- At signalized intersections, bike signals should be installed and oriented towards bicyclists using the contra-flow lane.
- A solid double yellow lane marking should be used to separate opposing motor vehicle travel lanes from the contra-flow bicycle lane.
- Contra-flow bike lane markings should be extended across intersections to alert cross street traffic.
- Additional design considerations are needed on streets with on-street parking (4.6.1) on both sides.
- Buffers should be at least 2-3' wide.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- 30th Street, Civic Center Boulevard (planned)

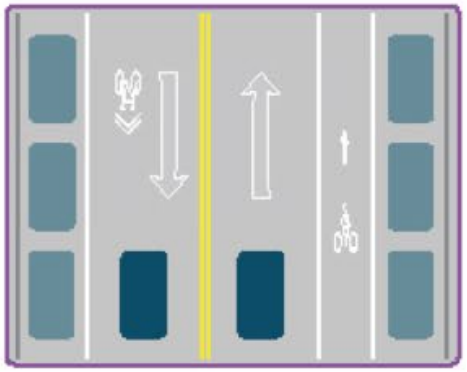
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

TREATMENT 4.5.5

CLIMBING BIKE LANES

Climbing bike lanes are provided in the uphill direction on roadways with steep slopes to accommodate slow moving bicyclists. A marked shared lane may be provided in the downhill direction.



Philadelphia Pedestrian & Bicycle Plan

Uphill bike lane and downhill sharrows in Seattle, WA.

APPLICATION:

- Climbing bike lanes should be considered on two-way streets with steep slopes and insufficient width to permit bike lanes in both directions. A climbing bike lane may be used for the uphill direction and a shared lane (with shared lane markings) for the downhill direction.

CONSIDERATIONS:

- Climbing bike lanes accommodate slower moving bicycles on uphill sections of roadway and separate them from faster moving motor vehicle traffic.
- Sharrows may be appropriate in the downhill direction because the speed differential between bicycles and vehicles is lower. Debris also tends to collect at the edge of downhill lanes, which can create a hazard for cyclists confined to a bike lane.

DESIGN:

- Design guidelines for conventional bike lanes apply.
- 5' minimum width is recommended for climbing bike lanes.

GREEN STREET OPPORTUNITIES:

- Green infrastructure (stormwater management 4.8.4) features that can be incorporated into design.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- Midvale Ave (recommended)

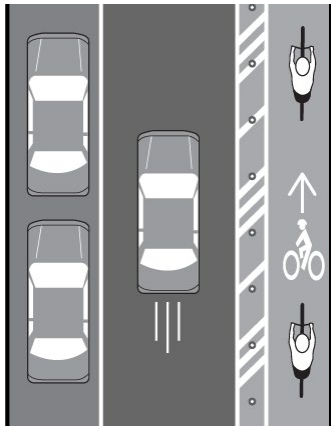
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

TREATMENT 4.5.6

STREET LEVEL SEPARATED BIKE LANES

Street level separated bike lanes, sometimes referred to as a "cycle track," are exclusive bike facilities that provide separation between bikes and motor vehicles. The type of separation can vary. Some examples of separation include flexible delineator posts, planters, concrete barriers, raised curb, parking stops, and on-street parking. Street level separated bike lanes are installed at the same level as the roadway. Separated bike lanes play a vital role in developing a low-stress bicycle network.



Philadelphia Bicycle Map

Separated bike lanes may be separated from adjacent travel lanes using parking lanes, raised pavement, planters, or other treatments.

APPLICATION:

- Street level separated ike lanes are appropriate on higher volume (> 3,000 ADT) and higher speed (> 25 mph) roadways where more separation is needed to protect bikers from motor vehicles.
- Key corridors to establish a low-stress bicycle network.
- They may not be appropriate on streets with a high number of driveways or cross streets.
- Streets with on-street parking may be good candidates for separated bike lanes.

CONSIDERATIONS:

- Separated bike lanes provide a high level of comfort for cyclists by mitigating the risk of "dooring" or collisions with over-taking vehicles.
- Separated bike lanes require more space than other bike facilities and thus may be difficult to install on narrow roadways.
- Street level separated bike lanes are designed at the same level as the roadway. See Raised Separated Bike Lane (4.5.7) for more information on sidewalk or intermediate grade installations.
- Separated bike lanes can be one-way or two-way.
- Type of vertical separation used may have other impacts to the roadway (e.g., drainage adjustments for new curbs, maintenance of flexible delineator posts).

DESIGN:

- Minimum width is 5' for one-way separated bike lanes, 10' for two-way separated bike lanes (12' recommended; can be reduced to 8' in constrained locations)
- The buffer has a 3' minimum width, however a 2' width may be approved at constrained locations.
- Adjacent to accessible parking spaces the buffer width shall be 5' minimum and the bike lane can be 4' minimum. The layout shall provide an access aisle the full length of the parking space and shall connect to a pedestrian access route. The access aisle shall not encroach on the vehicular travel lane. Refer to PROWAG and FHWA Separated Bike Lane Planning and Design Guide, Figure 19 for further guidance.
- There are a variety of vertical elements that may be used in the buffer zone. Each option comes with benefits and constraints and should be chosen according to the local street context:
  - Flexible delineator posts - Multiples of 8' typical spacing for midblock (32' when adjacent to on-street parking, and 16' for non-parking separated bike lanes); 5' at intersections.
  - Planters - Spacing varies
  - Concrete barriers - Continuous spacing
  - Raised curb/Durable plastic curb - 6" height with continuous spacing
  - Parking stops - 6' typical spacing
- On-street parking may be used as a form of separation. If used, provide a 3' minimum buffer between the parking lane and bike lane. Other vertical elements such as flexible delineator posts may be used in the buffer to prevent cars from parking in the bike lane. ADA considerations are needed to ensure an accessible walking path is provided from the parking lane to the sidewalk.
- Adequate sight distance should be provided at

intersections and driveways, which may require parking removal. See Protected Intersection (4.9.19) for more information.

- Drainage, emergency services, and maintenance needs must be considered in the design of separated bike lanes.
- Outreach with area businesses is needed during the design of separated bike lanes. Potential impacts to deliveries should be considered and discussed with area businesses.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.
- Use planters (4.4.8) or stormwater planters (4.4.9) to buffer the separated bike lane from adjacent travel lanes.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Street sweeping may have to be done more frequently than on streets, because of the lack of the sweeping effect of motor traffic.
- Streets department is responsible for street sweeping and general maintenance.
- Streets department is responsible for approving type of vertical separation.
- PennDOT District 6 should be consulted for separated bike lanes on state routes

EXAMPLES:

- John F. Kennedy Boulevard and Market Street
- 11th Street

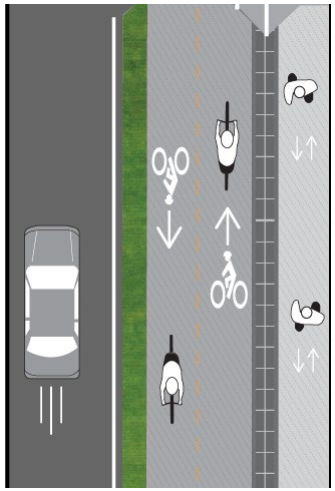
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide
- FHWA Separated Bile Lane Planning and Design Guide

TREATMENT 4.5.7

RAISED SEPARATED BIKE LANES

Raised separated bike lanes are a specific type of separated bike lane where the facility is raised to either the sidewalk level or at an intermediate grade between the roadway surface and the sidewalk. The vertical separation provides an additional level of protection between cyclists and motor vehicles.



Philadelphia Bicycle Map

Delaware River Trail in Philadelphia (Source: Google Streetview)

APPLICATION:

- Raised separated bike lanes are appropriate on higher volume (> 3,000 ADT) and higher speed (> 25 mph) roadways, where more separation is needed to protect bikers from motor vehicles.
- Raised separated bike lanes may be most beneficial along streets with few driveways and cross streets.

CONSIDERATIONS:

- Separated bike lanes provide a high level of comfort for cyclists by mitigating the risk of "dooring" or collisions with over-taking vehicles.
- Separated bike lanes require more space than other bike facilities and thus may be difficult to install on narrow roadways.
- If at sidewalk level, bike lane should look distinct from sidewalk to demarcate the two facilities. This may include using gray or dark gray asphalt or colored concrete for the bike lane.
- Consider potential impacts to furnishing zone.
- Drainage impacts.

DESIGN:

- Minimum width is 5' for one-way separated bike lanes, 10' for two-way separated bike lanes (12' recommended; can be reduced to 8' in constrained locations)
- If next to on-street parking, 3' minimum curb buffer is recommended.
- If next to a travel lane, the desired minimum buffer width is 1'. The buffer width may increase to 3' if used for sidewalk furniture such as street lights or planters.
- Vertical separation between roadway and bike lane should between 1 to 6 inches.
- Vertical separation between sidewalk and bike lane should be between zero (flush) and 5 inches. US Access Board currently recommends some vertical separation.
- Raised crossings should be used to maintain elevation of bike lane. However, bike lane may be lowered to street level if raised crossings are not feasible.
- If at sidewalk level, colored concrete, signage, pavement markings, textured surfaces, landscaping, or other furnishings should be used to separate bike lane from pedestrian zone.
- Use of detectable warning surfaces/tactile strips to separate the bike lane from the sidewalk is not included as an approved treatment in PROWAG or ADA Standards and should be treated as an emerging trend.
- At transit stops, bike lane should be at sidewalk level and wrap behind the transit stop zone to reduce conflicts with transit vehicles.
- Bike yield markers should be used to inform cyclists they must yield to pedestrians.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- Delaware River Trail
- Germantown Avenue

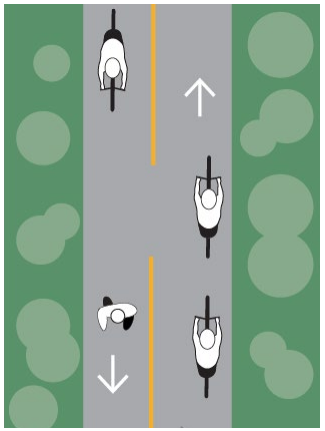
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide
- FHWA Separated Bike Lane Planning and Design Guide

TREATMENT 4.5.8

SHARED-USE PATH

Shared-use paths within the right-of-way support multiple uses, such as walking, biking, and in-line skating. They are typically asphalt, concrete, or firmly packed crushed aggregate. Shared-use paths are separated from motor vehicle traffic by a barrier or open space. Design guidelines for shared use paths located outside the public right-of-way are not addressed in this Handbook.



Philadelphia Bicycle Map

K&T Trail (Google Street View)

Cobbs Creek Trail (Google Street View)

APPLICATION:

- A shared use sidepath, adjacent to the roadway, may substitute for sidewalks on Park Roads (3.6) and Scenic Drives (3.7).
- A multi-use trail may be applied similarly

CONSIDERATIONS:

- Shared-use paths accommodate inexperienced cyclists or those that don't feel comfortable riding on the street.
- Shared-use paths require a significant amount of land and have several restrictive design requirements.
- In some situations, existing sidewalks can be converted to shared-use sidepaths if enough width is available to accommodate the expected level of use by both pedestrians and bicyclists.

DESIGN:

- Shared-use paths should be designed to accommodate both pedestrians and bicyclists. They should be accessible for people with disabilities.
- Where heavy use by both pedestrians and bicyclists is expected, separate paths should be planned.
- Signs should be provided at all shared-use path entrances with information on the intended trail users and the path's route. Signs can also mitigate conflicts between multiple user groups by indicating who has the right of way.
- Shared-use paths should be at least 10' wide. Paths intended for limited use may be 8' wide. 2' wide graded areas should be provided on either side of the path.
- Shared use paths on or under bridges should be 8' wide with a vertical element for separation, such as a jersey barrier or railing.
- Paths should provide frequent connections to the street network, but also have few street or driveway crossings.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Maintenance depends on the surface material of the path. Shared-use paths require inspection, sweeping and repairs.
- Shared use paths must be presented to the Philadelphia Planning Commission during conceptual design so that the Department of Streets can move forward with approval of the shared use path final design.

EXAMPLES:

- 58th Street Greenway
- K&T Trail
- Delaware River Trail
- Frankford Creek Greenway
- Cobbs Creek Trail
- Port Richmond Greenway (planned)

RESOURCES:

- AASHTO Chapter 14 Shared Use Path Design
- Shared Use Path Application - https://www.phila.gov/documents/shared-use-path-application/

TREATMENT 4.5.9

NEIGHBORHOOD BIKEWAYS

Neighborhood bikeways are streets that are modified to discourage high-speed motor vehicle traffic and accommodate bicycle traffic without using separate space for bicyclists (e.g., bike lanes). Traffic calming techniques can be used on neighborhood bikeways to lower traffic speeds and improve safety for bicyclists.

NEIGHBORHOOD BIKEWAYS TOOLBOX

Neighborhood bikeways should incorporate curb extensions, green infrastructure, and other traffic calming features to create a comfortable walking/ bicycling environment.

Greenback Sharrows

Pinch points, planters, gateway treatments, bump outs in concrete and/or painted

Speed Cushions / Tables

APPLICATION:

- Primarily residential streets with low motor vehicle speeds and volumes.
- Recommended for narrow streets, particularly with only one traffic lane and parking on both sides.
- Typically implemented within a larger community process that considers neighborhood traffic management and parking impacts.

CONSIDERATIONS:

- Neighborhood bikeways increase comfort for young, elderly, and "interested but concerned" bicyclists that may not otherwise bike for transportation. Neighborhood bikeways are an important component of a high-quality bicycle network as they make streets that may not have the available space for dedicated bike facilities more comfortable.
- Neighborhood bikeways can serve as a neighborhood route and a parallel route to arterials.
- Existing low traffic neighborhood streets can be improved to provide low cost, high quality pedestrian/bicycle connections between residential areas, parks, and other destinations.
- Should be planned as a network of routes within the City.
- May use routes that are not available to vehicles (e.g., "do not enter except bicycles" access points, trails through parks, pedestrian or bicycle bridges).
- Offset intersections require innovative design solutions.

DESIGN:

- Incorporate wayfinding signage, R4-11 signs, and shared lane markings to identify neighborhood bikeway routes. Prioritize use of greenback shared lane markings.
- Use traffic calming to make corridors more attractive for bicycling and less attractive to fast or high volume motor vehicle traffic:
  - Curb extensions at intersections (4.9.4)
  - Raised speed reducers (4.7.2)
  - Medians (4.7.5)
  - Chicanes (4.7.6)
  - Raised crosswalks (4.9.11)
  - Traffic Diverters (4.9.16)
  - Neighborhood Traffic Calming Circles (4.9.17)
  - Daylighting
- Prioritize bicycle movement on neighborhood bikeways by stop controlling cross traffic at minor street crossings and providing safe convenient crossings at major street intersections.
- Center line stripes may be removed to make it easier for vehicles to pass bicyclists, except at intersection approaches with a stop line or traffic circle.

GREEN STREET OPPORTUNITIES:

- Incorporate stormwater curb extensions (4.9.4).

ROLES & RESPONSIBILITIES:

- Pavement should be in good condition, with a smooth riding surface.
- Streets department is responsible for street sweeping and general maintenance.
- Signs and pavement markings will need periodic replacement due to wear.

EXAMPLES:

- Carpenter Lane, 15th Street (recommended)

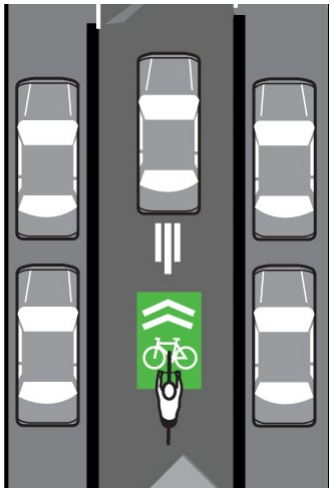
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

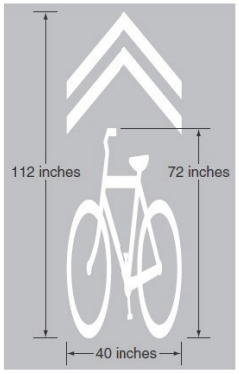
TREATMENT 4. 5.10

MARKED SHARED LANES

Marked shared lanes may be used to designate a bicycle facility on a street without sufficient width for bike lanes. Shared lane markings ("sharrows") are used to indicate the appropriate location for bicyclists to ride and alert motorists to the location of bicyclists.



Philadelphia Bicycle Map



Sharrow (MUTCD 9C-9)

Greenback Sharrow

APPLICATION:

- Shared lane markings should not be used on streets with speed limits greater than 25 mph, unless used as a short connection between dedicated trail or bikeway facilities.
- Marked shared lanes are most appropriate for lower volume, lower speed streets that are compatible with bicycling without geometric changes and for streets that provide short connections between adjacent dedicated bicycle facilities.
- For streets lacking sufficient width for conventional bike lanes, dashed bicycle lane markings with sharrows may be installed to delineate bicycle lanes.

CONSIDERATIONS:

- Marked shared lanes alert motor vehicles to the presence of bicyclists and their position in the street.
- Sharrows can help bicyclists position themselves safely in lanes too narrow for a motor vehicle and bicycle to ride side by side.
- Sharrows can help identify bicycle networks and provide connections between bicycle facilities.
- Shared Lane Markings require no additional street width.
- Dashed bicycle lane markings indicate that vehicles may use the lane space when necessary, but they must always yield to bicyclists before doing so.

DESIGN:

- Shared lanes do not require wider lane widths.
- Signs should be used to alert bicyclists and motorists if bike lanes transition to Marked Shared Lanes.
- The Shared Lane Marking in use in the U.S. is the "sharrow," illustrated in MUTCD 9C-9.
- "Bikes May Use Full Lane" signage shall be used with Shared Lane Markings (MUTCD R4-11).
- Green-backed sharrows may be used on high volume streets to enhance the visibility of the shared lane marking and to further encourage lane positioning. Refer to Treatment 4.5.11 for guidance on green paint.
- Shared Lane Markings should not be used on shoulders or in designated bicycle lanes.
- Sharrows should be placed based on the difficulty bicyclists experience in following the proper travel path. On busier streets, sharrows may be placed every 50 to 100', while on low traffic bicycle routes they may be placed up to 250' or more.
- Shared lane markings must be positioned 4' minimum from curb or the edge of the parking lane if on-street parking (4.6.1) is present (See MUTCD Section 9C.07)
- Dashed bicycle lanes shall include a dotted white line 6" wide with dashes 2'-3' long and 2'-9' gaps, a sharrow, and "Bike Lane" signage (R3-17)

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Shared lane markings should be maintained to ensure their visibility.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- Umbria, Main St and Ridge Avenue between Manayunk and the Wissahickon

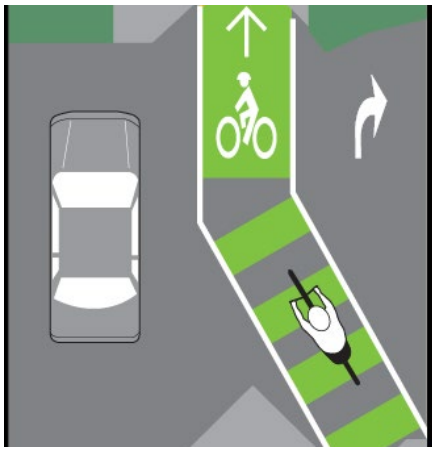
RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

TREATMENT 4.5.11

GREEN COLORED PAVEMENT

Green colored pavement can be used to identify potential bicycle/vehicle conflict areas, increase the visibility of conflict areas, and reinforce priority to bicyclists. Conflict points are locations where motorists and cyclists must cross each other's' path (e.g., at intersections or merge areas).



Philadelphia Bicycle Map

Colored pavement can increase the visibility of bike lanes in areas where parking/stopping in the bike lane is an issue.

APPLICATION:

- Green colored pavement is commonly used at intersections, driveways, and conflict areas where motorists and cyclists must cross each other's path (e.g., at intersections or merge areas).
- Green colored pavement might be applicable where extra delineation, separation, or visibility are needed in a facility.
- Green colored pavement may be considered for the following facilities and treatments:
  - Full Green Lane Markings
  - Green Backed Sharrows (4.5.10)
  - Bicycle Facility Transitions (4.5.13)
  - Bicycle Crossing Treatments (4.9.11)
  - Mixing Zones (4.9.12)
  - Bike Boxes (4.9.13)
  - Two-Stage Left Turn Queue Boxes (4.9.15)
  - Protected Intersections (4.9.19)
- Full green lane markings should only be used on Civic Ceremonial Streets or for short sections (less than 300') in the separated or high-quality bike network that need to revert to conventional bike lanes.
- Green colored pavement markings are appropriate on facilities that are separated or designated on the high-quality bike network. They are appropriate where the facility crosses a dedicated turn lane and where an intersection has a particular safety or high conflict issue or complexity.
  - If one or more of the above criteria are met, green colored pavement marking should be used at signalized or all-way stop intersections and at commercial driveways and parking garage entrance driveways.
- Green must be used for two stage turn boxes and may also be used for standard bike boxes on high quality bike routes or as determined necessary.
- Green backed sharrows should only be used on routes designated on the High Quality Bike Network.

CONSIDERATIONS:

- Green colored paint increases the visibility of bicyclists and promotes the multi-modal nature of a corridor. Green colored paint can alert motorists and bicyclists to potential areas of conflict and may increase motorist yielding behavior.

DESIGN:

- The color green is required by the MUTCD for bicycle facilities to minimize confusion with other traffic control markings.
- Standard white bike lane lines should be provided along the edges of the colored lane.
- The pavement should be skid resistant and retro-reflective.
- A "Yield to Bikes" sign (modified MUTCD R10-15) should be used at intersections or driveways where bicyclists have the right of way.
- Green colored pavement typically extends through the entire bicycle/vehicle conflict zone (e.g., through the entire intersection or through the transition zone where motorists cross a bike lane to enter a dedicated right turn lane).

Green colored pavement at the intersection of Eakins Oval and Spring Garden Street

Green colored pavement in Pine Street bicycle lane.

ROLES & RESPONSIBILITIES:

- Should be kept free of potholes, broken glass, and other debris, like all conventional bike lanes.
- Green colored pavement may require additional maintenance based on the material.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

- Transition zones on Benjamin Franklin Parkway near 20th
- Green colored pavement at conflict zones along JFK Blvd
- Facility transition at 11th Street and Bainbridge Street
- Eakins Oval and Spring Garden Street
- Green colored pavement in bike lanes on Spruce Street and Pine Street

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide

TREATMENT 4. 5.12

BIKE ROUTE SIGNS

Bike route signs guide bicyclists along preferred bicycle routes and usually provide distances and directions to common destinations. They are typically placed at decision points along bicycle routes, such as at the intersection of multiple bikeways.

Philadelphia Pedestrian & Bicycle Plan

Bicycle wayfinding signs at 13th and Pine show the direction and distance to important destinations.

APPLICATION:

- Bike route signs should be considered on streets and bicycle facilities that are part of the bicycle network.
- Bike route signs can direct users to a variety of destinations, including bikeways, commercial centers, public transit centers and stations, parks, hospitals, community destinations, and bridges.

Considerations:

- Bike route signs help familiarize users with the bicycle network and identify the best bicycle routes to destinations.
- Bike route signs indicate to motorists that they are driving along a bike route.

DESIGN:

- Bike route signs should follow MUTCD standards for mounting height and lateral placement.
- MUTCD requires bike wayfinding signs to use a green background.
- Decision signs should be placed in advance of all turns or decision points.
- Confirmation signs should be placed every ¼ to ½ mile along off-street bicycle routes or every 2 to 3 blocks along on-street routes.
- MUTCD Section 9B provides bike sign design standards, including lettering size (generally 2.25-4.5 inches).

ROLES & RESPONSIBILITIES:

- Maintenance for bike route signs is similar to other signs. They may need to be replaced periodically due to wear.
- Streets Department is responsible for street maintaining and replacing street signs.

EXAMPLES:

- 13th and Pine

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide
- MUTCD Chapter 9

TREATMENT 4. 5.13

BICYCLE FACILITY TRANSITIONS

Changes in available right-of-way, roadway conditions, or land use changes often require a need to change the type of bicycle facility. At these locations, it is important to provide a clear and safe transition from one type of bicycle facility to another.

BICYCLE FACILITY TRANSITIONS TOOLBOX

Bike Box

- A designated area that allows for bicycles to visibly get in front of vehicles in the travel lane.
- Appropriate at signalized intersections and areas with high volume of left turning bicycles

APPLICATION:

- At transition points between two different types of bicycle facilities.
- At or near intersections where bicycle facility type changes.
- At start/end points of bicycle facilities.
- At the end of a two-way bicycle facility.
- Transitions to/from on-street/off-street facilities.

CONSIDERATIONS:

- Transitions should be clear and intuitive for bikes, pedestrians, and motorists.
- Transitions should use a mix of bicycle crossing treatments included in the toolbox. Items in toolbox are general treatments. Design may be altered depending on circumstances.
- Special care is needed for two-way facilities to allow a safe way for bicycles to cross conflicting motor vehicle traffic.

DESIGN:

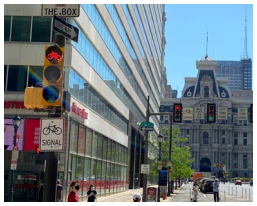
- Bicycle signals and two-stage left turn queue boxes may be needed to allow safe transitions from a two-way bicycle facility to a one-way facility.
- When transitioning from an off-road facility, such as a shared use path to an on-road facility, signage and pavements markings should be used to provide wayfinding for pedestrians and to alert drivers of bicycles entering the roadway.

Two-Stage Left Turn Queue

- Helps facilitate left turning bicycles through two stages of traffic signal.
- Appropriate at signalized intersections.

Green Paint

- Green paint facilitates changes from dedicated lanes to shared roadway facilities



Bike Signal

- Dedicated signal to control bicycle movement through intersection. Allows for separation of bicycle movements from conflicting vehicular movements.
- Appropriate where separated bike lane transitions to conventional bike lane.

Bike Route Signs

- Signs that provide wayfinding for people biking to know where the designated bike route is.
- Appropriate at transitions from on-street to off-street bicycle facilities.

ROLES & RESPONSIBILITIES:

- Colored pavement may require additional maintenance based on the material.
- Streets department is responsible for street sweeping and general maintenance.

EXAMPLES:

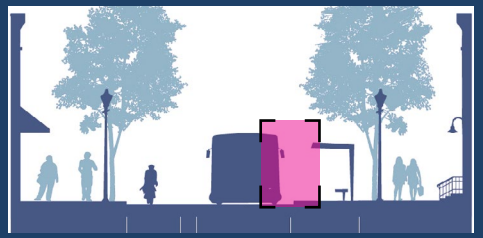
- Spruce Street & 22nd Street
- 11th Street & Bainbridge Street
- 84th Street & Lindbergh
- 19th Street & Logan Square
- Schuylkill Avenue & Chestnut Street
- Race Street & 22nd Street
- Richmond Street & Lewis Street
- Aramingo & Wheatsheaf

RESOURCES:

- NACTO Urban Bikeway Design Guide
- FHWA Separated Bike Lane Planning and Design Guide
- AASHTO Guide for the Development of Bicycle Facilities

4.6 CURBSIDE MANAGEMENT COMPONENT

The Curbside Management Component addresses facilities between the cartway and the sidewalk, including: transit stops, on-street parking, loading zones, lay-bys, and alternative uses of the curb lane. Related items: driveways (4.8 Urban Design Component), curb extensions (4.9 Intersection Component).



Lay-by lanes should be used rarely because they allow vehicles to encroach into the sidewalk area and decrease comfort and safety for pedestrians.

Loading zones should be located, designed, and enforced to limit interference with pedestrian and bicycle traffic. (30th Street Contraflow lane - Philadelphia Bicycle Coalition)

FUNDAMENTALS:

- Curbside management should limit conflicts between modes and provide a buffer between traffic and pedestrians.
- Design transit stops (4.6.5) to increase the comfort and attractiveness of transit. Transit stops should be well connected to the pedestrian network and surrounding destinations.
- Explore alternative uses of underutilized parking lanes (4.6.6) for transit stops, bicycle parking (4.4.3), streetscaping, stormwater management features (4.8.4), and pedestrian amenities such as parklets.
- Locate and design loading zones to limit interference with pedestrian and bicycle traffic wherever possible.
- Limit lay-by lanes (4.6.3) and other vehicle incursions onto the sidewalk.

POLICY:

- The Philadelphia Code Title 12-900 establishes standards and regulations for parking and loading facilities in the public right-of-way.
- SEPTA's Bus Stop Design Standards (under development) include standards for bus stop locations, geometry, and amenities.
- As part of the Transit First pilot program, the City and SEPTA are partnering to improve transit service reliability and travel time using route, stop location, and design improvements.

ROLES & RESPONSIBILITIES:

- The Streets Department Transportation Engineering and Planning Services unit reviews and approves lay-by lanes (4.6.3).
- Streets Department Traffic Engineering Division sets curbside rules.
- The Philadelphia Parking Authority regulates the use of on-street parking (4.6.1) and permits loading zones (4.6.4).
- City Planning Commission reviews Streets bills for lay-by lanes.
- SEPTA operates transit service and maintains signs at all transit stops (4.6.5.
  - Adjacent property owners are responsible for shoveling and maintaining sidewalks at transit stops.

CONTACTS:

- Streets Department
- Philadelphia Parking Authority
  http://philapark.org/contact-ppa/
- SEPTA, Chief Officer Service Planning
  cwebb@septa.org or 215-580-7974.
- City Planning Commission
  Right of Way Planner
  www.philaplanning.org

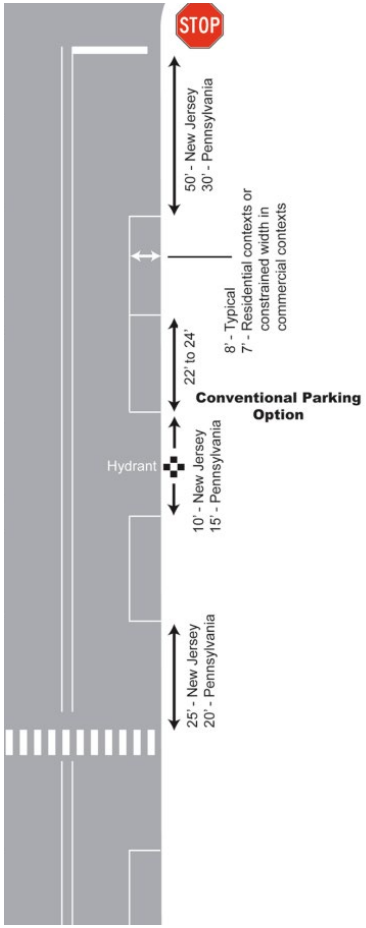
OTHER RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- PennDOT Smart Transportation Guidebook

TREATMENT 4.6.1

ON-STREET PARKING

On-street parking serves an important need for motor vehicles. Parking lanes can also help to make streets more comfortable for pedestrians and bicyclists by providing a buffer from traffic and calming traffic (reducing vehicle speeds) by narrowing the perceived width of the roadway.



Typical on-street parking design (Smart Transportation Guidebook)

APPLICATION:

- Appropriate on all street types except Shared Narrow Streets (3.10), provided that desired operating speeds are 35 mph or lower.
- Back-in angled parking should be considered on wide streets in commercial areas with lower volumes and speeds (can provide more parking spaces than parallel parking).

CONSIDERATIONS:

- Balance access and traffic calming benefits of parking lanes with negative impacts such as increased pedestrian crossing distance and decreased right-of-way available for sidewalks, bicycle facilities (4.5), and green infrastructure.

DESIGN:

- See Philadelphia Code Title 12-900 for standards and regulations for parking and loading facilities in the public right-of-way.
- The desired parking lane width in Philadelphia is 8′ (minimum is 7′). This width should be assumed on all residential streets and is acceptable on commercial streets with lower traffic volumes and parking turnover.
- Recommended parallel parking space dimensions are 7-8′ wide and 19-20′ long, designated by 4″ white lines.
- At least 1.5′ should be kept clear between the curb and any trees, poles, or other objects on the sidewalk, to allow for opening and closing car doors.
- Back-in angled parking spaces are typically 8.5′ wide. (see Smart Transportation Guidebook)

GREEN STREET OPPORTUNITIES:

- Incorporate pervious pavement and/or stormwater bumpouts (4.9.4).

ROLES & RESPONSIBILITIES:

- The Philadelphia Parking Authority regulates on-street parking and loading zones and installs and maintains parking meters and parking signs.
- Streets Department determines where parking, bus, and taxi zones are allowed.
- Streets Department installs and maintains striping for on-street parking.
- City Council establishes parking regulations.

EXAMPLES:

- Common throughout Philadelphia

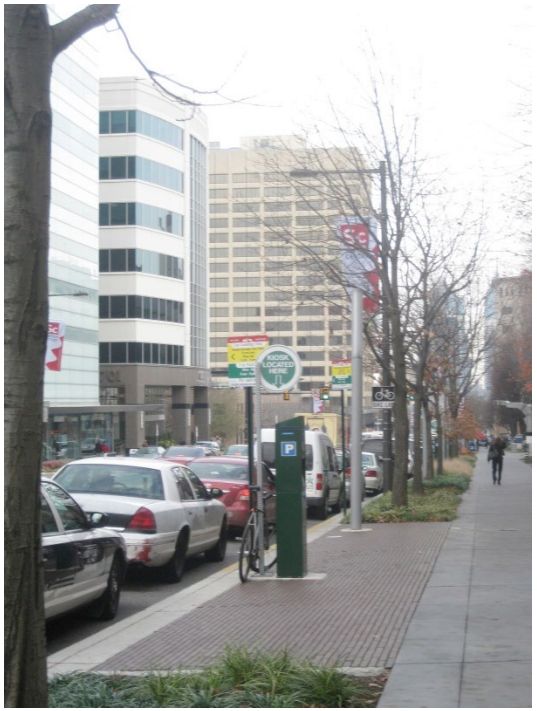
RESOURCES:

- Smart Transportation Guidebook

PEAK HOUR RESTRICTED PARKING

In peak hour restricted parking areas, on-street parking is allowed during off-peak hours and restricted during peak hours to provide an additional travel lane. Peak hour restricted parking is an important tool for managing congestion and for providing on-street parking in some areas, but requires extensive enforcement to effectively improve traffic operations. Peak hour restricted parking is generally discouraged in complete streets applications, because curb extensions cannot be used in areas with peak hour clearances. Removing parking during peak hours can also encourage higher vehicle speeds, make it difficult to access parking for nearby destinations during peak hours, and increase pedestrian crossing distances during highest traffic volumes.

In April 2010, the Chicago Department of Transportation began lifting rush hour parking restrictions on 225 of the busiest blocks in Chicago to enable streetscape additions such as curb extensions (4.9.4), as well as bicycle and pedestrian improvements.



TREATMENT 4.6.2

IN-STREET BICYCLE PARKING

In-street bike parking can be provided in the parking lane in areas where there is not enough room to fit a car, for example, in between driveways. On-street vehicle parking spaces may also be converted to provide in-street bicycle parking. One standard 20' vehicle parking space can provide parking for up to 12 bicycles on 6 standard U-racks. In-street bike parking also has the benefit of not intruding onto adjacent sidewalks.

In-street bike parking can be combined with curb extensions to provide a more protected area for bicycles and to accommodate planters or bioswales. (Bikeportland)

Philadelphia's first in-street "bike corral" was installed on Sydenham Street (off 1500 block of Walnut St.) in September 2011.

APPLICATION:

- High Volume Pedestrian Streets (3.1), Civic/ Ceremonial Streets (3.2), Walkable Commercial Corridors (3.3), City Neighborhood Streets (3.8).
- Common in walkable/bikeable commercial areas.
- Cannot be used on streets with restricted peak hour parking.

CONSIDERATIONS:

- Can be combined with curb extensions (4.9.4) to provide additional protection from errant vehicles and provide space for green infrastructure.
- Help to reduce bicycle clutter on busy sidewalks.
- Locations frequently determined by requests from surrounding businesses.
- Standard U-racks or decorative racks can be used.

DESIGN:

- Bike racks should be placed so that parked bikes are perpendicular to the curb line.
- Should be protected from vehicles by a curb, delineator posts, or other barrier at the edge of the parking lane. Where possible, racks can be placed on a curb extension (4.9.4).
- If located on a curb extension or above grade, best practice is to provide a curb ramp to allow cyclists to wheel their bicycle from the travel lane into the parking area.

GREEN STREET OPPORTUNITIES:

- Use stormwater bumpouts (4.9.4) to buffer and protect in-street bicycle parking.

ROLES & RESPONSIBILITIES:

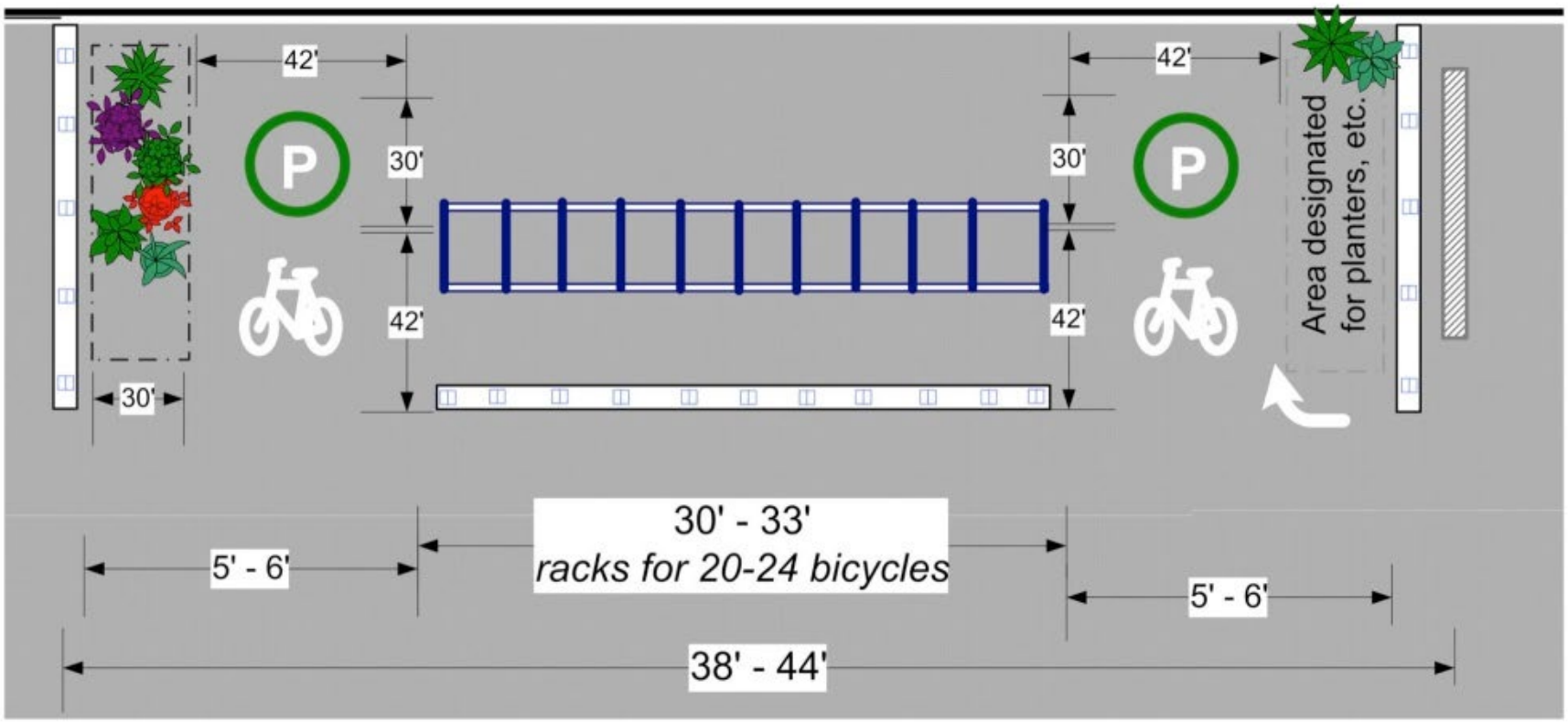
- Streets Dept will permit if local maintenance agreement is signed with adjacent property owner or another maintenance partner.
- Area cannot be reached by street sweepers or snow plows, so some additional maintenance is necessary.

EXAMPLES:

- Sydenham and Walnut

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan



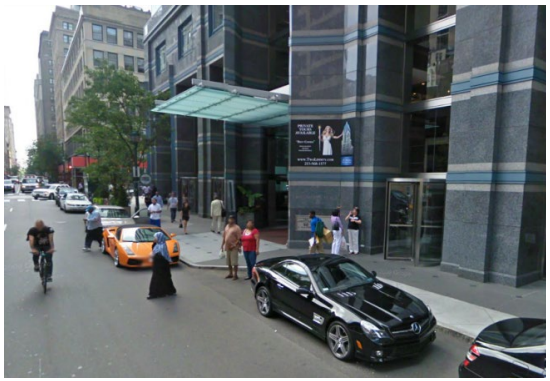
Typical downtown in-street bicycle parking design
(Portland Bureau of Transportation)

TREATMENT 4.6.3

LAY-BY LANES

Lay-by lanes are typically allowed for hotels and hospitals if there is not an adjacent parking lane that can be converted to a loading zone. Lay-by lanes are discouraged, particularly in high pedestrian traffic areas, because they encroach on sidewalk space, eliminate the Furnishing Zone, and decrease the comfort and quality of the pedestrian environment.

Lay-by lanes are generally discouraged because they allow vehicles to encroach into the sidewalk area and decrease comfort and safety for pedestrians (KAI).



APPLICATION:

- Discouraged in most instances because of loss of pedestrian space, but if there is not an adjacent parking lane that can be converted to loading, lay-bys are allowed for hospitals and often for hotels.

CONSIDERATIONS:

- Protect safety and comfort of sidewalk, especially on major pedestrian streets.
- Loading zones (4.6.4) should be used instead of lay-by lanes whenever possible.
- Lay-by lanes should be reserved for uses that have an urgent need for loading space at the entrance, such as hospitals and hotels.
- Lay-by lanes should not be permitted for residences or in high pedestrian traffic areas.

DESIGN:

- Where permitted, lanes should preserve the recommended minimum walking zone width for the Street Type (see 4.3.2), plus several additional feet to accommodate the car door and the anticipated loading activity.
- Where new buildings are constructed and a lay-by lane is desired, the full width of the existing sidewalk should be maintained adjacent to the lay-by; that is, the building should be set back at the ground floor level.
- Where a lay-by is permitted adjacent to a parking/loading lane, because of peak hour clearance, the maximum intrusion into the sidewalk should be 3'. This will prevent vehicles from double parking during off-peak hours.

ROLES & RESPONSIBILITIES:

- The Streets Department Transportation Engineering and Planning Services unit permits and approves lay-by lanes.
- Lay-by lanes are constructed and maintained by the developer or property owner.

EXAMPLES:

- 16th Street North of Chestnut (Liberty 2)
- 1400 Arch
- Pennsylvania Hospital Entrance on Spruce Street

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan

TREATMENT 4.6.4

LOADING ZONES

Loading zones are curbside areas designated for the loading and unloading of materials and passengers. Loading zones are typically located in a parking lane. Unlike lay-by lanes, loading zones do not encroach into the sidewalk, but wide trucks may intrude into adjacent sidewalks, bike facilities, or travel lanes when loading/unloading.

Passenger loading zone/parking sign near 34th St on Walnut (KAI).

Loading zones should be located, designed, and enforced to limit interference with pedestrian and bicycle traffic. (KAI - 36th Street and Market).

APPLICATION:

- Appropriate on many street types provided that desired operating speeds are 35 mph or lower.
- Generally not appropriate on Lower Density Residential Streets (3.9), Park Roads (3.6), Scenic Drives (3.7), Shared Narrow Streets (3.10) or Local Streets (3.11) in residential neighborhoods.

CONSIDERATIONS:

- Businesses can apply to the Philadelphia Parking Authority to have Loading Zones established outside of their locations.
- Loading zones should be located, designed, and enforced to limit interference with pedestrian and bicycle traffic.

DESIGN:

- See Philadelphia Code Title 12-900 for standards and regulations for parking and loading facilities in the public right-of-way.
- According to the vehicle code, all vehicles shall be parked parallel to the edge of the roadway, headed in the direction of traffic, with the wheels placed approximately six inches from the curb.
- Vehicles shall be permitted to remain in a Loading Only zone for a period of 30 minutes and in a Passenger Loading Only zone for a period of 20 minutes.
- To preserve visibility around large vehicles, loading zones should not be located at intersections.

ROLES & RESPONSIBILITIES:

- The Philadelphia Parking Authority regulates the use of on-street parking (4.6.1) and permits loading zones. Permits are valid for one year.

EXAMPLES:

- Common throughout the City

RESOURCES:

- Philadelphia Parking Authority
- http://philapark.org/permit-information/loading-zone-permits/

TREATMENT 4.6.5

TRANSIT STOPS & SHELTERS

Well-designed transit stops enhance the pedestrian environment and increase the comfort and convenience of taking transit. These stops are well-connected to the surrounding pedestrian and bicycle network and provide convenient connections to residences, jobs, and other destinations. They are designed to be accessible for individuals with disabilities boarding and alighting buses and provide amenities such as benches, shelters, and streetscaping.

Curb extensions can be used to separate transit stops from the sidewalk clear zone. (18th and JFK)

As part of the Green City, Clean Waters plan, the Philadelphia Water Department is piloting a bus shelter green roof at a bus stop near City Hall. (KAI).

APPLICATION:

- Appropriate on all street types except Shared Narrow Streets (3.10).
- Should be considered as a component of all large new development.

CONSIDERATIONS:

- Stops should be located in visible, active areas to increase security.
- Shelters and benches should be located so that they maintain minimum clear walking zone widths (see 4.3.2) and do not create pinch points.
- Transit stops can be located in curb extensions (4.9.4) to provide additional space for passenger circulation and amenities. Transit stops at curb extensions also reduce transit vehicle delay associated with merging into the adjacent traffic stream.
- Shelters and curb extensions may impact access to utilities and should be coordinated with the Committee of Highway Supervisors.
- At signalized intersections, locating transit stops at the far side of the intersection may help improve pedestrian and vehicle circulation.
- SEPTA does not prefer midblock stop locations unless serving a major destination.

DESIGN:

- For specific guidance and standards regarding SEPTA bus stop design, please refer to SEPTA's Bus Stop Design Standards (under development).
- SEPTA standard bus stop length is 60' for standard buses and 90' for articulated buses.
- SEPTA works with Streets Department to determine the size of transit stops given peak hour passenger/vehicle demand and other needs on the block.
- Provide adequate lighting (4.4.4) to allow safe boarding and de-boarding from the vehicle and general safety to passengers waiting.
- Install signs to provide an adequate level of information, based on the type of stop.
- If a shelter is provided, the shelter must include both a bench and a clear ADA compliant waiting area (minimum 5'x8') that is suitable for a wheel chair to be positioned out of the weather.
- Benches and wheel chair waiting areas should not conflict with areas where access to signs or pamphlets would be placed.
- Place shelters in such a fashion so they do not conflict with movement of passengers who are boarding and de-boarding the vehicle with particular care for wheel chair dimensions and turning radii.
- Assure the placement of shelters does not block the critical sight lines of the bus/trolley operators.

GREEN STREET OPPORTUNITIES:

- Place stops on stormwater bumpouts (4.9.4).

ROLES & RESPONSIBILITIES:

- Transit shelters are installed and maintained by a private company through contract with the City.

EXAMPLES:

- JFK at 17th Street - stop located on a long curb extension.
- 8th Street at Walnut - far side stop instituted with the Route 47 pilot.
- Ogontz Avenue at Andrews Avenue southbound - stop is long to accommodate articulated buses and is well defined, including street markings.

RESOURCES:

- SEPTA Bus Stop Design Standards
- SEPTA Service Standards provides guidance on stop frequency

TREATMENT 4.6.6

ALTERNATIVE USES OF THE PARKING LANE

Parking lanes can be temporarily or permanently converted to other uses that enhance the pedestrian environment, including parklets, planters, or cafe/restaurant seating.

Parklets and cafes in the parking lane create public space and "activate" streets without encroaching on clear sidewalk space. (Source: Ryan Collerd)

Railings, curbs, or delineator posts should be used to protect flexible parking lane uses from errant vehicles.

APPLICATION:

- High Volume Pedestrian Streets (3.1), Civic/Ceremonial (3.2), Walkable Commercial Corridors (3.3), City Neighborhood Street (3.8).
- Common in walkable/bikeable commercial areas.
- Cannot be used on streets with restricted peak hour parking.

CONSIDERATIONS:

- Provides additional flexibility for streets with narrow sidewalks, where there is not space to accommodate planters (4.4.8), or sidewalk cafes (4.4.6) while maintaining adequate clear walking space.
- Can help to visually narrow the roadway and calm traffic landscaped.

DESIGN:

- Flexible use of the parking lane should generally utilize the full width of the parking lane and at least one full parking space.
- Cafes, planters, and other alternative parking lane uses should not extend beyond the width of the parking lane.
- Improvements in the parking lane should be protected from errant drivers by a curb, delineator posts, or other fixed object.
- Plantings and furnishings in the parking lane should not create conflicts with passing vehicles in the adjacent travel lane.
- Where in-street planting is designed for stormwater infiltration, the curb should include breaks to allow stormwater to enter and overflow stormwater to exit when the basin is at infiltration capacity.
- Flexible uses of the parking lane should not block bicycle lanes, transit routes and stops, or accessible parking spaces.

GREEN STREET OPPORTUNITIES:

- Green infrastructure (stormwater management 4.8.4) features that can be incorporated into design.

ROLES & RESPONSIBILITIES:

- Adjacent property owner is responsible for maintenance after obtaining approval for the installation.
- Generally requires additional parking management by the City or a local partner such as a neighborhood association.

EXAMPLES:

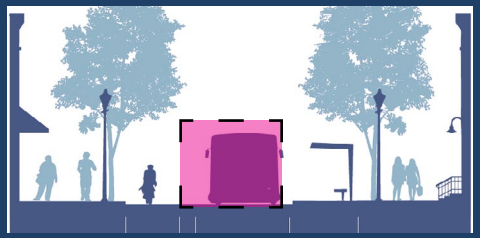
- Green Line Café, University District.

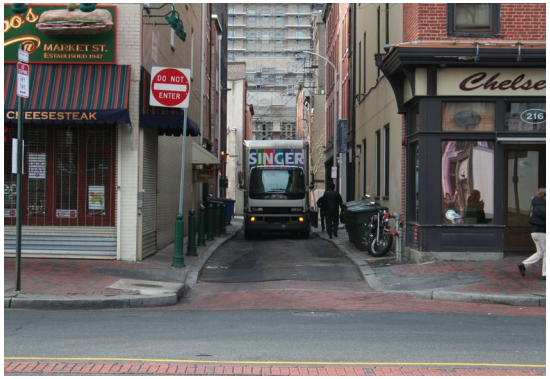
RESOURCES:

- San Francisco Better Streets Plan

4.7 VEHICLE/CARTWAY COMPONENT

The Vehicle/Cartway Component addresses the portion of the public right-of-way that is intended primarily or exclusively for motor vehicle use, including travel lanes. Intersection design treatments are addressed in the Intersections and Crossings Element. Related items: Marked Shared Lanes (4.5 Bicycle Component), Pedestrian Priority Streets (4.3 Pedestrian Component), Driveways (4.8 Urban Design Component).





Many Philadelphia streets have lanes as narrow as 9'.

Wide vehicle travel lanes create additional impervious surface and may encourage higher vehicle speeds.

FUNDAMENTALS:

- Balance vehicle mobility with the mobility and access needs of other roadway users.
- Promote speeds that are appropriate for the street type and the surrounding context using cartway and streetscape design.
- Minimize roadway width while maintaining multi-modal transportation access and amenities. Consider emergency vehicle access on all streets. Consider freight and transit access on designated routes.
- Provide multiple alternative routes to and from destinations.
- Connect and extend the street grid wherever possible when developing new roads.

POLICY:

- Subdivision street standards are established in the Philadelphia Zoning Code Section 14-708, which only covers a small portion of new development.
- Signs, striping, and other traffic control devices must be installed in accordance with current MUTCD standards.
- The Philadelphia Green Street Design Manual establishes design guidelines for green stormwater infrastructure improvements in the furnishing zone.

ROLES & RESPONSIBILITIES:

- Mayor's Office of Transportation and Utilities coordinates all improvements to the public right-of-way.
- Streets Department constructs and maintains vehicle facilities in the public right-of-way.
- Planning Commission reviews subdivision plats.
- Water Department reviews stormwater infrastructure design.

CONTACTS:

- City Planning Commission
  Right of Way Planner
  www.philaplanning.org
- Philadelphia Streets Department
  www.phila.gov/streets/

OTHER RESOURCES:

- PennDOT Smart Transportation Guidebook
- ITE Designing Walkable Urban Thoroughfares
- Philadelphia Green Street Design Manual
- AASHTO Policy on Geometric Design of Highways and Streets

TREATMENT 4.7.1

LANE WIDTH

Restriping to reduce travel lane widths (e.g., from 11' to 10') can help free pavement width to accommodate pedestrian, bicycle, or transit facilities without widening the roadway or acquiring additional right-of-way. Travel lane width also influences vehicle speeds, maneuverability, and urban design. Due to the historic nature of many streets in Philadelphia, many streets throughout the City have 9' travel lanes, which contribute to creating a pedestrian friendly environment.

In some areas travel lanes may be removed or narrowed to accommodate complete street facilities.

Outside lanes may be wider to accommodate buses, trucks, and bicycles.

APPLICATION:

- Appropriate on all street types.
- Judgment should be exercised when narrowing lane width on freight, transit, or emergency service routes.

CONSIDERATIONS:

- Research done on urban and suburban arterials for the AASHTO Highway Safety Manual found that the width of travel lanes did not have an impact on the number of crashes on roadway segments.
- The 2010 Highway Capacity Manual (HCM) provides analysis of the operational impacts of narrowing travel lanes.
  - At signalized intersections, there is no operational (saturation flow) difference between lane groups with an average width of 10 to 12.9' (HCM Exhibit 18-13).
  - On multilane highway segments with speeds of 45-60 miles per hour, free flow speeds decrease by an average 1.9 and 6.6 miles per hour on 11 and 10' lanes, respectively, compared to 12' lanes (HCM Exhibit 14-8).
- The AASHTO Green Book recommends 12' lanes on high speed principal arterials; narrower lane widths are adequate and have some advantages on roads with interrupted flow and/or operating speeds less than 45 mph.
- On freight, transit, and emergency response routes, inside travel lanes may be narrowed, but 11' outside lanes may be preferred to prevent larger vehicles from encroaching upon bicycle and pedestrian facilities.
- Lane widths should be selected to balance safety, access, and comfort for all modes.
- Narrower lane widths (less than 11 feet) can be used in urban street improvement projects to provide additional space to relieve traffic congestion or address specific accident patterns (Harwood, 1990)

DESIGN:

- Standard lane width in Philadelphia is 10-12'.
- Preferred cartway widths provide 8' parking lanes on both sides of the street and 10' travel lanes (Paving plan guidelines)
- The Philadelphia Zoning Code (Section 14) establishes minimum street widths for new subdivisions, which are a small proportion of new development.
- On SEPTA transit routes, one lane in each direction should be 11' wide.
- On primary truck routes, one lane in each direction should be 11' wide.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- Lane striping and pavement is maintained by Streets Department

EXAMPLES:

- Narrow travel lanes are common throughout Philadelphia

RESOURCES:

- 2010 Highway Capacity Manual
- AASHTO Highway Safety Manual

TREATMENT 4.7.2

TRAFFIC CALMING

Speeding is a major safety concern throughout the City. Traffic calming treatments can help reduce speeding and create safer and more comfortable streets for all users. Traffic calming can be applied at a neighborhood, corridor, or spot location level. This section details some of the traffic calming treatments that may be employed.

Signs and pavement markings serve as a gateway to the slow zone (Source: NYCDOT)

Parking restrictions at corners help improve sight lines (Source: KAI)

APPLICATION:

- Generally appropriate for all street types.
- May not be appropriate on streets with steep uphill or downhill grades (15% or more).
- Community members can apply to the Philadelphia Slow Zone Program which establishes a 20 mph zone on residential streets and accompanying traffic calming treatments.
- The Philadelphia Slow Zone program is applicable on one-way streets with one lane and two-way streets without a painted centerline. State highways and arterials are not eligible.

CONSIDERATIONS:

- All treatments should be designed to allow for easy access by emergency vehicles, garbage trucks, snow plows, and delivery vehicles.
- All treatments should be designed to allow people on bikes to comfortably navigate.
- Consider vehicle speeds, roadway type, context, and volumes to select the appropriate traffic calming treatments. Refer to the designated sections of this manual for more information about the considerations and design of each treatment.
- Slow Zone areas should be no larger than approximately six blocks in area.

DESIGN:

- Horizontal deflection:
  - Curb extension (see 4.9.4)
  - Chicane (see 4.7.5)
  - Gateway
  - - Signs and pavement markings that establish a slow zone area and notify drivers to slow down.
  - Neighborhood Traffic Calming Circle (see 4.9.17)
  - Pedestrian Median Refuge (see 4.9.5)
- Vertical Deflection:
  - Raised speed reducers (speed cushions, speed slots, and speed tables) (see 4.7.3)
- Physical obstruction:
  - Traffic diverters (see 4.9.16)
- Signing and Pavement Marking:
  - Lane width (see 4.7.1)
  - Corner clearances/daylighting
  - - Prohibit parking within 20' of the crosswalk or intersection to increase visibility. Established with pavement markings and delineator posts.
  - - Provides opportunity for street art inside edge line.
- Other:
  - Changing street direction
  - - May reduce cut-through traffic
  - - Require a traffic study and community approval
  - Traffic signal timing (see 4.9.7)

GREEN STREET OPPORTUNITIES:

- May include green infrastructure in curb extensions

ROLES & RESPONSIBILITIES:

- Installed by Streets Department.
- Gutters must be kept clear for proper drainage.
- SEPTA must review speed humps on transit routes.
- If applying for Slow Zone program, community members are responsible for submitting application. Streets Department will help with selection and design of traffic calming treatments.

EXAMPLES:

- Fairhill Neighborhood Slow Zone
- Willard Elementary School Slow Zone

RESOURCES:

- Philadelphia Neighborhood Slow Zones
- PennDOT PUB 383: Traffic Calming Handbook
- FHWA Traffic Calming ePrimer

TREATMENT 4.7.3

RAISED SPEED REDUCERS

Speed reducers are midblock traffic calming devices that create raised areas of the roadway that deflect the wheels and frame of a traveling vehicle to reduce vehicle speeds. These include speed cushions and speed slots that have wheel cutouts to allow passage of large vehicles, and speed tables that raise the entire wheelbase of the vehicle.

Signs and pavement markings should be used to warn approaching vehicles of raised speed reducers. (streetsblog)

Speed tables are used on 34th Street south of Walnut Street to slow approaching vehicles before a midblock pedestrian crossing.

APPLICATION:

- Varies - see Table 1

CONSIDERATIONS:

- Use with care on streets that are designated transit, freight, snow emergency routes.
- May be requested by communities and approved based on speed and engineering study.
- Consider noise impacts

DESIGN:

- Typically 3 to 4 inches above the roadway surface.
- Speed slots/cushions extend across one direction of travel from the centerline, with longitudinal gap provided to allow wide wheel base vehicles to avoid going over the hump.
- Speed tables are typically 22 to 30' long.
- Warning signs and pavement markings should be used to alert roadway users and snow plows of speed reducers.
- Speed reducers should be spaced to maintain desired operating speeds.

ROLES & RESPONSIBILITIES:

- Installed by Streets Department. Maintained by local partner in some circumstances.
- Gutters must be kept clear for proper drainage.
- SEPTA must review designs for speed reducers on transit routes.

EXAMPLES:

- 34th Street south of Walnut St

RESOURCES:

- US Traffic Calming Manual

TREATMENT 4.7.4

MEDIANS

Medians separate different lanes or directions of traffic within the roadway. Medians may be painted, raised concrete islands, or landscaped boulevards. Medians provide an opportunity for plantings and green infrastructure (See also pedestrian refuge islands 4.9.5).

Medians provide benefits for vehicles and pedestrians as well as an opportunity for green infrastructure (Neighbors of Overbrook Association).

Painted medians provide some traffic calming benefits, but do not provide a protected refuge for pedestrians.

APPLICATION:

- Raised medians should be considered at all pedestrian crossings where total roadway width exceeds 60' (DM2).
- Two-way multilane streets.

CONSIDERATIONS:

- Design should account for changes in traffic circulation and emergency vehicle access so that vehicles are not diverted onto inappropriate routes.
- Should be designed to discourage vehicles from encroaching onto them.
- Include permeable surfaces, planters (4.4.8), or trees (4.4.7) wherever possible to reduce encroachment, calm traffic, and provide green infrastructure.
- The height of plantings near intersections should be restricted so that sight lines are not obstructed.
- Placement should consider locations of underground utilities (4.8.2).

DESIGN:

- Treatments and widths vary based on design.
- Recommended at least 6' in width, preferably 8' if serving as pedestrian refuge.
- See pedestrian refuge island design guidance (4.9.5).

GREEN STREET OPPORTUNITIES:

- Incorporate plantings or stormwater planters (4.4.9).

ROLES & RESPONSIBILITIES:

- Developer is responsible for maintaining landscaped medians. This requires an agreement with the City.

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- US Traffic Calming Manual

TREATMENT 4.7.5

CHICANES

Chicanes are staggered curb extensions used to narrow the roadway and create an "s"-curving roadway alignment. By making it difficult for vehicles to travel in a straight line, chicanes can calm traffic on roadway segments or midblock locations.

The Better Blocks Philadelphia project created temporary chicanes and other traffic calming features on Webster Street.

Chicanes are used for traffic calming and stormwater management, particularly near parks in Portland, OR. (streetsblog).

APPLICATION:

- Narrow, low-volume roads with a maximum of two travel lanes and a history of speeding issues.

CONSIDERATIONS:

- Include permeable surfaces or planters (4.4.8) wherever possible to reduce encroachment and provide green infrastructure.
- The height of plantings near intersections should be restricted so that sight lines are not obstructed.
- Placement should consider locations of underground utilities (4.8.2).
- May require loss of on-street parking (4.6.1). Alternatively, on-street parking may be used on alternating sides of the street to create a chicane effect.
- May impact drainage or require catch basin relocation if not designed to capture stormwater.
- Avoid on bus, freight, or emergency services routes.

DESIGN:

- See curb extensions design guidance (4.9.4)
- Warning signs and pavement markings should be used to alert roadway users and snow plows of chicanes.

GREEN STREET OPPORTUNITIES:

- Incorporate stormwater planters.
- ROLES & RESPONSIBILITIES:
- Developer is responsible for maintaining landscaped chicanes. This requires an agreement with the City.

EXAMPLES:

- South of South Street Better Blocks Project

RESOURCES:

- US Traffic Calming Manual

TREATMENT 4.7.6

BUS LANES

Bus lanes are travel lanes dedicated for preferential or exclusive use by public transit buses. Bus lanes can improve bus speeds and service reliability by removing buses from congested mixed traffic lanes and eliminating the need to merge in and out of mixed traffic lanes when serving stops. As a result, they may help make transit a more attractive transportation option.

Bus lanes eliminate the need for buses to merge in and out of traffic and may help improve service reliability.

APPLICATION:

- Streets with priority bus service or high bus volumes and traffic congestion.

CONSIDERATIONS:

- Also serve as a route for emergency vehicles to bypass traffic.
- May result in loss of parking, if designated in curbside lane.
- Avoid on streets where roadway geometry prevents safe operation of bus lanes in conjunction with other necessary roadway uses.
- Bus lanes may be used as shared bike lanes (4.5.10) in limited situations, but should be generally avoided due to safety concerns.

DESIGN:

- Delineated from other travel lanes in the roadway using markings and/or colored pavement.
- Identified with "Bus Only" pavement marking, signing, and striping (MUTCD).
- SEPTA criteria for installing bus lanes are bus volume, passenger volume, traffic volume, and delay.
- Can run along the curbside or adjacent to the parking lane. If adjacent to the parking lane, stops can be made at the curb or bus bulbs.
- Consider queue-jump lanes where buses need to merge with mixed traffic (at choke points or end of bus lane) and at priority turn locations.
- When conditions permit, consider constructing concrete bus lanes to improve longevity.
- At intersections, signing and markings should make it clear if turns from the bus lane are prohibited or if cars can enter the lane to make right turns.

GREEN STREET OPPORTUNITIES:

- Consider using pervious pavement.

ROLES & RESPONSIBILITIES:

- SEPTA and Streets Department operate and maintain bus only lanes.

EXAMPLES:

- Shared bus/bike only lane on Chestnut Street in Center City

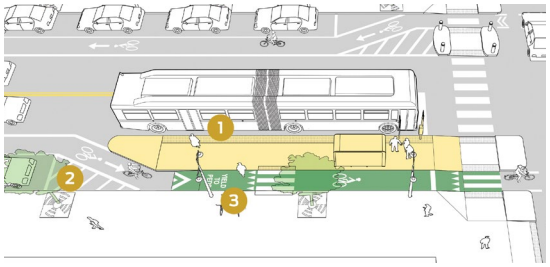
RESOURCES:

- SEPTA Design Guidelines
- TCRP Report 118: BRT Practitioner's Guide
- TCRP Report 100: Transit Capacity and Quality of Service Manual

TREATMENT 4.7.7

FLOATING BUS STOP

Floating bus stops are dedicated waiting and boarding areas for transit riders that can improve transit service by eliminating the need for buses to leave and re-enter the travel lane. These stops also provide physical separation between a curb-side bike lane and the travel lane.



Example diagram of near-side floating bus stop (Source: NACTO)

Floating bus stop on Washington Street, Chicago (Source: NACTO)

APPLICATION:

- On corridors with moderate to high transit frequency and ridership.
- On streets with existing or planned bike lanes.
- At locations where existing sidewalk space is limited for high passenger and pedestrian volumes.

CONSIDERATIONS:

- In-lane stops reduce transit vehicle dwell times and may reduce stop delay between 5 to 20 seconds per locations. Delay reductions are higher in locations with more traffic congestion.
- Buses and bicycles have their own dedicated space, which helps avoid conflict points when buses need to merge across bike lane to access curb.
- Boarding islands provides dedicated space for transit riders to wait. This allows for more room for stop amenities while maintain a clear pedestrian path on the sidewalk.
- Boarding island must be designed in compliance with ADA regulations.

DESIGN:

- May be designed for near-side, far-side, and mid-block bus stops.
- Floating bus stop must be designed to permit accessible boarding. Platform height should be 9.5 to 12 inches to allow for level boarding.
- There must be an accessible boarding area, typically 8 feet wide by 5 feet long.
- Bikes should yield to pedestrians crossing the bike lane. A BIKES YIELD TO PEDESTRIANS sign (MUTCD R9-6) and yield line markings should be installed.
- An accessible platform ramp may have a maximum slope of 1:12 at the crosswalk or other crossing location.
- Detectable warning surfaces must be placed on both sides for every bike lane crossing.
- Bike lane may be raised to boarding area level. Bike ramp should have a maximum slope of 1:8.
- Floating bus stop should have a minimum length of 30' to accommodate standard bus. 50' is needed for articulated buses.

GREEN STREET OPPORTUNITIES:

- Opportunity to incorporate stormwater planters. Boarding island must remain fully accessible.

ROLES & RESPONSIBILITIES:

- Developer is responsible for maintaining landscaped chicanes. This requires an agreement with the City

EXAMPLES:

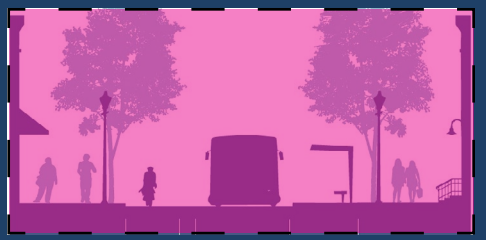
- Floating bus stops have been installed in various other cities.

RESOURCES:

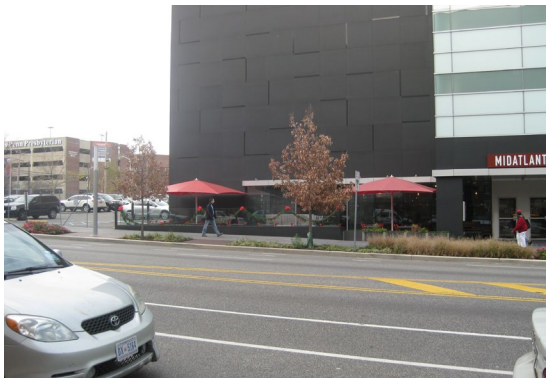
- NACTO Transit Street Design Guide
- DVRPC Bus Stop Design Guide (upcoming)
- SEPTA Typical Design Detail (upcoming)
- PPTA Building Better Bus Stops
- PROWAG

4.8 URBAN DESIGN COMPONENT

The Urban Design Component addresses policies related to those aspects of urban form that affect complete streets. These aspects may include but are not limited to: building setbacks; location of surface parking with respect to lot layout; driveways; and encouraging active street-facing uses. Related items: architectural features (4.4 Building & Furnishing Component), on-street parking (4.6 Curbside Management Component).



Active street uses add interest to a street, encourage walking and bicycling, and may increase safety through additional "eyes on the street".



Street level building setbacks can be adjusted to create pedestrian plazas, which provide an amenity for pedestrians and businesses

FUNDAMENTALS:

- Activate streets by encouraging windows, storefronts, and other active uses facing the street, rather than blank walls or parking lots.
- Use pedestrian scale design elements (e.g., lighting, setbacks) to increase pedestrian safety and comfort and encourage walking and bicycling.
- Manage access on streets to reduce pedestrian/bicycle conflicts with vehicles at driveways and intersections.
- Building entrances/exits and pedestrian paths should be oriented to direct pedestrians to controlled intersection crossings.

POLICY:

- The Philadelphia Zoning Code Chapter 14 establishes standards for urban form and design for all areas of the City.

ROLES & RESPONSIBILITIES:

- City Planning Commission Urban Design Division is responsible for guiding the design and visualization of public policies developed by the City Planning Commission. The goal of the Division is to maintain and enhance the livability, human scale, and cultural treasures of Philadelphia.
- Zoning Code Commission recommends amendments to the Philadelphia Zoning Code to make the Code consistent and easy to understand, and to enhance and improve Philadelphia's city planning process while encouraging development and protecting the character of Philadelphia's neighborhoods.
- Zoning Board of Adjustments must hear all variance requests. Very few administrative adjustments are allowed.

CONTACTS:

- City Planning Commission Urban Design Division: www.philaplanning.org
- Zoning Code Commission: http://zoningmatters.org/commission

OTHER RESOURCES:

- Philadelphia Zoning Code: http://zoningmatters.org/phila/resources
- Public Right of Way Access Guidelines
- http://www.access-board.gov/prowac/

TREATMENT 4.8.1

DRIVEWAYS

The width, spacing, number, and location of driveways impacts urban design and safety for all roadway users. The Planning Commission has developed guidelines for residential driveways and garages that balance the interests of new development and existing communities. These guidelines seek to safeguard existing neighborhood character, sidewalk safety and maintain on-street parking resources.

Many streets and homes in Philadelphia were not designed to accommodate driveways. Curb cuts can actually reduce overall parking capacity by eliminating on-street parking spaces. (PPC Rowhouse Manual).

Driveways onto major streets should be limited, particularly in high pedestrian traffic areas, due to conflicts created with pedestrians and vehicles.

APPLICATION:

- Code limits or prohibits driveways on certain pedestrian streets in Center City and on Kelly Drive.

CONSIDERATIONS:

- Driveways should be limited on streets with significant pedestrian and vehicular traffic, in order to minimize the potential for conflicts and collisions.
- In residential areas, curb cuts to create driveways make the parking supply less efficient and can even reduce overall parking capacity by eliminating on-street parking spaces.
- The Philadelphia Pedestrian and Bicycle Plan recommends limiting the number of driveways to no more than two driveways for every 200' of lot frontage per property.
- Parking facility access to these streets: Chestnut, Walnut, Locust, Spruce east of Broad, Broad, Market, and the Parkway, is limited under the zoning code and should be provided from the side or rear, preferably through service streets.
- In residential areas, permeable paving can be used for driveways, or a center green vegetative strip can reduce the impervious surface. (Best Practice: Boston, MA)
- When driveways are placed on streets with curb parking, leftover spaces of less than 15' long may be created that are too short to park a car at the curb. These spaces can be combined with the furnishing zone and greened with planters (4.4.8), vegetation strips, or tree wells (4.4.7).
- Maintain adequate sight distance.

DESIGN:

- More than one driveway per 100' is discouraged.
- Driveways should be at least 150' from the approach to a signalized intersection, 60' from the approach to a stop controlled or uncontrolled intersection, and 60' from the exit (downstream corner) of any intersection, as measured from the stop bar to the outer edge of the curb cut (excludes flare). Refer to requirements in the Traffic Engineering Standards and Right-of-Way Improvement Standards.
- City policy is to locate driveways on service streets to the extent possible rather than on important traffic or pedestrian streets.
- PCPC policy: Parking pads or garages should be placed at rear of houses unless parcel is not deep enough or front parking is the predominant existing pattern in the adjacent neighborhood and on the specific block.
- Driveways that cross the sidewalk must be at the same level as the sidewalk. The driveway material must change at the building line to demarcate the transition to the sidewalk.
- Sidewalks should be visually continuous across driveways with a cross maximum cross slope of 2% to indicate pedestrians have the right-of-way.
- All driveways must meet ADA requirements. Curb returns for driveways are prohibited because they create tripping hazards.
- Driveways should be at least 18' deep past the right-of-way line, so that vehicles do not encroach onto the sidewalk.
- Curb cuts must be located a minimum of 8' from any right-of-way intersection.
- Minimum 6' separation between adjacent driveway aprons, 10' preferred (paving plan guidelines)
- Driveways for single-family residences should not exceed 12' in width. Two-way driveways should not be wider than 24', and non-single-family one-way driveways should not be wider than 14'.

- Exemptions may be permitted for driveways to loading bays where the cartway is less than 40' wide, or where the applicant shows that the design vehicle needs additional space for the required movements.

- Curb cut widths for driveways serving off-street parking areas:
  - Single Garage – 10 feet
  - Double or Two Garages – 18-20 feet
  - Service Drive One Way – 12 feet
  - Service Drive Two Way – 20 feet
- Garages and curb cuts should be mirrored/paired to lessen the impact on the street and preserve on-street parking.
- Signs, mirrors, flashing lights, or other warning signals may be needed at garage exits where they cross the sidewalk. It should always be clear that vehicles must yield to pedestrians on the sidewalk. Stop signs should be used where sight distance is restricted.

GREEN STREET OPPORTUNITIES:

- Incorporate pervious pavement.

ROLES & RESPONSIBILITIES:

- Adjacent property owners are responsible for maintenance of driveways.

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- Philadelphia City Planning Commission Guidelines for Residential Driveways and Garages

TREATMENT 4.8.2

UTILITIES

Gas, water, electric, and other utilities are necessary services with transmission lines that are concentrated within the public right-of-way. Both overhead and underground utility placement must be considered when planning, designing, and constructing street improvement projects.

APPLICATION:

- Appropriate on all street types.

CONSIDERATIONS:

- Curb extensions and stormwater bumpouts (4.9.4) may make accessing underground utilities more difficult and expensive. Curb extensions areas may need to be surfaced or replanted after utility work is completed.
- Street trees, lighting, and other furnishings should be selected and placed to accommodate any overhead utilities.

DESIGN:

- All street improvements that require opening the street must be reviewed and approved by the Committee of Highway Supervisors, which includes representatives from the utility companies.

ROLES & RESPONSIBILITIES:

- See specific street element or design treatment.

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- Committee of Highway Supervisors: www.phila.gov/streets/Committee_of_Supervi.html

TREATMENT 4.8.3

CONSTRUCTION DISRUPTION

Construction within the public-right-of-way and on adjacent properties often blocks sidewalks and disrupts pedestrian and bicycle travel. As a result, construction disruptions in the public right must be strictly permitted and enforced to preserve pedestrian safety and comfort.

Construction within the public right-of-way or that extends into or over the sidewalk must provide the minimum clear sidewalk width (4.3.2) or an alternative accessible path.

APPLICATION:

- Appropriate on all street types.

CONSIDERATIONS:

- Construction within the public right-of-way or that extends into or over the sidewalk must provide the minimum clear sidewalk width (4.3.2) or an alternative ADA compliant accessible path.
- Construction within the public right-of-way or that extends into or over a bicycle facility must provide an alternative bicycle accommodation.

DESIGN:

- Chapter 11-600 of the Philadelphia Streets Code addresses construction, encroachments, and projections over, on, and under streets.
- MUTCD provides standards for work zone signs and traffic controls.
- Paving plan guidelines: Where the existing footway is disturbed due to curb replacement, the footway must be replaced from the back of curb to the first joint in the footway.

ROLES & RESPONSIBILITIES:

- Streets Department is responsible for permitting and enforcing construction disruptions within the right-of-way.

EXAMPLES:

- Common throughout Philadelphia

RESOURCES:

- PennDOT Work Zone Manual publication 213
- MUTCD

TREATMENT 4.8.4

STORMWATER MANAGEMENT

PWD is committed to a balanced "land-water-infrastructure" approach to achieve its watershed management goals. This method focuses on implementation of a range of land-based stormwater management techniques, including green infrastructure that can be incorporated into complete streets improvements. This approach helps achieve regulatory compliance objectives in a cost-effective manner.

Porous pavement on Percy Street.

Stormwater planter.

APPLICATION:

- Appropriate on all street types.

CONSIDERATIONS:

- Green stormwater infrastructure includes a range of soil-water-plant systems that intercept stormwater, infiltrate a portion of it into the ground, evaporate a portion of it into the air, and in some cases release a portion of it slowly back into the sewer system. Green infrastructure techniques that may be incorporated with complete streets include:
  - Stormwater planters
  - Stormwater tree pits and tree trenches
  - Stormwater bumpouts
  - Permeable pavers
  - Porous pavement
  - Green gutters

DESIGN:

- See PWD's Green Street Design Manual
- See Street Trees
- See Curb Extensions p.ZZ

ROLES & RESPONSIBILITIES:

- PWD reviews green stormwater infrastructure design.

EXAMPLES:

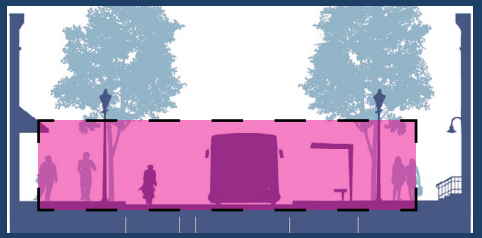
- See stormwater planters and curb extensions

RESOURCES:

- Philadelphia Green Streets Manual
- Philadelphia Stormwater Management
- Guidance Manual

4.9 INTERSECTION & CROSSING COMPONENT

The Intersection & Crossing Component addresses design treatments to facilitate safe movement of all modes at intersections. This component includes treatments that influence the safety, function, and quality of intersections and street crossings for all users, including intersection geometry, pavement markings, and traffic signals. Related items: Curb ramps (4.3 Pedestrian Component), medians (4.7 Cartway Component), transit stops (4.6 Curbside Management), lighting (4.4. Building & Furnishing Component).



Intersections should be designed to accommodate all users and minimize exposure to conflicts. (Source: KAI)

Complex intersections can be redesigned to eliminate conflict points and create an opportunity for public space and green infrastructure. (Adapted from San Francisco Better Streets Guide)

FUNDAMENTALS:

- Design intersections to reduce conflicts between modes and promote pedestrian and bicycle safety and comfort.
- Make intersections and crossings accessible (as required by ADA) by installing curb ramps (4.3.3) and providing adequate time to cross (4.9.6).
- Keep pedestrian crossing distances as short as possible to reduce exposure and increase safety.
  - Narrow streets or travel lanes (4.7.1)
  - Extend curbs or reduce radii (4.7.4, 4.7.3)
  - Break up long crossings with medians or refuge islands(4.7.3, 4.9.5),
- Consider providing frequent crossing opportunities:
  - Pedestrians take the most direct route to destinations and should have a safe crossing opportunity every 300 - 500'.
  - Crossings at intersections are generally adequate in downtown and other areas where city blocks are 500' long or less.
- Reduce vehicle speeds and increase visibility at intersections to decrease the number and severity of crashes.
- Simplify complex intersections. Where possible, convert skewed intersections to right angles and convert slip lanes to public space.

POLICY:

- The FHWA Manual on Uniform Traffic Control Devices (MUTCD) establishes national standards for signing, pavement markings, and signals at intersections.
- The current Federal Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way provides standards for the design, construction, and alteration of intersection facilities to ensure accessibility for pedestrians with disabilities.
- The Philadelphia Code Title 12-1200 establishes standards and regulations related to traffic control devices on City operated streets.

ROLES & RESPONSIBILITIES:

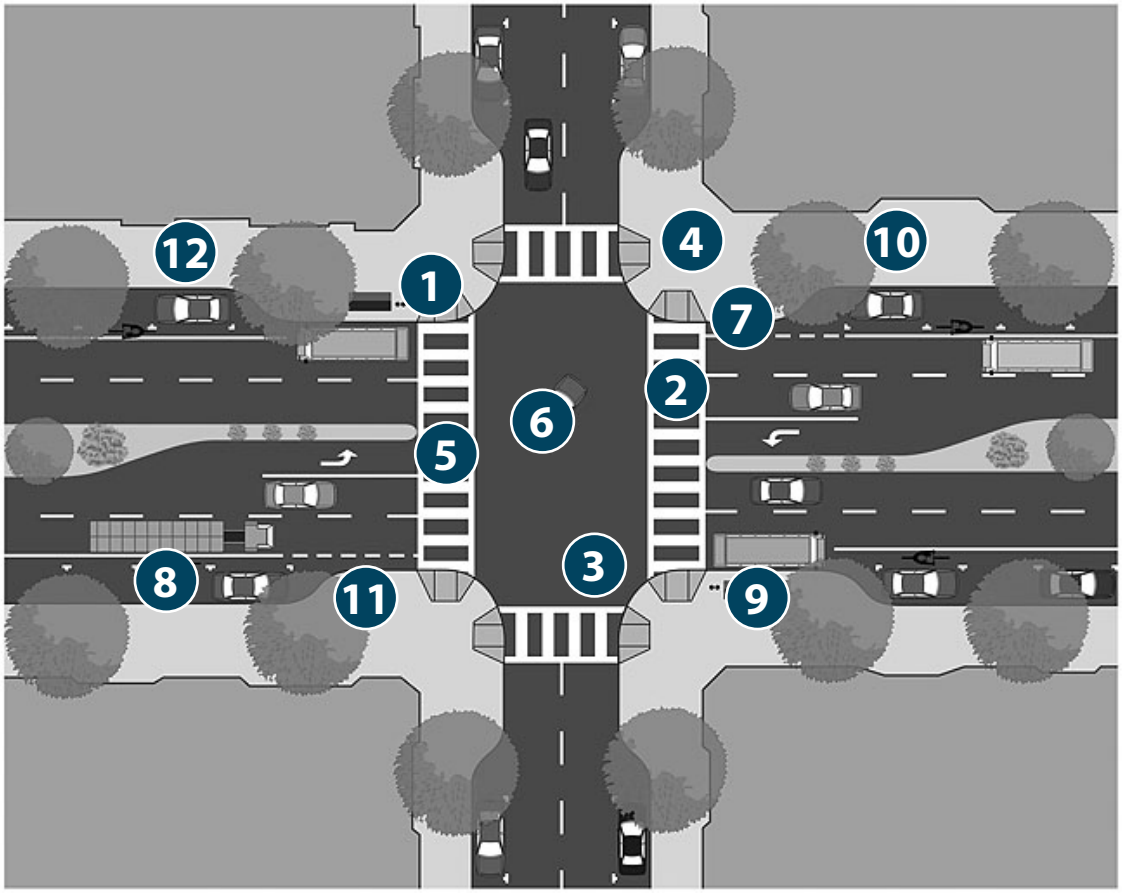
- Streets Department Traffic and Street Lighting Divisions install and maintain traffic signals, pedestrian crosswalks and other treatments at intersections throughout the City.
- Streets Department and PennDOT District 6 are jointly responsible for any intersections involving state highways or ramps within the City.

CONTACTS:

- Philadelphia Streets Department Traffic Engineering (for crosswalks and signals)
- Philadelphia Streets Department Engineering and Design (for curbline issues)
- PennDOT District 6

OTHER RESOURCES:

- Smart Transportation Guidebook provides guidance on intersection treatments.



THE BASICS OF GOOD COMPLETE STREET INTERSECTION DESIGN:

1. ADA Curb Ramps (4.3.3)
2. Marked Crosswalks (4.9.1)
3. Tight Curb Radii (4.9.3)
4. Curb Extension (4.9.4)
5. Pedestrian Refuge Island (4.9.5)
6. Signal Timing and Operations (4.9.6)
7. Bicycle Intersection Treatments (4.9.10)
8. Parking Restricted at Corners (4.6.1)
9. Accessible Transit Stops (4.6.5)
10. Street and Pedestrian Lighting (4.4.4)
11. Street Trees, Planters, and Stormwater Planters (4.4.7 – 4.4.9)
12. Street Furnishings (4.4.5)

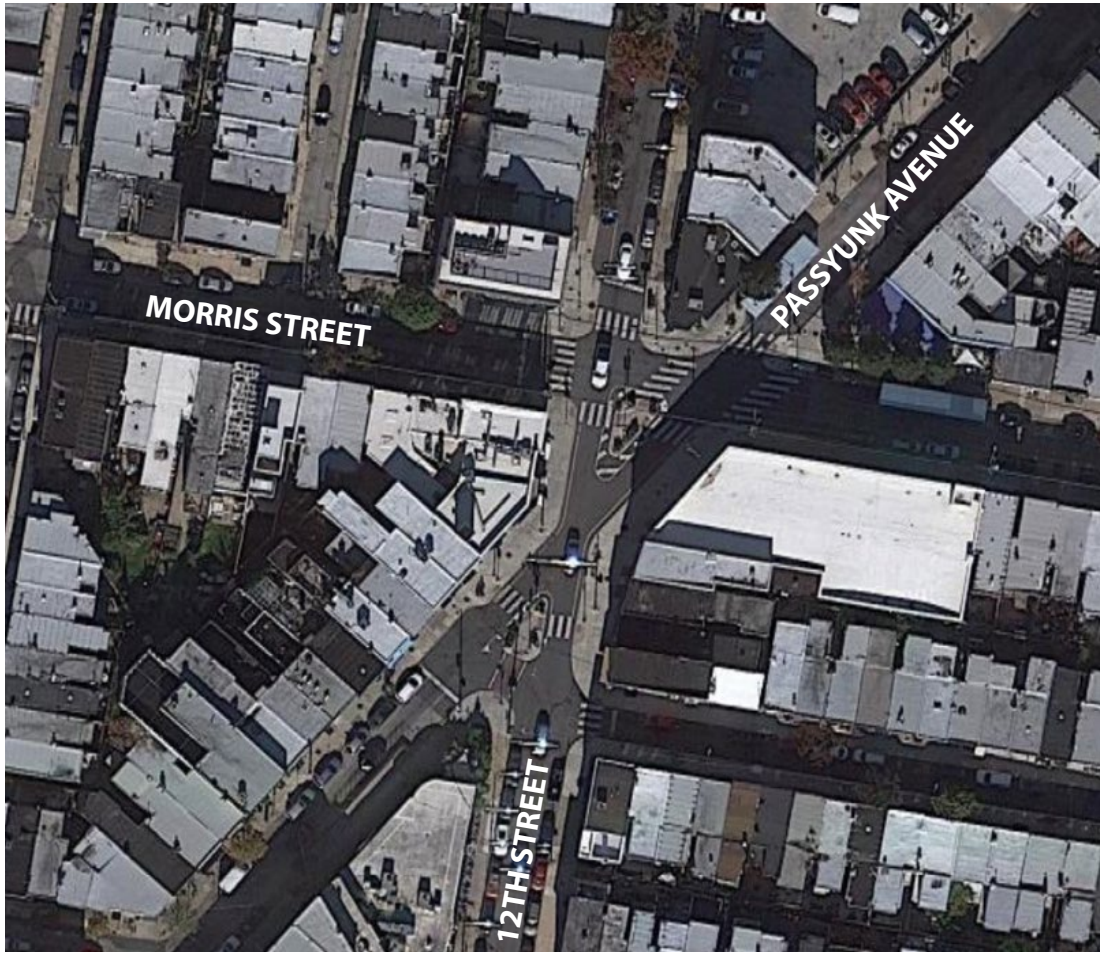
RETROFITTING COMPLEX INTERSECTIONS AND "OVERSIZED" STREETS

In many locations in Philadelphia and other cities, historic development patterns and intersecting street grids have resulted in the creation of large complex intersections with excessive areas of unused, paved space. These intersections create unnecessary impervious surfaces that prevent storm-water absorption, increase pedestrian crossing lengths, and create undefined roadway space that can increase vehicle speeds and conflicts between roadway users. Similarly, some city streets and intersections were designed to accom-modate more traffic than actually uses them.

These excess paved areas provide many opportunities to create pedestrian improvements, green streets, and active public spaces. Unused paved spaces can be brought to side-walk level and repurposed to include landscaping, parklets, rain gardens, seating, public art, and other green space and active uses. Retrofitted intersection and street areas should be landscaped or use special paving materials to differenti-ate them from surrounding areas and may be designed to serve as stormwater retention and infiltration areas. Each case is unique, but even small spaces can be effectively used for local improvements:

- 25 square feet can be enough for healthy tree planting; even less is necessary for corner landscaping.
- A few feet of roadway width along a street can provide space for a swale or landscaped strip.
- A 7' corner or mid-block curb extension can provide space for seating areas.

MOTU's Pedestrian Plaza Program has established initial guidelines and process for seasonal conversions of on-street parking spaces for café seating and other uses. The City will expand on lessons learned from this program and explore additional opportunities to "right-size" select intersections and streets.



TREATMENT 4.9.1

MARKED CROSSWALKS AT CONTROLLED INTERSECTIONS

In Pennsylvania, the lateral extension of a sidewalk through an intersection is a "crosswalk," even if it is not marked (PA Vehicle Code). Marked crosswalks delineate preferred crossing routes for pedestrians and alert other road users where to expect crossing pedestrians. Philadelphia currently uses two types of crosswalk markings: a standard crosswalk and a "high visibility" continental crosswalk.

Continental crosswalks provide a high-visibility crossing treatment. (KAI – Signalized intersection S. Philadelphia)

Crosswalks should be at least as wide as the sidewalk, but wider crosswalks can be provided at high traffic areas. (KAI – 34th St south of Walnut St)

APPLICATION:

- Appropriate on all street types.
- All signalized and stop controlled intersections on all street types.(see 4.9.2 for details on uncontrolled crossings).
- Continental striping used at high priority intersections where greater visibility is desired:
  - School crossings
  - Where 2 or more transit routes cross
  - Subway or el station crossings
  - Trolley line stops
  - Business District crossings

CONSIDERATIONS:

- Crosswalks should generally be marked to denote where it is recommended/desirable for pedestrians to cross.
- Legally, crosswalks exist at all intersections (including T-intersections) unless specifically prohibited. A crosswalk may be marked or unmarked.
- Factors to consider when deciding to stripe crosswalks include: high pedestrian crossing volumes, vehicle volumes, elderly or disabled pedestrian volumes, school zone locations, number of traffic lanes, pedestrian destinations, prevailing traffic speed, distance to the nearest marked crosswalk, sight distance, gaps in traffic, and illumination.

DESIGN:

- Must be paired with curb ramps and tactile warning strips per ADA guidelines (see Curb Ramps 4.3.3).
- Crosswalk width - 15' inside Center City, 10' outside Center City. Wider crosswalks may be provided to accommodate additional pedestrian traffic.
- Standard crosswalk – 10-15' wide with 6" white stripes.
- Continental crosswalk – 10-15' wide with 24" vertical white stripes 4" apart.
- Stop bar line – 24 inch white stripe, 4' from crosswalk at stop sign, 12' at signal
- Dura-Therm thermo-plastic is the only decorative crosswalk currently used by the City, but other materials that can be maintained will be considered.
- Crosswalks should be marked as close and perpendicular as possible to turning traffic that will move at the same time, for best visibility.
- Continental crosswalk markings should either be, aligned with the edges of travel lane lines or at the center of travel lanes so that vehicle tires will not pass over the markings, extending their useful life.
- Provide positive drainage at corners so that water does not pool on crosswalks.

GREEN STREET OPPORTUNITIES:

- Combine with stormwater curb bumpouts (4.9.4).

ROLES & RESPONSIBILITIES:

- Streets Department Traffic Engineering Division marks and maintains pedestrian crosswalks.
- Streets Department Traffic Engineering Division writes work orders for crosswalks.
- Maintenance and installation costs of continental crosswalks are higher than for standard crosswalks.
- The City does not currently use in-pavement lighting at crosswalks, but could consider this treatment provided a maintenance agreement with a local partner.

EXAMPLES:

- Dura-Therm crosswalks at 15th/Market and Broad/Cherry
- Improved crosswalks on Roosevelt Blvd
- RESOURCES:
- MUTCD contains standards and guidance on crosswalk warning signs, signals, and supplementary markings.

DECORATIVE CROSSWALKS

Decorative crosswalks can contribute to the unique character and interest of a neighborhood. Decorative crosswalks may use additional materials or colors to supplement MUTCD crosswalk markings, but they are not a substitute. Decorative crosswalk markings should be highly visible to pedestrians and motorists, particularly at night, and should not use materials that are slippery, create tripping hazards, or are difficult for individuals with disabilities to traverse (e.g., granite, cobblestones).

Streets Department will currently permit decorative sidewalks, provided a local partner signs a maintenance agreement. Dura-Therm thermoplastic is the only decorative crosswalk treatment currently used by the City, but other materials can be considered. Standard MUTCD transverse pavement markings must also be used with non-retroreflective decorative crosswalks. Thermoplastic tape is initially more costly than paint and requires expertise to install; however, it is more slip resistant and requires a lower level of maintenance than paint if installed properly.

TREATMENT 4.9.2

UNCONTROLLED CROSSINGS

An "uncontrolled crossing" is a pedestrian crossing at any intersection or midblock location that does not have a traffic control (e.g., traffic signal, stop signs). When other crossing opportunities are distant or where a destination creates high crossing demand, pedestrians will frequently cross at uncontrolled locations. Improvements at uncontrolled crossing locations should be evaluated and designed to balance pedestrian and vehicle access and safety.

In-street or posted "Yield to Pedestrians" signs (R1-6 or R1-5) and pedestrian warning signs (W11-2)are encouraged at uncontrolled crossings per MUTCD guidance (Source: FHWA)

APPLICATION:

- Appropriate in some circumstances on multiple street types. Evaluated on a case-by-case basis.

CONSIDERATIONS:

- Legally, crosswalks exist at all intersections (including T-intersections) unless specifically prohibited. A crosswalk may be marked or unmarked.
- Crosswalks should generally be marked to denote where it is recommended/desirable for pedestrians to cross.
- The City does not have a policy addressing crossings at uncontrolled locations, but relies on FHWA guidance, PennDOT regulations, and site specific engineering analysis.
- Decision to mark a crosswalk at an uncontrolled intersection should be informed by an engineering study.
- Marked crossings at uncontrolled locations should be carefully planned and supplemented with appropriate safety measures, such as raised medians (5.7.3), refuge islands (4.9.5), traffic calming treatments, lighting
- (4.4.4), traffic signals, signs, and/or warning beacons.
- On roads with 4 or more lanes, high traffic volumes, or speeds over 40 mph, marking crosswalks at uncontrolled crossings without providing additional pedestrian safety improvements can lead to a higher rate of pedestrian crashes. (FHWA 2002).
- Under some contexts, pedestrian crossing should be prohibited at uncontrolled intersection crossings. This may be the case when there are nearby controlled crossings, no nearby pedestrian generators, or multiple threat hazards. Intersection geometry and other high-risk contributing factors should also be considered. Engineering judgement may be used to determine that a pedestrian crossing should be prohibited at an uncontrolled intersection.
- In cases where pedestrian crossings at uncontrolled intersections are prohibited, a detectable barrier should be installed in accordance with ADA stipulations. Appropriate signage should also be posted.

DESIGN:

- Must be paired with curb ramps and tactile warning strips per ADA guidelines (see Curb Ramps 4.3.3).
- Continental crosswalk – 10' wide with 24" vertical white stripes 4' apart (center to center).
- May be combined with curb extensions (4.9.4) where possible to shorten crossing distance and improve sight distance for pedestrians and vehicles.
- Pedestrian lighting oriented towards the crossing should be considered (see 4.4.4).
- In-street or posted "Yield to Pedestrians" signs (MUTCD R1-6 or R1-5) should be used at crosswalks at uncontrolled intersections.

GREEN STREET OPPORTUNITIES:

- Combine with stormwater curb bumpouts (4.9.4).

ROLES & RESPONSIBILITIES:

- Streets Department marks and maintains pedestrian crosswalks.
- Streets Department Traffic Engineering Division writes work orders for crosswalks.
- PennDOT encourages and provides in-roadway "Yield to Pedestrians" signs for use at uncontrolled intersections with significant pedestrian activity (local partners install and maintain).

EXAMPLES:

- 34th Street between Walnut and Spruce Streets - University of Pennsylvania campus
- Main Street near pedestrian overpass to Dawson Street

RESOURCES:

- NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings provides detailed guidance to evaluate appropriate use of marked crosswalks
- PennDOT Midblock Crossing Checklist
- ftp://ftp.dot.state.pa.us/public/PubsForms/Forms/TE-113.pdf
- FHWA Informational Report on Lighting Design for Midblock Crosswalks
- http://www.fhwa.dot.gov/publications/research/safety/08053/index.cfm

MIDBLOCK CROSSINGS

Midblock crossings, marked crosswalks at non-intersection locations are generally not desirable or necessary in Philadelphia, given the City's relatively fine-grained grid block system., Midblock crossings can increase convenience for pedestrians, but can potentially increase conflicts between pedestrians and vehicles if not located and designed appropriately.

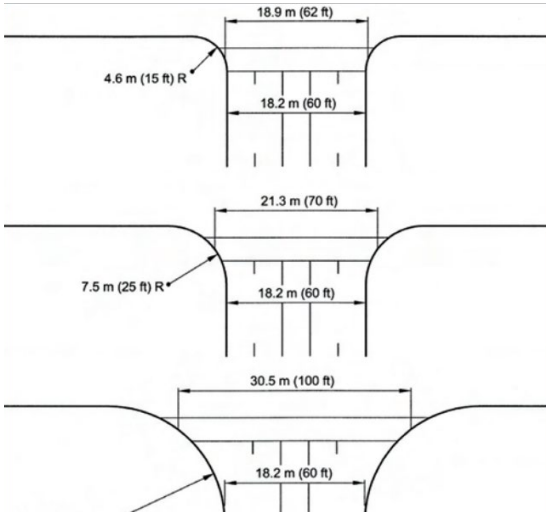
Locations where midblock crossings may be justified include long blocks or other areas with far spaced intersection crossings and high priority, high demand midblock pedestrian destinations (e.g., schools, transit stations). If implemented, midblock crossings should be located a minimum of 300' from the nearest intersection with a crosswalk. SEPTA should be consulted when evaluating midblock crossings on streets with transit service. When planning new development, it is preferable to orient building entrances/exits to face intersection crossings to reduce demand for midblock crossing.

TREATMENT 4.9.3

CURB/CORNER RADII

The curb radius of intersection corners impacts turning vehicles and pedestrian crossing distances. Larger curb radii allow larger vehicles, such as buses and trucks, to make right turns without encroaching on adjacent travel lanes or the sidewalk, but increase the crossing distance for pedestrians and allow smaller vehicles to turn at faster speeds. Shorter curb radii slow turning traffic and create shorter crossing distances, but can make it difficult for larger vehicles to navigate the intersection.

Large curb radii lengthen pedestrian crossing distances and allow vehicles to make turns at high speeds (KAI – Walnut St and Rittenhouse Square).



A change in curb radius from 15 to 50' will increase the crossing distance from 62 to 100' and increase pedestrian crossing time by 16-25 seconds (FHWA, 2004).

APPLICATION:

- All intersections and street types.
- Curb radii are contingent on the context and traffic characteristics of an intersection (e.g., land use, traffic volume, vehicle sizes).

CONSIDERATIONS:

- The "effective curb radius" which includes the clear area provided by parking or bike lanes, may be a more appropriate access measure than the actual curb radius.
- Elements to consider when determining appropriate curb radius include:
  - Volume of pedestrians
  - Length of pedestrian crossing
  - Size and location of curb ramps (4.3.3)
  - Right turns by buses or frequent large trucks or turning radius of vehicles regularly using the intersection
  - Width of intersecting streets
- Occasional large vehicles can encroach into the adjacent travel lane to turn at intersections with small curb radii.
- If large turning vehicles are common at an intersection, curb radii that are too small may degrade the quality and safety of pedestrian facilities as trucks frequently run over the curb and encroach on the sidewalk.

DESIGN:

- City prefers the smallest turning radius that still allows access to the larger vehicles using the street.
- Many existing curb radii are 10 to 12' or smaller due to the age of the City. This is consistent with AASHTO Green Book standards for curb radii at intersections with minimal truck traffic (10-15').
- The recommended curb radius for subdivisions is 10-12'. Current zoning code for subdivisions requires a 15' minimum radius.
- Use turn templates or software to determine the most appropriate curb radii for specific conditions and context.

GREEN STREET OPPORTUNITIES:

- Combine with stormwater curb bumpouts (4.9.4).

ROLES & RESPONSIBILITIES:

- Streets Department determines appropriate curb radii on City streets.
- Adjacent property owners are responsible for maintenance of curbs.

EXAMPLES:

- Curb radii have been reduced at I 76 and South St

RESOURCES:

- Smart Transportation Guidebook
- ITE Context Sensitive Solutions for Urban Thoroughfares

TREATMENT 4.9.4

CURB EXTENSIONS

Curb extensions (also known as "bumpouts" or "bulbouts") extend the sidewalk out into the street, usually to the edge of the on-street parking lane. Curb extensions at intersections reduce pedestrian crossing distance, encourage slower vehicle speeds through roadway narrowing, and improve visibility for pedestrians and drivers. Curb extensions can also provide additional sidewalk space at busy intersections and space for ADA curb ramps.

Curb extensions can be used at marked crossings to accommodate stormwater management features, street furniture, bike parking, transit stops, or other features. Above: John F. Kennedy Blvd and 18th St. Below: Queen Lane and McMichael St

Stormwater bump-outs provide the pedestrian crossing benefits of curb extensions and help manage stormwater overflow.

APPLICATION:

- Appropriate for all street types with on-street parking (4.6.1).
- Where traffic calming or reduced crossing distance is desired.
- Transit stops ("bus bulbs") (4.6.5)
- Marked crosswalks (4.9.1, 4.9.2)

CONSIDERATIONS:

- Feasibility of curb extensions should be evaluated whenever curb ramps are installed or an intersection is reconstructed.
- At corners, curb extensions slow turning vehicles and increase the visibility of crossing pedestrians.
- Can be used to define the ends of angle parking or discourage large vehicle turns onto certain streets
- Keeps fire hydrant zone clear when located in front of a hydrant.
- Helps protect against parking in the crosswalk.
- May complicate delivery access, garbage removal, snow removal, and street sweeping.
- Can be used to accommodate street furniture (4.4.5), transit stops (4.6.5), plantings (4.4.8), or stormwater management features (4.8.4).
- Curb extensions at transit stops can eliminate the need for buses to merge in and out of traffic. Consult with SEPTA to ensure curb extension design accommodates passenger boarding and alighting.
- Cost and complexity of reworking drainage and utility access at the intersection can be a limiting factor.

DESIGN:

- Curb extensions should not extend into bike lanes (where present).
- Larger curb radii may be necessary to accommodate curb extensions at some intersections.
- Figure X shows typical design in Philadelphia, however designs vary based on context:
- 1-2' narrower than the parking lane (approximately 6')
- Minimum 15' long
- 0' curb radius
- City encourages incorporating stormwater planters (4.4.9) into curb extensions where feasible.
- Furnishings or plantings on curb extensions must maintain adequate sight lines.
- Curb extensions may also be marked with paint instead of extending the physical curb.

GREEN STREET OPPORTUNITIES:

- Stormwater bumpouts are generally appropriate at sites on the low end of an average sized block (500' x 400') with adequate drainage and limited utility conflicts. See PWD's Green Street Design Manual for stormwater bumpout design details.
- A stormwater bump-out is a fully or partially vegetated curb extension (4.9.4) that protrudes into the street either mid-block or at an intersection. A bump-out is composed of a layer of stone topped with soil and short plants to preserve open sight lines for traffic. An inlet or curb-cut directs runoff into the bump-out structure where it can be stored, infiltrated, and taken up by the plants (evapotranspiration). Excess runoff is permitted to leave the system and flow to an existing inlet. Aside from managing stormwater, bump-outs also help with traffic-calming.

ROLES & RESPONSIBILITIES:

- Curb extensions are an extension of the sidewalk and, therefore, are the maintenance responsibility of the adajent property owner.
- Streets Department partners with the Water Department to construct storm-water curb extensions. The adjacent property owner is typically responsible for maintenance.

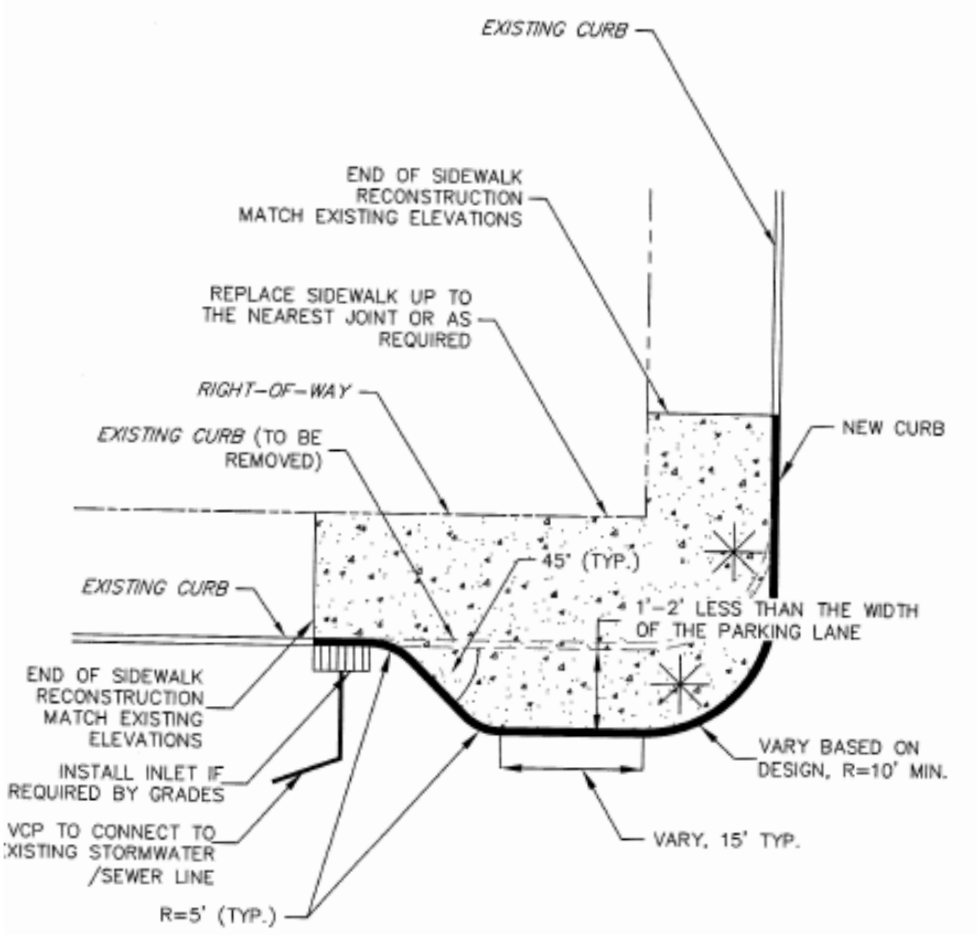
EXAMPLES:

- City has used curb extensions in multiple locations for traffic calming and safety projects
- Multiple curb extensions on John F. Kennedy Blvd and Washington Ave accommodate furnishings and transit stops
- The "Big Green Map" shows locations of stormwater bumpouts throughout the City www.phillywatersheds.org

RESOURCES:

- The Philadelphia Green Streets Manual provides additional information on curb extension design to accommodate stormwater and other features
- U.S. Traffic Calming Manual

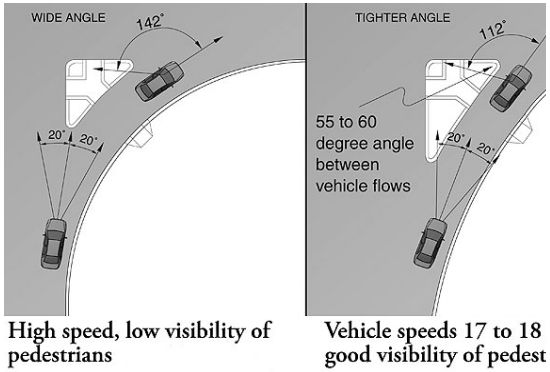
TYPICAL CURB EXTENSION CONSTRUCTION



TREATMENT 4.9.5

PEDESTRIAN REFUGE ISLANDS

Islands can be used to channelize turning traffic, divide opposing or same direction traffic, and provide a space for pedestrians to safely wait or rest while crossing streets. By breaking long or difficult crossings into several shorter, simpler crossings, islands make it easier for pedestrians to find gaps in traffic, and increase safety.



Pedestrian islands at intersections with channelized turn lanes should be designed to increase pedestrian visibility and slow vehicle speeds (ITE).

Island can be used for low plantings to provide stormwater management and prevent vehicle encroachment. At-grade pedestrian cut-throughs increase accessibility. (StreetsblogNYC)

APPLICATION:

- Should be considered at all pedestrian crossings where total roadway width exceeds 60' (Smart Transportation Guidebook).
- High volume intersections with 4 or more lanes.
- Large intersections where signal timing may not allow pedestrians to cross in one phase.
- Intersections with difficult crossing geometry.

CONSIDERATIONS:

- Streets Department considers on a case-by-case basis.
- Painted islands or medians (4.7.3) have lower maintenance costs, but provide limited protection for pedestrians.
- Should be designed to discourage vehicles from encroaching onto them (e.g., include plantings or delineator posts).
- Can be used as green infrastructure as long as planting heights are restricted near intersections to preserve sight lines.
- When designed correctly, channelized right turn lanes can increase pedestrian visibility and decrease crossing distance; however, channelized right-turns should be avoided where possible in areas with significant pedestrian activity and reserved for approaches with 200-300 right turns per hour. Wherever possible and appropriate, channelized turn lanes in high pedestrian activity areas should be redesigned to create pedestrian plazas and/or stormwater planters (4.4.9).
- Consider potential drainage impacts.

DESIGN:

- Treatments and widths vary based on design.
- Refuge islands must provide 5' clear walking zone width.
- Recommended minimum median width is 6':
  - Detectable warning surfaces are not required at pedestrian refuge islands that are cut-through at street level and are less than 6' wide.
  - At signalized locations with pedestrian refuges less than 6' wide, the signal should be timed to allow pedestrians to cross the entire street in one phase.
- Include curb ramps (4.3.3) or at-grade pedestrian cut-through (equal to or greater than the clear width of approaching sidewalks) and median "nose" for safety and access.
- Where justified, channelized turn islands should be designed at a low angle for low speeds (5-10 mph) and high pedestrian visibility. It is preferable for right turns and the pedestrian crossing to be signalized.
- Consider providing Z-shaped median crossings on wide, high-speed roadways or adjacent to rail transit where space is available to force pedestrians to face oncoming traffic before crossing.
- GREEN STREET OPPORTUNITIES:
- Incorporate landscaping or stormwater planters (4.4.9).

ROLES & RESPONSIBILITIES:

- Streets Department installs and maintains pedestrian islands and medians.
- Developer is responsible for maintaining landscaped islands and medians. This requires an agreement with the City.
- PennDOT is involved on state routes.

EXAMPLES:

- Multiple locations on Spring Garden St
- 16th St and Benjamin Franklin Pkwy

RESOURCES:

- U.S. Access Board's Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way
- Smart Transportation Guidebook
- ITE Context Sensitive Solutions for Urban Thoroughfares

TREATMENT 4.9.6

SIGNAL TIMING & OPERATIONS

The timing, phasing, and coordination of traffic signals impacts all modes. Well-planned signals reduce delay and unnecessary stops at intersections, thus improving traffic flow without roadway widening. Pedestrian signal indicators inform pedestrians when to cross at signalized intersections by providing WALK, flashing DON'T WALK, and DON'T WALK indicators. Pedestrian countdown displays inform pedestrians how long they have to cross a street before the signal changes.

Posted (MUTCD R10-11) "No Turn on Red" signs are used to reduce conflicts between turning vehicles, pedestrians, and cyclists (KAI – 34th and Walnut)

Accessible pedestrian push buttons indicate the WALK sign is lit through sound or other nonvisual signal. Push buttons should be located and signed according to MUTCD and PROWAG standards (MUTCD R10-4) (KAI)

APPLICATION:

- All signalized intersections.
- Pedestrian signal indications must be installed at:
  - All signalized intersection crossings more than 26' wide, curb to curb
  - All signalized intersection crossings with an exclusive pedestrian phase
  - When the signalized intersection crossing is designed to be made under two separate intervals, such as on divided highways
- Pedestrian signal indicators are prioritized based on:
  - Proximity to schools and senior facilities;
  - When the vehicular indicators might confuse pedestrians
  - High pedestrian volumes;
  - Number of pedestrian crashes in the last five years; and
  - For consistency along a corridor
- Countdown signals are installed at all intersections with pedestrian indicators.

CONSIDERATIONS:

- Signals should be coordinated to encourage appropriate traffic speeds and accommodate pedestrians and bicyclists, particularly on one-way streets. Improving signal coordination has been shown to reduce travel times by 10-20 percent.
- Providing a WALK signal during each signal cycle automatically ("Ped Recall") reduces pedestrian delay at intersections and eliminates the need for push buttons. Ped Recall should be used at all fixed-time signals and at actuated signals with high pedestrian volumes.
- Prohibiting right turns on red can reduce conflicts between turning motorists and pedestrians. Mounted signs can be used to eliminate right turns at all times or during select time periods.
- Permitted left turns (left turns that are not a protected movement indicated by a green arrow indication) can increase conflicts between turning motorists and pedestrians.
- All-way pedestrian phases – "pedestrian scrambles" – are used in limited instances due to delay for all users. Most appropriate at intersections where crossing distances are short and turning vehicles conflict with very high pedestrian volumes.
- Signals should accommodate bicycles by providing adequate clearance time. At actuated signals, bicycle detection (loop detectors, cameras, or push buttons) should be provided. Where high volume bicycle movements conflict with vehicle movements, a separate bicycle signal phase (4.9.10) is recommended.
- Push buttons should be designed and located in accordance with ADA guidelines.
- The City does not currently have a policy on audible pedestrian signals.

DESIGN:

- The City uses international pedestrian symbols (Man/Hand) rather than "WALK"/"DON"T WALK" indications.
- Preferred signal cycle is 60 seconds. This length reduces pedestrian wait time and minimizes jaywalking.
- The 2009 MUTCD recommends using a standard walking speed of 3.5' per second to calculate the minimum pedestrian clearance time (flashing DON'T WALK plus yellow and all-red phases) at signals. The City follows MUTCD for clearance times, but extra WALK time should be provided when

possible.

ROLES & RESPONSIBILITIES:

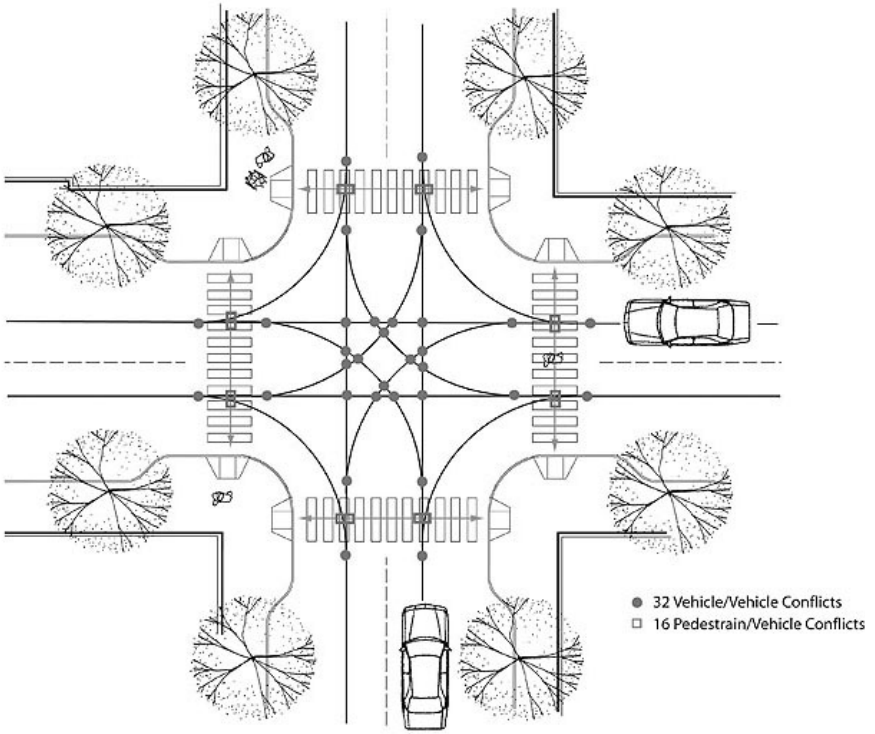
- Streets Department Traffic Engineering unit installs and maintains traffic signals

EXAMPLES:

- Audible pedestrian signals on Broad Street and near the Veteran's Hospital

RESOURCES:

- FHWA Signal Timing Manual
- MUTCD
- U.S. Access Board's Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way
- ITE Context Sensitive Solutions for Urban Thoroughfares



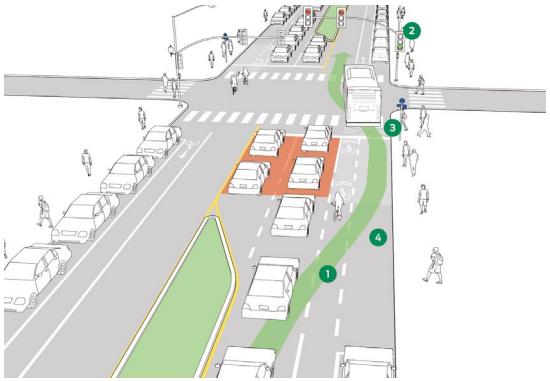
There are 16 vehicle/pedestrian conflict points in a typical 4-leg intersection. Protected left turn signal phasing helps increase pedestrian safety by eliminating conflict points between pedestrians crossing at a WALK indication and left turning vehicles accelerating through a gap in oncoming traffic at a green indication. (ITE)

TREATMENT 4.9.7

TRAFFIC SIGNAL PRIORITY

Traffic signal priority tools establish modal priority and can improve multimodal safety along a corridor. Transit signal priority modifies signal timing or phasing to improve service reliability and reduce travel time. Queue jump lanes allow buses to enter traffic flow in a priority position, reducing delay and increasing reliability. Leading pedestrian and bicycle intervals increase the visibility of crossing pedestrians and cyclists, giving them priority within the intersection.

LPI at the intersection of Broad Street and Pine Street in Philadelphia (Source: KAI)



Queue Jump Diagram (Source: NACTO)

APPLICATION:

- Transit signal priority (TSP) is applicable where signals contribute to service delay. Typically, corridors with long signal cycles or long distances between signals are good candidates.
- Emergency vehicle preemption (EVP) offers emergency vehicles signal priority and thus, might be applicable along signalized corridors.
- Queue jump lanes are applicable on signalized corridors with low or moderate bus service frequency. They are applied with either a leading bus interval or active signal priority and can be applied near-side or far-side.
- Leading bicycle intervals (LBI) are applied at intersections with high bicycle turning movements. They quickly clear intersections of cyclists, which can reduce right hook collisions.
- Leading pedestrian intervals (LPI) are applicable at intersections where heavy motor vehicle turning traffic conflicts with crossing pedestrians during a permissive signal cycle. LPI may also be applicable at locations where there are pedestrian visibility concerns and/or near pedestrian generators such as parks, schools, and hospitals.
- A lagging pedestrian interval allows the right turn queue to clear before the pedestrian walk indication to reduce conflicts.
- TSP, EVP, LPI, etc. should be accommodated with the installation of new traffic signal controllers.

CONSIDERATIONS:

- TSP should be implemented to maximize passenger arrivals. Benefits are amplified when implemented with dedicated transit lanes. TSP can be provided conditionally such that priority is only given to late vehicles.
- TSP is most effective with volume to capacity ratios of 0.5 to 0.7. TSP may increase waiting times on cross streets.
- Queue jump lanes are especially effective along congested corridors.
- LPIs are a low-cost countermeasure that can significantly reduce intersection pedestrian-vehicle crashes.
- Providing a curb extension improves the effectiveness of the LPI and increases visibility of pedestrians.

DESIGN:

- At queue jumps, buses must have access to reach the intersection at the start of a signal cycle. Separate signals are needed to individually direct transit and general traffic.
- The queue jump must be long enough for buses to bypass the expected length of congestion.
- LPIs should provide a minimum 3- to 7-second head start. Intervals up to 10 seconds may be appropriate where there are high pedestrian volumes.

ROLES & RESPONSIBILITIES:

- Streets Department Traffic Engineering unit installs and maintains traffic signals

EXAMPLES:

- TSP for Route 60 bus on Allegheny Avenue
- LPI at Broad and Pine Street

RESOURCES:

- FHWA Signal Timing Manual
- NACTO Transit Street Design Guide
- NACTO Urban Bikeway Design Guide – Don't Give Up at the Intersection

TREATMENT 4.9.8

PEDESTRIAN HYBRID BEACONS

Hybrid beacons (also known as HAWK signals) remain unlit until a pedestrian actuates the signal to indicate they want to cross. The hybrid beacon first shows a yellow light to alert drivers to slow, then a solid red light that requires drivers to stop while pedestrians have the right-of-way to cross the street.

HAWK signal at a school crossing (FHWA)

HAWK signal on a neighborhood collector. Portland, OR (bikeportland)

APPLICATION:

- Uncontrolled crossings (4.9.2) with high pedestrian crossing volumes.
- Larger roadways where crossing opportunities are limited and difficult, but a full traffic signal is not desired and/or warranted.

CONSIDERATIONS:

- Must be pedestrian activated, so push button must be clearly labeled and located, and should include a response signal.
- Drivers experience less delay at hybrid beacons compared to other signalized intersections.
- Hybrid beacons are less expensive than full traffic signals, but more expensive than other pedestrian crossing treatments.
- Placement should be supported by an engineering study.
- May be coordinated with surrounding signals.
- Outreach may be needed to educate roadway users of expected behavior.

DESIGN:

- Push button design and location should follow ADA guidelines.
- Should be paired with signs and pavement markings indicated in MUTCD.
- HAWK signals currently have FHWA experimental status. PennDOT does not currently allow HAWKs on state-owned or operated facilities.

GREEN STREET OPPORTUNITIES:

- Incorporate with stormwater bumpouts (4.9.4) to reduce crossing distance.

ROLES & RESPONSIBILITIES:

- City is currently developing policy for hybrid beacons; Streets Department will likely install and maintain.

EXAMPLES:

- Not currently used in the City

RESOURCES:

- MUTCD (Chapter 4F)
- NCHRP Report 562

TREATMENT 4.9.9

RECTANGULAR RAPID FLASH BEACONS (RRFB)

Similar to hybrid beacons, RRFBs are a pedestrian actuated crossing treatment. RRFBs are signs with a "strobe light" flashing pattern that attracts attention and notifies motorists that pedestrians are crossing.

RRFB's with continental crosswalks at a midblock crossings (KAI – 34th St south of Walnut St)

APPLICATION:

- Uncontrolled crossings (4.9.2) with high pedestrian crossing volumes

CONSIDERATIONS:

- Must be pedestrian activated, so push button must be clearly labeled and located and should include a response signal.
- Drivers may not know how to respond to the flashing lights. Outreach may be needed to educate roadway users of expected behavior.
- Placement should be supported by an engineering study.
- RRFBs are intended to raise awareness and visibility of pedestrians, but do not have a legal status.

DESIGN:

- PennDOTs Bureau of Highway Safety and Traffic Engineering (BHSTE) has developed Interim Approval Requirements for RRFBs.
- Push button design and location should follow ADA guidelines.
- Should be paired with signs and pavement markings indicated in MUTCD.

GREEN STREET OPPORTUNITIES:

- Incorporate with stormwater bumpouts (4.9.4) to reduce crossing distance.

ROLES & RESPONSIBILITIES:

- Streets Department Traffic Engineering Unit installs and maintains.

EXAMPLES:

- 34th Street between Walnut St and Chestnut St
- Installations planned at several additional locations

RESOURCES:

- MUTCD
- NCHRP Report 562
- Smart Transportation Guidebook
- U.S. Access Board's Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way

TREATMENT 4.9.10

BICYCLE SIGNALS

At some intersections bicyclists have different needs than other roadway users (e.g., bicycle only movements). In these areas, bicycle signal heads can be used to provide additional guidance to bicyclists and other roadway users. Bicycle signals are used in combination with conventional traffic signals and use the standard green, yellow, red lenses with the addition of a bicycle stencil.

Bicycle signals should be accompanied by a "Bicycle Signal" sign to provide clarification for motorists and cyclists.

Bicycle detection should be provided at signalized intersections if the phase(s) serving bicycle movements is not set to recall each cycle. The "Bicycle Detector" pavement marking and sign (MUTCD 9C-7 and R10-22) should be used at intersections with in-pavement detectors.

APPLICATION:

- Existing signalized intersections.
- Intersections with bicycle only movements or bicycle movements that conflict with other roadway users.
- Multi-use path crossings.

CONSIDERATIONS:

- Prioritizes bicycle movements and separates them from conflicting movements.
- May improve safety and comfort of cyclists and overall intersection operations.
- Preferable to instructing bicyclists to use pedestrian signals (though bicycle signals may be used in some situations where through bike and pedestrian movements are combined).
- Accommodates bicycle-only movements within signalized intersections.
- Adds some signal delay for all roadway users.

DESIGN:

- Not yet allowed by PennDOT, awaiting approval for use on state owned or operated roadways.
- Signal head should be clearly visible to oncoming bicycles.
- Bicycle phase should provide adequate clearance time and actuation/detection (if the bicycle phase is not set to recall each cycle) Currently there are no standards for determining bicycle clearance times.
- Design and operation should consider general MUTCD guidance, local conditions, and engineering judgment.
- Right turns on red should be prohibited if the bicycle signal is used to separate through bike movements from turning vehicles.
- Supplemental "Bicycle Signal" sign should be added below the signal head.

ROLES & RESPONSIBILITIES:

- Streets Department Traffic Engineering Unit installs and maintains.
- Bicycle signal heads have the same maintenance requirements as standard traffic signal heads.

EXAMPLES:

- Market Street at 16th Street and 18th Street

RESOURCES:

- MUTCD
- NACTO Urban Bikeway Design Guide
- Bicycle Facilities and the MUTCD Guide: http://www.fhwa.dot.gov/environment/bikeped/mutcd_bike.htm

TREATMENT 4.9.11

BICYCLE CROSSING TREATMENTS

Intersections should be designed to provide a safe and comfortable path for people biking through the intersection. At intersections or driveways, vehicles and bikes may cross paths. Bicycle conflict zone markings alert bicycles and drivers of potential conflict and help delineate the appropriate right-of-way.

BICYCLE CROSSING TREATMENTS TOOLBOX

White Skips

- Dashed white lines that define the bicycle crossing space. Width should match the width of the bicycle lane.
- Appropriate when crossing low volume and low speed roadways and/or driveways

LOGs

- White chevron markings which provide additional directional guidance for bikes in crossing.
- Appropriate when crossing higher volume and higher speed roadways and/or driveways that require additional visibility but do not meet the green paint criteria.

APPLICATION:

- Appropriate at signalized intersections. They are highly recommended through wide or complex intersections where the bicycle path may be unclear.
- When crossing driveways and Stop or Yield-Controlled cross-streets.
- Locations along a bicycle facility where vehicle movements frequently encroach into the bicycle space.

CONSIDERATIONS:

- The angle of vehicle crossing should be used to determine appropriate spacing of dotted line
- For two-way bicycle facilities, a dotted yellow centerline should be provided to separate the two directions.

Green Paint

- Dashed green paint sections through bicycle crossings.
- Appropriate for separated bicycle facilities, facilities on the high quality bike network, at the crossing of a dedicated vehicular turn lane, or at locations with particular safety or high conflict issue/complexities.

DESIGN:

- Conflict Zone crossing/Merging Options:
  - See toolbox for possible treatments
- Width of conflict markings should match width of the upstream and downstream bike lanes.

ROLES & RESPONSIBILITIES:

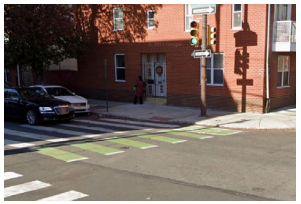
- Streets Department installs and maintains.

EXAMPLES:

- 11th Street Separated Bike Lane
- John F. Kennedy Boulevard Separated Bike Lane

RESOURCES:

- MUTCD
- NACTO Urban Bikeway Design Guide



Two-Way Green Paint Crossing

Yellow centerline is provided to separate the two directions of bicycle movements.

- Appropriate on two-way bicycle facilities.

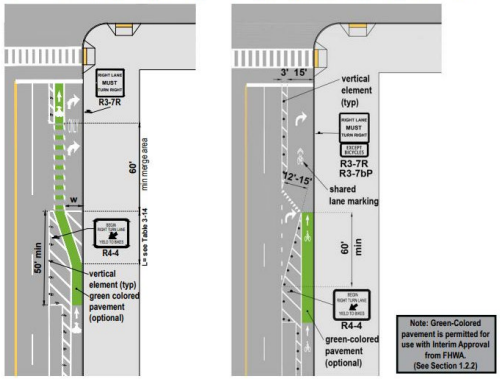
Green Paint

- Green paint in advance of the stop bar and on the far side of the intersection where a facility is transitioning.
- Appropriate at intersections.

TREATMENT 4.9.12

MIXING ZONE

At intersection approaches, bicycles may need to enter the vehicle travel lane in order to make certain turning movements. Mixing zones denote space where cars and bikes may need to share space and to alert drivers to pay extra attention to bicycle movements. Mixing zones are less preferable than providing separate facilities due to increased exposure.



Mixing zone diagram (Source: ODOT Multimodal Design Guide)

APPLICATION:

- May be appropriate on streets without on-street parking and/or on roadways where there is not sufficient right-of-way to accommodate both a bicycle lane and a turn lane at the intersection.
- Often used at intersections with high turning vehicle volumes that do not satisfy warrants for signalization.
- Only appropriate on streets with one-way bike lanes.
- Found to be most effective at intersections with 50-150 turning vehicles in the peak hour.

CONSIDERATIONS:

- Proper signage and pavement markings to indicate to drivers and bicycles of the mixing zone.
- Mixing zones should be designed to reduce motor vehicle speeds and minimize the area of exposure for bicyclists.

DESIGN:

- Use white dashed lines to mark the mixing zone; for higher volume/speed roads combine with green dashed paint marking. See Bicycle Crossing Treatments (4.9.11).
- If mixing zone is used with a separated bike lane, the transition to the mixing zone should begin at a sufficient distance to provide clear sight lines between vehicles and bicycles.
- Yield line should be used in advance of vehicles entering the mixing zone.
- Minimize the length of the merge area and the storage portion of the turn lane.
- Where possible, provide a buffer and physical separation from the adjacent through lane after the merge area.
- Provide a BEGIN RIGHT (or LEFT) TURN LANE YIELD TO BIKES sign (R4-4) at the beginning of the merge area.

ROLES & RESPONSIBILITIES:

- Streets Department installs and maintains.

EXAMPLES:

- John F. Kennedy Boulevard near 19th Street
- South Street at Convention Avenue

RESOURCES:

- MUTCD
- NACTO Urban Bikeway Design Guide
- FHWA Separated Bike Lane Planning and Design Guide
- MassDOT Separated Bike Lane Planning and Design Guide

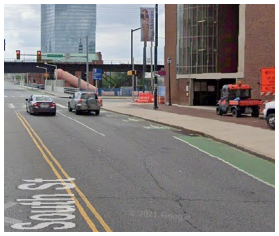
MIXING ZONE TOOLBOX

Shared Lane Mixing Zone

- Turning vehicles and bicycles share lane. Drivers yield to bicycles, which allows bicycles to move ahead of cars and reduces conflicts with turning vehicles and bicycles moving through intersection.
- Applicable when there is not sufficient right-of-way to provided a dedicate turn lane and a through bike lane.

Bike Lane/Turn Lane Swap

- Curbside bike lane shifts and allows vehicle turn lane to move to curbside.
- Applicable with street level separated bike lanes.



Pocket Turn Lane

- Curb-to-curb space expands to allow for pocket turn lane. Bicycle lane remains straight through intersection.
- Appropriate at locations with slip lanes.

TREATMENT 4.9.13

BIKE BOXES

Bike boxes move back the stop bar for vehicles at signalized intersections to create a designated area for bicyclists to wait during the red signal phase. Bike boxes create a more comfortable and safe environment for cyclists by increasing their visibility to motorists and providing them a way to get ahead of queued traffic, thus reducing their exposure to vehicle exhaust, facilitating cyclist left turns, and reducing the likelihood of "right-hook" incidents.

Bike Boxes can be combined with green colored pavement and "Wait Here" pavement markings to increase visibility.

A defacto bike box is created by moving the stop bar 10' back from the crosswalk at signalized intersections. (StreetsblogSF)

APPLICATION:

- The City has begun to move stop bars back 10' from all crosswalks at signalized intersections.
- Signalized intersections on streets with bike lanes (4.5.1 – 4.5.5) or separated bike lanes (4.5.6 - 4.5.7)
- Intersections with high volumes of motorists and bicyclists.
- Intersections with frequent motorist right-turns and/or bicyclist left-turns.

CONSIDERATIONS:

- Increases visibility and safety of cyclists.
- Helps prevent "right-hook" conflicts between cyclists and vehicles.
- Facilitates cyclist left turns and transitions from right to left side bike lanes (if box extends across entire intersection).

DESIGN:

- Transverse lines shall be used to create a bike box 10' to 16' deep and indicate where motor vehicles are required to stop (MUTCD 3B.16)
- A Bike Symbol or Helmeted Bicyclist Symbol (MUTCD 9C-3A or 9C-3B) shall be centered between the crosswalk line and stop line.
- Bike boxes may be combined with a green colored pavement background.

GREEN STREET OPPORTUNITIES:

- Incorporate pervious pavement.

ROLES & RESPONSIBILITIES:

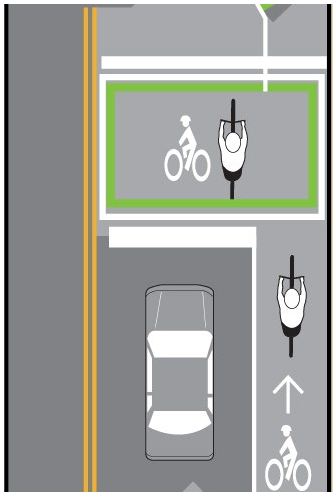
- Streets Department Traffic Engineering Division marks and maintains bike boxes.

EXAMPLES:

- Benjamin Franklin Parkway and 20th St
- 13th Street

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide
- Bicycle Facilities and the MUTCD Guide: http://www.fhwa.dot.gov/environment/bikeped/mutcd_bike.htm
- MUTCD



Philadelphia Bicycle Map

TREATMENT 4.9.14

RAISED CROSSINGS

A raised crossing is a marked crosswalk that is constructed at a higher elevation than the surrounding roadway, bringing the crosswalk to the level of the sidewalk. Essentially, it is a raised speed table (4.7.2) that contains the full width of a marked crosswalk. As a result, raised crossings increase the visibility of pedestrian crossings and force vehicles to slow before proceeding over the crosswalk. Raised crossings also provide a level pedestrian path from curb to curb, so ramps are not required.

Raised crosswalks provide a level, highly visible crossing for pedestrians and traffic calming for vehicles. (Streetsblog SF)

Raised crosswalks should be accompanied by signs and pavement parkings to alert motorists of the crossing and pavement change. Detectable warnings should also be used for pedestrians.(54th St south of City Ave)

APPLICATION:

- Existing crosswalks that also meet the criteria for raised speed reducers (4.7.2).
- Uncontrolled marked crossings (4.9.2) where additional speed reduction and visibility is desired.
- Streets with high pedestrian crossing demand and a maximum of two moving lanes.
- Gateways or where a street's function or type changes.
- Entrances to Local (3.11) or Shared Narrow (3.10) streets.
- Avoid on streets that are emergency response or major truck routes.
- Most appropriate for retrofitting existing streets where increased pedestrian visibility and reduced vehicle speeds are desired at crossings. New or reconstructed streets should be designed to achieve these results using roadway width, curb extensions (4.9.4), and other traffic calming treatments.

CONSIDERATIONS:

- May impact street drainage or require catch basin relocation. Can be combined with curb extensions (4.9.4) with planters or bioswales (4.4.8) to improve stormwater management (4.8.4).
- Decision to install raised crossing should be informed by an engineering study of the location, including speeds, geometry, and operations.
- At intersection locations, the raised area can be extended to include the entire intersection (generally in areas where pedestrian movement is a major priority and target vehicle speeds are less than 25 mph).

DESIGN:

- Should be accompanied by warning signs and pavement markings.
- Should be flush with the sidewalk in height. Detectable warnings should be used where pedestrians will cross into the cartway.
- The full width of the marked crosswalk (usually 10-15') should be contained within the flat portion of the speed table. Width of 10' typically allows both front and rear wheels of passenger vehicles to be on top of the table at the same time.
- Paving materials can utilize recycled content.

GREEN STREET OPPORTUNITIES:

- Incorporate with stormwater bumpouts (4.9.4) to reduce crossing distance.

ROLES & RESPONSIBILITIES:

- Snow plows must be given advance warning of raised crossings by warning signs or other methods.
- Streets Department maintains or identifies local maintenance partner.

EXAMPLES:

- 54th St south of City Avenue

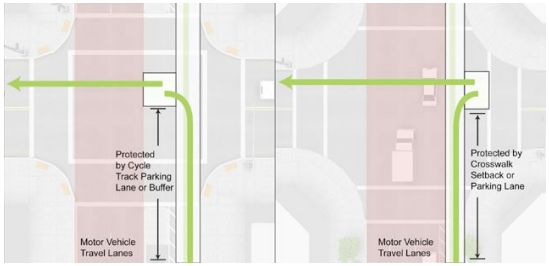
RESOURCES:

- MUTCD
- ITE/FHWA Traffic Calming: State of the Practice includes guidance on speed table width

TREATMENT 4.9.15

TWO-STAGE LEFT TURN QUEUE BOXES

Two-stage turn queue boxes (sometimes referred to as Copenhagen lefts, hook turns, or box turns) provide an option for bicyclists to safely make left turns at signalized intersections. In a two-stage left turn, cyclists proceed straight through the intersection with the green signal and wait in a queue box on the cross street to proceed through the intersection on the next green signal.



Positioning of queuing box for streets with and without a buffered or separated bike lane. (NACTO)

Two-stage left turn boxes provide a waiting area for cyclists at intersections where it is difficult to cross multiple lanes of traffic to make a left turn.

APPLICATION:

- Signalized intersections.
- Streets with high traffic volumes and/or speeds.
- Streets with a significant number of bicyclists making left-turns.
- Intersections where left-turns are difficult for bicyclists to maneuver, especially when cyclists must merge from a bike facility into heavy vehicle traffic.

CONSIDERATIONS:

- Increases bicyclist safety and comfort making some left turns.
- Reduces conflicts between bicyclists, turning motorists, and pedestrians in crosswalk.
- Preferable to instructing bicyclists to use pedestrian signals.
- Increases bicyclist signal delay (compared to turning from the left lane with vehicles).

DESIGN:

- Up to 9' long and 3' wide with bicycle stencil and turn arrow pavement markings.
- Located in a protected area:
  - Between bike lane and parking lane or setback crosswalk on streets with conventional bike lanes (4.5.1).
  - Between separated bike lane (4.5.6 - 4.5.7) and motor vehicle travel lane on streets with separated bike lanes to the right of on-street parking (4.6.1).

ROLES & RESPONSIBILITIES

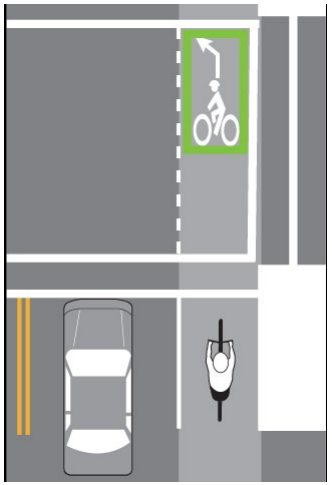
- Streets Department installs and maintains.

EXAMPLES:

- Benjamin Franklin Parkway and 20th St

RESOURCES:

- Philadelphia Pedestrian & Bicycle Plan
- NACTO Urban Bikeway Design Guide
- CROW



Philadelphia Bicycle Map

TREATMENT 4.9.16

TRAFFIC DIVERTERS

Traffic diverters (or maintainers) are physical barriers that can be used to slow, redirect, or block vehicle traffic. This traffic calming treatment is primarily used at intersections in areas where it is desirable to reduce non-local traffic or prioritize non-motorized movements. Diverters can also be used to improve safety at intersections by eliminating some potential vehicle movements and conflicts.

Traffic diverter (velotraffic)

Diverters should limit motor vehicle movement, but enhance bicycle and pedestrian movement. (BikePortland)

APPLICATION:

- Local (3.11) streets with speed or non-local ("cut through") traffic issues.
- Local streets where it is desirable to prioritize non-motorized movement and access.

CONSIDERATIONS:

- Green infrastructure opportunity. Can incorporate planters (4.4.8) or stormwater management features (4.8.4).
- May impact street drainage and utilities.
- Placement should consider emergency vehicle access needs.
- Network context and traffic impacts should be evaluated.
- Special consideration should be given to accommodate turning buses (on bus routes) and emergency vehicles.

DESIGN:

- Design should impact motor vehicles, but utilize at-grade channels, curb ramps (4.3.3), or other strategies to allow unimpeded bicycle movement.
- City does not currently have specific design guidance or policy regarding diverters.

GREEN STREET OPPORTUNITIES:

- Include stormwater planters (4.4.9) or landscaping.

ROLES & RESPONSIBILITIES:

- Streets Department installs and maintains diverters.
- Developer is responsible for maintaining landscaped islands and medians (4.7.3). This requires an agreement with the City.

EXAMPLES:

- Not currently used in Philadelphia

RESOURCES:

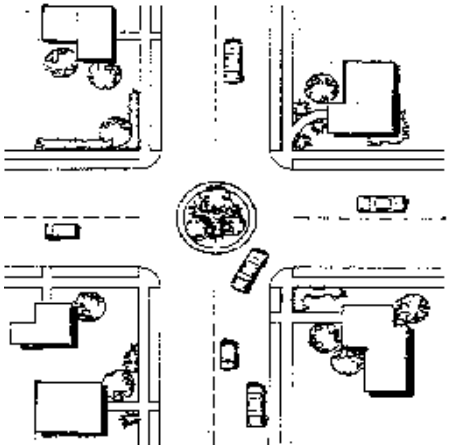
- ITE Traffic Calming Handbook

TREATMENT 4.9.17

NEIGHBORHOOD TRAFFIC CALMING CIRCLES

Neighborhood traffic calming circles are round traffic islands located in the center of a traditional intersection. Similar to roundabouts, neighborhood traffic calming circles have been shown to substantially reduce the number and severity of pedestrian and other crashes, but require less space and changes to intersection approaches.

Several cities have had dramatic reductions in pedestrian crashes on local streets by installing neighborhood traffic calming circles (Austin.metblogs.com)



Typical neighborhood traffic calming circle design (ITE)

APPLICATION:

- Primarily applicable to Local (3.11) and low speed, low-traffic street intersections.
- Existing all-way stop controlled intersections.
- City will not consider on narrow one-way streets.

CONSIDERATIONS:

- Center island can be used as a planter (4.4.8) or stormwater management feature (4.8.4).
- Avoid on streets that are major truck routes. Special consideration should be given to accommodate turning buses (on bus routes) and emergency vehicles.

DESIGN:

- The City currently refers to ITE guidance regarding neighborhood traffic calming circles.
- Design speeds should be limited to 10-15 mph.
- Install signs within the center island and "Keep Right" or similar signs at intersection approaches to increase visibility and inform drivers how to proceed through the intersection.
- Yield or stop signs may be used at approaches.

GREEN STREET OPPORTUNITIES:

- Include plantings in center island.

ROLES & RESPONSIBILITIES:

- Streets Department installs and maintains neighborhood traffic calming circles.

EXAMPLES:

- Not currently used in Philadelphia

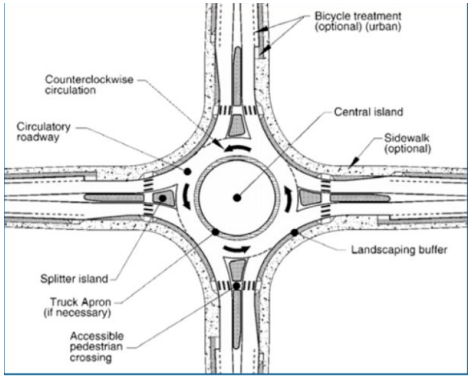
RESOURCES:

- ITE Traffic Calming Handbook

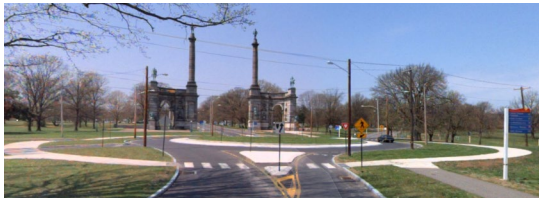
TREATMENT 4.9.18

ROUNDABOUTS

Roundabouts are circular intersections with one-way traffic flow around a central island. Roundabouts have been successfully implemented as an alternative to signalized intersections in a growing number of cities nationwide. The intersection design helps to maintain traffic flow while improving safety by reducing vehicle speeds and conflict points. Roundabouts are generally associated with fewer crashes and when crashes do occur they are less severe.



Roundabout design.



Roundabouts can be used to improve safety and operations at intersections and create new public space, particularly at intersections with complex geometry. (41st Dr and Landsdowne Dr)

APPLICATION:

- Appropriate on a variety of street types, generally as an alternative to intersection signalization.

CONSIDERATIONS:

- Center island can be used for green infrastructure or public space.
- Will require some public education and adjustment.
- Design considerations are needed to accommodate visually impaired pedestrians that are not accustomed to navigating circular intersections.
- Bicycles must navigate the roundabout by entering the lane and traveling with traffic or by traveling up a ramp onto the sidewalk.
- A truck apron should be provided around the center island if large vehicles are expected to use the intersection.
- Pedestrians may have to travel longer distances to cross street due to location of crosswalks away from intersection.
- Special consideration should be given to accommodate turning buses (on bus routes) and emergency vehicles.

DESIGN:

- The City does not currently have specific design guidance or policies regarding roundabouts.
- Roundabouts vary in diameter from 45 to 200', depending upon vehicle volumes and entry speeds.

GREEN STREET OPPORTUNITIES:

- Include plantings in center island.

ROLES & RESPONSIBILITIES:

- Streets Department installs and maintains roundabouts

EXAMPLES:

- 41st Dr and Landsdowne Dr
- Castor Ave and Wyoming Ave

RESOURCES:

- Roundabouts: An Informational Guide
- PennDOT Publication 414: Guide to Roundabouts

Design Element	Mini-roundabout	Urban Compact	Urban Single-Lane	Urban Double-Lane
Maximum entry design speed	15 mph	15 mph	20 mph	25 mph
Typical inscribed circle diameter	45-80 ft	80-100 ft	100-130 ft	150-180 ft
Typical daily service volume on 4-leg	10,000 veh/day	15,000 veh/day	20,000 veh/day	**

TREATMENT 4.9.19

PROTECTED INTERSECTIONS

Protected intersections provide more physical separation between people biking and vehicles further into the intersection than other intersection treatments. Protected intersections help reduce vehicle turning speeds, improve sightlines, and reduce the crossing distance, thereby reducing the overall exposure bicycles have to vehicles.

Protected intersection diagram (Source: Minneapolis Street Design Guide)

Example of protected intersection (Source: NACTO)

APPLICATION:

- Applicable for most street types where enhanced bike comfort is desired. Protected intersection are generally located on streets with on-street parking or buffered or separated bike lanes.

CONSIDERATIONS:

- Protected intersections consist of three main components:
  - Setback/Driver yield zone - the bicycle crossing is setback from the intersection, which creates space between the bicycle crossings and turning vehicles. This space increases visibility and allows room for turning vehicles to yield to bicycles.
  - Corner islands - corner islands provide physical separation and tighten the corner turning radii, which helps reduce vehicle turning speeds. The corner islands create space for the bicycle queue area.
- Bicycle and pedestrian queue areas - areas where bicycles and pedestrians wait to cross the intersection, in advance of vehicles.
- Protected intersections can be designed with street level and raised separated bicycle lanes.
- They can also be designed using quick-build materials such as flexible delineator posts and pavement markings.
- Design must accommodate access and maintenance of existing drainage infrastructure.
- Design must maintain clearances to accommodate street cleaning and snow removal vehicles.

DESIGN:

- The distance between the intersection street edge line and the bike lane crossing (setback) should be at least 10', but 14'-20' is preferred when feasible.
- Corner islands should be designed to discourage vehicles turning faster than 10 mph. The effective turn radius should be between 10'-15'. The corner islands shall be designed to accommodate appropriate design vehicles.
- Bike queue areas should be large enough to accommodate expected bicycle volumes. Minimum 6.5; long and 6' wide to enter/exit the crossing. Larger areas may be considered to accommodate higher bicycle volumes.
- Bicycle crossing should be marked according to vehicle speeds and volumes (see 4.9.11).
- Pedestrian island has a 6' minimum width and 8' preferred width. Tactile detectable warning surfaces must be placed at both sides of the pedestrian island to distinguish between the bikeway, sidewalk, pedestrian island, and roadway.
- Parking should be prohibited in advance of the intersection to provide clear sight distance. The length of parking restriction should be based on the vehicle turning design speed.
  - For 10 mph - 40' of clear space is needed.
  - For 15 mph - 50' of clear space is needed.
  - For 20 mph - 60' of clear space is needed.

ROLES & RESPONSIBILITIES:

- Streets Department installs and maintains.

EXAMPLES:

- Not currently used in Philadelphia

RESOURCES:

- NACTO Urban Bikeway Design Guide
- City of Minneapolis Street Design Guide
- MassDOT Separated Bike Lane Planning and Design Guide

IMPLEMENTATION & ENFORCEMENT

SECTION 05

To achieve Philadelphia's vision of a safe, convenient street network for pedestrians, bicyclists, transit users, motorists, and goods movement, the City must identify strategies to implement and enforce the design guidance contained in the Philadelphia Complete Streets Design Handbook. This process will include incorporating the Handbook into project development and review processes, revising City Code and policies as necessary, implementing recommended complete streets improvements, and maintaining and evaluating these improvements over time. This section presents a preliminary "Complete Streets Project Review Checklist" that will provide a first step for implementing the Philadelphia Complete Streets Design Handbook and incorporating its guidance into the development review, permit approval, and street project design and planning processes.

5.1 COMPLETE STREETS PROJECT REVIEW CHECKLIST

In accordance with Philadelphia's Complete Streets Executive Order (NO. 5-09) "all City departments and agencies shall, in connection with input into and decisions regarding all transportation and development projects, give full consideration to accommodation of the safety and convenience of all users of the transportation system, be they pedestrians, bicyclists, public transit users or motor vehicle drivers." The following checklist documents how each of these modes were considered and accommodated in the process of planning and/or designing projects within or impacting the public right-of-way. If projects do not incorporate "required" or "high priority" complete streets design treatments (see ***Tables 1*** and ***2***), project sponsors must document why not and what alternative accommodations will be provided for pedestrians, bicyclists, and transit users.

The checklist pertains to all permits and projects impacting the public right-of-way and is intended for use during project conception and design phase. The checklist can also be attached to street designs submitted to Streets Department for review or approval. Projects submitted to Streets Department for approval will be reviewed with respect to the topic areas addressed in this checklist. The description of the project scope, context, goals, and design provided by the submitter via this list will allow Streets Department and other reviewing agencies to provide a more expeditious evaluation, potentially reducing review time and minimizing requests for revisions late in the project development process.

COMPLETE STREETS PROJECT REVIEW CHECKLIST

For Building or Zoning Permits, complete all questions. For City Plan Actions, complete questions 1-5, 7, 10-11, 14-21, 31, 39-41, 48, 50, and 52. For Right-of-Way Unit review (e.g., street closure or opening, curb and footway permits) complete questions 1-5, 10-11, and 14-21.

GENERAL PROJECT INFORMATION

1. Project Name_____ 2. Design Completion (%)_____

3. Project Area (precise street limits and scope)

4. Project Description

5. Dates Started/Anticipated to Start: Planning __/__/____ Preliminary Design __/__/____ Final Design __/__/____ Construction __/__/____

6. Street Type: Identify the classification of impacted streets using the maps in Section 3.

PEDESTRIAN COMPONENT (SEE HANDBOOK SECTION 4.3)

Does the proposed design:

7. Create an attractive pedestrian environment that provides safe access for all pedestrians?	☐ Yes	☐ No
8. Minimize vehicle intrusions into the pedestrian zone (e.g., driveways, lay-by lanes)?	☐ Yes	☐ No
9. Provide direct pedestrian routes between destinations and crossing opportunities every 300-500'?	☐ Yes	☐ No
10. Provide minimum sidewalk widths for the street type (see Section 4.3.1)?	☐ Yes	☐ No
11. Maintain minimum clear widths for the street type (see Section 4.3.2)?	☐ Yes	☐ No
12. Provide ADA compliant curb ramps where required and/or appropriate (see Section 4.3.3)?	☐ Yes	☐ No

BUILDING & FURNISHING COMPONENT (SEE HANDBOOK SECTION 4.4)

Do building and furnishing components of the proposed design:

13. Enhance the pedestrian environment?	☐ Yes	☐ No
14. Avoid tripping hazards and pinch points?	☐ Yes	☐ No

15. Maintain adequate visibility for all roadway users at intersections?	☐ Yes	☐ No
16. Incorporate green infrastructure opportunities wherever practicable?	☐ Yes	☐ No
17. Consider above and underground utility locations and potential complications?	☐ Yes	☐ No
18. Provide minimum building zone widths for the street type, if applicable (see Section 4.4.1)?	☐ Yes	☐ No
19. Provide minimum furnishing widths for the street type (see Section 4.4.2)?	☐ Yes	☐ No
20. Incorporate other required building & furnishing zone design treatments for the street type (See Table 1)?	☐ Yes	☐ No
21. Incorporate other "high priority" building & furnishing zone design treatments for the street type, where width permits (See Table 1)?	☐ Yes	☐ No

BICYCLE COMPONENT (SEE HANDBOOK SECTION 4.5)

Do bicycle facilities in the proposed design:

22. Connect to local bicycle and transit networks?	☐ Yes	☐ No
23. Incorporate bicycle network recommendations of the Pedestrian and Bicycle Plan?	☐ Yes	☐ No
24. Provide convenient connections to residences, work places, and other destinations?	☐ Yes	☐ No
25. Maximize the comfort and safety of bicycling as a transportation option?	☐ Yes	☐ No
26. Incorporate other "high priority" bicycle design treatments for the street type, where width permits (See Table 1)?	☐ Yes	☐ No

CURBSIDE MANAGEMENT COMPONENT (SEE HANDBOOK SECTION 4.6)

Do curbside facilities in the proposed design:

27. Limit conflicts between modes and provide a buffer between traffic and pedestrians?	☐ Yes	☐ No
28. Increase the comfort and attractiveness of transit?	☐ Yes	☐ No
29. Connect transit stops to the surrounding pedestrian network and destinations?	☐ Yes	☐ No
30. Incorporate alternative uses for underutilized parking lanes, where appropriate (see Section 4.6.6)?	☐ Yes	☐ No
31. Avoid lay-by lanes and other vehicle intrusions into the sidewalk?	☐ Yes	☐ No
32. Incorporate other "high priority" curbside management design treatments for the street type, where width permits (See Table 1)?	☐ Yes	☐ No

URBAN DESIGN COMPONENT (SEE HANDBOOK SECTION 4.8)

Does the urban design component of the proposed design:

33. Encourage windows, storefronts, and other active uses facing the street?	☐ Yes	☐ No
34. Use pedestrian-scale design elements (e.g., lighting, setbacks)?	☐ Yes	☐ No
35. Manage driveway access to reduce pedestrian/bicycle conflicts with vehicles (see Section 4.8.1?	☐ Yes	☐ No
36. Incorporate appropriate stormwater management and drainage features (see Section 4.8.4)?	☐ Yes	☐ No

VEHICLE/CARTWAY COMPONENT (SEE HANDBOOK SECTION 4.7)

Does the vehicle/cartway component of the proposed design:

37. Balance vehicle mobility with the mobility and access needs of other roadway users?	☐ Yes	☐ No
38. Promote speeds that are appropriate for the street type and surrounding context?	☐ Yes	☐ No
39. Minimize roadway width while maintaining multimodal transportation access and amenities?	☐ Yes	☐ No
40. Maintain emergency vehicle access?	☐ Yes	☐ No
41. Maintain freight and/or transit vehicle access, if appropriate?	☐ Yes	☐ No
42. Support multiple alternative routes to and from destinations?	☐ Yes	☐ No
43. Connect and extend the street grid, where new roads are being developed?	☐ Yes	☐ No
44. Incorporate appropriate lane widths for the street type (see Table 1 and Section 4.7.1)?	☐ Yes	☐ No
45. Incorporate other "high priority" cartway/vehicle design treatments for the street type, where width permits (See Table 1)?	☐ Yes	☐ No

INTERSECTIONS & CROSSINGS COMPONENT (SEE HANDBOOK SECTION 4.9)

Does the proposed design of intersections and crossing treatments:

46. Reduce conflicts between modes and promote pedestrian and bicycle safety and comfort?	☐ Yes	☐ No
47. Include accessible features such as ADA compliant curb ramps?	☐ Yes	☐ No
48. Provide adequate clearance time for pedestrians to cross streets?	☐ Yes	☐ No
49. Minimize signal cycle length to reduce pedestrian wait time?	☐ Yes	☐ No
50. Minimize pedestrian crossing distances by narrowing streets or travel lanes, extending curbs, reducing curb radii, or using medians or refuge islands to break up long crossings?	☐ Yes	☐ No
51. Reduce vehicle speeds and increase visibility at intersections?	☐ Yes	☐ No
52. Simplify complex intersections, where possible (e.g., convert skewed intersections to right angles)?	☐ Yes	☐ No
53. Incorporate "high priority" intersection and crossing design treatments for the intersection type, where geometry permits (See Table 2)?	☐ Yes	☐ No

IF THE ANSWER TO ANY OF THE QUESTIONS ABOVE IS "NO", PROVIDE A BRIEF EXPLANATION WHY EACH CRITERION IS NOT MET.