



CAPE COD
COMMISSION

Town of Eastham
Road Safety Audit
Route 6 (Grand Army of the
Republic Highway) at Nauset
Road/Wampum Lane

December 7, 2017



**Prepared by the Cape Cod Commission in cooperation with the Town of Eastham and
MassDOT Highway Division, Traffic Safety, and District 5 Offices.**



Table of Contents

Background..... 3

Road Safety Audit Multidisciplinary Team 4

Project Location and Description 5

Project Data 8

Road Safety Audit Observations and Potential Improvements.....10

Safety Issue #1. Lack of Multi-modal Accommodation10

Safety Issue #2. Intersection Control & Lighting.....12

Safety Issue #3. Pavement Markings & Signage.....15

Safety Issue #4. Obstructions19

Safety Issue #5. Pavement Conditions & Drainage..... 20

Summary of Road Safety Audit.....21

Appendices:

Road Safety Audit Team Members’ Contact Information

Road Safety Audit Meeting Agenda

Crash Diagrams

Traffic Data



List of Figures

Figure 1 – Aerial view of Route 6/Nauset Road intersection 5

Figure 2 – Locus Map 6

Figure 3 – Local Street Network including Cape Cod Rail Trail7

Figure 4 - Pedestrians crossing Route 6 to access Nauset Road 11

Figure 5 - Cyclists (on foot) crossing Route 6 to access Nauset Road 11

Figure 6 - Aspinet Road approach showing wide crossing distance and lack of crosswalk
.....12

Figure 7 - Route 6 southbound signal housing damaged and tilting.....13

Figure 8 - Entrance to Wampum Lane green signal head missing visor14

Figure 9 - Lower signal connector arm rusted through and separated from pole on signal
head in the northeast quadrant14

Figure 10 - Nauset Road street sign faded and partly broken16

Figure 11 - Stop bar worn at Nauset Road approach16

Figure 12 - Bike route sign at Nauset Road entrance – ambiguous 17

Figure 13 - Aspinet Road approach showing low stop sign and ambiguous bike route sign
.....18

Figure 14 – Potential sight obstructions in northeast quadrant of Nauset Road
intersection - utility pole and guy wires19

Figure 15 - Catch basin blocked by debris 20



Background

All levels of government— local, regional, state, and federal—have been considering locations where crashes are most severe for many years. Several years ago, the national consensus was that there should be goals to reduce crashes, and in the 2005 federal legislation: Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), there was more emphasis on improving highway safety along with a dedicated funding program—the Highway Safety Improvement Program (HSIP). The latest federal legislation: Fixing America’s Surface Transportation (FAST), signed into law on December 4, 2015, retains the Highway Safety Improvement Program (HSIP) as one of its core highway programs.

To reduce the number of crash-related fatalities and incapacitating injuries, Massachusetts developed a Strategic Highway Safety Plan in 2006. The mission of the Safety Plan is to “Develop, promote, implement, and evaluate data-driven, multidisciplinary strategies to maximize safety for users of the roadway system.” One of the many strategies noted in the Safety Plan is to “conduct Road Safety Audits at high-crash locations throughout the Commonwealth.” MassDOT incorporated the Road Safety Audit as a requirement for securing Federal funding (Highway Safety Improvement Program [HSIP] funds) for safety projects.

The Federal Highway Administration (FHWA) defines a Road Safety Audit as the formal safety examination of an existing or future road or intersection by an independent, multidisciplinary team. The purpose of a Road Safety Audit is to identify potential safety issues and possible opportunities for safety improvements while considering all roadway users.

The Cape Cod Commission (CCC), serving as the regional planning agency for the fifteen towns on Cape Cod, has reviewed many transportation locations over the years during various processes, including the Regional Transportation Plan, the Transportation Improvement Program, and Developments of Regional Impact, considering the existing safety issues and potential improvements. In addition, the CCC began looking at specific safety locations annually through safety studies and Road Safety Audits. A portion of the federal HSIP funds are allocated for improvements to the region’s highest crash locations.

This RSA evaluates the intersection of Route 6 (Grand Army of the Republic Highway) at the northern intersection of Nauset Road in Eastham, Massachusetts as shown in Figure 2.



Road Safety Audit Multidisciplinary Team

The Road Safety Audit was scheduled with representatives of the Massachusetts Department of Transportation (MassDOT), town officials, and representatives of other stakeholders. The Road Safety Audit meeting was held on August 22, 2017, beginning at 10:00 a.m., at the Eastham Police Station. The multidisciplinary team also visited the site during the Road Safety Audit meeting, and then reconvened at the station.

Table 1 - RSA Team Members

Audit Team Member	Agency / Affiliation
Ed Kulhawik	Eastham Police Department
Kent Farrenkopf	Eastham Fire Department
Neil Andres	Eastham Department of Public Works
Paul Lagg	Eastham Planning Department
Elsa Chan	MassDOT Traffic Safety
Kevin T. Fitzgerald	MassDOT Traffic Safety
Jason Walters	MassDOT District 5 – Projects
Emily Budzynkiewicz	Safe Routes to School
Peter Doolittle	Cape Cod Regional Transit Authority
Lev Malakhoff	Cape Cod Commission
Steve Tupper	Cape Cod Commission
Dave Nolan	Cape Cod Commission



Project Location and Description

Route 6 (Grand Army of the Republic Highway) at Nauset Road/Wampum Lane in Eastham is a four-way signalized intersection shown in the aerial view of the figure below. The study area locus is shown in Figure 2.

The intersection serves both regional and local traffic. The location of the intersection makes it important for commercial and non-commercial through-trips to/from the towns of Provincetown, Truro, and Wellfleet from/to the rest of Cape Cod and beyond.

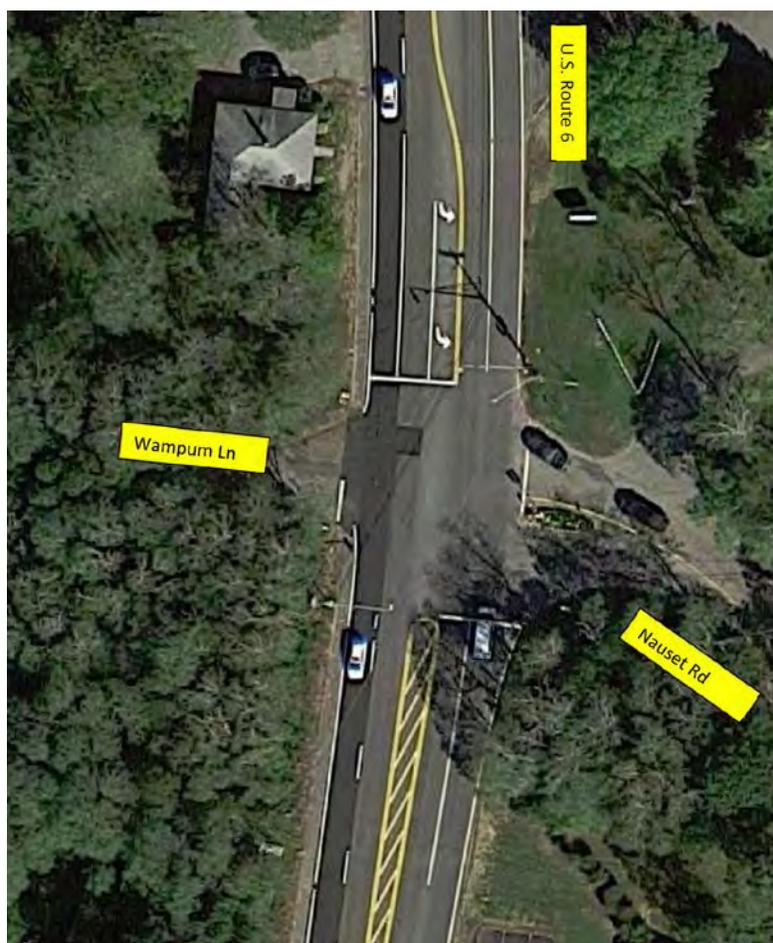


Figure 1 – Aerial view of Route 6/Nauset Road intersection

This RSA has been conducted in context with other planning efforts & development issues. The town of Eastham has requested designation of parcels abutting Route 6 as part of a District of Critical Planning Concern (DCPC). The DCPC designation allows a moratorium on development while the town develops strategies and regulations to insure traffic flow and safety along the corridor between the Wellfleet town line and Old Orchard Road. Recent upgrades in water supply infrastructure have spawned concerns of new development putting strain on the available transportation infrastructure.

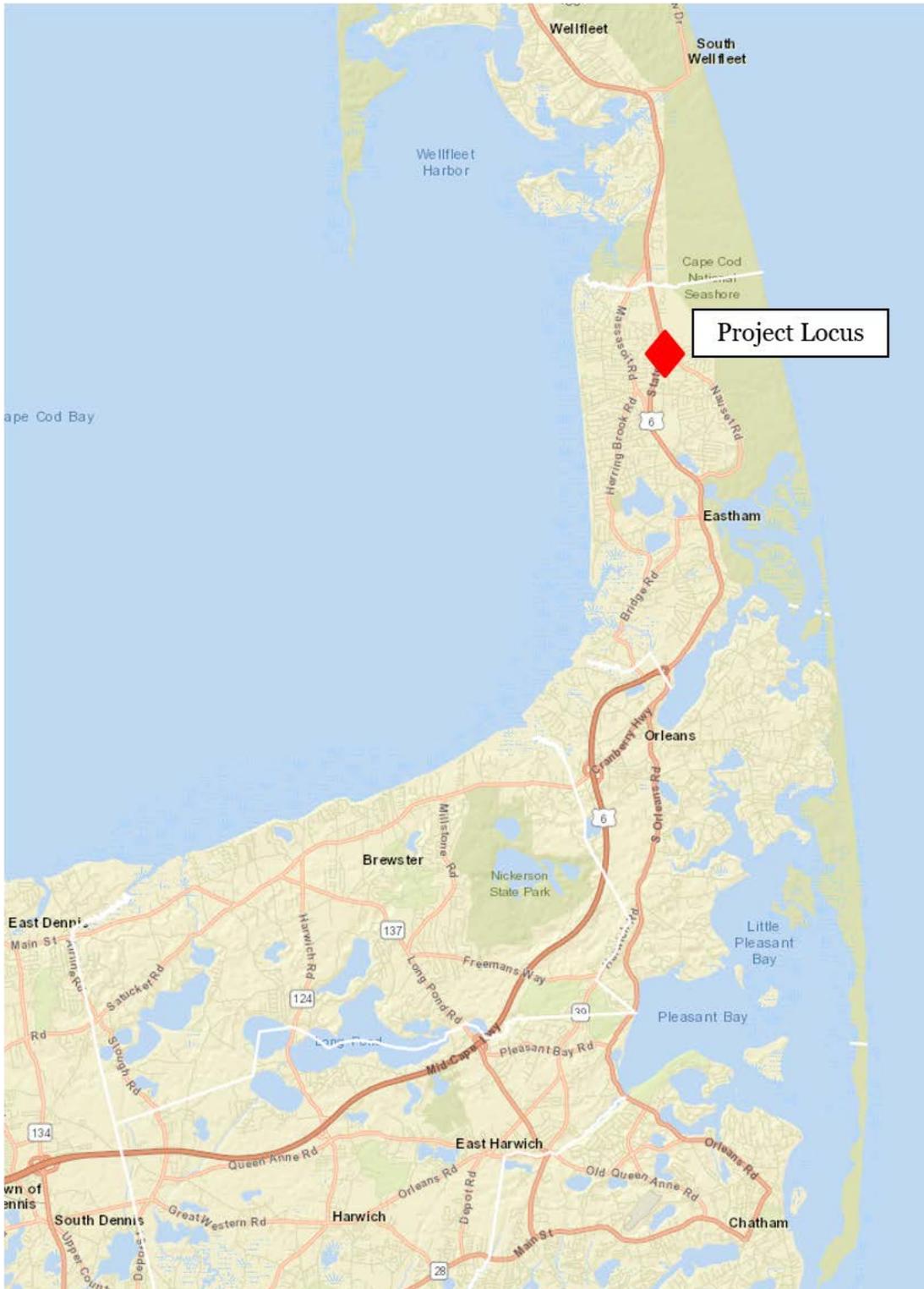


Figure 2 – Locus Map



Also, a 50-unit affordable housing project has been proposed with frontage along Route 6 to the south of Railroad Avenue. This project is currently on appeal. Part of the proposed traffic circulation for this development includes the use of Railroad Avenue/Nauset Road to access the traffic signal to turn left onto Route 6.

The local street network is shown in Figure 3. Nauset Road is the main route for travel to Nauset Regional High School for residents of the towns to the north as well as Eastham residents living in areas to the north and west. Due to the challenges motorists face when attempting to turn left onto Route 6, some motorists to the south will make use of Railroad Avenue/Nauset Road as an ad-hoc “jughandle” intersection to turn left onto Route 6 to head south. Nauset Road also serves as an important connection to the Cape Cod Rail Trail for users traveling from/to the northern/western part of Eastham via Aspinet Road/Route 6.

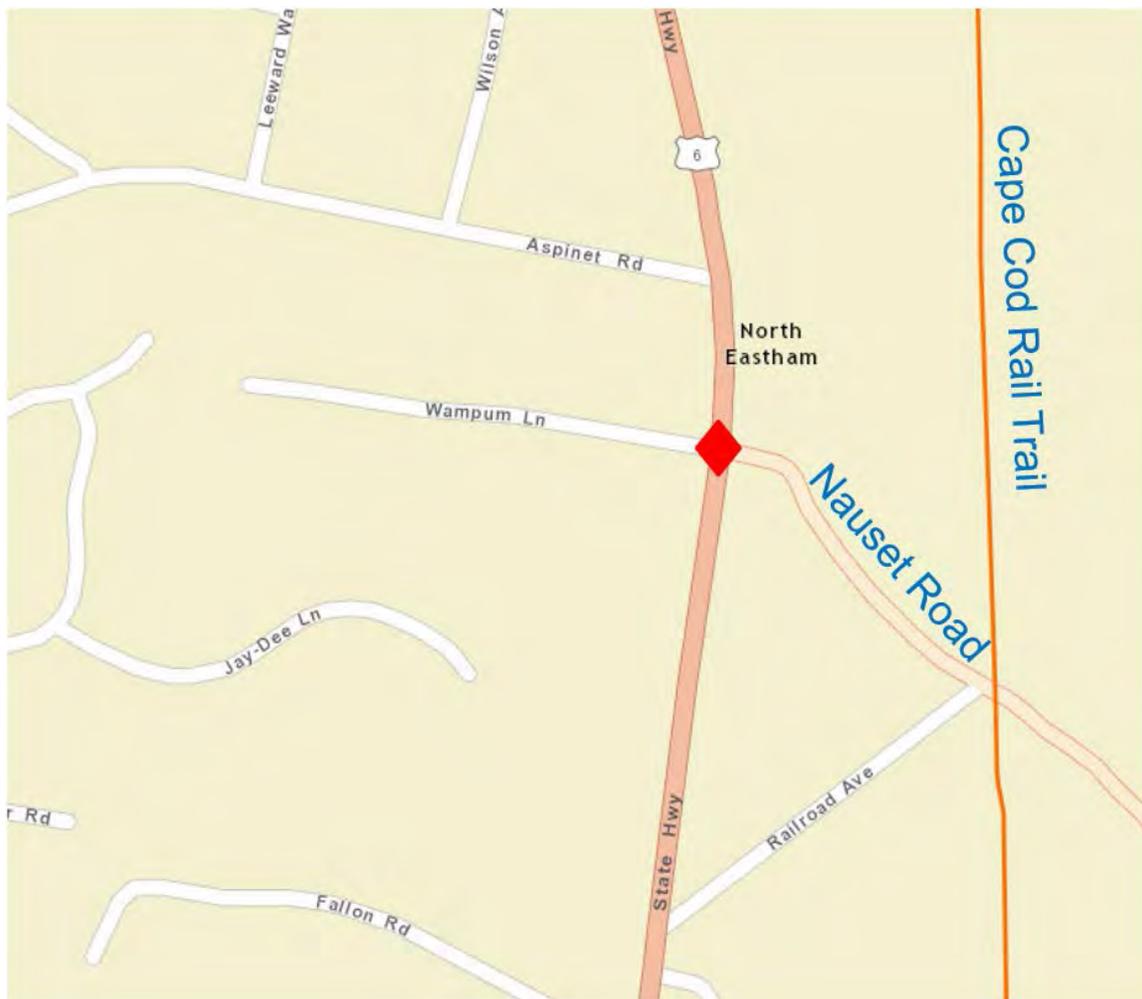


Figure 3 – Local Street Network including Cape Cod Rail Trail

To address concerns about mobility and safety along the Route 6 corridor and other important connecting roads in town, to Town of Eastham is contracting with the Cape Cod Commission to develop a “Complete Streets” prioritization plan.



Project Data

U.S. Route 6 within the study area is classified as an Urban Principal Arterial and is under state jurisdiction. Nauset Road is under town jurisdiction and is classified as an Urban Minor Arterial. Aspinet Rd and Wampum Lane are classified as local roads and are under town jurisdiction.

Crash reports for this Road Safety Audit were supplied by the Eastham Police Department. The crash data were reviewed and collision diagrams were developed for the Route 6 intersection with Nauset Road/Wampum Lane as well as the intersection of Route 6 with Aspinet Road and are available in the appendix.

Nauset Road/Wampum Lane intersection crashes

Approaches to this four-way signalized intersection include:

- Route 6 approaches (1 left turn/through lane and 1 right turn/through lane)
- Nauset Road approach (1 left turn/through lane and 1 right turn lane)
- Wampum Lane (1 multi-purpose lane)

From the reports provided by Eastham Police Department, six crashes occurred at the Nauset Road location between 2014 and 2016 with two property-damage-only crashes, four injury crashes, and no fatal crashes. Most of the crashes occurred during the busy summer season indicating that heavy traffic flow may be a contributing factor. Four of the crashes were rear-end (two of which involved injuries). These two injury rear-end crashes in addition to a property-damage only rear-end crash occurred on the northbound approach of Route 6 were angle crashes.

Aspinet Road intersection crashes

Approaches to this three-way unsignalized intersection include:

- Route 6 northbound approach (1 left turn/through lane and 1 through lane)
- Route 6 southbound approach (1 through lane and 1 right turn/through lane)
- Aspinet Road approach (1 multi-purpose lane)

From the reports provided by Eastham Police Department, three crashes occurred at the Aspinet Road location between 2013 and 2016 with two property-damage-only crashes, one injury crash, and no fatal crashes. The crashes occurred in three separate months: February, June, and August. All the recorded crashes involved turning vehicles: two crashes (one of which resulted in injury) involved northbound vehicles turning left into Aspinet Road and the third crash involved a vehicle turning right from Aspinet Road.

Traffic volumes

Cape Cod Commission staff also prepared reports of the traffic volume data at the Nauset Road intersection. Turning movement counts taken in August of 2015 show that the



intersection carries 1,794 vehicles during the 4-5 p.m. period with 40 vehicles turning left from Route 6 southbound. During the 8-9 a.m. period there were 1,573 vehicles traveling through the intersection with 95 vehicles turning left from southbound Route 6.



Road Safety Audit Observations and Potential Improvements

On Tuesday, August 22, 2017 the Road Safety Audit Team met at the Eastham Police Station for a discussion of the existing conditions, visited the site for field observations, and returned to discuss the safety issues at the location. The summary crash data, a collision diagram, and traffic volume reports were brought to the Road Safety Audit team meeting, and are included in the appendix.

The following safety issues were identified through the site visit and discussions with the Road Safety Audit team including a review of the crash data (available in the appendix).

Safety Issue #1. Lack of Multi-modal Accommodation

Safe facilities for pedestrians and cyclists encourage healthy transportation options and reduced automobile use and its associated impacts on the environment. While there have been no reported pedestrian/bicyclist crashes, the study team made several observations of potential safety issues (discussed below).

Observations

- Route 6 includes a sidewalk along the western side of the roadway, there is no sidewalk along the east side where many of the commercial parcels are located.
- There is no sidewalk or bicycle accommodation along Nauset Road; the Cape Cod Rail Trail is accessible from Nauset Road approximately 1/10 mile east from Route 6.
- There are no crosswalks on any of the approaches at either the Nauset Road or the Aspinet Road intersections.
- Due to large curb radii, pedestrian travel across Aspinet Road can be challenging due to longer crossing distance.
- The signal at Nauset Road has no pedestrian activation nor pedestrian signal head.
- Pedestrians attempting to safely cross Route 6 must wait for a vehicle on either Nauset Road or Wampum Lane to activate a phase to stop Route 6 traffic.
- The study team observed many pedestrians and cyclists crossing between Wampum Lane and Nauset Road. These people appeared to be traveling between points west and east via Aspinet Road, the sidewalk along the west side of Route 6, and Nauset Road (presumably to access the Cape Cod Rail Trail).
- During a crossing of Route 6 from Nauset Road attempting to access the west-side sidewalk, the study team witnessed one pedestrian (walking a bicycle) misjudge the curbing, trip, and collapse onto the sidewalk. The lack of crosswalk and bicycle/pedestrian signal activation could be a factor in this crash.



Figure 4 - Pedestrians crossing Route 6 to access Nauset Road



Figure 5 - Cyclists (on foot) crossing Route 6 to access Nauset Road



Figure 6 - Aspinet Road approach showing wide crossing distance and lack of crosswalk

Potential Enhancements

- Add an ADA-compliant pedestrian push button/signal head (includes countdowns both audible, visual, and vibrotactile), and crosswalk to cross Route 6 at Nauset Road (this also requires a ramp system on the east side of Route 6).
- Install ADA-compliant curb ramps on sidewalk along west side of Route 6.
- Provide crosswalks on all four approaches of the Nauset Road/Wampum Lane intersection and on the Aspinet Road approach.
- Provide a sidewalk along Nauset Road from Route 6 to the Cape Cod Rail Trail.
- Provide a sidewalk along the eastern side of Route 6.
- Consider a “road diet” for Route 6 (reducing number of travel lanes and add bike lanes).

Safety Issue #2. Intersection Control & Lighting

In 2014 MassDOT modified the signal head for Route 6 southbound travel to include a left-turn arrow and a leading-left phase.

Observations

- Overall, the signal system is in poor condition; there is no emergency vehicle preemption (e.g., Opticom system).
- The signal actuation on the Nauset Road approach is in some cases unnecessary (e.g., when a car makes a right turn on red the actuation causes Route 6 traffic to



- stop despite there being no vehicle waiting on the minor street). This causes unnecessary delay and may lead to driver frustration/risk taking.
- The mounting hardware for the southbound Route 6 signal head is failing; the signal head is tilted. The lower connector arm on the signal head in the northeast quadrant is rusted through and broken. The post mounted on the northwest corner of the intersection is broken or not attached at the base. Should these mountings entirely collapse, motorists would have difficulty determining when to stop.
 - The visor for the northbound Route 6 green light is missing; there are no backplates on the signal heads. These could be potential causes for the recorded rear-end crashes by reducing signal visibility.
 - In general, signal heads are not centered over the approach lanes, creating some confusion as motorists approach the intersection.
 - One team member noted that some of the signal heads appeared insufficiently bright; some of the signals seem to be of an older incandescent design.
 - The short weaving distance for vehicles traveling from Aspinet Road to make a left turn into Nauset Road is a potential conflict (potential sideswipe and rear-end crashes).
 - Another potential signal visibility issue was noted due to the number of trucks traveling through the intersection (potentially blocking views of the signal heads).
 - Route 6 is posted for 40 mph; speeding is a concern, potentially due to roadway geometry (Route 6 is relatively straight in the vicinity).
 - The intersection includes overhead lighting which seems adequate.
 - The study team discussed the advantages of conversion of the intersection to a roundabout.



Figure 7 - Route 6 southbound signal housing damaged and tilting



Figure 8 - Entrance to Wampum Lane green signal head missing visor

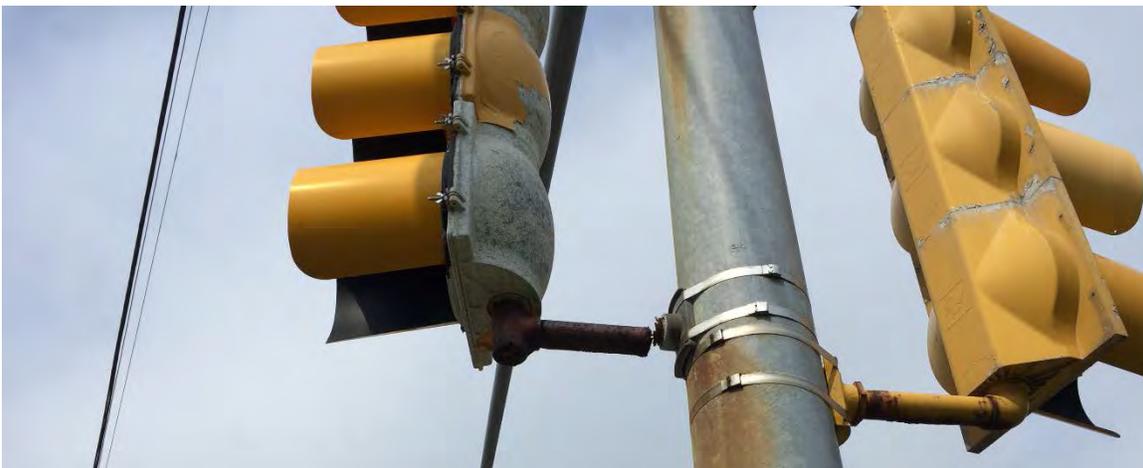


Figure 9 - Lower signal connector arm rusted through and separated from pole on signal head in the northeast quadrant

Potential Enhancements

When developing potential solutions to improve safety at intersections, the Commission considers conversion to roundabout as well as traditional signal-controlled options. Conversion of a signal-controlled intersection to a roundabout has been shown to reduce injury and fatal crashes by 78% (according to the Federal Highway Administration, National Cooperative Highway Research Program Report 672).

- Check signal timings to make sure they are adequate for the speeds of Route 6; recalculate clearance times (can potentially help reduce rear-end crashes).



- Increase frequency of speed enforcement
- Modify signal actuation on Nauset Road to eliminate stopping Route 6 traffic in cases where drivers have already turned right on red.
- Add visors, replace broken connectors, convert to LED signal heads, backplates, and retroreflective borders on existing signals to enhance signal visibility
- Add additional post mounted signals to provide better signal visibility
- Upgrade signal system with new signal heads, visors, backplates, poles, and vehicle pre-emption.
- Consider converting the Nauset Road intersection to a modern roundabout.

Safety Issue #3. Pavement Markings & Signage

The traffic control devices, including pavement markings and signs, are critical for the safety of all roadway users. The *Manual on Uniform Traffic Control Devices (MUTCD)* sets minimum standards and provides guidance to ensure uniformity of traffic control devices across the nation.

Observations

- The stop sign on Aspinet Road is much lower than the standard height of 7 feet and is not conspicuous due to its position to the right of the sidewalk.
- The Nauset Road street sign is broken and faded; sign visibility is poor.
- The guidance implied by the “Bike Route” sign at the entrance to Nauset Road is ambiguous (as it does not inform the cyclist of route name or destination).
- The stop line pavement marking on Nauset Road is worn and missing in sections.



Figure 10 - Nauset Road street sign faded and partly broken



Figure 11 - Stop bar worn at Nauset Road approach



Figure 12 - Bike route sign at Nauset Road entrance – ambiguous



Figure 13 - Aspinet Road approach showing low stop sign and ambiguous bike route sign

Potential Enhancements

- Add a “signal ahead” sign on Route 6 approaches to warn motorists of upcoming signalized intersection.
- Replace worn pavement marking including stop line on Nauset Road.
- Replace Nauset Road street sign at location to improve visibility.
- Include destination information & arrows for bike route signs (e.g., “To Cape Cod Rail Trail”) to provide better wayfinding for cyclists, pedestrians, and motorists.
- To improve stop sign visibility at Aspinet Road, consider:
 - Relocate stop sign to curb (install at standard height) & relocate adjacent side walk based on MUTCD standards.
 - Install pedestrian refuge at center of Aspinet Road with supplemental stop sign to provide an area for pedestrians to cross the road in two stages.



Safety Issue #4. Obstructions

A Policy on Geometric Design of Highways and Streets (2011), prepared by the American Association of State Highway and Transportation Officials, is the definitive reference manual on roadway design. The manual states that “each quadrant of an intersection should contain a triangular area free of obstructions that might block an approaching driver’s view of potentially conflicting vehicles.” This clear sight triangle is also needed to provide “sight distance for a stopped vehicle on a minor-road approach to depart from the intersection and enter or cross the major road.”

Observations:

- For vehicles exiting Aspinet Road, sight distance is limited by vegetation in the northwest quadrant along Route 6; additional vegetation obscures the view of the stop sign. The limited sight distance at this location may be a contributing cause of three of the recorded crashes.
- For vehicles exiting Nauset Road, a utility pole and guy wire in the northeast quadrant slightly obscure sight distance. Site distance is limited by vegetation in the southeast quadrant along Route 6.



Figure 14 – Potential sight obstructions in northeast quadrant of Nauset Road intersection - utility pole and guy wires



Potential Enhancements:

- Remove trees and hedges to the south of the Nauset Road intersection that are currently obstructing sight lines along the east side of Route 6 to improve sight lines.
- Remove trees and hedges to the north of the Aspinet Road intersection that are currently obstructing sight lines along the west side of Route 6 to improve sight lines.

Safety Issue #5. Pavement Conditions & Drainage

Observations

- Pavement is showing signs of wear including weathering, minor cracking and utility patches.
- At Wampum Lane, erosion of the road edge was noted in the northwest quadrant; possibly exacerbated by an incorrectly installed catch basin cover (installed in reverse orientation).



Figure 15 - Catch basin blocked by debris



Potential Enhancements

- Maintain catch basins, re-install covers as needed to improve roadway drainage.
- Consider repaving as part of a Nauset Road intersection upgrade.

Summary of Road Safety Audit

The summary list of the Road Safety Audit observations and enhancements is provided in the following table to assist in the design and/or implementation of potential improvements elicited during the process. It is also recommended that any design process for more involved geometric changes include further analysis and public input.

Safety payoff estimates are subjective judgement of the potential effectiveness of the potential enhancement. Where available, documented crash reduction factors were used to develop these safety payoff estimates.

The time frame is categorized as short-term (<1 year), medium-term (1 to 3 years), or long-term (>3 years). The costs are categorized as low (<\$10,000), medium (\$10,001 to \$50,000), or high (>\$50,000).



Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Multi-modal Accommodation	Add an ADA-compliant pedestrian push button/signal head (includes countdowns both audible, visual, and vibrotactile), and crosswalk to cross Route 6 at Nauset Road (this also requires a ramp system on the east side of Route 6).	High	Short	Medium	MassDOT/ Town . . .
	Install ADA-compliant curb ramps on sidewalk along west side of Route 6.	Medium .	Short .	Low .	MassDOT/ Town
	Provide crosswalks on all four approaches of the Nauset Road/Wampum Lane intersection and on the Aspinet Road approach.	Medium . .	Short . .	Medium . .	MassDOT/ Town .
	Provide a sidewalk along Nauset Road from Route 6 to the Cape Cod Rail Trail.	Medium .	Medium .	Med/High .	Town .
	Provide a sidewalk along the eastern side of Route 6.	High .	Medium .	Med/High .	MassDOT .
	Consider a “road diet” for Route 6 (reducing number of travel lanes and add bike lanes).	High	Long	High	MassDOT

Intersection Control & Lighting	Check signal timings to make sure they are adequate for the speeds of Route 6; recalculate clearance times (can potentially help reduce rear-end crashes).	Low . .	Short . .	Low . .	MassDOT . .
	Increase frequency of speed enforcement .	Low .	Ongoing .	Medium .	Town .
	Modify signal actuation on Nauset Road to eliminate stopping Route 6 traffic in cases where drivers have already turned right on red.	Low . .	Medium . .	Low . .	MassDOT/ Town .
	Add visors, replace broken connectors, convert to LED signal heads, backplates, and retroreflective borders on existing signals to enhance signal visibility	Medium . .	Medium . .	Medium . .	MassDOT/ Town .
	Add additional post mounted signals to provide better signal visibility	Low .	Medium .	Medium .	MassDOT/ Town
	Upgrade signal system with new signal heads, visors, backplates, poles, and vehicle pre-emption.	High .	Medium .	Med/High .	MassDOT/ Town
	Consider converting the Nauset Road intersection to a modern roundabout.	High	Long	High	MassDOT/ Town



<p>Pavement Markings & Signage</p>	<p>Add a “signal ahead” sign on Route 6 approaches to warn motorists of upcoming signalized intersection.</p> <p>Replace worn pavement marking including stop line on Nauset Road</p> <p>Replace Nauset Road street sign at location to improve visibility</p> <p>Include destination information & arrows for bike route signs (e.g., “To Cape Cod Rail Trail”)</p> <p>To improve stop sign visibility at Aspinet Road, consider:</p> <ul style="list-style-type: none"> • Relocate stop sign to curb (install at standard height) & relocate adjacent side walk • Install pedestrian refuge at center of Aspinet Road with supplemental stop sign 	<p>Low . Low . Low . Low . Low Medium Medium</p>	<p>Short . Short . Short . Short . Medium Medium</p>	<p>Low . Low . Low . Low . Medium Medium</p>	<p>MassDOT . MassDOT/ Town MassDOT/ Town MassDOT/ Town Town Town</p>
<p>Obstructions</p>	<p>Remove trees and hedges to the south of the Nauset Road intersection that are currently obstructing sight lines along the east side of Route 6.</p> <p>Remove trees and hedges to the north of the Aspinet Road intersection that are currently obstructing sight lines along the west side of Route 6.</p>	<p>Medium . . Medium</p>	<p>Short . . Short</p>	<p>Low . . Low</p>	<p>MassDOT/ Town . MassDOT/ Town</p>
<p>Pavement Conditions & Drainage</p>	<p>Maintain catch basins, re-install covers as needed.</p> <p>Consider repaving as part of a Nauset Road intersection upgrade.</p>	<p>Low . Low</p>	<p>Short . Medium</p>	<p>Low . Medium</p>	<p>Town . MassDOT/ Town</p>

Appendices

Road Safety Audit Team Members' Contact Information

Road Safety Audit Meeting Agenda

Crash Diagrams

Traffic Data

Participating Audit Team Members – Contact Information

Table 2 - RSA Contact Information

Audit Team Member	Agency / Affiliation	Email Address
Ed Kulhawik	Eastham Police Department	ekulhawik@eastham-ma.gov
Kent Farrenkopf	Eastham Fire Department	kfarrenkopf@eastham-ma.gov
Neil Andres	Eastham Department of Public Works	nandres@eastham-ma.gov
Paul Lagg	Eastham Planning Department	plagg@eastham-ma.gov
Elsa Chan	MassDOT Traffic Safety	elsa.chan@state.ma.us
Kevin T. Fitzgerald	MassDOT Traffic Safety	kevin.t.fitzgerald@state.ma.us
Jason Walters	MassDOT District 5 – Projects	jason.walters@state.ma.us
Emily Budzynkiewicz	Safe Routes to School	emily.budzynkiewicz@state.ma.us
Peter Doolittle	Cape Cod Regional Transit Authority	pdoolittle@capecodrta.org
Lev Malakhoff	Cape Cod Commission	lmalakhoff@capecodcommission.org
Steve Tupper	Cape Cod Commission	stupper@capecodcommission.org
Dave Nolan	Cape Cod Commission	david.nolan@capecodcommission.org

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CAPE COD
COMMISSION

Road Safety Audit (RSA) Meeting

Eastham: Intersection of Route 6 at Nauset Road/Wampum Lane

Tuesday, August 22, 2017 ▲ 10:00 a.m. – 12:00 p.m.

Location: Eastham Police Department
2550 State Highway (Route 6)
Eastham MA 02642

10:00 a.m. Welcome and Introductions

10:10 a.m. Review of Site-Specific Material

- Crash and Traffic Volume Summaries
- Existing Geometries and Conditions

10:30 p.m. Visit the Site (Group)

- Assemble as a group at the site for observation of conditions
- As a group, identify areas for improvement

11:15 p.m. Post-Visit Discussion at Meeting Room / Completion of RSA

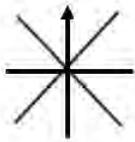
- Discuss observations and finalize on-site findings
- Discuss potential improvements and draft recommendations

12:00 p.m. Adjourn

Next Steps: After the RSA meeting, CCC staff will prepare a draft document and circulate it to participants. Participants will be asked to comment and respond to the draft document to assure that it is reflective of the RSA completed by the multidisciplinary team. With comments submitted, a final document is then produced; the final document is expected to be available within three weeks of the RSA.



Collision Diagram



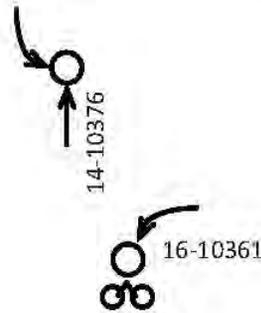
Indicate North by arrow



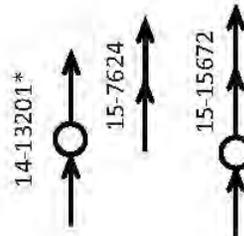
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Nauset Rd

14-10515
↓



Wampum Ln



Route 6

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non-involved Vehicle
- Pedestrian
- Bicyclist
- Parked Vehicle
- Fixed Object
- Fatal Crash
- Injury Crash

TYPES OF COLLISIONS

- Rear-End
- Head On
- Side Swipe
- Out of Control
- Turning Movement
- Right Angle

CRASH INFORMATION Each crash is labeled with a Crash# and additional information is included on the crash summary.

Notes:
*14-13201 - At-fault driver struck 4 cars in total and then ran-off road into a tree

Total Crashes:	6
Injury Crashes:	4
Fatality Crashes:	0

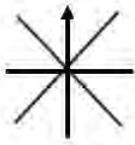
INTERSECTION: **Route 6 AND Nauset Road/Wampum Lane (Eastham)**

CRASHES FROM 2014 TO 2016

Analysis prepared: 7/14/2017

Crash #	DATE	TIME	INJURY	NOTES	MAPPED
14-10376	7/6/2014	0919	X	Vehicle 1 was traveling south on Route 6 attempting to make a left turn onto Nauset Road. Vehicle 2 was traveling north on Route 6 when Vehicle 1 cut in front of him. Vehicle 2 was unable to stop and stuck Vehicle 1, pushing it into the traffic island at Nauset and Route 6. Vehicle 1 was cited for Failure to use care in turning.	X
14-10515	7/9/2014	1608		Veh. 2, operated by [REDACTED] was stopped in the southbound travel lane at a red traffic light at the intersection of Route 6 and Wampum/Nauset Rd. Veh. 1, operated by [REDACTED], was traveling southbound on Route 6 in the travel lane. Veh. 1 failed to see Veh. 2 stopped at the traffic light and struck the rear bumper of Veh. 2. Veh. 1 sustained damage to the front bumper, hood, and headlight assemblies. Veh. 2 sustained minor damage to the rear bumper. Veh. 1 removed from scene by Silver Cloud Towing. No personal injury. Damage appeared to be over \$1000. Photographs taken.	X
14-13201	8/22/2014	1819	X	V1 WAS TRAVELING NORTHBOUND IN PASSING LANE. V1 STRUCK V2 FROM BEHIND CAUSING V2 TO DRIVE INTO SOUTHBOUND PASSING AND TRAVEL LANES. V1 THEN DROVE TO THE RIGHT AND STRUCK THE REAR OF V3. V1 THEN CONTINUED NORTHBOUND AND SIDE SWIPED V4. V1 THEN CONTINUED NORTHBOUND AND STUCK THE REAR OF V5, WHO DROVE THROUGH THE INTERSECTION TO AVOID THE CRASH. V1 THEN BOUNCED OFF OF V5 AND DROVE NORTHBOUND. V1 THEN CUT ACROSS THE NORTHBOUND PASSING LANE, THEN ACROSS THE SOUTHBOUND PASSING LANE, INTO THE SOUTHBOUND TRAVEL LANE. V1 THEN DROVE UP AND OVER THE SIDEWALK, CONTINUED THROUGH THE GRASS AND INTO THE WOODS AND THEN STRUCK A TREE, COMING TO A STOP.	X
15-7624	8/22/2015	2154		Veh.2 stopped at red traffic light at intersection of State Hwy and Nauset Rd. heading northbound. Veh.1 slowing behind Veh.2 in a line of traffic. Operator of Veh.1 stated he wasn't paying attention and rear-ended Veh.2. Slight damage to front bumper of Veh.1. Moderate damage to rear bumper of Veh.2. Both vehicles driven from scene. No reported injuries.	X
15-15672	11/6/2015	1506	X	Vehicle #1 and Vehicle #2 were heading northbound on Rte 6, in traffic, in front of Hopper Real Estate when Vehicle #3 (also traveling northbound/behind Veh #2) rear-ended Veh #2 causing a chain reaction. Veh #2 was then pushed forward and subsequently struck the rear end of Veh #1. Veh #1 sustained minor damage to rear bumper and passenger side tail light. Veh #2 sustained major rear end damage as well as minor damage to driver's side front bumper and head light. Veh #3 sustained major front end damage, including the engine compartment area. [REDACTED], passenger in Veh #2, complained of back/neck pain and was evaluated, and later transported to CCH by Eastham Rescue. Veh #1 drove away from the scene while both Veh #2 and Veh #3 were towed by Silver Cloud. [REDACTED], owner/operator of Veh #3, was issued a citation (R6743212). Accident occurred in "Work Zone" area (30MPH). See attached supplemental narrative.	X
16-10361	7/22/2016	1552	X	Veh. 1, operated by [REDACTED], was turning left from Nauset Road on to Route 6. Bicyclist, [REDACTED] was crossing Route 6 attempting to go to Nauset Road. Veh. 1 failed to see and struck [REDACTED] in the center of the intersection. Veh. 1 sustained damage to the front driver's side wheel well. [REDACTED] suffered what appeared to be non-life threatening injuries and was transported to Cape Cod Hospital by the Eastham Fire Department. Photographs taken of scene. 5 witness statements scanned and attached to accident file.	X

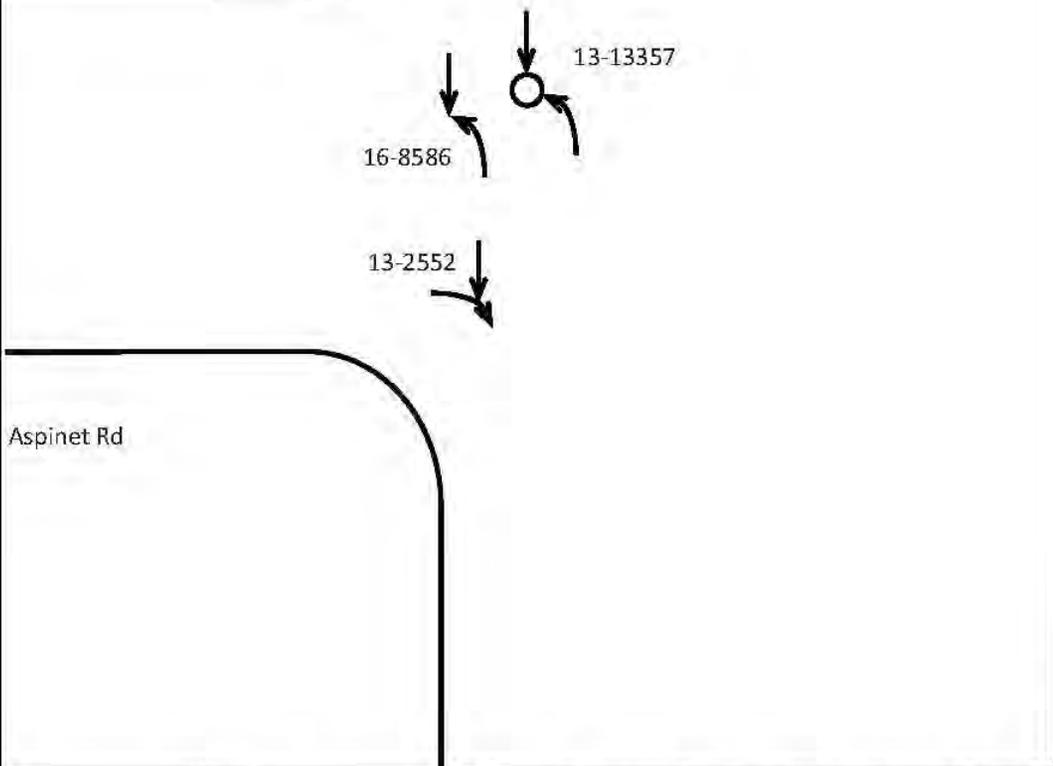
Collision Diagram



Indicate North by arrow



CAPE COD
COMMISSION



Route 6

SYMBOLS	TYPES OF COLLISIONS	CRASH INFORMATION Each crash is labeled with a Crash# and additional information is included on the crash summary.
<ul style="list-style-type: none">  Moving Vehicle  Backing Vehicle  Non-involved Vehicle  Pedestrian  Bicyclist  Parked Vehicle  Fixed Object  Fatal Crash  Injury Crash 	<ul style="list-style-type: none">  Rear-End  Head On  Side Swipe  Out of Control  Turning Movement  Right Angle 	<p>Notes:</p> <p>Total Crashes: 3 Injury Crashes: 1 Fatality Crashes: 0</p>

INTERSECTION: **Route 6 AND Aspinet Road** (Eastham)

CRASHES FROM 2013 TO 2016

Analysis prepared: 8/18/2017

Crash #	DATE	TIME	INJURY	NOTES	MAPPED
13-2552	2/14/2013	1023		Veh. 1, operated by [REDACTED] was traveling southbound on Route 6 in the passing lane. Veh. 2, operated by [REDACTED] was attempting to enter into the southbound travel lane from Aspinet Road. Veh. 1 failed to notice Veh. 2 entering into traffic and began to merge into the southbound travel lane. Veh. 1 struck the front loader bucket of Veh. 2, causing Veh. 1 to go into a spin. Veh. 1 came to rest on the driveway of 5155 Route 6 facing northbound. Veh. 1 sustained damage to the passenger side front and rear doors. Veh. 2 sustained no visible damage. No personal injury. Veh. 1 removed by Silver Cloud Towing. Veh. 1 operator Bramanti issued criminal citation R2795898 for Ch.90 s.23, operating with a suspended license.	X
13-13357	8/14/2013	1303	X	Veh. 1, operated by [REDACTED] was on Route 6 in the left turn lane attempting to make a left turn on to Aspinet Road. Veh. 2, operated by [REDACTED], was traveling southbound on Route 6 in the travel lane approaching the Aspinet Road intersection. Veh. 1 failed to yield to oncoming traffic and attempted to make a left turn onto Aspinet Road. Veh. 2 applied brakes in an attempt to stop but was unable to avoid Veh.1 Veh. 2 struck Veh. 1 on the passenger side door area. Veh. 2 sustained heavy damage to the front passenger side bumper and engine compartment area. Operator of Veh. 1 transported to Cape Cod Hospital by the Eastham Fire Department. Damage over \$1000. Both Vehicles removed by Tinknocker Towing. Witness statements completed on crash.	X
16-8586	6/20/2016	1633		Veh. 2, operated by [REDACTED], was traveling southbound on Route 6 in the travel lane. Veh. 1, operated by [REDACTED] was attempting to turn on to Aspinet Road from Route 6. Bebout stated that he failed to observe Veh. 2 and turned into oncoming traffic. Veh. 1 struck the passenger side front and back door of Veh.2. Veh. 1 sustained damage to the front bumper. Veh. 2 sustained damage to the driver side front and back doors. Damage appeared to be over \$1000. No reported personal injury. Veh. 2 was removed by Silver Cloud Towing. Photographs taken.	X

Cape Cod Commission

3225 Main Street
Barnstable, MA, 02630

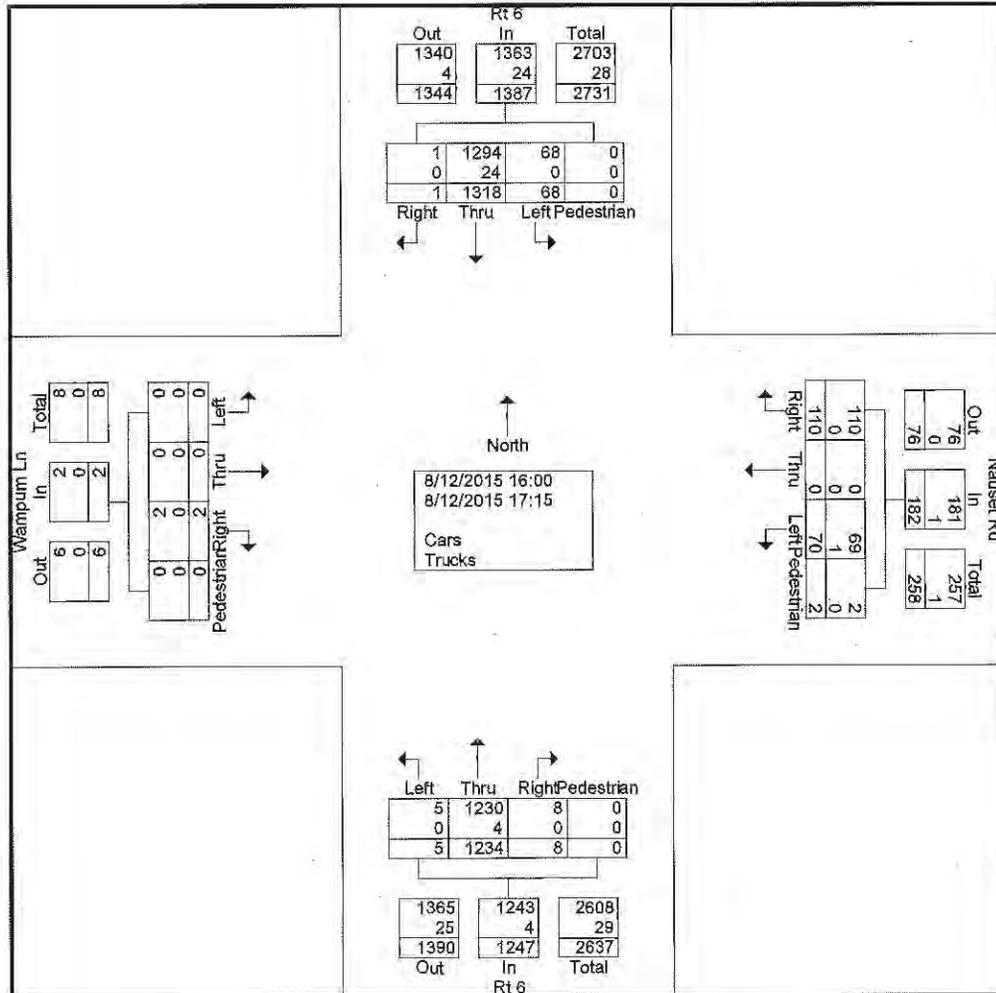
www.capecodcommission.org

Location: Nauset Rd & Rt 6
Town: Eastham
Counted by: JW
Counters: 6

File Name : 2301_08122015
Site Code : 2301
Start Date : 8/12/2015
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Rt 6 From North					Nauset Rd From East					Rt 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	
16:00	8	254	1	0	263	17	0	24	0	41	1	251	2	0	254	0	0	1	0	1	559
16:15	17	248	0	0	265	13	0	20	0	33	1	181	3	0	185	0	0	1	0	1	484
16:30	7	173	0	0	180	7	0	7	0	14	0	179	0	0	179	0	0	0	0	0	373
16:45	8	158	0	0	166	4	0	20	0	24	0	186	2	0	188	0	0	0	0	0	378
Total	40	833	1	0	874	41	0	71	0	112	2	797	7	0	806	0	0	2	0	2	1794
17:00	13	224	0	0	237	17	0	32	2	51	0	227	0	0	227	0	0	0	0	0	515
17:15	15	261	0	0	276	12	0	7	0	19	3	210	1	0	214	0	0	0	0	0	509
Grand Total	68	1318	1	0	1387	70	0	110	2	182	5	1234	8	0	1247	0	0	2	0	2	2818
Apprch %	4.9	95	0.1	0		38.5	0	60.4	1.1		0.4	99	0.6	0		0	0	100	0	0	
Total %	2.4	46.8	0	0	49.2	2.5	0	3.9	0.1	6.5	0.2	43.8	0.3	0	44.3	0	0	0.1	0	0.1	
Cars	68	1294	1	0	1363	69	0	110	2	181	5	1230	8	0	1243	0	0	2	0	2	2789
% Cars	100	98.2	100	0	98.3	98.6	0	100	100	99.5	100	99.7	100	0	99.7	0	0	100	0	100	99
Trucks	0	24	0	0	24	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	29
% Trucks	0	1.8	0	0	1.7	1.4	0	0	0	0.5	0	0.3	0	0	0.3	0	0	0	0	0	1



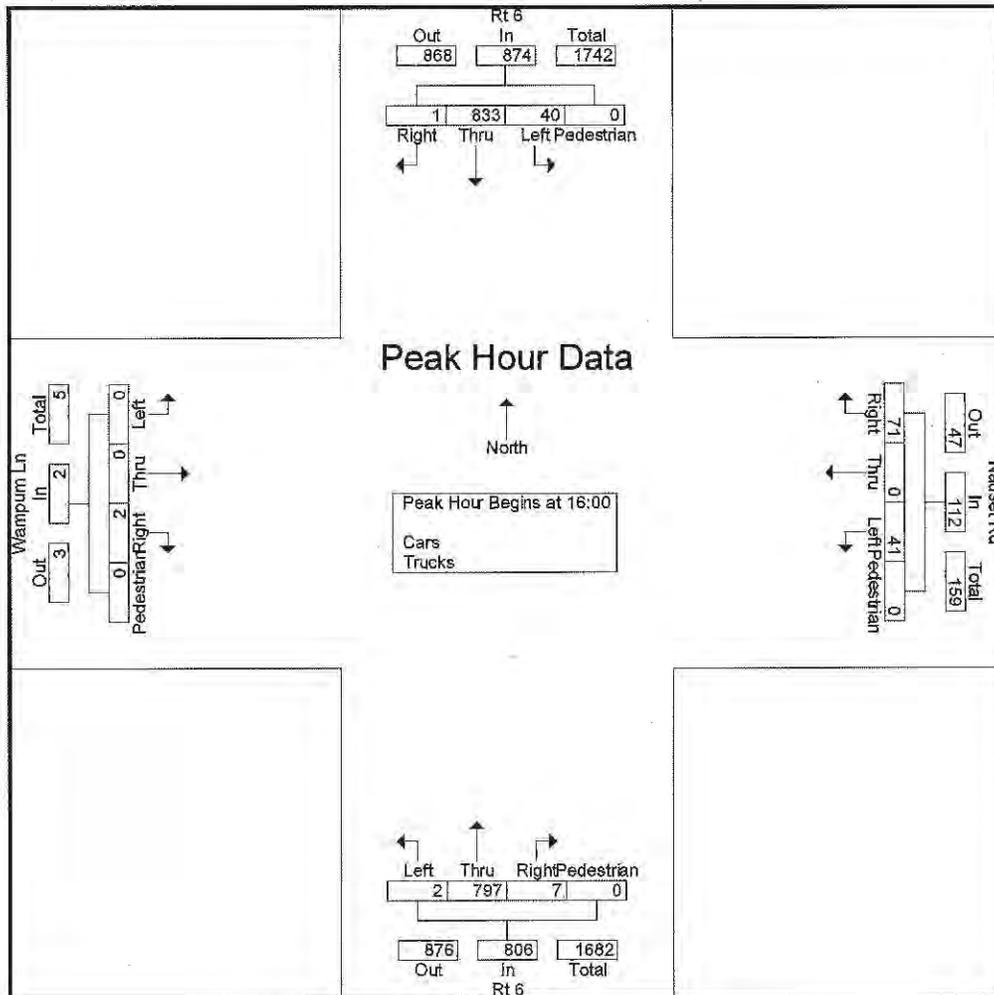
Cape Cod Commission

3225 Main Street
Barnstable, MA, 02630
www.capecodcommission.org

Location: Nauset Rd & Rt 6
Town: Eastham
Counted by: JW
Counters: 6

File Name : 2301_08122015
Site Code : 2301
Start Date : 8/12/2015
Page No : 2

Start Time	Rt 6 From North					Nauset Rd From East					Rt 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	
Peak Hour Analysis From 16:00 to 17:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	8	254	1	0	263	17	0	24	0	41	1	251	2	0	254	0	0	1	0	1	559
16:15	17	248	0	0	265	13	0	20	0	33	1	181	3	0	185	0	0	1	0	1	484
16:30	7	173	0	0	180	7	0	7	0	14	0	179	0	0	179	0	0	0	0	0	373
16:45	8	158	0	0	166	4	0	20	0	24	0	186	2	0	188	0	0	0	0	0	378
Total Volume	40	833	1	0	874	41	0	71	0	112	2	797	7	0	806	0	0	2	0	2	1794
% App. Total	4.6	95.3	0.1	0		36.6	0	63.4	0		0.2	98.9	0.9	0		0	0	100	0		
PHF	.588	.820	.250	.000	.825	.603	.000	.740	.000	.683	.500	.794	.583	.000	.793	.000	.000	.500	.000	.500	.802



Cape Cod Commission

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Barnstable, MA, 02630

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File Name : 2301_08122015
Site Code : 2301
Start Date : 8/12/2015
Page No : 1

Groups Printed- Cars

Start Time	Rt 6 From North					Nauset Rd From East					Rt 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	
16:00	8	244	1	0	253	17	0	24	0	41	1	248	2	0	251	0	0	1	0	1	546
16:15	17	246	0	0	263	13	0	20	0	33	1	181	3	0	185	0	0	1	0	1	482
16:30	7	171	0	0	178	7	0	7	0	14	0	179	0	0	179	0	0	0	0	0	371
16:45	8	157	0	0	165	4	0	20	0	24	0	186	2	0	188	0	0	0	0	0	377
Total	40	818	1	0	859	41	0	71	0	112	2	794	7	0	803	0	0	2	0	2	1776
17:00	13	221	0	0	234	17	0	32	2	51	0	226	0	0	226	0	0	0	0	0	511
17:15	15	255	0	0	270	11	0	7	0	18	3	210	1	0	214	0	0	0	0	0	502
Grand Total	68	1294	1	0	1363	69	0	110	2	181	5	1230	8	0	1243	0	0	2	0	2	2789
Apprch %	5	94.9	0.1	0		38.1	0	60.8	1.1		0.4	99	0.6	0		0	0	100	0		
Total %	2.4	46.4	0	0	48.9	2.5	0	3.9	0.1	6.5	0.2	44.1	0.3	0	44.6	0	0	0.1	0	0.1	

Cape Cod Commission

3225 Main Street
Barnstable, MA, 02630

www.capecodcommission.org

Location: Nauset Rd & Rt 6
Town: Eastham
Counted by: JW
Counters: 6

File Name : 2301_08122015
Site Code : 2301
Start Date : 8/12/2015
Page No : 1

Groups Printed- Trucks

Start Time	Rt 6 From North					Nauset Rd From East					Rt 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	
16:00	0	10	0	0	10	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	13
16:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:30	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	15	0	0	15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	18
17:00	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
17:15	0	6	0	0	6	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7
Grand Total	0	24	0	0	24	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	29
Apprch %	0	100	0	0		100	0	0	0		0	100	0	0		0	0	0	0	0	
Total %	0	82.8	0	0	82.8	3.4	0	0	0	3.4	0	13.8	0	0	13.8	0	0	0	0	0	

Cape Cod Commission

3225 Main Street
Barnstable, MA, 02630

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Location: Nauset Rd & Rt 6
Town: Eastham
Counted by: JW
Counters: 6

File Name : 2301_08122015
Site Code : 2301
Start Date : 8/12/2015
Page No : 1

Groups Printed- Bikes

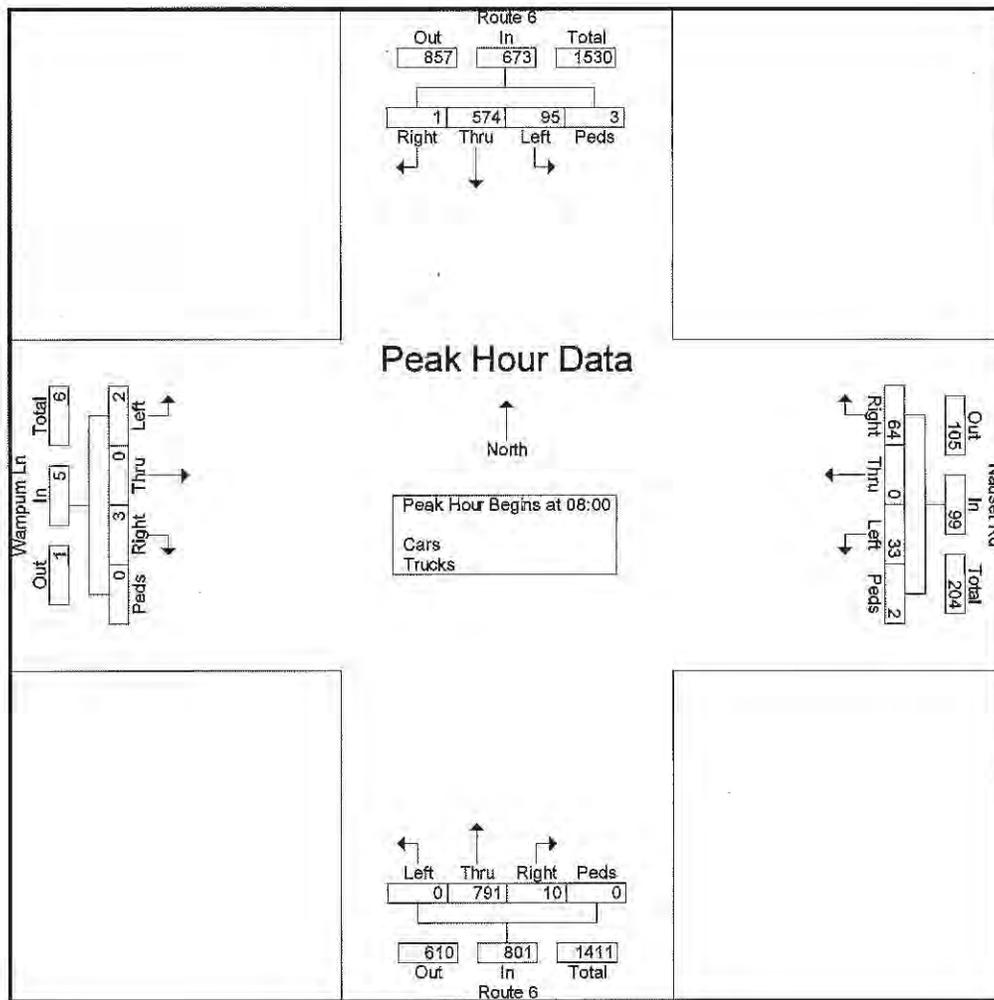
Start Time	Rt 6 From North					Nauset Rd From East					Rt 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	Left	Thru	Right	Pedestrian	App. Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
*** BREAK ***																					
16:45	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	5	1	0	6	0	1	0	0	1	0	2	0	0	2	9
17:00	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
17:15	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5
Grand Total	1	0	0	0	1	0	8	2	0	10	0	2	0	0	2	0	3	0	0	3	16
Apprch %	100	0	0	0		0	80	20	0		0	100	0	0		0	100	0	0		
Total %	6.2	0	0	0	6.2	0	50	12.5	0	62.5	0	12.5	0	0	12.5	0	18.8	0	0	18.8	

Cape Cod Commission
 3225 Main St, Barnstable, MA, 02630
 www.capecodcommission.org

Location: Rt 6 @ Nauset Road (North End)
 Town: Eastham
 Counted by: PT
 Counters: 4

File Name : Not Named 6
 Site Code : 2301
 Start Date : 8/5/2015
 Page No : 2

Start Time	Route 6 From North					Nauset Rd From East					Route 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	16	147	1	0	164	6	0	17	0	23	0	171	2	0	173	1	0	2	0	3	363
08:15	14	135	0	2	151	7	0	13	2	22	0	183	1	0	184	0	0	0	0	0	357
08:30	38	140	0	1	179	7	0	11	0	18	0	231	1	0	232	1	0	0	0	1	430
08:45	27	152	0	0	179	13	0	23	0	36	0	206	6	0	212	0	0	1	0	1	428
Total Volume	95	574	1	3	673	33	0	64	2	99	0	791	10	0	801	2	0	3	0	5	1578
% App. Total	14.1	85.3	0.1	0.4		33.3	0	64.6	2		0	98.8	1.2	0		40	0	60	0		
PHF	.625	.944	.250	.375	.940	.635	.000	.696	.250	.688	.000	.856	.417	.000	.863	.500	.000	.375	.000	.417	.917



Cape Cod Commission

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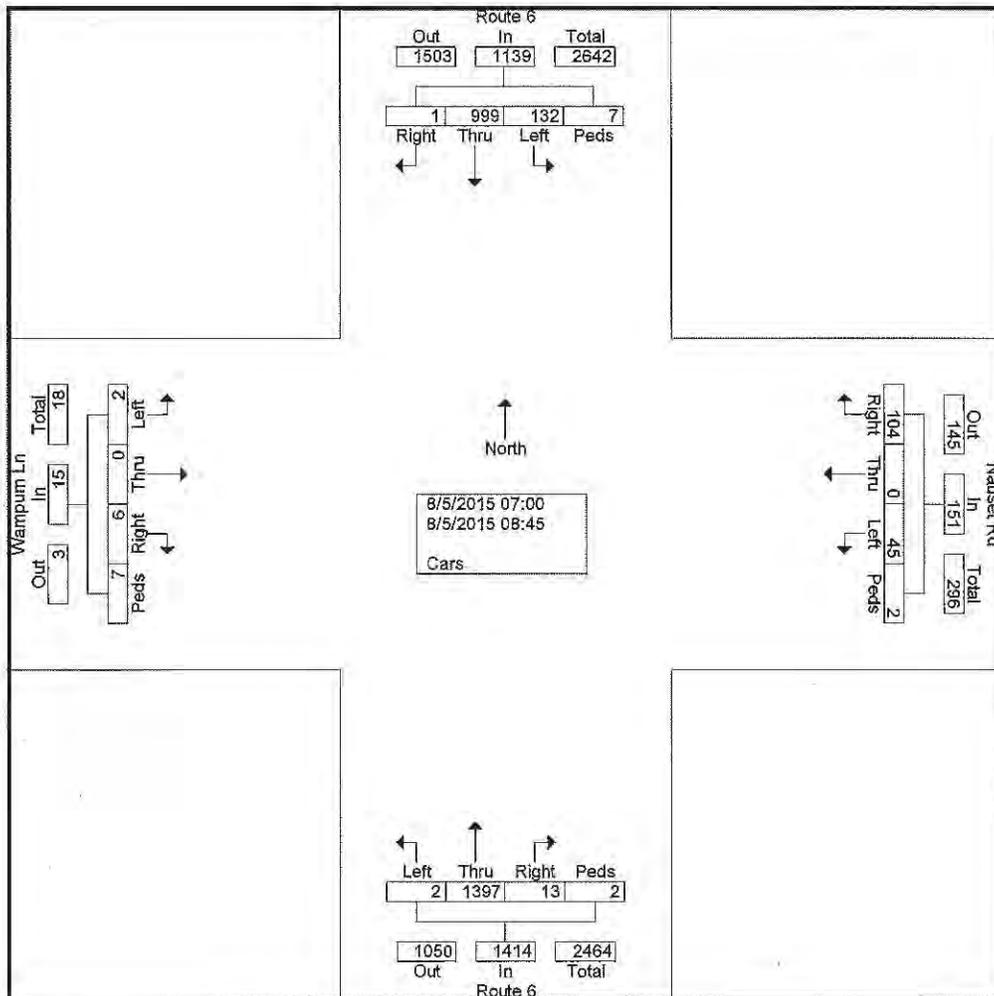
www.capecodcommission.org

Location: Rt 6 @ Nauset Road (North End)
 Town: Eastham
 Counted by: PT
 Counters: 4

File Name : Not Named 6
 Site Code : 2301
 Start Date : 8/5/2015
 Page No : 1

Groups Printed- Cars

Start Time	Route 6 From North					Nauset Rd From East					Route 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00	6	110	0	2	118	1	0	10	0	11	0	131	0	0	131	0	0	0	0	0	260
07:15	10	105	0	0	115	1	0	7	0	8	0	120	0	0	120	0	0	1	1	2	245
07:30	5	116	0	1	122	3	0	12	0	15	2	179	2	2	185	0	0	0	5	5	327
07:45	17	116	0	1	134	8	0	14	0	22	0	203	1	0	204	0	0	2	1	3	363
Total	38	447	0	4	489	13	0	43	0	56	2	633	3	2	640	0	0	3	7	10	1195
08:00	16	142	1	0	159	5	0	14	0	19	0	167	2	0	169	1	0	2	0	3	350
08:15	14	128	0	2	144	7	0	13	2	22	0	178	1	0	179	0	0	0	0	0	345
08:30	37	133	0	1	171	7	0	11	0	18	0	220	1	0	221	1	0	0	0	1	411
08:45	27	149	0	0	176	13	0	23	0	36	0	199	6	0	205	0	0	1	0	1	418
Total	94	552	1	3	650	32	0	61	2	95	0	764	10	0	774	2	0	3	0	5	1524
Grand Total	132	999	1	7	1139	45	0	104	2	151	2	1397	13	2	1414	2	0	6	7	15	2719
Apprch %	11.6	87.7	0.1	0.6		29.8	0	68.9	1.3		0.1	98.8	0.9	0.1		13.3	0	40	46.7		
Total %	4.9	36.7	0	0.3	41.9	1.7	0	3.8	0.1	5.6	0.1	51.4	0.5	0.1	52	0.1	0	0.2	0.3	0.6	



Cape Cod Commission

3225 Main St, Barnstable, MA, 02630

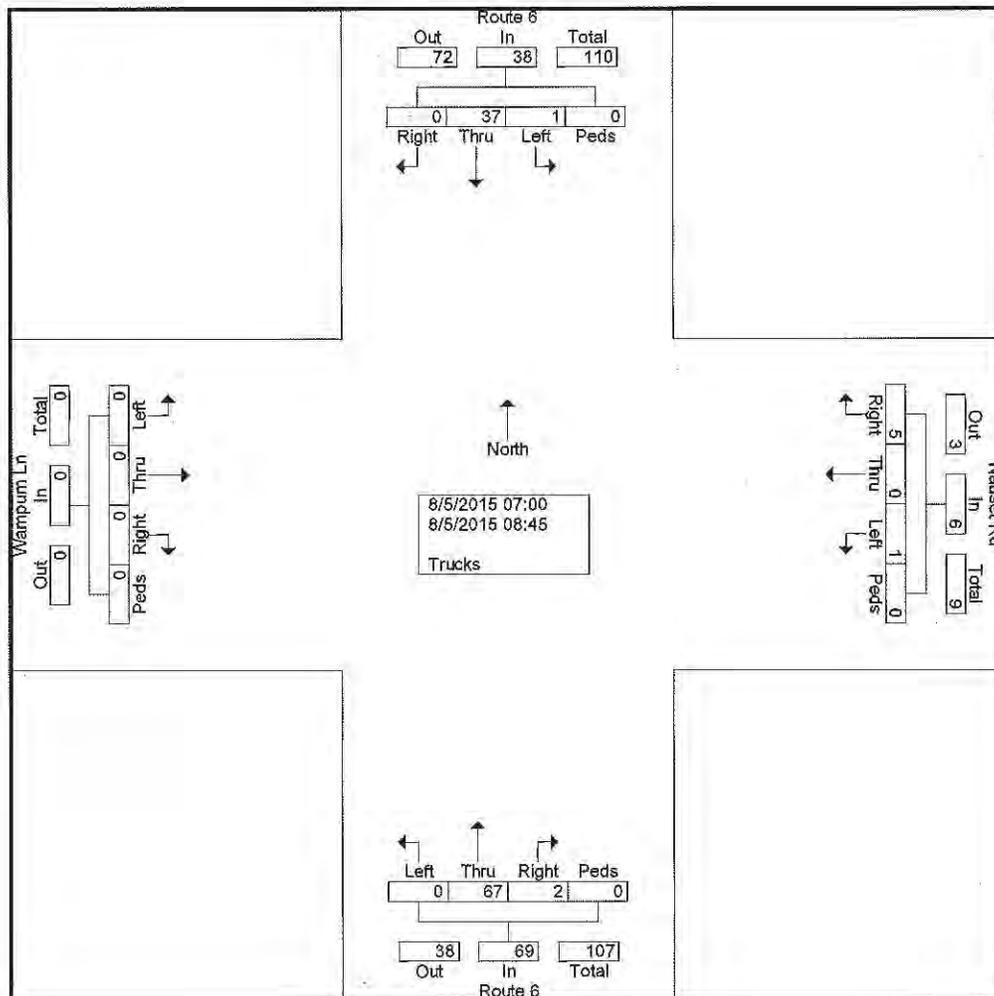
www.capecodcommission.org

Location: Rt 6 @ Nauset Road (North End)
 Town: Eastham
 Counted by: PT
 Counters: 4

File Name : Not Named 6
 Site Code : 2301
 Start Date : 8/5/2015
 Page No : 1

Groups Printed- Trucks

Start Time	Route 6 From North					Nauset Rd From East					Route 6 From South					Wampum Ln From West					Int. Total					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total						
07:00	0	2	0	0	2	0	0	1	0	1	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	15
07:15	0	1	0	0	1	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	10
07:30	0	4	0	0	4	0	0	1	0	1	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	19
07:45	0	8	0	0	8	0	0	0	0	0	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	15
Total	0	15	0	0	15	0	0	2	0	2	0	40	2	0	42	0	0	0	0	0	0	0	0	0	0	59
08:00	0	5	0	0	5	1	0	3	0	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	13
08:15	0	7	0	0	7	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	12
08:30	1	7	0	0	8	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	19
08:45	0	3	0	0	3	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	10
Total	1	22	0	0	23	1	0	3	0	4	0	27	0	0	27	0	0	0	0	0	0	0	0	0	0	54
Grand Total	1	37	0	0	38	1	0	5	0	6	0	67	2	0	69	0	0	0	0	0	0	0	0	0	0	113
Apprch %	2.6	97.4	0	0		16.7	0	83.3	0		0	97.1	2.9	0		0	0	0	0		0	0	0	0		
Total %	0.9	32.7	0	0	33.6	0.9	0	4.4	0	5.3	0	59.3	1.8	0	61.1	0	0	0	0		0	0	0	0		



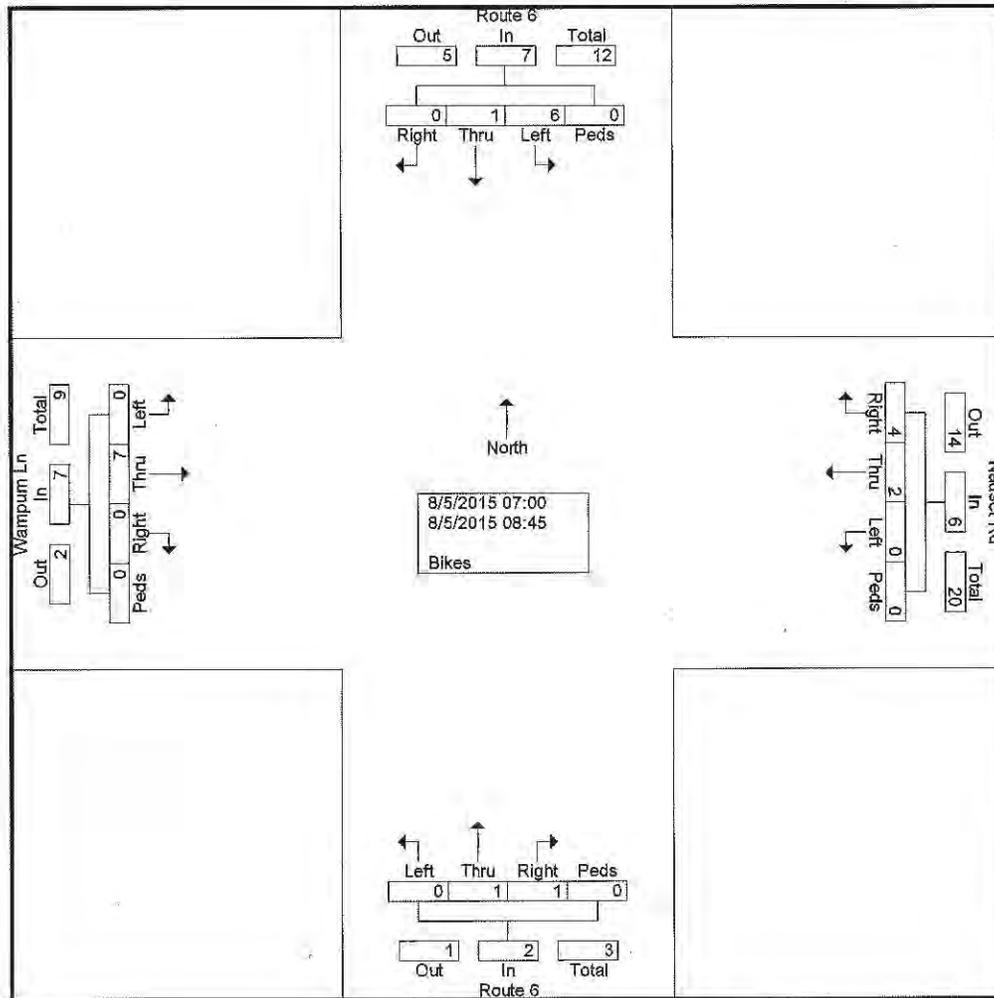
Cape Cod Commission
 3225 Main St, Barnstable, MA, 02630
 www.capecodcommission.org

Location: Rt 6 @ Nauset Road (North End)
 Town: Eastham
 Counted by: PT
 Counters: 4

File Name : Not Named 6
 Site Code : 2301
 Start Date : 8/5/2015
 Page No : 1

Groups Printed- Bikes

Start Time	Route 6 From North					Nauset Rd From East					Route 6 From South					Wampum Ln From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
*** BREAK ***																					
07:30	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	5
*** BREAK ***																					
Total	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	5
08:00	4	1	0	0	5	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	7
08:15	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	3
08:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
08:45	2	0	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	4
Total	6	1	0	0	7	0	1	3	0	4	0	1	1	0	2	0	4	0	0	4	17
Grand Total	6	1	0	0	7	0	2	4	0	6	0	1	1	0	2	0	7	0	0	7	22
Apprch %	85.7	14.3	0	0		0	33.3	66.7	0		0	50	50	0		0	100	0	0		
Total %	27.3	4.5	0	0	31.8	0	9.1	18.2	0	27.3	0	4.5	4.5	0	9.1	0	31.8	0	0	31.8	



Cape Cod Commission

Site: 20741
 Location: Nauset Rd E of Rt 6 (North End)
 Town: Eastham
 Counter: TP-2

3225 Main Street
 Barnstable MA 02630

www.capecodcommission.org

Site Code: 20741
 Station ID:

Latitude: 0' 0.000 Undefined

Start Time	09-Jul-12 Mon	10-Jul-12 Tue	11-Jul-12 Wed	12-Jul-12 Thu	13-Jul-12 Fri	14-Jul-12 Sat	15-Jul-12 Sun	Week Average	Weekday Average
12:00 AM	*	3	12	*	*	*	*	8	8
01:00	*	4	6	*	*	*	*	5	5
02:00	*	2	3	*	*	*	*	2	2
03:00	*	2	3	*	*	*	*	2	2
04:00	*	2	3	*	*	*	*	2	2
05:00	*	16	14	*	*	*	*	15	15
06:00	*	40	35	*	*	*	*	38	38
07:00	*	88	67	*	*	*	*	78	78
08:00	*	166	169	*	*	*	*	168	168
09:00	*	160	151	*	*	*	*	156	156
10:00	*	158	149	*	*	*	*	154	154
11:00	*	169	175	*	*	*	*	172	172
12:00 PM	222	217	224	*	*	*	*	221	221
01:00	129	128	*	*	*	*	*	128	128
02:00	145	152	*	*	*	*	*	148	148
03:00	155	147	*	*	*	*	*	151	151
04:00	138	157	*	*	*	*	*	148	148
05:00	149	150	*	*	*	*	*	150	150
06:00	136	131	*	*	*	*	*	134	134
07:00	113	100	*	*	*	*	*	106	106
08:00	85	56	*	*	*	*	*	70	70
09:00	52	52	*	*	*	*	*	52	52
10:00	23	34	*	*	*	*	*	28	28
11:00	13	15	*	*	*	*	*	14	14
Total	1360	2149	1011	0	0	0	0		
Percentage	63.3%	100.0%	47.0%	0.0%	0.0%	0.0%	0.0%		
AM Peak Vol.		11:00 169	11:00 175						
PM Peak Vol.	12:00 222	12:00 217	12:00 224						
Total								2150	2150

Cape Cod Commission

Site: 20741
 Location: Nauset Rd E of Rt 6 (North End)
 Town: Eastham
 Counter: TP-2

3225 Main Street
 Barnstable MA 02630

www.capecodcommission.org

Site Code: 20741
 Station ID:

Latitude: 0' 0.000 Undefined

Start Time	09-Jul-12		Tue		Wed		Thu		Fri		Sat		Sun		Weekday Ave	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	2	1	10	2	*	*	*	*	*	*	*	*	6	2
01:00	*	*	3	1	5	1	*	*	*	*	*	*	*	*	4	1
02:00	*	*	2	0	1	2	*	*	*	*	*	*	*	*	2	1
03:00	*	*	2	0	1	2	*	*	*	*	*	*	*	*	2	1
04:00	*	*	0	2	1	2	*	*	*	*	*	*	*	*	0	2
05:00	*	*	8	8	6	8	*	*	*	*	*	*	*	*	7	8
06:00	*	*	18	22	10	25	*	*	*	*	*	*	*	*	14	24
07:00	*	*	31	57	26	41	*	*	*	*	*	*	*	*	28	49
08:00	*	*	75	91	76	93	*	*	*	*	*	*	*	*	76	92
09:00	*	*	64	96	57	94	*	*	*	*	*	*	*	*	60	95
10:00	*	*	62	96	57	92	*	*	*	*	*	*	*	*	60	94
11:00	*	*	56	113	64	111	*	*	*	*	*	*	*	*	60	112
12:00 PM	63	159	71	146	75	149	*	*	*	*	*	*	*	*	70	151
01:00	47	82	37	91	*	*	*	*	*	*	*	*	*	*	42	86
02:00	50	95	48	104	*	*	*	*	*	*	*	*	*	*	49	100
03:00	49	106	53	94	*	*	*	*	*	*	*	*	*	*	51	100
04:00	53	85	58	99	*	*	*	*	*	*	*	*	*	*	56	92
05:00	60	89	51	99	*	*	*	*	*	*	*	*	*	*	56	94
06:00	59	77	45	86	*	*	*	*	*	*	*	*	*	*	52	82
07:00	41	72	36	64	*	*	*	*	*	*	*	*	*	*	38	68
08:00	37	48	26	30	*	*	*	*	*	*	*	*	*	*	32	39
09:00	22	30	29	23	*	*	*	*	*	*	*	*	*	*	26	26
10:00	14	9	18	16	*	*	*	*	*	*	*	*	*	*	16	12
11:00	9	4	7	8	*	*	*	*	*	*	*	*	*	*	8	6
Total	504	856	802	1347	389	622	0	0	0	0	0	0	0	0	815	1337
Day	1360		2149		1011		0	0	0	0	0	0	0		2152	
Peak			08:00	11:00	08:00	11:00									08:00	11:00
Vol.			75	113	76	111									76	112
PM Peak	12:00	12:00	12:00	12:00	12:00	12:00									12:00	12:00
Vol.	63	159	71	146	75	149									70	151

Comb. Total	1360	2149	1011	0	0	0	0	2152
ADT	ADT 2,146	AADT 2,146						

21358-0713 2015

MassDOT Highway Division
 WEEKLY SUMMARY FOR LANE
 Starting: 7/13/2015

STA. 15
 TOTAL

Site Reference: 150290000497
 Site ID: 000000001503
 Location: RTE. 6, NORTH OF NAUSET RD.
 Direction: ROAD TOTAL

File: V15-0304.prn
 City: EASTHAM
 County: VOL E&W

TIME	MON 13	TUE 14	WED	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00	138	112				125			125	250
02:00	104	49				76			76	153
03:00	47	28				37			37	75
04:00	67	30				48			48	97
05:00	88	61				74			74	149
06:00	262	185				223			223	447
07:00	579	532				555			555	1111
08:00	1100	1007				1053			1053	2107
09:00	1407	1447				1427			1427	2854
10:00	1629	1617				1623			1623	3246
11:00	(1915)	1761				1838			1838	3676
12:00	1828	1790				1809			1809	3618
13:00	1886	2045				1965			1965	3931
14:00	1672	2048				1860			1860	3720
15:00	1740	1815				1777			1777	3555
16:00	1830	1860				1845			1845	3690
17:00	1883	1934				(1908)			1908	3817
18:00	1773	1892				1832			1832	3665
19:00	1595	1609				1602			1602	3204
20:00	1407	1265				1336			1336	2672
21:00	1087	1110				1098			1098	2197
22:00	810					810			810	810
23:00	532					532			532	532
24:00	422					422			422	422

TOTALS	(25801)	24197	0	0	0	(25875)	0	0	25875	49998
% AVG WKDY	99.7	93.5								
% AVG WEEK	99.7	93.5								
AM Times	11:00	12:00				11:00			11:00	
AM Peaks	1915	1790				1838			1838	
PM Times	13:00	14:00				13:00			13:00	
PM Peaks	1886	2048				1965			1965	
D%	55	55								
K%	7	8								

UL
 COMB AWD 25875
 FAC .92(96)
 COMB ADT 22,900

21358

MassDOT Highway Division
 WEEKLY SUMMARY FOR LANE 1
 Starting: 7/13/2015

STA. 15 EB

NB

Site Reference: 150290000497
 Site ID: 000000001503
 Location: RTE. 6, NORTH OF NAUSET RD.
 Direction: EAST

File: V15-0304.prn
 City: EASTHAM
 County: VOL E&W

TIME	MON 13	TUE 14	WED	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00	65	45				55			55	110
02:00	45	20				32			32	65
03:00	27	10				18			18	37
04:00	34	12				23			23	46
05:00	30	32				31			31	62
06:00	92	88				90			90	180
07:00	279	276				277			277	555
08:00	553	554				553			553	1107
09:00	749	809				779			779	1558
10:00	843	910				876			876	1753
11:00	(1060)	1011				1035			1035	2071
12:00	1050	1031				1040			1040	2081
13:00	1134	1148				1141			1141	2282
14:00	910	1087				998			998	1997
15:00	867	932				899			899	1799
16:00	785	868				826			826	1653
17:00	797	849				(823)			823	1646
18:00	789	767				778			778	1556
19:00	729	750				739			739	1479
20:00	714	654				684			684	1368
21:00	493	495				494			494	988
22:00	277					277			277	277
23:00	178					178			178	178
24:00	100					100			100	100
<hr/>										
TOTALS	12600	12348	0	0	0	(12746)	0	0	12746	24948
<hr/>										
% AVG WKDY	98.8	96.8								
% AVG WEEK	98.8	96.8								
<hr/>										
AM Times	11:00	12:00				12:00			12:00	
AM Peaks	1060	1031				1040			1040	
<hr/>										
PM Times	13:00	13:00				13:00			13:00	
PM Peaks	1134	1148				1141			1141	

21358

MassDOT Highway Division
 WEEKLY SUMMARY FOR LANE 2
 Starting: 7/13/2015

STA. 15 WB

SB

Site Reference: 150290000497
 Site ID: 00000001503
 Location: RTE. 6, NORTH OF NAUSET RD.
 Direction: WEST

File: V15-0304.prn
 City: EASTHAM
 County: VOL E&W

TIME	MON 13	TUE 14	WED	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00	73	67				70			70	140
02:00	59	29				44			44	88
03:00	20	18				19			19	38
04:00	33	18				25			25	51
05:00	58	29				43			43	87
06:00	170	97				133			133	267
07:00	300	256				278			278	556
08:00	547	453				500			500	1000
09:00	658	638				648			648	1296
10:00	786	707				746			746	1493
11:00	(855)	750				802			802	1605
12:00	778	759				768			768	1537
13:00	752	897				824			824	1649
14:00	762	961				861			861	1723
15:00	873	883				878			878	1756
16:00	1045	992				1018			1018	2037
17:00	1086	1085				(1085)			1085	2171
18:00	984	1125				1054			1054	2109
19:00	866	859				862			862	1725
20:00	693	611				652			652	1304
21:00	594	615				604			604	1209
22:00	533					533			533	533
23:00	354					354			354	354
24:00	322					322			322	322
TOTALS	13201	11849	0	0	0	(13123)	0	0	13123	25050
% AVG WKDY	100.5	90.2								
% AVG WEEK	100.5	90.2								
AM Times	11:00	12:00				11:00			11:00	
AM Peaks	855	759				802			802	
PM Times	17:00	18:00				17:00			17:00	
PM Peaks	1086	1125				1085			1085	

21359-07132015

MassDOT Highway Division
 WEEKLY SUMMARY FOR LANE
 Starting: 7/13/2015

STA. 16
 TOTAL

Site Reference: 150290000529
 Site ID: 000000001603
 Location: RTE. 6, SOUTH OF NAUSET RD.
 Direction: ROAD TOTAL

File: V16-0304.prn
 City: EASTHAM
 County: VOL E&W

TIME	MON 13	TUE 14	WED 15	THU 16	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00	172	137	175	160		161			161	644
02:00	123	65	168	80		109			109	436
03:00	59	40	60	46		51			51	205
04:00	74	39	30	28		42			42	171
05:00	118	66	84	68		84			84	336
06:00	328	210	261	222		255			255	1021
07:00	713	606	643	652		653			653	2614
08:00	1268	1175	1273	1253		1242			1242	4969
09:00	1645	1573	1647	1714		1644			1644	6579
10:00	1831	1831	1844	1995		1875			1875	7501
11:00	2189	1980	2203	2242		2153			2153	8614
12:00	2047	2038	(2301)	2291		2169			2169	8677
13:00	2084	2274	2285	2323		2241			2241	8966
14:00	1906	2301	2029	2132		2092			2092	8368
15:00	2013	2107	2068	2125		2078			2078	8313
16:00	2158	2149	2296	2403		2251			2251	9006
17:00	2234	2310	2265	2492		(2325)			2325	9301
18:00	2109	2254	2239			2200			2200	6602
19:00	1887	1896	1899			1894			1894	5682
20:00	1658	1487	1439			1528			1528	4584
21:00	1296	1340	1187			1274			1274	3823
22:00	993	971	915			959			959	2879
23:00	720	605	646			657			657	1971
24:00	530	556	398			494			494	1484
<hr/>										
TOTALS	30155	30010	(30355)	22226	0	(30431)	0	0	30431	112746
<hr/>										
% AVG WKDY	99	98.6	99.7	73						
% AVG WEEK	99	98.6	99.7	73						
<hr/>										
AM Times	11:00	12:00	12:00	12:00		12:00			12:00	
AM Peaks	2189	2038	2301	2291		2169			2169	
<hr/>										
PM Times	17:00	17:00	16:00	17:00		17:00			17:00	
PM Peaks	2234	2310	2296	2492		2325			2325	
<hr/>										
D%	65	65	55	65						
K%	7	8	8	11						

u2

COMB AWD 30431
 FAK .92(.96)
 COMB ADT 26,900

21359

MassDOT Highway Division
 WEEKLY SUMMARY FOR LANE 1
 Starting: 7/13/2015

STA. 16 EB

NB

Site Reference: 150290000529
 Site ID: 00000001603
 Location: RTE. 6, SOUTH OF NAUSET RD.
 Direction: EAST

File: V16-0304.prn
 City: EASTHAM
 County: VOL E&W

TIME	MON 13	TUE 14	WED 15	THU 16	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00	59	40	59	58		54			54	216
02:00	39	19	31	26		28			28	115
03:00	26	10	16	22		18			18	74
04:00	30	12	13	11		16			16	66
05:00	27	30	34	34		31			31	125
06:00	85	81	116	97		94			94	379
07:00	258	248	286	268		265			265	1060
08:00	507	513	537	538		523			523	2095
09:00	683	727	674	742		706			706	2826
10:00	784	826	831	927		842			842	3368
11:00	981	926	1011	1088		1001			1001	4006
12:00	996	951	(1024)	1105		1019			1019	4076
13:00	1037	1009	1026	1139		1052			1052	4211
14:00	867	999	891	968		931			931	3725
15:00	817	859	832	866		843			843	3374
16:00	721	802	846	890		814			814	3259
17:00	740	775	759	896		(792)			792	3170
18:00	720	707	757			728			728	2184
19:00	672	696	682			683			683	2050
20:00	663	603	563			609			609	1829
21:00	469	470	426			455			455	1365
22:00	268	351	349			322			322	968
23:00	168	223	244			211			211	635
24:00	92	104	103			99			99	299

TOTALS	11709	11981	(12110)	9675	0	(12136)	0	0	12136	45475
% AVG WKDY	96.4	98.7	99.7	79.7						
% AVG WEEK	96.4	98.7	99.7	79.7						
AM Times	12:00	12:00	12:00	12:00		12:00			12:00	
AM Peaks	996	951	1024	1105		1019			1019	
PM Times	13:00	13:00	13:00	13:00		13:00			13:00	
PM Peaks	1037	1009	1026	1139		1052			1052	

21359

MassDOT Highway Division
 WEEKLY SUMMARY FOR LANE 2
 Starting: 7/13/2015

STA. 16 WB

SB

Site Reference: 150290000529
 Site ID: 00000001603
 Location: RTE. 6, SOUTH OF NAUSET RD.
 Direction: WEST

File: V16-0304.prn
 City: EASTHAM
 County: VOL E&W

TIME	MON 13	TUE 14	WED 15	THU 16	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00	113	97	116	102		107			107	428
02:00	84	46	137	54		80			80	321
03:00	33	30	44	24		32			32	131
04:00	44	27	17	17		26			26	105
05:00	91	36	50	34		52			52	211
06:00	243	129	145	125		160			160	642
07:00	455	358	357	384		388			388	1554
08:00	761	662	736	715		718			718	2874
09:00	962	846	973	972		938			938	3753
10:00	1047	1005	1013	1068		1033			1033	4133
11:00	1208	1054	1192	1154		1152			1152	4608
12:00	1051	1087	(1277)	1186		1150			1150	4601
13:00	1047	1265	1259	1184		1188			1188	4755
14:00	1039	1302	1138	1164		1160			1160	4643
15:00	1196	1248	1236	1259		1234			1234	4939
16:00	1437	1347	1450	1513		1436			1436	5747
17:00	1494	1535	1506	1596		(1532)			1532	6131
18:00	1389	1547	1482			1472			1472	4418
19:00	1215	1200	1217			1210			1210	3632
20:00	995	884	876			918			918	2755
21:00	827	870	761			819			819	2458
22:00	725	620	566			637			637	1911
23:00	552	382	402			445			445	1336
24:00	438	452	295			395			395	1185

TOTALS	18446	18029	18245	12551	0	(18282)	0	0	18282	67271

% AVG WKDY	100.8	98.6	99.7	68.6						
% AVG WEEK	100.8	98.6	99.7	68.6						

AM Times	11:00	12:00	12:00	12:00		11:00			11:00	
AM Peaks	1208	1087	1277	1186		1152			1152	

PM Times	17:00	18:00	17:00	17:00		17:00			17:00	
PM Peaks	1494	1547	1506	1596		1532			1532	

- Are signs located to maximize perception and reaction while minimizing intrusion in clear zones?
- Does the signage provide adequate guidance to road users for given road conditions?
- Are pavement markings and signs consistent in effectively guiding road users?

Intersection Control

- Do all signs (stop signs, lane assignments, street names, etc.) provide visible, clear, non-conflicting messages?
- Is there clear, non-conflicting visibility of traffic control (signal heads, signs, and markings) from all approach lanes?
- Has the potential of misrepresentation of intersection control been considered (at closely spaced intersections or through control that is against expectation)?
- For signalized intersections, have the implications on safety been considered for the signal phasing?
- Is there a safe means by which all modes can travel through the intersection?

Lighting

- Is lighting (from headlights and/or streetlights) adequate for specific roadway conditions and/or use?
- If glare exists from sunlight or opposing headlights, are there countermeasures that can be implemented to minimize potentially detrimental effects?

Obstructions

- Are there obstructions to sight lines or roadway guidance (signs, markings, etc.) that can be removed, relocated, or minimized as part of this project?
- If obstructions or fixed objects exist but cannot be moved, can they be shielded (with guardrails, etc.) or delineated (with reflectors) to improve road user safety? If so, what can be done?

Pavement

- Could the condition of the pavement impact mobility and safety (potholes, edge drop-offs, skid resistance, etc.)?
- What improvements can be made to minimize safety impacts?

Access Points and Traffic Generators

- Is the access control sufficient for the road's function?

- Are site access points located to maximize safety while still providing adequate access?
- Have impacts of site developments been adequately accommodated for safe mobility of all road users?

Parking

- Is parking clearly delineated and in conformance with signs, markings, and regulations?
- Might parking obstruct mobility/safety of pedestrians and other roadway users?

Weather Conditions

- Have accommodations been made for impacts from adverse weather condition (storage of snow, removal of ponding, adequate drainage, signage of low salt areas, maintenance program for snow removal, and catch basin clearing, etc.)?

Auxiliary Lanes

- Could taper locations and/or alignments contribute to safety challenges?
- Could lack of climbing lanes or passing zones cause driver frustration?
- Do acceleration/deceleration lane lengths necessitate additional signage and/or markings?

Animals

- Do animal migrations impact safety?
- Can measures be taken to reduce animal-vehicle conflicts?

CAPE COD COMMISSION

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