TOOLKIT OVERVIEW

This toolkit provides a menu of multimodal treatments that can be employed in Downtown Dover to improve pathways for people biking and walking. These treatments dedicate space to bicyclists and pedestrians along streets and at intersections so that they are visible, separated, and better accomodated within the transportation network. These treatments reflect best practices from national design, planning, and implementation guidance. They range in cost and can be implemented either tactically (using low-cost, sometimes temporary materials) or as part of permanent improvements.

TOOLKIT TREATMENTS

PEDESTRIAN SAFETY AND ACCESS

These treatments improve pedestrian pathways in Downtown Dover. Some treatments are implemented along corridors, such as improving sidewalks, while others are focused at intersections, where pedestrians interact with moving vehicular traffic. The treatments focus on increasing visibility of people walking and providing separated, dedicated, comfortable space for pedestrians.

BICYCLIST SAFETY AND ACCESS

These treatments build out the bicycle network in Downtown Dover. They delineate, where possible, dedicated and separated space for bicyclists. The most appropriate bicycle facility along a corridor is generally identified based on the volumes and speeds of the street and the surrounding land use and community context. When more cars are moving at faster speeds, more separation is needed to safely and comfortably accomodate bicyclists.

TRAFFIC CALMING

These treatments focus on reducing motor vehicle speeds to reduce the frequency and severity of crashes. This is especially important for people walking and biking, who are more vulnerable to death or serious injury when struck by a vehicle moving at a higher speed. While many of the streets in Downtown Dover have a posted speed limit of 25 miles per hour, some drivers travel along them at higher speeds.

TOOLKIT COMPONENTS

This toolkit includes a page for each treatment, including a description and specific suggestions for application in Downtown Dover. Each treatment is also accompanied by key design and implementation considerations.Complementary treatments clarify tools that work together to achieve desired outcomes such as slower speeds, delineated space, and increased visibility. Lastly, each page includes example photos of infrastructure in similar contexts as well as relevant references.

BICYCLE LANES

OVERVIEW

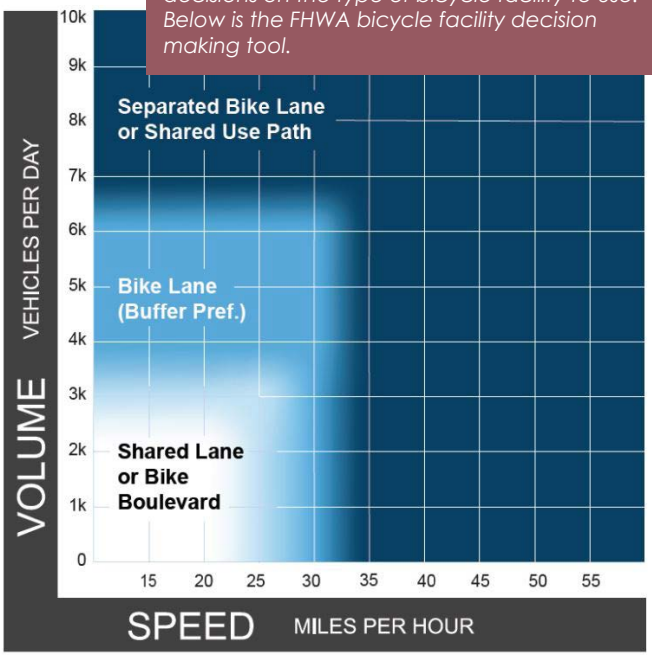
Description: A bicycle lane provides dedicated space for bicyclists in the street.

Application: According to the Federal Highway Administration (FHWA) Bikeway Selection Guide, bicycle lanes are typically most applicable on streets with lower speeds and volumes.

FHWA recommends that where possible, a striped buffer is preferred between the bicycle lane and the motor vehicle lane. This provides additional comfort for the bicyclist, especially where vehicles may be moving at higher speeds.

Some streets have bike lanes on either side of the vehicular lanes, each carrying bicycle traffic in the same direction as the adjacent vehicular lane. Where there is less space, one-way bike lane pairs could be implemented on parallel streets.

Roadway speed and volume help to make decisions on the type of bicycle facility to use. Below is the FHWA bicycle facility decision making tool.



REFERENCES

- FHWA Bikeway Selection Guide
- NACTO Urban Bikeway Design Guide

CONSIDERATIONS

- Bicycle lanes are typically at least 5 to 6-feet wide. Buffers are typically at least 2 to 3-feet wide.

COMPLEMENTARY TREATMENTS

- Green paint
- Wayfinding signs

EXAMPLES

Bike lane (without buffer) in Newark, DE / Source: Town of Whitehall, DE

Buffered bike lane in Portland, OR / Source: NACTO

SEPARATED BICYCLE LANE

OVERVIEW

Description: A separated bike lane is within the street right-of-way and separated from motor vehicle traffic by a physical barrier, such as planters, flexible delineator posts, or a mountable curb. These types of bike lanes can be raised to sidewalk level for additional safety and comfort.

Application: The Senator Bikeway in Dover is an example of a separated bicycle lane. Cyclists are separated from cars and trucks by a painted buffer with flexible delineator posts. The Senator Bikeway includes two-way bicycle traffic, but a separate bike could carry one-way bike traffic instead. Increased separation is important on streets with higher vehicle volumes and speeds.

CONSIDERATIONS

Types of physical separation include:

- Flexible delineator posts
- Concrete curb, pills, or parking stops
- Landscape planters or medians
- Bollards
- Rubber armadillo
- Parking

Separated bike lanes may require specialized maintanence equipment or operations for snow removal, street sweeping, leaf removal, and garbage collection.

EXAMPLES

Bike lane separated from traffic by flexible delineator posts and concrete pills / Source: Aditya Inamdar

Bike lane separated from traffic by recycled plastic "armadillos" / Source: Bike Delaware

COMPLEMENTARY TREATMENTS

- Green paint/conflict markings
- Wayfinding signs
- Protected intersections

The Senator Bikeway in Dover is separated from vehicular traffic by a painted buffer and flexible delineator posts / Source: Tara Hofferth

REFERENCES

- FHWA Bikeway Selection Guide
- NACTO Urban Bikeway Design Guide

DOWNTOWN DOVER PATHWAYS

BICYCLE BOULEVARD

OVERVIEW

Description: Bicycle boulevards are low-volume, low-speed streets where bicycles and motorized vehicles share road space, but where bicycle movements are prioritized and optimized through use of motor vehicle restrictions, traffic calming, and crossing treatments.

Application: Bicycle boulevard treatments can be applied on lower volume streets in Downtown Dover, like Reed Street and Bank Lane.

CONSIDERATIONS

- Bicycle boulevards are more than sharrow markings. Traffic calming and wayfinding are used to prioritize bicyclist movements along the street.
- Intersection improvements are key to providing safe and comfortable access along a bicycle boulevard, particularly when intersecting with higher volume, higher speed streets.

EXAMPLES


Hardened Centerline


Traffic Diverter


Slow Turn Wedge

Mini Roundabout / Source: NACTO


Curb Extension

Pavement Markings / Source: NACTO

COMPLEMENTARY TREATMENTS

- Green paint
- Wayfinding signs
- Curb extensions
- Medians
- Speed humps / cushions
- Raised intersections / crosswalks
- Daylighting
- Hardened centerlines
- Traffic diverters
- Mini roundabouts
- Chicanes

Traffic calming treatments are used along bicycle boulevards to slow motor vehicle traffic and prioritize cyclist movements.

REFERENCES

- FHWA Bikeway Selection Guide
- NACTO Urban Bikeway Design Guide

DOWNTOWN DOVER PATHWAYS

SHARED USE PATH

OVERVIEW

Description: This facility is shared between people biking and walking. A shared use path (SUP) or trail provides the highest level of separation and the lowest level of traffic stress for cyclists.

Application: Shared use paths might be more challenging to accomodate in the Downtown Dover grid, where streets rights of way are narrow. This facility type may be more useful in connecting Delaware State University Main Campus and the Dover Air Force Base to Downtown. An off-street trail network might double as a recreation and transportation facility.

CONSIDERATIONS

- Consider connections to existing bicycle and pedestrian facilities.
- There may be limited right-of-way and property constraints to accomodate SUPs in Downtown.
- Multimodal safety at high volume intersections and mid-block crossings is key.
- SUPs may need to be constructed to accomodate electric and cargo bicycles.

EXAMPLES

A brick shared use path through a residential neighborhood / Source: Aditya Inamdar

Bicyclists walking bikes along shared use path / Source: Town of Ridgeland, Mississippi

COMPLEMENTARY TREATMENTS

- High visibility marked crosswalks
- Wayfinding signs
- Flashing beacons
- Pedestrian scale lighting

Shared use path and street trees adjacent to raodway in Tinicum, PA / Source: East Coast Greenway

REFERENCES

- FHWA Bikeway Selection Guide
- NACTO Urban Bikeway Design Guide

GREEN PAINT

OVERVIEW

Description: Green and white pavement markings draw attention to cyclists moving through or past conflict areas, including intersections and driveways. Bike lanes can include green paint to further delineate and emphasize use and space.

Application: Conflict markings and green paint are most applicable where bicycle facilities interact with roadways or driveways that have higher vehicle volumes and speeds. Green paint was implemented as part of the Senator Bikeway to delineate key driveways and intersections where motor vehicles might cross over the bike lanes.

Directional signs should also be used with pavement markings to improve the safety and accessibility of bicycle facilities. Signs and markings help delineate space, prioritize modal travel, and warn roadway users of potential conflicts or geometric changes.

CONSIDERATIONS

- Green paint is most often used in areas of potential conflict, such as at intersections and driveways.
- Additional maintenance may be required and so green paint is often limited to the most critical locations.
- Green paint can be used to create bicycle boxes for waiting to make turns in an intersection.

COMPLEMENTARY TREATMENTS

- Wayfinding signs
- Bicycle lanes
- Separated bicycle lanes
- Bicycle boulevards

EXAMPLES

Green "Bike Boxes" delineate spaces for cyclists to wait to make turning movements at intersections / Source: Urban Milwaukee

Green paint is used along the Senator Bikeway in Dover to delineate driveways and intersections / Source: Tara Hofferth

REFERENCES

- FHWA Bikeway Selection Guide
- NACTO Urban Bikeway Design Guide

WAYFINDING SIGNS

OVERVIEW

Description: Wayfinding signs direct pedestrians and bicyclists toward destinations in the area, often including distances and average walking and biking times. Bicycle wayfinding can help people determine which streets have dedicated bicycle facilities.

Application: Improved branding and wayfinding in Downtown Dover can lead cyclists along the low-stress network and connect people that are walking and biking to key destinations and facilities. There is some existing wayfinding for the Senator Bikeway in Dover.

CONSIDERATIONS

- Wayfinding signs should be large, clear, and visible from atop a bicycle.
- Branding can tie the network together and help inform people that they are within a key set of multimodal pathways.

COMPLEMENTARY TREATMENTS

- Green paint
- Bicycle lanes
- Separated bicycle lanes
- Bicycle boulevards
- Shared use path
- Sidewalk network

EXAMPLES

Signs providing cyclists with distances to nearby destinations

Bike path branding in Tinicum, PA / Source: East Coast Greenway Alliance

REFERENCES

- FHWA Bikeway Selection Guide
- NACTO Urban Bikeway Design Guide

BICYCLE PARKING

OVERVIEW

Description: Secure bike parking makes local attractions and businesses accessible to people biking. Racks should be placed near the locations they serve without blocking the entrance. Bike corrals can be created on the street by repurposing a parking space or using daylighting areas. Covered bike parking should be provided in areas with higher biking activity. Electric bike parking and charging is also an emerging need.

Application: Downtown businesses and key activity centers in Dover might benefit from more bike parking.

One preferred bicycle rack style is an inverted U, which has two points of ground contact. A post and ring style has one point of ground contact. The wheelwell-secure bike rack is ideal for long-term parking and in larger scale installations.

CONSIDERATIONS

- Bicycle parking should be located in the public right-of-way near popular destinations in business districts such as schools, worksites, high-density residential developments, and transit stops.
- Private businesses should be encouraged to provide bicycle parking. Adding provisions to local zoning regulations may be one way to mandate the inclusion of bicycle parking for new developments.

COMPLEMENTARY TREATMENTS

- Wayfinding signs
- Daylighting
- Micromobility

EXAMPLES

Bicycle corral in Lancaster, PA

Post & Ring Rack / Source: Bike Provincetown

REFERENCES

- FHWA Course on Bicycle and Pedestrian Transportation
- Association of Pedestrian and Bicycle Professionals (APBP) Bicycle Parking Guidelines
- APBP Essentials of Bike Parking

MICROMOBILITY

OVERVIEW

Description: "Micromobility" refers to newly emerging, small-scale modes of transportation, like electric-assist bicycles and electric scooters. Micromobility treatments include the use of parking corrals for micromobility vehicles, providing charging for electric micromobility vehicles, and disseminating information around the use and operation of micromobility vehicles. Micromobility services can be integrated with transit service through easy payment methods, clear wayfinding, and trip planning resources.

Application: A shared micromobility system pilot could be considered in Downtown Dover to assess potential usage. This might involve the following tasks:

- Identify a managing body / champion
- Coordinate with supporting partners
- Survey residents
- Decide on system parameters
- Refer to successful examples

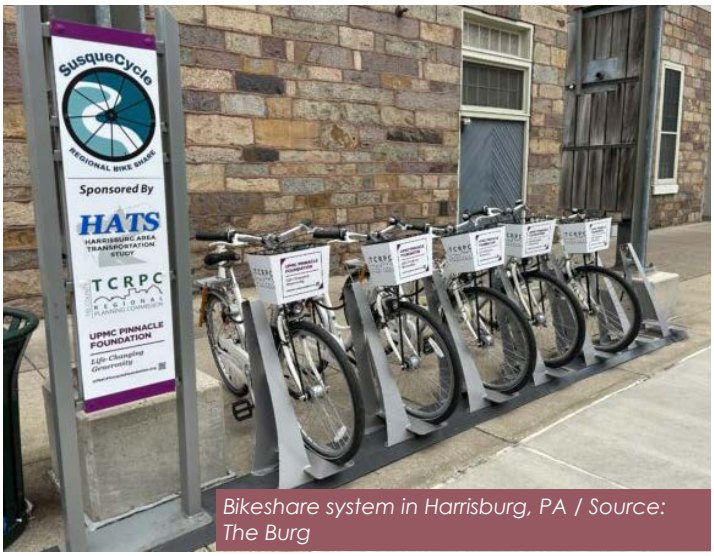
CONSIDERATIONS

- Micromobility programs can be regulated as they operate in the public right-of-way. Operators of micromobility programs may be required to acquire a permit from the City of Dover in order to operate in downtown.
- Pilot programs allow cities to explore how they might implement a full-scale, permanent micromobility program.

COMPLEMENTARY TREATMENTS

- Bicycle parking
- Wayfinding signs
- Bicycle facilities

EXAMPLES



Bikeshare system in Harrisburg, PA / Source: The Burg

Dockless bikeshare system in Ithaca, NY / Source: Van Hoang / The Ithacan

REFERENCES

- NACTO Guidelines for Regulating Shared Micromobility

HIGH VISIBILITY CROSSWALK

OVERVIEW

Description: Reflective crosswalk markings should be incorporated at intersections and priority crossings.

Application: There are opportunities to install additional marked crosswalks at many locations in Downtown Dover. These crossings should be high-visibility marked crosswalks.

Marked crosswalks should typically be 10-feet wide with ADA accessible ramps at either end. The crosswalk should also be well lit. Warning signs can be used to alert drivers to an upcoming crosswalk.

FHWA Prove Safety Countermeasure
"A high-visibility marked crosswalk can reduce pedestrian crashes up to 40%."

CONSIDERATIONS

- Crosswalk locations should be convenient for pedestrian access and located at regular intervals to allow for safe crossings.

COMPLEMENTARY TREATMENTS

- Street lighting
- Warning signs
- Accessible ramps
- Curb extensions
- Pedestrian refuges
- Flashing beacons
- Pedestrian countdown signals

EXAMPLES

Wide high-visibility crosswalk markings at a high volume intersection

An existing marked crosswalk in Dover along Water Street / Source: Tara Hofferth

REFERENCES

- FHWA Guide for Selecting Countermeasures at Uncontrolled Crossing Locations
- FHWA Safety Countermeasures - Marked Crosswalk & Enhancements

DOWNTOWN DOVER PATHWAYS

CURB RAMP

OVERVIEW

Description: An accessible curb ramp with a detectable warning surface provides access from the sidewalk to an intersection or mid-block crossing.

Application: There are some intersections in Downtown Dover without Americans with Disabilities Act (ADA) compliant curb ramps. Installing compliant ramps with marked crosswalks as appropriate can improve the pedestrian pathways between key activity centers and the Downtown core.

CONSIDERATIONS

- Curb ramps and other travel paths should be designed to prevent the accumulation of water and snow. Ramps may not have a slope exceeding 1:12. Ramps must have a landing for each 30 inches of rise.
- Curb ramps and detectable warning surfaces are required where a pedestrian path meets a vehicular way.
- Apex curb ramps that direct pedestrians into the middle of an intersection and away from crosswalks should be avoided.

COMPLEMENTARY TREATMENTS

- High visibility marked crosswalks
- Sidewalk network

EXAMPLES

Accessible ramps / Source: Dan Burden

Newly installed curb ramp in San Diego / Source: sandiego.com

REFERENCES

- NACTO Transit Street Design Guide
- FHWA Accessible Sidewalks and Street Crossings
- Public Right-of-Way Accessibility Guidelines

REFUGE ISLAND

OVERVIEW

Description: A pedestrian median refuge island provides added protection for pedestrians and bicyclists crossing at an intersection or mid-block. The refuge improves pedestrian visibility, reduces conflict points, and reduces crossing distance. It also allows people walking across a street to watch for one direction of motor vehicle traffic at a time.

Application: Pedestrian refuge islands can be installed on divided roadways or in place of on-street parking on neighborhood streets. Pedestrian refuges can be achieved with paint and delineator posts as a quick build safety improvement pilot project prior to permanent installation.

FHWA Prove Safety Countermeasure

"56% reduction in pedestrian crashes."

CONSIDERATIONS

- Refuge islands should include curbs, bollards, or other features to protect people waiting.
- Pedestrian safety islands can be enhanced using plantings or street trees. If plantings are used on pedestrian refuge islands, it is important that they be well-maintained to ensure visibility.

COMPLEMENTARY TREATMENTS

- High visibility marked crosswalks
- Pedestrian scale lighting
- Warning signs
- Flexible delineator posts

EXAMPLES

People crossing through a pedestrian refuge island / Source: NACTO

Painted pedestrian refuge island with flexible delineator posts / Source: City of Seattle

REFERENCES

- NACTO Urban Street Design Guide

FLASHING BEACON

OVERVIEW

Description: Rectangular Rapid Flashing Beacons (RRFBs) include a flasher that lets motorists know pedestrians or bicyclists are crossing. These are especially applicable at uncontrolled, mid-block, or trail crossings.

Application: An RRFB is one potential consideration at the intersection of Division and Bradford Streets, which is close to signalized intersections at State Street and Governors Avenue, but does not currently feel safe to cross.

FHWA Prove Safety Countermeasure
"Can reduce pedestrian crashes up to 47% and increase driver yield rates up to 98%."

CONSIDERATIONS

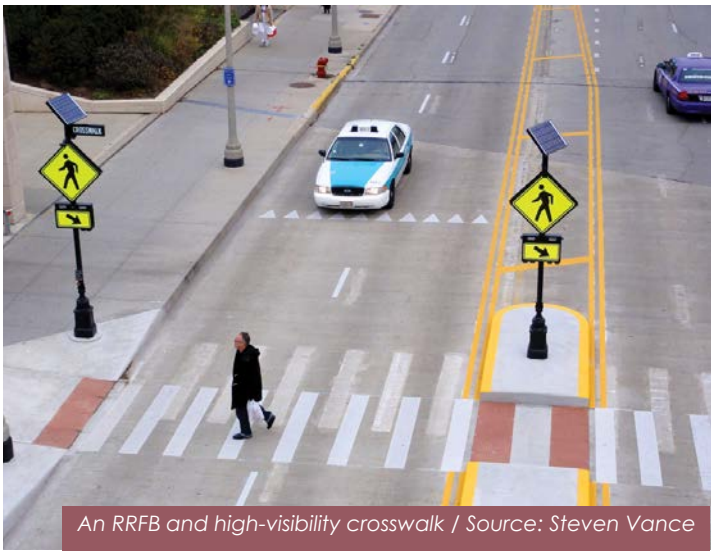
- Flashing beacons are typically implemented at high-volume pedestrian crossings, but can also be considered for priority bicycle route crossings.
- Maintenance is typically low for flashing beacons. Solar panels are often used to power the beacons.

COMPLEMENTARY TREATMENTS

- High visibility marked crosswalks
- Curb extensions
- Pedestrian refuge island

EXAMPLES

An example of an RRFB



An RRFB and high-visibility crosswalk / Source: Steven Vance

REFERENCES

- NACTO Urban Bikeway Design Guide

SIGNAL STRATEGIES

OVERVIEW

Description: Multimodal signal strategies include traffic control devices that prioritize bicyclist and pedestrian movements, such as:

- Pedestrian countdown signals, which provide dedicated time for pedestrians to cross.
- Pedestrian phase on recall, which incorporates a pedestrian crossing phase without the need to push a button.
- Leading Pedestrian Intervals, which provide additional crossing time for pedestrians before vehicles are signaled to turn or move through an intersection.
- All pedestrian signal phases, which allow pedestrians to cross in any direction during a dedicated phase.
- Prohibiting right-turn-on-red, which allows pedestrians exclusive crossing time.
- Bicycle signals, which prioritize bike movements at intersections.

Application: Multimodal signal strategies could be considered at key signalized intersection in Downtown where pedestrians or bicyclists may benefit from additional visibility or crossing time.

CONSIDERATIONS

- Signal strategies that prioritize pedestrians might consider pedestrian generators, length of the crossing, accessibility needs and accomodations, and signal efficiency.
- Pedestrian recall is preferred over actuation in Downtown contexts where signal efficiencies can be achieved.

COMPLEMENTARY TREATMENTS

- High visibility marked crosswalks
- Curb extensions
- Pedestrian refuge island
- Bicycle facilities
- Pedestrian scale lighting
- Wayfinding signs

EXAMPLES

A bike signal / Source: BikePortland

A pedestrian countdown sign / Source: Ned Gerard

REFERENCES

- NACTO Urban Bikeway Design Guide
- NCHRP Research Report 969: Traffic Signal Control Strategies for Pedestrians and Bicyclists

SIDEWALK NETWORK

OVERVIEW

Description: A complete and connected sidewalk network increases pedestrian access and safety.

Application: Downtown Dover's sidewalk network is signficiantly built out, but there are some gaps to fill. Some sidewalks are deteriorated, uneven, or narrow and most sidewalks are located along the curb without a planting strip separating pedestrians from traffic. The Downtown network includes a mix of concrete, brick, and paver sidewalks.

FHWA Prove Safety Countermeasure
"65-89% reduction in crashes involving pedestrians walking along roadways."

CONSIDERATIONS

- Well-maintained and safe sidewalks help businesses thrive in areas with a high degree of pedestrian activity.
- There are a large number of driveways that cross streets in Downtown Dover. Sidewalks should be maintained at-grade through driveways.

COMPLEMENTARY TREATMENTS

- Street trees
- Streetscape
- Pedestrian scale lighting

EXAMPLES

Sidewalk / Source: NACTO

Sidewalk in New Orleans/ Source: NACTO

REFERENCES

- NACTO Urban Street Design Guide

STREETSCAPE

OVERVIEW

Description: Design of curb space adjacent to sidewalk should be balanced to provide core transportation functions as well as to facilitate engaging places using streetscape elements. It can be used for placemaking, including for commercial uses and sidewalk dining.

Application: There are several streets in Downtown Dover that have the sidewalk directly along the curb. Where feasible, widening the sidewalk zone to include a planting strip, street trees, and other streetscape elements would enhance pedestrian safety and comfort.

FHWA Prove Safety Countermeasure
"Intersection lighting can reduce pedestrian crashes up to 42%."

CONSIDERATIONS

Streetscape elements might include:

- Pedestrian scale lighting
- Street trees
- Landscaping
- Dining and benches
- Green Stormwater Infrastructure
- Public art
- Bicycle parking

COMPLEMENTARY TREATMENTS

- Sidewalk network
- Wayfinding signs
- Traffic calming

EXAMPLES

Example of sidewalk dining / Source: John Tlumacki

Street furniture and landscaping / Source: Artform

REFERENCES

- NACTO Urban Street Design Guide

SPEED HUMP / CUSHION

OVERVIEW

Description: Speed humps provide vertical deflection via a change in the height of the roadway (3 to 4 inches) to slow vehicular traffic. Speed humps typically extend nearly the width of the street and are positioned between intersections at approximate 200-foot spacing. Signage and markings warn drivers of the hump.

Application: Speed humps are not widely applied yet in Dover, but should be considered for future implementation. They can be installed along corridors that are not frequent emergency routes. For emergency routes, speed cushions with gaps that accommodate the wheel spacing of emergency vehicles can be considered.

CONSIDERATIONS

- Speed humps should not be placed in front of driveways or other significant access areas.
- Most Downtown Dover streets operate between 25-35 mph. At these speeds, speed humps should be spaced no more than 500 feet apart to keep speeds close to the posted 25 mph speed limit. If slower speeds are desired, speed humps can be spaced closer together.

COMPLEMENTARY TREATMENTS

- Warning signs
- Raised crosswalks
- High visibility marked crosswalks

EXAMPLES

Speed hump along a residential street

Speed cushion with wheel gaps for bicyclists and emergency vehicles / Source: NACTO

REFERENCES

- NACTO Urban Street Design Guide

RAISED CROSSWALK

OVERVIEW

Description: Raising a pedestrian crosswalk slightly above the normal street level increases visibility of people crossing, can enhance accessibility, and slows motorists. Raised crosswalks can be located at areas where people have difficulty crossing the street.

Application: Dover could consider raised crosswalks in Downtown and at mid-block crossings where improved visibility and traffic calming would be most beneficial.

CONSIDERATIONS

- Raised crosswalks are typically installed on 2-lane or 3-lane roads with speed limits of 30 mph or less and average annual daily traffic (AADT) of no more than 9,000.
- Raised crosswalks may not be suitable for bus routes or primary emergency vehicle routes.

EXAMPLES

Raised crosswalk in Philadelphia, PA / Source: Tara Hofferth

Raised crosswalk in Lancaster, PA

COMPLEMENTARY TREATMENTS

- Flashing beacon
- Accessible ramp

Raised intersection / Source: City of Cambridge

REFERENCES

- FHWA Raised Crosswalk Countermeasure Tech Sheet

CURB EXTENSION

OVERVIEW

Description: Curb or sidewalk extended into the street, either at an intersection or mid-block, narrows the street width, reduces pedestrian crossing distance, improves visibility of pedestrians, and reduces right-turn vehicle speeds.

Application: Curb extensions in Downtown Dover can improve pedestrian safety at frequently crossed intersections.

Painted curb extensions with delineator posts could be a quick build treatment to pilot safety improvements prior to permanent installation. In some jurisdictions, such as Washington, DC, these low-cost treatments can remain in place semi-permanently.

CONSIDERATIONS

- Minimum street or lane width
- Consider the wide turning radii of trucks or buses
- Midblock extensions provide an opportunity to enhance midblock crossings
- Presence of on-street parking
- Adequate lighting of curb extension

COMPLEMENTARY TREATMENTS

- High visibility marked crosswalk
- Curb ramps
- Pedestrian scale lighting

EXAMPLES

Curb extensions in Boston shorten a pedestrian crossing and slow vehicle turns

Painted curb extension / Source: City of Seattle

REFERENCES

- FHWA Curb Extensions Countermeasure Tech Sheet

DOWNTOWN DOVER PATHWAYS

MEDIAN ISLAND

OVERVIEW

Description: A raised median provides horizontal deflection to slow vehicles along a roadway. Raised medians provide an opportunity to incorporate a pedestrian refuge or green stormwater infrastructure.

Application: Medians could be considered in Dover neighborhoods where traffic calming is needed.

CONSIDERATIONS

- Medians are typically installed along streets with high bicycle and pedestrian volumes, along streets with few acceptable gaps to cross both directions of traffic, and at signalized or unsignalized intersections.
- Access management may be needed to provide driveway access to residences and businesses.

EXAMPLES

Medians as part of a multimodal street / Source: FHWA

Median islands creating horizontal deflection / Source: NACTO

COMPLEMENTARY TREATMENTS

- Speed hump
- Curb extension
- Refuge island
- Planters

Median island along a residential street / Source: Ken Sides

REFERENCES

- NACTO Urban Bikeway Design Guide

CHICANE

OVERVIEW

Description: Chicanes include a series of fixed objects, using curb extensions or pavement markings and delineator posts, that create a zig-zag path to slow vehicles. Chicanes can be created by alternating on-street parking between sides of the street.

Application: Chicanes could be considered on neighborhood streets in Dover, particularly where there is on-street parking.

CONSIDERATIONS

- A chicane design may warrant additional signing and striping to ensure that drivers are aware of a slight bend in the roadway.
- Chicanes can be implemented with low-cost or temporary materials to pilot the tool before transitioning to permanent materials.

EXAMPLES

Example of a chicane in New York City / Source: Roy Smith

Planted median serving as chicane / Source: NACTO

COMPLEMENTARY TREATMENTS

- Median island
- Curb extension

Horizontal deflection using parked vehicles / Source: NACTO

REFERENCES

- NACTO Urban Street Design Guide

DAYLIGHTING

OVERVIEW

Description: Daylighting uses pavement markings, flexible delineator posts, curb, or other visual or physical elements to delineate spaces where on-street parking is not allowed. Daylighting is most needed at intersections or driveways where visibility is restricted.

Application: Daylighting would be beneficial in Downtown Dover to improve visibility of pedestrians at intersections. Planters or bike corrals can be installed in the daylighting to prevent parking and loading without obstructing views. This space can also be used for motorcycle parking if proper sight distance is maintained.

CONSIDERATIONS

- Daylighting areas are typically at least 20 feet long.
- Using flexible delineator posts can improve compliance.
- Daylighting areas can include art, planters, bike parking, or other items that do not restrict visibility.

COMPLEMENTARY TREATMENTS

- Flexible delineator posts
- Bicycle parking
- Motorcycle parking
- Planters

EXAMPLES

Intersection daylighting with flexible delineator posts

Daylighting in Lancaster, PA / Source: Will Weismantel

REFERENCES

- NACTO Urban Street Design Guide