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

Killing Speed and Saving Lives, UK Department of Transportation
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.
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-%tile 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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