

# Neighborhood Traffic Calming With Some West Virginia Examples



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

# Measures Not Considered as Traffic Calming--Signs



All-Way Stops



Speed Limits  
Commercial Vehicle Prohibitions



Children at Play

# Is This Reasonable?



# Other Measures Not Considered as Traffic Calming—Pavement Markings



Markings to Narrow Lanes



Marked Crosswalks

# Another Measure Not Considered as Traffic Calming—Speed Bumps



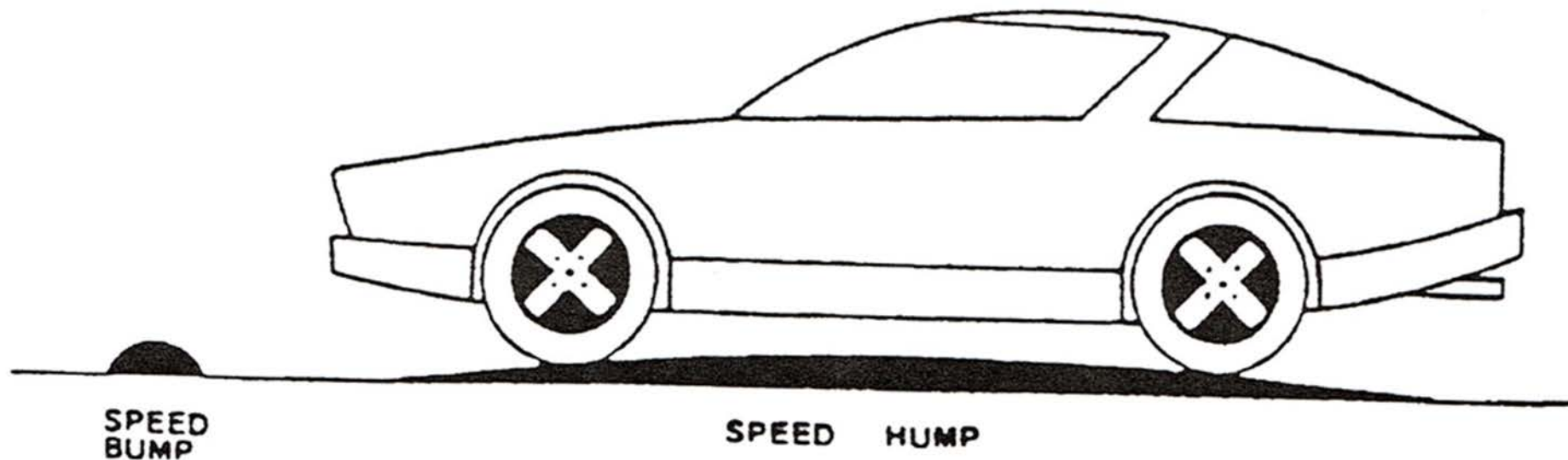
# Do Not Use Speed Bumps on Roads Open to Public Travel

- Are not self-enforcing
- Can damage vehicles and cause harm to occupants
- Can cause injury to bicyclists
- Are a trip hazard for pedestrians
- Are a liability risk exposure
- Is no recognized standard design



# Speed Humps (Undulations)

- Recognized design criteria are available
- Rounded raised areas of pavement usually 12 to 14 feet in length
- Self-enforcing



# A Matter of Choosing the Right Tools

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

# One Way to Reduce Width: 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



# Corner Extension/Bulb-Out

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



Ranson, WV



Shepherdstown WV

# Chokers



Suburban residential setting



Retrofit



Angled Choker

# Median Island

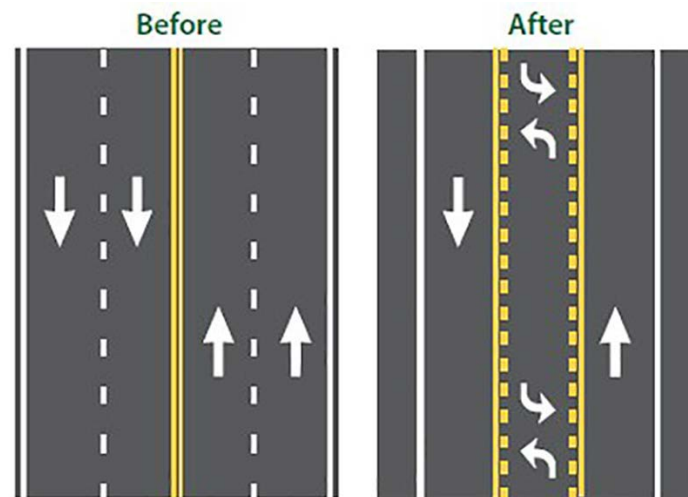
Raised center island, located along street centerline, that narrows travel lanes at that location





# Road Reconfiguration

- 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 Reconfiguration Example



Cross-Section Before

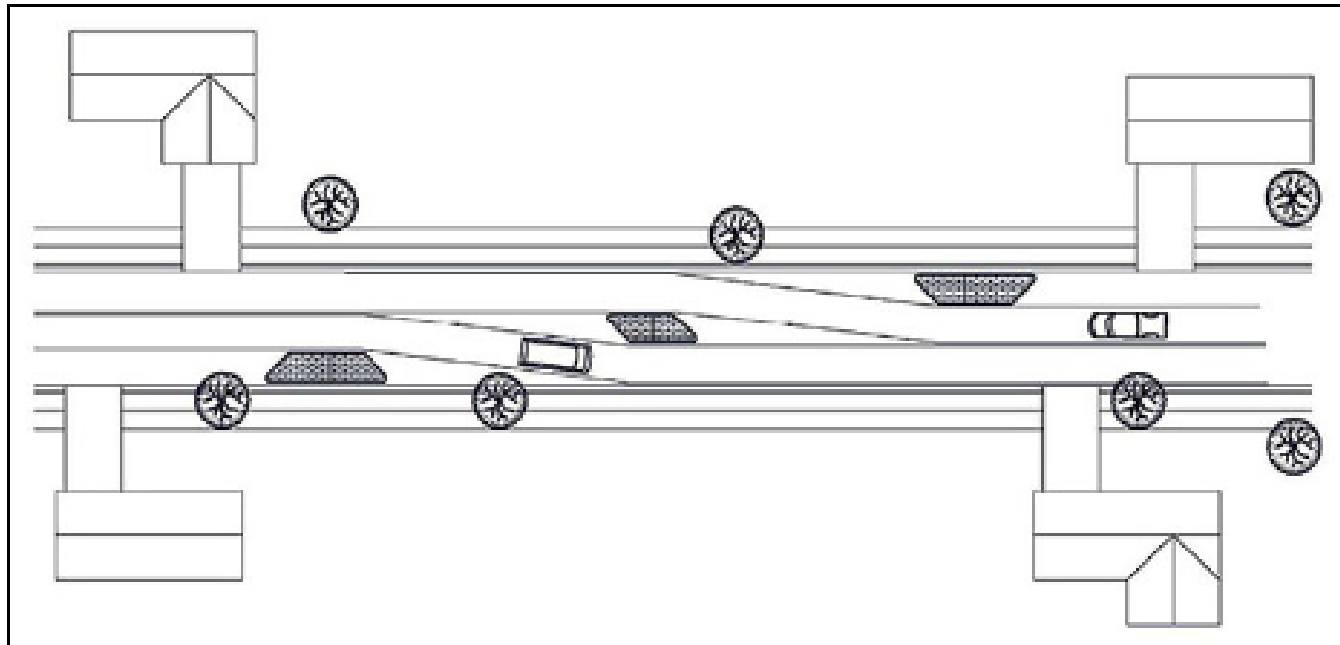


Cross-Section After

# 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.



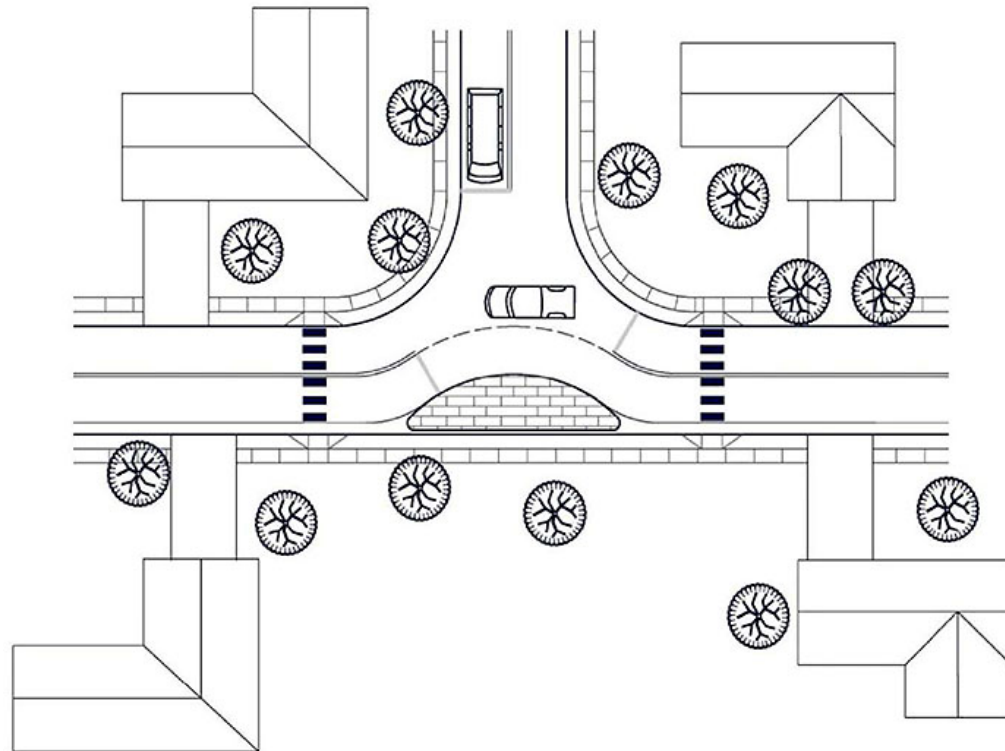
Poorly designed chicane



Well-designed chicane

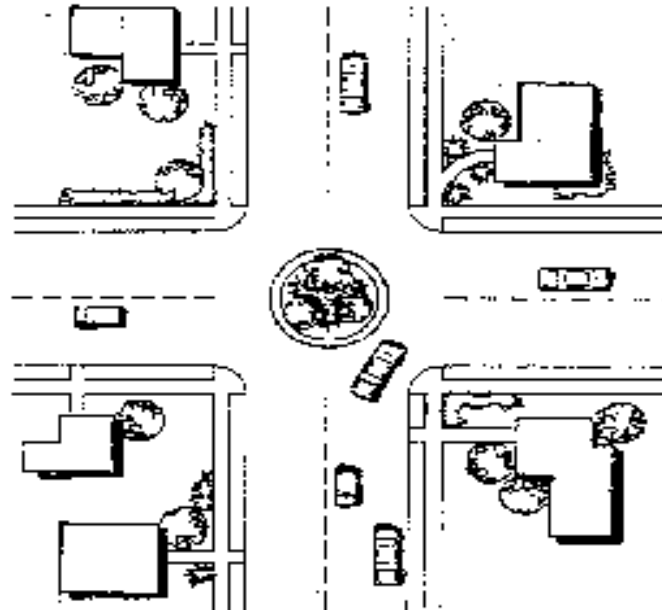
# Realigned Intersection

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



# 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.



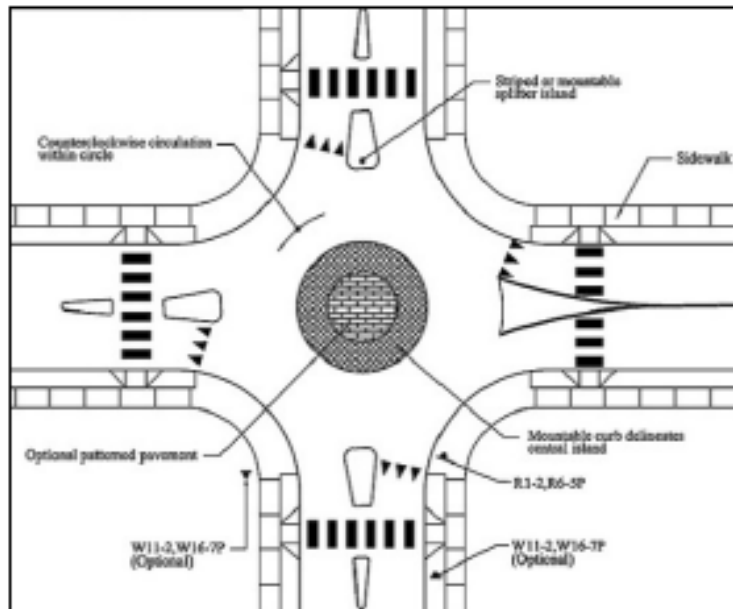
# Seattle, WA Circles





# Small Modern Roundabout/Mini-Roundabout

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



Hagerstown, MD

# Vertical Deflection

# ITE Recommended Practice

ITE RECOMMENDED PRACTICE



A Guide to Vertical Deflection Speed Reduction Techniques  
*Planning and Design of Speed Humps, Speed Tables and Other Related Measures*

*December 2022*

# 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 85<sup>th</sup>-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 Cushions

Accommodates Several Categories of Users



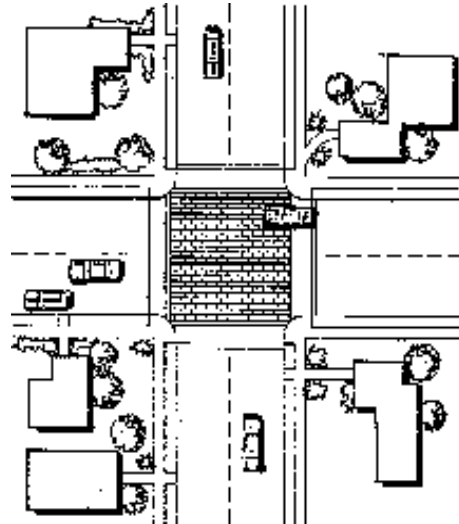
# Speed Tables/Raised Crosswalks



Shepherd University

# Raised Intersections

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

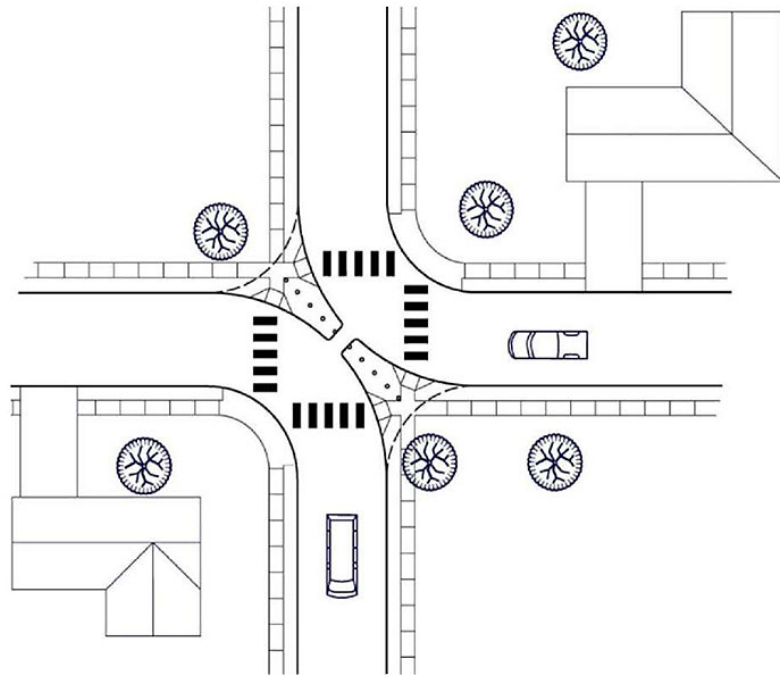




# Routing Restrictions

# Diagonal Diverter

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



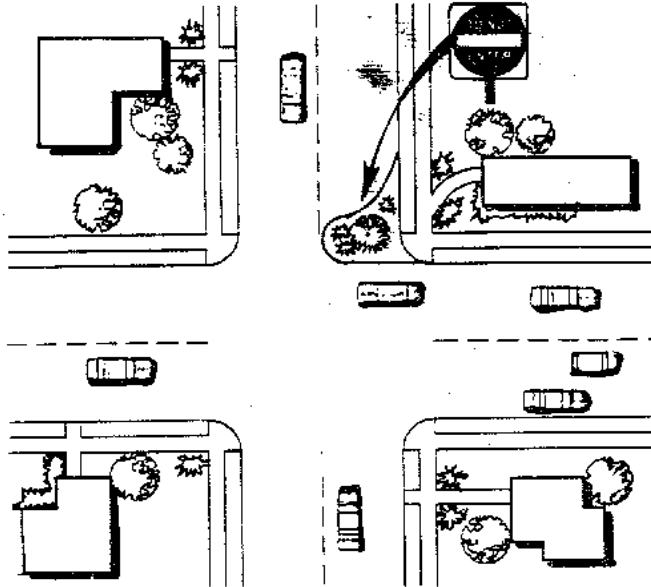
# Full Closures (cul-de-sacs, dead ends)

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



# Half Closures

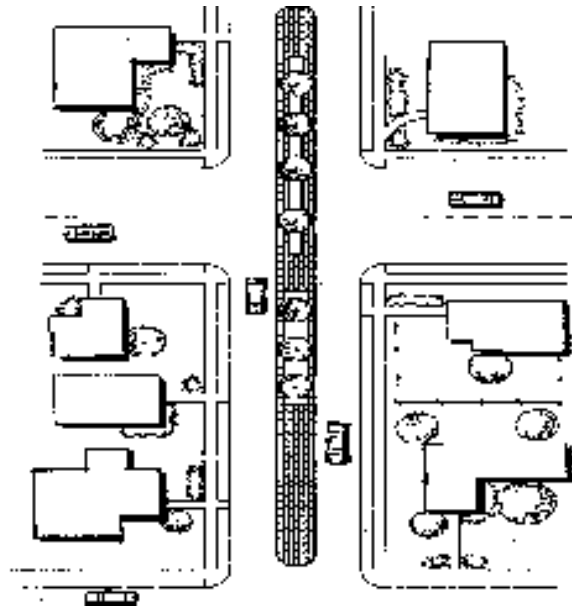
Barriers that block travel in one direction (creates a one-way street) for a short distance on otherwise two-way street.



Note  
bicycle  
cut-through

# 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.

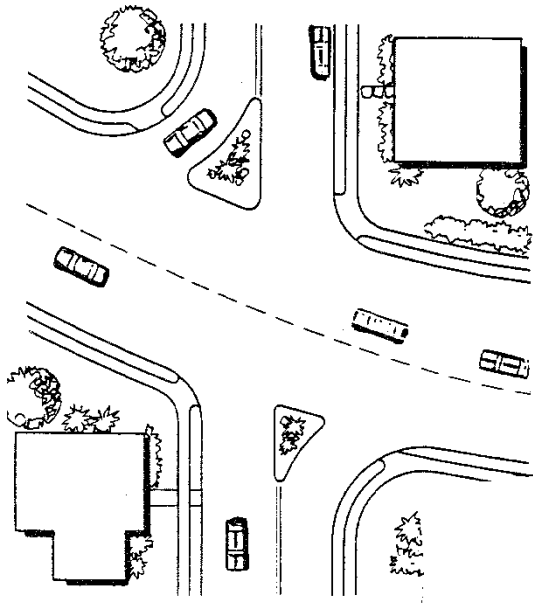


# Median Barrier with Ped Refuge and Bicycle Cut-Through



# Forced Turn Islands

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



# Combination Measures— Bulb-Out with Median Refuge





# Successful Traffic Calming Integrates

- Engineering
- Enforcement
- Education
- Enhancement
- Evaluation

# Some West Virginia Examples

# Speed Bump



65 year-old bicyclist lost control due to the bump, fell forward to pavement and suffered disfiguring facial injuries. Sued the road owner (out of court settlement).

# HOA-Installed Speed Hump



- Design in terms of height and length looks OK
- Pavement marking not MUTCD compliant
- Should be a warning sign in each direction
- Boulders not appropriate—liability exposure

# Foxcrest Manor Subdivision, Berkeley County



# Foxcrest Manor—WV LTAP Tech Assist

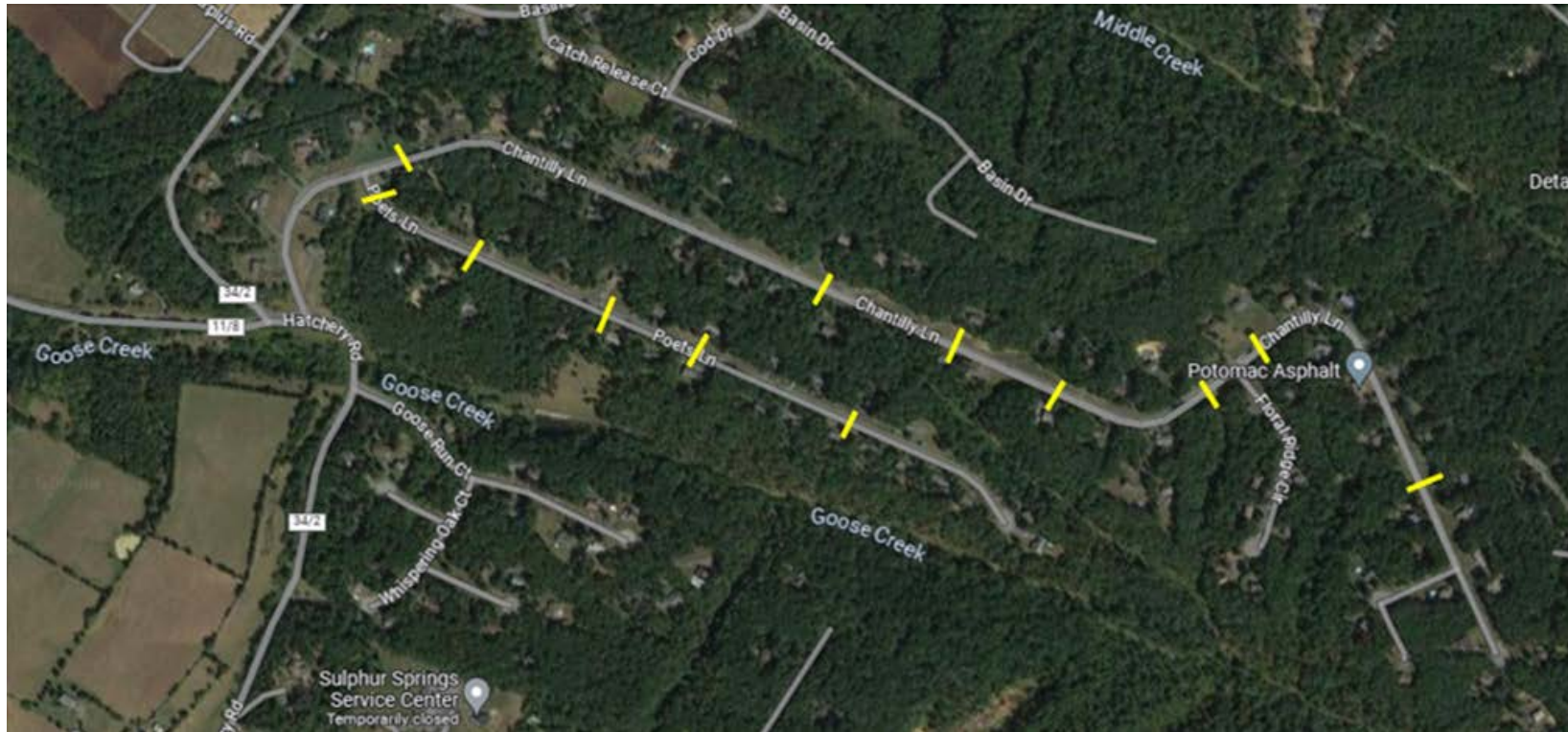
- Residents concerned about high vehicle speeds and two roadway departure crashes
- Some residents wanted closely spaced speed limit signs
- Some residents wanted speed bumps
- HOA president contacted WV LTAP for technical assistance
- Ron visited subdivision in August 2023 to walk the roads, measure grades and identify driveway locations



# Berkeley County BOE

- “Guidelines for Transportation Services into Subdivisions in Berkeley County” includes standards for “speed humps.”
- If standards not met, school buses will not service the road
- Speed Hump Dimensions—“Speed humps must not exceed a height of 4 inches and must be at least 9 feet in depth” and must extend the full width of the road.

# LTAP-Suggested Speed Hump Locations





# HOA Annual Meeting, April 2024

- The subdivision agreed to install two speed humps and evaluate their effectiveness.
- Will borrow WV LTAP radar speed sign to collect before and after speed data at the locations selected.
- Installation of additional humps dependent on results of speed study.



# Questions?

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