Broad Axe Neighborhood
Traffic Calming Study:
Existing Conditions Review

February 27, 2020
Meeting Objectives

• Traffic Calming Process
• Review Existing Traffic Conditions
• Review Potential Traffic Calming Measures
• Discuss Resident Concerns
• Next Steps
Traffic Calming Process

Step 1 – Request for Study
Residents express concerns to Township, Township’s Traffic Advisory Board reviews comments and requests formal study.

Step 2 – Evaluation of Existing Conditions
Verification that there is an issue via conducting area traffic counts and performing origin-destination study

Step 3 - Review of Existing Conditions and Preliminary Recommendations with Residents

Step 4 – Township Determines Preferred Recommendations and Potential Implementation Process
Study Area
• Conducted
  Thursday, 9/26/2019
  - 7 AM to 9 AM and
    4 PM to 6 PM
  - Additional Counts
    9 AM to 4 PM at OD Locations
Levels-of-Services
Vehicle Queues: Butler Pike

**WEEKDAY MORNING PEAK HOUR**

![Diagram showing vehicle queues on Butler Pike during morning peak hour.](image)

**WEEKDAY AFTERNOON PEAK HOUR**

![Diagram showing vehicle queues on Butler Pike during afternoon peak hour.](image)
Cut-Thru Traffic Butler to Skippack: Morning (7 AM to 9 AM)

**Table of Volumes and % of Entering Traffic**

<table>
<thead>
<tr>
<th>Node</th>
<th>Volumes</th>
<th>% of Entering Traffic</th>
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</thead>
<tbody>
<tr>
<td>EG</td>
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<td>0%</td>
</tr>
<tr>
<td>EH</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>FG</td>
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<td>33%</td>
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<tr>
<td>FH</td>
<td>0</td>
<td>0%</td>
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<td>13%</td>
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<tr>
<td>Origin (EF)</td>
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<td>Exit &gt; Enter</td>
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<tr>
<td>Destination (GH)</td>
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<td></td>
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Cut-Thru Traffic Butler to Skippack: Afternoon (4 PM to 6 PM)

<table>
<thead>
<tr>
<th>Node</th>
<th>Volumes</th>
<th>% of Entering Traffic</th>
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<tbody>
<tr>
<td>EG</td>
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<td>0%</td>
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<td>0%</td>
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<td>Destination (GH)</td>
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Legend:
- # TOTAL TURNING MOVEMENT VOLUME
- W TOTAL CUT-THROUGH VOLUME

Transportation Solutions Building Better Communities
Cut-Thru Traffic Butler to Skippack: Signage

Butler Pike SB at Meade Road

Butler Pike SB at Whitpain Drive
Vehicle Queues: Skippack Pike (SR 0073)

WEEKDAY MORNING PEAK HOUR

W: SKIPPACK PIKE (SR 0073)

612' - 23 VEHICLES

WEEKDAY AFTERNOON PEAK HOUR

540' - 20 ADDITIONAL VEHICLES

850' - 32 VEHICLES
Cut-Thru Traffic Skippack to Butler: Morning (7 AM to 9 AM)

<table>
<thead>
<tr>
<th>Node</th>
<th>Volumes</th>
<th>% of Entering Traffic</th>
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<tbody>
<tr>
<td>AC</td>
<td>5</td>
<td>14%</td>
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<tr>
<td>AD</td>
<td>9</td>
<td>25%</td>
</tr>
<tr>
<td>BC</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>BD</td>
<td>0</td>
<td>0%</td>
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<tr>
<td>Cut Thru Traffic</td>
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<td>35%</td>
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<tr>
<td>Origin (AB)</td>
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<td>Exit &gt; Enter</td>
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<tr>
<td>Destination (CD)</td>
<td>46</td>
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Cut-Thru Traffic Skippack to Butler: Afternoon (4 PM to 6 PM)

<table>
<thead>
<tr>
<th>Node</th>
<th>Volumes</th>
<th>% of Entering Traffic</th>
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</thead>
<tbody>
<tr>
<td>AC</td>
<td>21</td>
<td>34%</td>
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<tr>
<td>AD</td>
<td>9</td>
<td>15%</td>
</tr>
<tr>
<td>BC</td>
<td>1</td>
<td>13%</td>
</tr>
<tr>
<td>BD</td>
<td>1</td>
<td>13%</td>
</tr>
<tr>
<td>Cut Thru Traffic</td>
<td>32</td>
<td>46%</td>
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<tr>
<td>Origin (AB)</td>
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<td>Exit &lt; Enter</td>
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<tr>
<td>Destination (CD)</td>
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Cut-Thru Traffic Skippack to Butler: Afternoon (4 PM to 6 PM)

- Recounts at Skippack Pike/Meade Road
  - Initial Count = 62 vehicles turning left
  - Recount = 29 vehicles turning left
  - Reduction of 33 vehicles or 53% over two hours

- Eastbound Approach Volumes during Peak Hour
  - Initial Count = 502 vph
  - Recount = 587 vph
  - Increase of 85 vph

- Why change?
  - Issues with detectors resolved
Vehicle Queues: Skippack Pike (SR 0073)
Traffic Calming: Overview

**Defined:**
The primary purpose of traffic calming is to support the livability and vitality of residential and commercial areas through improvements in non-motorist safety, mobility, and comfort. These objectives are typically achieved by reducing vehicle speeds or volumes on a single street or a street network. Traffic calming measures consist of horizontal, vertical, lane narrowing, roadside, and other features that use self-enforcing physical or psycho-perception means to produce desired effects.

Source: FHWA and ITE: ePrimer
Traffic Calming: Alternatives

- Chicanes or Lateral Shifts
- Speed Humps
- Movement Restrictions
- One-Way Street Options
Traffic Calming: Chicanes/Lateral Shifts

**Chicane**: Series of alternating curves or lane shifts that are located in a position to force a motorist to steer back and forth out of a straight travel path. The curvilinear path is intended to reduce travel speeds, which could also result in a traffic volume reduction.

**Lateral Shift**: Involves only a single shift in the travel way alignment.

**Pros**: Reduce speeds and traffic volumes.

**Cons**: Snow removal; may result in loss of on-street parking, hinders heavy truck operations.
Traffic Calming: On-Street Parking

Parking on one or both sides of a street, narrows the effective cartway width and if permitted on both sides, creates a chicane effect.

Pros: Reduce speeds, depending on extent of on-street parking (need half or more of street in use to be effective).

Cons: Reduce visibility of pedestrians between vehicles, increased risk of open doors hitting bicyclist, and may impact maneuverability of emergency vehicles.
Traffic Calming: Speed Humps

**Speed Hump**: Elongated mound in the roadway pavement surface extending across the travel way at a right angle to the traffic flow; Typically 3 inches in height and 12 feet in length along the vehicle travel path axis.

Produces sufficient discomfort to a motorist driving above the speed hump design speed to discourage speeding, both upstream and downstream of as well as over the speed hump.

**Pros**: Reduces speeds, relatively inexpensive to install and maintain, reduces vehicle conflicts, not pose issues for bicyclists

**Cons**: Proper design is necessary to not impact emergency response times; snow removal operations require training; and drainage could be a concern
Traffic Calming: Potential Speed Hump Locations

[Map showing potential speed hump locations: A, B, C, D, on Skippack Pike (SR 0073).]
Potential Speed Hump Location: Meade Road (A)

Southbound toward Skippack Pike
Potential Speed Hump Location: Meade Road (A)

Southbound toward Skippack Pike
Potential Speed Hump Location: Meade Road (B)

Eastbound toward Butler Pike
Potential Speed Hump Location: Meade Road (B)

Eastbound toward Butler Pike
Potential Speed Hump Location: Ivy Road (C)

Southbound toward Skippack Pike
Potential Speed Hump Location: Ivy Road (C)

Southbound toward Skippack Pike
Traffic Calming: Raised or Modified Intersection

**Raised Intersection:** Typically only installed where there are pedestrian crossings with sidewalks and delineated crossings.

**Modified Intersection:** Deflection to reduce footprint and decrease travel speeds.

**Pros:** Reduces vehicle speeds, can be landscaped

**Cons:** Not effective to reduce cut-through traffic, more expensive, and consideration for adjacent driveways.

*Figure 3.6.6. Sample Design for Realigned Intersection without Median Island (Source: Delaware Department of Transportation)*
Traffic Calming: Modified Intersection
Traffic Calming: Modified Intersection
**Movement Restrictions:**
These could be done via time-of-day signage for select movements or through the implementation of one-way traffic patterns to reduce cut-through traffic volumes.

**Pros:** Reduces cut-through traffic, lowers traffic volumes

**Cons:** Require neighborhood consensus and cooperation, may impact emergency service routes.
Township Determines Preferred Recommendations and Potential Implementation Process Based on Resident Comments and Review of Existing Conditions

Other Considerations
Fiber-Optic Interconnect Signal System is being designed for SR 0073 from Wentz Road to Butler Pike
• Signals linked to PennDOT’s TMC = Continuous Monitoring of Traffic Conditions