

# US9-Kings Highway and Clay Road Traffic Signal Study



Clay Road

Gills Neck Road

US9 - Kings Highway

DE1 - Coastal Highway



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# Overview of Existing Conditions

## Existing Conditions along Clay Road:

- 2-lanes, one lane in each direction;
- No shoulders or dedicated bike lanes;
- No dedicated turn lanes;
- Eastbound direction controlled by a stop sign;
- No pedestrian facilities;
- Stop Line approximately 40 feet from nearest edge of intersecting travel lane on US9-Kings Highway; and
- Speed limit is posted 35 MPH.

Clay Road

## Existing Conditions along US9–Kings Highway:

- 2-lanes, one lane in each direction;
- 10' wide shoulders, on both sides;
- No dedicated turn lanes at the intersection;
- Uncontrolled movements (i.e. free flow traffic);
- Shoulders are utilized by pedestrians and bicyclists;
- Corridor is part of the Delaware Byways Program;
- Corridor provides connections to Cape Henlopen High School, Cape May-Lewes Ferry, City of Lewes, Cape Henlopen State Park, etc.; and
- Speed limit is posted 35 MPH.

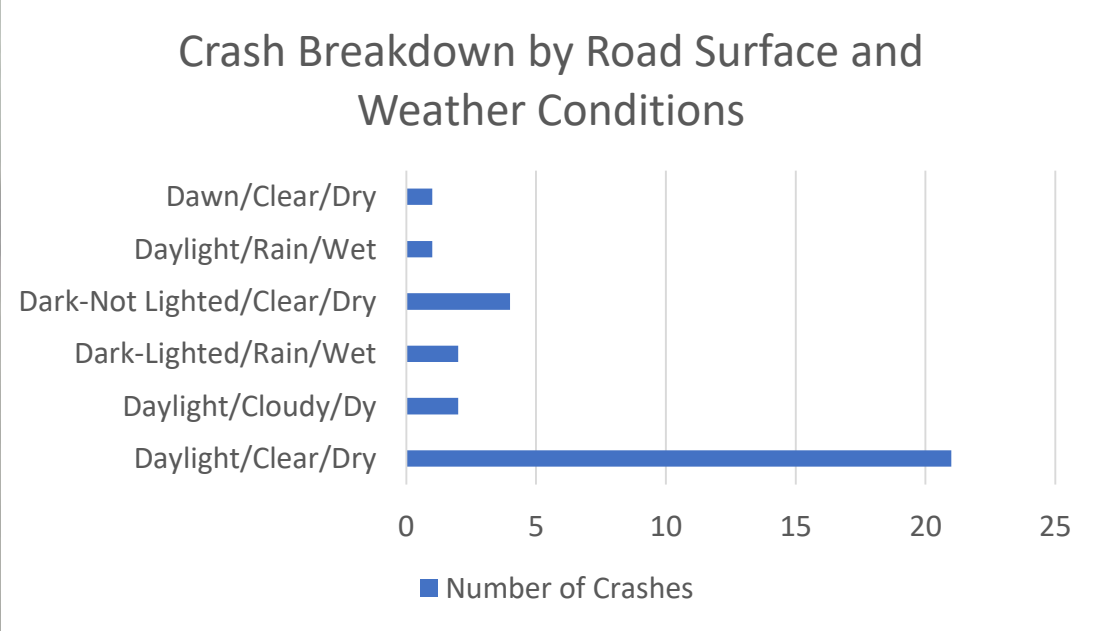
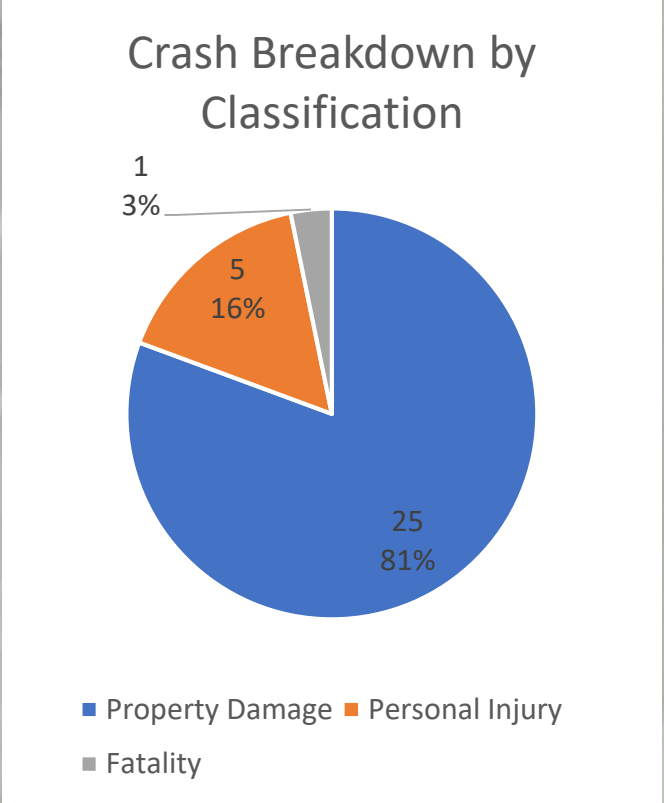
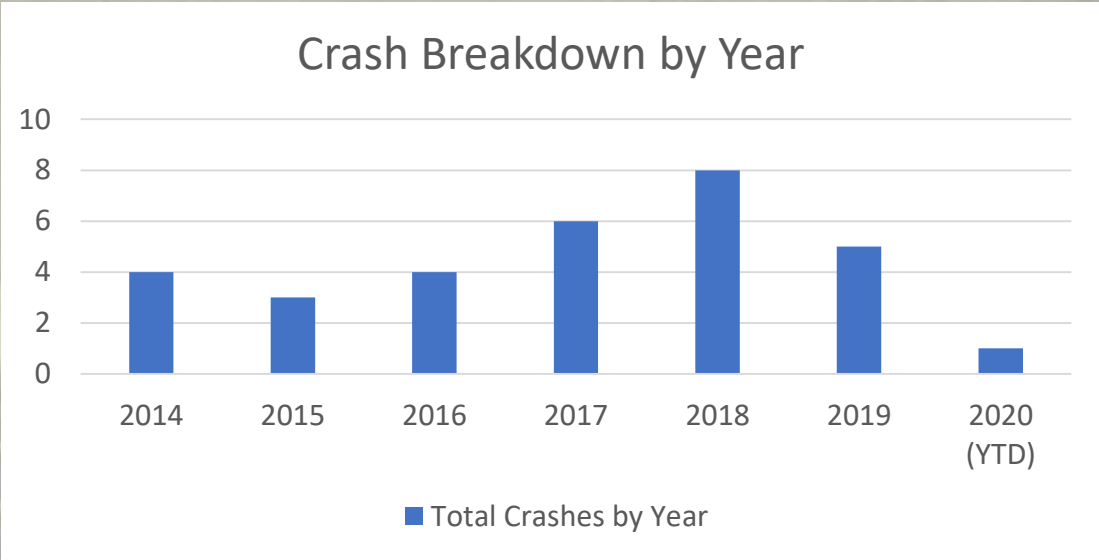
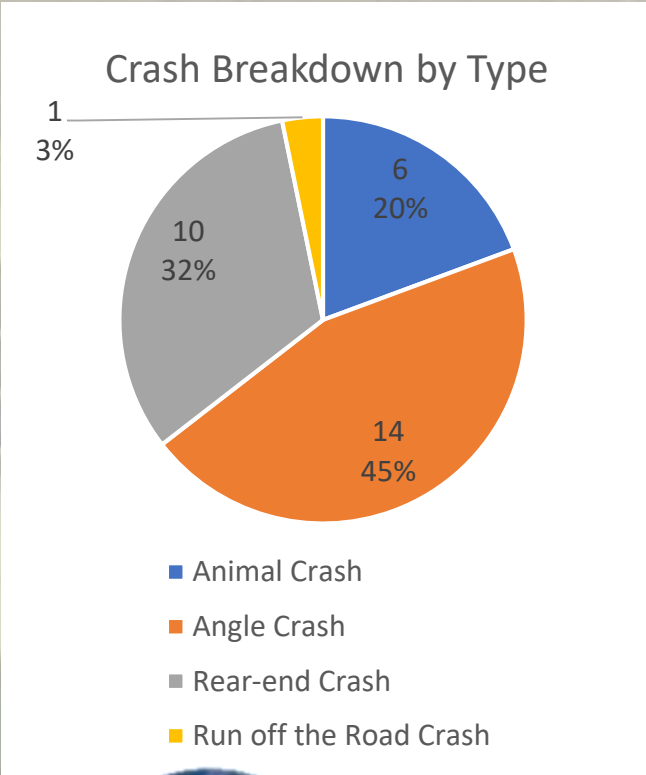
US9–Kings Highway



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# Crash Pattern from August 7, 2014 to April 1, 2020

Total of 31 crashes during the studied period



## Existing Sight Distance – from eastbound Clay Road

American Association of State Highway and Transportation Officials (AASHTO) Cases	Required	Visibility		Met AASHTO Guidelines?
	35 MPH	Right Visibility	Left Visibility	
Left Turn From the Stop - Case (B1) From the Stop Sign	390'	146'	130' (with crops) 478' (no crops)	No-due to utility poles, trees, foliage, and seasonal crops.
Right Turn From the Stop – Case (B2) From the Stop Sign	415'	150'	130'	No-due to foliage and signs.
Left Turn From the Stop - Case (B1) 35' in front of the Stop Sign	390'	1424'	1487'	Yes.
Right Turn From the Stop – Case (B2) 35' in front of the Stop Sign	415'	1424'	1487'	Yes.

## Existing Intersection Field Observations

- Motorists traveling southbound US9-Kings Highway attempting to turn right onto Clay Road are using the right shoulder to decelerate before turning onto Clay Road;
- Motorists traveling northbound US9-Kings Highway use the right shoulder to bypass motorists making a left turn onto Clay Road.
- Due to the large radius at the intersection, the stop sign and line are located approximately 40 feet from the nearest edge of intersecting travel lane on US9-Kings Highway. However, motorists were observed moving forward approximately 35 feet past the stop line to improve their sight distance views without impeding the southbound US9-Kings Highway travel lane.



# Existing Intersection Operations – stop condition on Clay Rd

Existing Intersection Delay (Stop Controlled)			
Data Collection Date	Peak Period	Approach	Delay (seconds)
8/2016	Highest Peak	Eastbound Clay Road	1000.6
		Northbound US9-Kings Highway	9.6
9/2016	AM Peak	Eastbound Clay Road	242.4
		Northbound US9-Kings Highway	9.0
10/2017*	PM Peak	Eastbound Clay Road	65.6
		Northbound US9-Kings Highway	10.3
5/2018*	PM Peak	Eastbound Clay Road	531.3
		Northbound US9-Kings Highway	10.6

\*Vehicle queue on eastbound Clay Road was observed in the field. In October 2017 the queue was approx. 20+ vehicles while in May 2018 the queue was 30+ vehicles.



# Proposed Intersection Operations – traffic signal

Proposed Intersection Delay (Signalized)			
Data Collection Date	Peak Period	Approach	Delay (seconds)
8/2016*	Highest Peak	Total Intersection	11.9
		Eastbound Clay Road	43.0
		Northbound US9-Kings Highway	9.9
		Southbound US9-Kings Highway	8.0
9/2016	AM Peak	Total Intersection	16.1
		Eastbound Clay Road	28.0
		Northbound US9-Kings Highway	16.4
		Southbound US9-Kings Highway	12.8
10/2017	PM Peak	Total Intersection	10.9
		Eastbound Clay Road	39.4
		Northbound US9-Kings Highway	6.3
		Southbound US9-Kings Highway	10.1
5/2018*	PM Peak	Total Intersection	11.9
		Eastbound Clay Road	42.0
		Northbound US9-Kings Highway	6.6
		Southbound US9-Kings Highway	10.4

\*Vehicle queue on eastbound Clay Road is projected to be approximately 7 vehicles.



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# Conclusion

## Short Term Improvement:

Install a traffic signal at the intersection with existing lane configuration for the following reasons:

- Meets engineering requirements and standards to justify implementation;
- Potentially decreases the amount and severity of angle crashes at the intersection, especially related to left turning movements;
- Improves vehicle delay and queuing occurring at the intersection, especially along eastbound Clay Road;
- May provide an additional east-west pedestrian/bicycle connection along the corridor;
- Reduces motorist's judgement on gap acceptance; and
- Supports future changes along the US9–Kings Highway corridor through the project identified in the Department's Capital Transportation Program.

\*\*The signal design is currently in progress with a tentative goal of implementation by Summer 2021.\*\*

## Long Term Recommendation:

Continue to coordinate with DeIDOT's Planning Division and Project Development South Section on the US9- Kings Highway project.

