

Hampton Roads District

Top 6

Guardrail Hits Evaluations

Updated October 2018

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Appendix A Safety Reviews

Introduction

In the Spring of 2017, as part of VDOT's focus to improve guardrail safety, Central Office Traffic Engineering analyzed statewide crash data and developed lists of the most frequently hit guardrail terminals in the Commonwealth and each District. The District Traffic Engineers were asked to investigate the top sites in their jurisdictions and develop plans for site modifications which could reduce the frequency of guardrail terminal crashes.

Hampton Roads Traffic Engineering Evaluated the Top 6 sites in this district. Their findings and recommendations were issued in September 2017. Since then, the terminals at Sites #1 and 2 have been struck and rebuilt. Sites #4 and 5 are part of the High Rise Bridge Design-Build project area, and are expected to be removed as part of that project in late 2018. Sites #3 and 6 will be modified as opportunities become available.

This report details the original recommendations for the Top 6 High Hits Guardrail Sites and efforts taken to improve the safety of each.

Top 6 Hampton Roads Guardrail Hits Evaluations Site #1

Hwy. 58 East, East of Intersection of Snowden Road, Right Shoulder

Location Map



Top 6 Hampton Roads Guardrail Hits Evaluations Site #1

Before Photo #1



Top 6 Hampton Roads Guardrail Hits Evaluations Site #1

After Photo #2 (First Repair terminal not moved back 12.5')



Top 6 Hampton Roads Guardrail Hits Evaluations

Site #1

After Photo #3 (Latest Repair terminal not moved back 12.5')



Top 6 Hampton Roads Guardrail Hits Evaluations Site #1

Description/Field Assessment

- The previous guardrail run consist of a SKT-SP GR-9 Run-on End Terminal attached to Standard GR-2 W-Beam rail with a Rolled Buffered End Treatment. The previous overall length of the guardrail run was approx. 250' located at an offset of 12' from the edge of travel and 2' from the Edge of the paved shoulder.
- The guardrail is protecting an overhead sign structure that is located approx. 20' from the Edge of Travel to the back of the structure and approx. 215' from the center of the intersection of Snowden Road. The previous length of guardrail from the run-on end terminal to the sign structure is approx. 165'.
- The current calculated length of need is 144'.
- The existing cross slope of the shoulder is relatively flat approx. 6:1.
- The Current ADT is approx. 74,000 with 6% truck traffic.

Hits History

- See Attach FR-300 report

Primary Issue

- Review of Crash Data and discussions with the HITS contract manager responsible for repairing this guardrail indicate that most of the damage incidents are the result of trucks making U-turns from South Military Highway onto EB Route 58.

Secondary Issues

- Replacement efforts at this site were hampered by limitations of the HITS contract and the time to modify that contract to include MASH standards.
- Since the June 2017 investigation, this terminal has been replaced and struck three times. As shown in the photo above labeled "After Photo #2" the first repair the terminal was installed utilizing current MASH Standards but was not moved back 12.5' as recommended, also shown in "After Photo #3" the latest repair of the terminal was again not installed per recommendations and shortened 12.5'.

Top 6 Hampton Roads Guardrail Hits Evaluations

Site #1

Solution Photo



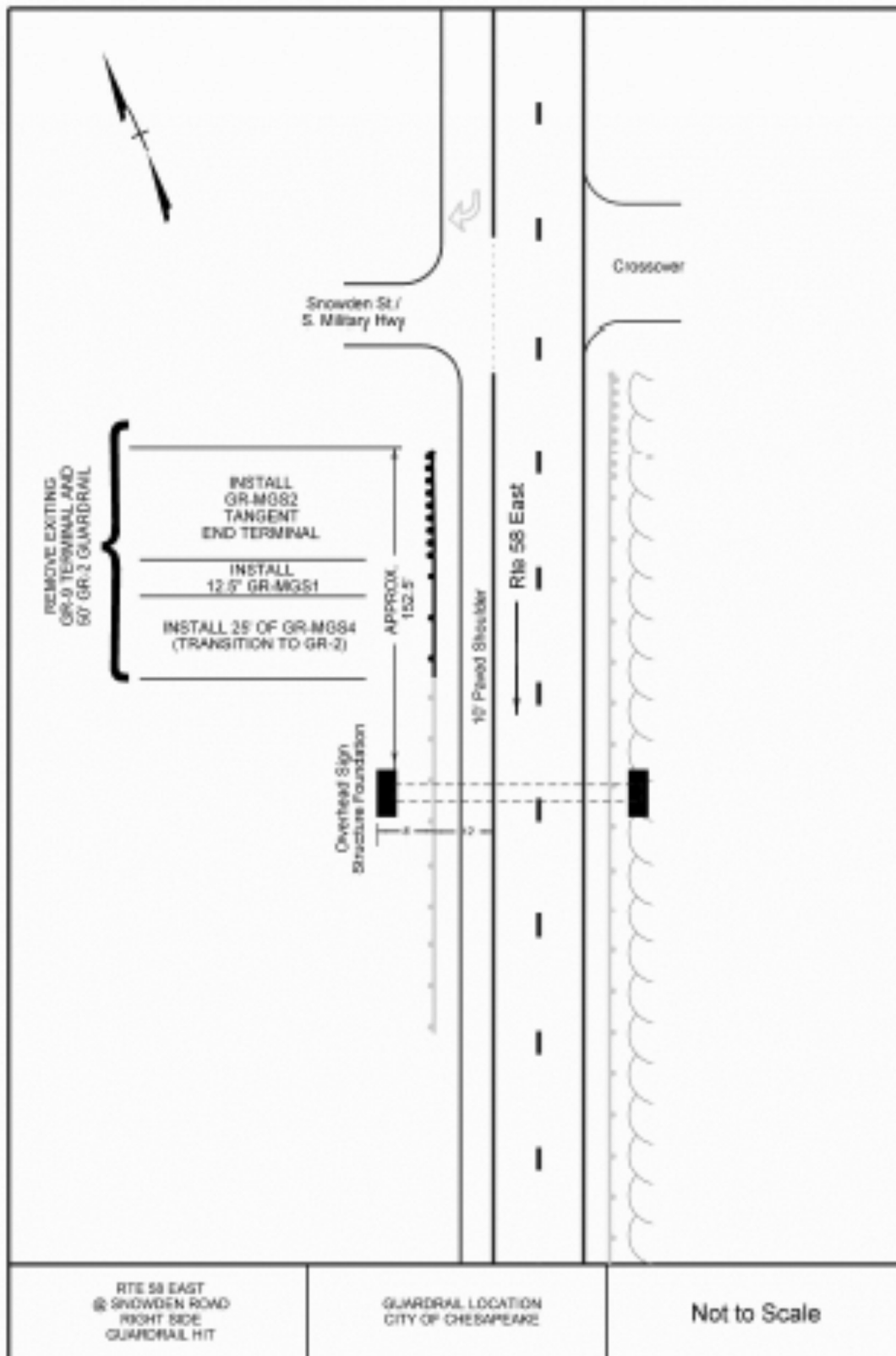
Top 6 Hampton Roads Guardrail Hits Evaluations Site #1

Solution

- As shown in the previous photo the Terminal was replaced in August of 2018 and moved back 12.5' as recommended in the attached sketch, this has resolved the issue of truck traffic side swiping the terminal head.

Top 6 Hampton Roads Guardrail Hits Evaluations Site #1

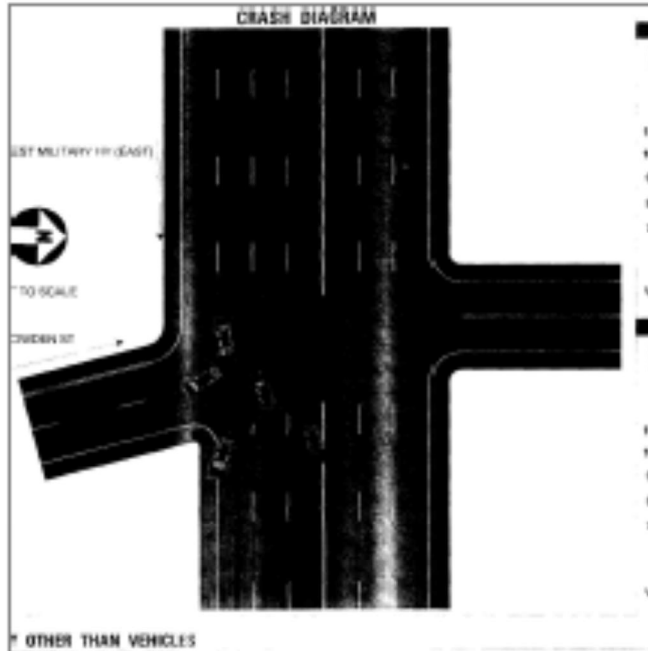
Guardrail Sketch



Crash Report

Document Number	122090094	Jurisdiction	City of Chesapeake	GPS Lat.	GPS Long.
Revised Report	0	County of Crash		36.778463	-76.438000
Crash Date	Saturday 05/30/2012 1808	Landmarks at Scene			
City / Town of	Chesapeake City	Railroad Crossing ID			
Location of Crash	WEST MILITARY HWY No - At Intersection With or 0.00 Not Provided Not Provided of SNOWDEN ST	Mile Marker Number	0.00	Number of Vehicles	2

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	3
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event	1. On Roadway	Roadway Defects	1. No Defects
Weather Condition	1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway	9. Within Intersection
Light Condition	2. Daylight	Intersection Type	4. Four Approaches
Traffic Control Mechanical Device	1. Yes - Working	Work Zone Related	2. No
Traffic Control Type	4. Stop Sign	Work Zone Workers Present	Not Provided
Roadway Alignment	1. Straight - Level	Work Zone Location	Not Provided
Roadway Surface Condition	1. Dry	Work Zone Type	Not Provided
Roadway Surface Type	2. Blacktop, Asphalt, Bituminous	School Zone	3. No
Roadway Description	2. Two-Way, Divided, Unprotected Median	Type of Collision	2. Angle

Crash Description

VEH 1 FAILED TO STOP FOR THE STOP SIGN. VEH 1 PULLED INTO THE PATH OF VHE 21. VEH 2 STRUCK VEH 1.

Crash Report

Driver Information 05/10/1992 Age 20

Vehicle Information 1

Driver's Action of Driver Contributing to the Crash 22. **Disregarded Stop or Yield Sign**
 Driver Vision Obscured 9. **Unknown**
 Type of Driver Distractions 1. **Not Obscured**
 Drinking 11. **Other**
 Method of Alcohol Determination 6. **Unknown**
 Drug Use 4. **No Test**
 Driver's License 3. **Unknown**
 Commercial Driver's License **Not Provided**
 Safety Equipment Used 3. **Lap and Shoulder Belt**
 Air Bag 1. **Deployed - Front**
 Ejected from Vehicle 1. **Not Ejected**
 Date of Death
 Injury Type 3. **Minor/Possible Injury**
 EMS Transport **Yes**
 Summons Issued 3. **Pending**

Vehicle Maneuver 1. **Going Straight Ahead**
 Skidding Tires / Mark 2. **After Application of Brakes**
 Vehicle Body Type 1. **Passenger car**
 Vehicle Damage 8. **Other**
 Vehicle Condition 1. **No Defects**
 Spec. Function Motor Vehicle 1. **No Special Function**
 EMV in service **Not Applicable**
 Truck Cover **Not Applicable**
 Vehicle Disabled **No**
 Commercial Motor Vehicle **No**
 Towed **Yes**
 Oversized **Yes** Cargo Spill **No**
 Override **Yes** Underride **No**
 Initial Impact Area 10. **Left side - front**
 Direction of Travel **North**
 Crash Events: 1. 42. **Other Non-Collision**
 2. 20. **Motor Vehicle In Transport**
 3. **Not Provided**
 4. **Not Provided**
 Most Harmful 20. **Motor Vehicle In Transport**

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
	0	0	0	0	0	0

 Weight over 10,000 lbs **No**

 Seats 9 or more **No**

 Hazardous Materials Placed **No**
Commercial Motor Vehicle Section

Vehicle Configuration **Not Provided**
 Cargo Body Type **Not Provided**
 GVWR/GCWR **Not Provided**

License Class
 Commercial Endorsement

Hazardous Material

Hazardous Material Placed
 HM 4-Digit
 HM Placed Name

HM Class
 HM Cargo Present
 HM Cargo Released

Carrier Identification

Commercial Motor Carrier Name
 US DOT# / State
 Commercial / Non-Commercial **Not Provided**

Passenger Information

EMS Transport
 Date of Death
 Position In / On Vehicle

Safety Equip Used
 Airbag Deployment Type
 Ejected from Vehicle Type
 Injury Type

Driver Information 10/03/1982 Age 29

Vehicle Information 2

Driver's Action of Driver Contributing to the Crash 1. **No Improper Action**
 Driver Vision Obscured 1. **No Defects**
 Driver Vision Obscured 1. **Not Obscured**

Vehicle Maneuver 1. **Going Straight Ahead**
 Skidding Tires / Mark 2. **After Application of Brakes**

Crash Report

<p>Type of Driver Distraction 14. No Driver Distraction</p> <p>Drinking 1. Had Not Been Drinking</p> <p>Method of Alcohol Determination 4. No Test</p> <p>Drug Use Not Applicable</p> <p>Driver's License</p> <p>Commercial Driver's License Not Provided</p> <p>Safety Equipment Used 3. Lap and Shoulder Belt</p> <p>Air Bag 1. Deployed - Front</p> <p>Ejected from Vehicle 1. Not Ejected</p> <p>Date of Death</p> <p>Injury Type 3. Minor/Possible Injury</p> <p>EMS Transport Yes</p> <p>Summons Issued 2. No</p>	<p>Vehicle Body Type 1. Passenger car</p> <p>Vehicle Damage 8. Other</p> <p>Vehicle Condition 1. No Defects</p> <p>Spec. Function Motor Vehicle 1. No Special Function</p> <p>EMV in service Not Applicable</p> <p>Truck Cover Not Applicable</p> <p>Vehicle Disabled No</p> <p>Commercial Motor Vehicle No</p> <p>Towed Yes</p> <p>Oversized No Cargo Spill No</p> <p>Override No Underide Yes</p> <p>Initial Impact Area 12. Front</p> <p>Direction of Travel East</p> <p>Crash Events: 1. 20. Motor Vehicle In Transport</p> <p>2. 5. Guard Rail</p> <p>3. Not Provided</p> <p>4. Not Provided</p> <p>Most Harmful 20. Motor Vehicle In Transport</p>
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Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
	55	55	1	0	0	0

Weight over 10,000 lbs **No** Seats 9 or more **No** Hazardous Materials Placard **No**

Commercial Motor Vehicle Section

Vehicle Configuration **Not Provided**

Cargo Body Type **Not Provided**

GVWR/OCWR **Not Provided**

License Class

Commercial Endorsement

Hazardous Material

Hazardous Material Placard

HM 4-Digit

HM Placard Name

HM Class

HM Cargo Present

HM Cargo Released

Carrier Identification

Commercial Motor Carrier Name

US DOT# / State

Commercial / Non-Commercial **Not Provided**

Passenger Information

EMS Transport **Yes**

Date of Death

Position In / On Vehicle **4**

Safety Equip Used **4. Child Restraint**

Airbag Deployment Type **1. Deployed - Front**

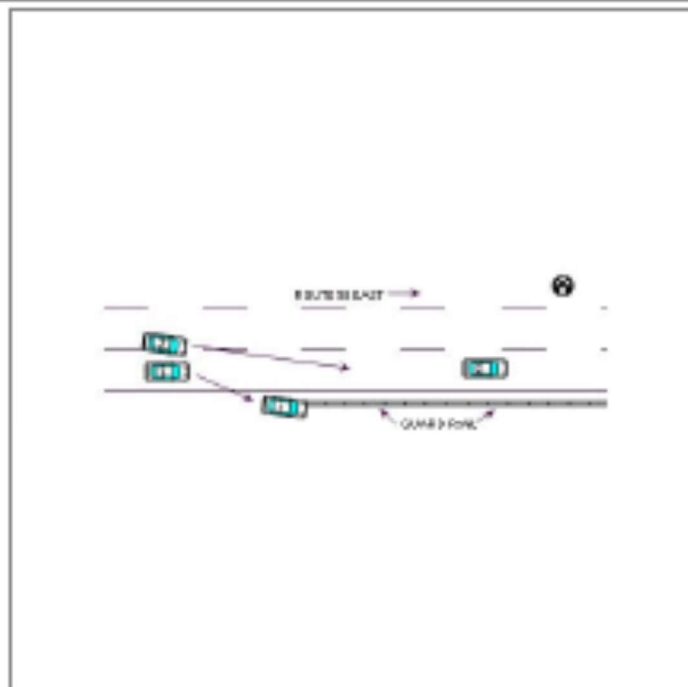
Ejected from Vehicle Type **1. Not Ejected**

Injury Type **3. Minor/Possible Injury**

Crash Report

Document Number	131965011	Jurisdiction	City of Chesapeake	GPS Lat.	GPS Long.
Revised Report	0	County of Crash		36.778509	-76.437830
Crash Date	Sunday 07/14/2013 150	Landmarks at Scene			
City / Town of	CHESAPEAKE CITY	Railroad Crossing ID			
Location of Crash	ROUTE 58 EAST No - At Intersection With or 20.00 Feet East of SNOWDEN ST.	Mile Marker Number		Number of Vehicles 2	

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event	2. Shoulder	Roadway Defects	1. No Defects
Weather Condition	1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway	8. Non-Intersection
Light Condition	5. Darkness - Road Not Lighted	Intersection Type	1. Not at Intersection
Traffic Control Mechanical Device	1. Yes - Working	Work Zone Related	2. No
Traffic Control Type	8. Traffic Lanes Marked	Work Zone Workers Present	Not Provided
Roadway Alignment	1. Straight - Level	Work Zone Location	Not Provided
Roadway Surface Condition	1. Dry	Work Zone Type	Not Provided
Roadway Surface Type	2. Blacktop, Asphalt, Bituminous	School Zone	3. No
Roadway Description	3. Two-Way, Divided, Positive Median Barrier	Type of Collision	9. Fixed Object - Off Road

Crash Description

VEHICLE # 1 SWERVED TO AVOID VEHICLE # 2, RAN OFF ROAD RIGHT AND STRUCK GUARD RAIL.

Crash Report

Type of Driver Distractions **Not Applicable**
 Drinking **6. Unknown**
 Method of Alcohol Determination **Not Applicable**
 Drug Use **3. Unknown**
 Driver's License
 Commercial Driver's License **Not Provided**
 Safety Equipment Used **Not Provided**
 Air Bag **Not Provided**
 Ejected from Vehicle **Not Provided**
 Date of Death
 Injury Type **6. No Injury (driver only)**
 EMS Transport **Not Provided**
 Summons Issued **Not Provided**

Vehicle Body Type **1. Passenger car**
 Vehicle Damage **2. No Damage**
 Vehicle Condition **Not Applicable**
 Spec. Function Motor Vehicle **1. No Special Function**
 EMV in service **Not Applicable**
 Truck Cover **Not Applicable**
 Vehicle Disabled **No**
 Commercial Motor Vehicle **No**
 Towed **No**
 Oversized **No** Cargo Spill **No**
 Override **No** Underride **No**
 Initial Impact Area **Not Provided**
 Direction of Travel **East**

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
80	60	60	0	0	0	0

Crash Events: 1. **41. Non-Collision Unknown**
 2. **Not Provided**
 3. **Not Provided**
 4. **Not Provided**
 Most Harmful **41. Non-Collision Unknown**

Weight over 10,000 lbs **No** Seats 9 or more **No** Hazardous Materials Placard **No**

Commercial Motor Vehicle Section

Vehicle Configuration **Not Provided**
 Cargo Body Type **Not Provided**
 GVWR/GCWR **Not Provided**

License Class
 Commercial Endorsement

Hazardous Material

Hazardous Material Placard
 HM 4-Digit
 HM Placard Name

HM Class
 HM Cargo Present
 HM Cargo Released

Carrier Identification

Commercial Motor Carrier Name
 US DOT# / State
 Commercial / Non-Commercial **Not Provided**

Passenger Information

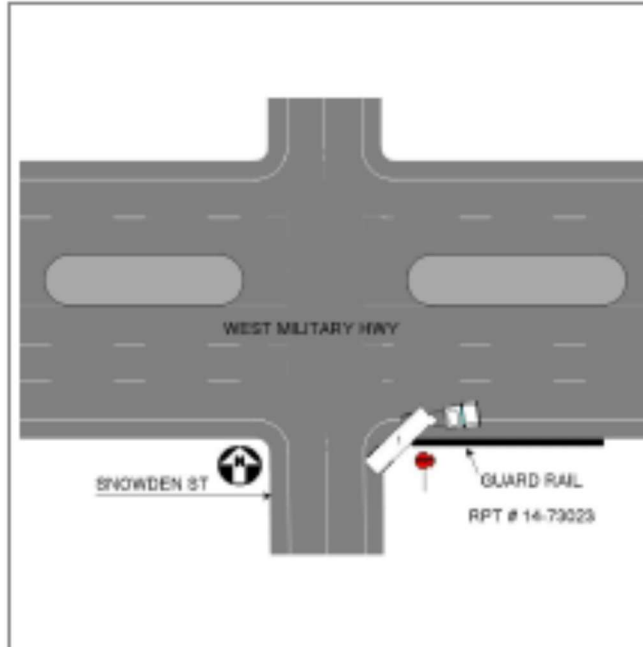
EMS Transport
 Date of Death
 Position In / On Vehicle

Safety Equip Used
 Airbag Deployment Type
 Ejected from Vehicle Type
 Injury Type

Crash Report

Document Number: 143125209	Jurisdiction: City of Chesapeake	GPS Lat: 36.778480	GPS Long: -76.437740
Revised Report: 1	County of Crash:		
Crash Date: Friday 11/07/2014 1747	Landmarks at Scene:		
City / Town of: Chesapeake	Railroad Crossing ID:		
Location of Crash: WEST MILITARY HWY	Mile Marker Number:	Number of Vehicles: 1	

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event: 4. Roadside	Roadway Defects: 1. No Defects
Weather Condition: 1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway: 9. Within Intersection
Light Condition: 5. Darkness - Road Not Lighted	Intersection Type: 2. Two Approaches
Traffic Control Mechanical Device: 1. Yes - Working	Work Zone Related: 2. No
Traffic Control Type: 4. Stop Sign	Work Zone Workers Present: Not Provided
Roadway Alignment: 1. Straight - Level	Work Zone Location: Not Provided
Roadway Surface Condition: 1. Dry	Work Zone Type: Not Provided
Roadway Surface Type: 2. Blacktop, Asphalt, Bituminous	School Zone: 3. No
Roadway Description: 3. Two-Way, Divided, Positive Median Barrier	Type of Collision: 9. Fixed Object - Off Road

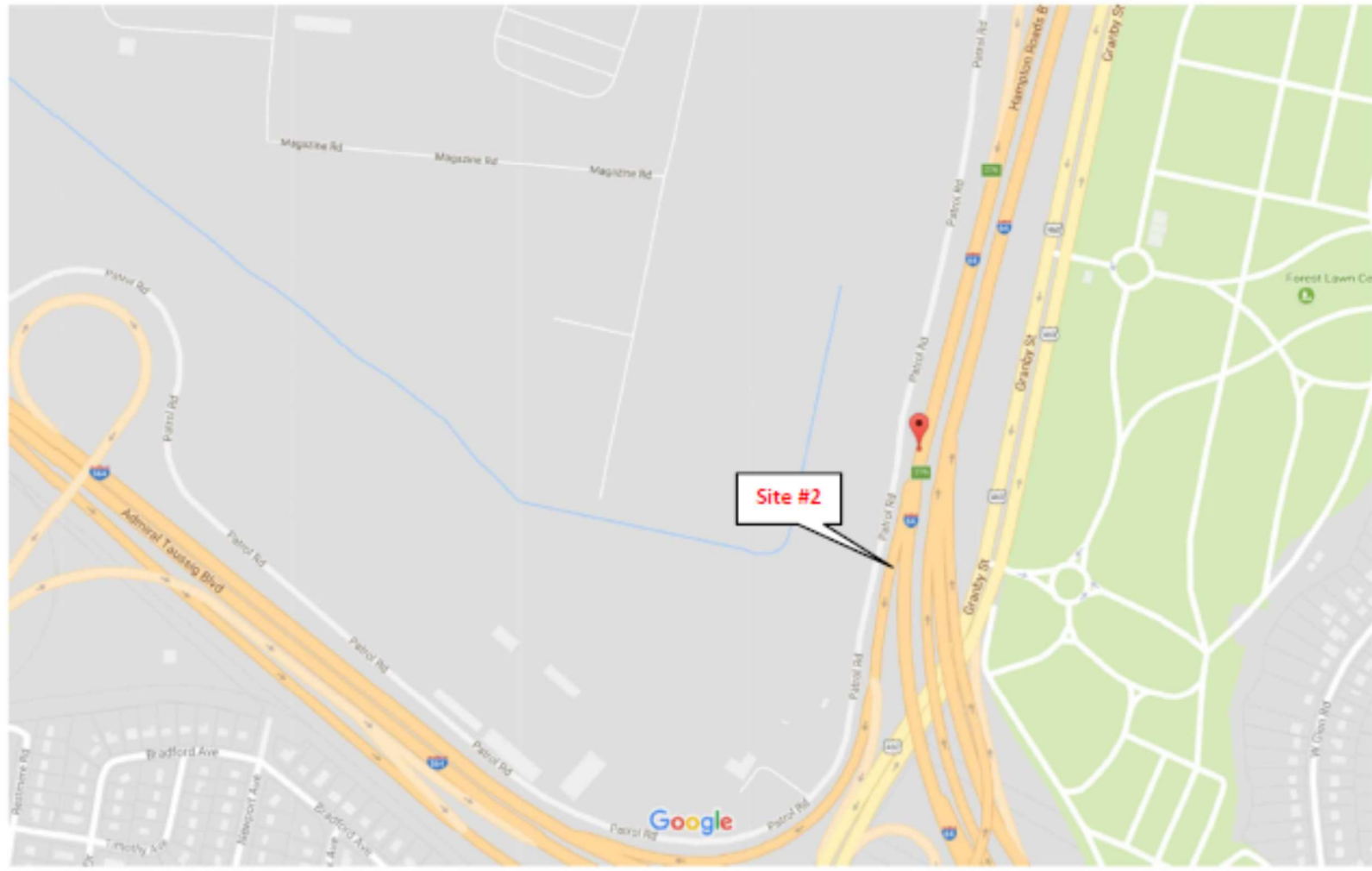
Crash Description

VEHICLE #1 (TRACTOR TRAILER) WAS ATTEMPTING A RIGHT TURN ONTO WEST MILITARY HWY (RT-58) EAST BOUND FROM SNOWDEN ST. AS THE VEHICLE WAS TURNING THE TRAILER TRAVELED OFF THE ROADWAY TO THE RIGHT AND STRUCK THE GUARD RAIL.

TRAILER : 2014 HYUNDAI 55FT CARGO TRAILER, INDIANA LICENSE # P378073 , VIN# SH3V532CXET052989

Top 6 Hampton Roads Guardrail Hits Evaluations
Site #2
I-64 East, MM 276, Granby St., Right Shoulder

Location Map



Top 6 Hampton Roads Guardrail Hits Evaluations
Site #2
Before Photo



Top 6 Hampton Roads Guardrail Hits Evaluations
Site #2
After Photo



Top 6 Hampton Roads Guardrail Hits Evaluations Site #2

Description/Field Assessment

The previous guardrail run consisted of a X-Lite GR-9 Run-on End Terminal (No Longer Approved for use) attached to Standard MB-3 rail with a FOA End Treatment attached to the Overpass bridge over Granby St.. The previous overall length of the Guardrail run is Approx. 340' located at an offset of 12' from the edge of travel. The guardrail is protecting motorist from a steep gore embankment that varies from a 4:1 to 2:1 front slope, the breaking point of the slope is approx. 18' from the edge of travel and the distance from the existing run-on end of the guardrail terminal to the non-recoverable slope break is 150'.

- The calculated length of need required for the non-recoverable embankment is 120'.
- The Combined Mainline ADT is approx. 91,000 with 2% truck traffic.
- The Ramp ADT is approx. 14,000.

Hits History

- See Attach FR-300 Report

Primary Issue

- It appears that most of the guardrail hits are due to drivers changing lanes too late in the right exit only lane to avoid taking the Granby St./I-564 Exit.

Suggested Recommendations/Ideas

- Shorten Guardrail by 25'
- Tie the Existing Guardrail in with the guardrail from the Ramp meeting in the low point or middle of the Gore and terminate with an impact attenuator. (It has since been determine that the grade differential between the ramp and mainline guardrail is too great for this option.)
- Extend Rumble Strips into the Gore area
- Check and replace missing Raised Pavement Markers

Top 6 Hampton Roads Guardrail Hits Evaluations Site #2

- Check locations of exit signs for proper advanced warning of the exit, relocate or add signs if needed

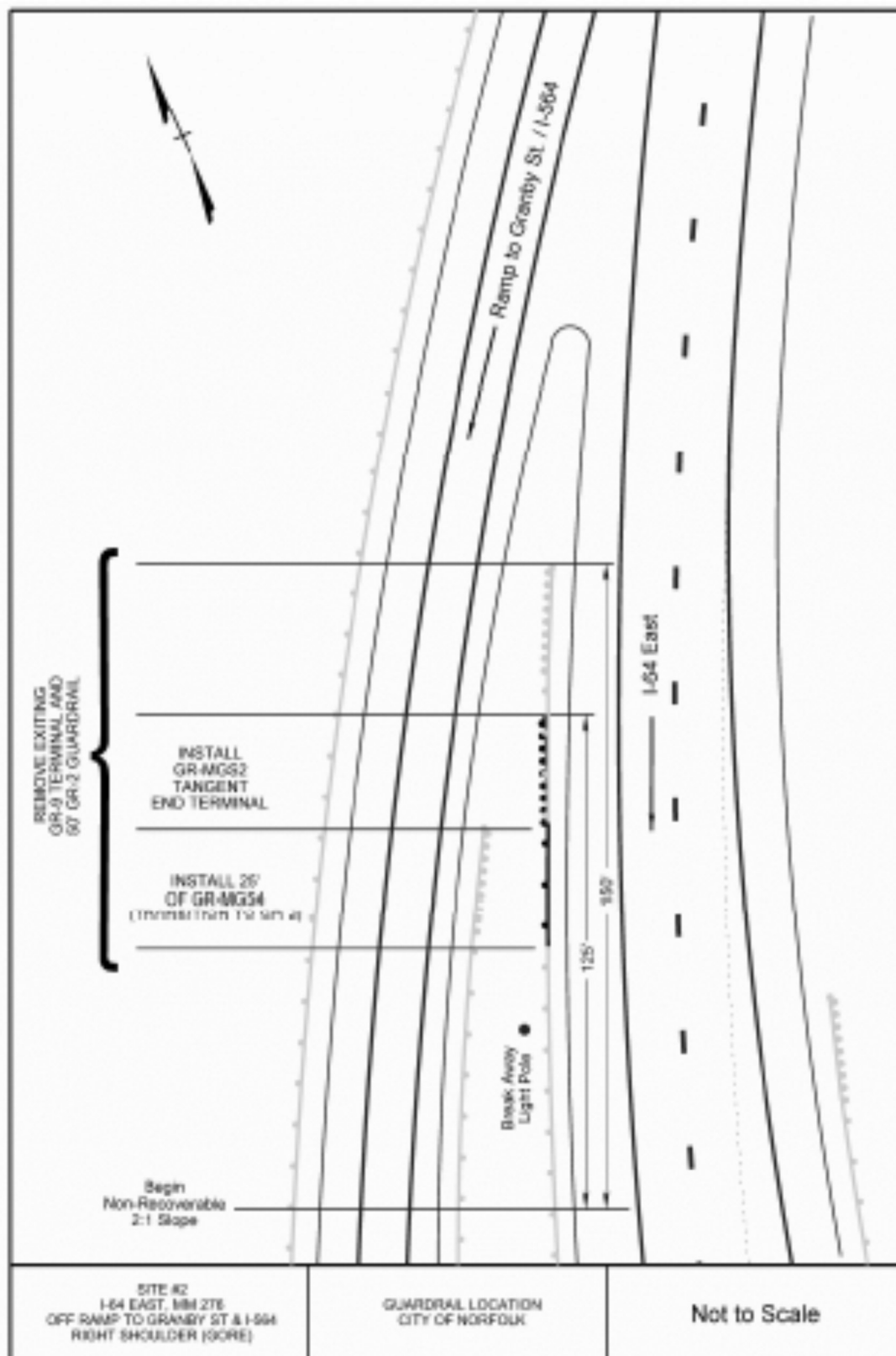
Possible Solution

- Shorten Guardrail by 25' and replace existing GR-9 with New MASH Standard End Terminal (GR-MGS-2). This would still maintain the length of need required for the non-recoverable slope break.

Final Solution

- Traffic Engineering requested a rumble strip installation task order for this site and Sites 4 and 5. Installation and Maintenance reported that these sites did not include a sufficient length of rumble strip to meet the minimum length required to initiate a task order under the FY17 pavement marking on-call contract.
- This site was hit in early March 2018. (The Task Order was received by the HITS Coordinators on March 5.) The ACE for the HITS program directed the contractor to shorten the guardrail and install the new terminal at the location indicated in the Site Sketch as recommended by Traffic Engineering. The repair has been completed as per the attached sketch, (see photo).

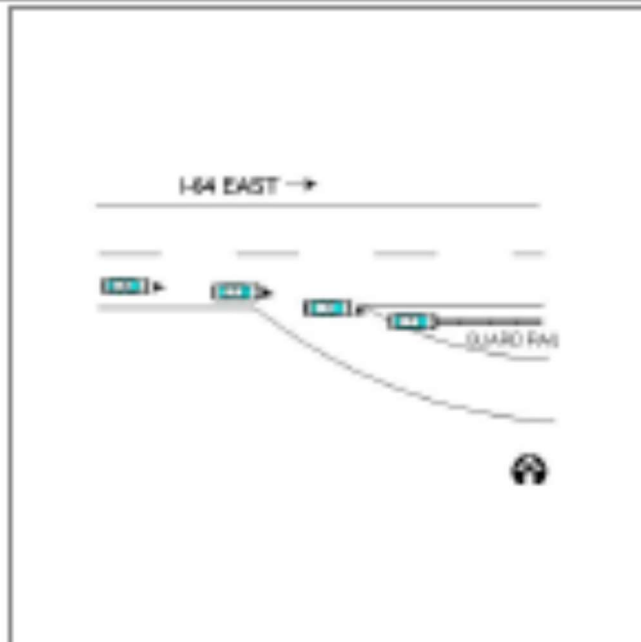
Top 6 Hampton Roads Guardrail Hits Evaluations Site #2



Crash Report

Document Number: 171000028	Jurisdiction: City of Norfolk	GPS Lat: 36.821824	GPS Long: -76.270474
Revised Report: 0	County of Crash:		
Crash Date: Monday 06/06/2017 200	Landmarks of Scene:		
City / Town of: NORFOLK	Railroad Crossing ID:		
Location of Crash: I-64 EAST No-All Intersection WB of 0.10 Miles West of DORNEY	Mile Marker Number: 275.08	Number of Vehicles: 1	

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	1
Injuries Pedestrian	0

Crash Information

Location of Post-Harmful Event: 1. On Roadway	Roadway Defects: 1. No Defects
Weather Condition: 1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway: 2. Non-Intersection
Light Condition: 4. Darkness - Road Lighted	Intersection Type: 1. Not at Intersection
Traffic Control/Mechanical Device: 1. Yes - Working	Work Zone Related: 2. No
Traffic Control Type: 2. Traffic Lanes Marked	Work Zone Workers Present: Not Provided
Roadway Alignment: 2. Curve - Level	Work Zone Location: Not Provided
Roadway Surface Condition: 1. Dry	Work Zone Type: Not Provided
Roadway Surface Type: 2. Bitting, Asphalt, Bituminous	School Zone: 3. No
Roadway Description: 3. Two-Way, Divided, Positive Median Barrier	Type of Collision: 2. Fixed Object - Off Road

Crash Description

VEH. 1 RAN OFF ROAD RIGHT AND STUCK GUARD RAIL.

Crash Report

Driver Information	11/27/2006	Age 21	Vehicle Information	1
Driver's Action	40. Not in Minimum Proper Control		Vehicle Maneuver	8. Ran Off Road - Right
of Driver Contributing to the Crash	1. No Defects		Braking Tire / Mark	2. After Application of Brakes
Driver Vision Obscured	1. No Obscured		Vehicle Body Type	1. Passenger car
Type of Driver Distraction	14. No Driver Distraction		Vehicle Damage	8. Other
Drinking	1. Not Not/Been Drinking		Vehicle Condition	1. No Defects
Method of Alcohol Determination	Not Applicable		Eyes, Function Motor Vehicle	1. No Special Function
Drug Use	2. No		EMV in service	Not Applicable
Driver's License	Not Provided		Truck Cover	Not Applicable
Commercial Driver's License	Not Provided		Vehicle Disabled	Yes
Safety Equipment Used	1. Lap and Shoulder Belt		Commercial Motor Vehicle	No
Air Bag	1. Deployed - Front		Towed	Yes
Ejected from Vehicle	1. Not Ejected		Overloaded	No
Date of Death			Overide	No
Injury Type	4. No Apparent Injury		Initial Impact Area	12. Front
EMT Transport	Not Provided		Direction of Travel	East
Summons Issued	1. Yes		Crash Events	1. 28. Ran Off Road
				2. 8. Guard Rail
				3. Not Provided
				4. Not Provided
				Most Harmful 28. Ran Off Road

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
00	00	00	0	0	0	0

Weight over 10,000 lbs	No	Exits Exposed	No	Rescue Vehicle Present	No
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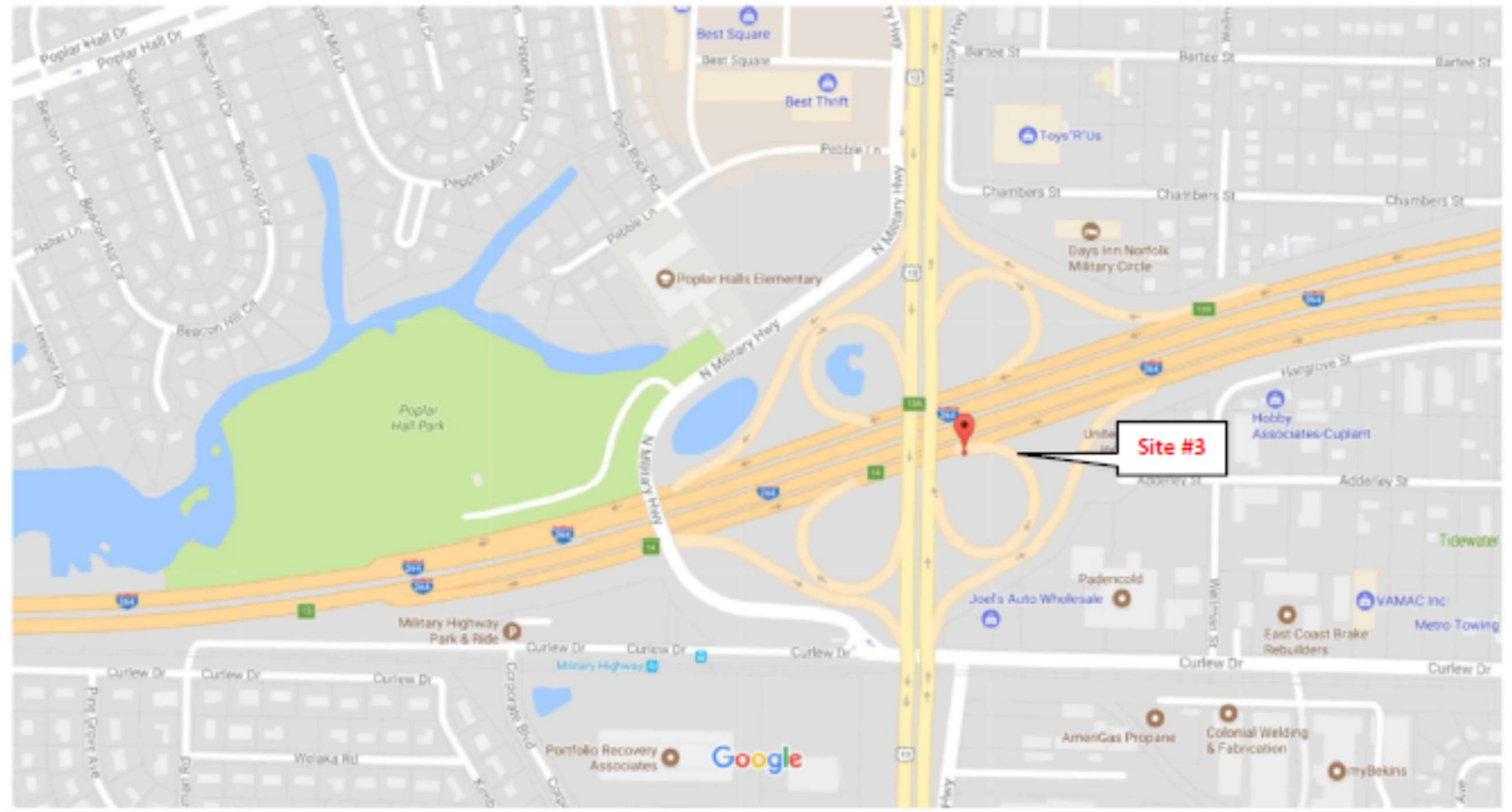
Commercial Motor Vehicle Details			
Vehicle Configuration	Not Provided	License Class	
Cargo Body Type	Not Provided	Commercial Endorsement	
OVRN/OCNVE	Not Provided	EM Class	
Rescue Material		EM Cargo Present	
Rescue Material Present		EM Cargo Subtotal	
RM 4 Digit			
EM Present Here			
Carrier Identification			
Commercial Motor Carrier Name			
CO, DCDR / State			
Commercial / Non-Commercial	Not Provided		
Passenger Information			
EMT Transport		Safety Equip Used	
Date of Death		Airbag Deployment Type	
Position In / On Vehicle		Ejected from Vehicle Type	
		Injury Type	

Top 6 Hampton Roads Guardrail Hits Evaluations

Site #3

I-264 East, Exit 13B to North Military Hwy., Left Shoulder

Location Map



**Top 6 Hampton Roads Guardrail Hits Evaluations
Site #3**



**Top 6 Hampton Roads Guardrail Hits Evaluations
Site #3**



Top 6 Hampton Roads Guardrail Hits Evaluations

Site #3

Description/Field Assessment

- The existing guardrail run consist of a SKT-SP GR-9 Run-on End Terminal attached to Standard GR-2 W-Beam rail extending up the ramp with a rolled buffered end treatment with no apparent anchor point at the end of the ramp. The existing overall length of the Guardrail run is Approx. 640' located at an offset of 5' from the edge of travel. The guardrail is protecting a steep embankment approx. 3:1 – 2:1 front slope leading to a drainage pond with a breaking point approx. 8' from the Edge of Travel. The drainage pond is approx. 33' from the beginning of the Gore area and approx. 40' from the mainline Edge of travel (outside of the 30'-34' clear-zone).
- The Current Ramp ADT is approx. 6,100.

Hits History

- See Attach FR-300 Report
- This site has not been hit since he initial report.

Primary Issue

- It appears that most of the guardrail hits are due to drivers exiting to late onto the ramp at excessive speed.

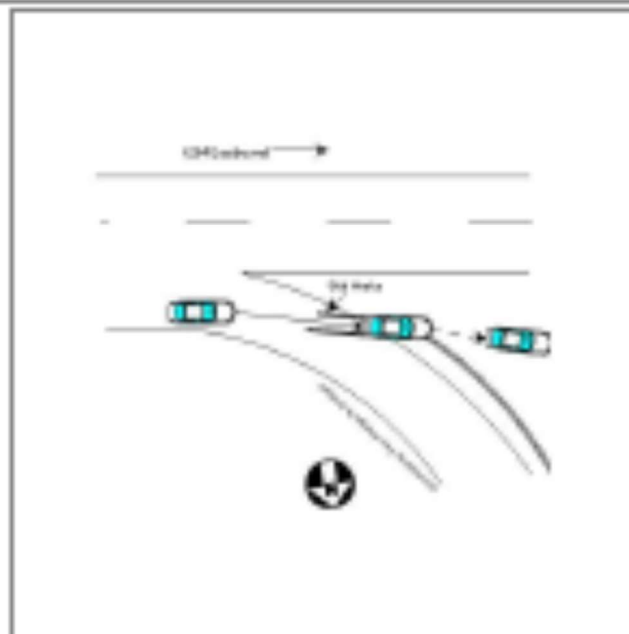
Suggested Recommendations/Ideas

- Possibly additional advanced warning signing for the exit ramp, although signing appears adequate.
- Add reflectorized delineators/object markers or Chevrons in the Gore.
- Replace Headwall with a Drop Inlet and regrade the left shoulder to eliminate the drop off hazard.
- Add advisory speed plaque to the exit sign.

Crash Report

Document Number: 140285081	Jurisdiction: City of Norfolk	DPS Lat: 36.843330	DPS Long: -76.286430
Revised Report: 0	County of Crash:		
Crash Date: Fri Aug 07 2016 130	Latitude at Scene:		
City / Town of: Norfolk	Roadway Crossing ID:		
Location of Crash: I-264 BALTIMORE	Mile Marker Number: 13.00	Number of Vehicles: 1	
No - At Intersection With or 300.00 Feet East of MILITARY HWY			

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of Post-Harmful Event: 1. On Roadway	Roadway Defects: 1. No Defects
Weather Condition: 1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway: 3. Non-Intersection
Light Condition: 2. Daylight	Intersection Type: 1. Not at Intersection
Traffic Control Mechanical Device: 1. Yes - Working	Work Zone Related: 2. No
Traffic Control Type: 3. Traffic Lanes Marked	Work Zone Workers Present: Not Provided
Roadway Alignment: 10. On/Off Ramp	Work Zone Location: Not Provided
Roadway Surface Condition: 2. Wet	Work Zone Type: Not Provided
Roadway Surface Type: 2. Bitump, Asphalt, Bituminous	School Zone: 3. No
Roadway Description: 3. Two-Way, Divided, Positive Median Barrier	Type of Collision: 3. Fixed Object - Off Road

Crash Description

VEH #1 RAN OFF THE LEFT SIDE OF THE OFFRAMP HITTING THE GUARDRAIL AND CAME TO A REST IN THE DRAIN.

Crash Report

Driver Information	05/12/2014	Apr 19	Vehicle Information	1
Driver's Action	4. Not in Minimum Proper Control		Vehicle Maneuver	10. Ran Off Road - Left
of Driver Contributing to the Crash	1. No Defects		Braking Tire / Mark	2. After Application of Brakes
Driver Vision Obscured	1. No Obscured		Vehicle Body Type	1. Passenger car
Type of Driver Distraction	14. No Driver Distraction		Vehicle Damage	8. Other
Drinking	1. Not Not Been Drinking		Vehicle Condition	1. No Defects
Method of Alcohol Determination	Not Applicable		Spec. Function Motor Vehicle	1. No Special Function
Drug Use	2. No		EMV in service	Not Applicable
Driver's License	Not Provided		Trunk Cover	Not Applicable
Commercial Driver's License	Not Provided		Vehicle Disabled	Yes
Safety Equipment Used	3. Lap and Shoulder Belt		Commercial Motor Vehicle	No
Air Bag	2. Not Deployed		Towed	Yes
Ejected from Vehicle	1. Not Ejected		Overlaid	No
Date of Death			Overide	No
Injury Type	4. No Injury (Driver only)		Initial Impact Area	1. Right side - front corner
EMS Transport	No		Direction of Travel	East
Summons Issued	1. Yes		Crash Events	1. 20. Ran Off Road
				2. 8. Guard Rail
				3. Not Provided
				4. Not Provided
				Most Harmful
				8. Guard Rail

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
30	30	20	0	0	0	0

Weight over 10,000 lbs	No	Exits 0 or more	No	Rescue Materials Placed	No
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Commercial Motor Vehicle Ranking	
Vehicle Configuration	Not Provided
Cargo Body Type	Not Provided
OPERATOR	Not Provided
Rescue Material	
Rescue Material Placed	
EM 4 Digit	
EM Placed Yes	
Carrier Identification	
Commercial Motor Carrier Yes	
US DOT / State	
Commercial / Non-Commercial	Not Provided
Passenger Information	
EMS Transport	
Date of Death	
Position in / On Vehicle	
Safety Equip Used	
Airbag Deployment Type	
Ejected from Vehicle Type	
Injury Type	

Crash Report

Document Number: 14200008	Jurisdiction: City of Norfolk	GPS Lat: 36.843340	GPS Long: -76.200180
Revised Report: 0	County of Crash:		
Crash Code: F0401 09050014 000	Landmarks at Scene:		
City/Town of: Norfolk	Railroad Crossing ID:		
Location of Crash: INTERSTATE 264 RAMP No - At Intersection R/W or 100.00 Feet East of MILITARY HWY	Mile Marker Number: 12.80	Number of Vehicles: 1	

Crash Image



Fatalities Non-Pedestrian:	0
Fatalities Pedestrian:	0
Injuries Non-Pedestrian:	0
Injuries Pedestrian:	0

Crash Information

Location of First Harmful Event: **1. On Roadway**Weather Condition: **1. No Adverse Condition (Clear/Cloudy)**Light Condition: **2. Daylight**Traffic Control/Mechanical Device: **1. Yes - Working**Traffic Control Type: **8. Traffic Lanes Marked**Roadway Alignment: **10. On/Off Ramp**Roadway Surface Condition: **1. Dry**Roadway Surface Type: **2. Blacktop, Asphalt, Bituminous**Roadway Description: **3. Two-Way, Divided, Positive Median Barrier**Roadway Defects: **1. No Defects**Relation to Roadway: **8. Non-Intersection**Intersection Type: **1. Not at Intersection**Work Zone Related: **2. No**Work Zone Workers Present: **Not Provided**Work Zone Location: **Not Provided**Work Zone Type: **Not Provided**School Zone: **3. No**Type of Collision: **8. Fixed Object - Off Road**

Crash Description

VI LOST CONTROL OF THE VEHICLE AND STRUCK THE JERRY WALL.

Crash Report

Driver Information	05/09/2007	Age 31	Vehicle Information	1	
Driver's Action	40. Not in Machine Proper Control			Vehicle Maneuver	05. Ran Off Road - Left
If Driver Contributing to the Crash	1. No Defects			Blocking Tire / Mark	4. No Visible Road Mark/Tire Mark
Driver Vision Obscured	1. Not Obscured			Vehicle Body Type	1. Passenger car
Type of Driver Distraction	14. No Driver Distraction			Vehicle Damage	1. Unknown
Driving	1. Not Not Seen Driving			Vehicle Condition	1. No Defects
Method of Alcohol Determination	Not Applicable			Spec. Function Motor Vehicle	1. No Special Function
Drug Use	2. No			EMV in service	Not Applicable
Driver's License	Not Provided			Truck Cover	Not Applicable
Commercial Driver's License	Not Provided			Vehicle Disabled	Yes
Safety Equipment Used	3. Lap and Shoulder Belt			Commercial Motor Vehicle	No
Air Bag	2. Not Deployed			Towed	Yes
Ejected from Vehicle	1. Not Ejected			Overlaid	No
Date of Death				Overlaid	No
Injury Type	4. No Injury (Driver only)			Initial Impact Area	03. Front
EMS Transport	No			Direction of Travel	South
Summary Issued	1. Yes			Crash Events	1. 05. Ran Off Road
					2. 11. Jersey Wall
					3. Not Provided
					4. Not Provided
					Most Harmful 11. Jersey Wall

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
40	55	55	0	0	0	0

Weight over 10,000 lbs.	No	Seat Belts worn	No	Reversible Material Placed	No
Commercial Motor Vehicle Details					
Vehicle Configuration	Not Provided			License Class	
Cargo Body Type	Not Provided			Commercial Endorsement	
OVERSICONS	Not Provided			EM Class	
Reversible Material				EM Cargo Present	
Reversible Material Placed				EM Cargo Released	
EM 4-Digit					
EM Placed Here					
Carrier Identification					
Commercial Motor Carrier Status					
OS DOT# / State					
Commercial / Non-Commercial	Not Provided				
Passenger Information					
EMS Transport				Safety Equip Used	
Date of Death				Airbag Deployment Type	
Position In / On Vehicle				Ejected from Vehicle Type	
				Injury Type	

Crash Report

Document Number: 14002647	Jurisdiction: City of Norfolk	GPS Lat.: 36.843390	GPS Long.: -76.288180
Revised Report: 0	County of Crash:		
Crash Date: Wednesday 10/29/2016 13:45	Landmarks at Scene:		
City/Town of: Norfolk	Railroad Crossing ID:		
Location of Crash: 1284 EAST		Site Marker Number: 13.00	Number of Vehicles: 1
No - At Intersection With or 100.00 Feet East of MILITARY HWY			

Crash Image



Ped/Bus Non-Pedestrian:	<input type="checkbox"/>
Ped/Bus Pedestrian:	<input type="checkbox"/>
Injury Non-Pedestrian:	<input type="checkbox"/>
Injury Pedestrian:	<input type="checkbox"/>

Crash Information

Location of Post-Harvest Event: 4. Roadside	Roadway Defects: 1. No Defects
Weather Condition: 1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway: 8. Non-Intersection
Light Condition: 2. Daylight	Intersection Type: 1. Not at Intersection
Traffic Control/Mechanical Device: 1. Yes - Working	Work Zone Related: 2. No
Traffic Control Type: 8. Traffic Lanes Marked	Work Zone Workers Present: Not Provided
Roadway Alignment: 10. On/Off Ramp	Work Zone Location: Not Provided
Roadway Surface Condition: 1. Dry	Work Zone Type: Not Provided
Roadway Surface Type: 2. Bit/Map, Asphalt, Bituminous	School Zone: 3. No
Roadway Description: 3. Two-Way Divided, Positive Median Barrier	Type of Collision: 8. Fixed Object - Off Road

Crash Description

VEHICLE #1 RAN OFF ROAD LEFT, STRUCK GUARDRAIL, WENT DOWN THE EMBANKMENT AND INTO THE TREES.

Crash Report

Driver Information 11/04/1989 Apr 24		Vehicle Information 1	
Driver's Action	40. Not in Maintain Proper Control	Vehicle Maneuver	10. Ran Off Road - Left
if Driver Contributing to the Crash	1. No Defects	Rolling Tire / Mark	4. No Visible BMJ Mark/Tire Mark
Driver Vision Obscured	1. No Obscured	Vehicle Body Type	20. Truck - Special Utility Vehicle (SUV)
Type of Driver Distraction	14. No Driver Distraction	Vehicle Damage	8. Other
Drinking	1. Not Not Been Drinking	Vehicle Condition	1. No Defects
Method of Alcohol Determination	Not Applicable	Spec. Function Motor Vehicle	1. No Special Function
Drug Use	1. No	EMV in service	Not Applicable
Driver's License		Truck Cover	Not Applicable
Commercial Driver's License	Not Provided	Vehicle Disabled	Yes
Safety Equipment Used	3. Lap and Shoulder Belt	Commercial Motor Vehicle	No
Air Bag	1. Not Deployed	Towed	Yes
Ejected from Vehicle	1. Not Ejected	Overloaded	No
Date of Death		Overide	No
Injury Type	6. No Injury (Driver only)	Initial Impact Area	12. Front
EMV Transport	No	Direction of Travel	East
Summons Issued	1. Yes	Crash Events	1. 20. Ran Off Road
			2. 2. Guard Rail
			3. 2. Trees
			4. Not Provided
			Most Harmful 2. Guard Rail

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
60	50	25	1	0	0	3

Weight over 10,000 lbs	No	Exits Functional	No	Rescue Material Placed	No
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Commercial Motor Vehicle Details		
Vehicle Configuration	Not Provided	License Class
Cargo Body Type	Not Provided	Commercial Endorsement
GVW/GVWR	Not Provided	
Rescue Material		
Rescue Material Placed		EM Class
EM 4 Digit		EM Cargo Present
EM Placed Name		EM Cargo Subcode
Carrier Identification		
Commercial Motor Carrier Name		
US DOT / State		
Commercial / Non-Commercial	Not Provided	
Passenger Information		
EMV Transport		Safety Equip Used
Date of Death		Airbag Deployment Type
Position In / On Vehicle		Ejected from Vehicle Type
		Injury Type

Crash Report

Document Number	150100000	Jurisdiction	City of Norfolk	GPS Lat.	GPS Long.
Revised Report	0	County of Crash		36.843490	-76.298580
Crash Date	Tuesday 09/11/2018 3:10	Landmarks at Scene			
City/Town of	Norfolk	Relroad Crossing ID			
Location of Crash	RR 1264	Mile Marker Number	12.80	Number of Vehicles	1
	No. 82 Intersection With or 0.10 Miles East of MILITARY HWY				

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of Post-Harmful Event	2. Shoulder	Roadway Defects	1. No Defects
Weather Condition	1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway	8. Non-Intersection
Light Condition	4. Darkness - Road Lighted	Intersection Type	1. Not at Intersection
Traffic Control Mechanical Device	1. Yes - Working	Work Zone Related	2. No
Traffic Control Type	8. Traffic Lanes Marked	Work Zone Workers Present	Not Provided
Roadway Alignment	1. Straight - Level	Work Zone Location	Not Provided
Roadway Surface Condition	1. Dry	Work Zone Type	Not Provided
Roadway Surface Type	2. Blacktop, Asphalt, Bituminous	School Zone	3. No
Roadway Description	2. Two-Way, Divided, Unprotected Median	Type of Collision	8. Road Object - Off Road

Crash Description

VEH #1 RAN OFF ROAD TO THE RIGHT STRUCK THE GUARD RAIL AND OVERTURN

Crash Report

Document Number	150765027	Jurisdiction	City of Norfolk	DPS Lat	DPS Long
Revised Report	1	County of Crash		36.843310	-76.208130
Crash Date	Sunday 03/12/2017 3:08	Landmarks at Scene			
City / Town of	Norfolk	Roadway Crossing ID			
Location of Crash	EB I-264 No - At Intersection With or 0.10 Feet Past of MILITARY HWY EAST RAMP	Site Marker Number	12.00	Number of Vehicles	1

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event: **2. Shoulder**Weather Condition: **1. No Adverse Condition (Clear/Cloudy)**Light Condition: **4. Darkness - Road Lighted**Traffic Control Mechanical Device: **1. Yes - Working**Traffic Control Type: **6. Traffic Lanes Marked**Roadway Alignment: **2. Curve - Level**Roadway Surface Condition: **1. Dry**Roadway Surface Type: **2. Bituminous, Asphalt, Bituminous**Roadway Description: **3. Two-Way Divided, Positive Median Barrier**Roadway Details: **1. No Details**Relation to Roadway: **8. Non-Intersection**Intersection Type: **1. Not at Intersection**Work Zone Related: **2. No**Work Zone Workers Present: **Not Provided**Work Zone Location: **Not Provided**Work Zone Type: **Not Provided**School Zone: **3. No**Type of Collision: **8. Fixed Object - Off Road**

Crash Description

VEHICLE #1 RAN OFF ROAD TO THE LEFT STRUCK GUARDRAIL AND A SIGN POST.

Crash Report

Driver Information	00000000	Age 28	Vehicle Information	1
Driver's Action	40. Not in Maintain Proper Control		Vehicle Make/Model	50. Ran Off Road - Left
if Driver Contributing to the Crash	1. No Defects		Building Tire / Mark	4. No Visible Skid Mark/Tire Mark
Driver Vision Obscured	1. Not Obscured		Vehicle Body Type	1. Passenger car
Type of Driver Distraction	14. No Driver Distraction		Vehicle Damage	8. Other
Drinking	2. Drinking - Obviously Drunk		Vehicle Condition	1. No Defects
Method of Alcohol Determination	1. Breath		Spec. Function Motor Vehicle	1. No Special Function
Drug Use	2. No		EMV in service	2. No
Driver's License			Truck Cover	2. No
Commercial Driver's License	No		Vehicle Disabled	Yes
Safety Equipment Used	1. Lap and Shoulder Belt		Commercial Motor Vehicle	No
Air Bag	2. Not Deployed		Towed	Yes
Ejected from Vehicle	1. Not Ejected		Overlaid	No
Date of Death			Overlaid	No
Injury Type	4. No Injury (Minor only)		Initial Impact Area	02. Front
EMS Transport	No		Direction of Travel	East
Summons Issued	1. Yes		Crash Events	1. 30. Ran Off Road
				2. 5. Guard Rail
				3. 8. Sign, Traffic Signal
				4. Not Provided
				Most Harmful 5. Guard Rail

Speed Before Crash	Speed Limit	Maximum Both Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
50	50	30	0	0	0	0

Weight over 10,000 lbs	No	Scale in use	No	Reversing Material Placed	No
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Commercial Motor Vehicle Section	
Vehicle Configuration	Not Provided
Cargo Body Type	Not Provided
GVW/GCWR	Not Provided
Reversing Material	
Reversing Material Placed	
RM 4 Digit	
RM Placed Name	
Carrier Identification	
Commercial Motor Carrier Name	
US DOT# / State	
Commercial / Non-Commercial	Not Provided
Passenger Information	
EMS Transport	
Date of Death	
Position In / On Vehicle	
Safety Equip Used	
Airbag Deployment Type	
Ejected from Vehicle Type	
Injury Type	

Crash Report

Document Number	111885008	Jurisdiction	City of Norfolk	DPS Lat	DPS Long
Revised Report	0	County of Crash		36.843310	-76.296930
Crash Date	Monday 07/09/2018 090	Latitude of Scene			
City / Town of	Norfolk	Railroad Crossing ID			
Location of Crash	I-264 EAST	Mile Marker Number	12.80	Number of Vehicles	2
	No - At Intersection With or 50.00 Feet East of MILITARY HWY				

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	1
Injuries Pedestrian	0

Crash Information

Location of Post-Harmful Event	1. On Roadway	Roadway Defects	1. No Defects
Weather Condition	1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway	8. Non-Intersection
Light Condition	2. Daylight	Intersection Type	1. Not at Intersection
Traffic Control/Mechanical Device	1. Yes - Working	Work Zone Related	2. No
Traffic Control Type	8. Traffic Lanes Marked	Work Zone Workers Present	Not Provided
Roadway Alignment	1. Straight - Level	Work Zone Location	Not Provided
Roadway Surface Condition	1. Dry	Work Zone Type	Not Provided
Roadway Surface Type	2. Bit/Asph, Asphalt, Bituminous	School Zone	3. No
Roadway Description	3. Two-Way Divided, Positive Median Barrier	Type of Collision	4. Side-swipe - Same Direction

Crash Description

VEHICLE #1 STRUCK VEHICLE #2 ON THE RIGHT SIDE CAUSING VEHICLE #2 TO STRIKE JERRY WALL.

Crash Report

Driver Information	04/12/1984	Age 31	Vehicle Information	1	
Driver's Action	42. Improper or Unsafe Lane Change			Vehicle Maneuver	8. Merging into Traffic Lane
of Driver Contributing to the Crash	1. No Defects			Braking Tire / Mark	4. No Visible BSM Mark/Tire Mark
Driver Vision Obscured	1. No Obscured			Vehicle Body Type	1. Passenger car
Type of Driver Distraction	14. No Driver Distraction			Vehicle Damage	1. Unknown
Drinking	1. Not Not Been Drinking			Vehicle Condition	1. No Defects
Method of Alcohol Determination	Not Applicable			Spec. Function Motor Vehicle	Not Applicable
Drug Use	1. No			BSM in service	Not Applicable
Driver's License				Truck Cover	Not Applicable
Commercial Driver's License	No			Vehicle Disabled	No
Safety Equipment Used	3. Lap and Shoulder Belt			Commercial Motor Vehicle	No
Air Bag	1. Not Deployed			Towed	No
Ejected from Vehicle	1. Not Ejected			Overloaded	No
Date of Death				Oversteer	No
Injury Type	6. No Injury (Driver only)			Initial Impact Area	11. Left side - front corner
EMS Transport	No			Direction of Travel	East
Summons Issued	1. Yes			Crash Events	1. 20. Motor Vehicle in Transport

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 6	6-17	18-21	> 21
40	50	55	0	0	0	0

2. Not Provided
3. Not Provided
4. Not Provided
Most Harmful 20. Motor Vehicle in Transport

Weight over 10,000 lbs. No Excess Brakes No Reverse Materials Placed No

Commercial Motor Vehicle Section

Vehicle Configuration Not Provided
Cargo Body Type Not Provided
GVW/GCWR Not Provided

License Class
Commercial Endorsement

Reverse Material

Reverse Material Placed
RM 4 Digit
RM Placed Name

RM Class
RM Cargo Present
RM Cargo Subcode

Carrier Identification

Commercial Motor Carrier Name
US DOT / State
Commercial / Non-Commercial Not Provided

Passenger Information

EMS Transport
Date of Death
Position In / On Vehicle

Safety Equip Used
Airbag Deployment Type
Ejected from Vehicle Type
Injury Type

Driver Information 05/14/1984 Age 31 **Vehicle Information** 2

Driver's Action	1. No Improper Action	Vehicle Maneuver	1. Going Straight Ahead
of Driver Contributing to the Crash	1. No Defects	Braking Tire / Mark	3. Before and After Application of Brakes
Driver Vision Obscured	1. Not Obscured		

Crash Report

Type of Driver Distraction	14. No Driver Distraction	Vehicle Body Type	1. Passenger car
Drinking	1. Not Not Been Drinking	Vehicle Damage	1. Unknown
Method of Alcohol Determination	Not Applicable	Vehicle Condition	1. No Defects
Drug Use	1. No	Spec. Function Motor Vehicle	Not Applicable
Driver's License		EMV In service	Not Applicable
Commercial Driver's License	No	Truck Cover	Not Applicable
Safety Equipment Used	3. Lap and Shoulder Belt	Vehicle Disabled	Yes
Air Bag	1. Deployed - Front	Commercial Motor Vehicle	No
Ejected from Vehicle	1. Not Ejected	Towed	Yes
Date of Death		Overloaded	No
Injury Type	3. Minor/Possible Injury	Overkill	No
EMT Transport	Yes	Initial Impact Area	3. Right side - middle
Summary Issued	1. No	Direction of Travel	Front
		Crash Events: 1.	20. Motor Vehicle In Transport
		2.	11. Jersey Wall
		3.	Not Provided
		4.	Not Provided
		Most Harmful	11. Jersey Wall

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
60	30	30	0	0	0	0

Weight over 10,000 lbs Scale For use Residue Material Placed

Commercial Motor Vehicle Section

Vehicle Configuration: Not Provided
 Cargo Body Type: Not Provided
 GVW/GCWR: Not Provided

License Class
 Commercial Endorsement

Residue Material

Residue Material Placed
 EMV 4 Digit
 EM Placed Here

EM Class
 EM Cargo Present
 EM Cargo Released

Carrier Identification

Commercial Motor Carrier Name
 US DOT# / State
 Commercial / Non Commercial: Not Provided

Passenger Information

EMT Transport
 Date of Death
 Position In / On Vehicle

Safety Equip Used
 Airbag Deployment Type
 Ejected From Vehicle Type
 Injury Type

Crash Report

Document Number	10200011	Jurisdiction	City of Norfolk	GPS Lat.	GPS Long.
Revised Report	0	County of Crash		36.843340	-76.288210
Crash Date	Saturday 07/15/2017 228	Landmarks at Scene			
City/Town of	Norfolk	Roadway Crossing ID			
Location of Crash	1084 BARTONLAND	Mile Marker Number	12.80	Number of Vehicles	1
	No - All Intersections With or 100.00 Feet East of MILITARY HWY				

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	1
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event	1. On Roadway	Roadway Defects	1. No Defects
Weather Condition	1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway	8. Non-Intersection
Light Condition	8. Darkness - Road Lighted	Intersection Type	1. Not at Intersection
Traffic Control Mechanical Device	1. Yes - Working	Work Zone Related	2. No
Traffic Control Type	8. Traffic Lanes Marked	Work Zone Workers Present	Not Provided
Roadway Alignment	10. On/Off Ramp	Work Zone Location	Not Provided
Roadway Surface Condition	1. Dry	Work Zone Type	Not Provided
Roadway Surface Type	2. Bituminous, Asphalt, Bituminous	School Zone	3. No
Roadway Description	3. Two-Way, Divided, Positive Median Barrier	Type of Collision	8. Fixed Object - Off Road

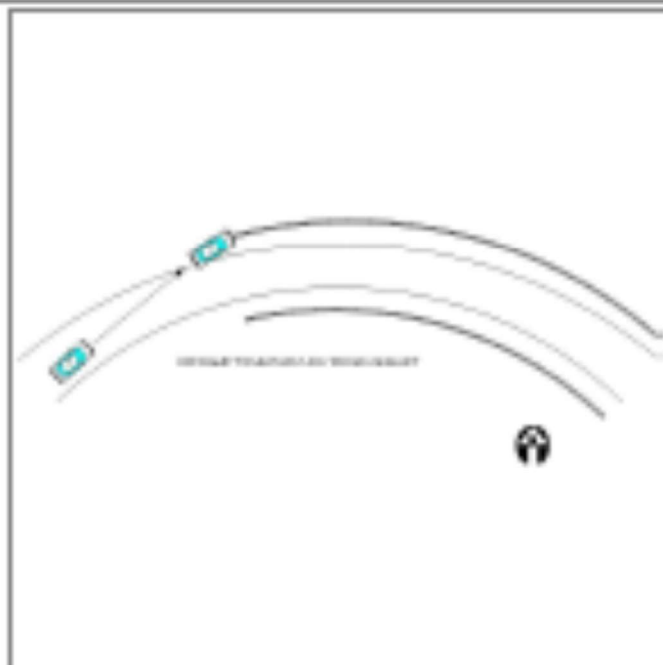
Crash Description

VEHICLE RAN OFF ROAD LEFT, STRUCK THE GUARDRAIL END TERMINAL, AND ROLLED AND RAN INTO THE DITCH.

Crash Report

Document Number: 102785018	Jurisdiction: City of Norfolk	GPS Lat: 36.843300	GPS Long: -76.208140
Revised Report: 0	County of Crash:		
Crash Date: Thursday 10/03/15 8:15	Landmarks at Scene:		
City / Town of: Norfolk	Railroad Crossing ID:		
Location of Crash: INTERSTATE 264 EASTBOUND	Mile Marker Number: 13.00	Number of Vehicles: 1	
No - All Intersections With an 100.00 Feet Road of MILITARY HWY			

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event: **6. Roadside**

Weather Condition: **5. Rain**

Light Condition: **2. Daylight**

Traffic Control Mechanical Device: **1. Yes - Working**

Traffic Control Type: **8. Traffic Lanes Marked**

Roadway Alignment: **10. On/Off Ramp**

Roadway Surface Condition: **2. Wet**

Roadway Surface Type: **2. Bitting, Asphalt, Bituminous**

Roadway Description: **3. Two-Way, Divided, Positive Median Barrier**

Roadway Defects: **1. No Defects**

Relation to Roadway: **5. On Entrance/Exit Ramp**

Intersection Type: **1. Not at Intersection**

Work Zone Related: **2. No**

Work Zone Workers Present: **Not Provided**

Work Zone Location: **Not Provided**

Work Zone Type: **Not Provided**

School Zone: **3. No**

Type of Collision: **8. Fixed Object - Off Road**

Crash Description

VEHICLE ONE RAN OFF ROAD AND STRUCK GUARD RAIL.

Crash Report

Driver Information	00001094	Age	31	Vehicle Information	1
Driver's Action	40. Not in Maintain Proper Control	Vehicle Maneuver	10. Ran Off Road - Left		
of Driver Contributing to the Crash	1. No Defect	Braking Tire / Mark	4. No Visible Skid Mark/Tire Mark		
Driver Vision Obscured	1. Not Obscured	Vehicle Body Type	1. Passenger car		
Type of Driver Distraction	14. No Driver Distraction	Vehicle Damage	8. Other		
Drinking	1. Not Not Been Drinking	Vehicle Condition	8. Worn or Blat Tire		
Method of Alcohol Determination	Not Applicable	Spec. Function Motor Vehicle	1. No Special Function		
Drug Use	1. No	EMV in service	Not Applicable		
Driver's License		Trunk Cover	Not Applicable		
Commercial Driver's License	Not Provided	Vehicle Disabled	Yes		
Safety Equipment Used	3. Lap and Shoulder Belt	Commercial Motor Vehicle	No		
Air Bag	1. Not Deployed	Towed	Yes		
Ejected from Vehicle	1. Not Ejected	Overlaid	No	Cargo Spill	No
Date of Death		Overlaid	No	Underlaid	No
Injury Type	6. No Injury (Minor only)	Initial Impact Area	12. Front		
EMS Transport	No	Direction of Travel	East		
Summons Issued	1. No	Crash Events	1. 28. Ran Off Road		
			2. 8. Guard Rail		
			3. Not Provided		
			4. Not Provided		
			5. Guard Rail		
			Most Harmful		

Speed Before Crash	Speed Limit	Maximum Ball Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
40	50	20	0	0	0	0

Single over 10,000 lbs	No	Seat Belts worn	No	Reactive Material Placed	No
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Commercial Motor Vehicle Details

Vehicle Configuration	Not Provided	License Class	
Cargo Body Type	Not Provided	Commercial Endorsement	
GVW/GCWR	Not Provided	EM Class	
Reactive Material		EM Cargo Present	
Reactive Material Placed		EM Cargo Subtotal	
RM 4-Digit			
EM Placed Here			

Carrier Identification

Commercial Motor Carrier Name	
US DOT# / State	
Commercial / Non-Commercial	Not Provided

Passenger Information

EMS Transport		Safety Equip Used	
Date of Death		Airbag Deployment Type	
Position In / On Vehicle		Ejected from Vehicle Type	
		Injury Type	

Crash Report

Document Number	00115000	Jurisdiction	City of Norfolk	GPS Lat.	GPS Long.
Revised Report	0	County of Crash		36.843380	-76.298380
Crash Date	Friday 11/06/2016 8	Landmarks at Scene			
City / Town of	Norfolk	Railroad Crossing ID			
Location of Crash	I 264 EAST	Mile Marker Number	13.00	Number of Vehicles	1
	No - At Intersection With or 0.10 Miles East of MILITARY HWY				

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	1
Injuries Pedestrian	0

Crash Information

Location of Post Harmful Event: 2. Shoulder

Weather Condition: 4. Wet

Light Condition: 4. Darkness - Road Lighted

Traffic Control/Mechanical Device: 1. Yes - Working

Traffic Control Type: 8. Traffic Lanes Marked

Roadway Alignment: 1. Straight - Level

Roadway Surface Condition: 2. Wet

Roadway Surface Type: 2. Bitting, Asphalt, Bituminous

Roadway Description: 3. Two-Way Divided, Positive Median Barrier

Roadway Defects: 1. No Defects

Relation to Roadway: 8. Non-Intersection

Intersection Type: 1. Not at Intersection

Work Zone Related: 2. No

Work Zone Workers Present: Not Provided

Work Zone Location: Not Provided

Work Zone Type: Not Provided

School Zone: 2. No

Type of Collision: 8. Fixed Object - Off Road

Crash Description

VEHICLE #1 RAN OFF OF THE LEFT SHOULDER, STRUCK EMBANKMENT, THEN OVERTURNED.

Crash Report

Driver Information		11/15/2006		Age 18		Vehicle Information		1		
Driver's Action	40. Fail to Maintain Proper Control	Vehicle Make/Model	50. Ran Off Road - Left							
of Driver Contributing to the Crash	1. No Defects	Modeling Tire / Mark	4. No Visible RIM Mark/Tire Mark							
Driver Vision Obscured	1. No Obscured	Vehicle Body Type	1. Passenger car							
Type of Driver Distraction	14. No Driver Distraction	Vehicle Damage	6. Totaled							
Drinking	1. Not Not Seen Drinking	Vehicle Condition	1. No Defects							
Method of Alcohol Determination	Not Applicable	Spec. Function Motor Vehicle	1. No Special Function							
Drug Use	2. No	EMV in service	Not Applicable							
Driver's License	Commercial Driver's License	Trunk Cover	Not Applicable							
Commercial Driver's License	Not Provided	Vehicle Disabled	Yes							
Safety Equipment Used	3. Lap and Shoulder Belt	Commercial Motor Vehicle	No							
Air Bag	1. Deployed - Front	Towed	Yes							
Ejected from Vehicle	1. No Ejected	Oversized	No	Cargo Spill	No					
Date of Death		Overside	No	Underlie	No					
Injury Type	3. Minor/Visible Injury	Initial Impact Area	02. Front							
EMS Transport	Yes	Direction of Travel	East							
Summons Issued	1. Yes	Crash Events: 1.	20. Ran Off Road							
		2.	1. Bank Or Ledge							
		3.	20. Oversize (Followed)							
		4.	Not Provided							
		Most Harmful	20. Oversize (Followed)							
Speed Before Crash	50	Speed Limit	20	Maximum Safe Speed	20	ALL Passengers Age Count				
				< 8	8-17	18-21	> 21			
				0	0	1	1			
Weight over 10,000 lbs	No	Scale in event	No	Rescue Materials Placed		No				
Commercial Motor Vehicle Section		Vehicle Configuration		Not Provided		License Class				
Cargo Body Type		Not Provided		Commercial Endorsement		EM Class				
OVERSICONS		Not Provided		EM Class		EM Cargo Present				
Rescue Material		Rescue Material Placed		EM Class		EM Cargo Released				
EM 4 Digit		EM Placed Here		EM Class		EM Cargo Present				
EM Placed Here		EM Placed Here		EM Class		EM Cargo Released				
Cargo Identification		Commercial Motor Cargo Item		US DOT / Size		Commercial / Non-Commercial				
Commercial / Non-Commercial		Not Provided		Not Provided		Not Provided				
Passenger Information		EMS Transport		Date of Death		Position In / On Vehicle				
Date of Death		Safety Equip Used		Airbag Deployment Type		Ejected from Vehicle Type				
Position In / On Vehicle		Injury Type		Injury Type		Injury Type				

Crash Report

Document Number	18040000	Jurisdiction	City of Norfolk	OPS Lat.	OPS Long.
Revised Report	0	County of Crash		36.843430	-76.308000
Crash Date	Monday 09/11/2018 100	Landmarks at Scene	EXIT RAMP		
City/Town of	Norfolk	Railroad Crossing ID			
Location of Crash	INTERSTATE 264 EAST No. At Intersection 988 or 100.00 Feet East of MILITARY HIGHWAY	Site Marker Number	12.80	Number of Vehicles	1

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	1
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event	4. Roadside	Roadway Details	1. No Defects
Weather Condition	6. Snow	Relation to Roadway	6. Non-Intersection
Light Condition	4. Darkness - Road Lighted	Intersection Type	1. Not at Intersection
Traffic Control Mechanical Device	1. Yes - Working	Work Zone Related	2. No
Traffic Control Type	6. Traffic Lanes Marked	Work Zone Workers Present	Not Provided
Roadway Alignment	1. Straight - Level	Work Zone Location	Not Provided
Roadway Surface Condition	3. Snowy	Work Zone Type	Not Provided
Roadway Surface Type	2. Bituminous, Asphalt, Blankhouse	School Zone	3. No
Roadway Description	3. Two-Way, Divided, Positive Median Barrier	Type of Collision	6. Fixed Object - Off Road

Crash Description

VEHICLE 1 RAN OFF THE ROAD TO THE RIGHT AND STRUCK THE EXIT SIGN.

Crash Report

Driver Information	02/26/1982	Age 35	Vehicle Information	1
Driver's Action	40. Not in Minimum Proper Control		Vehicle Maneuver	8. Ran Off Road - Right
If Driver Contributing to the Crash	8. Other		Braking Tire / Mark	4. No Visible Skid Mark/Tire Mark
Driver Vision Obscured	1. Not Obscured		Vehicle Body Type	1. Passenger car
Type of Driver Distraction	14. No Driver Distraction		Vehicle Damage	6. Totaled
Drinking	2. Drinking - Divinely Drunk		Vehicle Condition	1. No Defects
Method of Alcohol Determination	2. Breath		Spec. Function Motor Vehicle	1. No Special Function
Drug Use	2. No		EMV in service	Not Applicable
Driver's License			Trunk Cover	Not Applicable
Commercial Driver's License	No		Vehicle Disabled	Yes
Safety Equipment Used	3. Lap and Shoulder Belt		Commercial Motor Vehicle	No
Air Bag	2. Not Deployed		Towed	Yes
Ejected from Vehicle	1. Not Ejected		Overlaid	No
Date of Death			Overlaid	No
Injury Type	3. Minor/Possible Injury		Initial Impact Area	C. Front
EMS Transport	No		Direction of Travel	East
Summons Issued	1. Yes		Crash Events	1. 28. Ran Off Road
				2. 8. Sign, Traffic Signal
				3. 14. Dist
				4. Not Provided
				Most Harmful 14. Dist

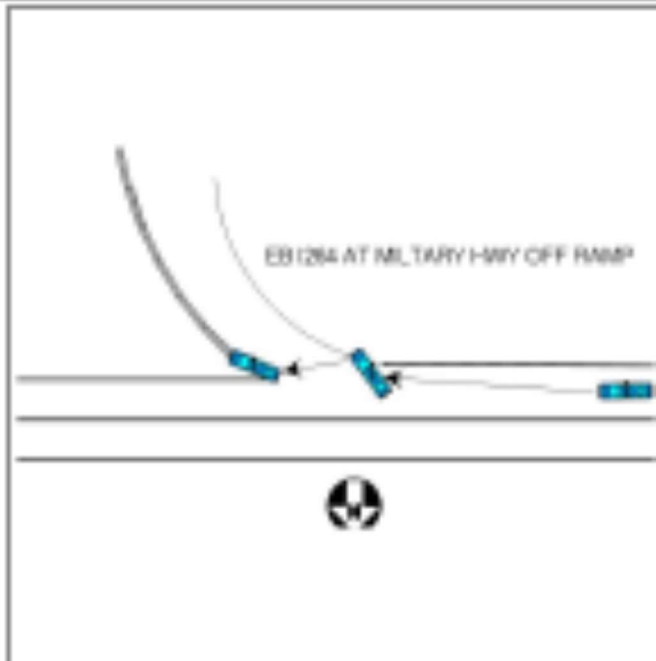
Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 5	5-17	18-21	> 21
80	80	35	0	0	0	0

Weight over 10,000 lbs	No	Exits Function	No	Reversing Material Placed	No
Commercial Motor Vehicle Section					
Vehicle Configuration	Not Provided			License Class	
Cargo Body Type	Not Provided			Commercial Endorsement	
GVWS/GCWS	Not Provided			EM Class	
Reversing Material				EM Cargo Present	
Reversing Material Placed				EM Cargo Released	
EM 4 Digit					
EM Placed Name					
Carrier Identification					
Commercial Motor Carrier Name					
US DOT# / State					
Commercial / Non-Commercial	Not Provided				
Passenger Information					
EMS Transport				Safety Equip Used	
Date of Death				Airbag Deployment Type	
Position In / On Vehicle				Ejected from Vehicle Type	
				Injury Type	

Crash Report

Document Number: 162800010	Jurisdiction: City of Norfolk	GPS Lat: 36.843330	GPS Long: -76.208190
Revised Report: 0	County of Crash: 		
Crash Date: Saturday 03/13/2018 1840	Latitude at Scene: 		
City / Town of: Norfolk	Roadway Crossing ID: 		
Location of Crash: SB/BOUND 1264	Site Marker Number: 	Number of Vehicles: 1	

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event: **2. Shoulder**Weather Condition: **5. Rain**Light Condition: **3. Dark**Traffic Control Mechanical Device: **1. Yes - Working**Traffic Control Type: **8. Traffic Lanes Marked**Roadway Alignment: **1. Straight - Level**Roadway Surface Condition: **2. Wet**Roadway Surface Type: **2. Blacktop, Asphalt, Bituminous**Roadway Description: **3. Two-Way, Divided, Positive Median Barrier**Roadway Defects: **1. No Defects**Relation to Roadway: **5. On Entrance/Exit Ramp**Intersection Type: **1. Not at Intersection**Work Zone Related: **2. No**Work Zone Workers Present: **Not Provided**Work Zone Location: **Not Provided**Work Zone Type: **Not Provided**School Zone: **3. No**Type of Obstruction: **8. Fixed Object - Off Road**

Crash Description

VEHICLE #1 TOOK RAN TOO FAST FOR ROAD CONDITIONS.

Crash Report

Driver Information 05/11/2017

Age 42

Vehicle Information 1

Driver's Action 3. Exceeded Safe Speed But Not Speed Limit
 of Driver Contributing to the Crash 1. No Defects
 Driver Vision Obscured 1. Not Obscured
 Type of Driver Distractions 14. No Driver Distractions
 Drinking 1. Not Not Been Drinking
 Method of Alcohol Determination Not Applicable
 Drug Use Not Applicable
 Driver's License
 Commercial Driver's License No
 Safety Equipment Used 3. Lap and Shoulder Belt
 Air Bag 2. Not Deployed
 Ejected from Vehicle 1. Not Ejected
 Date of Death
 Injury Type 4. No Injury (Minor only)
 EMS Transport No
 Burial/Interrment Not Provided

Vehicle Make/Model 10. Ran Off Road - Left
 Blocking Tire / Mark 2. After Application of Brakes
 Vehicle Body Type 1. Passenger car
 Vehicle Damage 8. Other
 Vehicle Condition 1. No Defects
 Spec. Function Motor Vehicle 1. No Special Function
 EMV In service Not Applicable
 Truck Cover Not Applicable
 Vehicle Disabled No
 Commercial Motor Vehicle No
 Towed No
 Overload No Cargo Spill No
 Overide No Underide No
 Initial Impact Area 1. Right side - front/rear
 Direction of Travel East
 Crash Events: 1. 20. Ran Off Road
 2. 0. Guard Rail
 3. Not Provided
 4. Not Provided
 Most Harmful 0. Guard Rail

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
42	30	35	0	0	0	0

Weight over 10,000 lbs No

Excess front end No

Reversible Material Placed No

Commercial Motor Vehicle Section

Vehicle Configuration Not Provided
 Cargo Body Type Not Provided
 OTR/DC/CRV Not Provided

License Class

Commercial Endorsement

Reversible Material

Reversible Material Placed
 EM 4 Digit
 EM Placed Here

EM Class

EM Cargo Present

EM Cargo Released

Carrier Identification

Commercial Motor Carrier Name
 US DOT / State
 Commercial / Non-Commercial Not Provided

Passenger Information

EMS Transport
 Date of Death
 Position In / On Vehicle

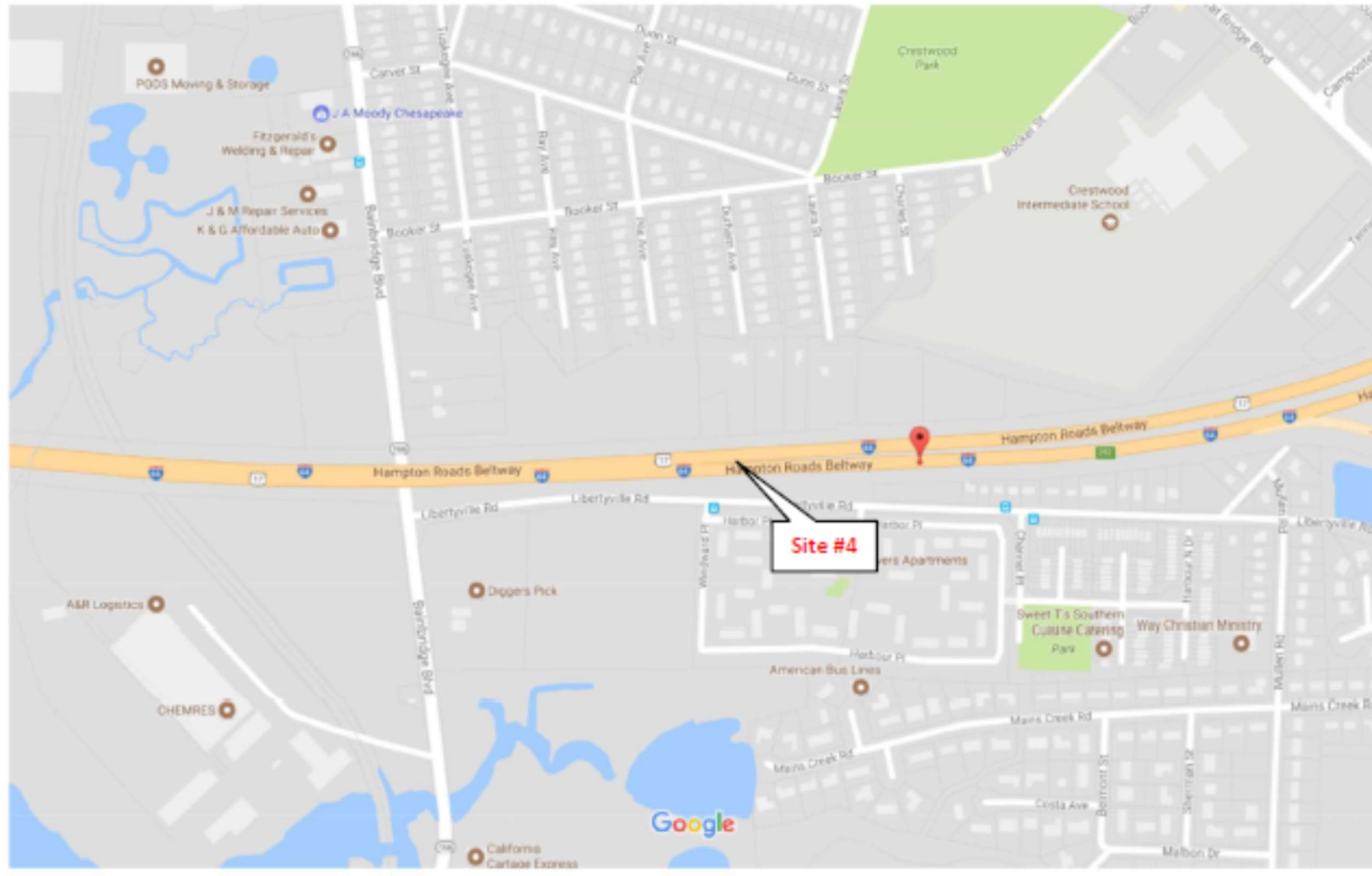
Safety Equip Used
 Airbag Deployment Type
 Ejected from Vehicle Type
 Injury Type

Top 6 Hampton Roads Guardrail Hits Evaluations

Site #4

I-64 West toward VA Beach, Before Exit 292 to Rte. 17S, Left Shoulder

Location Map



**Top 6 Hampton Roads Guardrail Hits Evaluations
Site #4**



Top 6 Hampton Roads Guardrail Hits Evaluations

Site #4

Description/Field Assessment

- The existing guardrail run consist of a SKT-SP GR-9 Run-on End Terminal attached to Standard GR-2 W-Beam rail extending underneath I-464 Overpass with a rolled buffered end treatment with no apparent anchor point. The existing overall length of the Guardrail run is Approx. 1,925' located at an offset of 5' from the edge of travel. The guardrail is protecting an overhead sign structure approx. 220' from the beginning of the guardrail run and offset approx. 10' from the Edge of Travel. This guardrail is also protection against cross over crashes.
- The calculated length of need required for the overhead sign structure is 150'.
- The Combined ADT is approx. 90,000.

Hits History

- See Attach FR-300 report

Primary Issue

- It appears that most of the guardrail hits are due to human error, excessive speeds, driver inattention.

Suggested Recommendations/Ideas

- This area will be reconstructed with the High Rise Bridge Project
- Shorten the Guardrail by 25'.
- Possibly transition/taper the existing guardrail on both sides of the median to tie into one another in the middle of the median and terminate with an impact attenuator.
- Add Rumble strips along the crossover and left shoulder
- Refresh and oversize Edge Line

Top 6 Hampton Roads Guardrail Hits Evaluations Site #4

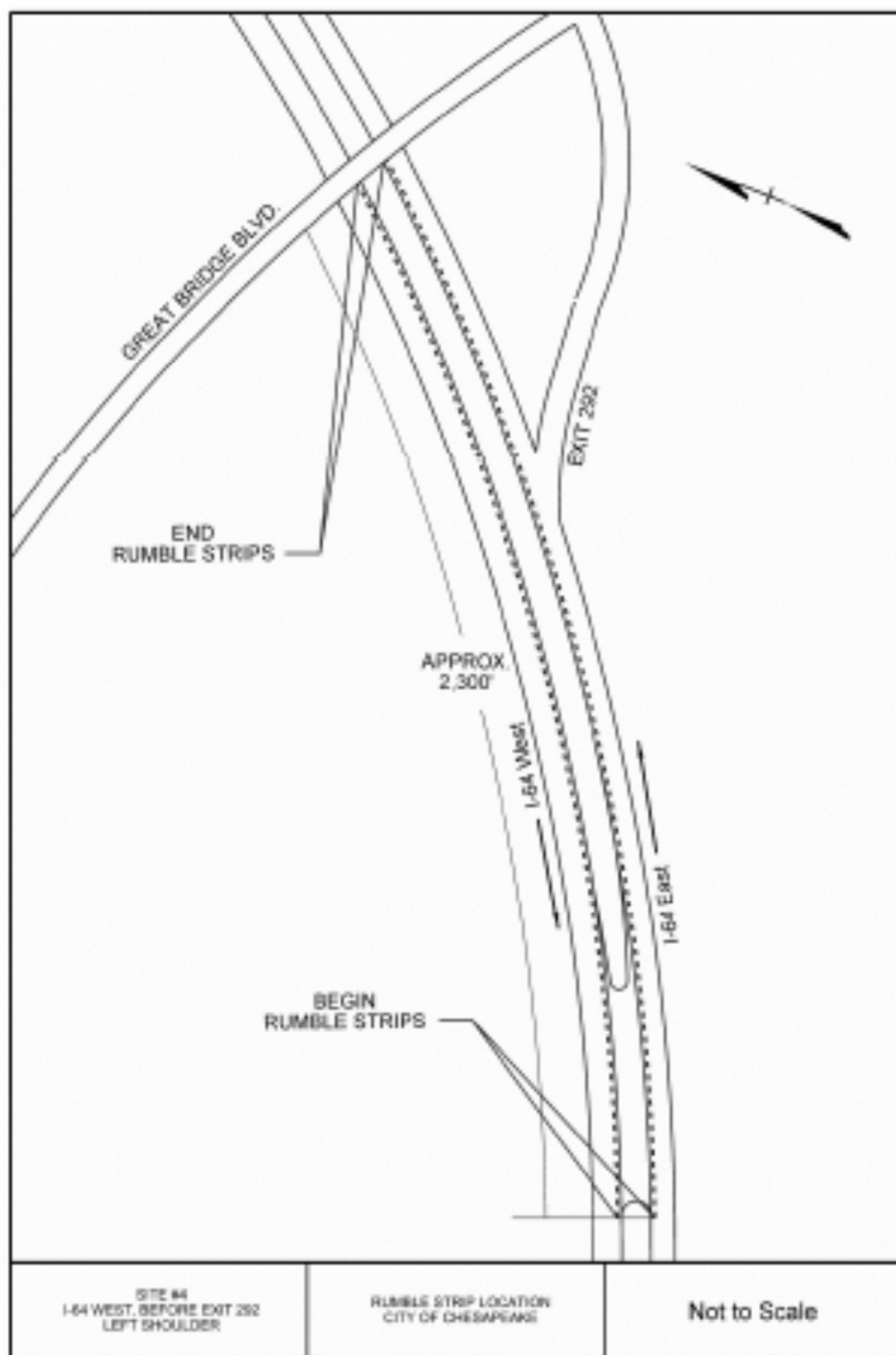
Final Conclusion

- Traffic Engineering requested a rumble strip installation task order for this site and Sites 2 and 5. Installation and Maintenance reported that these sites did not include a sufficient length of rumble strip to meet the minimum length required to initiate a task order under the FY17 pavement marking on-call contract.
- The I-64 widening and High Rise Bridge replacement project kicked off in November 2017. According to the estimated schedule (as of January 18), road construction will begin in October 2018. If construction proceeds according to the initial concepts, Site 5 will be removed. Therefore no further improvements are recommended at this time.

Top 6 Hampton Roads Guardrail Hits Evaluations

Site #4

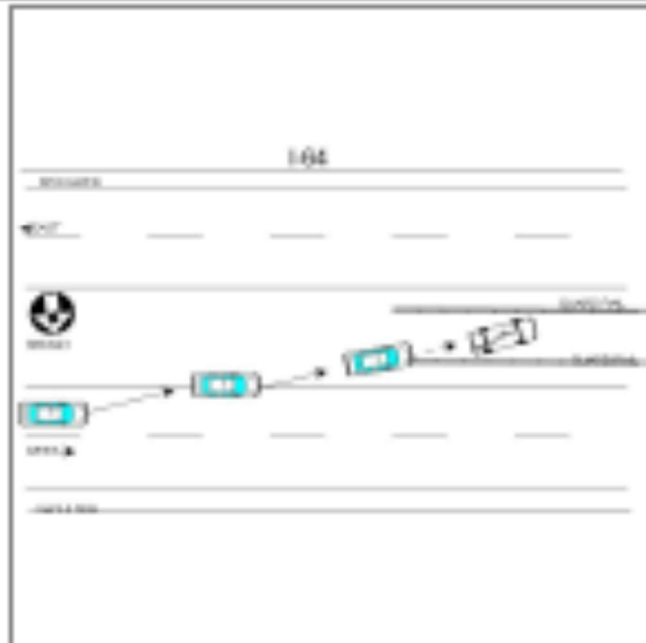
Suggested Deterrent/Alteration



Crash Report

Document Number	17080086	Jurisdiction	City of Chesapeake	GPS Lat.	GPS Long.
Revised Report	0	County of Crash		36.757790	-76.280500
Crash Date	Tuesday 08/14/2017 1800	Landmarks at Scene			
City/Town of	Chesapeake	Roadway Crossing ID			
Location of Crash	184 WEST No - At Intersection With or 0.20 Miles West of HIGH RISE BRIDGE	Mile Marker Number	283.00	Number of Vehicles	1

Crash Image



Fatalities Non-Pedestrian	0
Fatalities Pedestrian	0
Injuries Non-Pedestrian	1
Injuries Pedestrian	0

Crash Information

Location of First Harmful Event: **3. Median**Weather Condition: **1. No Adverse Condition (Clear/Cloudy)**Light Condition: **5. Darkness - Road Not Lighted**Traffic Control/Mechanical Device: **1. Yes - Working**Traffic Control Type: **6. Traffic Lanes Marked**Roadway Alignment: **1. Straight - Level**Roadway Surface Condition: **1. Dry**Roadway Surface Type: **2. Blacktop, Asphalt, Bituminous**Roadway Description: **3. Two-Way, Divided, Positive Median Barrier**Roadway Defects: **1. No Defects**Relation to Roadway: **8. Non-Intersection**Intersection Type: **1. Not at Intersection**Work Zone Related: **2. No**Work Zone Workers Present: **Not Provided**Work Zone Location: **Not Provided**Work Zone Type: **Not Provided**School Zone: **3. No**Type of Obstruction: **6. Fixed Object in Road**

Crash Description

VEHICLE #1 RAN OFF ROAD LEFT AND STRUCK GUARD RAIL, CAUSING VEHICLE TO FLIP OVER IN THE MEDIAN.

Crash Report

Driver Information	11/07/06	Age	32	Vehicle Information	1																					
Driver's Action	40. Fail to Maintain Proper Control			Vehicle Maneuver	10. Ran Off Road - Left																					
if Driver Contributing to the Crash	1. No Defect			Blocking Tire / Mark	4. No Visible Road Mark/Tire Mark																					
Driver Vision Obscured	1. No Obscured			Vehicle Body Type	1. Passenger car																					
Type of Driver Distraction	14. No Driver Distraction			Vehicle Damage	8. Other																					
Drinking	1. Not Not From Drinking			Vehicle Condition	8. Other																					
Method of Alcohol Determination	Not Applicable			Spec. Function Motor Vehicle	1. No Special Function																					
Drug Use	3. No			EMV In service	Not Applicable																					
Driver's License	Not Provided			Truck Cover	Not Applicable																					
Commercial Driver's License	Not Provided			Vehicle Disabled	Yes																					
Safety Equipment Used	3. Lap and Shoulder Belt			Commercial Motor Vehicle	No																					
Air Bag	1. Deployed - Front			Towed	Yes																					
Ejected from Vehicle	1. Not Ejected			Overlaid	No																					
Date of Death				Overlaid	No																					
Injury Type	3. Minor/Possible Injury			Initial Impact Area	12. Front																					
EMV Transport	No			Direction of Travel	West																					
Summons Issued	1. Yes			Crash Events	1. CR - Ran Off Road																					
<table border="1"> <thead> <tr> <th>Speed Before Crash</th> <th>Speed Limit</th> <th>Maximum Safe Speed</th> <th colspan="4">ALL Passengers Age Count</th> </tr> <tr> <th></th> <th></th> <th></th> <th>< 8</th> <th>8-17</th> <th>18-21</th> <th>> 21</th> </tr> </thead> <tbody> <tr> <td>80</td> <td>80</td> <td>80</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>						Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count							< 8	8-17	18-21	> 21	80	80	80	0	0	0	0
Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count																							
			< 8	8-17	18-21	> 21																				
80	80	80	0	0	0	0																				
Most Harmful	5. Crash Not																									
Weight over 10,000 lbs	No		Excess 6 inches	No																						
Rescue Materials Placed	No																									
Commercial Motor Vehicle Section	Vehicle Configuration: Not Provided Cargo Body Type: Not Provided GVW/GCWR: Not Provided License Class: Commercial Endorsement EM Class: EM Class EM Cargo Present: EM Cargo Present EM Cargo Released: EM Cargo Released																									
Rescue Material	Rescue Material Placed: No EM 4 Digit: No EM Placed Item: No																									
Carrier Identification	Commercial Motor Carrier Name: No DOT DCS / State: No Commercial / Non Commercial: Not Provided																									
Passenger Information	EMV Transport: No Date of Death: No Position In / On Vehicle: No Safety Equip Used: No Airbag Deployment Type: No Ejected from Vehicle Type: No Injury Type: No																									

Top 6 Hampton Roads Guardrail Hits Evaluations

Site #5

I-64 East toward Suffolk, MM 295.4 before Shell Road, Left Shoulder

Location Map



**Top 6 Hampton Roads Guardrail Hits Evaluations
Site #5**



**Top 6 Hampton Roads Guardrail Hits Evaluations
Site #5**



Top 6 Hampton Roads Guardrail Hits Evaluations

Site #5

Description/Field Assessment

- The existing guardrail run consist of a SKT-SP GR-9 Run-on End Terminal attached to Standard GR-2 W-Beam rail terminated with an FOA attached to the overpass bridge above Shell Road. The existing overall length of the Guardrail run is Approx. 300' located at an offset of 5' from the edge of travel. The guardrail is protecting an overhead sign structure approx. 220' from the beginning of the guardrail run and offset approx. 13' from the Edge of Travel. The median cross slope is approx. 4:1.
- The calculated length of need required for the sign structure is 185'.
- The Combined ADT is approx. 90,000.

Hits History

- See Attach FR-300 Report

Primary Issue

- It appears that most of the guardrail hits are due to human error, excessive speeds, driver inattention.

Suggested Recommendations/Ideas

- This area will be reconstructed with the High Rise Bridge Project
- This site could be shortened 25' but it is doubtful this would alleviate the problem.
- Possibly replace the existing GR-9 End terminal with a Gr-7 End Terminal with a 4' Flare.
- Add Rumble Strip
- Refresh and oversize edge line

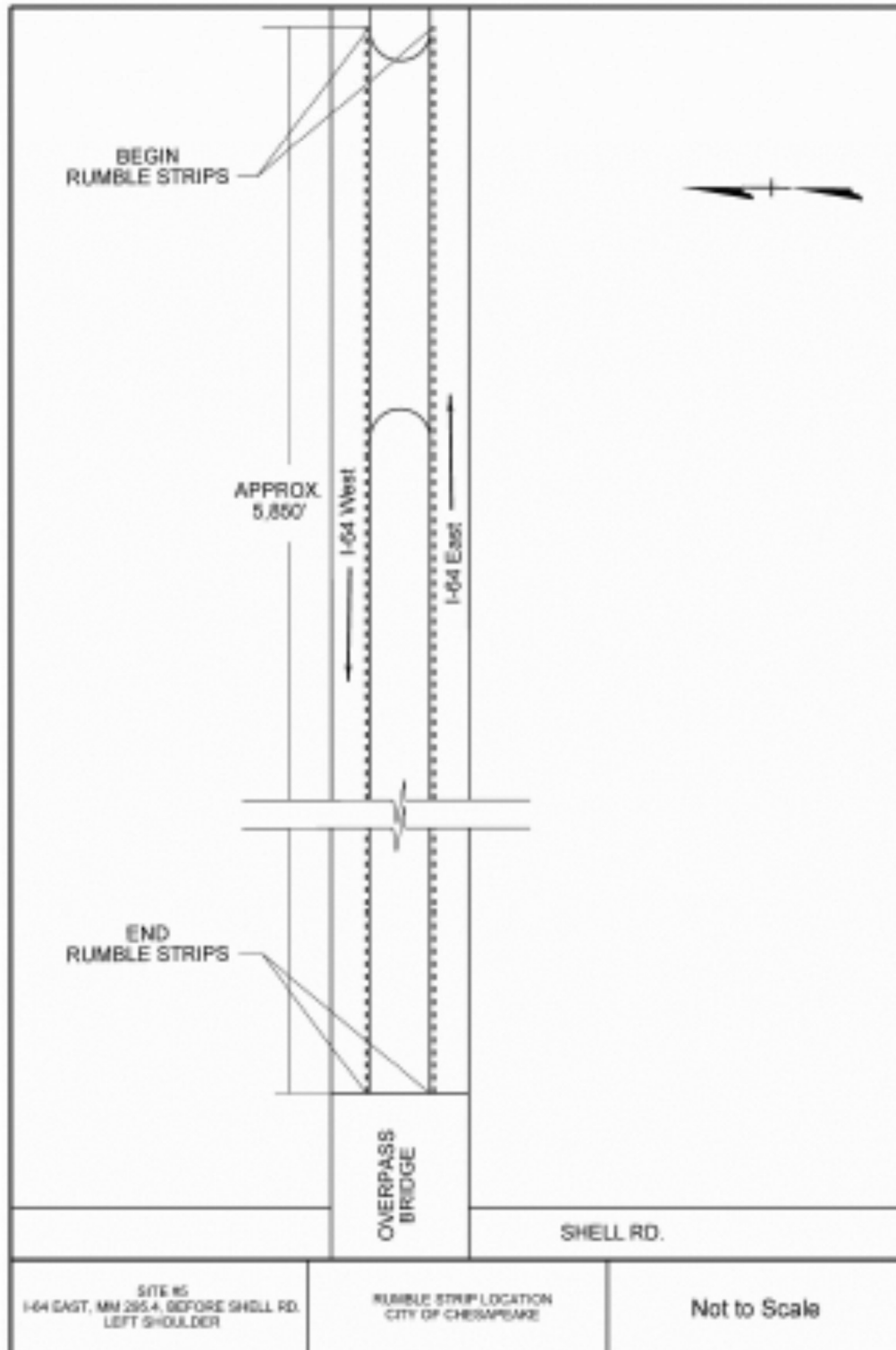
Top 6 Hampton Roads Guardrail Hits Evaluations Site #5

Final Conclusion

- Traffic Engineering requested a rumble strip installation task order for this site and Sites 2 and 4. Installation and Maintenance reported that these sites did not include a sufficient length of rumble strip to meet the minimum length required to initiate a task order under the FY17 pavement marking on-call contract.
- The I-64 widening and High Rise Bridge replacement project kicked off in November 2017. According to the estimated schedule (as of January 18), road construction will begin in October 2018. If construction proceeds according to the initial concepts, Site 5 will be removed. Therefore no further improvements are recommended at this time.

Top 6 Hampton Roads Guardrail Hits Evaluations Site #5

Suggested Deterant/Alteration



Crash Report

Document Number	140047100	Jurisdiction	City of Chesapeake	GPS Lat.	36.766740	GPS Long.	-76.263170
Revised Report	0	County of Crash					
Crash Date	Wednesday 04/03/2014 11:00	Latitude at Scene					
City/Town of	Chesapeake	Roadway Crossing ID					
Location of Crash	14X WEST			Mile Marker Number	281.00	Number of Vehicles	1
	No - At Intersection With or 0.10 Miles East of 14X						

Crash Image



Pedestrian Non-Pedestrian	0
Pedestrian Pedestrian	0
Injuries Non-Pedestrian	0
Injuries Pedestrian	0

Crash Information

Location of Post Harmful Event	2. Shoulder	Roadway Defects	1. No Defects
Weather Condition	1. No Adverse Condition (Clear/Cloudy)	Relation to Roadway	8. Non-Intersection
Light Condition	2. Daylight	Intersection Type	1. Not at Intersection
Traffic Control Mechanical Device	1. Yes - Working	Work Zone Related	2. No
Traffic Control Type	8. Traffic Lanes Marked	Work Zone Workers Present	Not Provided
Roadway Alignment	1. Straight - Level	Work Zone Location	Not Provided
Roadway Surface Condition	1. Dry	Work Zone Type	Not Provided
Roadway Surface Type	2. Blacktop, Asphalt, Bituminous	School Zone	3. No
Roadway Description	3. Two-Way, Divided, Positive Median Barrier	Type of Collision	8. Fixed Object - Off Road

Crash Description

VEHICLE 1 WAS TRAVELING IN THE RIGHT LANE ON 14X WEST. VEHICLE 1 WAS TRYING TO GET TO THE OUTSIDE SET OF LANES AND STRUCK THE DIAGONAL ATTENUATOR.

Crash Report

Driver Information 06/07/2017 Apr 11		Vehicle Information 1	
Driver's Action of Driver Contributing to the Crash	40. Not in Maintain Proper Control 1. No Defects	Vehicle Maneuver	14. Changing Lanes
Driver Vision Obscured	1. No Obscured	Rolling Tire / Mark	4. No Visible RIM Mark/Tire Mark
Type of Driver Distraction	7. Eyes Not on Road	Vehicle Body Type	22. Truck - Sped Utility Vehicle (SUV)
Drinking	1. Not/No/Not Seen Drinking	Vehicle Damage	8. Other
Method of Alcohol Determination	Not Applicable	Vehicle Condition	1. No Defects
Drug Use	2. No	Special Function Vehicle	1. No Special Function
Driver's License	Not Provided	ESV in service	2. No
Commercial Driver's License	Not Provided	Truck Cover	Not Applicable
Safety Equipment Used	3. Lap and Shoulder Belt	Vehicle Disabled	Yes
Air Bag	2. Not Deployed	Commercial Motor Vehicle	No
Ejected from Vehicle	1. Not Ejected	Towed	Yes
Date of Death		Overlaid	No
Injury Type	4. No Injury (Driver only)	Overlaid	No
EMT Transport	No	Cargo Spill	No
Summons Issued	1. Yes	Underlaid	No
		Initial Impact Area	1. Right side - Front/Corner
		Direction of Travel	Stead
		Crash Events	1. Impact Customizing Device
			2. Not Provided
			3. Not Provided
			4. Not Provided
		Most Harmful	8. Impact Customizing Device

Speed Before Crash	Speed Limit	Maximum Safe Speed	ALL Passengers Age Count			
			< 8	8-17	18-21	> 21
80	80	80	0	0	0	0

Weight over 10,000 lbs	No	Exits Function	No	Reseals Material Placed	No
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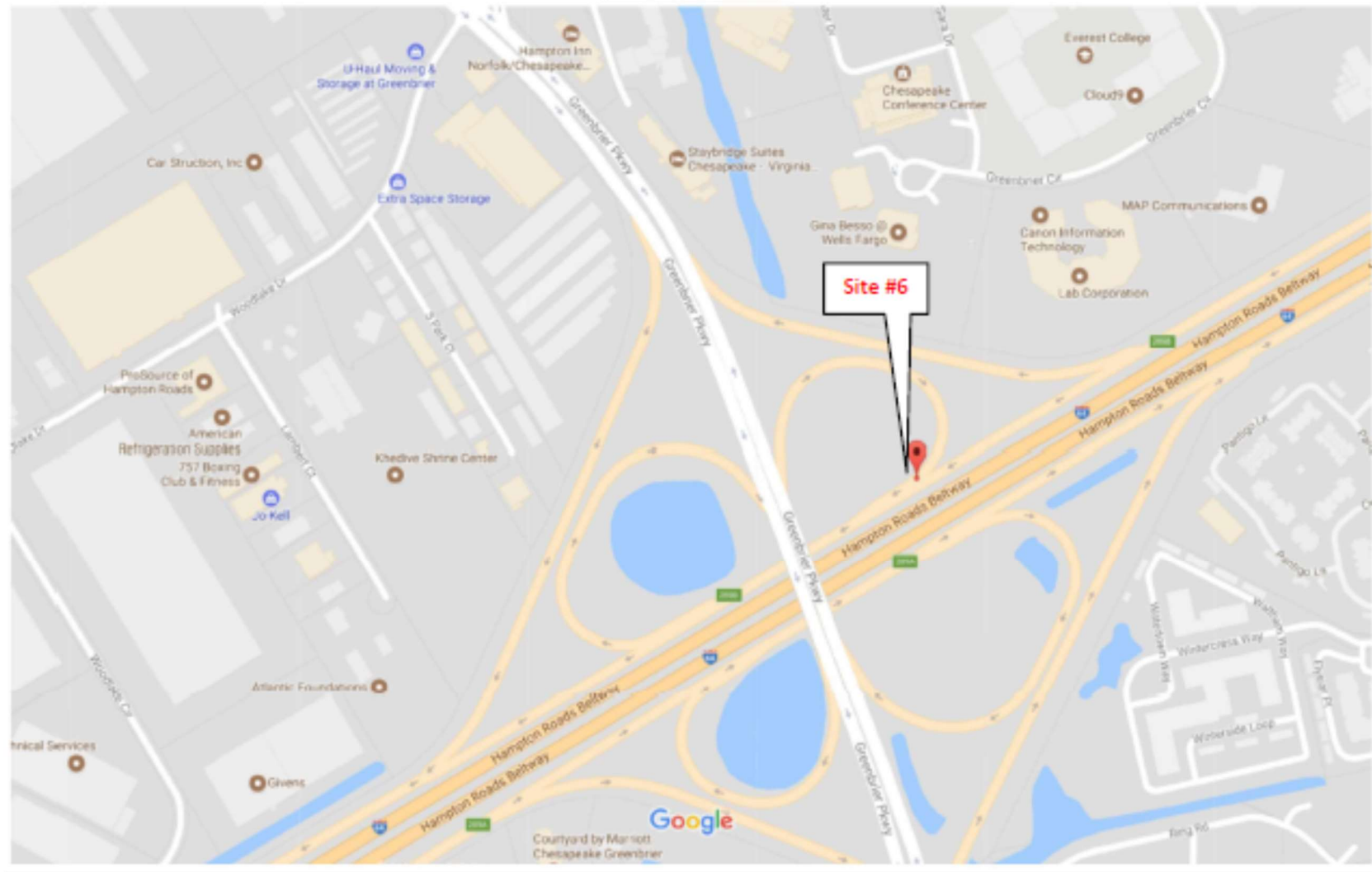
Commercial Motor Vehicle Section		
Vehicle Configuration	Not Provided	License Class
Cargo Body Type	Not Provided	Commercial Endorsement
GVW/GCWR	Not Provided	
Reseals Material		
Reseals Material Placed		EM Class
EM 4 Digit		EM Cargo Present
EM Placed Here		EM Cargo Subtotal
Center Identification		
Commercial Motor Center Name		
US DOT# / State		
Commercial / Non Commercial	Not Provided	
Passenger Information		
EMT Transport		Safety Equip Used
Date of Death		Airbag Deployment Type
Position In / On Vehicle		Ejected from Vehicle Type
		Injury Type

Top 6 Hampton Roads Guardrail Hits Evaluations

Site #6

I-64 East toward Suffolk, at Greenbrier Pkwy., Right Shoulder

Location Map



Top 6 Hampton Roads Guardrail Hits Evaluations Site #6



**Top 6 Hampton Roads Guardrail Hits Evaluations
Site #6**



Top 6 Hampton Roads Guardrail Hits Evaluations

Site #6

Description/Field Assessment

- The existing guardrail run consist of a SRT-350 6 post GR-7 Run-on End Terminal attached to Standard GR-2 W-Beam rail terminated with an FOA attached to the Headwall under the Greenbrier Pkwy Overpass. The existing overall length of the guardrail run is Approx. 365' located at an offset of 8' from the edge of travel. The guardrail is protecting the motorist from a steep embankment front slope of approx. 3:1 - 2:1, the breaking point of the slope is approx. 15' from the edge of travel and the non-recoverable area is approx. 145' from the beginning of the guardrail run. This barrier is also protecting an overhead sign structure approx. 215' from the beginning of the guardrail run and offset approx. 17' from the back of the structure to the Edge of Travel.
- The calculated length of need required for the sign structure is 159'.
- The calculated length of need required for the embankment is 140'.
- The Combined Mainline ADT is approx. 95,000.
- The ramp ADT is approx. 29,000.

Hits History

- 6 damage reports in HITS/TAMS records
- No crashes reported/documentated in RNS over the past 3 years.

Primary Issue

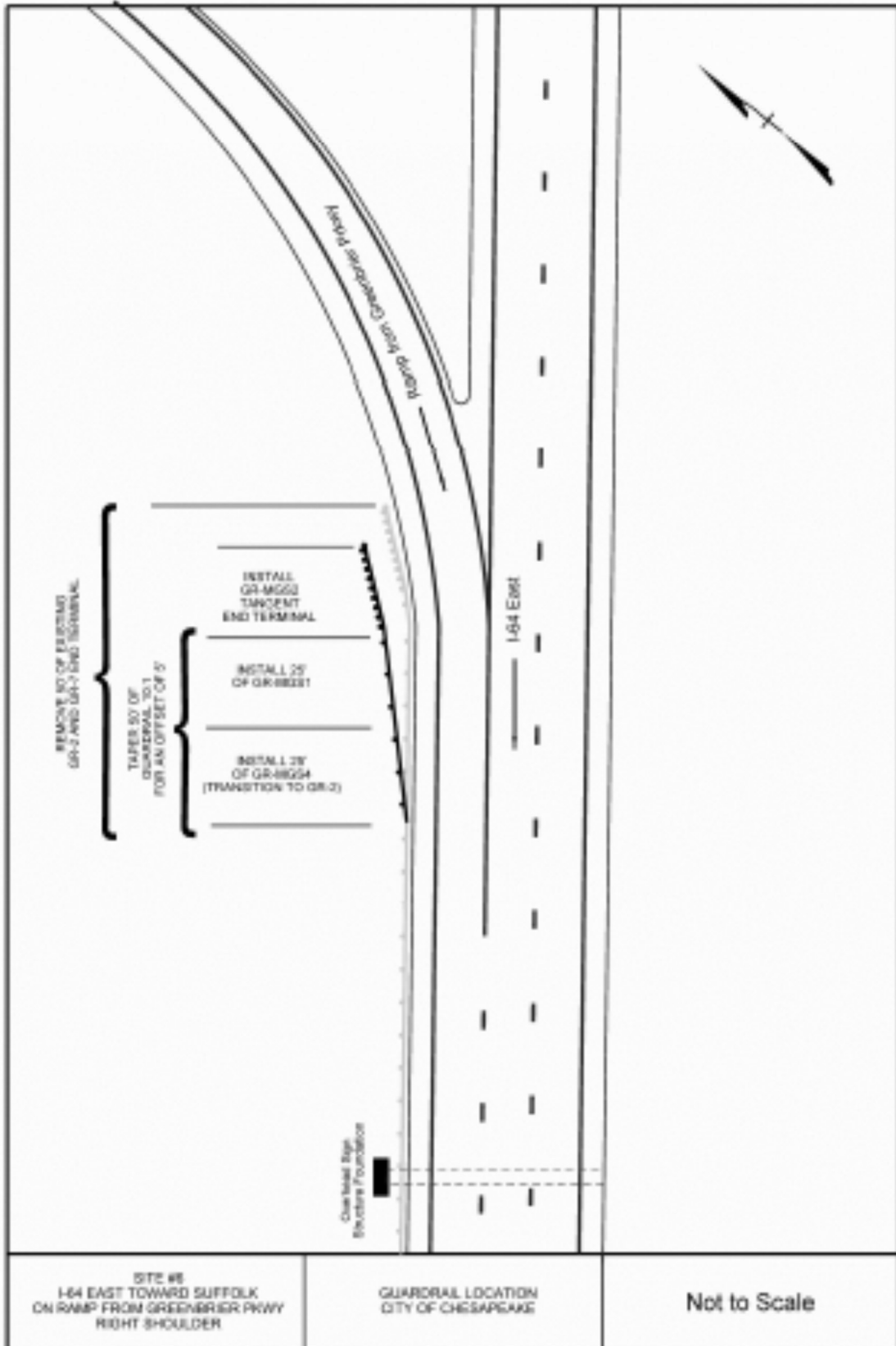
- 2 hits were noted as weather related.
- Possible maintenance equipment damage.

Top 6 Hampton Roads Guardrail Hits Evaluations Site #6

Suggested Recommendations/Ideas

- Since this area is adjacent to an acceleration lane the acceleration lane could be included as part of the clear-zone as per the AASHTO Road Design Manual Chapter 3 Section 3.1, thus the length of need would shorten dramatically therefore the guardrail run could be shortened by 25'.
- Possibly flare the first 50' of GR-2 at a rate of 10:1 which would offset the GR-7 end terminal 5' from its current position placing it at a 13' offset from the edge of travel.
- Refresh and oversize edge line
- Add hatch lines along the right shoulder
- Add delineators on the right shoulder

Top 6 Hampton Roads Guardrail Hits Evaluations Site #6



APPENDIX A

SAFETY REVIEWS



COMMONWEALTH of VIRGINIA


DEPARTMENT OF TRANSPORTATION
HAMPTON ROADS DISTRICT
100 NORTHVALE STREET
SUITE 4, VIRGINIA BEACH

Charles A. Kilpatrick, P.E.
Commissioner

November 8, 2017

MEMORANDUM

TO: Ms. Debbie Lencoski, P. E.

FROM: Mr. Robert A. Weber III, P.E., PTOE 

SUBJECT: Safety Review (VR-Vari-20170727-05)
Top 6 Guard Rail Hit Locations
Various Locations in Hampton Roads District

This is in response to the request for Traffic Engineering to provide comments to determine if additional safety improvements are needed for the discussed top six guardrail hit sites.

The engineering review was conducted of each location and consisted of a field review & an analysis of the most recent guardrail related crashes in each of sites. The findings are as follows:

Site 1: Route 58 & Sandles Road

The field review revealed signing and pavement markings to be working condition. Sight distance at the intersection exceeded the recommended guidelines as outlined in AASHTO's Green Book. A review of the RNS database revealed three (3) guardrail related crashes within the last five years as follows:

- Guardrail strike subsequent to angle crash when crossing vehicle failed to yield to traffic on Route 58
- Guardrail strike following evasion of another vehicle changing lanes abruptly into the path of the vehicle that struck the guardrail
- Guardrail strike by offtracking semi-trailer making tight turn onto Route 58

These crashes were determined not to be correctable by signing or pavement markings. Traffic Engineering concurs with the assessment by Traffic Safety and no additional signing or pavement markings are recommended.

Site 2: I-66E Exit 276 Gore

The field review revealed trailblazing for the exit adhered to the guidelines as outlined in MUTCD and FHWA guidelines. In reference to the specific question about the location of the Exit Direction (execution) sign, such a sign is typically located at the theoretical gore for the exit,

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or slightly ahead of that location if the gore is blocked by an overhead structure. The existing exit direction sign is located approximately 85 feet prior to the theoretical gore. However, numerous guide signs found along I-64E add to sign clutter in the vicinity of the exit. Also, the exit lane also shares traffic from an on-ramp from NAS Norfolk creating a weaving condition. A review of the RNS database revealed one (1) related guardrail crash within the last five years, a single-vehicle roadway departure for unreported reasons. Traffic Engineering recommends altering the pavement by replacing the dashed white lane line with a dotted white lane line from the exit gore to the entrance gore. Hatching of the gore area at the exit is also recommended to increase comprehension by approaching drivers of the upcoming diverge condition. This should increase the conspicuity of the exit and denote the lane as an off-ramp.

Site 3: I-264E Exit 13B

A ball bank limiting study showed advisory speeds to be appropriate. Chevrons were missing but have been recently replaced. However, the signing height is excessively high. Due to the lack of adequate length and sharing of the acceleration/deceleration for the both on-ramp and off-ramp of Military Highway causing numerous traffic conflicts by traffic weaving, this area's safety concerns cannot be easily corrected by signing alone. A review of the RNS database revealed twenty-eight (28) related guardrail crashes within the last five years. The significant number of crashes supports the reasoning that the lack of adequate deceleration for the off-ramp is one of the main causes of the crashes. Though an increase in deceleration length may not alleviate all crashes due to excessive speeds, it will improve the safety of the off-ramp by providing time and physical space to complete the traffic weaving and the necessary reduction in speed to safely maneuver onto the off-ramp. According to AASHTO's Green Book, using Avoidance Maneuver E decision sight distance is recommended to be 1135' at 55 MPH. A review of the readability of the overhead signage for exit 13B showed legibility read just after the N Military Highway overpass. This results in a sight distance of 700'. With a shared lane of less than 450' and less than recommended decision sight distance, crashes will most likely continue unless the ramps are physically changed or a significant reduction of speed is achieved. Therefore, Traffic Engineering can only recommend adjusting the chevrons to height of four feet or just above the guardrail for headlight visibility.

Site 4: I-64 W Left Shoulder prior to Exit 292

The field review revealed signing and pavement markings to be in working condition for the exit. Roadway geometry and sight distance should not be a factor as neither affects the visibility of guardrail. A review of the RNS database revealed one (1) related guardrail crash within the last five years. Traffic Engineering concurs with Traffic Safety's assessment of driver inattention or excessive speed as the leading cause for crashes and does not recommend any additional signing or pavement marking improvements.

Site 5: I-64E NM 195.4 Left Shoulder

The field review revealed signing and pavement markings to be in working condition for the area. Roadway geometry and sight distance should not be a factor as neither affects the visibility of guardrail. A review of the RNS database revealed one (1) related guardrail crash in the last five years. Traffic Engineering concurs with Traffic Safety's assessment of driver inattention or aggressive driving as the leading factor for crashes and does not recommend any additional signing or pavement marking improvements.

Site 6: I-64E Exit 290 on-ramp from NB Greenbrier Parkway

The field review revealed signing and pavement markings to be in working condition for the area. Roadway geometry and sight distance should not be a factor as neither affects the visibility of guardrail. A review of the RNS database revealed no related guardrail crashes within the last five years. Traffic Engineering concurs with Traffic Safety's assessment of driver inattention or excessive speed as the leading factor for crashes and does not recommend any additional signing or pavement marking improvements.

The engineering data collected was compiled by John Alcaide, Engineering Technician. Please notify this office should you need further information regarding this matter.

Weber, Robert, PE (VDOT)

From: Lenczek, Deborah PE (VDOT)
Sent: Wednesday, July 26, 2017 3:32 PM
To: Weber, Robert, PE (VDOT)
Cc: Conlin, Mike A. PE (VDOT)
Subject: HR Frequently Hit GR Sites

Rob,

As discussed this morning, we have several sites on this list that you need to review. The full list can be found at [G:\Traffic\Guardrail MASH transition\Hampton Roads- Most Hit GR Sites.docx](#).

The specific items needed from you and your group are

Location 2

- FB-300 review
- Review of the guide signs at the gore and in advance of the exit. Specifically, there are concerns that the execution sign is too late and that there is not enough information to keep I-66 traffic on the bend to the left.

Location 3

- Would it be appropriate to add some chevrons on this ramp?

Location 4

- FB-300 review

Location 5

- FB-300 review

Let me know if we need to discuss these. Jeff will be preparing details of any improvements we want to recommend.

Thank you

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