

Traffic Calming on Neighborhood Streets



Presented by

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What Is Traffic Calming?

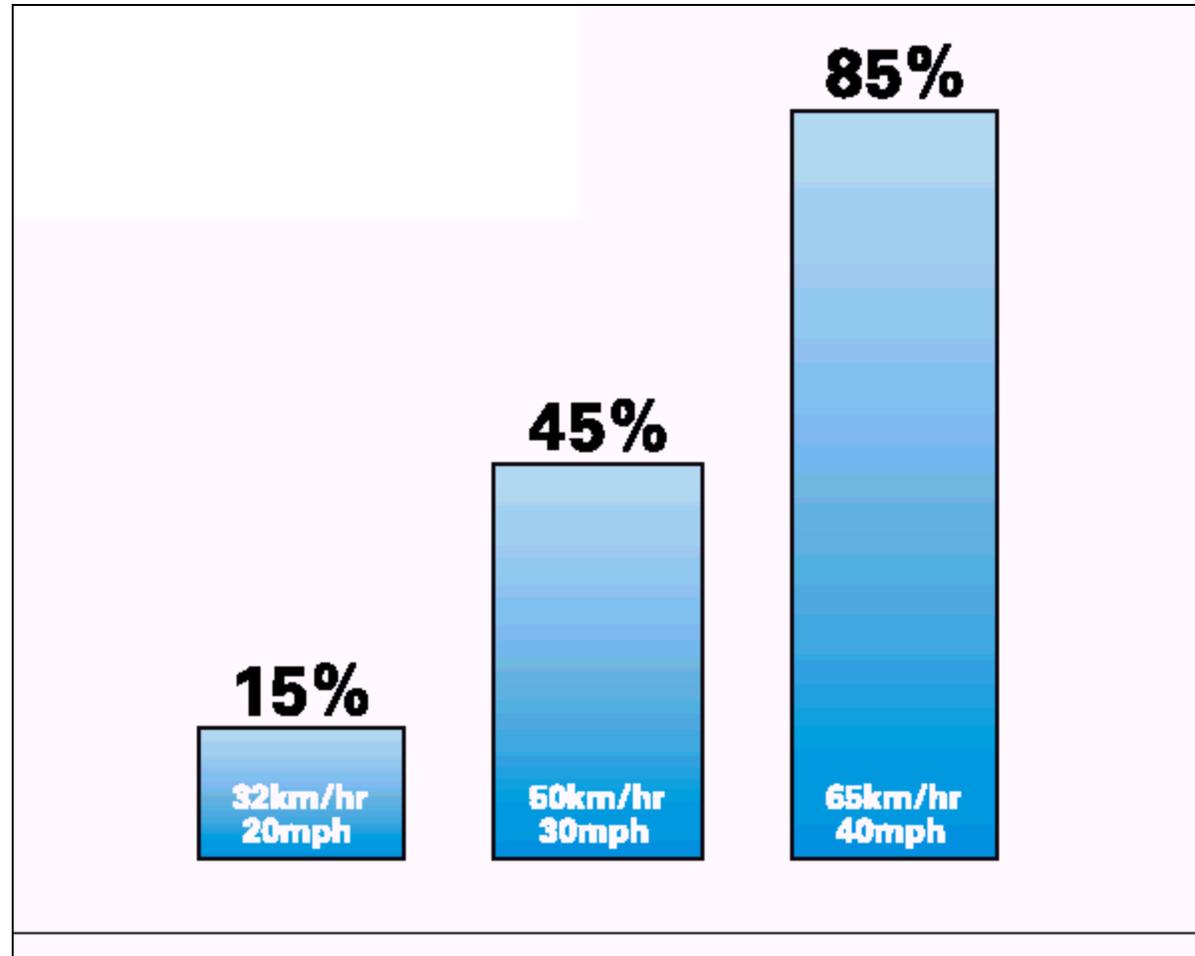
- Horizontal, vertical, lane narrowing, roadside, and other features that use self-enforcing physical or psycho-perception means to . . .
- Support the livability and vitality of residential and commercial areas by improving non-motorist safety, mobility, and comfort.
- Objectives typically achieved by reducing vehicle speeds or volumes on a single street or network.

Typical Residential Street?



Important to reduce vehicle speeds in areas where there is potential for conflict between a pedestrian and a motor vehicle

Pedestrian's Chances of Death if Hit by a Motor Vehicle



Measures Not Considered as Traffic Calming--Signs



All-Way Stops



Speed Limits
Commercial Vehicle Prohibitions



Children at Play

Measures Not Considered as Traffic Calming—Pavement Markings



Markings to Narrow Lanes

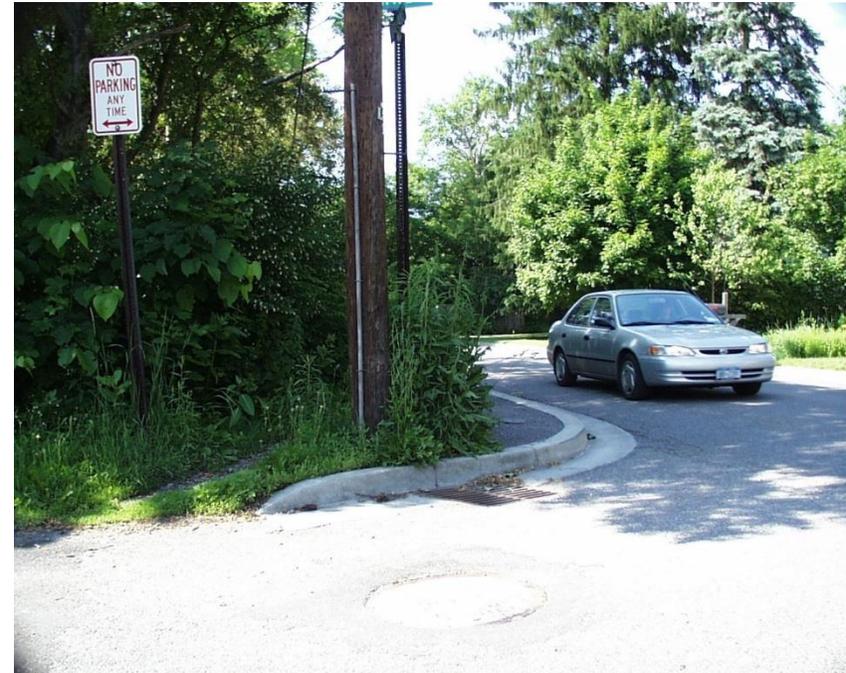


Marked Crosswalks

Measures Not Considered as Traffic Calming



Textured Pavements
and Rumble Strips



Corner Radius Reduction

Measures Not Considered as Traffic Calming—Speed Bumps



Challenges (1)

- Traffic calming involves trade-offs—finding balance between need to provide an efficient transportation network and maintaining a livable and safe environment for bicyclists, peds and other street or street-adjacent users.
- Challenge is to select the appropriate measures and locations to reach that balance.
- Communities have embraced the concept of installing traffic calming on their roadways. Funding of traffic calming continues to be an issue for many traffic calming programs and plans.

Challenges (2)

- Traffic calming can impact the entities that rely on the transportation network for efficient movement:
 - fire, EMS and police departments
 - transit agencies
 - school districts
 - snow removal
 - waste collection

A Matter of Choosing the Right Tools

- (1) Identify the nature and extent of traffic-related problems on a given street or in given area; and
- (2) Select and implement cost-effective measures for solving identified problems.

Categories of Measures

- Street Width Reduction
- Horizontal Deflection
- Vertical Deflection
- Routing Restriction

Street Width Reduction

- Narrows width of vehicle travel lane.
- Thus, motorist slows vehicle for comfort and safety.
- Measures can also reduce ped crossing distance, thereby reducing exposure to ped-vehicle conflicts.

On-Street Parking

- Allocates paved space to parking
- Narrows travel lanes and increases side friction
- Can apply to one or both sides of road
- Parallel parking generally preferred over angle parking to maximize speed reduction

On-Street Parking Examples



Parallel



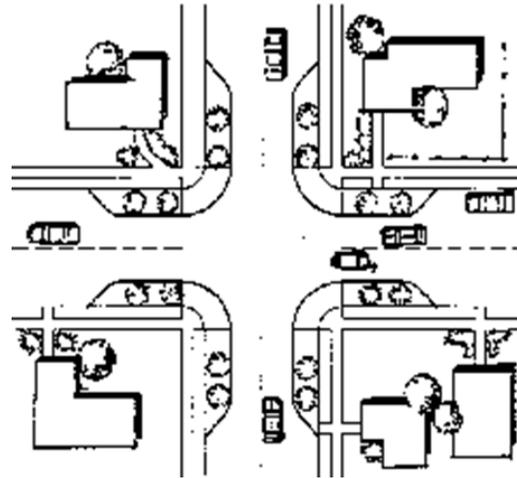
Diagonal

Corner Extension/Bulb-Out

- Horizontal extension of sidewalk into street, narrows roadway section.



Bulb-Out with street furniture



Corner extension with bioswale

Two West Virginia Examples



Ranson

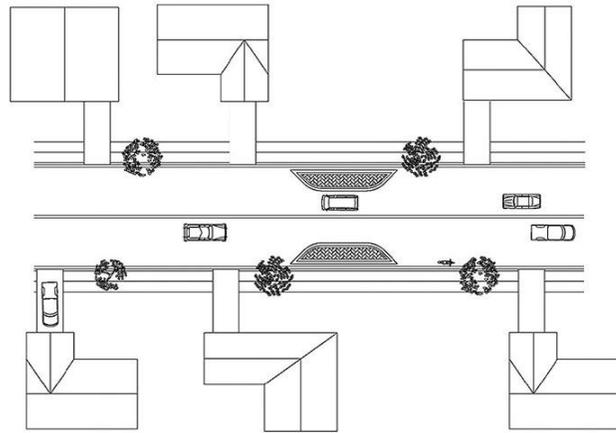


Shepherdstown

Chokers



Suburban residential setting



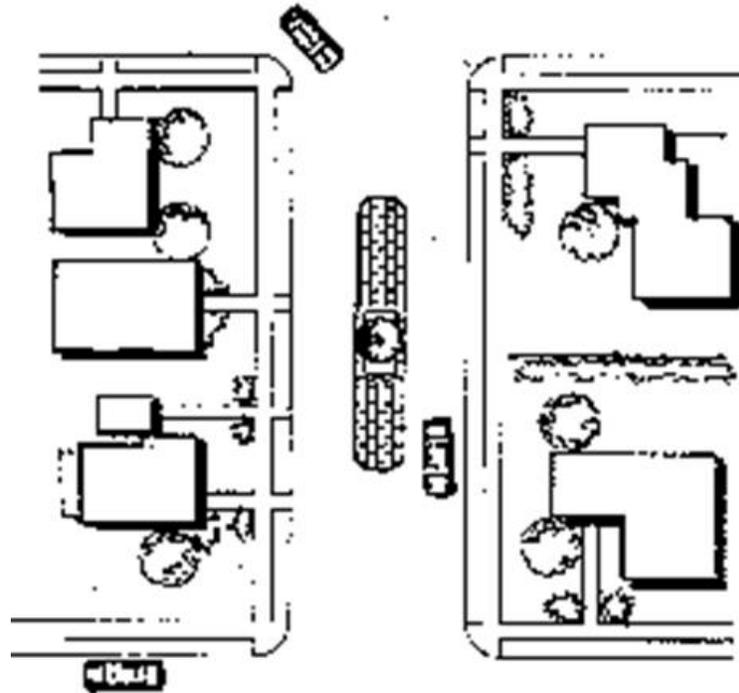
With passing traffic

Angled Choker



Median Island

Raised center island, located along street centerline, that narrows travel lanes at that location

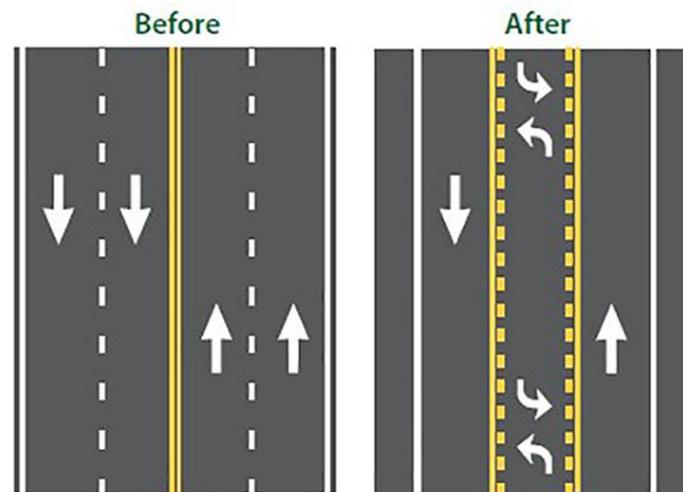


Median Island with Crosswalk



Road Diet

- Revision of lane use or widths to result in one travel lane per direction with minimum practical width, with goal of reducing cross section.
- Alternate cross-section uses can include dedicated bicycle facilities, left-turn lanes, on-street parking, raised medians, ped refuge islands and sidewalks.



Road Diet Example



Cross-Section Before

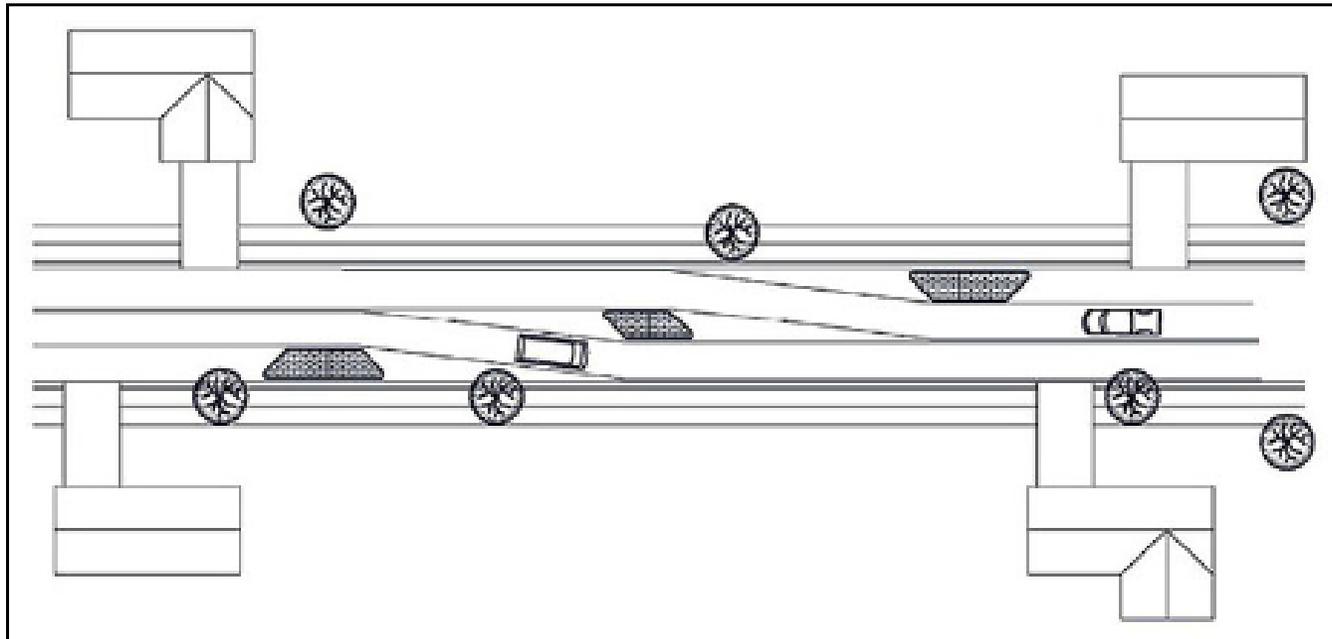


Cross-Section After

Horizontal Deflection

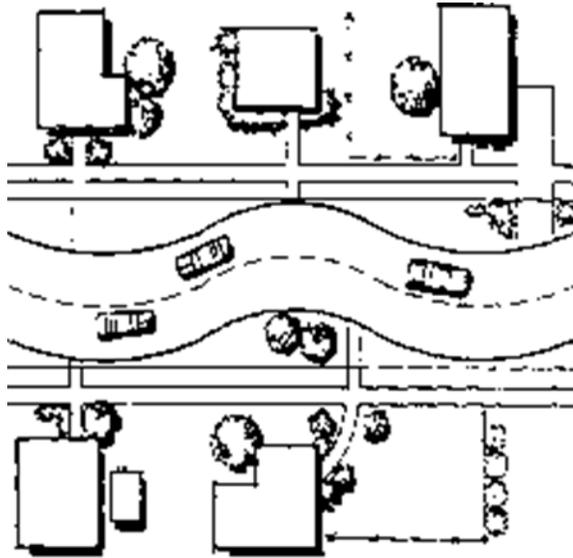
Lateral Shift

Realignment of an otherwise straight street that causes travel lanes to shift in at least one direction



Chicane

Series of alternating curves or lane shifts that force a motorist to steer back and forth instead of traveling in a straight path.



Chicane Examples



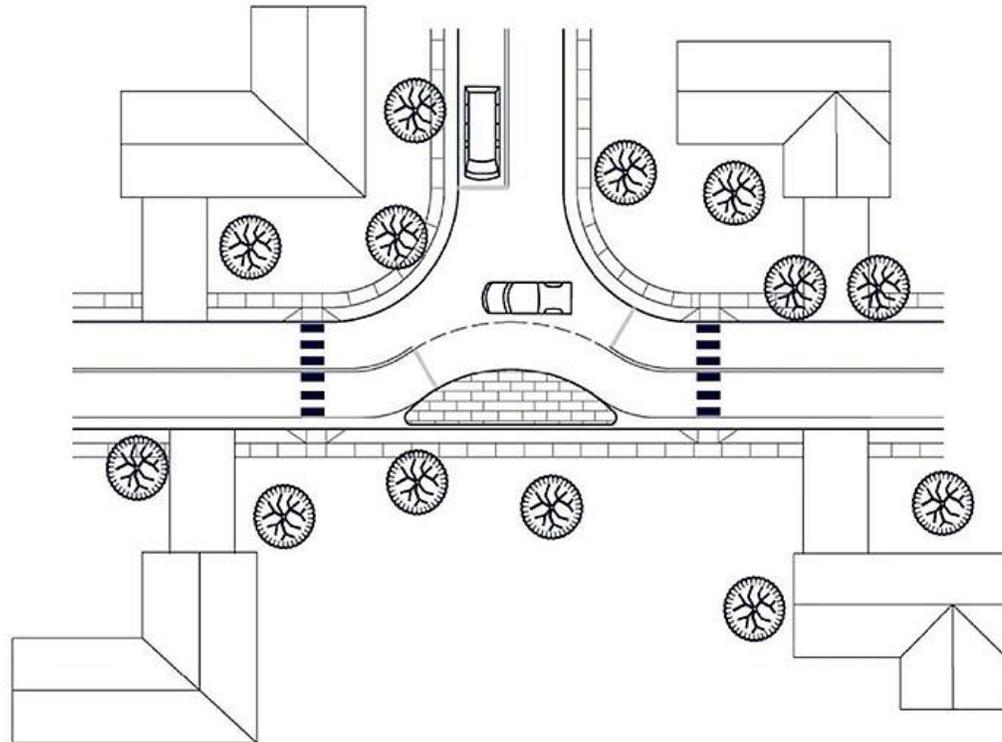
Poorly designed chicane



Well-designed chicane

Realigned Intersection

Reconfiguring a right-angle intersection to have skewed approaches or travel paths through the intersection.

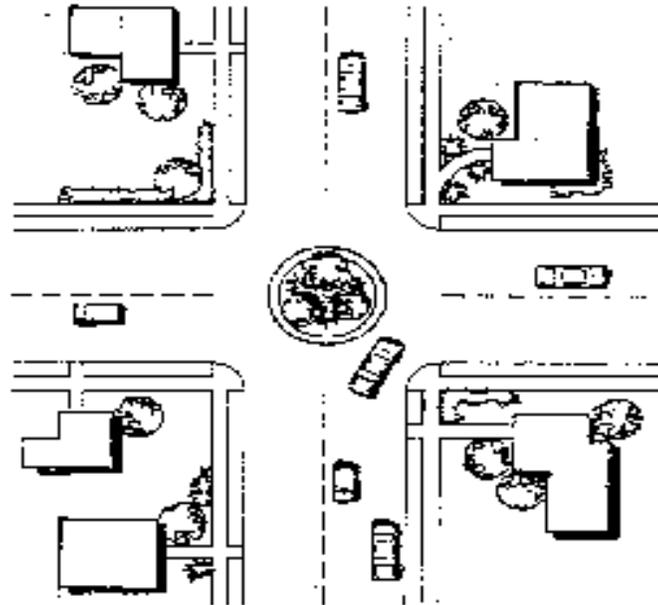


Realigned Intersection Examples



Residential Area Traffic Circles

A raised island placed within an unsignalized intersection, around which traffic circulates. Circle forces all motorists (straight through and turning) to reduce speed when entering and passing through circle.

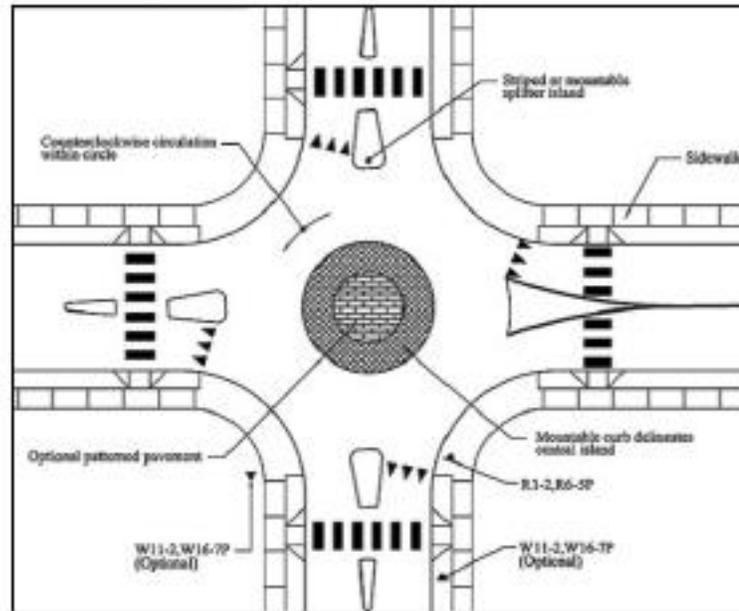


Seattle, WA Circles



Small Modern Roundabout/Mini-Roundabout

Provide similar safety and operational benefits to standard roundabouts but on a much smaller footprint.



Characteristics of Mini-Roundabouts

- Smaller size, usually do not need additional ROW.
- Raised but traversable center island, trucks and other large vehicles can off-track over it.
- Splitter islands are raised, traversable and free of vertical objects.

Small Modern Roundabout Hagerstown, MD



Mini-Roundabout



Vertical Deflection

Speed Humps--Applications

- Appropriate for local residential streets and residential/neighborhood collectors.
- Not typically used on major roads, bus routes or primary emergency response routes.
- Not appropriate for roads with 85th-percentile speeds of 45 mph or more.
- Not recommended on grades > 8%.
- Often placed in series, about 260 to 500 feet apart.
- Appropriate for mid-block placement, not at intersections.

Morgantown Speed Humps



15 feet in direction of travel.
Designed for 20 mph



Speed Hump on Horizontal Curve



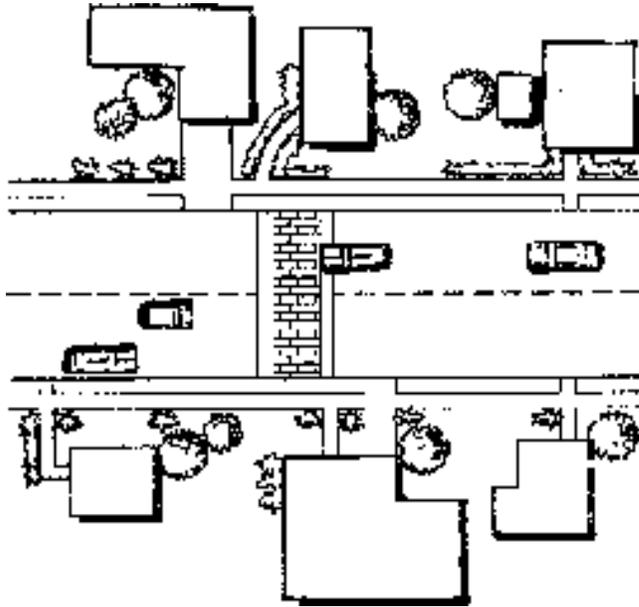
Speed Cushions



Accommodates Several Categories of Users



Speed Tables/Raised Crosswalks (trapezoidal humps, flat topped humps)

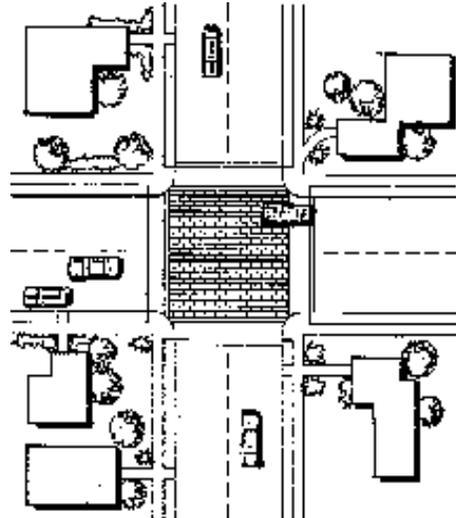


Offset Speed Tables



Raised Intersections

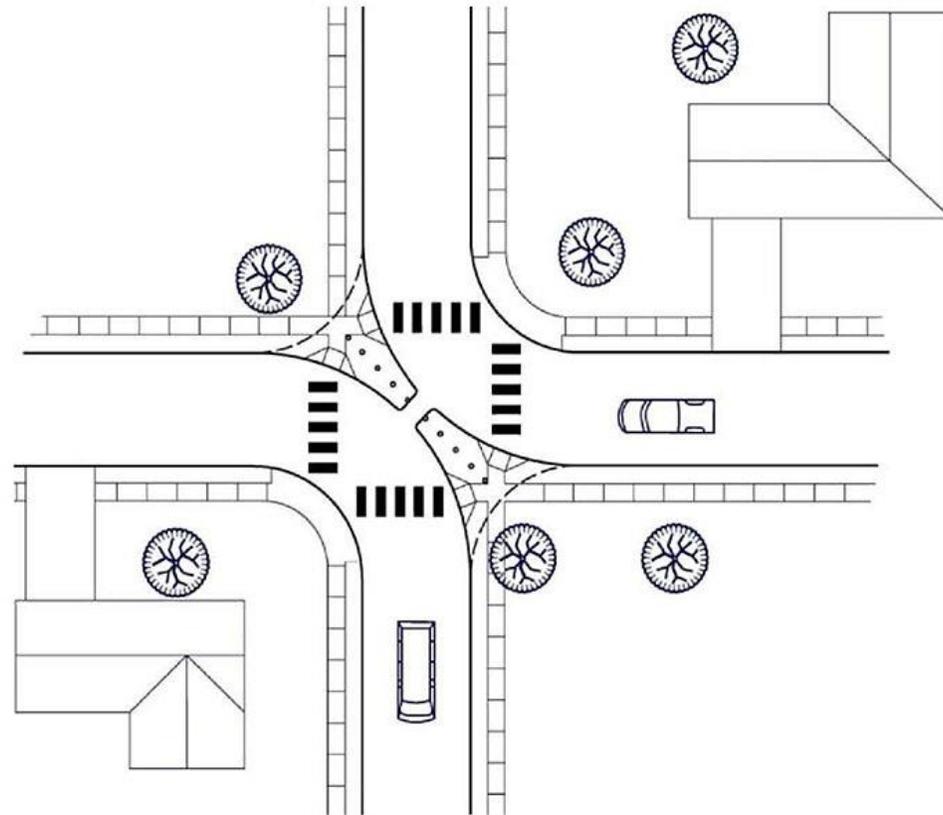
Flat, raised areas covering entire intersection, with ramps on all approaches.



Routing Restrictions

Diagonal Diverter

Barriers placed diagonally across 4-leg intersections, blocking through movements.



Permeable Diverter



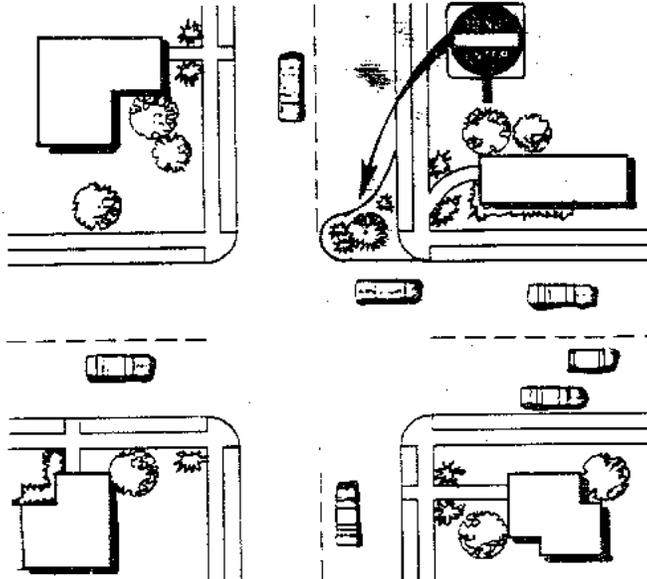
Full Closures (cul-de-sacs, dead ends)

Barriers placed across a street to completely close the street to through traffic, usually leaving an open space for peds and bicyclists.



Half Closures

Barriers that block travel in one direction (creates a one-way street) for a short distance on otherwise two-way street.



Note
bicycle
cut-through

Types of Half Closures



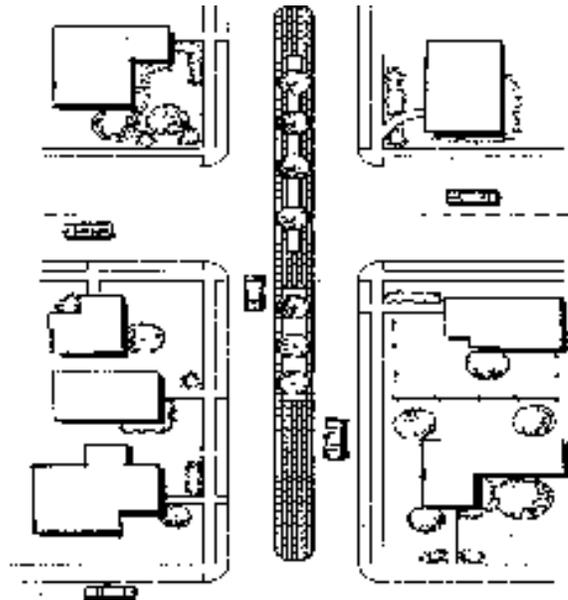
Half Closure Blocking
Entry to Side Street



Half Closure Blocking
Exit from Side Street

Median Barriers on Arterials

Raised islands along centerline of a street, and continuing through an intersection, that block the left-turn movement from all intersection approaches and the through movement from the cross street.

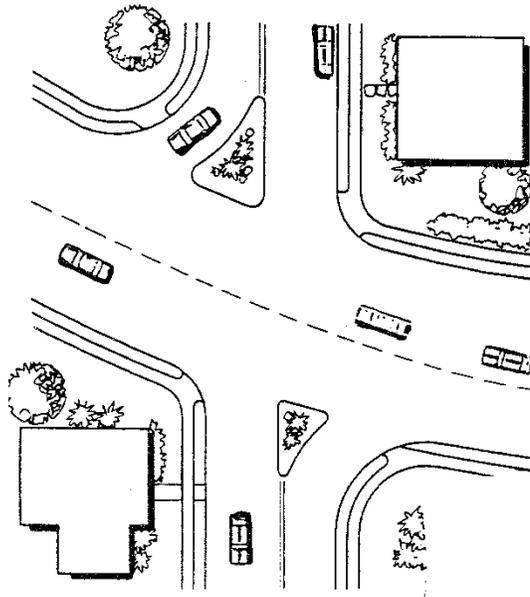


Median Barrier with Ped Refuge and Bicycle Cut-Through



Forced Turn Islands

A raised island that blocks certain movements on approaches to an intersection.



Forced Turn Island Blocking Side Street Through Movements but Allowing All Turns



Concerns About Poor Design and Compliance



Combination Measures--Bulb-Out with Median Refuge



Applicability and Acceptability

- Table 3.1 presents summary (FHWA) of potential applicability of each measure and likelihood of its acceptability for a particular setting.
- Remember that applicability of particular measure has as much to do with problem to be addressed as the physical setting.
- Can use the table as initial screening tool.

Cost of Individual Measures

- Table 3.2 presents range of cost estimates (FHWA)
 - 2017 costs
- Wide variance in cost estimates due to following factors:
 - size
 - overall scale of the project
 - landscaping
 - drainage
 - utility access points

Successful Traffic Calming Integrates

- Engineering
- Enforcement
- Education
- Enhancement
- Evaluation

Questions?

Note: Resource List Included on Handout

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