

# MEMORANDUM

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May 29, 2025

Project #: 30274.000

To: Marilyn J. Smith, MPA SPHR

Executive Director

Dover Kent MPO

302.387.6030

From: Barbara Mosier, PE, PTOE and Jeff Riegner, PE, AICP, PTOE, RSP1

RE: SR 1 at SR 9 Truck Study

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## Introduction

The Delaware Department of Transportation (DelDOT) has reported concerns regarding heavy vehicles on southbound SR 1 just north of the SR 9 interchange, adjacent to Dover Air Force Base. This highway segment has full access control with one exception: a right-in, right-out driveway accessing borrow pits and two asphalt facilities on the west side of the highway. This use was in place prior to conversion of SR 1 to limited access and remains in place, as there is no reasonable alternative access point.

The vehicles entering and exiting the site are loaded trucks that are unable to accelerate quickly to enter the southbound through lanes of SR 1. This is concerning for trucks making two movements: (1) from SR 1 northbound to the borrow pits, making a U-turn at the Old Lebanon Road interchange, and (2) from the borrow pits to SR 9 northbound or to SR 1 northbound, making a U-turn at the SR 9 interchange. The second movement is more challenging because trucks leaving the borrow pits are typically fully loaded, further limiting their ability to accelerate to highway speeds.

The purpose of this study is to evaluate the feasibility of converting the right shoulder of southbound SR 1 to an auxiliary lane for approximately 1.3 miles, between the Old Lebanon Road and SR 9 interchanges. This would allow trucks traveling from the borrow pits to the SR 9 off-ramp, to avoid merging with through traffic and provide a longer merge distance for trucks continuing southbound on SR 1.

# Existing Conditions

## SITE LOCATION

The site is located at 3700 Bay Road in Dover, Delaware and currently occupied by Pennsy Supply, Inc., Tri County Materials, and Allan Myers Materials. Site access is located on Bay Road (SR 1) approximately 4,000-feet downstream from Old Lebanon Road ramp to the northwest and 2,770-feet upstream from SR 9 ramp to the southeast. Site access is a right-in, right-out configuration. **Figure 1** contains the site location map.

## SITE OPERATIONS

The site faces challenges with truck acceleration and highway merging due to access configuration and operational constraints. Fully loaded trucks, often weighing up to 72,000 lbs., have difficulty gaining sufficient speed on the access road and existing auxiliary lane. The auxiliary lane leading out of site is approximately 950-feet long, which is insufficient for heavy vehicles to merge safely. Drivers attempt to navigate an outbound curve at high speeds to maintain momentum, which sometimes leads to material spillage.

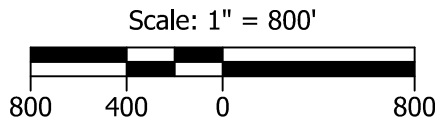
The highway access point, which previously included a traffic signal at Route 9 until its removal in 2009, has improved but still requires longer acceleration and deceleration lanes to accommodate the heavy truck traffic. The site's operator reported that during peak summer months, the merging challenge intensifies as increased car traffic often uses the acceleration lane, creating additional lane-sharing conflicts. While the site's traffic patterns and volume fluctuate seasonally, longer acceleration and deceleration lanes remain a critical need to improve truck safety and merging efficiency on the highway.

Businesses on the site typically operate from 6 A.M. until 4 P.M., Monday through Friday, though asphalt operations do take place overnight and on weekends to support overnight and weekend paving projects as needed.

## DEPTH OF PAVEMENT

Kittelson reviewed the Specification and Construction Plans for SR-1, Delaware Air Force Base Golf Course to Main Gate, dated June 8, 1998, to determine depth of pavement along the subject corridor. Although the subject site is present along the construction corridor in this plan-set, plans indicate that the shoulder pavement depth was not changed at this time. In conversations with individuals involved in that project at the time, it was determined that the shoulder was paved under an earlier project, and as-builts are not available. Thus, DelDOT will need to conduct core sampling of the shoulder at various points along the corridor to confirm whether the existing pavement depth is sufficient for conversion to an auxiliary lane.





Site Location Map  
Dover, DE

Figure  
1



## SITE VISIT

Kittelson conducted a site visit on Tuesday, August 27, 2024, to evaluate the current traffic operations at the site access point and surrounding corridor. The right-in entrance was noted to be short for deceleration (approximately 450-feet) and narrow. Tire marks are highly visible at the end of the auxiliary lane, further suggesting that the length of the deceleration lane may be inadequate, as trucks must enter the site at a higher than desirable speed. Additionally, the edge of pavement striping does not continue for the entirety of the auxiliary lane.

At the right-out exit, it was observed that trucks use a wide turning radius in an attempt to maintain speed prior to entering the southbound auxiliary lane. This movement involves crossing into the site entrance lane and has potential to cause conflicts between incoming and outgoing truck traffic. Trucks displayed a clear difficulty reaching adequate speeds to merge into the SR 1 through lanes, forcing drivers to balance between accelerating and finding proper space to merge safely.

Observations of the southbound right-of-way showed no immediate obstacles. Fixed objects, such as signage and overhead lights, are adequately set back from the roadway.

# Data Collection

Imperial Traffic & Data Collection, LLC conducted data collection services for both turning movements and vehicle speeds. Data was collected over a three-day period from Tuesday, August 20, 2024, to Thursday, August 22, 2024, using Automatic Traffic Recorders (ATR). One (1) ATR was deployed at the site access point to record movements of vehicles entering and exiting the site; five (5) ATRs were located along the southbound auxiliary lane and southbound through lanes to record truck speeds exiting the site; one (1) ATR was used at the SR 9 exit to understand truck distribution.

## VOLUMES

The study corridor along SR 1 has an annual average daily traffic (AADT) volume of 39,893. Regarding site traffic, the peak daily traffic was observed to be 211 vehicles entering the site, and 215 vehicles exiting the site. This includes 187 and 192 trucks, respectively.

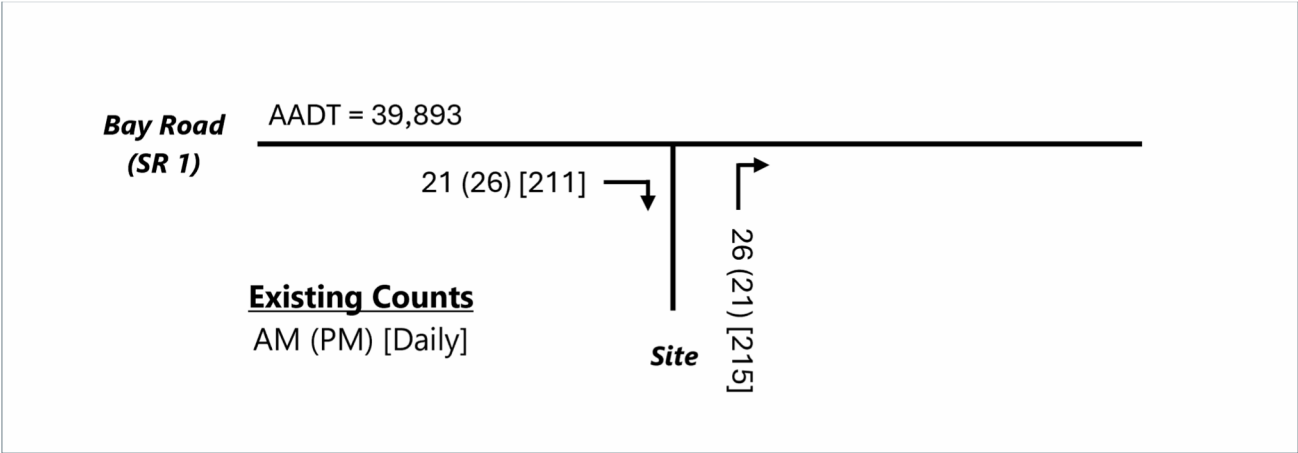
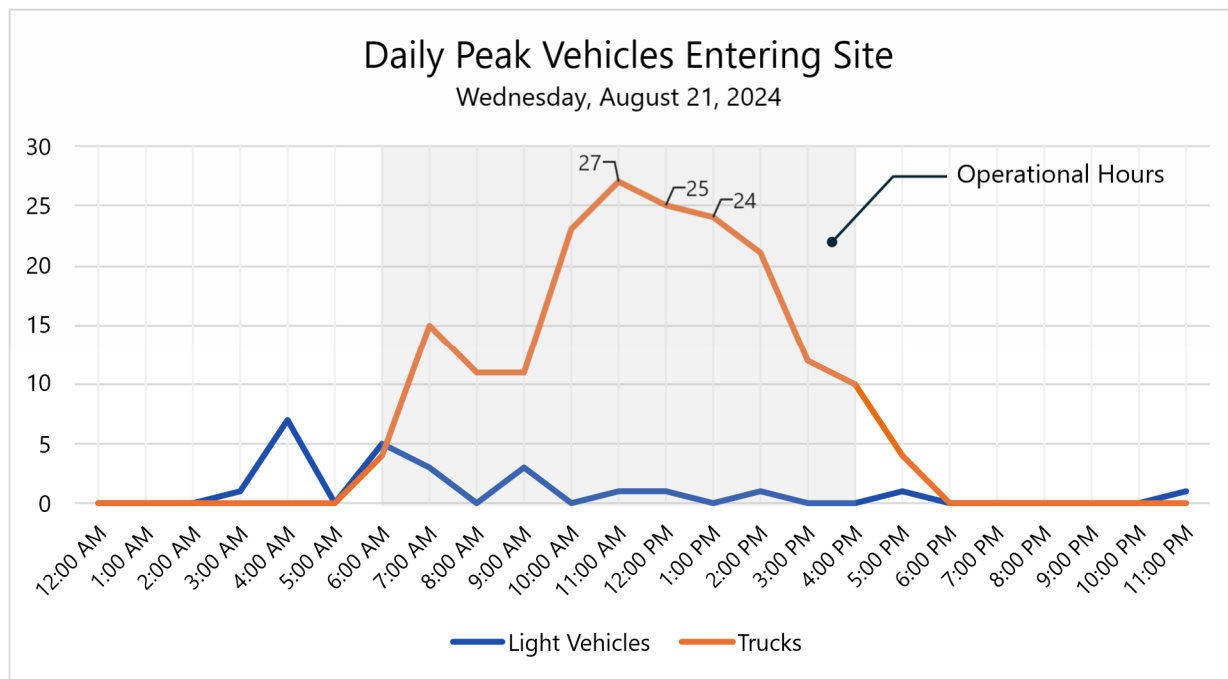


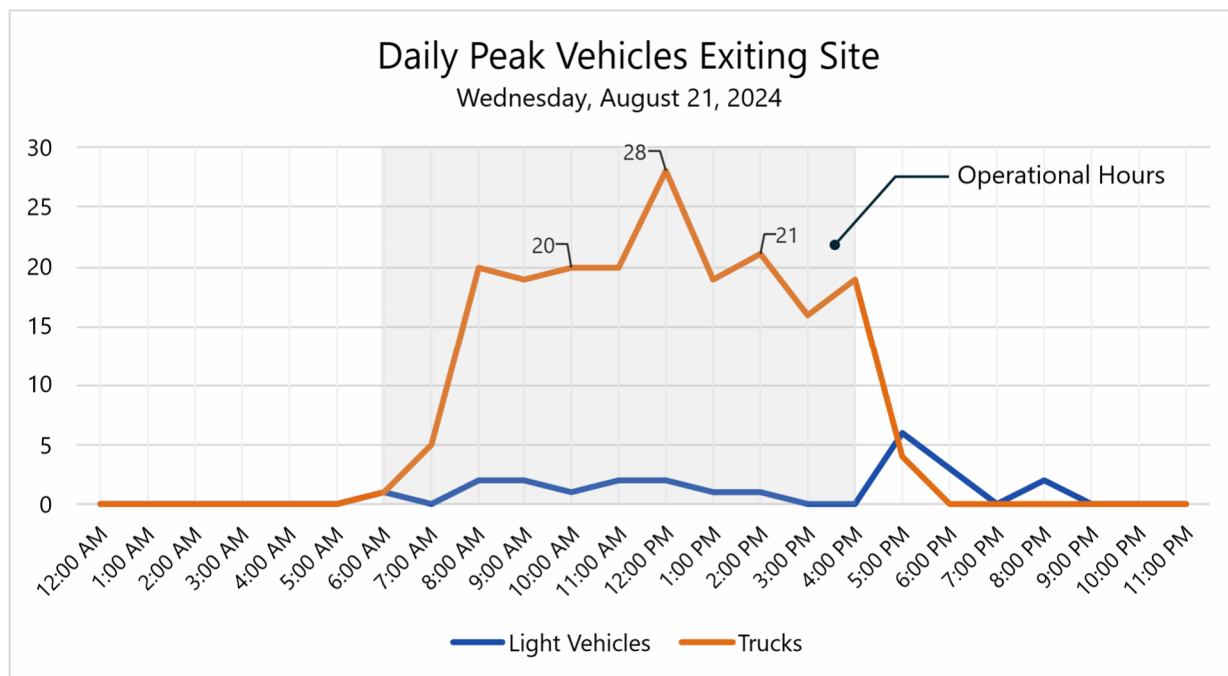
Figure 2. Site Turning Movements

## SITE TURNING MOVEMENTS

An ATR was placed at the site access point to capture vehicle movements entering and exiting the site. **Figures 3 and 4** show site vehicle movements of daily peak traffic recorded Wednesday, August 21, 2024. Vehicles counts are separated into light vehicles, trucks, and buses. **Appendix A** compiles a complete record of site vehicle movements from August 20 through August 22.



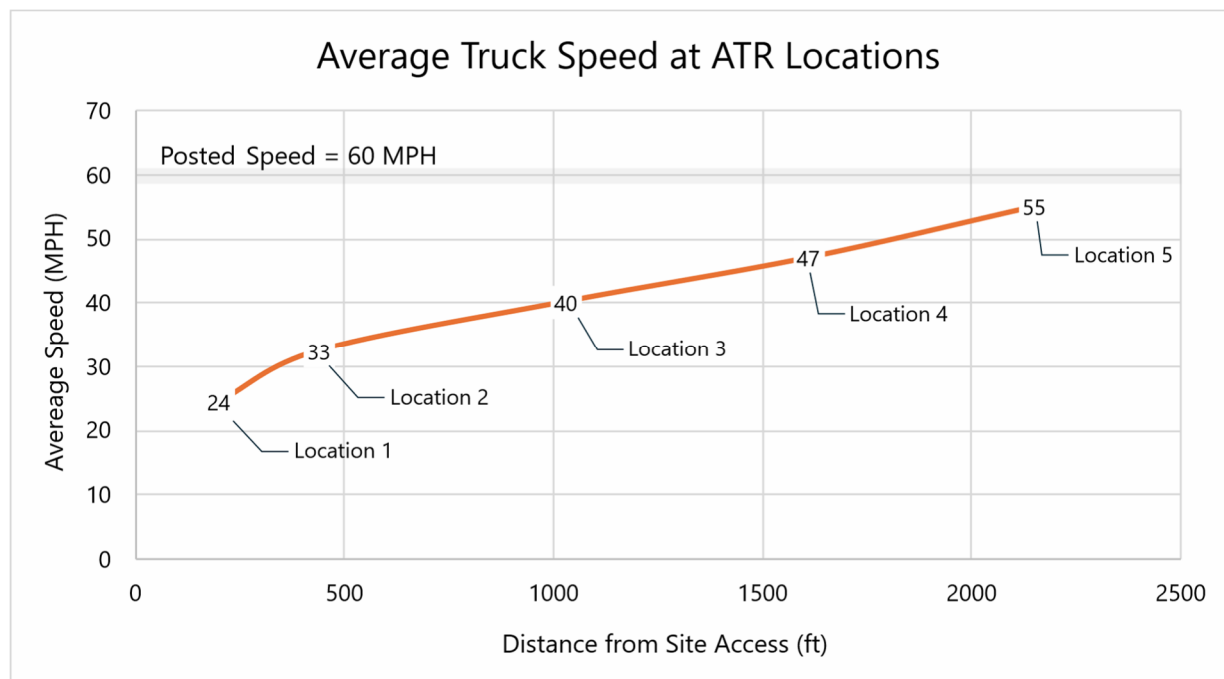
**Figure 3. Daily Peak Vehicles Entering Site**



**Figure 4. Daily Peak Vehicles Exiting Site**

## TRUCK SPEED

ATRs and radar recorders were placed at five (5) locations along the southbound SR 1 auxiliary and through lanes to record truck speeds throughout the study corridor. ATR speed check locations are illustrated in **Figure 6**. Cameras were also placed along the corridor to match vehicle types with corresponding speed data. Video was recorded on Wednesday, August 21, 2024, from 8:00 A.M. to 11:00 A.M. and 12:00 P.M. to 3:00 P.M. This review produced a sample of 139 trucks, which are tabulated in **Appendix B**. The average speeds at each location are shown in **Figure 5**.



**Figure 5. Average Trucks Speeds at ATR Locations**

The chart shows average truck speeds measured at five locations along SR 1, starting from the site egress and extending to 2,150 feet away. Trucks accelerate from an average speed of 24 MPH at 200 feet from the site to 33 MPH at 440 feet. At Location 3, 1,030 feet from the site, trucks reach an average speed of 40 MPH. This marks the end of the site's right-out auxiliary lane, where trucks must merge into the southbound through lanes. However, at this point, trucks are traveling significantly slower than the highway's posted speed of 60 MPH. Further along the route, trucks continue to accelerate, reaching an average of 47 MPH at 1,610 feet and only achieving 55 MPH at 2,150 feet from the site.

This gradual acceleration presents a safety concern, as trucks are unable to reach highway speeds in time to merge at Location 3. With an average merging speed of 40 MPH, trucks face potential hazards from faster-moving vehicles on SR 1, increasing the likelihood of merging conflicts and reducing overall safety for both truck drivers and other road users.

## DISTRIBUTION

A sixth ATR was posted at the southbound exit ramp of the SR 9 interchange to capture the directional distribution of truck traffic from the site. Cameras were placed on Bayside Drive to confirm trucks were using the exit to travel northbound on SR 1. As shown in Figure 6, of the 139 sampled trucks, 60 (43%) exited at the SR 9 interchange and the remaining 79 trucks (57%) continued southbound on SR 1.

During this period an additional 147 vehicles used the interchange to turn from southbound SR 1 to northbound SR 1. Though vehicles making this movement may have other destinations, presumably many are bound to the Dover Air Force Base commercial access located off northbound SR 1, north of the SR 9 interchange. Of those vehicles, 73 were hauling and dump trucks not affiliated with the borrow pits. In total, 133 trucks used the interchange.



**Figure 6. Site Turning Movements and Truck Origin-Destination Movements**



# Crash Data

Kittelson requested crash data from the most recent five years from DelDOT via the Delaware Crash Analysis Reporting System to identify any existing intersection deficiencies and safety concerns. The crash data listed all crashes from January 1, 2019, to December 31, 2023.

The crash data included all crashes along SR 1 between the interchanges at Old Lebanon Road and SR 9. Crashes at ramps and terminal intersections were also included in the data set. Kittelson sorted data to review only southbound crashes along SR 1 between the site access point and SR 9 interchange. Additionally, only crashes during the subject site's operational hours between 6 A.M. and 4 P.M. on Monday through Friday were considered. Alcohol related crashes were also removed from the data set.

It was found that ten (10) crashes, listed in **Table 1**, occurred in the five-year period under these parameters. Seven (7) crashes were not a collision between two vehicles. The remaining three (3) crashes were sideswipe/same direction collisions. These crashes involved unknown circumstances, driver inattention, and an improper lane change, and occurred in April 2019, April 2023, and September 2023, respectively. None of these three crashes involved a documented injury or fatality.

Vehicle classification is not included in this data set. Thus, it is unknown whether these crashes involved trucks, buses, or light vehicles. It is possible that lower speed trucks merging into the flow of traffic contributed to these sideswipe crashes, but that cannot be shown using this data. A complete record of the crash data provided can be found in **Appendix C**.

**Table 1. SR 1 Corridor Crashes**

Date	Classification Code	Impact	Driver Action	Injuries	Fatality
4/22/2019	Property Damage Only	Sideswipe/Same Direction	Unknown	0	0
7/3/2019	Property Damage Only	Not a collision between two vehicles	Other	0	0
7/24/2020	Property Damage Only	Not a collision between two vehicles	Other	0	0
1/3/2022	Property Damage Only	Not a collision between two vehicles	Driving in a careless or reckless manner	1	0
5/23/2022	Property Damage Only	Not a collision between two vehicles	Unknown	0	0
11/10/2022	Property Damage Only	Not a collision between two vehicles	Animal in roadway	0	0
3/28/2023	Property Damage Only	Not a collision between two vehicles	Mechanical defects	0	0
4/20/2023	Property Damage Only	Sideswipe/Same Direction	Driver inattention, distraction, or fatigue	0	0
9/27/2023	Property Damage Only	Sideswipe/Same Direction	Improper lane change	0	0
10/13/2023	Property Damage Only	Not a collision between two vehicles	Mechanical defects	0	0

# Auxiliary Lane Analysis

## SPEED AND DISTANCE

The American Association of State Highway and Transportation Officials' (AASHTO) A Policy on Geometric Design of Highway and Streets, 7<sup>th</sup> Edition, provides guidance on the design of acceleration lanes for sites with parallel-type entrances in Section 10.9.6.5. Guidance states that for design speeds of 65 MPH, vehicles require 1,410 feet to merge. The existing distance of the right-out auxiliary lane, from the point of tangent to the beginning of the merging taper, is approximately 900 feet.

**Table 2. Minimum Acceleration Lane Lengths for Entrance Terminals with Flat Grades less Than 3 Percent (Table 10-4. A Policy on Geometric Design of Highway and Streets, 2018)**

U.S. Customary										
Acceleration Lane Length, $L_a$ (ft) for Design Speed of Controlling Feature on Ramp, $V'$ (mph)										
Highway		Stop Condition	15	20	25	30	35	40	45	50
Design Speed, $V$ (mph)	Merge Speed, $V_a$ (mph)	Average Running Speed (i.e., Initial Speed) at Controlling Feature on Ramp, $V'_a$ (mph)								
		0	14	18	22	26	30	36	40	44
30	23	180	140	—	—	—	—	—	—	—
35	27	280	220	160	—	—	—	—	—	—
40	31	360	300	270	210	120	—	—	—	—
45	35	560	490	440	380	280	160	—	—	—
50	39	720	660	610	550	450	350	130	—	—
55	43	960	900	810	780	670	550	320	150	—
60	47	1200	1140	1100	1020	910	800	550	420	180
65	50	1410	1350	1310	1220	1120	1000	770	600	370
70	53	1620	1560	1520	1420	1350	1230	1000	820	580
75	55	1790	1730	1630	1580	1510	1420	1160	1040	780
80	57	2000	1900	1800	1750	1680	1600	1340	1240	980

Note: Uniform 50:1 to 70:1 tapers are recommended where lengths of acceleration lanes exceed 1,300 ft.

$V$  = design speed of highway (mph)

$V_a$  = merge speed (mph)

$V'$  = design speed of controlling feature on ramp (mph)

$V'_a$  = average running speed (i.e., initial speed) at controlling feature on ramp (mph)

$L_a$  = acceleration lane length (ft)



## CONCEPT PLAN

**Figure 7** presents a concept plan for roadway improvements designed to enhance safety and efficiency for both southbound and northbound trucks. This plan involves restriping the existing shoulder to create a continuous auxiliary lane linking the site's right-out exit with the SR 9 auxiliary lane. This continuous auxiliary lane would allow northbound trucks to bypass merging into the southbound through lanes entirely, enabling them to proceed directly to the SR 9 exit without interruption. For southbound trucks, the extended lane provides additional distance for acceleration, allowing safer merging into the southbound through lanes. The proposed lane length is approximately 2,780 feet.

It is to be noted that the construction of a continuous lane creates the potential for weaving conflicts as trucks merge into the southbound through lanes and southbound vehicles attempt to exit at the SR 9 interchange; however, the length of the lane should allow adequate distance for trucks to merge prior to these conflicts.

## COST ANALYSIS

Construction costs are influenced by various factors, such as topography and the existing depth of pavement. Accordingly, two planning-level cost estimates have been prepared. The first estimate, which assumes the existing pavement section is adequate for truck traffic, includes only milling and overlay of the existing shoulder, with a total estimated cost of approximately \$300,000. The second estimate assumes full-depth reconstruction, resulting in a total estimated cost of just over \$1,000,000. Both estimates account for the installation of a guardrail along the entire length of roadway improvements due to the reduction in shoulder width and include necessary updates to signage and striping. Detailed itemized cost estimates are provided in **Appendix D**.

## NEXT STEPS IF ADVANCED

If this project is advanced, the following is a summary of next steps:

- Pavement core sampling to determine the need for full-depth reconstruction
- Further evaluation of similar treatment to extend the right-turn inbound auxiliary lane
- Based on comment from DelDOT, consider Highway Safety Manual analysis of the impact of the lane extension
- Detailed design and engineering, refining assumptions made for signage, guardrail, pavement depth and width and other design and cost details.

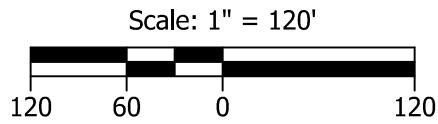
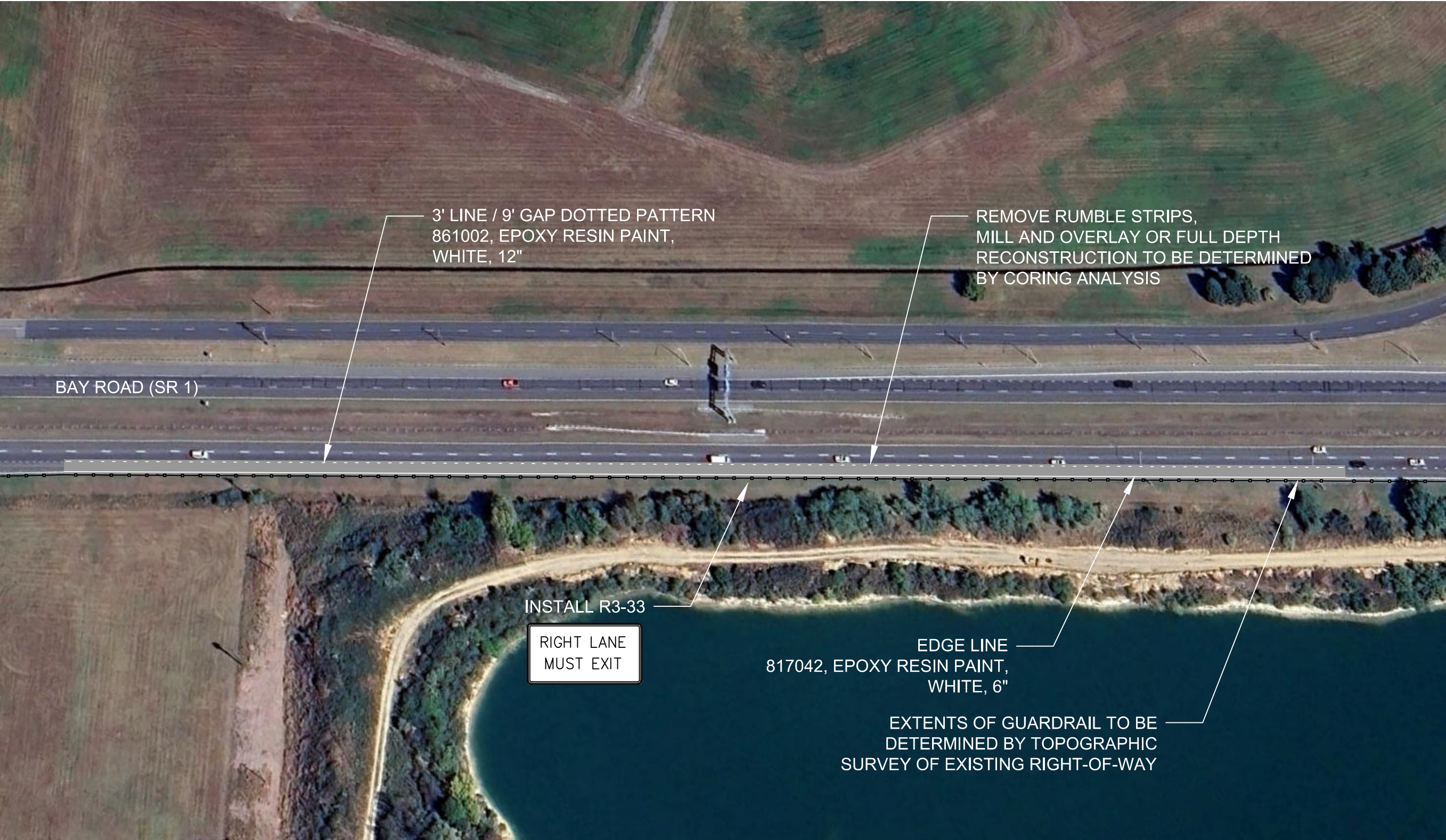
## Conclusion

Trucks exiting the site onto SR 1 face significant challenges in safely merging due to their inability to reach the highway's posted speed of 60 MPH within the existing auxiliary lane. This results in an unsafe merging environment, as trucks enter the highway at lower speeds, leading to potential conflicts with faster moving vehicles. Key evidence of these challenges includes:

- Trucks reach only 40 MPH on average when merging into the southbound through lanes on SR 1, significantly below the posted speed.
- The existing right-out acceleration lane is approximately 900 feet long, which is insufficient for a design speed of 65 MPH and a safe merge speed of 50 MPH, per AASHTO.

Proposed improvements to the roadway aim to enhance safety and streamline truck movement. By restriping the shoulder to create a continuous auxiliary lane connecting the site's right-out exit with the SR 9 ramp, northbound trucks would no longer need to merge into southbound lanes, allowing direct access to the SR 9 interchange. For southbound trucks, the extended auxiliary lane would provide additional space to accelerate before merging, improving safety and reducing the likelihood of merging conflicts. These changes are expected to improve both safety and traffic flow, addressing immediate site needs and supporting long-term efficiency in this high-traffic corridor.





Striping Exhibit  
Concept Plan  
Dover, DE

Figure  
**7**



## **Appendix A** Turning Movements

	Day	Time	Light Vehicles		Trucks		Buses	
			In	Out	In	Out	In	Out
Operational Hours	20-Aug-24	12:00 AM	0	0	0	0	0	0
	20-Aug-24	1:00 AM	0	0	0	0	0	0
	20-Aug-24	2:00 AM	0	0	0	0	0	0
	20-Aug-24	3:00 AM	0	0	0	0	0	0
	20-Aug-24	4:00 AM	0	0	0	0	0	0
	20-Aug-24	5:00 AM	8	0	0	0	0	0
	20-Aug-24	6:00 AM	4	0	6	7	0	0
	20-Aug-24	7:00 AM	1	1	14	2	0	0
	20-Aug-24	8:00 AM	0	0	16	17	0	0
	20-Aug-24	9:00 AM	0	1	12	22	0	0
	20-Aug-24	10:00 AM	2	1	22	20	0	0
	20-Aug-24	11:00 AM	2	1	16	21	0	0
	20-Aug-24	12:00 PM	2	2	17	18	0	0
	20-Aug-24	1:00 PM	1	1	23	19	0	0
	20-Aug-24	2:00 PM	3	2	12	16	0	0
	20-Aug-24	3:00 PM	1	7	10	8	0	0
	20-Aug-24	4:00 PM	1	6	5	8	0	1
	20-Aug-24	5:00 PM	0	0	0	0	0	0
	20-Aug-24	6:00 PM	0	0	0	0	0	0
	20-Aug-24	7:00 PM	0	0	0	0	0	0
Operational Hours	20-Aug-24	8:00 PM	0	0	1	1	0	0
	20-Aug-24	9:00 PM	0	0	0	0	0	0
	20-Aug-24	10:00 PM	0	0	0	0	0	0
	20-Aug-24	11:00 PM	0	0	0	0	0	0
	21-Aug-24	12:00 AM	0	0	0	0	0	0
	21-Aug-24	1:00 AM	0	0	0	0	0	0
	21-Aug-24	2:00 AM	0	0	0	0	0	0
	21-Aug-24	3:00 AM	1	0	0	0	0	0
	21-Aug-24	4:00 AM	7	0	0	0	0	0
	21-Aug-24	5:00 AM	0	0	0	0	0	0
	21-Aug-24	6:00 AM	5	1	4	1	0	0
	21-Aug-24	7:00 AM	3	0	15	5	0	0
	21-Aug-24	8:00 AM	0	2	11	20	0	0
	21-Aug-24	9:00 AM	3	2	11	19	0	0
	21-Aug-24	10:00 AM	0	1	23	20	0	0
	21-Aug-24	11:00 AM	1	2	27	20	0	0
	21-Aug-24	12:00 PM	1	2	25	28	0	0
	21-Aug-24	1:00 PM	0	1	24	19	0	0
	21-Aug-24	2:00 PM	1	1	21	21	0	0
	21-Aug-24	3:00 PM	0	0	12	16	0	0
Operational Hours	21-Aug-24	4:00 PM	0	0	10	19	0	0
	21-Aug-24	5:00 PM	1	6	4	4	0	0
	21-Aug-24	6:00 PM	0	3	0	0	0	0
	21-Aug-24	7:00 PM	0	0	0	0	0	0
	21-Aug-24	8:00 PM	0	2	0	0	0	0
	21-Aug-24	9:00 PM	0	0	0	0	0	0
	21-Aug-24	10:00 PM	0	0	0	0	0	0
	21-Aug-24	11:00 PM	1	0	0	0	0	0
	22-Aug-24	12:00 AM	1	2	0	0	0	0
	22-Aug-24	1:00 AM	0	0	0	0	0	0
	22-Aug-24	2:00 AM	0	0	0	0	0	0
	22-Aug-24	3:00 AM	0	0	0	0	0	0
	22-Aug-24	4:00 AM	5	0	0	0	0	0
	22-Aug-24	5:00 AM	1	1	2	7	0	0
	22-Aug-24	6:00 AM	2	0	3	4	0	0
	22-Aug-24	7:00 AM	2	0	14	6	0	0
	22-Aug-24	8:00 AM	1	0	17	20	0	1
	22-Aug-24	9:00 AM	2	4	16	14	0	0
	22-Aug-24	10:00 AM	1	0	14	22	0	0
	22-Aug-24	11:00 AM	1	1	17	15	0	0
Operational Hours	22-Aug-24	12:00 PM	1	1	20	21	0	0
	22-Aug-24	1:00 PM	0	0	13	15	0	0
	22-Aug-24	2:00 PM	0	0	15	14	0	0
	22-Aug-24	3:00 PM	0	6	14	17	0	0
	22-Aug-24	4:00 PM	0	3	0	0	0	0
	22-Aug-24	5:00 PM	0	2	0	0	0	0
	22-Aug-24	6:00 PM	0	0	0	0	0	0
	22-Aug-24	7:00 PM	0	0	0	0	0	0
	22-Aug-24	8:00 PM	0	0	0	0	0	0
	22-Aug-24	9:00 PM	0	0	0	0	0	0
	22-Aug-24	10:00 PM	0	0	0	0	0	0
	22-Aug-24	11:00 PM	0	0	0	0	0	0

## **Appendix B** Truck Speeds



Start Time	Vehicle Type	In MPH						OD at Bayside Drive	
		Speed Data from Radar							
		ATR 1	ATR 2	ATR 3	ATR 4	ATR 5			
		200'	440'	1030'	1610'	2150'			
2024-08-21 08:02:00	Dump Truck	24		41	49	58	Truck goes NB Route 1	NB	
2024-08-21 08:08:00	Dump Truck	24	33	37	53	54	Truck goes NB Route 1	NB	
2024-08-21 08:08:00	Dump Truck	24	34	45	51	58	Truck stays SB Route 1	SB	
2024-08-21 08:09:00	Dump Truck	24	28	38	47	56	Truck goes NB Route 1	NB	
2024-08-21 08:10:00	Dump Truck	23	29	35	41	52	Truck goes NB Route 1	NB	
2024-08-21 08:10:00	Dump Truck	26	36	47	52	60	Truck goes NB Route 1	NB	
2024-08-21 08:11:00	Dump Truck	25	36	46	49	54	Truck stays SB Route 1	SB	
2024-08-21 08:11:00	Hauling Truck	25		46	52	58	Truck goes NB Route 1	NB	
2024-08-21 08:13:00	Dump Truck	24	35	45	50	58	Truck stays SB Route 1	SB	
2024-08-21 08:15:00	Dump Truck	24	33	44	50	55	Truck stays SB Route 1	SB	
2024-08-21 08:16:00	Dump Truck	24	33	40	47	55	Truck goes NB Route 1	NB	
2024-08-21 08:17:00	Dump Truck	24	45	49	55	62	Truck stays SB Route 1	SB	
2024-08-21 08:18:00	Dump Truck	26	33	39	51	57	Truck stays SB Route 1	SB	
2024-08-21 08:18:00	Dump Truck	24	33	45	51	58	Truck stays SB Route 1	SB	
2024-08-21 08:22:00	Dump Truck	24	34		47	54	Truck goes NB Route 1	NB	
2024-08-21 08:28:00	Dump Truck	26	36	44	49	63	Truck stays SB Route 1	SB	
2024-08-21 08:29:00	Dump Truck	27	36	43	51	62	Truck stays SB Route 1	SB	
2024-08-21 08:31:00	Dump Truck	25	32	42	48	52	Truck stays SB Route 1	SB	
2024-08-21 08:32:00	Dump Truck	24	32	44	50	59	Truck stays SB Route 1	SB	
2024-08-21 08:38:00	Dump Truck	24	33	42	53	60	Truck stays SB Route 1	SB	
2024-08-21 08:38:00	Dump Truck	22	30	38	44	57	Truck stays SB Route 1	SB	
2024-08-21 08:38:00	Dump Truck	23	31	38	44	57	Truck stays SB Route 1	SB	
2024-08-21 08:39:00	Dump Truck	25	34	44	52	60	Truck stays SB Route 1	SB	
2024-08-21 08:43:00	Dump Truck	21	30	43	54	65	Truck goes NB Route 1	NB	
2024-08-21 08:43:00	Dump Truck	20	26	41	52	55	Truck goes NB Route 1	NB	
2024-08-21 08:55:00	Dump Truck	19	28	44	49	57	Truck goes NB Route 1	NB	
2024-08-21 08:55:00	Dump Truck	24	33	47	54	56	Truck goes NB Route 1	NB	
2024-08-21 08:55:00	Dump Truck	24	33	44	54	58	Truck goes NB Route 1	NB	
2024-08-21 09:01:00	Dump Truck	17	24	38	42	55	Truck stays SB Route 1	SB	
2024-08-21 09:01:00	Dump Truck	17	24	40	44	58	Truck stays SB Route 1	SB	
2024-08-21 09:02:00	Dump Truck	19	24	27	44	51	Truck stays SB Route 1	SB	
2024-08-21 09:02:00	Dump Truck	19	24	27	41	50	Truck stays SB Route 1	SB	
2024-08-21 09:03:00	Hauling Truck	23	27	31	45	54	Truck goes NB Route 1	NB	
2024-08-21 09:09:00	Dump Truck	27	33	44	51	60	Truck goes NB Route 1	NB	
2024-08-21 09:12:00	Dump Truck	18	25	37	46	51	Truck goes NB Route 1	NB	
2024-08-21 09:16:00	Dump Truck	25	34	41	47	62	Truck goes NB Route 1	NB	
2024-08-21 09:18:00	Dump Truck	24	33	38	45	52	Truck goes NB Route 1	NB	
2024-08-21 09:23:00	Hauling Truck	24	31	37	42	54	Truck goes NB Route 1	NB	
2024-08-21 09:24:00	Dump Truck	25	32	40	46	56	Truck stays SB Route 1	SB	
2024-08-21 09:25:00	Dump Truck	27	36	41	46	55	Truck stays SB Route 1	SB	
2024-08-21 09:26:00	Dump Truck	24	36	44	50	60	Truck stays SB Route 1	SB	
2024-08-21 09:35:00	Dump Truck	27	39	45	48	53	Truck stays SB Route 1	SB	
2024-08-21 09:38:00	Dump Truck	25	32	43	49	58	Truck goes EB at Route 1	EB	
2024-08-21 09:41:00	Dump Truck	24	31	30	44	51	Truck stays SB Route 1	SB	
2024-08-21 09:41:00	Dump Truck	23	28	29	40	45	Truck stays SB Route 1	SB	

Start Time	Vehicle Type	In MPH						OD at Bayside Drive	
		Speed Data from Radar							
		ATR 1	ATR 2	ATR 3	ATR 4	ATR 5			
		200'	440'	1030'	1610'	2150'			
2024-08-21 09:48:00	Dump Truck	25	45	43	46	58	Truck goes NB Route 1	NB	
2024-08-21 09:48:00	Dump Truck	25	34	40	42	57	Truck goes NB Route 1	NB	
2024-08-21 09:58:00	Dump Truck	21	33	37	46	49	Truck goes NB Route 1	NB	
2024-08-21 09:59:00	Dump Truck	24	33	39	47	49	Truck stays SB Route 1	SB	
2024-08-21 10:07:00	Dump Truck	25	31	41	48	55	Truck goes NB Route 1	NB	
2024-08-21 10:16:00	Dump Truck	24	35	40	42	51	Truck stays SB Route 1	SB	
2024-08-21 10:18:00	Dump Truck	17	19	23	30	49	Truck stays SB Route 1	SB	
2024-08-21 10:20:00	Dump Truck	24	32	45	44	51	Truck stays SB Route 1	SB	
2024-08-21 10:24:00	Dump Truck	26	29	43	46	55	Truck stays SB Route 1	SB	
2024-08-21 10:25:00	Dump Truck	35	34	45	47	55	Truck stays SB Route 1	SB	
2024-08-21 10:26:00	Dump Truck	24	31	34	37	52	Truck stays SB Route 1	SB	
2024-08-21 10:28:00	Dump Truck	22	30	36	39	47	Truck stays SB Route 1	SB	
2024-08-21 10:29:00	Dump Truck	24	33	34	38	52	Truck stays SB Route 1	SB	
2024-08-21 10:32:00	Dump Truck	26	31	41	47	51	Truck goes NB Route 1	NB	
2024-08-21 10:32:00	Dump Truck	26	31	42	47	51	Truck stays SB Route 1	SB	
2024-08-21 10:35:00	Dump Truck	27	33	35	44	56	Truck stays SB Route 1	SB	
2024-08-21 10:41:00	Dump Truck	29	30	45	49	58	Truck stays SB Route 1	SB	
2024-08-21 10:41:00	Dump Truck	20	29	36	39	50	Truck stays SB Route 1	SB	
2024-08-21 10:44:00	Dump Truck	17	23	27	29	40	Truck stays SB Route 1	SB	
2024-08-21 10:44:00	Dump Truck	25	31	30	42	49	Truck stays SB Route 1	SB	
2024-08-21 10:44:00	Dump Truck	26	32	35	45	52	Truck goes NB Route 1	NB	
2024-08-21 10:47:00	Dump Truck	24	31	39	43	53	Truck goes NB Route 1	NB	
2024-08-21 10:47:00	Dump Truck	28	41	47	47	50	Truck stays SB Route 1	SB	
2024-08-21 10:50:00	Dump Truck	32	41	47	51	53	Truck goes NB Route 1	NB	
2024-08-21 10:51:00	Dump Truck	26	36	41	51	53	Truck stays SB Route 1	SB	
2024-08-21 10:52:00	Dump Truck	22	29	41	47	52	Truck stays SB Route 1	SB	
2024-08-21 10:57:00	Dump Truck	23	31	38	46	48	Truck stays SB Route 1	SB	
2024-08-21 12:01:00	Hauling Truck	24	33	39	42	53	Truck goes NB Route 1	NB	
2024-08-21 12:02:00	Dump Truck	23	31	40	46	57	Truck stays SB Route 1	SB	
2024-08-21 12:05:00	Dump Truck	26	35	42	44	52	Truck stays SB Route 1	SB	
2024-08-21 12:05:00	Dump Truck	27		46	51	53	Truck stays SB Route 1	SB	
2024-08-21 12:08:00	Dump Truck	25	34	34	46	57	Truck stays SB Route 1	SB	
2024-08-21 12:08:00	Dump Truck	25	36	47	50	60	Truck stays SB Route 1	SB	
2024-08-21 12:10:00	Dump Truck	19	27	27	39	40	Truck goes NB Route 1	NB	
2024-08-21 12:11:00	Dump Truck	22	27	29	40	45	Truck stays SB Route 1	SB	
2024-08-21 12:13:00	Dump Truck	25	29	35	38	52	Truck goes NB Route 1	NB	
2024-08-21 12:14:00	Dump Truck	22	32	40	43	52	Truck stays SB Route 1	SB	
2024-08-21 12:14:00	Dump Truck	22	30	32	43	54	Truck stays SB Route 1	SB	
2024-08-21 12:15:00	Dump Truck	24	32	39	42	54	Truck goes NB Route 1	NB	
2024-08-21 12:17:00	Dump Truck	24	33	36	48	56	Truck stays SB Route 1	SB	
2024-08-21 12:22:00	Dump Truck	22	28	35	42	50	Truck goes NB Route 1	NB	
2024-08-21 12:23:00	Dump Truck	24	34	46	54	57	Truck goes NB Route 1	NB	
2024-08-21 12:23:00	Dump Truck	24	33	46	51	57	Truck goes NB Route 1	NB	
2024-08-21 12:28:00	Dump Truck	31	39	42	47	53	Truck goes NB Route 1	NB	

Start Time	Vehicle Type	In MPH						OD at Bayside Drive	
		Speed Data from Radar							
		ATR 1	ATR 2	ATR 3	ATR 4	ATR 5			
		200'	440'	1030'	1610'	2150'			
2024-08-21 12:28:00	Dump Truck	28	33	40	45	53	Truck goes NB Route 1	NB	
2024-08-21 12:35:00	Dump Truck	27	34	43	49	57	Truck goes NB Route 1	NB	
2024-08-21 12:36:00	Dump Truck	28	37	42	50	58	Truck stays SB Route 1	SB	
2024-08-21 12:38:00	Dump Truck	29	37	42	49	56	Truck stays SB Route 1	SB	
2024-08-21 12:44:00	Dump Truck	26	34	40	48	59	Truck stays SB Route 1	SB	
2024-08-21 12:45:00	Dump Truck	27	34	44	49	53	Truck goes NB Route 1	NB	
2024-08-21 12:45:00	Dump Truck	25	31	40	47	52	Truck stays SB Route 1	SB	
2024-08-21 12:49:00	Dump Truck	24	33	41	48	57	Truck stays SB Route 1	SB	
2024-08-21 12:49:00	Dump Truck	22	29	44	52	60	Truck stays SB Route 1	SB	
2024-08-21 12:51:00	Waste Truck	24	34	44	50	56	Truck goes EB at Route 1	EB	
2024-08-21 12:52:00	Dump Truck	22	29	34	45	56	Truck stays SB Route 1	SB	
2024-08-21 12:54:00	Dump Truck	24	36	49	54	62	Truck goes NB Route 1	NB	
2024-08-21 12:54:00	Dump Truck	21	29	35	40	52	Truck stays SB Route 1	SB	
2024-08-21 13:05:00	Dump Truck	22	28	37	44	49	Truck goes NB Route 1	NB	
2024-08-21 13:07:00	Dump Truck	21	30	40	49	58	Truck stays SB Route 1	SB	
2024-08-21 13:10:00	Hauling Truck	21	28	38	44	55	Truck goes NB Route 1	NB	
2024-08-21 13:15:00	Dump Truck	28	34	40	45	52	Truck stays SB Route 1	SB	
2024-08-21 13:19:00	Dump Truck	23	30	41	50	58	Truck goes NB Route 1	NB	
2024-08-21 13:21:00	Dump Truck	30	36	47	54	63	Truck stays SB Route 1	SB	
2024-08-21 13:23:00	Dump Truck	27	33	42	50	56	Truck goes NB Route 1	NB	
2024-08-21 13:24:00	Dump Truck	25	33	39	47	53	Truck goes NB Route 1	NB	
2024-08-21 13:25:00	Dump Truck	25	32	42	47	58	Truck goes NB Route 1	NB	
2024-08-21 13:26:00	Dump Truck	24	32	37	45	54	Truck goes NB Route 1	NB	
2024-08-21 13:32:00	Dump Truck	26	35	40	49	55	Truck stays SB Route 1	SB	
2024-08-21 13:32:00	Dump Truck	24	31	34	45	55	Truck stays SB Route 1	SB	
2024-08-21 13:37:00	Dump Truck	26	34	38	45	58	Truck goes NB Route 1	NB	
2024-08-21 13:37:00	Dump Truck	27	35	42	50	58	Truck stays SB Route 1	SB	
2024-08-21 13:39:00	Dump Truck	27	35	41	50	56	Truck stays SB Route 1	SB	
2024-08-21 13:50:00	Dump Truck	24	30	37	44	49	Truck stays SB Route 1	SB	
2024-08-21 13:52:00	Dump Truck	22	30	35	42	50	Truck stays SB Route 1	SB	
2024-08-21 13:57:00	Dump Truck	27	37	46	50	58	Truck goes NB Route 1	NB	
2024-08-21 13:59:00	Dump Truck	24	34	38	46	52	Truck stays SB Route 1	SB	
2024-08-21 14:02:00	Dump Truck	27	38	42	47	57	Truck goes NB Route 1	NB	
2024-08-21 14:02:00	Dump Truck	27	34	39	45	54	Truck stays SB Route 1	SB	
2024-08-21 14:15:00	Dump Truck	29	36	45	52	58	Truck stays SB Route 1	SB	
2024-08-21 14:16:00	Dump Truck	23	36	44	54	58	Truck stays SB Route 1	SB	
2024-08-21 14:16:00	Dump Truck	24	42	52	57	64	Truck goes NB Route 1	NB	
2024-08-21 14:26:00	Dump Truck	27	35	40	47	56	Truck stays SB Route 1	SB	
2024-08-21 14:27:00	Dump Truck	26	35	40	44	50	Truck goes NB Route 1	NB	
2024-08-21 14:27:00	Dump Truck	29	36	45	54	60	Truck stays SB Route 1	SB	
2024-08-21 14:29:00	Hauling Truck	30	42	48	56	63	Truck goes NB Route 1	NB	
2024-08-21 14:33:00	Dump Truck	30	41	49	54	60	Truck stays SB Route 1	SB	
2024-08-21 14:34:00	Dump Truck	30	35	42	52	63	Truck goes NB Route 1	NB	
2024-08-21 14:37:00	Dump Truck	22	32	44	50	58	Truck stays SB Route 1	SB	
2024-08-21 14:38:00	Dump Truck	26	35	44	51	61	Truck stays SB Route 1	SB	

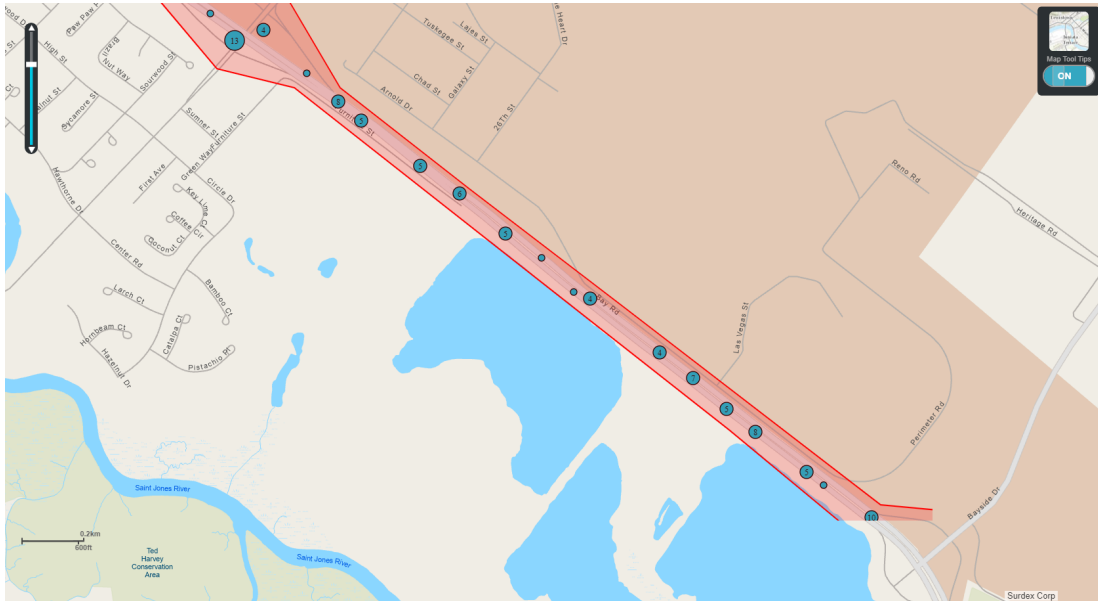
Start Time	Vehicle Type	In MPH						OD at Bayside Drive	
		Speed Data from Radar							
		ATR 1	ATR 2	ATR 3	ATR 4	ATR 5			
		200'	440'	1030'	1610'	2150'			
2024-08-21 14:42:00	Dump Truck	23	29	41	50	59		Truck goes NB Route 1	NB
2024-08-21 14:42:00	Dump Truck	22	27	41	50	55		Truck goes NB Route 1	NB
2024-08-21 14:48:00	Hauling Truck	27	40	47	55	60		Truck goes NB Route 1	NB
2024-08-21 14:51:00	Dump Truck	22	28	40	50	57		Truck goes NB Route 1	NB
2024-08-21 14:52:00	Dump Truck	21	28	36	42	52		Truck goes NB Route 1	NB
2024-08-21 14:56:00	Dump Truck	25	33	44	51	60		Truck goes NB Route 1	NB
2024-08-21 14:59:00	Dump Truck	24	33	39	46	53		Truck goes NB Route 1	NB
Average Speeds		24	33	40	47	55	60	Total NB Trucks	43%
							79	Total SB Trucks	57%

## **Appendix C** Crash Data



# Delaware Crash Analysis Reporting System

**Crash Study Time Period:** 01/01/2019 - 12/31/2023  
**Query Type:** AdvancedQueryTool  
**Description:** Crash Summary SR1 plus ramps and terminal intersection  
**Study Requested By:** Jeff Riegner- Kettelson & Assoc.  
**Study Generated By:** TDTSKLG  
**Number of Crashes:** 132  
**Includes Non-Reportable Crashes:** N  
**Study Code:**



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## State of Delaware Crash Study

Summary		Classification			Manner of Impact		
	# of Crashes		# of Crashes	% of Total Crashes		# of Crashes	% of Total Crashes
Total Crashes	132				Front to rear	25	18.94%
Fatal Crashes	1	Non-Reportable	0	0.00%	Front to front	3	2.27%
Total Alcohol-Related Crashes	11	Reportable	109	82.58%	Angle	14	10.61%
Total Non Alcohol-Related Crashes	121	Personal Injury	22	16.67%	Sideswipe, same direction	24	18.18%
Total Fatalities	1	Fatality	1	0.76%	Sideswipe, opposite direction	1	0.76%
Total Pedestrian Fatalities	0	<b>Total</b>	<b>132</b>		Rear to side	0	0.00%
Total Pedestrian Injuries	1				Rear to rear	0	0.00%
Total Pedestrian Crashes	1				Other	2	1.52%
Total Motorcycle Crashes	2				Unknown	0	0.00%
Total Pedalcyclist Crashes	0				Not a collision between two vehicles	63	47.73%
					<b>Total</b>	<b>132</b>	

Alcohol Related Crashes By Classification					
	Non-reportable	Reportable	Personal Injury	Fatality	Total
Alcohol Related	0	6	4	1	11
Non-Alcohol Related	0	103	18	0	121
<b>Total</b>	<b>0</b>	<b>109</b>	<b>22</b>	<b>1</b>	<b>132</b>

Manner of Impact By Classification					
	Non-Reportable	Reportable	Personal Injury	Fatality	Total
Front to rear	0	22	3	0	25
Front to front	0	1	1	1	3
Angle	0	10	4	0	14
Sideswipe, same direction	0	24	0	0	24
Sideswipe, opposite direction	0	1	0	0	1
Rear to side	0	0	0	0	0
Rear to rear	0	0	0	0	0
Other	0	2	0	0	2
Unknown	0	0	0	0	0
Not a collision between two vehicles	0	49	14	0	63
<b>Total</b>	<b>0</b>	<b>109</b>	<b>22</b>	<b>1</b>	<b>132</b>

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Day Of Week		
	# of Crashes	% of Total Crashes
Sunday	17	12.88%
Monday	21	15.91%
Tuesday	19	14.39%
Wednesday	9	6.82%
Thursday	16	12.12%
Friday	28	21.21%
Saturday	22	16.67%
<b>Total</b>	<b>132</b>	

Time Of Day (AM)		
	# of Crashes	% of Total Crashes
00:00 - 00:59	3	2.27%
01:00 - 01:59	1	0.76%
02:00 - 02:59	6	4.55%
03:00 - 03:59	2	1.52%
04:00 - 04:59	4	3.03%
05:00 - 05:59	5	3.79%
06:00 - 06:59	5	3.79%
07:00 - 07:59	8	6.06%
08:00 - 08:59	5	3.79%
09:00 - 09:59	4	3.03%
10:00 - 10:59	7	5.30%
11:00 - 11:59	4	3.03%
<b>Total</b>	<b>54</b>	

Time Of Day (PM)		
	# of Crashes	% of Total Crashes
12:00 - 12:59	7	5.30%
13:00 - 13:59	9	6.82%
14:00 - 14:59	8	6.06%
15:00 - 15:59	6	4.55%
16:00 - 16:59	10	7.58%
17:00 - 17:59	8	6.06%
18:00 - 18:59	10	7.58%
19:00 - 19:59	4	3.03%
20:00 - 20:59	5	3.79%
21:00 - 21:59	5	3.79%
22:00 - 22:59	5	3.79%
23:00 - 23:59	1	0.76%
<b>Total</b>	<b>78</b>	
Unknown Time	0	

Surface Conditions		
	# of Crashes	% of Total Crashes
Dry	112	84.85%
Wet	16	12.12%
Snow	2	1.52%
Ice/Frost	0	0.00%
Sand	0	0.00%
Water (standing, moving)	1	0.76%
Slush	0	0.00%
Oil	0	0.00%
Mud, Dirt, Gravel	0	0.00%
Other	0	0.00%
Unknown	1	0.76%
<b>Total</b>	<b>132</b>	

Lighting Conditions		
	# of Crashes	% of Total Crashes
Daylight	80	60.61%
Dawn	3	2.27%
Dusk	1	0.76%
Dark-Lighted	26	19.70%
Dark-Not Lighted	19	14.39%
Dark-Unknown Lighting	1	0.76%
Other	0	0.00%
Unknown	2	1.52%
<b>Total</b>	<b>132</b>	

Weather Conditions		
	# of Crashes	% of Total Crashes
Clear	99	75.00%
Cloudy	15	11.36%
Fog, Smog, Smoke	2	1.52%
Rain	14	10.61%
Sleet, Hail (freezing rain or drizzle)	0	0.00%
Snow	2	1.52%
Blowing Snow	0	0.00%
Severe Crosswinds	0	0.00%
Blowing Sand, Soil, Dirt	0	0.00%
Other	0	0.00%
Unknown	1	0.76%
<b>Total</b>	<b>133</b>	

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First Harmful Event		
	# of Crashes	% of Total Crashes
Overturn/Rollover, Non-Collision	2	1.52%
Fire/Explosion, Non-Collision	1	0.76%
Immersion, Non-Collision	0	0.00%
Jackknife, Non-Collision	0	0.00%
Cargo/Equipment Loss or Shift, Non-Collision	0	0.00%
Fell/Jumped From Motor Vehicle, Non-Collision	0	0.00%
Thrown or Falling Object, Non-Collision	2	1.52%
Other Non-Collision, Non-Collision	1	0.76%
Pedestrian, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	0.76%
Pedalcycle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Railway Vehicle (train, engine), Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Animal, Collision With Person, Motor Vehicle, or Non-Fixed Object	10	7.58%
Motor Vehicle in Transport, Collision With Person, Motor Vehicle, or Non-Fixed Object	70	53.03%
Legally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Struck by Anything Set in Motion by Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Work Zone / Maintenance Equipment, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	0.76%
Other Non-Fixed Object, Collision With Person, Motor Vehicle, or Non-Fixed Object	1	0.76%
Impact Attenuator/Crash Cushion, Collision With Fixed Object	0	0.00%
Bridge Overhead Structure, Collision With Fixed Object	1	0.76%
Bridge Pier or Support, Collision With Fixed Object	0	0.00%
Bridge Rail, Collision With Fixed Object	0	0.00%
Cable Barrier, Collision With Fixed Object	3	2.27%
Culvert, Collision With Fixed Object	0	0.00%
Curb, Collision With Fixed Object	0	0.00%
Ditch, Collision With Fixed Object	4	3.03%
Embankment, Collision With Fixed Object	1	0.76%

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Guardrail Face, Collision With Fixed Object	9	6.82%
Guardrail End, Collision With Fixed Object	1	0.76%
Concrete Traffic Barrier, Collision With Fixed Object	4	3.03%
Other Traffic Barrier, Collision With Fixed Object	2	1.52%
Tree (standing), Collision With Fixed Object	2	1.52%
Utility Pole, Collision With Fixed Object	1	0.76%
Light Support, Collision With Fixed Object	3	2.27%
Traffic Sign Support, Collision With Fixed Object	5	3.79%
Overhead Sign Support, Collision With Fixed Object	1	0.76%
Traffic Signal Support, Collision With Fixed Object	0	0.00%
Fence, Collision With Fixed Object	2	1.52%
Mailbox, Collision With Fixed Object	0	0.00%
Other Post, Pole or Support, Collision With Fixed Object	1	0.76%
Other Fixed Object (wall, building, tunnel, etc.), Collision With Fixed Object	3	2.27%
Illegally Parked Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Stopped Motor Vehicle, Collision With Person, Motor Vehicle, or Non-Fixed Object	0	0.00%
Unknown, Collision With Fixed Object	0	0.00%
<b>Total</b>	<b>122</b>	

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Primary Contributing Circumstance		
	# of Crashes	% of Total Crashes
Speeding	1	0.76%
Failed to yield right of way	4	3.03%
Passed Stop Sign	1	0.76%
Disregard Traffic Signal	0	0.00%
Wrong side or wrong way	1	0.76%
Improper passing	0	0.00%
Improper lane change	8	6.06%
Following too close	9	6.82%
Made improper turn	0	0.00%
Driving under the influence	10	7.58%
Driver inattention, distraction, or fatigue	34	25.76%
Driving in a careless or reckless manner	13	9.85%
Driving in an aggressive manner	1	0.76%
Improper backing	0	0.00%
Other improper driving	1	0.76%
Mechanical defects	8	6.06%
Animal in Roadway - Deer	10	7.58%
Animal in Roadway - Other Animal	1	0.76%
Other environmental circumstances - weather, glare	4	3.03%
Roadway circumstances - debris, holes, work zone,	3	2.27%
Other	14	10.61%
Unknown	8	6.06%
<b>Total</b>	<b>131</b>	

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Driver Action		
	# of Drivers	% of Total Crashes
No Contributing Action	99	48.77%
Failed to yield right of way	8	3.94%
Ran Red Light	0	0.00%
Ran Stop Sign	1	0.49%
Disregard other traffic sign	0	0.00%
Disregard other road markings	1	0.49%
Exceeded authorized speed limit	0	0.00%
Driving too fast for conditions	2	0.99%
Made an improper turn	0	0.00%
Improper backing	0	0.00%
Wrong side or wrong way	1	0.49%
Followed too closely	9	4.43%
Failure to keep in proper lane	20	9.85%
Ran off roadway	7	3.45%
Operating vehicle in erratic, reckless, careless, negligent or aggressive manner	34	16.75%
Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	2	0.99%
Over-correcting/over-steering	2	0.99%
Improper Passing	2	0.99%
Other Contributing Action	6	2.96%
Unknown	9	4.43%
<b>Total</b>	<b>203</b>	

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2019															
01/26/2019	16:12	K	00008	0.13	15.96	Property Damage Only	Not a collision between two vehicles	Motor Vehicle in Transport	Mechanical defects	Daylight	Clear - Clear	Dry	0	0	N
01/29/2019	13:19	K	00008	14.75	14.75	Personal Injury Crash	Angle	Motor Vehicle in Transport	Improper lane change	Daylight	Cloudy	Dry	0	2	N
04/09/2019	14:57	K	00008	0.41	16.24	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
04/22/2019	11:46	K	00008	1.27	17.10	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Unknown	Daylight	Cloudy	Dry	0	0	N
05/09/2019	03:46	K				Personal Injury Crash	Front to front	Traffic Sign Support	Other	Dark-Lighted	Clear	Dry	0	1	N
05/24/2019	17:01	K				Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driving under the influence	Daylight	Clear	Dry	0	0	Y
07/03/2019	09:09	K				Property Damage Only	Not a collision between two vehicles	Overturn/Rollover	Other	Daylight	Clear	Dry	0	0	N
07/16/2019	07:34	K	00008	0.41	16.24	Personal Injury Crash	Angle	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Clear	Dry	0	1	N
08/07/2019	06:57	K	007005	0.05	0.05	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
08/17/2019	22:01	K	00008	1.68	17.51	Property Damage Only	Not a collision between two vehicles	Guardrail Face	Driver inattention, distraction, or fatigue	Dark-Lighted	Clear	Dry	0	0	N
08/23/2019	18:03	K	007004	0.21	0.21	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Rain	Wet	0	0	N
09/15/2019	13:00	K	00008	14.7	14.70	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
09/21/2019	16:52	K	00008	14.16	14.16	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
09/23/2019	13:35	K	00008	15.22	15.22	Property Damage Only	Not a collision between two vehicles	Guardrail Face	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
09/27/2019	20:31	K				Property Damage Only	Not a collision between two vehicles	Guardrail Face	Driving in a careless or reckless manner	Dark-Not Lighted	Clear	Dry	0	0	N
11/06/2019	09:21	K				Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Improper lane change	Daylight	Clear	Dry	0	0	N

## 2020

02/10/2020	19:07	K	00008	14.19	14.19	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Unknown	Dark-Lighted	Rain	Wet	0	0	N
03/17/2020	16:23	K	00008	14.18	14.18	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
04/11/2020	14:57	K	00008	1.27	17.10	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Daylight	Clear - Clear	Dry	0	0	N
04/18/2020	20:09	K	00008	1.09	16.92	Property Damage Only	Angle	Motor Vehicle in Transport	Driving in a careless or reckless manner	Dark-Not Lighted	Clear	Dry	0	0	N
05/17/2020	20:38	K				Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Dark-Lighted	Clear	Dry	0	0	N
05/25/2020	16:56	K				Property Damage Only	Not a collision between two vehicles	Guardrail Face	Driving under the influence	Daylight	Clear	Dry	0	0	N
05/30/2020	21:31	K	00008	0.25	16.08	Personal Injury Crash	Not a collision between two vehicles	Concrete Traffic Barrier	Driving under the influence	Dark-Not Lighted	Clear	Dry	0	1	Y
06/09/2020	22:01	K				Fatality Crash	Front to front	Motor Vehicle in Transport	Wrong side or wrong way	Dark-Not Lighted	Clear	Dry	1	1	Y
06/12/2020	21:31	K	00008	14.27	14.27	Property Damage Only	Other	Motor Vehicle in Transport	Other	Dark-Not Lighted	Clear	Dry	0	0	N
07/24/2020	13:56	K	00008	1.36	17.19	Property Damage Only	Not a collision between two vehicles	Thrown or Falling Object	Other	Daylight	Clear	Dry	0	0	N
07/24/2020	18:21	K	00008	0.21	16.04	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear - Cloudy	Dry	0	0	N

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
<b>2020</b>															
08/13/2020	14:24	K	007004	0.22	0.22	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Rain	Wet	0	0	N
08/13/2020	18:05	K	00357	0.2	1.02	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Cloudy	Dry	0	0	N
08/21/2020	17:10	K	00008	15.28	15.28	Property Damage Only	Not a collision between two vehicles	Fence	Mechanical defects	Daylight	Clear	Dry	0	0	N
09/21/2020	07:02	K	00150	0.18	0.18	Personal Injury Crash	Not a collision between two vehicles	Other Post, Pole or Support	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N
09/29/2020	15:57	K	00008	14.04	14.04	Personal Injury Crash	Angle	Motor Vehicle in Transport	Other	Daylight	Rain	Wet	0	1	N
10/03/2020	02:02	K				Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Cloudy	Dry	0	0	N
10/05/2020	18:30	K				Property Damage Only	Not a collision between two vehicles	Fence	Driving in a careless or reckless manner	Dusk	Clear	Dry	0	0	N
10/16/2020	11:08	K	00150	15.59	31.23	Property Damage Only	Angle	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Rain	Wet	0	0	N
10/23/2020	10:15	K	00008	14.21	14.21	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Fog, Smog, Smoke	Dry	0	0	N
10/28/2020	12:55	K	00008	1.63	17.46	Property Damage Only	Not a collision between two vehicles	Other Non-Fixed Object	Other environmental circumstances - weather, glare	Daylight	Cloudy	Dry	0	0	N
11/05/2020	17:16	K	00008	1.76	17.59	Personal Injury Crash	Angle	Motor Vehicle in Transport	Driving in a careless or reckless manner	Dark-Lighted	Clear	Dry	0	3	N
<b>2021</b>															
01/24/2021	03:26	K	00008	1.63	17.46	Property Damage Only	Not a collision between two vehicles	Traffic Sign Support	Driver inattention, distraction, or fatigue	Dark-Lighted	Clear	Dry	0	0	N

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2021															
02/11/2021	06:26	K	007077	0.02	0.02	Property Damage Only	Not a collision between two vehicles	Traffic Sign Support	Other	Dark-Not Lighted	Snow	Snow	0	0	N
02/22/2021	13:41	K	00008	15.18	15.18	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Cloudy	Wet	0	0	N
04/16/2021	06:38	K	00150	15.55	31.19	Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	3	N
04/17/2021	04:24	K	00008	0.04	15.87	Personal Injury Crash	Not a collision between two vehicles	Concrete Traffic Barrier	Driver inattention, distraction, or fatigue	Dark-Not Lighted	Clear	Dry	0	2	N
04/27/2021	12:52	K	00008	15.79	15.79	Property Damage Only	Not a collision between two vehicles	Concrete Traffic Barrier	Unknown	Daylight	Clear	Dry	0	0	N
04/28/2021	22:14	K	00008	15.62	15.62	Personal Injury Crash	Not a collision between two vehicles	Concrete Traffic Barrier	Driving in a careless or reckless manner	Dark-Unknown Lighting	Clear	Dry	0	2	Y
05/01/2021	07:06	K				Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N
05/28/2021	10:37	K	00008	14.31	14.31	Property Damage Only	Angle	Motor Vehicle in Transport	Other	Daylight	Clear	Dry	0	0	N
05/28/2021	13:54	K	00008	14.31	14.31	Property Damage Only	Angle	Motor Vehicle in Transport	Other	Daylight	Clear	Dry	0	0	N
05/29/2021	17:43	K	00008	1.79	17.62	Property Damage Only	Not a collision between two vehicles	Other Traffic Barrier	Other environmental circumstances - weather, glare	Daylight	Rain	Wet	0	0	N
06/07/2021	08:36	K	00008	14.01	14.01	Property Damage Only	Not a collision between two vehicles	Overhead Sign Support	Other improper driving	Daylight	Clear	Dry	0	0	N
06/12/2021	02:37	K	00008	1.73	17.56	Property Damage Only	Not a collision between two vehicles	Cable Barrier	Driving in a careless or reckless manner	Dark-Lighted	Rain	Wet	0	0	N

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2021															
06/26/2021	10:32	K	00008	1.78	17.61	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Rain	Wet	0	0	N
07/11/2021	10:52	K	00008	15.62	15.62	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Unknown	Daylight	Clear	Dry	0	0	N
07/15/2021	16:44	K	00008	0.43	16.26	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
08/12/2021	14:05	K	00008	0.54	16.37	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
08/20/2021	07:18	K				Property Damage Only	Not a collision between two vehicles	Other Fixed Object (wall, building, tunnel, etc.)	Other environmental circumstances - weather, glare	Dawn	Rain	Wet	0	0	N
09/04/2021	07:24	K	00008	1.12	16.95	Property Damage Only	Not a collision between two vehicles	Embankment	Unknown	Unknown	Clear	Dry	0	0	N
09/06/2021	15:33	K	00008	0.81	16.64	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Improper lane change	Daylight	Clear	Dry	0	0	N
09/09/2021	05:45	K	00150	0.01	0.01	Property Damage Only	Front to rear	Motor Vehicle in Transport	Unknown	Dark-Lighted	Rain	Wet	0	0	N
09/20/2021	02:29	K	00008	1.42	17.25	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
09/26/2021	19:56	K	00008	1.38	17.21	Property Damage Only	Angle	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Dark-Lighted	Clear	Dry	0	0	N
09/27/2021	04:24	K	00357	0.63	0.63	Personal Injury Crash	Not a collision between two vehicles	Traffic Sign Support	Driving under the influence	Dark-Lighted	Clear	Dry	0	1	Y
10/03/2021	15:57	K	007005	0	0.00	Property Damage Only	Not a collision between two vehicles	Fire/Explosion	Mechanical defects	Daylight	Clear	Dry	0	0	N
10/12/2021	21:24	K	00008	1.77	17.60	Property Damage Only	Not a collision between two vehicles	Light Support	Driver inattention, distraction, or fatigue	Dark-Lighted	Rain	Dry	0	0	N

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
<b>2021</b>															
11/04/2021	04:15	K				Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Lighted	Clear	Dry	0	0	N
11/05/2021	02:01	K	00008	0.65	16.48	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Cloudy	Dry	0	0	N
11/05/2021	21:48	K	00008	15.6	15.60	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
11/07/2021	00:37	K	00008	1.64	17.47	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Lighted	Clear	Dry	0	0	N
12/10/2021	10:57	K	00008	14.54	14.54	Property Damage Only	Not a collision between two vehicles	Cable Barrier	Driving in a careless or reckless manner	Daylight	Clear	Dry	0	0	N
12/14/2021	05:34	K	00008	14.84	14.84	Property Damage Only	Not a collision between two vehicles	Motor Vehicle in Transport	Other	Dark-Not Lighted	Clear	Dry	0	0	N
12/19/2021	17:06	K	00008	13.98	13.98	Property Damage Only	Not a collision between two vehicles	Other Traffic Barrier	Speeding	Dark-Lighted	Clear	Dry	0	0	N
12/21/2021	09:36	K	00008	14.33	14.33	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Cloudy	Dry	0	0	N
12/21/2021	14:42	K	00008	14.78	14.78	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Cloudy	Dry	0	0	N

## 2022

01/02/2022	18:10	K	007078	0	0.00	Property Damage Only	Not a collision between two vehicles	Guardrail Face	Driving under the influence	Dark-Lighted	Clear	Dry	0	0	Y
01/03/2022	14:55	K				Personal Injury Crash	Not a collision between two vehicles	Cable Barrier	Driving in a careless or reckless manner	Daylight	Snow	Snow	0	1	N
04/05/2022	15:00	K	00008	15	15.00	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Improper lane change	Daylight	Rain	Wet	0	0	N

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2022															
05/21/2022	15:06	K	00150	15.7	31.45	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
05/23/2022	00:45	K	00008	1.2	17.03	Property Damage Only	Not a collision between two vehicles	Tree (standing)	Other	Dark-Not Lighted	Clear	Wet	0	0	N
05/23/2022	06:47	K				Property Damage Only	Not a collision between two vehicles	Motor Vehicle in Transport	Unknown	Unknown	Unknown	Unknown	0	0	N
06/03/2022	04:20	K				Property Damage Only	Front to rear	Motor Vehicle in Transport	Unknown	Dark-Not Lighted	Cloudy	Dry	0	0	N
07/22/2022	17:21	K	00008	1.51	17.34	Property Damage Only	Front to rear	Motor Vehicle in Transport	Mechanical defects	Daylight	Clear	Dry	0	0	N
07/22/2022	18:13	K	00008	14.32	14.32	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driving in an aggressive manner	Daylight	Clear	Dry	0	0	N
07/24/2022	11:23	K	00008	15.8	15.80	Personal Injury Crash	Not a collision between two vehicles	Guardrail Face	Other	Daylight	Clear	Dry	0	1	N
08/20/2022	22:06	K				Personal Injury Crash	Front to rear	Motor Vehicle in Transport	Driving under the influence	Dark-Lighted	Clear	Dry	0	2	Y
08/30/2022	12:29	K	00008	14.98	14.98	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Improper lane change	Daylight	Clear	Dry	0	0	N
09/12/2022	16:40	K	00008	1.65	17.48	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
10/10/2022	08:56	K	00008	1.67	17.50	Property Damage Only	Sideswipe, same direction	Guardrail Face	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
10/20/2022	16:27	K	00357	0.06	0.88	Property Damage Only	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	0	N
11/05/2022	07:46	K	00150	0.02	0.02	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
11/10/2022	12:50	K	00008	1.3	17.13	Property Damage Only	Not a collision between two vehicles	Guardrail End	Animal in Roadway - Other Animal	Daylight	Clear	Dry	0	0	N

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<b>2022</b>															
11/14/2022	22:46	K	00008	1.04	16.87	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
11/22/2022	07:42	K	007072	0.15	0.15	Property Damage Only	Angle	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
12/06/2022	05:37	K				Property Damage Only	Not a collision between two vehicles	Guardrail Face	Mechanical defects	Dark-Not Lighted	Clear	Dry	0	0	N
12/21/2022	00:36	K				Property Damage Only	Not a collision between two vehicles	Utility Pole	Driving under the influence	Dark-Lighted	Clear	Dry	0	0	Y
12/22/2022	19:00	K	00150	15.57	31.26	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Other	Dark-Lighted	Rain	Wet	0	0	N

## 2023

01/06/2023	08:51	K	00357	0.7	0.70	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
01/20/2023	13:47	K	00357	0.77	0.77	Property Damage Only	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Cloudy	Dry	0	0	N
02/04/2023	20:58	K	00008	15.35	15.35	Personal Injury Crash	Not a collision between two vehicles	Pedestrian	Pedestrian	Dark-Not Lighted	Clear	Dry	0	1	N
03/13/2023	01:00	K	00008	0.84	16.67	Property Damage Only	Not a collision between two vehicles	Motor Vehicle in Transport	Roadway circumstances - debris, holes, work zone,	Dark-Not Lighted	Clear	Dry	0	0	N
03/28/2023	11:43	K				Property Damage Only	Not a collision between two vehicles	Guardrail Face	Mechanical defects	Daylight	Clear	Dry	0	0	N
04/15/2023	19:24	K	00008	1.82	17.65	Property Damage Only	Not a collision between two vehicles	Ditch	Driving under the influence	Daylight	Clear	Dry	0	0	Y
04/20/2023	12:26	K	00008	1.2	17.03	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N

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2023															
05/07/2023	17:46	K	00008	1.27	17.10	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driving in a careless or reckless manner	Daylight	Clear - Clear	Dry	0	0	N
05/14/2023	08:03	K	007077	0	0.00	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
06/18/2023	13:19	K	00008	1.78	17.61	Personal Injury Crash	Not a collision between two vehicles	Other Non-Collision	Driver inattention, distraction, or fatigue	Daylight	Clear - Clear	Dry	0	1	N
06/20/2023	10:09	K	00008	14.66	14.66	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Improper lane change	Daylight	Cloudy	Dry	0	0	N
06/30/2023	13:53	K	00008	1.76	17.59	Property Damage Only	Angle	Motor Vehicle in Transport	Improper lane change	Daylight	Clear	Dry	0	0	N
07/04/2023	02:45	K				Property Damage Only	Not a collision between two vehicles	Motor Vehicle in Transport	Passed Stop Sign	Dark-Lighted	Clear	Wet	0	0	N
07/27/2023	18:34	K				Property Damage Only	Not a collision between two vehicles	Traffic Sign Support	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
07/31/2023	16:00	K	00357	0.77	0.77	Property Damage Only	Front to front	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Clear	Dry	0	0	N
08/06/2023	05:49	K	00008	14.01	14.01	Personal Injury Crash	Not a collision between two vehicles	Overturn/Rollover	Driver inattention, distraction, or fatigue	Dawn	Clear	Dry	0	1	N
08/11/2023	16:17	K	00357	0.09	0.91	Property Damage Only	Angle	Motor Vehicle in Transport	Failed to yield right of way	Daylight	Cloudy	Dry	0	0	N
08/18/2023	15:11	K	00008	0.3	16.13	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
08/18/2023	16:06	K	00008	15.7	15.70	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
08/20/2023	21:02	K	00008	1.84	17.67	Property Damage Only	Sideswipe, same direction	Ditch	Driving under the influence	Dark-Lighted	Clear	Dry	0	0	Y

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2023															
08/22/2023	14:27	K	00008	15.41	15.41	Property Damage Only	Not a collision between two vehicles	Thrown or Falling Object	Other	Daylight	Clear	Dry	0	0	N
09/03/2023	12:14	K	00008	15.63	15.63	Property Damage Only	Front to rear	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	0	N
09/06/2023	17:15	K	00008	15.82	15.82	Property Damage Only	Not a collision between two vehicles	Bridge Overhead Structure	Roadway circumstances - debris, holes, work zone,	Daylight	Clear	Dry	0	0	N
09/21/2023	14:14	K	00008	0.68	16.51	Property Damage Only	Not a collision between two vehicles	Ditch	Mechanical defects	Daylight	Clear	Dry	0	0	N
09/27/2023	12:58	K	00008	1.2	17.03	Property Damage Only	Sideswipe, same direction	Motor Vehicle in Transport	Improper lane change	Daylight	Clear	Dry	0	0	N
09/29/2023	23:05	K				Personal Injury Crash	Not a collision between two vehicles	Light Support	Other	Dark-Lighted	Rain	Water (standing, moving)	0	1	N
10/09/2023	08:10	K	00150	15.63	31.32	Property Damage Only	Not a collision between two vehicles	Work Zone / Maintenance Equipment	Roadway circumstances - debris, holes, work zone,	Daylight	Clear	Dry	0	0	N
10/13/2023	07:14	K				Property Damage Only	Not a collision between two vehicles	Ditch	Mechanical defects	Daylight	Clear	Dry	0	0	N
10/19/2023	05:31	K				Personal Injury Crash	Not a collision between two vehicles	Other Fixed Object (wall, building, tunnel, etc.)	Driving in a careless or reckless manner	Dark-Lighted	Clear	Dry	0	1	N
10/28/2023	18:52	K	00008	14.71	14.71	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Not Lighted	Clear	Dry	0	0	N
11/04/2023	06:45	K	007006	0.03	0.03	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Dawn	Clear	Dry	0	0	N
11/15/2023	20:35	K	00008	1.82	17.65	Property Damage Only	Not a collision between two vehicles	Animal	Animal in Roadway - Deer	Dark-Lighted	Clear	Dry	0	0	N

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Date	Time	CTY	RD	MP	C-MP	Class	MOI	FHE	PC	LC	WC	SC	Fat	Inj	AL
2023															
11/20/2023	10:58	K	00008	0.24	16.07	Property Damage Only	Front to rear	Motor Vehicle in Transport	Following too close	Daylight	Clear	Dry	0	0	N
11/25/2023	18:37	K	00150	0.14	0.14	Property Damage Only	Sideswipe, opposite direction	Motor Vehicle in Transport	Driver inattention, distraction, or fatigue	Dark-Lighted	Clear	Dry	0	0	N
12/02/2023	18:34	K				Personal Injury Crash	Not a collision between two vehicles	Other Fixed Object (wall, building, tunnel, etc.)	Other environmental circumstances - weather, glare	Dark-Lighted	Fog, Smog, Smoke	Wet	0	3	N
12/24/2023	02:38	K				Property Damage Only	Other	Light Support	Driving under the influence	Dark-Lighted	Cloudy	Dry	0	0	Y
12/29/2023	09:16	K	00008	1.75	17.58	Personal Injury Crash	Not a collision between two vehicles	Tree (standing)	Driver inattention, distraction, or fatigue	Daylight	Clear	Dry	0	1	N

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## **Report Legend**

**CTY – County**

**RD – Maintenance Road**

**MP – Milepoint**

**C-MP – Continuous Milepoint**

**Fat – Fatality**

**Inj – Injury**

**AL - Alcohol Involved**

**LC – Lighting Condition**

**WC – Weather Condition**

**SC – Surface Condition**

**FHE – First Harmful Event**

**PC – Primary Contributing Circumstance**

**Class – Report Classification**

**MOI – Manner of Impact**

## **Appendix D** Cost Estimate



**SR 1 / SR 9 Truck Study**  
**Kent County, DE**



**Planning Estimate NOT FOR CONSTRUCTION**

Prepared By: Kittelson & Associates, Inc.

General Items <sup>1</sup>					
Item No.	Description	Unit	Unit Cost <sup>2</sup>	Quantity	Total
720021	Guardrail, Type 1-31	LF	36.50	3000	\$109,498.76
721003	Guardrail End Treatment, Type 2	EACH	3284.96	2	\$6,569.93
817042	Edge Line, Epoxy Resin Paint, White, 6"	LF	0.36	3000	\$1,094.99
819018	Installation or Removal of Traffic Sign	EACH	749.09	1	\$749.09
861002	3' Line / 9' Gap, Permanent Pavement Striping, Epoxy Resin Paint, 12"	LF	0.36	750	\$273.75
864004	Entrance Striping, Performed Retroreflective Markings, Patterned 12"	LF	25.55	150	\$3,832.46
867001	Snowplowable Raised Pavement Marker	EACH	42.58	188	\$8,005.58
	Contingency <sup>3</sup>			40%	\$52,009.82
	<b>Total</b>				<b>\$182,034.36</b>

Mill & Overlay <sup>4</sup> (Case 1)					
Item No.	Description	Unit	Unit Cost	Quantity	Total
401046	2" Superpave Type C, PG 76-22 (Non-Carbonate Stone)	TON	122.99	570	\$70,102.81
760010	2" Pavement Milling, Bituminous Concrete Pavement	SYIN	1.82	10000	\$18,249.79
	Contingency			40%	\$35,341.04
	General Items				\$182,034.36
	<b>Total</b>				<b>\$305,728.01</b>

Full Depth Reconstruction <sup>4,5</sup> (Case 2)					
Item No.	Description	Unit	Unit Cost	Quantity	Total
202000	23" Excavation and Embankment	CY	16.44	3200	\$52,595.51
301001	12" GABC	CY	91.25	1670	\$152,385.78
401014	6" Superpave Type B, PG 64-22	TON	95.93	1710	\$164,040.58
401016	3" Superpave Type B, PG 76-22	TON	107.63	870	\$93,635.48
401046	2" Superpave Type C, PG 76-22 (Non-Carbonate Stone)	TON	122.99	1030	\$126,677.01
760010	2" Pavement Milling, Bituminous Concrete Pavement	SYIN	1.82	8000	\$14,599.83
762001	Saw Cutting, Concrete, Full Depth	LF	4.26	3030	\$12,902.60
	Contingency			40%	\$246,734.72
	General Items				\$182,034.36
	<b>Total</b>				<b>\$1,045,605.87</b>

- Guardrail may negate the need to widen the roadway by approximately 4 feet to provide additional shoulder width. Additional widening may require the relocation of existing signs and lighting.
- Unit costs were determined using the Engineer's Estimate in applicable DelDOT Bid Reports. An inflation factor was applied for year 2025.
- Contingency includes miscellaneous items (20%), contractor's construction engineering (5%), initial expense (5%), and construction contingency (10%), as listed in Part IV of the Capital Transportation Project form.
- The pavement box dimensions used in this estimate include a length of 3,000 feet, encompassing the existing acceleration lane from the site, the shoulder, and the deceleration lane at SR 9. The width is 15 feet, consisting of the existing 14-foot shoulder plus an additional 1 foot.
- This is an assumed paving section. Coring analysis of the existing acceleration lane, shoulder, and deceleration lane is necessary to determine the composition of full depth pavement. Full depth reconstruction also includes mill and overlay of the adjacent travel lane.