

US 113 @ Daisey St/Blueberry Ln and Adjacent Intersections

Traffic Safety Study

Presentation to Town of Frankford

December 7, 2020





Study Approach

- Study limits
 - US 113 from Hickory St/Gum Tree Rd to Lazy Lagoon Rd/Parker Rd
 - 10 intersections/median crossovers
- Items reviewed
 - Crash data – January 2005 – October 2019
 - Turning movement counts at 7 intersections
 - Detailed review of US 113 @ Daisey St/Blueberry Ln
- Focus on recommendations
 - Safety improvements at US 113 @ Daisey St/Blueberry Ln
 - Overall network operational and safety improvements

US 113 at Daisey St / Blueberry Ln

- **Within Town of Frankford**
- **Four-leg intersection**
 - NB and SB approaches have 1 left-turn lane, 2 thru lanes, 1 channelized right-turn lane
 - EB and WB approaches have 1 shared left-turn/thru/channelized right-turn lane
- **Speed limits**
 - 55 mph on US 113
 - 25 mph on Daisey St
 - Unposted (50 mph) on Blueberry Ln
- **Stop-controlled on Daisey St/Blueberry Ln, free on US 113**
- **Median movements are stop-controlled**



US 113 at Daisey St / Blueberry Ln

- Improvement history
 - Signing/marketing upgrades after Oct. 2009 fatal
 - Signing/marketing upgrades along Daisey St. 2011 to address Mountaire Truck concerns
 - NE concrete island added as part of Pave & Rehab project

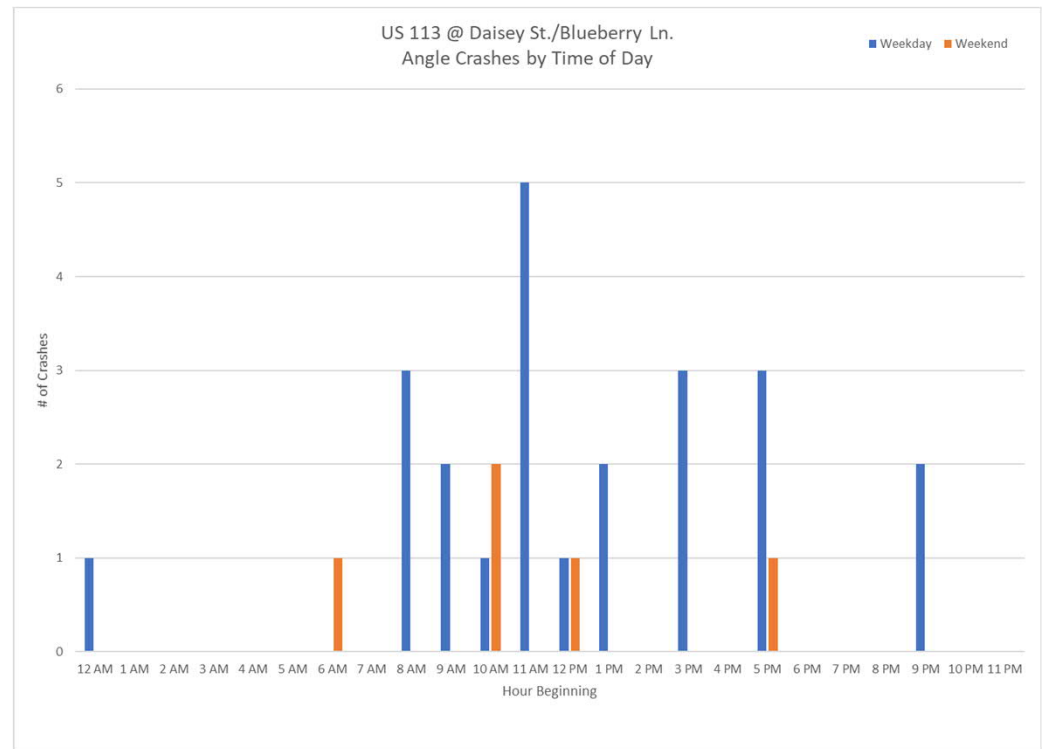


US 113 at Daisey St / Blueberry Ln

Crash Summary: January 2005 – October 2019

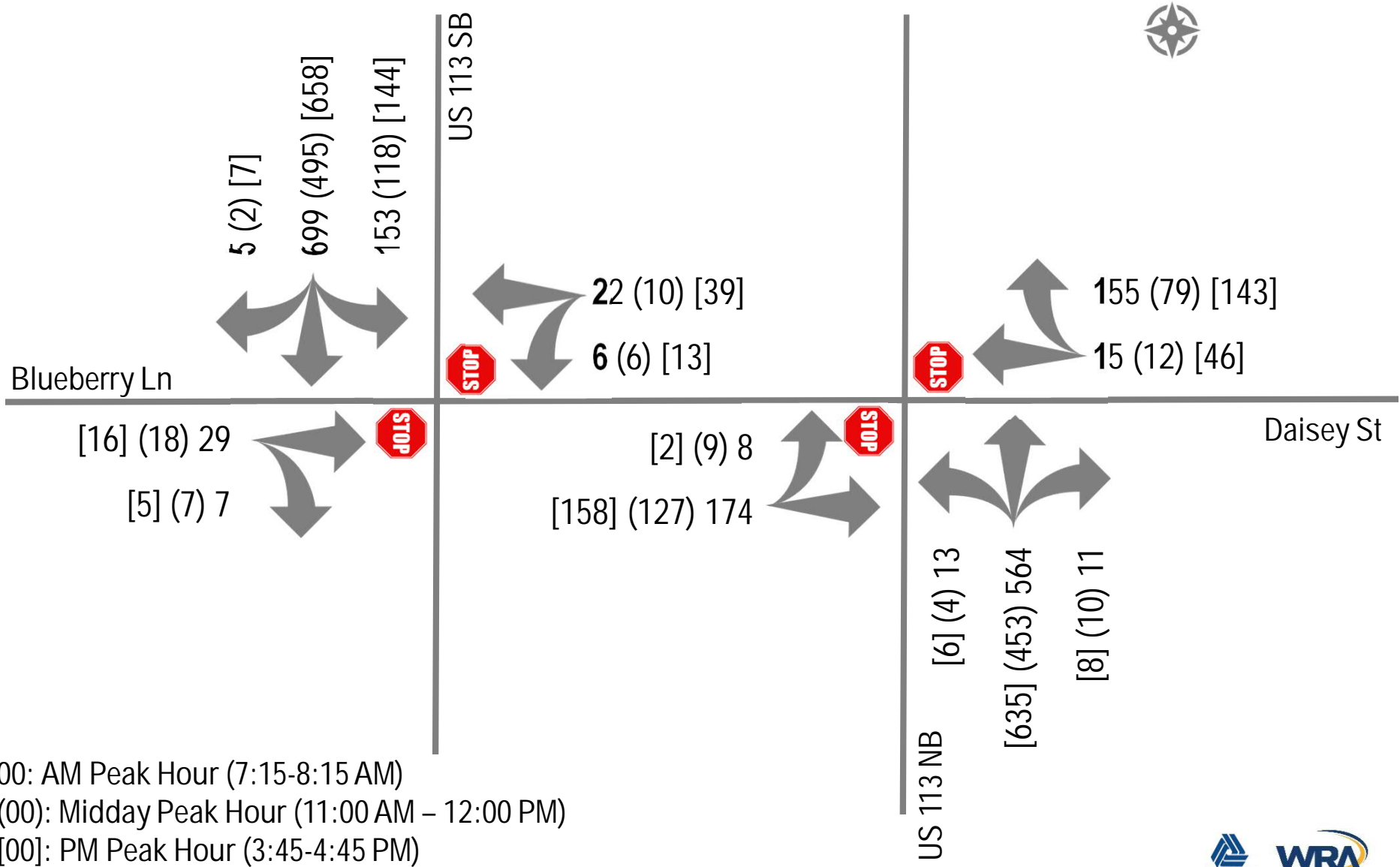
US 113 at Daisey St / Blueberry Ln: 70 crashes

- **28 angle crashes**
 - 12 NB / EB
 - 12 NB / WB
 - 1 SB / EB
 - 1 SB / WB
 - 1 angle crash south of intersection
 - 1 angle crash east of intersection at Mountaire Plant
- **36 rear-end crashes**
 - 27 WB right-turn



US 113 at Daisey St / Blueberry Ln

Traffic Volumes: December 17, 2019



00: AM Peak Hour (7:15-8:15 AM)
 (00): Midday Peak Hour (11:00 AM – 12:00 PM)
 [00]: PM Peak Hour (3:45-4:45 PM)

US 113 at Daisey St / Blueberry Ln

Analysis

- All sight distance requirements are exceeded
- Sufficient gaps available to cross US 113 NB traffic
- Signal warrants
 - Volume warrants satisfied
 - Crash history warrant not satisfied
 - At most, 3 angle crashes per year
- Signal will operate with 18-19 seconds of delay per vehicle (LOS B)
- Delays on Daisey St./Blueberry Ln. will average 20-27 seconds with a signal (LOS C)
- SB left-turn traffic will average delays of 50 seconds (LOS D) with queues possibly exceeding available storage due to truck traffic



WB Daisey St. Looking Left



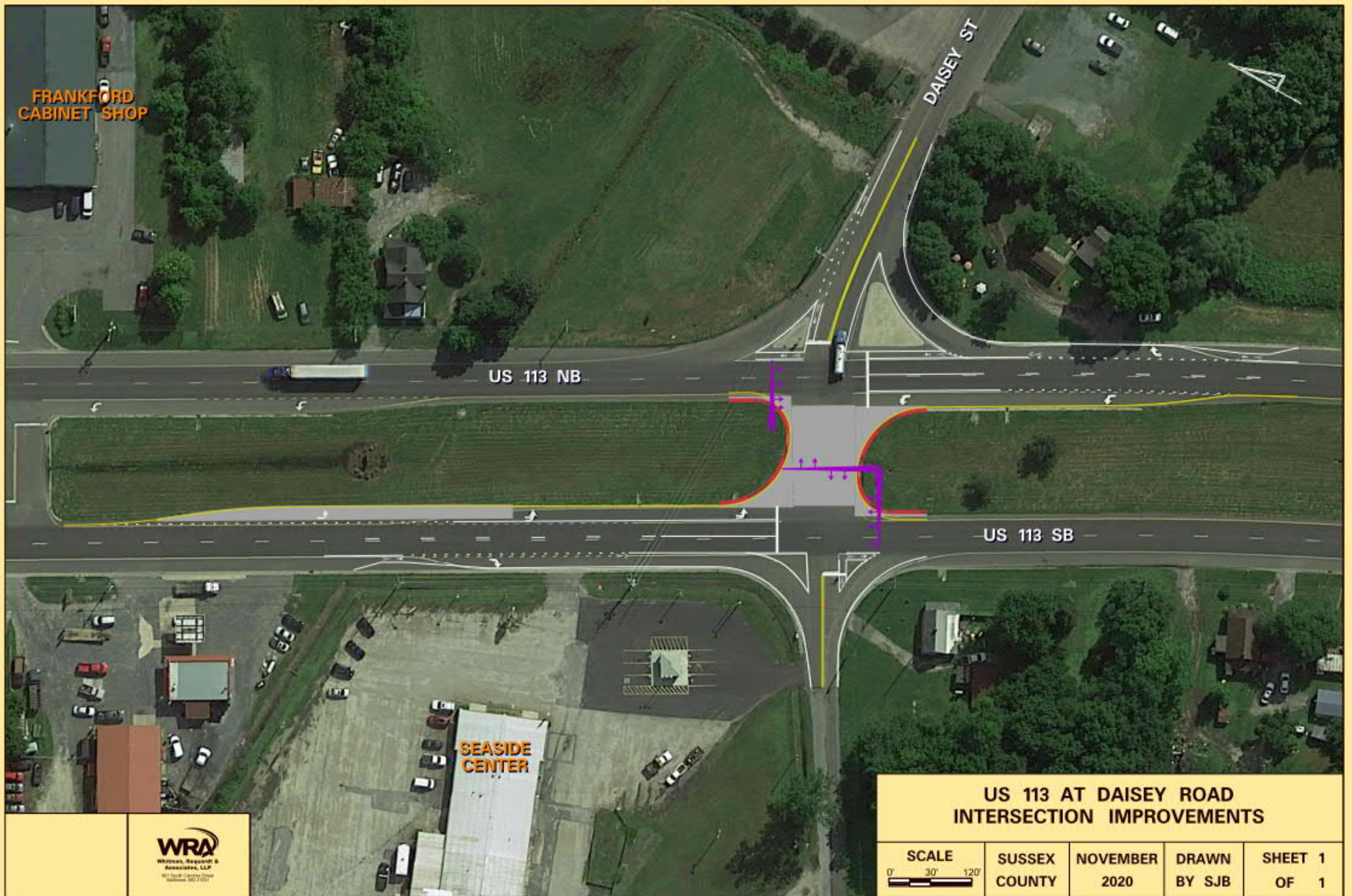
US 113 at Daisey St / Blueberry Ln

Recommendations

- **Install traffic signal with protected-only phasing for NB and SB left-turn movements**
 - Permissive or FRA not recommended due to median width and current crash history
- **Utilize split phasing for Daisey St./Blueberry Ln. movements due to median width and approach lane configuration**
- **Extend SB left-turn storage**
- **Install intersection lighting**
- **NB acceleration lane not recommended**
 - 960 feet required
 - Would impact cabinet shop entrance and turn lane to the north
 - General driver confusion with use of acceleration lanes
- **Conduct updated traffic counts after signal has been in place to determine if traffic has shifted from other intersections**

US 113 at Daisey St / Blueberry Ln

Recommendations



WRA
WHEELER, ROBERTSON &
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Corridor Recommendations

- Short-Term Recommendations
 - US 113 @ Hickory St/Gum Tree Rd
 - Install intersection lighting
 - US 113 @ Frankford Ave
 - Install intersection lighting
- Long-Term Considerations
 - Future recommendations would be pending reanalysis of US 113 @ Daisey St/Blueberry Ln intersection after signalization
 - Recommend intersection and crossover closures or specific turning movement restrictions
 - Further reduce conflict points and minimize intersection-related crashes on US 113
 - Address changes in traffic patterns due to signalization of US 113 @ Daisey St/Blueberry Ln

Future Corridor Considerations

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US 113, Frankford (Hickory Street to Lazy Lagoon Road) Intersection and Crossover Safety Analysis																		
Loc. #	Intersection of US113 and	Total Crashes	Crash Rank	Max EB L+T Volume	EB L+T Angle Crashes	% EB L+T Angle Crashes	Max WB L+T Volume	WB L+T Angle Crashes	% WB L+T Angle Crashes	Max NB L+U Volume	NB L+U Angle Crashes	% NB L+U Angle Crashes	Max SB L+U Volume	SB L+U Angle Crashes	% SB L+U Angle Crashes	Dark/Unlit Crashes #(%)	Current Intersection Configuration	Recommendations
1	Hickory St./Gum Tree Rd.	31	3							50	1	3%	54	0	0%	14 (45%)	EB/WB RT Only NB/SB LT/UT	No geometric changes Install intersection lighting
2	Median Opening 588 feet north of Daisey St.																NB/SB U-turns	Close median opening
3	Daisey St./Blueberry Ln. (NB Intersection)	64	1	182	12	19%	46	11	17%	11	0	0%				7 (10%)	Full Movement	Install traffic signal at intersection. Signal warrants are satisfied. Install intersection lighting.
	Daisey St./Blueberry Ln. (SB Intersection)	6		29	1	17%	59	1	17%			160	1	17%	Full Movement			
4	Dover St./Berry Rd. (NB Intersection)	7	6	69	1	14%	7	0	0%	18	0	0%				7 (50%)	Full Movement	Close the median opening allowing right-turns only. The majority of traffic is expected to utilize new traffic signal at Daisey Street/Blueberry Lane
	Dover St./Berry Rd. (SB Intersection)	7		61	1	14%	22	1	14%			26	0	0%	Full Movement			
5	Frankford Ave. (NB Intersection)	15	4	10	1	7%	31	3	20%	10	0	0%				5 (29%)	Full Movement	Prohibit northbound and southbound US 113 left-turns. Prohibit eastbound left-turn and thru movements and westbound thru movement. Widen northbound US 113 to provide a free-flowing, inside merge lane for westbound Frankford Avenue left-turns. Install intersection lighting.
	Frankford Ave. (SB Intersection)	4		4	0	0%	31	1	25%			1	0	0%	Full Movement			
6	Catmans Rd. (NB Intersection)	0	7	5	0	0%	4	0	0%	3	0	0%				7 (39%)	Full Movement	Close median opening allowing right-turns only.
	Catmans Rd. (SB Intersection)	10		3	0	0%	10	0	0%			4	0	0%	Full Movement			
7	Median Opening 820 feet south of Catmans Rd.																NB/SB U-turns	Close median opening
8	Median Opening 1,300 feet north of Delaware Avenue																NB/SB U-turns	Maintain median opening. Widen northbound and southbound US 113 right shoulders to provide an area for trucks to make U-Turns. Monitor intersection for lighting needs due to diverted traffic.
9	Delaware Ave.	14	5	7	0	0%	71	6	43%	3	0	0%	18	0	0%	7 (50%)	Full Movement	Close median opening allowing right-turns only. Crossover spacing is not ideal to allow for diverted U-Turn movements from adjacent intersections.
10	Lazy Lagoon Rd./Parker Rd.	46	2	48	15	33%	35	19	41%	6	0	0%	30	0	0%	8 (17%)	Full Movement	Prohibit eastbound Parker Road and westbound Lazy Lagoon left-turn and thru movements.

US 113 always assumed to be N-S
Movement Not Applicable

Note: There are no planned crossover modifications or grade separated intersections along this section of US 113

Methodology:

- 7 Intersections with an expectation of significant side street volumes were chosen to be counted in December 2019.
- Summary crash data for 1/1/2005 to 10/22/2019 was analyzed for the study area.
- The above table was produced to analyze the detailed crash data and volumes for each intersection/crossover.
- Recommendations for movement restrictions were made based on crash data, volumes, and observations of alternative routes.
- Crash data for median crossovers not at intersections were not evaluated

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April 22, 2020

Future Corridor Considerations

1:	Hickory Street/Gum Tree Road	31 crashes (Rank #3)	No geometric changes Install intersection lighting
2:	Median Opening	N/A	Close median opening
3:	Daisey Street/Blueberry Lane	70 crashes (Rank #1)	Install traffic signal at intersection. Signal warrants are satisfied. Install intersection lighting.
4:	Dover Street/Berry Road	14 crashes (Rank #6)	Close the median opening allowing right-turns only. The majority of traffic is expected to utilize new traffic signal at Daisey Street/Blueberry Lane
5:	Frankford Avenue	19 crashes (Rank #4)	Prohibit northbound and southbound US 113 left-turns. Prohibit eastbound left-turns and thru movements and westbound thru movement. Widen northbound US 113 to provide a free-flowing, inside merge lane for westbound Frankford Avenue left-turns. Install intersection lighting.
6:	Catmans Road	10 crashes (Rank #7)	Close median opening allowing right-turns only.
7:	Median Opening 820 feet south of Catmans Road	N/A	Close median opening
8:	Median Opening 1,300 feet north of Delaware Avenue	N/A	Maintain median opening. Widen northbound and southbound US 113 right shoulders to provide an area for trucks to make U-Turns. Monitor intersection for lighting needs due to diverted traffic.
9:	Delaware Avenue	14 crashes (Rank #5)	Close median opening allowing right-turns only. Crossover spacing is not ideal to allow for diverted U-Turn movements from adjacent intersections.
10:	Lazy Lagoon Road/Parker Road	46 crashes (Rank #2)	Prohibit eastbound Parker Road and westbound Lazy Lagoon Road left-turn and thru movements.



Thank you!

Questions/Open Discussion

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