



PUTTING PEOPLE FIRST

Traffic Calming Policy

**City of Birmingham
Department of Transportation**

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Traffic Calming Policy

Purpose

Traffic calming measures can be proposed as a potential method of slowing the speeds of motorists, thereby creating a safer environment for all users of the transportation system. These measures, when applied appropriately, have the potential to create a “self-enforcing” quality for the street that physically encourage motorists to drive at or below the speed limit.

The greatest benefit of traffic calming is increased safety. Compared with conventionally designed streets, traffic calmed streets can have fewer collisions and reductions in injuries and fatalities. These safety benefits are mostly the result of slower speeds by motorists that result in greater driver awareness, wider fields of vision, shorter stopping distances, and less physical impact during a collision. At 20 mph or less, a vehicle is much less likely to kill or severely injure a pedestrian in a collision.

Other contributing factors to these safety results include a more legible street environment and design advantages for pedestrians and cyclists. Bulbouts on corners of intersections, for example, allow pedestrians to see past parked cars prior to crossing the street. The accommodation and comfort of pedestrians increases greatly as speeds go down. Acceptable gaps (the space between moving vehicles) are better judged at slower speeds, and at 25 mph or less drivers are much more likely to yield to pedestrians and let them cross the street than at higher speeds.

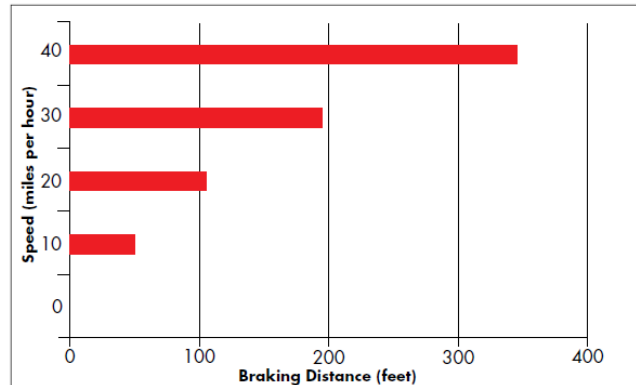
Other potential benefits to traffic calming measures include higher property values, increased awareness of retail establishments, and general quality of place and life benefits.

Process

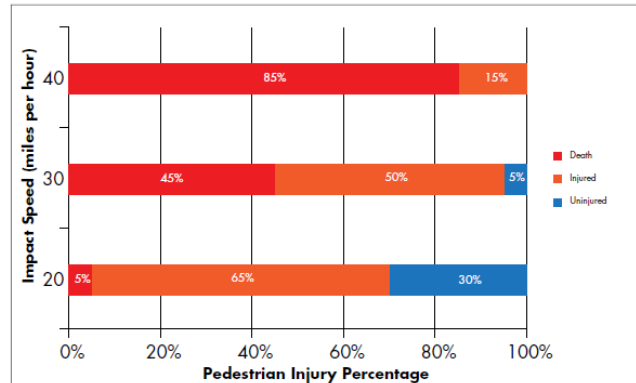
Candidate Site Screening and Prioritization

Candidate sites for traffic calming may be proposed through a number of sources, including the following:

- Requests from concerned citizens and neighborhood groups through the City 311 system, via elected representatives, town hall meeting input, direct contact with the department, or other means
- Submissions from businesses, institutions, developers, and organizations utilizing the same means
- Highlighted areas from systemwide planning efforts including citywide crash and speed data analysis, input from public safety departments (police and fire), and recommendations from general planning reports



Source: Federal Highway Administration Pedestrian Safety Design Course.



Source: Killing Speed and Saving Lives, UK Department of Transportation.

BDOT strives to develop and maintain a safe and efficient multimodal transportation system that is rooted in supporting walkable vibrant communities. We are working to ensure that the City of Birmingham’s transportation system promotes a high quality of life, a healthy environment, and strong economic vitality.



Candidate sites typically consist of:

- One or two connected intersections
- A street segment along a one to three block length

Sites will be screened and prioritized for engineering analysis according to recognized feasibility indicators.

Engineering Analysis

After candidate sites are received, screened and prioritized, an initial engineering analysis is performed by BDOT to field measure vehicle speeds at the site, analyze crash rates, observe and measure intersection and street geometry, determine site distance, and gather experiential input from stakeholders.

Traffic Calming Measure Selection and Design

Many consider speed humps to be synonymous with traffic calming, but in reality there are many applications that can be utilized to create an environment for slower vehicle speeds. BDOT technical staff will work with the **Traffic Calming Working Group** and the applicant in a collaborative process, seeking to select and design the traffic calming measures that are most appropriate to the site context, best suited to reduce vehicle speeds, and most practical for implementation.

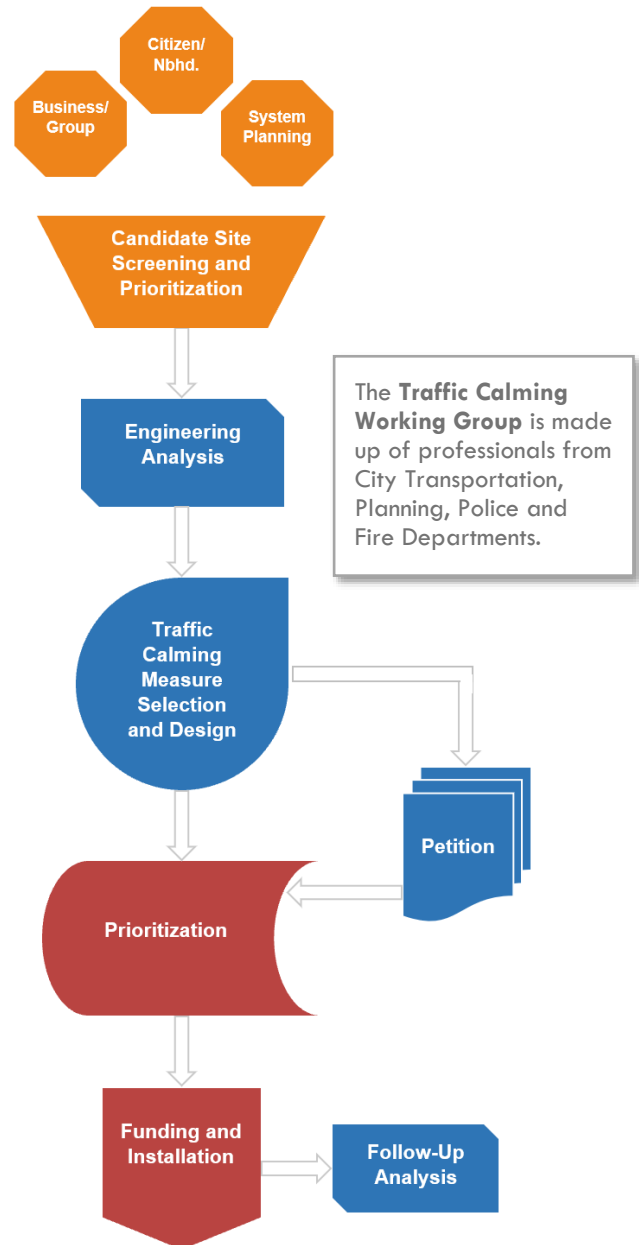
Depending on the resulting recommendations, BDOT may require a petition of adjacent neighbors which must be performed by the applicant. BDOT will provide a petition form to the applicant to gather supporting signatures of at least 67% of the residents and/or business owners whose properties are located on the same street and within the block length of the proposed speed hump locations.

Prioritization

The **Traffic Calming Working Group** evaluates and prioritizes the candidate sites according to these criteria:

- Vehicle Speed
- Crash Statistics
- Traffic Volume
- Project Cost
- Vulnerable Users
- Context
- Equity
- Ped/Bike Volume
- Street Type
- Economic Development
- Cost Share/Grant Funds

There is currently a preexisting list of known problem areas, so time frames for analysis, design and prioritization will vary.



Funding, Installation and Follow-Up Analysis

There is currently no ongoing dedicated funding source for traffic calming measures. However, there are potential mechanisms for funding the recommended improvements.

- Neighborhood Funds
- Public and Private Grants
- Inclusion in Upcoming FY Capital Budget
- Tactical Implementation
- Private Cost Sharing
- Council Funds

Before project installation is initiated, neighborhood organizations and stakeholders will be notified of the upcoming construction activities. Follow-up analysis will be conducted to measure the effect of the projects on vehicle speeds, volume, and crash frequency and severity.

Traffic Calming Measures

This table comprises a non-exclusive list of possible traffic calming measures and their relative cost and appropriateness for application according to street type. Street types are based on the definitions established by the ITE/CNU Walkable Urban Thoroughfares Manual, an engineering standard adopted by the City of Birmingham. They correlate roughly with the functional classifications of arterial, collector and local streets.

As described in the previous section, traffic calming measure selection and design is the result of careful engineering analysis, consideration of context, available project budget and designation of contract labor vs. installation by city forces.

In the following pages these measures are defined and illustrated, derived from the City of Birmingham Comprehensive Plan.

No.	Traffic Calming Measure	Rel. Cost	Boulevard (Arterial)	Avenue (Collector)	Street (Street)
1	Fog Lines/Parking Lane Buffers	\$			
2	Narrow Travel Lanes	\$			
3	On-Street Parking	\$			
4	Rumble Strips	\$\$			
5	Speed Humps	\$\$			
6	Speed Table	\$\$			
7	Chicane	\$\$\$			
8	Choker	\$\$\$			<3,000 ADT
9	Traffic Circle	\$\$\$			
10	Raised Intersection	\$\$\$			
11	Reduced Curb Radii	\$\$			
12	Street Trees and Ped. Scale Lighting	\$\$\$			
13	Shared Space	\$\$\$\$			
14	Textured and Colored Pavement	\$\$			
15	Yield Street	\$			<3,000 ADT
16	Prohibit Right-Turns on Red	\$			
17	Remove Dedicated Right Turn Lane	\$\$			
18	Signal Timing Modification	\$			
19	Leading Pedestrian Interval	\$			
20	Removal of Pedestrian Push Button	\$			
21	Pedestrian Countdown Signal	\$\$			
22	Protected Left Turn	\$\$			
23	Road Diet	\$\$			
24	Roundabout	\$\$\$\$			
25	In-Street Yield to Pedestrian Paddle	\$			
26	High-Visibility Crosswalk	\$			
27	Raised Crosswalk	\$\$			
28	Bulb-Out/Curb Extension	\$\$\$			
29	Raised Median Island/Ped. Refuge	\$\$			
30	Pedestrian Rapid Flashing Beacon	\$\$			
31	Pedestrian Hybrid Beacon	\$\$\$			
32	Bike Wayfinding	\$			
33	Bike Sharrows	\$			
34	Bike Lanes	\$			
35	Bike Box	\$\$			
36	Bicycle Boulevard	\$\$			
37	Protected Bike Lane	\$\$			
38	Greenway/Sidepath	\$\$\$			
39	Bicycle Parking	\$			
40	Bicycle Signals and Sensors	\$\$			

Legend

Appropriate
Conditional
Not appropriate



SPEED REDUCTION TREATMENTS



1. Fog Lines or Wide Parking Lines

Wide edge-lines used to precisely define and limit the space for moving traffic. Usually widens parking lanes and narrows travel lanes.

Advantages:

- Narrows travel lane, thus reducing speeds.
- Can offer space for bicyclists, especially if space does not exist for full bicycle lanes.

Disadvantages:

- Not as effective as other physical traffic-calming treatments.



2. Narrow Travel Lanes

Restriping of existing travel lanes to reduce width.

Advantages:

- Slows traffic.
- Provides more space for bicyclists and possible bicycle lanes.

Disadvantages:

- Lane width can be dependent on design vehicles.



3. On-Street Parking

Full-time parking provided adjacent to the curb or just beyond a protected bicycle lanes.

Advantages:

- Increases safety by placing a physical barrier between moving vehicles and pedestrians.
- Reduces the speed of traffic traveling adjacent to the parked vehicles.
- Provides parking.

Disadvantages:

- Can be dangerous for bicyclists riding in door zone.
- Ineffective at reducing speeds if travel lane is very wide.
- Can reduce sight lines for motorists entering the street from driveways.



4. Rumble Strips

Pavement surface treatments intended to cause vehicle vibrations signaling drivers to slow down. Best used with other traffic-calming treatments.

Advantages:

- Reduces speeds.
- Low cost.

Disadvantages:

- Vibration noise created may be inappropriate in residential areas.
- Perceived more as a warning to slow down than a physical measure that forces slower speeds.
- Loses effectiveness over time.



5. Speed Humps

Speed humps are mountable obstructions installed on the pavement surface across travel lanes, intended to cause vehicles to slow to the speed limit level.

Advantages:

- Less expensive than methods that require construction.
- Very effective in slowing travel speeds.
- Easily navigated by bicyclists.

Disadvantages:

- May be considered loud or noisy to nearby residents.
- Can force emergency vehicles to slow down.
- Inappropriate on streets with bus traffic due to rider comfort and reduced travel speeds.





6. Speed Table

Wide, mountable obstructions installed on the pavement surface across travel lanes intended to cause vehicles to slow. Speed tables are similar to speed humps except they have a flat-top. Generally wider than speed humps, gentler on vehicles, and typically used on higher-order roads than bumps or humps because they allow a smoother ride and higher speeds.

Advantages:

- Smoother ride than speed humps.
- More applicable for higher-order roads.
- Compatible with bicycle use, particularly on low-volume streets.

Disadvantages:

- Not as effective in reducing speed as speed humps.
- Can be expensive if used with textured materials.



7. Chicane

A series of fixed objects, usually extensions of the curb, that alter a straight roadway into a zigzag or serpentine path to slow vehicles. Can also be created by alternating on-street parking between sides of street.

Advantages:

- Reduces speeds of motorists.
- Noise is not as common as with speed humps or rumble strips.
- Potential to increase trees, landscaping and water-runoff treatment.

Disadvantages:

- Reduces on-street space for parking.
- Maneuvering can be difficult for larger vehicles such as buses, trucks, and fire trucks.
- Needs landscape maintenance.



8. Choker

Narrowing of a street, often mid-block and sometimes near an intersection. May be created with curb extensions, landscaping or edge islands in the street.

Advantages:

- Reduces speeds and volumes of motorists.
- Shortens crossing distances for pedestrians if used at mid-block crossings.
- Provides pedestrian refuge area.
- Can reduce traffic volumes.

Disadvantages:

- Reduces on-street space for parking.
- Design challenges if used on narrow streets without on-street parking.



9. Traffic Circle

A small circular or oblong island used in the middle of intersections and intended to force vehicular traffic to slow and negotiate around it. When used in residential areas, they can be landscaped for aesthetic or barrier purposes, and may have mountable curbs to allow movement of emergency vehicles.

Advantages:

- Reduces speeds of motorists.
- Improves safety.
- Reduces need for complete stops by motorists.

Disadvantages:

- Maneuvering can be difficult for larger vehicles such as buses, trucks, and fire trucks.
- Pedestrian crossings are less managed than traditional stop-controlled intersections.





10. Raised Intersection

The entire area of an intersection is raised above normal pavement surface level to reduce vehicle speed through the intersection and provide a better view of pedestrians and motorists in the intersection.

Advantages:

- Reduces speeds through intersections.
- Reduces red light running at high speeds.
- Calms two streets at once where collisions are most prevalent.

Disadvantages:

- Potential drainage issues.
- Less effective in reducing speeds than humps, tables, or raised crosswalks.
- Expensive.



11. Reduced Curb Radii

Reconstructing a street corner with a smaller radius to reduce vehicle turning speeds.

Advantages:

- Forces sharper turn by right-turning motorists.
- Improves safety of pedestrians by reducing crossing width and slowing motorists.
- Reduces speed of right-turning motorists.

Disadvantages:

- Space may not be available.
- Can be expensive.



12. Street Trees and Pedestrian Scale Lighting

Defining an edge with verticality between the street and sidewalk.

Advantages:

- Vertical edges calm vehicle traffic.
- Buffers pedestrians from street.
- Provides shade during the day and attractive lighting at night.

Disadvantages:

- Possible conflict with overhead utilities.
- Tree wells needed to prevent root disturbance of sidewalk.



13. Shared Space/Woonerf

Shared spaces create a level field between for pedestrians, bikes/scooters and vehicles.

Advantages:

- Designed to slow vehicles to 10 mph.
- Create a safe mixing zone between modes of travel.
- Conducive to morning loading of goods and evening/weekend festival space.

Disadvantages:

- Can be expensive to implement.





14. Textured/Colored Pavement

Creating design in asphalt/concrete through scoring or painting patterns in the street.

Advantages:

- Creates visual interest and sense of place.
- Sends message that street space is not just for driving through.
- Low cost implementation.

Disadvantages:

- Is only applicable in specific contexts.
- Refreshing paint could become a maintenance issue.



15. Yield Street

Narrow street conditions require vehicles to take turns in passing each other.

Advantages:

- Very effective at reducing vehicle speeds
- Implementation can be as simple as allowing on-street parking on both sides of street.

Disadvantages:

- Only appropriate for low-traffic streets.
- Obstructions may need to be staggered to create passing waiting areas.

INTERSECTION SAFETY ENHANCEMENTS



16. Prohibit Right-Turns on Red

Mounted sign eliminates the right of motorists to make a right turn at a red light. Can be used full-time or under restricted time intervals.

Advantages:

- Potential to reduce pedestrian crashes by 40%.

Disadvantages:

- Potential vehicle queuing.



17. Remove Dedicated Right-Turn Lane

Removal of right turn lanes and channelized right turn lanes.

Advantages:

- Reduces conflicts between motorists and pedestrians.
- Slows right-turning traffic.
- Enables shorter crossing distances for pedestrians.

Disadvantages:

- Can cause some delay for right turning vehicle movement.



18. Signal-Timing Modification

Adjustments of existing signal timings to accommodate all modes more readily. Coordinate corridor signals to self-enforce speed limit.

Advantages:

- Speed reduction enables greater safety for all street users.
- Low implementation cost.

Disadvantages:

- Improved conditions for one mode may come at the expense of others.





19. Leading Pedestrian Interval

Pedestrians are given advance time to begin crossing at the crosswalk before conflicting vehicles start moving.

Advantages:

Puts pedestrians well into the crosswalk and more visible before vehicles begin moving into the crossing zone.

Improves pedestrian safety.

Disadvantages:

Reduces green time for conflicting vehicle movements.



20. Removal of Pedestrian Push Button

In downtown and other frequent pedestrian activity areas remove pedestrian push buttons and activate pedestrian signals with every traffic cycle.

Advantages:

Insures pedestrian signal every cycle regardless of when pedestrian reaches intersection or the condition of the push button.

Normalized pedestrian crossing phase at every intersection.

Disadvantages:

Can reduce phase time for dedicated turning signals.



21. Pedestrian Countdown Signal

Static Walk/Don't Walk pedestrian signals with countdown signal informing pedestrians of the time remaining to cross the street.

Advantages:

Fewer pedestrians cross the street late in the countdown as compared to signal heads with only the Flashing-Don't-Walk light.

Disadvantages:

Expense of comprehensive implementation.



22. Protected Left-Turn

Allows left-turning vehicles a protected movement (i.e., no conflicting movements), generally involving the installation of a left-turn arrow.

Advantages:

Removes conflicts between left-turning vehicles and oncoming, through-movement vehicles.

Improves left-turning operations.

Disadvantages:

Less green time for through and right-turn movements.

Less green time for pedestrian crossings.



23. Road Diet

Reducing the number of vehicle through or turn lanes and adding bicycle or pedestrian facilities, and/or on-street parking.

Advantages:

Reduces speed and crash rate, often without affecting flow volume.

Reduces pedestrian crossing distances.

Prevents left turning cars from stopping in passing lane.

Disadvantages:

Can increase delay during peak flows.





24. Roundabout

Raised circular island intersection treatment where all entries are yield-controlled, circulating vehicles have the right of way, and pedestrian access is allowed only across the roundabout legs.

Advantages:

Yield control reduces wait times, thus moving traffic more steadily through the intersection.

Reduces the severity of crashes compared to signalized intersections.

Reduces conflict points compared to a signalized intersection.

Disadvantages:

Requires substantial right of way for construction.

Pedestrians are not provided with a protected signal phase where all traffic is stopped and must rely on driver courtesy and respect for pedestrian right-of-way in the crosswalk.

High cost.

PEDESTRIAN SAFE CROSSING TREATMENTS



25. In-Street Pedestrian Paddle

Signs placed in the middle of crosswalks to increase driver awareness of pedestrians and the legal responsibility to yield right-of-way to pedestrians in crosswalk.

Advantages:

Increases the number of motorists that yield to pedestrians in the crosswalk.

Reinforces the right of pedestrian in the carriage-way.

Disadvantages:

Signs can become damaged.



26. High-Visibility Crosswalk

Reflective roadway markings that provide visual depth at intersections and mid-block crossings.

Advantages:

Continental and ladder crosswalks are more visible to drivers than standard bar crosswalks.

More appropriate in higher volume and/or speed conditions.

Disadvantages:

Most effective with other traffic control (signals, stop signs) or physical treatments (bulb outs) that help to reinforce crosswalks and support reduced vehicle speeds.



27. Raised Crosswalk

A pedestrian crossing area raised above street grade to give motorists and pedestrians a better view of the crossing area. A raised crosswalk is essentially a speed table marked and signed for pedestrian crossing.

Advantages:

Provides better view for pedestrians and motorists.

Slows motorists travel speeds.

Disadvantages:

May change curb drainage patterns.





28. Bulb-Out/Curb Extension

An extension of the curb or the sidewalk into the street (in the form of a bulb), usually at an intersection, that narrows the vehicle path, inhibits fast turns, and shortens the crossing distance for pedestrians.

Advantages:

- Shortens crossing distances for pedestrians.
- Reduces motorist turning speeds.
- Increases visibility for both motorists and pedestrians.
- Enables permanent parking.

Disadvantages:

- Can only be used on streets with on-street parking.
- Greater cost and time to install than high-visibility crosswalks.



29. Raised Median Island/Pedestrian Refuge Area

Provides a protected area in the middle of a crosswalk for pedestrians to stop while crossing street.

Advantages:

- Reduces the number of crashes at marked and unmarked crosswalks.
- Preferred on multi-lane streets.
- Reduces the length of gaps in traffic during which pedestrians can cross the street.
- Reduces vehicle speeds

Disadvantages:

- Must have at least 6 feet of space to accommodate wheelchairs; not all streets will have adequate space.



30. Pedestrian Rapid Flashing Beacon

Signs with a pedestrian-activated “strobe-light” flashing pattern that attracts attention and notifies motorists that pedestrians are crossing.

Advantages:

- Typically increases motorists’ yielding behavior.

Disadvantages:

- Pedestrians may not activate flashing light.



31. Pedestrian Hybrid Beacon

Pedestrian-activated signal, unlit when not in use, begins with a yellow light alerting drivers to slow, and then solid red lights require drivers to stop while pedestrians have the right-of-way to cross the street.

Advantages:

- Very high rate of motorists yielding to pedestrians.
- Drivers experience less delay at hybrid signals compared to other signalized intersections.

Disadvantages:

- Expensive compared to other crossing treatments.
- Requires pedestrian activation.



BICYCLE ACCOMMODATIONS CONTRIBUTING TO TRAFFIC CALMING



32. Bicycle Wayfinding

Signs directing bicyclists toward destinations in and routes through the area, typically including distance and average cycle times.

Advantages:

- Eases navigation for residents and visitors by bicycle.
- Provides guidance to destinations from streets and along multi-use trails.
- Offers another indication to motorists of the presences of bicycles.

Disadvantages:

- Maintenance.



33. Bicycle Sharrows

A shared-lane marking, or sharrow, is a pavement marking used on low-volume streets indicating a bike route or bike boulevard.

Advantages:

- Improves cyclists positioning in the roadway.
- Informs motorists of presence of bicyclists.

Disadvantages:

- Pavement marking maintenance.



34. Bicycle Lanes

The area of roadway designated for non-motorized bicycle use, separated from vehicles by pavement markings.

Advantages:

- Improves safety and comfort by increasing the visibility and awareness of cyclists.
- Designates separate space for bicyclists.

Disadvantages:

- No physical buffer from motorists.
- Motorists may illegally park in bike lane.



35. Bike Box

Marked area in front of the stop bar at a signalized intersection that allows cyclists to correctly position themselves for turning movements during the red signal phase by pulling ahead of the queue.

Advantages:

- Decreases conflicts and crashes between cars and bicycles.
- Separates bicycles from cars at the intersection.

Disadvantages:

- Public education required.
- May require no-turn-on-red condition.



36. Bicycle Boulevard/Neighborhood Greenway

Low-volume and low-speed streets that have been optimized for bicycle travel through treatments such as traffic calming and traffic reduction, signage and pavement markings, and intersection crossing treatments.

Advantages:

- Allows through movements for cyclists while discouraging similar through trips by non-local motorized traffic.
- Creates a comfortable, low-volume, low-speed space for bicyclists and pedestrians.

Disadvantages:

- Some treatments more expensive than others.
- In areas with few alternative routes, reduces those that can relieve traffic during peak travel times.





37. Protected Bike Lane/Cycletrack

An exclusive bike facility physically separated from vehicle travel lanes, parking lanes, and sidewalks. Can be one-way, two-way, at street level, at sidewalk level, or at an intermediate level.

Advantages:

- Buffer provides higher level of safety than bike lanes.
- Reduces risk of “dooring” compared to a bike lane.
- Attractive to a wider spectrum of the public than bike lanes.

Disadvantages:

- Can be expensive.
- Requires more space than bike lane



38. Greenway/Sidepath

Paved pathways that follow natural features such as creeks or ridges, or run parallel to streets but are separated by planted buffers. Designed with space adequate for safe use by both pedestrians and bicyclists.

Advantages:

- Separates bicyclists from vehicle traffic.
- Combination of pedestrians and bicyclists requires less space than separate facilities for each.

Disadvantages:

- Needs adequate space to accommodate buffer from street and width to allow the passing of bicyclists and pedestrians.
- Bicycle and pedestrian conflicts possible with high volumes.



39. Bicycle Parking

Racks that allow secure bicycle parking, providing two contact points with the bicycle frame. Can be provided in the sidewalk furniture zone, on a curb extension or in on-street parking spaces.

Advantages:

- Provides a secure location to store and lock bicycles.
- Locations are generally very close to and visible from the point of interest.
- Relatively inexpensive and easy installation.
- Encourages community bicycle use.

Disadvantages:

- More costly covered and secured bicycle parking preferential for residential developments,



40. Bicycle-Actuated Signals

Bicycle-actuated signals via loops, pucks or video detection.

Advantages:

- Provides clear indication to bicyclists and motorists when bicyclists have the right of way.
- Additional means to manage motorist/ bicyclist conflicts.

Disadvantages:

- Cyclists must be positioned properly to activate the signal.

