Old County Road Corridor Study
Maryland/Delaware State Line to Glasgow Avenue
Presentation Overview

• Corridor Overview

• Corridor Crash Summary

• Segment and Intersection Overviews
  – Old County Road: State Line to the western side of the curve west of Lyric Drive
  – Old County Road: Curve west of Lyric Drive
  – Old County Road at Frazer Road
  – Old County Road: Farmington Ave to Bar Dr
  – Old County Road at Glasgow Avenue

• Improvements/Recommendations

• Questions
Old County Road Corridor

Corridor Overview

- 2.6-mile corridor
- Two-lane roadway, no shoulders
- Numerous unsignalized intersections and driveway access points along Old County Road
- No dedicated left-turn lanes along Old County Road
- Stop-controlled intersections at Frazer Road and Glasgow Avenue
- No pedestrian facilities west of Aetna Station 10 Driveway
- No existing lighting along Old County Road
- 35 – 40 MPH posted speed limit
- 2019 AADT: 2,313 – 3,204
Maryland State line to Lyric Drive classified as a minor collector
Lyric Drive to Glasgow Avenue classified as a major collector
Proposed Harmony Senior Living Facility is projected to increase traffic 12% during the peak hours
The roadway segment west of Frazer has a crash rate of 2.01 for total crashes (compared to 4.69 – the 2021 Statewide crash rate on Urban Major Collectors for all crashes) and a crash rate of 0.4 for fatal/injury crashes (compared to 1.12 – the 2021 Statewide crash rate for Injury and Fatal crashes)
The roadway segment east of Frazer has a crash rate of 2.89 for total crashes and a crash rate of 0.83 for fatal/injury crashes (including the most recent fatal)
Old County Road Corridor
Crash Summary

1/1/2005 – 9/1/2021: 174 crashes
Old County Road Corridor
Crash Summary

1/1/2005 – 9/1/2021: 174 crashes

Old County Road Corridor Crashes by Year

Injury 27%
Property Damage 73%

Dry 60%
Daylight 61%

Wet 31%

Rear End 16%
Sideswipe 5%
Ice/Snow 9%

Other 1%
Animal 4%
Dusk/Dawn 6%

Bike 0%
Other 1%
Dark-Lit 5%

Roadway Departure 45%
Angle 29%

A fatal crash occurred in 2021, but not included in this data set
Old County Road: State Line to West of Curve

Existing Conditions

- Two-lane roadway with no shoulders
- EB lane width – 10 feet; WB lane width – 8 feet
- No lighting or pedestrian accommodations present
- 35 MPH posted speed limit
Old County Road: State Line to West of Curve

Crash Summary

1/1/2005 – 9/1/2021:

9 crashes

- 6 roadway departure crashes
  - 2 struck trees (1 involving alcohol)
  - 2 rollovers
  - 1 struck utility pole
  - 1 unknown strike
- 1 rear end crash
- 1 vehicle / ATV crash
- 1 opposite direction sideswipe crash

Crashes by Year

Time of Day Crashes
Old County Road: Curve west of Lyric Drive

Existing Conditions

- Two-lane roadway with no shoulders
- EB lane width varies from 9.5 – 11 feet
- WB lane width varies from 8 – 11 feet
- No lighting or pedestrian accommodations present
- 35 MPH posted speed limit
Old County Road: Curve west of Lyric Drive

Existing Conditions

Old County Road
Westbound Approach

Old County Road
Eastbound Approach
Old County Road: Curve west of Lyric Drive  
Crash Summary

1/1/2005 – 9/1/2021:  
18 crashes

- 16 roadway departure crashes
  - 7 struck trees (1 involving alcohol)
  - 6 struck utility poles
  - 2 rollovers
  - 1 struck guardrail
- 1 rear end crash
- 1 crash involving a motorcycle avoiding a vehicle
Old County Road at Frazer Road

Existing Conditions

• All-way stop controlled intersection (installed 2003)
• Single lane approaches with no shoulders in all directions
• Intersection does not meet lighting warrants
• Traffic count conducted on Thursday January 9, 2020
Old County Road at Frazer Road
Crash Summary

1/1/2005 – 9/1/2021: 44 crashes

- 27 angle crashes
  - 8 NB / WB angle crashes
  - 7 angle crashes with unknown directions
  - 6 NB / EB angle crashes
  - 6 SB / WB angle crashes

- 11 roadway departure crashes
  - 6 into ditch
  - 4 struck utility poles
  - 1 struck tree

- 4 rear end crashes

- 2 opposite direction sideswipe crashes

Crashes by Year

Time of Day Crashes

Roadway Departure

Daylight 75%
Dark-Unlit 16%
Dawn/Dusk 4%
Dark-Lit 5%
Rear End 9%
Sideswipe 5%
Angle 61%
Roadway Departure 25%
Ice/Snow 9%
Wet 34%
Dry 57%
Old County Road at Frazer Road
Traffic Signal Warrant Analysis

- No signal warrants are met
- Capacity and delay remains consistent with AWSC (Level of Service A/B)
- Installation of unwarranted signal likely to increase speeding and crash frequency/severity

* Note: Reduced volume thresholds are used when the 85th percentile speed on the major approach is greater than 40 MPH. A speed study was not conducted; however, the warrants were checked with reduced volume thresholds and are shown in the chart.

### DE MUTCD Warrant

<table>
<thead>
<tr>
<th>DE MUTCD Warrant</th>
<th>Criteria</th>
<th>No. of Hours Required</th>
<th>No. of Hours Meets Criteria (Warrants 1, 2, 4) Actual Conditions (Warrant 3)</th>
<th>Warrant Criteria Met?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 – Eight-Hour Vehicular Volume</strong></td>
<td>(Any of the three conditions must be met)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cond. A – Min. Vehicular Volume</td>
<td>350</td>
<td>105</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Cond. B – Interruption of Cont. Traffic</td>
<td>525</td>
<td>53</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Cond. C – Combination of Conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 80% of Condition A</td>
<td>280</td>
<td>84</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>• 80% of Condition B</td>
<td>420</td>
<td>43</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td><strong>2 – Four-Hour Vehicular Volume</strong></td>
<td>(See Figure 4C-1 or 4C-2)</td>
<td>4</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td><strong>3 – Peak Hour</strong></td>
<td>(Either of the two conditions must be met)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition A</td>
<td>Delay &gt; 4 Veh.-Hrs. Approach Volume ≥ 100 vph Entering Volume &gt; 800 vph</td>
<td>1</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Condition B</td>
<td>(See Figure 4C-3 or 4C-4)</td>
<td>1</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td><strong>4 – Pedestrian Volume</strong></td>
<td>(Both of the two conditions must be met)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition A</td>
<td>(See Figure 4C-5 or 4C-6)</td>
<td>4</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Condition B</td>
<td>(See Figure 4C-7 or 4C-8)</td>
<td>1</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td><strong>5 – School Crossing</strong></td>
<td>(Refer to DE MUTCD Section 4C.06 for Criteria)</td>
<td>-</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>6 – Coordinated Signal System</strong></td>
<td>(Refer to DE MUTCD Section 4C.07 for Criteria)</td>
<td>-</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>7 – Crash Experience</strong></td>
<td>(Refer to DE MUTCD Section 4C.08 for Criteria)</td>
<td>-</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Alternative 7 – Crash Experience</td>
<td>(Refer to MUTCD Interim Approval, IA-19 for Criteria)</td>
<td>-</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td><strong>8 – Roadway Network</strong></td>
<td>(Refer to DE MUTCD Section 4C.09 for Criteria)</td>
<td>-</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>9 – Intersection Near a Grade Crossing</strong></td>
<td>(Refer to DE MUTCD Section 4C.10 for Criteria)</td>
<td>-</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>
Old County Road: Farmington Ave to Bar Dr

Existing Conditions

- Two-lane roadway with no shoulders
- EB / WB lane widths – 10.5 feet
- No lighting or pedestrian accommodations present
- 40 MPH posted speed limit
Old County Road: Farmington Ave to Bar Dr
Existing Conditions

Old County Road Westbound Approach

Old County Road Eastbound Approach
Old County Road: Farmington Ave to Bar Dr
Crash Summary

1/1/2005 – 9/1/2021:
31 crashes*

- 26 roadway departure crashes
  - 9 struck trees (1 involving alcohol)
  - 5 struck mailboxes (1 involving alcohol)
  - 5 struck utility poles
  - 3 struck miscellaneous objects (1 involving alcohol)
  - 2 struck signs
  - 2 into ditch
- 2 rear end crashes
- 1 crash involving a bicyclist
- 1 same direction sideswipe crash
- 1 crash involving a deer

*Does not include recent fatal crash
Old County Road at Glasgow Avenue
Existing Conditions

- Old County Road is stop-controlled
- Dedicated right and left turns off Glasgow Avenue
- Shoulders present along Glasgow Avenue
- Multi-use path located on the south side of Old County Road
- Traffic counts conducted on Tuesday April 21, 2015 & Saturday April 18, 2015
- CTP Project and WILMAPCO efforts recommend a roundabout
Old County Road at Glasgow Avenue
Crash Summary

1/1/2005 – 9/1/2021:
38 crashes

- 17 angle crashes
  - 13 EB L / SB T angle crashes (1 involving alcohol)
  - 3 EB L / NB T angle crashes
  - 1 unknown angle crash
- 11 EBR rear end crashes
- 5 roadway departure crashes
  - 2 struck trees (1 involving alcohol)
  - 2 struck signs
  - 1 into ditch involving alcohol
- 2 crashes involving deer
- 2 opposite direction sideswipe crashes
- 1 unknown crash

Time of Day Crashes

Daylight 71%
Dawn/Dusk 5%
Dark-Unlit 11%
Dark-Lit 13%

Crashes by Year

Crashes by Year

Dry 87%
Ice/Snow 3%
Wet 10%
Animal 5%
Angle 45%
Unknown 3%
Rear End 29%
Sideswipe 5%
Roadway Departure 13%
## Old County Road at Glasgow Avenue
### Traffic Control Analysis

<table>
<thead>
<tr>
<th></th>
<th>Two-Way Stop Controlled (Existing) AM / PM</th>
<th>All-Way Stop Controlled AM / PM</th>
<th>Roundabout* AM / PM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EB Delay (LOS)</strong></td>
<td>28.8 sec (D) / 76.6 sec (F)</td>
<td>13.9 sec (B) / 13.7 sec (B)</td>
<td>7.7 sec (A) / 11.7 sec (B)</td>
</tr>
<tr>
<td><strong>EB Queue Length 95th</strong></td>
<td>122 feet / 184 feet</td>
<td>50 feet / 18 feet</td>
<td>20 feet / 40 feet</td>
</tr>
<tr>
<td><strong>NBL Delay (LOS)</strong></td>
<td>8.0 sec (A) / 9.5 sec (A)</td>
<td>11.0 sec (B) / 12.1 sec (B)</td>
<td>12.6 sec (B) / 10.6 sec (B)</td>
</tr>
<tr>
<td><strong>NBL Queue Length 95th</strong></td>
<td>8 feet / 14 feet</td>
<td>18 feet / 22 feet</td>
<td>80 feet / 60 feet</td>
</tr>
<tr>
<td><strong>NBT Delay (LOS)</strong></td>
<td>-</td>
<td>25.4 sec (D) / 23.2 sec (C)</td>
<td>12.6 sec (B) / 10.6 sec (B)</td>
</tr>
<tr>
<td><strong>NBT Queue Length 95th</strong></td>
<td>-</td>
<td>142 feet / 116 feet</td>
<td>80 feet / 60 feet</td>
</tr>
<tr>
<td><strong>SBT Delay (LOS)</strong></td>
<td>-</td>
<td>12.9 sec (B) / 85.7 sec (F)</td>
<td>6.4 sec (A) / 24.8 sec (C)</td>
</tr>
<tr>
<td><strong>SBT Queue Length 95th</strong></td>
<td>-</td>
<td>36 feet / 380 feet</td>
<td>20 feet / 220 feet</td>
</tr>
<tr>
<td><strong>Intersection Delay (LOS)</strong></td>
<td>8.2 sec (A) / 11.1 sec (B)</td>
<td>18.0 sec (C) / 45.0 sec (E)</td>
<td>10.0 sec (A) / 18.0 sec (C)</td>
</tr>
</tbody>
</table>

*CTP Project and WILMAPCO efforts recommend a roundabout*
Installed April 21, 2021

- Old County Road Corridor
  - Installed edge lines along Old County Road between the Maryland State Line and Glasgow Avenue

- Frazer Road Intersection
  - Installed “STOP” pavement markings on all approaches
  - Installed “STOP AHEAD” pavement markings on the northbound and southbound approaches
  - Upgraded existing 36 x 36 inches STOP and STOP AHEAD signs to 48 x 48 inches STOP and STOP AHEAD signs on all approaches

*No crashes have occurred at the Frazer Road intersection since improvements were installed
Old County Road Corridor
Recent Improvements

Installed September 22, 2021
Old County Road signage upgrades
Work Order #1142075

Old County Road curve west of Lyric Drive
Old County Road Corridor
Recommendations

• Curve west of Lyric Drive Roadway Segment
  – Trim the trees & bushes throughout the curve to improve eastbound and westbound visibility (*coordination occurred Oct. 4*)
  – Install 10” edge lines throughout the curve (*completed by Oct. 13*)
  – Install “SLOW” & arrow pavements markings on the eastbound and westbound approaches to the curves (*completed by Oct. 22*)

• Frazer Road Intersection
  – Install Spin Alerts on the existing STOP signs on all approaches (*completed by Oct. 12*)
  – Trim the trees & bushes on the northeast corner of the intersection to improve southbound and westbound sight distance (*coordination occurred Oct. 4*)
Old County Road Corridor
Recommendations

• Farmington Avenue to Bar Drive Roadway Segment
  – Trim the trees & bushes throughout the curve to improve eastbound and westbound visibility (*coordination occurred Oct. 4*)
  – Install 10” edge lines throughout the curve (*completed by Oct. 13*)
  – Install “SLOW” & arrow pavements markings on the eastbound and westbound approaches to the curves (*completed by Oct. 22*)
  – Coordinate with the Guardrail Committee on improvements along the curve (*Committee meeting occurred Oct. 21*)

• Glasgow Avenue Intersection
  – Coordinate with the CTP and WILMAPCO efforts to design and install a single-lane roundabout to reduce angle crashes and improve safety at the intersection
Thank you for your time and interest in safety on Delaware’s roadways.

Peter Haag, P.E., PTOE
Chief of Traffic Engineering
Peter.Haag@delaware.gov
(302) 659-4084

To Report a Road Condition: https://deldot.gov/Traffic/ReportRoadCondition/index.shtml
Transportation Management Center: 302-659-4600 or #77