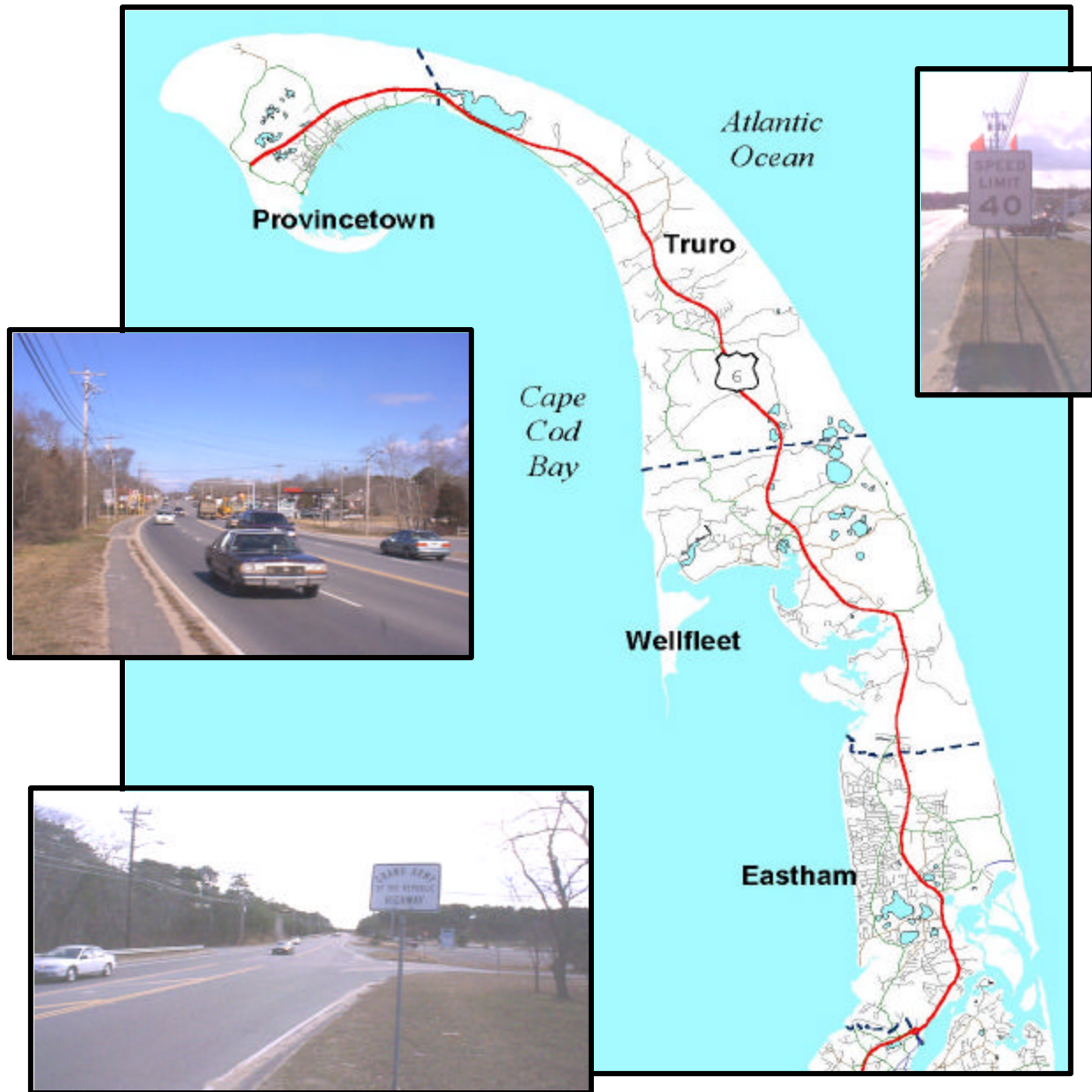


ROUTE 6

SAFETY & TRAFFIC FLOW STUDY

EASTHAM • WELFLEET • TRURO • PROVINCETOWN

APPENDIX



Cape Cod Commission Transportation Staff • November 2003
Prepared in Cooperation with the Executive Office of Transportation and Construction,
the Massachusetts Highway Department,
and the U.S. Department of Transportation, Federal Highway Administration

APPENDIX CONTENTS:

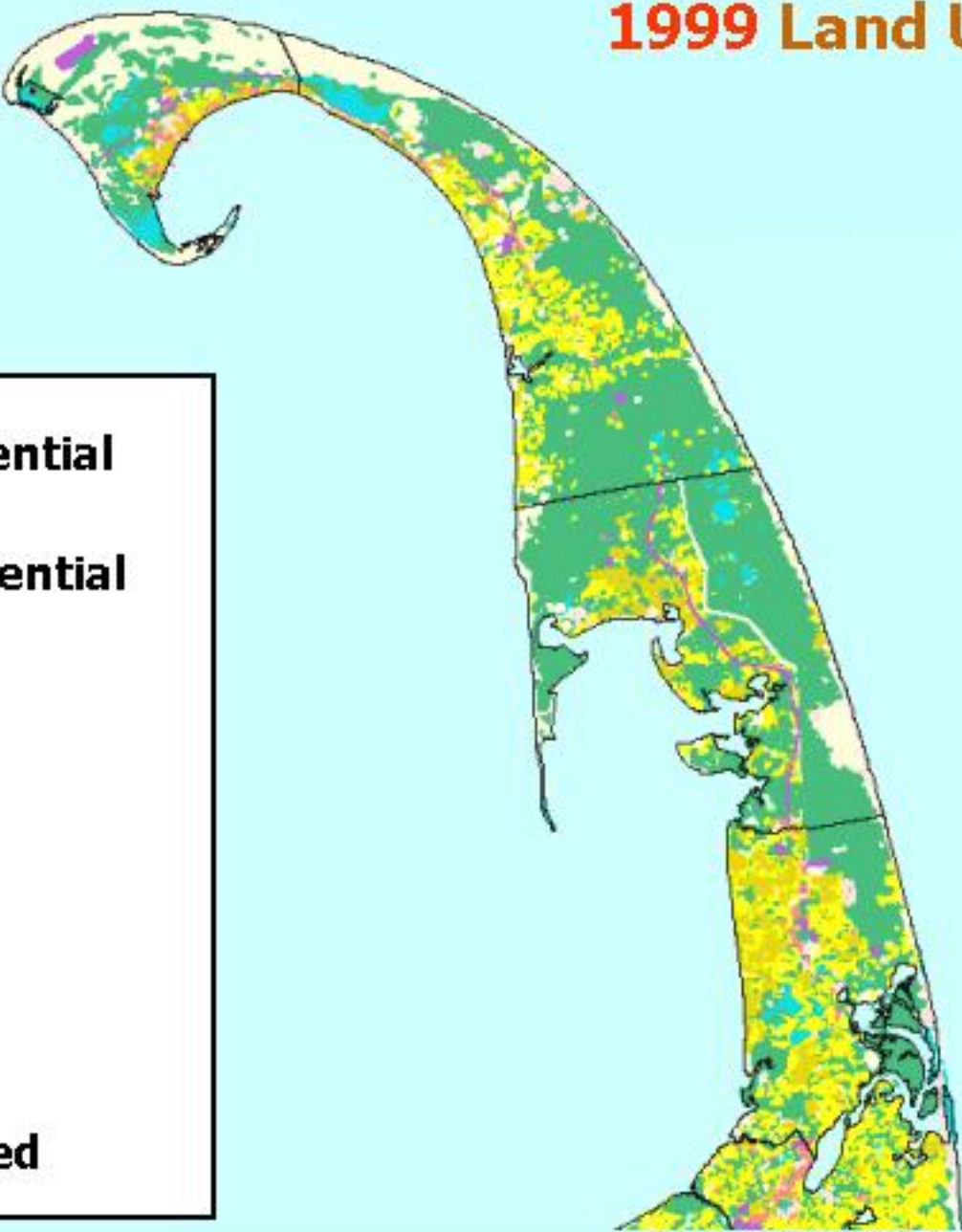
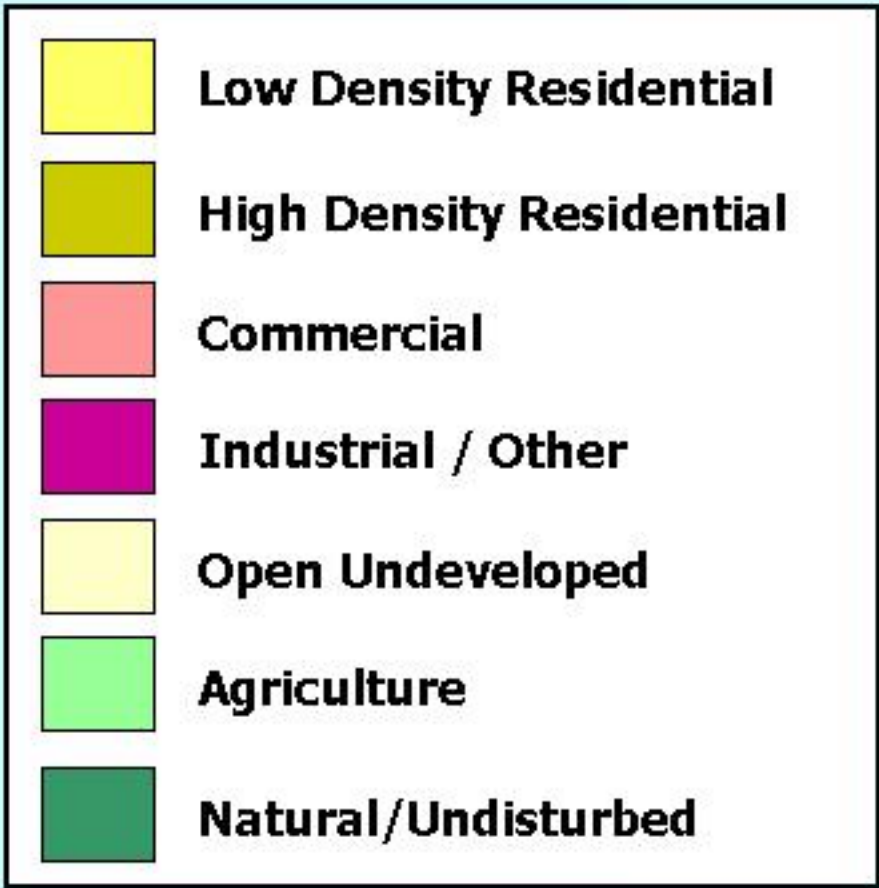
- A: Study Area Map and Land Use Maps
- B: Summary of Detailed Safety Studies (National)
- C: Summary of Detailed Route 6 Accident Reports
- D: Route 6 Intersection Crash History
- E: MassHighway Crash Worksheets
- F: CCC Route 6 Automatic Traffic Recorder Data
- G: CCC Route 6 Turning Movement Count Data
Raw counts from CCC database
- H: Signal Warrant Detail
- I: Level of Service Discussion
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*Synchro Base Model Output-HDM Signalized and Unsignalized Intersection
Capacity Analysis Reports*
- K: *SimTraffic* Intersection Performance Reports
- L: *SimTraffic* Network and Corridor Performance Reports
- M: Project Cost Assumptions
(Including network section breakout)

Appendix A

Study Area Map and Land Use Maps

**Outer Cape
Land Use**

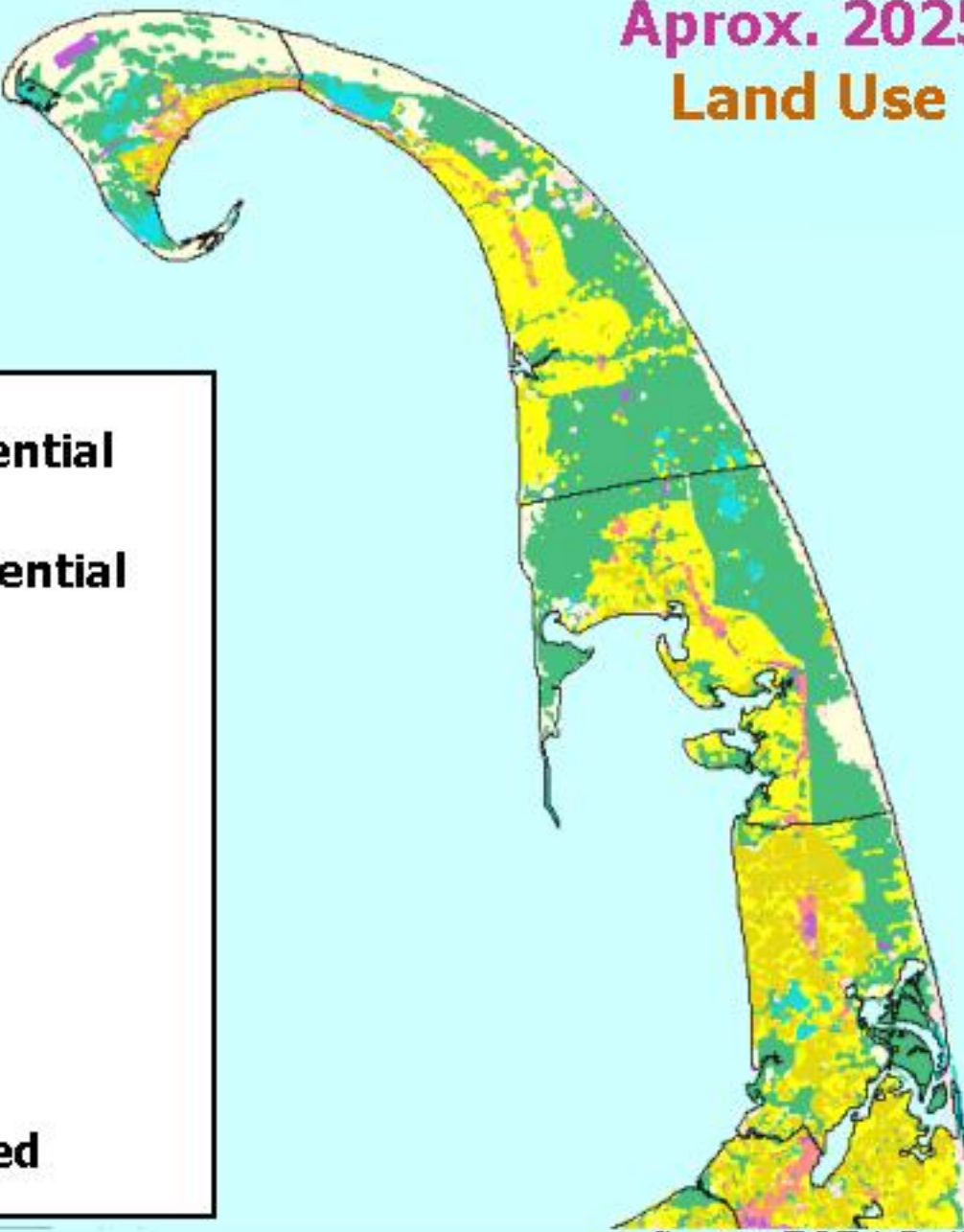
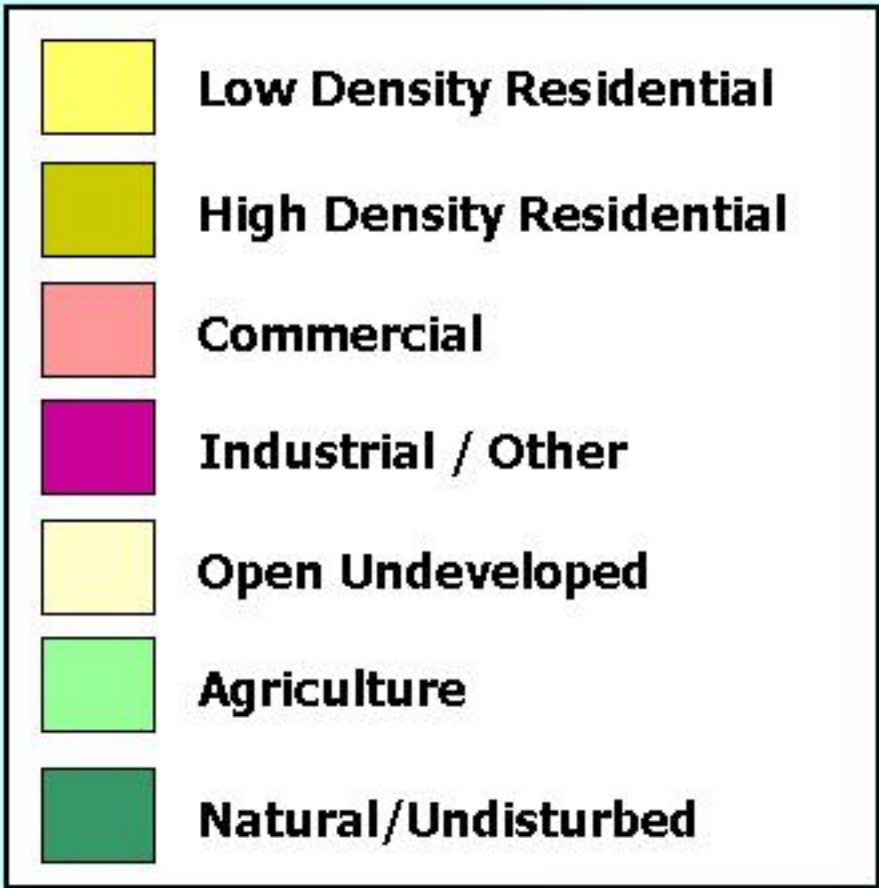
1999 Land Use



Source: EOEa Buildout study

**Outer Cape
Land Use**

**Aprox. 2025
Land Use**



Source: EOEa Buildout study

Appendix B

Summary of Detailed Safety Studies (National)

Summary of Detailed Safety Studies (National)

According to studies published by State Farm Insurance, the National Highway traffic Safety Administration, and the Insurance Institute for Highway Safety, about one-third of all crashes occur at intersections. Nationally, 5,814 fatal crashes occurred at or near intersections in 1999 – about 23 percent of all fatal crashes in the nation.

Rear-end collisions seems to be the most common, probably because vehicles often are required to stop at intersections. Potentially serious side-impact or angle collisions are also common at intersections. Head-on collisions are probably the least common intersection crash type, and tend to result in the most severe injuries.

Driver-related causes have many possibilities:

- Σ Red-light running: Red light running and other signal violations such as disobeying yield and stop signs are the most frequent cause of urban crashes. Violating traffic controls accounts for 22 percent of all urban crashes and 27 percent of the injuries that result from them. Motorists are more likely to be hurt in crashes caused by red-light running than in any other type of urban crash. Red-light running accounts for more than 200,000 injuries and more than 800 deaths per year.
- Σ Failure to yield: This occurs when a driver attempts a left turn in the face of oncoming traffic, or perhaps tries to make a right turn on a red light when the way isn't clear.
- Σ Following too closely: Also called “tailgating”, is a key factor in rear-end collisions.
- Σ Speeding: This includes trying to “beat” a red light by speeding up and hitting another car whose driver anticipated a green light.
- Σ Inattentiveness: such as talking on a cellular phone, tuning a radio, or eating while driving, or simply being preoccupied and not paying enough attention to traffic.

Traffic engineering experts have estimated that between 30 percent and 60 percent of all crashes could be prevented or made less severe through road improvements – a key component in making intersections more driver-friendly. A study of a particular intersection includes a visit to the intersection to find out such things as why “near misses” occur, the effect of congestion and delay on vehicles traveling through the intersection, and whether any signal timing or sight distance problems exist. Later, police reports for several years should be analyzed to see what times of the day, week, and year crashes occur at the intersection, where exactly the crashes occur, and how such factors as weather, pavement conditions, and lighting may be contributing to crashes.

After analyzing this information, traffic engineers can determine what the problems are and propose solutions for each. Some problems – such as faulty signal timing – are relatively easy

and inexpensive to solve. Others – the need to widen the intersections to add left-turn lanes, for example – are more time-consuming and costly to fix.

Solutions, of course, will vary with each intersection. Some measures to consider may include:

- Σ Better traffic-signal timing aimed at reducing unnecessary stops and preventing rear-end collisions.
- Σ Adding left-turn-only lanes and allowing left turns only when traffic from the opposite direction is stopped.
- Σ Improving the visibility of signals, such as by making them brighter, or larger, or installing an additional signal head.
- Σ Giving pedestrians time to start across an intersection before turning vehicles are allowed there, and more time to cross wide, busy roads. Ensuring that pedestrian facilities such as sidewalks, crosswalks, pedestrian signals, push-button activation of signals and ramps are available and operating properly.
- Σ Removing signal lights at low volume intersections and replacing them with four-way stop signs or roundabouts. This actually improves safety in many situations. A signal-removal program in Philadelphia reduced crashes by an estimated 24 percent.
- Σ Where appropriate, converting two-way stop signs to four-way stops. This has been shown to reduce crashes by 40 to 60 percent and injury crashes by 50 to 80 percent.
- Σ Making more widespread use of roundabouts, which slow down drivers and make some types of crashes less likely. A study by the Insurance Institute for Highway Safety and researchers at two universities showed that roundabouts reduced overall intersection crashes 39 percent and injury-producing crashes 76 percent.
- Σ Use of “traffic calming.” This term refers to a variety of measures designed to slow down vehicles, such as speed bumps, rumble strips and the narrowing of streets (through on-street parking, plantings and wider sidewalks) to encourage drivers to go to other streets better able to handle a high traffic volume.
- Σ Ensuring that speed limits are appropriate for the street and neighborhood.
- Σ Installing skid-resistant pavement to reduce rear-end crashes, especially in rainy or snowy weather.
- Σ Improving lighting at intersections makes it easier for drivers to see all the traffic and reduces nighttime crashes.
- Σ If running red lights is a significant factor, Red Light Cameras may be the answer. Usually, a camera is mounted on a pole and wired to a traffic signal, with sensors buried

in the intersection. If a vehicle crosses the sensors while the light is red, that triggers the camera, which produces a photo showing the car, its license plate, and the date and time of the violation. Several studies have shown that these cameras in use in at least several dozen cities, do reduce red-light violations. The Insurance Institute for Highway Safety says such violations dropped 42 percent in Oxnard, California, and 44 percent in Fairfax, Virginia, after red-light cameras were introduced. Injury crashes at Oxnard intersections with traffic signals declined 29 percent. In both cities, there was a “spillover” effect: violations and crashes dropped not only at intersections where the cameras were installed, but also at other locations. A NHTSA pilot program reduced red-light running in 28 of 31 target communities. A poll conducted for the Advocates for Highway and Auto Safety in 1998 showed that 65 percent of the public supports use of red-light cameras; this increased to 74 percent in a 1999 poll.

- Σ Solving the problem of driveways contributing to crashes because they are too close to intersections. This can be done by consolidating driveways; closing them; moving them as far back from the intersection as possible; and planning future driveways to minimize interference with traffic flow at the intersection.

Appendix C

Summary of Detailed Route 6 Accident Reports

Cape Cod Commission Accident Data Accident Severity & Type

Eastham	RT 6 ASPINET RD	Fri, 6/14/96 I9602898		Eastham	RT 6 BRACKETT RD	Wed, 6/29/94 I9403182	
Eastham	RT 6 ASPINET RD	Sun, 8/20/95 I9504509		Eastham	RT 6 BRACKETT RD	Wed, 7/6/94 I9403394	
Eastham	RT 6 BAYSIDE DR	Sat, 8/13/94 I9404360		Eastham	RT 6 BRACKETT RD	Tue, 7/5/94 I943362	
Eastham	RT 6 BRACKETT RD	Wed, 3/13/96 I9601244		Eastham	RT 6 BRACKETT RD	Fri, 8/26/94 I9404664	
Eastham	RT 6 BRACKETT RD	Mon, 4/15/96 I9601833		Eastham	RT 6 BRACKETT RD	Wed, 8/10/94 I9404278	
Eastham	RT 6 BRACKETT RD	Sat, 7/13/96 I9603556		Eastham	RT 6 BRACKETT RD	Sun, 8/7/94 I9404203	
Eastham	RT 6 BRACKETT RD	Tue, 7/30/96 I9603910		Eastham	RT 6 BRACKETT RD	Thu, 12/29/94 I9406875	
Eastham	RT 6 BRACKETT RD	Sat, 8/10/96 I9604183		Eastham	RT 6 BRACKETT RD	Wed, 10/26/94 I9405778	
Eastham	RT 6 BRACKETT RD	Sun, 8/11/96 I9604206		Eastham	RT 6 BRACKETT RD	Fri, 11/18/94 I9406271	
Eastham	RT 6 BRACKETT RD	Tue, 8/13/96 I9604245		Eastham	RT 6 CANAL RD	Wed, 3/15/95 I9501326	
Eastham	RT 6 BRACKETT RD	Sat, 9/14/96 I9604988		Eastham	RT 6 CEDAR LN	Fri, 8/9/96 I9604161	
Eastham	RT 6 BRACKETT RD	Tue, 8/15/95 I9504389		Eastham	RT 6 CORLISS WAY	Fri, 10/6/95 I9505362	
Eastham	RT 6 BRACKETT RD	Mon, 8/28/95 I9504679		Eastham	RT 6 DEPOT RD	Mon, 5/30/94 I9402645	
Eastham	RT 6 BRACKETT RD	Sun, 5/28/95 I9502623		Eastham	RT 6 EAST WIND DR	Sun, 3/19/95 I9501388	
Eastham	RT 6 BRACKETT RD	Mon, 5/16/94 I9402430		Eastham	RT 6 GIGI LN	Wed, 5/22/96 I9602414	

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
8/26/2002

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Cape Cod Commission Accident Data Accident Severity & Type

Eastham	RT 6	Sat, 8/6/94	■	↑	Eastham	RT 6	Mon, 5/29/95	●	↑
GIGI LN		I9404167			HAY RD		I9502639		
Eastham	RT 6	Fri, 3/22/96	■		Eastham	RT 6	Sun, 7/2/95	■	↑
GOVERNOR PRENCE RD N		I9601401			HAY RD		I9503328		
Eastham	RT 6	Sun, 7/14/96	●		Eastham	RT 6	Sun, 10/9/94	●	↑
GOVERNOR PRENCE RD N		I9603341			HAY RD		I9405486		
Eastham	RT 6	Wed, 8/2/95	●		Eastham	RT 6	Wed, 8/2/95	■	→
GOVERNOR PRENCE RD N		I9504083			HEMENWAY RD		I9504079		↑
Eastham	RT 6	Wed, 9/13/95	●		Eastham	RT 6	Sat, 8/10/96	●	↑
GOVERNOR PRENCE RD N		I9504992			HOFFMAN LN		I9604175		
Eastham	RT 6	Tue, 12/27/94	●	↑	Eastham	RT 6	Wed, 8/14/96	●	↑
GOVERNOR PRENCE RD N		I9406844			HOFFMAN LN		I9604269		
Eastham	RT 6	Thu, 7/4/96	■	↓	Eastham	RT 6	Thu, 3/21/96	●	↑
GOVERNOR PRENCE EXTENSION		I9603316			KINGSBURY BEACH RD		I9601382		
Eastham	RT 6	Wed, 8/16/95	●	↘	Eastham	RT 6	Mon, 5/20/96	■	↘
GOVERNOR PRENCE EXTENSION		I9504414			KINGSBURY BEACH RD		I9602390		
Eastham	RT 6	Thu, 6/16/94	■		Eastham	RT 6	Sat, 9/24/94	■	↓
GOVERNOR PRENCE EXTENSION		I9402927			KINGSBURY BEACH RD		I9405234		
Eastham	RT 6	Wed, 10/19/94	●	↗	Eastham	RT 6	Sat, 10/7/95	●	↓
GOVERNOR PRENCE EXTENSION		I9405644			MAIN ST		I9505378		
Eastham	RT 6	Tue, 10/15/96	■	↘	Eastham	RT 6	Sat, 7/2/94	■	↓
GREAT POND RD		I9605544			MAIN ST		I9403256		
Eastham	RT 6	Mon, 2/26/96		↑	Eastham	RT 6	Fri, 2/9/96	■	
HAY RD		I9600999			MASSASOIT RD		I9600686		
Eastham	RT 6	Sun, 8/18/96	■	↑	Eastham	RT 6	Thu, 5/16/96	●	
HAY RD		I9604372			MASSASOIT RD		I9602308		
Eastham	RT 6	Fri, 12/1/95	●	↑	Eastham	RT 6	Fri, 9/20/96	●	↑
HAY RD		I9506172			MASSASOIT RD		I9605092		
Eastham	RT 6	Sat, 4/29/95	●	↑	Eastham	RT 6	Sun, 10/15/95	■	↑
HAY RD		I9502101			MASSASOIT RD		I9505510		

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
8/26/2002

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Cape Cod Commission Accident Data Accident Severity & Type

Eastham	RT 6	Sat, 8/12/95	●	↓	Eastham	RT 6	Sun, 5/29/94	↓
MASSASOIT RD		I9504323			NAUSET RD NWAMPUM LN		I9402629	
Eastham	RT 6	Wed, 6/8/94	■	↑	Eastham	RT 6	Sat, 8/13/94	●
MASSASOIT RD		I9402802			NAUSET RD NWAMPUM LN		I9404354	
Eastham	RT 6	Wed, 7/30/97	●	↑	Eastham	RT 6	Wed, 1/10/96	●
MASSASOIT RD		I9404008			OAK RD		I9600152	↓
Eastham	RT 6	Fri, 7/5/96	■	↑	Eastham	RT 6	Fri, 7/26/96	■
MCKOY RD		I9603373			OAK RD		I9603828	↑
Eastham	RT 6	Sat, 7/6/96	●	↘	Eastham	RT 6	Sat, 7/15/95	●
MCKOY RD		I9603407			OAK RD		I9503627	↓
Eastham	RT 6	Sat, 7/27/96	●	↑	Eastham	RT 6	Thu, 8/17/95	■
MCKOY RD		I9603853			OAK RD		I9504437	↘
Eastham	RT 6	Sat, 9/2/95	■	↘	Eastham	RT 6	Wed, 4/13/94	●
MCKOY RD		I9504797			OAK RD		I9401889	↑
Eastham	RT 6	Fri, 6/10/94	●	↑	Eastham	RT 6	Sat, 5/28/94	↑
MCKOY RD		I9402842			OAK RD		I9402601	
Eastham	RT 6	Tue, 8/2/94	■	↑	Eastham	RT 6	Tue, 6/21/94	●
MCKOY RD		I9404072			OAK RD		I9403020	↑
Eastham	RT 6	Mon, 8/1/94	■	↘	Eastham	RT 6	Sat, 7/16/94	●
MCKOY RD		I9404038			OAK RD		I9403623	↓
Eastham	RT 6	Fri, 2/16/96	●	↑	Eastham	RT 6	Fri, 7/19/96	●
NAUSET RD NWAMPUM LN		I9600797			OLD ORCHARD RD		I9603686	↓
Eastham	RT 6	Thu, 2/22/96	●	↑	Eastham	RT 6	Mon, 8/26/96	●
NAUSET RD NWAMPUM LN		I9600909			OLD ORCHARD RD		I9604550	↓
Eastham	RT 6	Tue, 9/24/96	■	↑	Eastham	RT 6	Wed, 9/11/96	■
NAUSET RD NWAMPUM LN		I9605160			OLD ORCHARD RD		I9604936	
Eastham	RT 6	Wed, 9/13/95	●	↔	Eastham	RT 6	Mon, 3/13/95	■
NAUSET RD NWAMPUM LN		I9504994			OLD ORCHARD RD		I9501291	↑
Eastham	RT 6	Fri, 4/14/95	■	↑	Eastham	RT 6	Sat, 10/1/94	■
NAUSET RD NWAMPUM LN		I9501818			OLD ORCHARD RD		I9405348	↑

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
8/26/2002

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Cape Cod Commission Accident Data Accident Severity & Type

Eastham	RT 6	Wed, 11/2/94	●	↖	Eastham	RT 6	Fri, 6/9/95	■	↑
	OLD ORCHARD RD	I9405976				EASTHAM ROTARY	I9502848		
Eastham	RT 6	Thu, 8/22/96	●	↑	Eastham	RT 6	Thu, 6/15/95	■	↑
	PERKINS GLEN RD	I9604461				EASTHAM ROTARY	I9502957		
Eastham	RT 6	Sun, 6/26/94	●		Eastham	RT 6	Fri, 3/25/94	●	
	RAILROAD AV	I9403111				EASTHAM ROTARY	I9401518		
Eastham	RT 6		●		Eastham	RT 6	Fri, 7/1/94	■	↓
	RAILROAD AV	I9404004				EASTHAM ROTARY	I9403239		
Eastham	RT 6	Mon, 7/3/95	●	↓	Eastham	RT 6	Wed, 7/6/94	■	↑
	ROGERS LN	I9503360				EASTHAM ROTARY	I9403400		
Eastham	RT 6		●	←	Eastham	RT 6	Thu, 8/18/94	●	↓
	EASTHAM ROTARY	I9601140				EASTHAM ROTARY	I9404453		
Eastham	RT 6	Sat, 7/6/96	■		Eastham	RT 6	Thu, 8/11/94	●	↓
	EASTHAM ROTARY	I9603394				EASTHAM ROTARY	I9404306		
Eastham	RT 6	Wed, 7/10/96	●	↘	Eastham	RT 6	Sat, 8/9/97	●	↑
	EASTHAM ROTARY	I9603494				SALT POND RD S	I9604167		
Eastham	RT 6	Sat, 8/3/96	●	↓	Eastham	RT 6	Mon, 8/14/95	●	↓
	EASTHAM ROTARY	I9604005				SALT POND RD S	I9504374		
Eastham	RT 6	Mon, 8/12/96	●	↓	Eastham	RT 6	Sun, 8/14/94	●	↑
	EASTHAM ROTARY	I9604223				SALT POND RD S	I9404380		
Eastham	RT 6	Fri, 10/18/96	●	↑	Eastham	RT 6	Wed, 1/10/96	●	↓
	EASTHAM ROTARY	I9605589				SAMOSSET RD	I9600157		
Eastham	RT 6	Tue, 9/26/95	■	↓	Eastham	RT 6	Thu, 4/18/96	●	
	EASTHAM ROTARY	I9505209				SAMOSSET RD	I9601869		
Eastham	RT 6	Sat, 8/12/95	●		Eastham	RT 6	Wed, 5/8/96	■	↘
	EASTHAM ROTARY	I9504330				SAMOSSET RD	I9602173		
Eastham	RT 6	Fri, 8/18/95	●	→	Eastham	RT 6	Sat, 6/29/96	●	↓
	EASTHAM ROTARY	I9504462				SAMOSSET RD	I9603206		
Eastham	RT 6	Wed, 6/7/95	●	↑	Eastham	RT 6	Sat, 7/13/96	●	↓
	EASTHAM ROTARY	I9502802				SAMOSSET RD	I9603545		

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
8/26/2002

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Cape Cod Commission Accident Data Accident Severity & Type

Eastham	RT 6	Sat, 8/31/96	●	→↘	Eastham	RT 6	Sat, 9/9/95	■	↓
	SAMOSSET RD	I9604663				VAN DALE RD	I9504929		
Eastham	RT 6	Tue, 9/17/96	●	↑	Eastham	RT 6	Fri, 5/26/95	■	↓
	SAMOSSET RD	I9605040				VAN DALE RD	I9502571		
Eastham	RT 6	Sun, 10/13/96	■	↑	Eastham	RT 6	Fri, 8/26/94	■	↑
	SAMOSSET RD	I9605319				VAN DALE RD	I9404656		
Eastham	RT 6	Thu, 10/10/96	■	↑	Eastham	RT 6	Sun, 5/5/96	●	
	SAMOSSET RD	I9605453				NAUSET RD S/SALT POND RD N	I9602117		
Eastham	RT 6	Sun, 8/20/95	●	↑	Eastham	RT 6	Tue, 8/13/96	●	↓
	SAMOSSET RD	I9504501				NAUSET RD S/SALT POND RD N	I9604247		
Eastham	RT 6	Thu, 5/19/94	■		Eastham	RT 6	Mon, 10/9/95	■	↘
	SAMOSSET RD	I9402475				NAUSET RD S/SALT POND RD N	I9505406		
Eastham	RT 6	Tue, 7/19/94	■	↕	Eastham	RT 6	Tue, 8/15/95	■	
	SAMOSSET RD	I9403685				NAUSET RD S/SALT POND RD N	I9504390		
Eastham	RT 6	Mon, 7/18/94	●	↑	Eastham	RT 6	Sat, 9/9/95	■	
	SAMOSSET RD	I9403668				NAUSET RD S/SALT POND RD N	I9504937		
Eastham	RT 6	Mon, 8/29/94	●	↓	Eastham	RT 6	Fri, 1/20/95	●	
	SAMOSSET RD	I9404740				NAUSET RD S/SALT POND RD N	I9500343		
Eastham	RT 6	Fri, 12/23/94	●	→↘	Eastham	RT 6	Thu, 3/9/95	●	
	SAMOSSET RD	I9406769				NAUSET RD S/SALT POND RD N	I9501199		
Eastham	RT 6	Fri, 12/30/94	■	→↘	Eastham	RT 6	Tue, 2/8/94	■	↓
	SAMOSSET RD	I9406887				NAUSET RD S/SALT POND RD N	I9400735		
Eastham	RT 6	Thu, 11/17/94	■		Eastham	RT 6	Fri, 4/8/94	■	↓
	SAMOSSET RD	I9406249				NAUSET RD S/SALT POND RD N	I9401790		
Eastham	RT 6	Tue, 3/26/96	■	↑	Eastham	RT 6	Fri, 6/3/94	●	↓
	SOUTH EASTHAM ST	I9601461				NAUSET RD S/SALT POND RD N	I9402726		
Eastham	RT 6	Thu, 7/25/96	●	↓	Eastham	RT 6	Wed, 8/31/94	●	↓
	SOUTH EASTHAM ST	I9603818				NAUSET RD S/SALT POND RD N	I9404710		
Eastham	RT 6	Wed, 12/20/95	●	→↘	Eastham	RT 6	Thu, 9/15/94	●	↓
	VAN DALE RD	I9506491				NAUSET RD S/SALT POND RD N	I9405088		

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
8/26/2002

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Cape Cod Commission Accident Data Accident Severity & Type

Eastham	RT 6	Mon, 12/5/94	●	
NAUSET RD S/SALT POND RD N		19406495		
Wellfleet	RT 6	Sun, 8/28/94	●	
AVERY RD		944108		
Wellfleet	RT 6	Tue, 1/9/96	■	
BRIAR LN		960081		
Wellfleet	RT 6	Wed, 1/10/96	●	
BRIAR LN		960094		
Wellfleet	RT 6	Wed, 7/6/94	●	
BRIAR LN		942633		
Wellfleet	RT 6	Sun, 5/26/96	●	
CAHOON HOLLOW RD		961783		
Wellfleet	RT 6	Sat, 7/30/94	●	
CAHOON HOLLOW RD		943395		
Wellfleet	RT 6	Wed, 1/24/96	●	
CANNON HILL RD		960231		
Wellfleet	RT 6	Thu, 7/4/96	●	
CANNON HILL RD		962842		
Wellfleet	RT 6	Mon, 9/23/96	■	
COLES NECK RD		965609		
Wellfleet	RT 6	Tue, 1/23/96	●	
COTTONTAIL RD		960221		
Wellfleet	RT 6	Sun, 6/18/95	●	
COTTONTAIL RD		952159		
Wellfleet	RT 6	Sat, 8/27/94	●	
COTTONTAIL RD		944072		
Wellfleet	RT 6	Sat, 4/13/96	■	
COVE RD		961145		
Wellfleet	RT 6	Mon, 10/31/94	●	
COVE RD		945208		
Wellfleet	RT 6	Sat, 4/23/94	■	
CRANBERRY HOLLOW RD		941220		
Wellfleet	RT 6	Fri, 5/5/95	■	
DALE AV		951360		
Wellfleet	RT 6	Sun, 7/16/95	●	
DESIGNERS RD		952984		
Wellfleet	RT 6	Thu, 3/14/96	●	
WELLFLEET CINEMAS & DRIVE IN		960797		
Wellfleet	RT 6	Mon, 5/20/96	●	
WELLFLEET CINEMAS & DRIVE IN		961634		
Wellfleet	RT 6	Fri, 7/19/96	■	
WELLFLEET CINEMAS & DRIVE IN		963474		
Wellfleet	RT 6	Sun, 8/25/96	●	
WELLFLEET CINEMAS & DRIVE IN		964927		
Wellfleet	RT 6	Mon, 12/16/96	●	
WELLFLEET CINEMAS & DRIVE IN		966868		
Wellfleet	RT 6	Sat, 7/1/95	■	
WELLFLEET CINEMAS & DRIVE IN		952480		
Wellfleet	RT 6	Thu, 7/6/95	●	
WELLFLEET CINEMAS & DRIVE IN		952655		
Wellfleet	RT 6	Sun, 9/24/95	■	
WELLFLEET CINEMAS & DRIVE IN		954717		
Wellfleet	RT 6	Sat, 7/23/94	●	
WELLFLEET CINEMAS & DRIVE IN		943146		
Wellfleet	RT 6	Sun, 7/24/94	●	
WELLFLEET CINEMAS & DRIVE IN		943188		
Wellfleet	RT 6	Sun, 8/14/94	●	
WELLFLEET CINEMAS & DRIVE IN		943790		
Wellfleet	RT 6	Wed, 9/7/94	●	
WELLFLEET CINEMAS & DRIVE IN		944343		

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
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Cape Cod Commission Accident Data Accident Severity & Type

Wellfleet	RT 6	Sat, 10/12/96	●	↑	Wellfleet	RT 6	Sun, 9/4/94	●	
	GULL POND RD	965972				MAIN ST	944270		
Wellfleet	RT 6	Sat, 5/6/95	■	↖	Wellfleet	RT 6	Wed, 8/7/96	●	↑
	LECOUNT HOLLOW RD	951366				MARCONI BEACH RD	964121		
Wellfleet	RT 6	Sat, 7/29/95	●	↘	Wellfleet	RT 6	Wed, 10/30/96	■	
	LECOUNT HOLLOW RD	953308				MARCONI BEACH RD	966290		
Wellfleet	RT 6	Mon, 8/7/95	●		Wellfleet	RT 6	Sun, 7/30/95	●	↑
	LECOUNT HOLLOW RD	953577				MARCONI BEACH RD	953344		
Wellfleet	RT 6	Sat, 7/16/94	●	↖	Wellfleet	RT 6	Thu, 7/25/96	●	↘
	LECOUNT HOLLOW RD	942903				OLD WHARF RD	963687		
Wellfleet	RT 6	Sat, 8/27/94	●	↗	Wellfleet	RT 6	Sun, 12/4/94	■	↔
	LECOUNT HOLLOW RD	944075				OLD WHARF RD	945711		
Wellfleet	RT 6	Mon, 7/8/96	●	↑	Wellfleet	RT 6	Sat, 8/6/94	■	↑
	LIEUTENANT RD	963102				PAINE HOLLOW RD	943573		
Wellfleet	RT 6	Thu, 5/2/96	■	↖	Wellfleet	RT 6	Tue, 9/3/96	■	↑
	MAIN ST	961456				PILGRIM SPRING RD/SPRING VALLEY RD	965265		
Wellfleet	RT 6	Tue, 7/2/96	●	↑	Wellfleet	RT 6	Wed, 3/29/95	■	↗
	MAIN ST	962793				PILGRIM SPRING RD/SPRING VALLEY RD	950866		
Wellfleet	RT 6	Wed, 9/4/96	●		Wellfleet	RT 6	Wed, 9/6/95	●	↑
	MAIN ST	965283				PILGRIM SPRING RD/SPRING VALLEY RD	954477		
Wellfleet	RT 6	Fri, 11/29/96	●	↗	Wellfleet	RT 6	Thu, 9/14/95	●	↑
	MAIN ST	966679				PILGRIM SPRING RD/SPRING VALLEY RD	954592		
Wellfleet	RT 6	Wed, 7/5/95	●	↖	Wellfleet	RT 6	Fri, 1/7/94	■	
	MAIN ST	952628				PILGRIM SPRING RD/SPRING VALLEY RD	940084		
Wellfleet	RT 6	Wed, 8/2/95	●	↑	Wellfleet	RT 6	Thu, 7/25/96	●	↔
	MAIN ST	953436				POST OFFICE WELLFLEET	963683		
Wellfleet	RT 6	Sat, 8/5/95	◆	↗	Wellfleet	RT 6	Mon, 10/14/96	■	
	MAIN ST	953532				POST OFFICE WELLFLEET	966007		
Wellfleet	RT 6	Sun, 8/20/95	●	↗	Wellfleet	RT 6	Tue, 7/25/95	●	↑
	MAIN ST	954026				POST OFFICE WELLFLEET	953202		

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident	S	Symbol
Police File		

S Severity:
 ● - Property Damage Only
 ■ - Injury
 ◆ - Fatal

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Cape Cod Commission Accident Data Accident Severity & Type

Wellfleet	RT 6	Sat, 8/19/95	■	↘	Truro	RT 6	Thu, 7/18/96	●	→
POST OFFICE WELLFLEET		953961			GREAT HOLLOW RD		I9604091		
Wellfleet	RT 6	Tue, 7/16/96	●	↓	Truro	RT 6	Sun, 8/27/95	●	
SCHOOL ST/OLD LONG POND RD		963365			HIGHLAND RD		I9505586		
Wellfleet	RT 6	Wed, 5/3/95	●	→	Truro	RT 6	Thu, 8/11/94	■	↘
VILLAGE LN		951329			HIGHLAND RD		I9404527		
Wellfleet	RT 6	Sat, 6/4/94	■		Truro	RT 6	Fri, 8/2/96	●	
VILLAGE LN		941825			LONGNOOK RD		I9604519		
Wellfleet	RT 6	Tue, 7/16/96	●	↑	Truro	RT 6	Wed, 3/16/94	■	
WEST RD		963366			LONGNOOK RD		I9401170		
Wellfleet	RT 6	Sat, 9/30/95	■	→	Truro	RT 6	Sat, 2/17/96	■	↑
WEST RD		954801			NORTH PAMET RD		I9600733		
Wellfleet	RT 6	Fri, 11/18/94	■	↙	Truro	RT 6	Thu, 11/14/96	●	↘
WEST RD		I945471			NORTH PAMET RD		I9606884		
Truro	RT 6	Thu, 8/3/95	●		Truro	RT 6	Fri, 8/18/95	●	↓
ALDRICH RD		I9504926			NORTH PAMET RD		I9505355		
Truro	RT 6	Tue, 8/23/94	■	↑	Truro	RT 6	Thu, 7/28/94	■	↑
ALDRICH RD		I9404770			NORTH PAMET RD		I9404110		
Truro	RT 6	Sun, 9/4/94	■	↓	Truro	RT 6	Mon, 7/11/94	■	↘
ARROWHEAD RD		I9405074			PRINCE VALLEY RD		I9403660		
Truro	RT 6	Tue, 9/17/96	■	↘	Truro	RT 6	Thu, 5/19/94	■	↘
BAYSIDE HILLS RD		I9605655			PRINCE VALLEY RD		I9402393		
Truro	RT 6	Mon, 7/29/96	■	↘	Truro	RT 6	Sat, 7/13/96	●	↓
CASTLE RD		I9604409			SHORE RD/ROUTE 6A		I9603968		
Truro	RT 6	Sun, 10/9/94	●	↑	Truro	RT 6	Sun, 7/2/95	●	↓
CASTLE RD		I9405743			SHORE RD/ROUTE 6A		I9503891		
Truro	RT 6	Sat, 12/10/94	■	↓	Truro	RT 6	Tue, 7/25/95	●	→
GEORGE NELSON RD		I9406887			SHORE RD/ROUTE 6A		I9504648		
Truro	RT 6	Thu, 7/4/96	●	↓	Truro	RT 6	Sat, 8/26/95	■	↘
GREAT HOLLOW RD		I9603727			SNOWS RD		I9505553		

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
8/26/2002

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Cape Cod Commission Accident Data Accident Severity & Type

Truro	RT 6 STANDISH WAY	Tue, 7/25/95 I9504641	●	
Truro	RT 6 STONY HILL RD	Tue, 10/29/96 I9606520	●	
Truro	RT 6 STONY HILL RD	Sat, 7/9/94 I9403595		
Truro	RT 6 TOWN HALL RD	Tue, 6/18/96 I9603377	■	
Truro	RT 6 TOWN HALL RD	Mon, 9/16/96 I9605626	●	
Truro	RT 6 TOWN HALL RD	Tue, 8/1/95 I9504852	■	
Truro	RT 6 TOWN HALL RD	Thu, 2/24/94 I9400860	■	
Truro	RT 6 TRANSFER STATION	Thu, 7/28/94 I9404109	●	

Key:

Town	Street Name [Major]
At [Minor]	

Date of Accident

S

Symbol

Police File

S Severity:

- - Property Damage Only
- - Injury
- ◆ - Fatal

Printed:
8/26/2002

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Appendix D

Route 6 Intersection Crash History

Crash History - Route 6 Outer Cape Intersections 1991 -98

<u>Provincetown</u>	<u>Property</u>	<u>Injury - Crashes(injured)</u>	<u>Fatal - Crashes(Fatalities)</u>	<u>Total EPDO Points</u>
Shank Painter Road	7	5(10)		32
Conwell Street	9	19(32)	1(1)	114
Province Lands Road	2	1(1)		7
Snail Road	7	7(16)		42
Race Point Road	1	2(3)		11
Howland Street	5	2(3)		15
Mayflower Road	1			1

<u>Truro</u>	<u>Property</u>	<u>Injury - Crashes(injured)</u>	<u>Fatal - Crashes(Fatalities)</u>	<u>Total EPDO Points</u>
Highland Road	3	2(5)		13
Union Field Road	2			2
Bayberry Gardens		1(4)		5
Great Hollow Road	5	2(6)		15
Head of the Meadow Rd	3	3(5)		18
Stotts Crossing	1	2(3)		11
Arrowhead	2	4(4)		22
Pamet Rd. (S)	4	2(3)		14
Pamet Rd (N)		2(4)		10
Prince Valley Road	1	2(2)		11
Nilson Road	1	1(1)		6
Whitmanville Rd.	2	1(1)		7
South Highland Road	1	1(2)	1(1)	16
Longnook Road	1	2(5)		11
Shore Road	5	1(2)		10
Castle Road	1	1(3)		11

Town Hall Road	4	2(4)	14
Bayside Hills Road		1(3)	5
Stoney Hill Road	1		1
Aldrich Road	1	2(2)	11
Old Rt 6A		3(5)	15
Standish Way	2	1(2)	7
Hillside Farm	2		2
Fishermans Road		1(1)	5
Bridge Street	1		1
High Head Road	2		2
Atwood Road		1(1)	5

<u>Wellfleet</u>	<u>Property</u>	<u>Injury - Crashes(<i>injured</i>)</u>	<u>Fatal - Crashes(<i>Fatalities</i>)</u>	<u>Total EPDO Points</u>
Lt. Island Road	5	2(2)		15
Cottontail Road	2	2(5)		12
Main Street (Kings Hwy)	13	10(14)		63
Le Count Hollow Rd	9			9
Wellfleet Drive In	11	8(12)		51
Gross Hill Road	3	1(1)		8
Gull Pond Road	2	3(8)		17
Nauhaught Bluff Rd	1			1
School Street	5	2(3)		15
Pilgrim Spring Road	2	3(7)		17
Pamet Point Road	1	1(7)		6
Davies Corner	1	3(6)		16
Cannon Hill Road	1	1(1)		6
Old Truro Road		4(6)	1(1)	30
Cove Road	4	3(5)		19
West Road	3	2(3)		13

Post Office	3	2(2)		13
Old Wharf Road	2	2(2)		12
Cassick Valley Road	1			1
Coles Neck Road		2(5)		10
Cemetary Road	1			1
Old County Road	2	3(4)		17
Fresh Brook Lane	2	1(2)		7
Briar Lane	3	2(6)		13
Cahoon Hollow Rd	3	1(2)		8
Village Lane	1	4(4)	1(1)	31
Cranberry Hollow	1	1(2)		6
Day Road		1(3)		5
Peale Vaney Rd		1(1)		5
Spring Valley Road	1	3(5)		16
Marconi Beach Road	5	6(8)		35
Pine Point Road		1(1)		5
Paine Hollow		1(1)		5
Cannon Hill Road		1(1)		5
Avery Road	1			1
Dale Ave		2(3)		10

<u>Eastham</u>	<u>Property</u>	<u>Injury - Crashes(injured)</u>	<u>Fatal - Crashes(Fatalities)</u>	<u>Total EPDO Points</u>
Salt Pond Road	12	8(8)		52
Atlantic	1			1
Samoset Road	12	12(20)		72
Brackett Road	17	12(13)		77
Massasoit Road	5	4(7)		25
Depot Road	4			4
Oak Road	3	8(16)		43
McKoy Road	2	5(8)		27

Wampum Lane	3	3(6)	18
Vandale	7	1(1)	12
Orleans Rotary	11	5(7)	36
Eastwind Drive	1	2(3)	11
Samoset Road	3	2(3)	13
Eastham Road	1	1(3)	6
Kingsbury Beach Road	3	4(7)	23
Governor Prentice Road	6	7(10)	41
Great Pond Road	2	2(4)	12
Hay Road	2	2(4)	12
Sheraton Hotel		1(2)	5
Nauset Road	5	5(9)	30
S. Eastham Street	1	3(3)	16
Mechanic Street	1		1
Railroad Ave	2		2
Post Office	3	1(1)	8
Old Orchard Road	3	3(7)	18
Mobil Street	1		1
Perkins Glen	1		1
Shore Road	1	1(4)	6
Vandale Road	3		3
Canal Road	2		2
Old County Road	3	2(4)	13
Main Street	1		1
Fort Hill Road	2	3(4)	17
Rogers Lane	1		1
Hoffman Lane	2	1(1)	12
Richards Lane	1		1
Sibley Way	1		1
Locust Road		1(1)	5
Aspinet Road	1		1

Jason Drive	1		1
Linda Road	1		1
Aries Ave		1(2)	5
Acre Road		1(1)	5
Burntey Rd		1(2)	5
Oakwood Drive	1		1
Rock Harbor Road		1(1)	5
Bayside Drive	1		1

Appendix E

MassHighway Crash Worksheets

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : ☐ SIGNALIZED : Y

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : BRACKETT ROAD

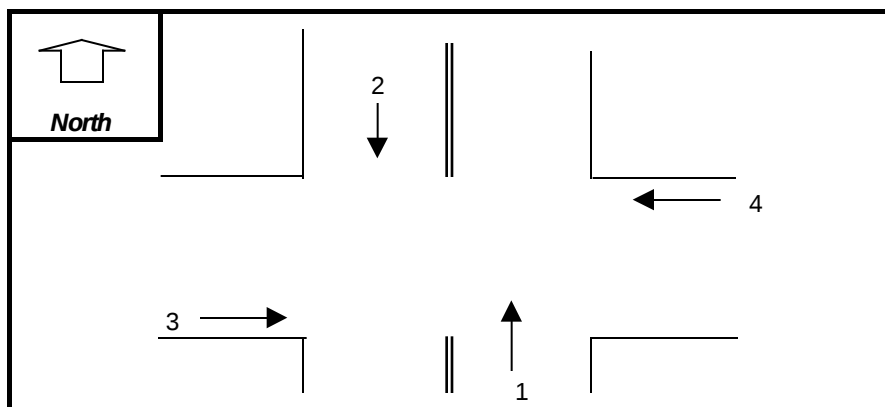
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1221	1191	198	289		

" K " FACTOR : 0.12 APPROACH ADT : 24,158 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 29 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 3.63

CRASH RATE CALCULATION : 0.411 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : Y SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN #

MINOR STREET(S) : GOVERNOR PRENCE

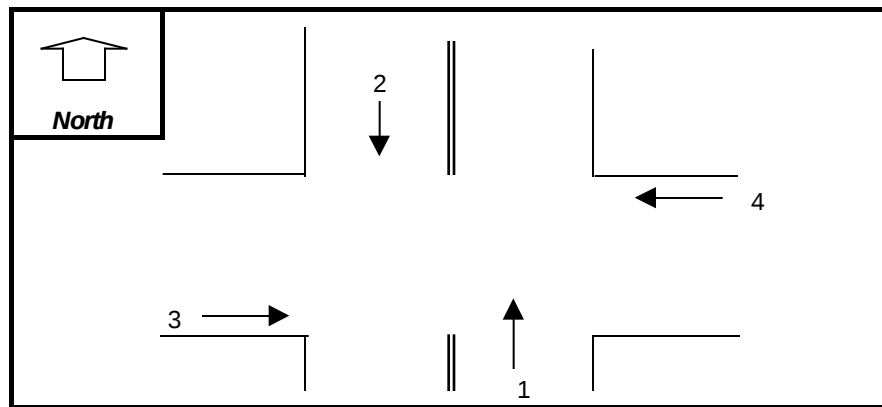
RIN #

RIN #

RIN #

RIN #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION

REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1366	1432	8	27		

" K " FACTOR : 0.12 APPROACH ADT : 23,608 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 13 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 1.63

CRASH RATE CALCULATION : 0.189 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments :

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : Y SIGNALIZED : ☐

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : KINGSBURY BEACH RD

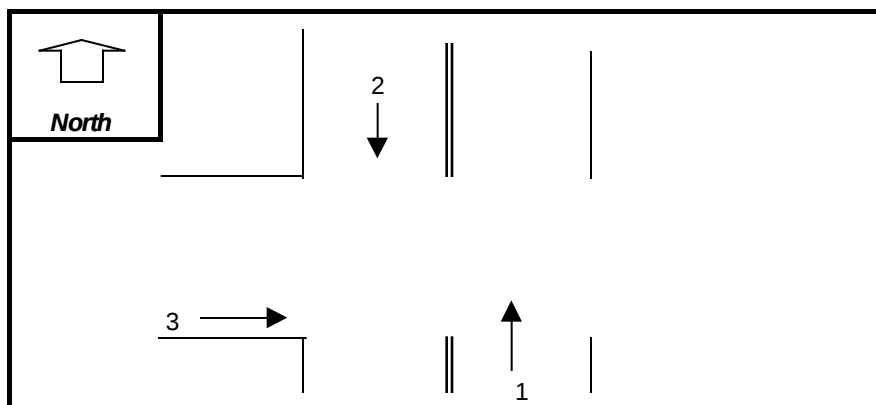
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1254	1336	40			

" K " FACTOR : 0.12 APPROACH ADT : 21,917 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 7 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 0.88

CRASH RATE CALCULATION : 0.109 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : Y SIGNALIZED : ☐

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : MASSASOIT RD

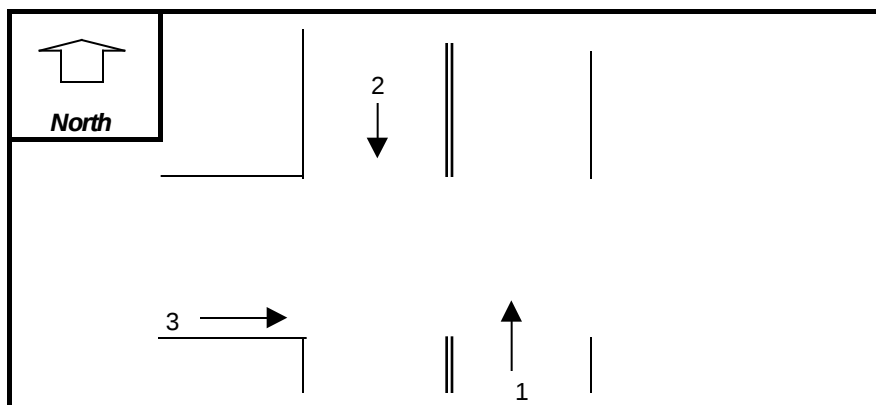
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1278	1395	93			

" K " FACTOR : 0.12 APPROACH ADT : 23,050 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 9 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 1.13

CRASH RATE CALCULATION : 0.134 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : Y SIGNALIZED : ☐

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : MCKOY RD

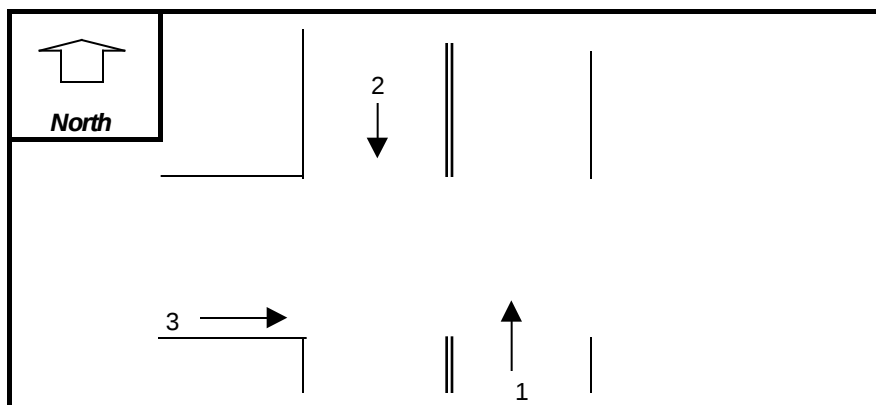
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1229	1385	34			

" K " FACTOR : 0.12 APPROACH ADT : 22,067 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 7 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 0.88

CRASH RATE CALCULATION : 0.109 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : Y SIGNALIZED : ☐

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : OAK ROAD

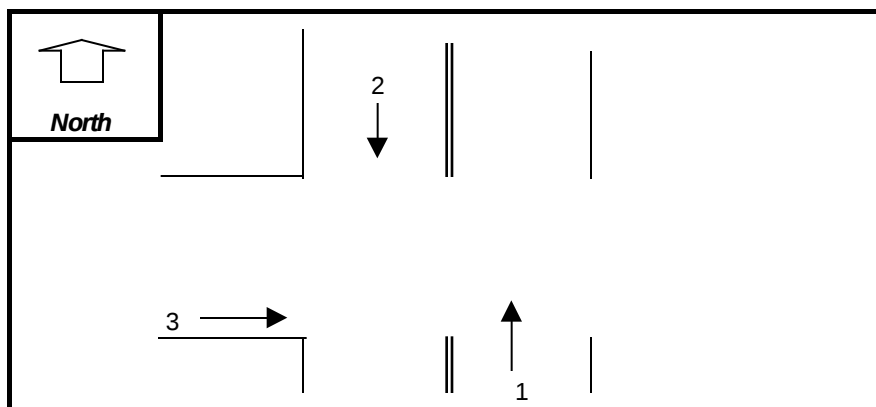
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1140	877	35			

" K " FACTOR : 0.12 APPROACH ADT : 17,100 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 11 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 1.38

CRASH RATE CALCULATION : 0.220 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : ☐ SIGNALIZED : Y

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : SALT POND RD (VISITOR CENTER)

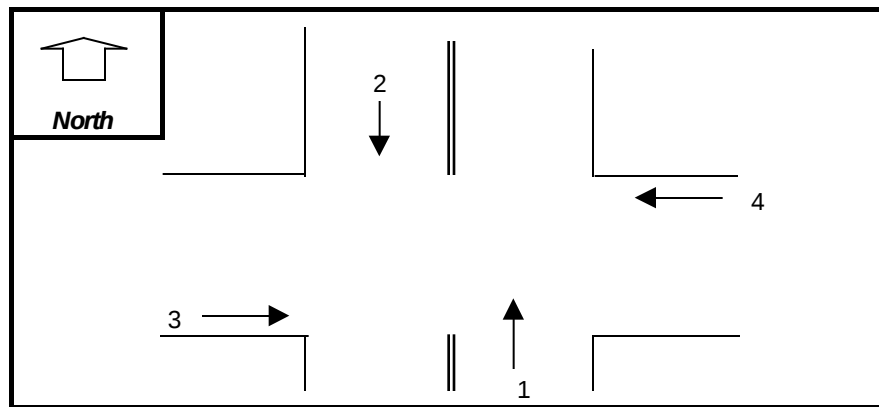
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION

REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1408	1216	36	254		

" K " FACTOR : 0.12 APPROACH ADT : 24,283 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 20 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 2.50

CRASH RATE CALCULATION : 0.282 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : ☐ SIGNALIZED : Y

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : SAMOSSET ROAD

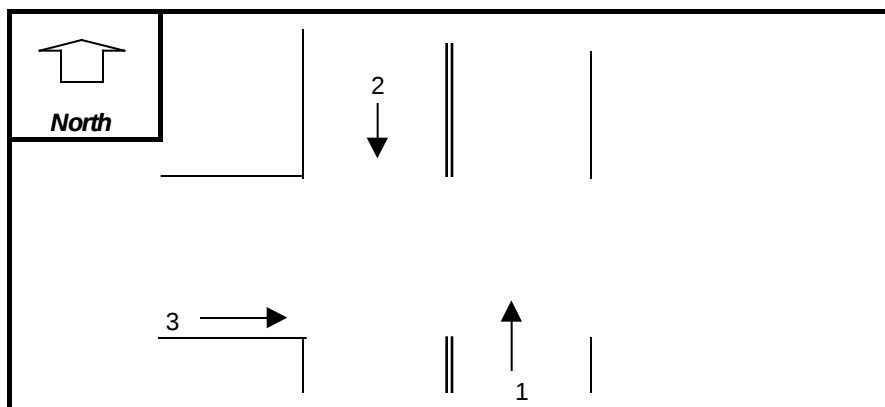
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1341	1332	169			

" K " FACTOR : 0.12 APPROACH ADT : 23,683 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 24 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 3.00

CRASH RATE CALCULATION : 0.347 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : EASTHAM COUNT DATE : 2001 SUMMER

MHD USE ONLY

DISTRICT : 5 UNSIGNALIZED : ☐ SIGNALIZED : Y

Source # ☐

~ INTERSECTION DATA ~

MAJOR STREET : ROUTE 6

RIN # ☐

MINOR STREET(S) : WAMPUM RD/NAUSET RD (N)

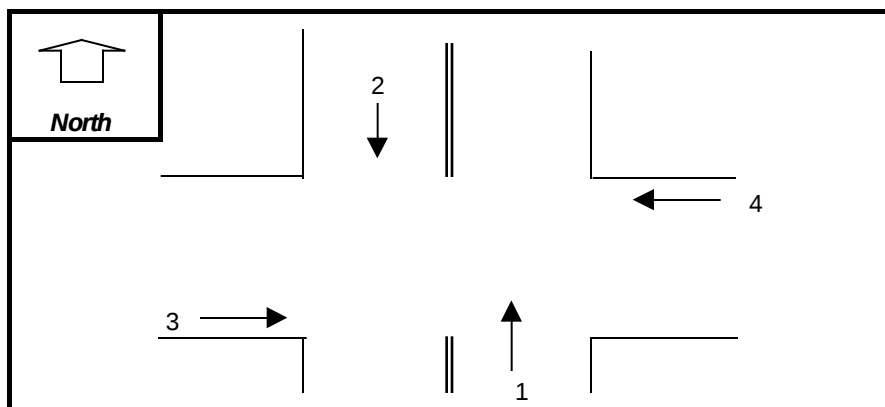
RIN # ☐

RIN # ☐

RIN # ☐

RIN # ☐

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF # ☐

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (AM/PM) :	1040	1340	3	112		

" K " FACTOR : 0.12 APPROACH ADT : 20,792 ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 17 # OF YEARS : 8 AVERAGE # OF CRASHES (C) : 2.13

CRASH RATE CALCULATION : 0.280 RATE = $\frac{(C * 1,000,000)}{(ADT * 365)}$

Comments : _____

District 5 Average: *Signalized*
Unsignalized

0.89
0.67

Statewide Average: *Signalized*
Unsignalized

0.87
0.66

Appendix F

CCC Route 6 Automatic Traffic Recorder Data

Cape Cod Commission Traffic Counting Program

Printed: 10/7/2002

Selected Counts

Yr	Begin Date	End Date	Weather	Direction	Raw ADT	PEAK HOUR DATA				
						[Date&Day	Hour	Vol	Four~Five	AADT
Rt 6 @ East / Well TL						Eastham & Wellfleet				Site Code 20651
2001	7/24/01	7/27/01	Clear	Total	25,261	7/24/01 Tue	11	2,122	1,880	19,459
				NB	12,913	7/25/01 Wed	11	1,246	905	9,943
				SB	12,348	7/24/01 Tue	16	1,132	974	9,508
2000	7/18/00	7/20/00	Mixed	Total	26,150	7/19/00 Wed	12	2,420	1,963	20,136
				NB	13,258	7/19/00 Wed	12	1,288	1,103	10,209
				SB	12,892	7/19/00 Wed	11	1,262	860	9,927
1999	7/19/99	7/21/99	Clear	Total	26,179	7/21/99 Wed	11	2,231	1,930	19,895
				NB	13,371	7/20/99 Tue	16	1,198	1,130	10,162
				SB	12,808	7/21/99 Wed	11	1,251	800	9,734
1998	6/17/98	6/19/98	Clear	Total	16,966	6/18/98 Thu	16	1,331	1,284	14,765
				NB	8,814	6/19/98 Fri	11	771	618	7,668
				SB	8,152	6/17/98 Wed	17	696	666	7,092
1996	7/29/96	7/31/96	Clear	Total	24,885	7/29/96 Mon	16	2,017	2,005	18,666
				NB	12,413	7/29/96 Mon	11	1,276	816	9,310
				SB	12,472	7/29/96 Mon	16	1,201	1,188	9,354
1995	8/1/95	8/4/95	Clear	Total	26,499	8/2/95 Wed	11	2,311	1,900	19,877
				NB	13,647	8/3/95 Thu	11	1,294	874	10,235
				SB	12,852	8/2/95 Wed	11	1,193	1,026	9,639
1994	8/10/94	8/12/94	Mixed	Total	27,249	8/11/94 Thu	15	2,266	2,106	20,162
				NB	13,459	8/11/94 Thu	11	1,255	931	9,960
				SB	13,790	8/10/94 Wed	15	1,215	1,176	10,205
1993	8/9/93	8/11/93	Clear	Total	25,360	8/11/93 Wed	10	2,191	2,030	19,020
				NB	11,634	8/11/93 Wed	10	1,219	784	8,726
				SB	13,726	8/9/93 Mon	16	1,301	1,246	10,295
1992	8/19/92	8/21/92	Clear	Total	24,733	8/21/92 Fri	11	2,003	1,931	18,797
				NB	13,165	8/20/92 Thu	11	1,324	862	10,005
				SB	11,568	8/20/92 Thu	16	1,080	1,069	8,792
1991	8/13/91	8/16/91	Sunny	Total	25,762	8/15/91 Thu	15	2,120	1,926	19,837
				NB	13,284	8/14/91 Wed	10	1,338	878	10,229
				SB	12,478	8/14/91 Wed	15	1,135	1,048	9,608
1990	8/6/90	8/8/90	Mixed-Sun/Clds	Total	24,591	8/6/90 Mon	16	2,071	1,979	18,197
				NB	11,720	8/7/90 Tue	11	1,164	794	8,673
				SB	12,871	8/6/90 Mon	16	1,233	1,185	9,525
1989	8/14/89	8/16/89	Mixed sun & rain	Total	24,851	8/15/89 Tue	11	2,114	1,826	18,141
				NB	12,163	8/15/89 Tue	11	1,259	821	8,879
				SB	12,688	8/15/89 Tue	15	1,113	1,005	9,262
1987	8/12/87	8/14/87	Sunny	Total	26,098	8/12/87 Wed	16	2,088	2,010	19,052
				NB	13,033	8/14/87 Fri	11	1,311	836	9,514
				SB	13,065	8/12/87 Wed	16	1,270	1,174	9,537
1987	5/11/87	5/14/87	Sunny	Total	14,204	5/13/87 Wed	15	1,274	1,046	13,352
Rt 6 N of Hemenway Rd						Eastham				Site Code 20652
1987	5/19/87	5/21/87	Sunny	Total	17,530	5/20/87 Wed	15	1,456	1,420	16,478

Cape Cod Commission Traffic Counting Program

Printed: 10/7/2002

Selected Counts

Yr	Begin Date	End Date	Weather	Direction	Raw ADT	PEAK HOUR DATA				
						[Date&Day	Hour	Vol	Four~Five	AADT
Rt 6 S of Hemenway Rd						Eastham				Site Code 20653
1992	8/26/92	8/28/92	Clear	Total	31,261	8/26/92 Wed	11	2,642	2,571	23,758
				NB	15,315	8/26/92 Wed	11	1,563	1,137	11,639
				SB	15,946	8/26/92 Wed	11	1,455	1,434	12,119
Rt 6 N of Kingsbury Beach Rd						Eastham				Site Code 20654
2002	7/15/02	7/17/02	Clear	Total	31,447				2,361	35,850 *
				NB	15,518	7/17/02 Wed	11	1,393	1,132	17,691 *
				SB	15,929	7/15/02 Mon	16	1,233	1,229	18,159 *
2001	8/21/01	8/23/01		Total	32,647				2,405	25,465 *
				NB	16,184	8/22/01 Wed	11	1,444	1,179	12,624 *
				SB	16,463	8/21/01 Tue	15	1,326	1,226	12,841 *
2000	7/18/00	7/20/00	Overcast	Total	31,210	7/19/00 Wed	15	2,560	2,362	24,035
				NB	15,831	7/19/00 Wed	11	1,446	1,139	12,190
				SB	15,379	7/19/00 Wed	15	1,359	1,223	11,842
1997	7/28/97	8/1/97	Clear	Total	31,202	7/28/97 Mon	12	2,511	2,260	23,557
				NB	14,975	7/28/97 Mon	12	1,361	989	11,306
				SB	16,227	7/28/97 Mon	16	1,335	1,271	12,251
1992	8/26/92	8/28/92	Clear	Total	27,518	8/27/92 Thu	11	2,221	2,094	20,914
				NB	13,820	8/27/92 Thu	11	1,332	987	10,503
				SB	13,698	8/26/92 Wed	16	1,119	1,107	10,410
1989	7/24/89	7/26/89	Sunny	Total	29,605	7/26/89 Wed	11	2,402	2,212	21,316
				NB	13,358	7/26/89 Wed	11	1,378	904	9,618
				SB	16,247	7/24/89 Mon	16	1,370	1,308	11,698
1987	5/11/87	5/13/87	Sunny	Total	13,382	5/12/87 Tue	15	1,128	1,034	12,579
1985	8/14/85	8/16/85	Sunny	Total	13,801	8/16/85 Fri	11	1,302	997	11,455
Rt 6 S of Nauset Rd S						Eastham				Site Code 20841
2001	7/24/01	7/27/01	Clear	Total	34,884	7/25/01 Wed	11	2,752	2,582	26,864
				NB	17,000	7/25/01 Wed	11	1,564	1,187	13,090
				SB	17,884	7/25/01 Wed	10	1,483	1,395	13,771
1999	7/19/99	7/21/99	Clear	Total	34,635	7/19/99 Mon	15	2,796	2,506	26,322
				NB	17,233	7/21/99 Wed	11	1,640	1,106	13,097
				SB	17,402	7/19/99 Mon	15	1,631	1,400	13,226
1997	7/28/97	8/1/97	Clear	Total	33,635	7/28/97 Mon	12	2,750	2,562	25,391
				NB	16,783	7/28/97 Mon	12	1,588	1,142	12,671
				SB	16,852	7/28/97 Mon	16	1,473	1,420	12,723
1996	7/29/96	7/31/96	Clear	Total	34,090	7/29/96 Mon	16	2,797	2,732	25,569
				NB	16,753	7/29/96 Mon	11	1,571	1,150	12,565
				SB	17,337	7/29/96 Mon	16	1,656	1,582	13,003
Rt 6 N of Oak Rd						Eastham				Site Code 20848
2001	7/24/01	7/27/01	Clear	Total	30,730	7/26/01 Thu	14	2,460	2,272	23,662
				NB	17,196	7/27/01 Fri	10	1,522	1,231	13,241
				SB	13,534	7/24/01 Tue	16	1,149	1,041	10,421

Cape Cod Commission Traffic Counting Program

Printed: 10/7/2002

Selected Counts

Yr	Begin Date	End Date	Weather	Direction	Raw ADT	PEAK HOUR DATA				
						[Date&Day	Hour	Vol	Four~Five	AADT
1996	7/31/96	8/2/96	Overcast	Total	26,840	7/31/96 Wed	16	2,364	2,235	20,131
				NB	14,164	7/31/96 Wed	12	1,368	1,164	10,623
				SB	12,676	7/31/96 Wed	15	1,162	1,070	9,507
Rt 6 N of Orle / East Rot						Eastham		Site Code 7148		
2002	8/19/02	8/21/02	Clear	Total	39,192	8/19/02 Mon	11	3,097	2,893	44,687
				NB	19,496	8/19/02 Mon	16	1,482	1,425	22,225
				SB	19,696	8/21/02 Wed	11	1,863	1,468	22,453
2002	8/19/02	8/21/02	Clear	Total	39,192	8/19/02 Mon	11	3,097	2,893	44,687
				NB	19,496	8/19/02 Mon	16	1,482	1,425	22,225
				SB	19,696	8/21/02 Wed	11	1,863	1,468	22,453
2002	8/14/02	8/16/02	Clear	Total	40,229	8/16/02 Fri	11	3,088	2,922	45,870
				NB	19,847	8/16/02 Fri	12	1,516	1,468	22,626
				SB	20,382	8/14/02 Wed	11	1,708	1,453	23,235
2002	8/14/02	8/16/02	Clear	Total	40,229	8/16/02 Fri	11	3,088	2,922	45,870
				NB	19,847	8/16/02 Fri	12	1,516	1,468	22,626
				SB	20,382	8/14/02 Wed	11	1,708	1,453	23,235
2001	7/24/01	7/27/01	Clear							
				SB	20,242	7/26/01 Thu	15	2,396	1,338	15,586
2000	7/18/00	7/20/00	Mixed							
				NB	18,433	7/19/00 Wed	11	1,696	1,345	14,193
1999	7/19/99	7/21/99	Mixed	Total	36,281	7/19/99 Mon	15	3,041	2,890	27,569
				NB	18,481	7/21/99 Wed	11	1,711	1,463	14,046
				SB	17,800	7/20/99 Tue	16	1,468	1,428	13,528
1998	6/15/98	6/17/98	Clear	Total	25,450	6/15/98 Mon	16	2,084	2,030	22,141
				NB	12,894	6/15/98 Mon	16	1,052	1,028	11,218
				SB	12,556	6/15/98 Mon	16	1,032	1,002	10,924
1997	7/23/97	7/25/97	Clear	Total	35,980	7/24/97 Thu	15	2,882	2,782	27,346
				NB	17,370	7/24/97 Thu	11	1,542	1,312	13,201
				SB	18,610	7/23/97 Wed	17	1,509	1,471	14,144
1995	7/25/95	7/28/95	Mixed	Total	36,438	7/28/95 Fri	12	3,068	2,736	27,329
				NB	18,768	7/28/95 Fri	12	1,718	1,304	14,076
				SB	17,670	7/27/95 Thu	16	1,449	1,432	13,253
1995	5/2/95	5/4/95	Clear	Total	17,361	5/2/95 Tue	15	1,508	1,455	16,838
				NB	8,812	5/2/95 Tue	16	794	778	8,548
				SB	8,549	5/2/95 Tue	15	793	677	8,293
1995	3/14/95	3/16/95	Overcast	Total	14,534	3/15/95 Wed	16	1,273	1,254	18,022
				NB	7,664	3/14/95 Tue	17	732	684	9,503
				SB	6,870	3/16/95 Thu	8	653	570	8,519
1994	10/11/94	10/13/94	Clear	Total	20,385	10/12/94 Wed	16	1,831	1,771	19,782
				NB	10,195	10/12/94 Wed	16	896	894	9,889
				SB	10,190	10/12/94 Wed	16	935	878	9,884
1994	8/1/94	8/3/94	Mixed	Total	36,135	8/1/94 Mon	10	2,953	2,754	26,741
				NB	18,158	8/2/94 Tue	11	1,680	1,224	13,437
				SB	17,977	8/2/94 Tue	16	1,544	1,530	13,303
1993	7/28/93	7/30/93	Clear	Total	36,061	7/30/93 Fri	11	2,903	2,627	27,046
				NB	17,307	7/30/93 Fri	11	1,660	1,172	12,980
				SB	18,754	7/29/93 Thu	18	1,678	1,455	14,066

Selected Counts

Yr	Begin Date	End Date	Weather	Direction	Raw ADT	PEAK HOUR DATA				
						[Date&Day	Hour	Vol	Four~Five	AADT
1992	8/19/92	8/21/92	Clear	Total	32,575	8/21/92 Fri	11	2,713	2,246	24,757
				NB	17,623	8/21/92 Fri	11	1,678	1,197	13,393
				SB	14,952	8/20/92 Thu	16	1,397	1,049	11,364
1989	7/26/89	7/28/89	Sunny	Total	33,691	7/28/89 Fri	12	2,878	2,439	24,258
				NB	18,154	7/28/89 Fri	13	1,702	1,206	13,071
				SB	15,537	7/26/89 Wed	16	1,256	1,233	11,187
1988	8/17/88	8/19/88	Variable	Total	34,942	8/17/88 Wed	11	2,901	2,554	25,508
				NB	18,266	8/18/88 Thu	11	1,661	1,334	13,334
				SB	16,676	8/18/88 Thu	12	1,293	1,220	12,173
1987	7/8/87	7/10/87	Rainy then hazy	Total	34,082	7/8/87 Wed	16	3,320	2,471	24,198
1987	5/11/87	5/12/87	Sunny	Total	16,222	5/11/87 Mon	16	1,311	1,311	15,249
Rt 6 S of Cove Rd						Wellfleet			Site Code 20676	
1992	8/17/92	8/19/92	Rain	Total	22,496	8/17/92 Mon	16	2,065	2,065	17,097
				NB	10,199	8/18/92 Tue	12	1,152	902	7,751
				SB	12,297	8/17/92 Mon	16	1,163	1,163	9,346
1988	8/17/88	8/19/88	Clear & Hot	Total	25,778	8/17/88 Wed	16	2,112	2,095	18,818
				NB	13,093	8/18/88 Thu	11	1,223	940	9,558
				SB	12,685	8/17/88 Wed	17	1,191	1,155	9,260
1986	5/7/86	5/8/86	Cloudy	Total	8,328	5/8/86 Thu	15	701	693	8,744
				NB	4,294	5/8/86 Thu	15	378	317	4,509
				SB	4,034	5/8/86 Thu	16	376	376	4,236
Rt 6 N of LeCount Hollow Rd						Wellfleet			Site Code 20677	
1989	8/28/89	8/30/89	Partly Sunny	Total	21,283	8/28/89 Mon	11	1,864	1,773	15,537
				NB	10,789	8/29/89 Tue	12	1,119	764	7,876
				SB	10,494	8/29/89 Tue	16	1,059	1,009	7,661
Rt 6 S of Lecount Hollow Rd						Wellfleet			Site Code 20842	
1996	7/30/96	8/1/96	Overcast	Total	25,329	7/31/96 Wed	15	2,249	2,120	18,995
				NB	12,177	7/31/96 Wed	11	1,199	858	9,133
				SB	13,152	7/30/96 Tue	16	1,343	1,262	9,864
Rt 6 N of Lieutenant Island Rd						Wellfleet			Site Code 20740	
1994	8/9/94	8/11/94	Clear	Total	27,980	8/10/94 Wed	11	2,276	2,074	20,702
				NB	13,972	8/10/94 Wed	12	1,400	818	10,339
				SB	14,008	8/9/94 Tue	16	1,300	1,256	10,366
Rt 6 S of Long Pond Rd						Wellfleet			Site Code 20678	
1992	8/17/92	8/19/92	Rain	Total	17,191	8/17/92 Mon	13	1,698	1,366	13,065
				NB	8,069	8/17/92 Mon	13	946	569	6,132
				SB	9,122	8/17/92 Mon	16	873	797	6,933
1990	8/7/90	8/10/90	Mixed-Clds/Rain/Sun	Total	19,396	8/9/90 Thu	12	1,670	1,545	14,353
				NB	9,749	8/9/90 Thu	12	1,012	649	7,214
				SB	9,647	8/7/90 Tue	16	971	896	7,139

Cape Cod Commission Traffic Counting Program

Printed: 10/7/2002

Selected Counts

Yr	Begin Date	End Date	Weather	Direction	Raw ADT	PEAK HOUR DATA				
						[Date & Day]	Hour	Vol	Four~Five	AADT
1985	8/14/85	8/16/85	Sunny	Total	18,747	8/14/85 Wed	16	1,528	1,456	15,560
Rt 6 @ Well/Trur TL						Wellfleet & Truro			Site Code 20679	
2002	8/19/02	8/21/02	Clear	Total	20,896	8/20/02 Tue	15	1,712	1,564	23,821
				NB	10,322	8/20/02 Tue	13	945	706	11,767
				SB	10,574	8/19/02 Mon	17	928	858	12,054
1999	8/18/99	8/20/99	Clear	Total	21,964	8/19/99 Thu	16	1,971	1,784	16,913
				NB	11,340	8/19/99 Thu	15	1,132	908	8,732
				SB	10,624	8/19/99 Thu	19	1,125	876	8,180
1996	7/31/96	8/2/96	Overcast	Total	19,173	7/31/96 Wed	16	1,817	1,705	14,381
				NB	9,641	7/31/96 Wed	13	1,023	767	7,231
				SB	9,532	7/31/96 Wed	17	1,093	938	7,149
1995	8/15/95	8/18/95	Clear	Total	20,389	8/17/95 Thu	16	1,697	1,598	15,290
				NB	10,376	8/17/95 Thu	11	972	716	7,782
				SB	10,013	8/15/95 Tue	17	930	881	7,510
1995	5/2/95	5/4/95	Clear	Total	6,596	5/4/95 Thu	14	602	518	6,394
				NB	3,320	5/4/95 Thu	12	304	242	3,220
				SB	3,276	5/3/95 Wed	15	336	276	3,178
1995	3/14/95	3/16/95	Overcast	Total	5,072	3/14/95 Tue	16	462	448	6,289
				NB	2,216	3/14/95 Tue	13	218	179	2,748
				SB	2,856	3/14/95 Tue	16	274	269	3,541
1994	10/11/94	10/13/94	Clear	Total	9,083	10/12/94 Wed	15	868	808	8,808
				NB	4,452	10/12/94 Wed	11	442	364	4,318
				SB	4,631	10/12/94 Wed	15	470	444	4,492
1994	8/23/94	8/24/94	Mixed	Total	19,900	8/23/94 Tue	15	1,727	1,686	14,726
				NB	10,021	8/23/94 Tue	14	983	712	7,416
				SB	9,879	8/23/94 Tue	17	987	974	7,310
1991	8/14/91	8/16/91	Sunny	Total	19,800	8/15/91 Thu	12	1,760	1,572	15,246
				NB	10,043	8/15/91 Thu	11	993	745	7,733
				SB	9,757	8/14/91 Wed	17	888	827	7,513
1990	8/6/90	8/7/90	Mixed-Sun/Clds	Total	19,015	8/6/90 Mon	12	1,640	1,600	14,071
				NB	9,696	8/6/90 Mon	12	1,057	669	7,175
				SB	9,319	8/7/90 Tue	16	968	931	6,896
1989	8/14/89	8/16/89	Mixed sun & rain	Total	19,534	8/15/89 Tue	14	1,681	1,553	14,260
				NB	9,482	8/15/89 Tue	12	995	639	6,922
				SB	10,052	8/14/89 Mon	16	946	914	7,338
1988	8/17/88	8/18/88	Partly cloudy	Total	19,691	8/18/88 Thu	10	1,732	1,582	14,374
1987	9/2/87	9/4/87	Mostly sunny	Total	13,809	9/2/87 Wed	16	1,226	1,185	13,257
1984	8/27/84	8/29/84	Mixed	Total	16,221	8/28/84 Tue	11	1,460	1,306	11,841

Rt 6 N of Rt 6A						Truro			Site Code 20798	
1996	8/14/96	8/16/96	Clear	Total	16,358	8/15/96 Thu	17	1,339	1,274	12,268
				NB	9,400	8/14/96 Wed	12	906	601	7,050
				SB	6,958	8/14/96 Wed	17	741	674	5,219
1995	8/15/95	8/18/95	Clear	Total	17,274	8/16/95 Wed	14	1,439	1,358	12,958
				NB	8,822	8/17/95 Thu	11	841	599	6,617
				SB	8,452	8/15/95 Tue	16	784	759	6,339

Selected Counts

						PEAK HOUR DATA				
<u>Yr</u>	<u>Begin Date</u>	<u>End Date</u>	<u>Weather</u>	<u>Direction</u>	<u>Raw ADT</u>	<u>[Date&Day]</u>	<u>Hour</u>	<u>Vol</u>	<u>Four~Five</u>	<u>AADT</u>
Rt 6 S of Rt 6A						Truro				Site Code 20690
1990	8/8/90	8/10/90	Mixed-Sun/Clds/Rain	Total	19,649	8/9/90 Thu	13	1,637	1,568	14,540
				NB	10,078	8/9/90 Thu	12	993	724	7,458
				SB	9,571	8/9/90 Thu	16	889	844	7,083
1987	8/18/87	8/20/87	Sunny	Total	20,388	8/19/87 Wed	16	1,680	1,611	14,883
1986	8/19/86	8/20/86	Overcast	Total	19,679	8/19/86 Tue	14	1,737	1,606	14,759
Rt 6 N of Castle Rd						Truro				Site Code 20765
1996	8/13/96	8/15/96	Overcast	Total	18,559	8/13/96 Tue	12	1,555	1,401	13,921
				NB	9,920	8/14/96 Wed	11	1,020	666	7,440
				SB	8,639	8/14/96 Wed	17	894	735	6,479
1994	8/17/94	8/19/94	Mixed	Total	17,877	8/17/94 Wed	15	1,521		13,229
				NB	8,837	8/18/94 Thu	12	854		6,539
				SB	9,040	8/17/94 Wed	16	816		6,690
Rt 6 S of Castle Rd						Truro				Site Code 20689
1999	8/18/99	8/20/99	Clear	Total	22,750	8/19/99 Thu	16	2,091	1,899	17,518
				NB	11,655	8/19/99 Thu	16	1,234	1,014	8,974
				SB	11,095	8/19/99 Thu	19	1,102	885	8,543
1992	8/19/92	8/21/92	Clear	Total	19,393	8/19/92 Wed	16	1,680	1,588	14,739
				NB	10,078	8/20/92 Thu	12	983	741	7,659
				SB	9,315	8/19/92 Wed	16	940	847	7,079
1987	8/17/87	8/19/87	Sunny	Total	19,397	8/17/87 Mon	11	1,639	1,487	14,160
1986	8/18/86	8/20/86	Rain & overcast	Total	17,477	8/19/86 Tue	15	1,815	1,458	13,108
Rt 6 N of Transfer Station						Truro				Site Code 20691
1992	8/3/92	8/4/92	Overcast	Total	18,625	8/4/92 Tue	16	1,732	1,605	14,155
				NB	8,607	8/4/92 Tue	11	1,060	661	6,541
				SB	10,018	8/4/92 Tue	16	1,058	944	7,614
Rt 6 @ Trur / Prov TL						Truro & Provincetown				Site Code 20692
1999	8/18/99	8/20/99	Clear	Total	18,105	8/19/99 Thu	16	1,741	1,512	13,935
				NB	9,172	8/19/99 Thu	16	1,060	816	7,062
				SB	8,933	8/19/99 Thu	19	1,000	696	6,878
1992	8/24/92	8/26/92	Clear	Total	14,557	8/24/92 Mon	16	1,182	1,142	11,063
				NB	7,120	8/25/92 Tue	11	785	478	5,411
				SB	7,437	8/24/92 Mon	17	672	664	5,652
1992	8/17/92	8/19/92	Mixed	Total	13,064	8/17/92 Mon	13	1,373	1,104	9,929
				NB	5,914	8/17/92 Mon	12	817	379	4,495
				SB	7,150	8/17/92 Mon	17	826	725	5,434
1991	8/14/91	8/16/91	Sunny	Total	18,541	8/15/91 Thu	16	1,705	1,414	14,277
				NB	9,457	8/15/91 Thu	13	971	671	7,282
				SB	9,084	8/15/91 Thu	17	846	743	6,995

Selected Counts

Yr	Begin Date	End Date	Weather	Direction	Raw ADT	PEAK HOUR DATA				
						[Date & Day]	Hour	Vol	Four~Five	AADT
1990	8/14/90	8/17/90	Sunny	Total	15,496	8/14/90 Tue	16	1,294	1,219	11,467
				NB	7,716	8/16/90 Thu	11	742	563	5,710
				SB	7,780	8/14/90 Tue	16	727	656	5,757
1989	8/16/89	8/18/89	Sunny	Total	14,969	8/16/89 Wed	16	1,226	1,197	10,927
				NB	7,584	8/17/89 Thu	11	759	544	5,536
				SB	7,385	8/16/89 Wed	16	684	653	5,391
1988	8/17/88	8/19/88	Mixed-sun & rain	Total	16,262	8/18/88 Thu	16	1,495	1,425	11,871
1987	8/18/87	8/20/87	Sunny	Total	15,466	8/19/87 Wed	17	1,221	1,160	11,290
1986	8/18/86	8/20/86	Rain & overcast	Total	13,887	8/19/86 Tue	15	1,366	1,115	10,415
1985	8/19/85	8/21/85	Rain	Total	14,147	8/20/85 Tue	13	1,384	1,180	11,742
1984	9/10/84	9/12/84	Clear	Total	8,408	9/11/84 Tue	13	872	680	7,904

Rt 6 N of Truro Central

Truro

Site Code 20693

1992	8/19/92	8/21/92	Mixed	Total	19,135	8/19/92 Wed	16	1,666	1,593	14,543
				NB	10,265	8/21/92 Fri	12	984	746	7,801
				SB	8,870	8/19/92 Wed	16	926	847	6,741
1987	8/18/87	8/20/87	Sunny	Total	20,631	8/19/87 Wed	16	1,687	1,638	15,061
1986	8/18/86	8/20/86	Rain & overcast	Total	18,239	8/19/86 Tue	15	1,864	1,483	13,679

Rt 6 S of Union Field Rd

Truro

Site Code 20694

1989	8/16/89	8/18/89	Sunny	Total	17,903	8/17/89 Thu	11	1,419	1,337	13,069
				NB	9,243	8/17/89 Thu	11	937	625	6,747
				SB	8,660	8/17/89 Thu	17	769	712	6,322
1988	8/8/88	8/10/88	Clear & Hot	Total	18,457	8/9/88 Tue	15	1,452	1,400	13,474
				NB	9,636	8/9/88 Tue	11	945	646	7,034
				SB	8,821	8/8/88 Mon	17	789	754	6,439
1987	8/18/87	8/20/87	Sunny	Total	18,544	8/19/87 Wed	16	1,505	1,447	13,537
1986	8/18/86	8/20/86	Rain & overcast	Total	16,256	8/19/86 Tue	15	1,704	1,340	12,192

Rt 6 W of Conwell St

Provincetown

Site Code 20711

1990	8/14/90	8/17/90	Sunny	Total	10,960	8/15/90 Wed	17	926	874	8,110
				EB	6,465	8/15/90 Wed	17	562	542	4,784
				WB	4,495	8/17/90 Fri	10	425	332	3,326
1985	8/14/85	8/16/85	Hot	Total	14,885	8/15/85 Thu	12	1,221	1,089	12,355
				EB	7,530	8/15/85 Thu	11	880	496	6,250
				WB	7,355	8/14/85 Wed	15	739	593	6,105

Rt 6 Btwn Conwell Street / Snail

Provincetown

Site Code 21017

2002	8/19/02	8/21/02	Clear	Total	16,206					
				EB	8,028	8/20/02 Tue	17	757	692	9,152
				WB	8,178	8/20/02 Tue	11	789	536	9,323

Appendix G:

CCC Route 6 Turning Movement Count Data

Raw counts from CCC database

Cape Cod Commission Turning Movement Counts

Site Code

1253

Eastham

Rt 6 N-S @ South Eastham St

Date/Time of Study

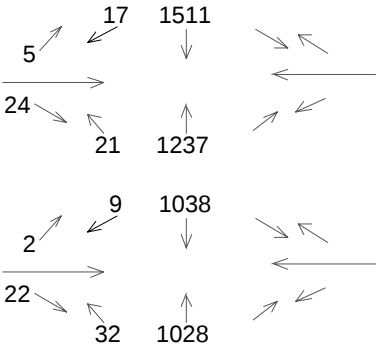
Wed 8/20/97 16:00 - 17:30

Peak Hour: 16:15

Other Data Available:

Report Hour: 16:00

Total Entering Volume: 2,815



Site Code

1254

Eastham

Rt 6 N-S @ Hay Rd

Date/Time of Study

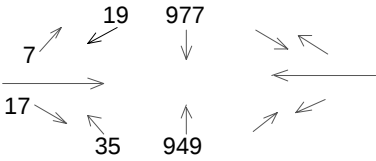
Tue 6/12/01 16:00 - 18:00

Peak Hour: 16:00

Other Data Available:

Report Hour: 16:00

Total Entering Volume: 2,004



Site Code

1255

Eastham

Rt 6 N-S @ Governor Prence (N End)

Date/Time of Study

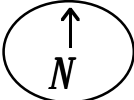
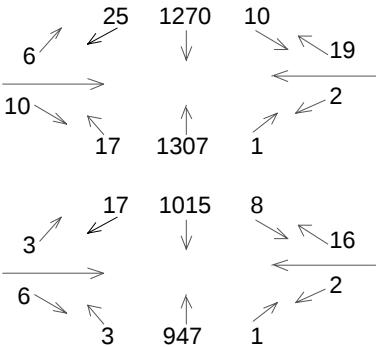
Wed 8/13/97 16:00 - 17:30

Peak Hour: 16:00

Other Data Available:

Report Hour: 16:00

Total Entering Volume: 2,667



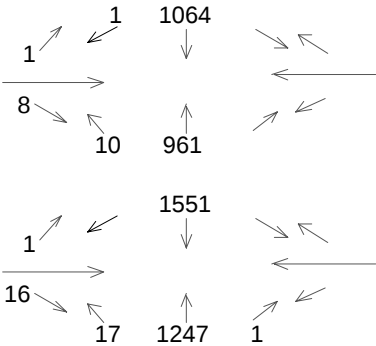
Cape Cod Commission Turning Movement Counts

Site Code **1256** Eastham Rt 6 N-S @ Salt Pond Rd S (Old State S)

Date/Time of Study
Thu 6/18/01 16:00 - 18:00

Peak Hour: 16:00
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,045



Date/Time of Study
Thu 8/14/97 16:00 - 17:30

Peak Hour: 16:30
Other Data Available:

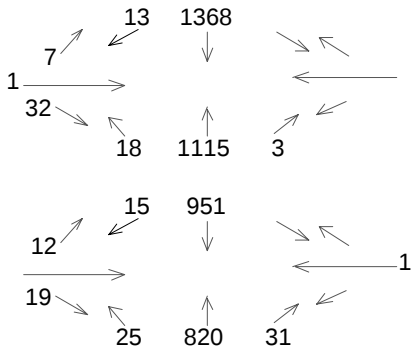
Report Hour: 16:00
Total Entering Volume: 2,833

Site Code **1258** Eastham Rt 6 N-S @ Kingsbury Beach Rd

Date/Time of Study
Tue 8/19/97 16:00 - 17:30

Peak Hour: 16:15
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,557



Date/Time of Study
Mon 6/18/01 16:00 - 18:00

Peak Hour: 16:00
Other Data Available:

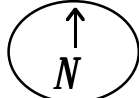
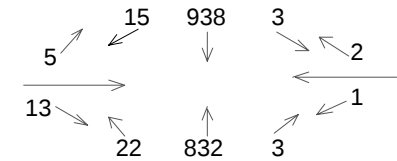
Report Hour: 16:00
Total Entering Volume: 1,874

Site Code **1259** Eastham Rt 6 N-S @ McCoy Rd

Date/Time of Study
Wed 6/20/01 16:00 - 18:00

Peak Hour: 16:15
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 1,834



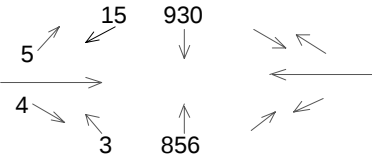
Cape Cod Commission Turning Movement Counts

Site Code **1260** Eastham Rt 6 N-S @ Great Pond Rd

Date/Time of Study
Tue 6/19/01 16:00 - 18:00

Peak Hour: 16:30
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 1,813

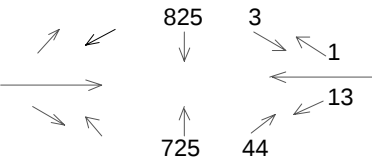


Site Code **1262** Eastham Rt 6 N-S @ Railroad Ave

Date/Time of Study
Thu 6/21/01 16:00 - 18:00

Peak Hour: 16:00
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 1,611

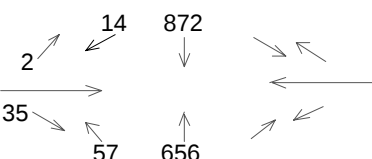


Site Code **1263** Eastham Rt 6 N-S @ Aspinet Rd

Date/Time of Study
Mon 6/25/01 16:00 - 18:00

Peak Hour: 16:00
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 1,636

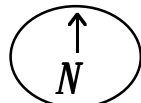
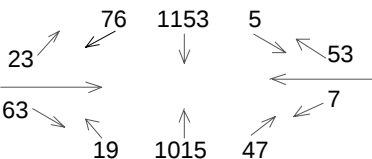


Site Code **1264** Eastham Rt 6 N-S @ Mobil and Sunoco Gas Site Drives

Date/Time of Study
Wed 6/27/01 16:00 - 18:00

Peak Hour: 16:30
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,461



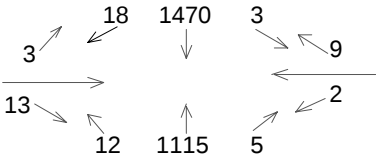
Cape Cod Commission Turning Movement Counts

Site Code **1271** Eastham Rt 6 N-S @ Hemenway Rd

Date/Time of Study
Tue 7/24/01 16:00 - 18:00

Peak Hour: 16:15
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,650

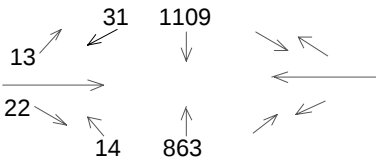


Site Code **1273** Eastham Rt 6 N-S @ Oak Rd

Date/Time of Study
Tue 7/24/01 16:00 - 17:30

Peak Hour: 16:15
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,052

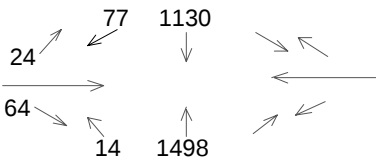


Site Code **1274** Eastham Rt 6 N-S @ Eastham Post Office

Date/Time of Study
Wed 8/1/01 11:00 - 13:00

Peak Hour: 11:00
Other Data Available:

Report Hour: 11:00
Total Entering Volume: 2,807

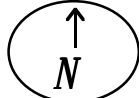
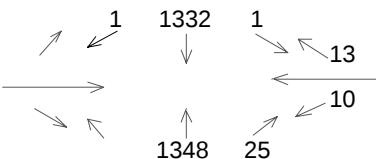


Site Code **1278** Eastham Rt 6 N-S @ Governor Prence (S. End)

Date/Time of Study
Wed 8/13/97 16:00 - 17:30

Peak Hour: 16:00
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,730

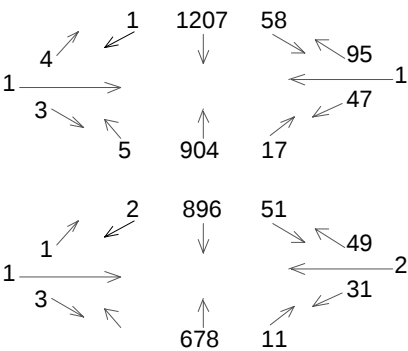


Cape Cod Commission Turning Movement Counts

Site Code **2301** Eastham Rt 6 N-S @ Nauset Rd N end

Date/Time of Study: Tue 8/19/97 16:00 - 17:30
Peak Hour: 16:15
Report Hour: 16:00
Total Entering Volume: 2,343
Other Data Available:

Date/Time of Study: Mon 6/25/01 16:00 - 18:00
Peak Hour: 16:15
Report Hour: 16:00
Total Entering Volume: 1,725
Other Data Available:



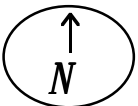
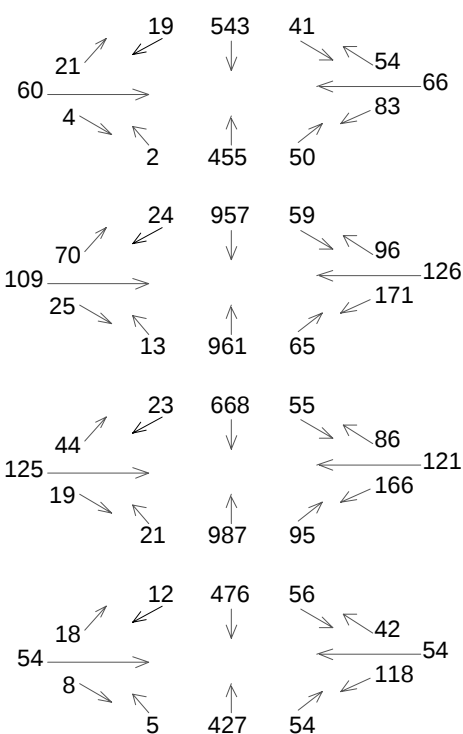
Site Code **2306** Eastham Rt 6 N-S @ Brackett Rd

Date/Time of Study: Wed 5/28/97 16:00 - 17:30
Peak Hour: 16:00
Report Hour: 16:00
Total Entering Volume: 1,398
Other Data Available: RTOR

Date/Time of Study: Fri 8/20/99 16:00 - 17:30
Peak Hour: 16:30
Report Hour: 16:00
Total Entering Volume: 2,676
Other Data Available:

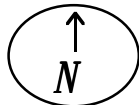
Date/Time of Study: Tue 7/18/00 12:00 - 14:15
Peak Hour: 12:00
Report Hour: 12:00
Total Entering Volume: 2,410
Other Data Available:

Date/Time of Study: Tue 5/22/01 11:30 - 12:30
Peak Hour: 11:30
Report Hour: 11:30
Total Entering Volume: 1,324
Other Data Available:



Cape Cod Commission Turning Movement Counts

Date/Time of Study Wed 7/11/0116:00 - 18:00		Peak Hour: 16:00	Report Hour: 16:00	
Other Data Available:			Total Entering Volume: 2,177	
Site Code	2310	Eastham	Rt 6 N-S @ Old State Hwy (Massasoit)	
Date/Time of Study Tue 8/12/9716:00 - 17:30		Peak Hour: 16:30	Report Hour: 16:00	
Other Data Available:			Total Entering Volume: 2,478	
Date/Time of Study Thu 6/21/0116:00 - 18:00		Peak Hour: 16:45	Report Hour: 16:00	
Other Data Available:			Total Entering Volume: 1,928	
Site Code	2311	Eastham	Rt 6 N-S @ Old Orchard Rd	
Date/Time of Study Tue 6/19/0116:00 - 18:00		Peak Hour: 16:00	Report Hour: 16:00	
Other Data Available:			Total Entering Volume: 1,920	
Site Code	2314	Eastham	Rt 6 N-S @ Nauset Rd (S)	
Date/Time of Study Thu 8/15/9615:45 - 17:30		Peak Hour: 16:30	Report Hour: 16:00	
Other Data Available: B			Total Entering Volume: 2,559	

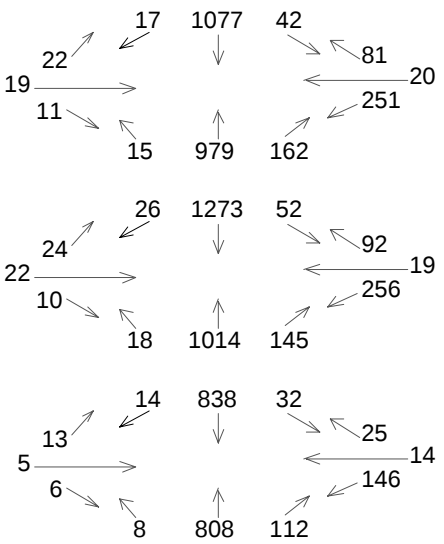


Cape Cod Commission Turning Movement Counts

Date/Time of Study
Thu 7/31/97 16:00 - 17:30

Peak Hour: 16:30
Other Data Available:

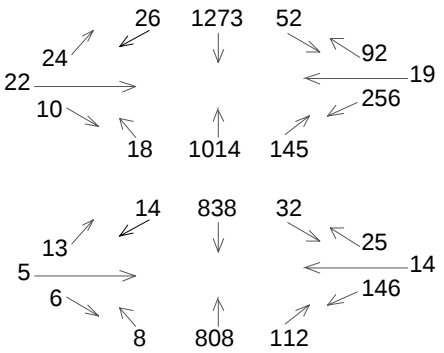
Report Hour: 16:00
Total Entering Volume: 2,696



Date/Time of Study
Wed 8/18/99 16:00 - 17:30

Peak Hour: 16:00
Other Data Available:

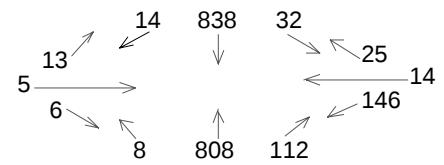
Report Hour: 16:00
Total Entering Volume: 2,951



Date/Time of Study
Thu 6/14/01 16:00 - 18:00

Peak Hour: 16:15
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,021



Site Code

2315

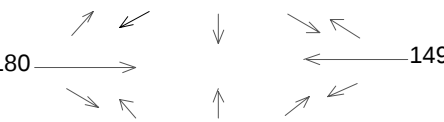
Eastham

Rt 6 N-S @ Samoset Rd

Date/Time of Study
Tue 7/31/90 11:00 - 13:00

Peak Hour: 11:15
Other Data Available:

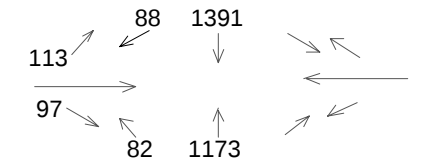
Report Hour: 11:00
Total Entering Volume: 329



Date/Time of Study
Tue 8/12/97 16:00 - 17:30

Peak Hour: 16:30
Other Data Available:

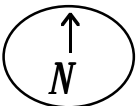
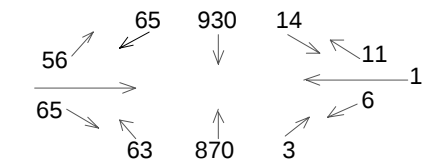
Report Hour: 16:00
Total Entering Volume: 2,944



Date/Time of Study
Tue 6/12/01 16:00 - 18:00

Peak Hour: 16:00
Other Data Available:

Report Hour: 16:00
Total Entering Volume: 2,084



Cape Cod Commission Turning Movement Counts

Site Code

12543

Eastham

Rt 6 N-S @ Hay Rd

Date/Time of Study

Tue 6/12/01 16:00 - 18:00

Peak Hour:

16:15

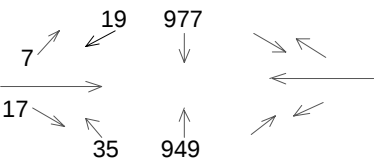
Report Hour:

16:00

Other Data Available:

Total Entering Volume:

2,004



Appendix H

Signal Warrant Detail

INT. ID	MINOR STREET	TYPE	WARRANT 1 - EIGHT HOUR								WARRANT 2 - FOUR HOUR			WARRANT 3 - PEAK HOUR		
			MAIN LINE*	Minor Appr.*	Cond. A Maj	Cond. A Minor	Cond B. Major	Cond B. Minor	Cond. A MEETS?	Cond. B MEETS?	MAIN LINE*	Minor Appr.*	MEETS ?	MAIN LINE	Minor Appr.	MEETS ?
2	SOUTH EASTHAM STREET	3 WAY	2,568	29	420	105	630	53	no	no	2,610	29	no	2,785	31	no
3	HAY RD	3 WAY	2,486	32	420	105	630	53	no	no	2,526	33	no	2,696	35	no
4	GOV PRENCE	4 WAY	2,580	25	420	105	630	53	no	no	2,622	25	no	2,798	27	no
7	DEPOT RD	4 WAY	2,344	7	420	105	630	53	no	no	2,382	7	no	2,542	8	no
8	OLD STATE RD	3 WAY	2,563	13	420	105	630	53	no	no	2,604	13	no	2,779	14	no
11	KINGSBURY BEACH RD	3 WAY	2,389	37	420	105	630	53	no	no	2,427	37	no	2,590	40	no
12	OLD ORCHARD RD	3 WAY	2,489	38	420	105	630	53	no	no	2,529	38	no	2,699	41	no
13	GREAT POND RD	3 WAY	2,380	30	420	105	630	53	no	no	2,418	30	no	2,581	32	no
14	MCOY RD	3 WAY	2,411	31	420	105	630	53	no	no	2,449	32	no	2,614	34	no
15	MASSASOIT RD	3 WAY	2,465	86	420	105	630	53	no	YES	2,505	87	YES	2,673	93	YES
17	RAILROAD AVE	3 WAY	2,103	31	420	105	630	53	no	no	2,136	32	no	2,280	34	no
19	ASPINET	3 WAY	2,252	53	420	105	630	53	no	YES	2,288	54	no	2,442	58	no
20	DRIVE INN	3 WAY	1,956	47	350	105	525	53	no	no	1,987	48	no	2,121	51	no
21	SPRINGBROOK RD	3 WAY	1,462	10	420	105	630	53	no	no	1,485	10	no	1,585	11	no
22	WEST RD	3 WAY	1,542	44	420	105	630	53	no	no	1,567	45	no	1,672	48	no
801	HEMMENWAY RD	3 WAY	2,519	11	420	105	630	53	no	no	2,559	11	no	2,731	12	no
802	HOFFMAN LANE	3 WAY	2,538	20	420	105	630	53	no	no	2,579	21	no	2,752	22	no

Assumptions for input into **Manual of Uniform Traffic Control Devices** , December 2000

- Four Hour & Eight Hour volumes are factored based on hourly ATR data (Route 6 Eastham 2001)
- Warrant 1 - using 70% column based on population criteria
- Warrant 2 - using Fig 4C-2 based on population criteria
- Warrant 3 - using Fig 4C-4 based on population criteria

Appendix I

Level of Service Discussion

Level of Service (LOS)

Level of service is discussed in detail in the following section. Different levels of service thresholds exist for different facility types and can be seen in the table below.

LEVEL OF SERVICE	SIGNALIZED INTERSECTION	UNSIGNALIZED INTERSECTION	RT 6 CORRIDOR
	Average Control Delay (Seconds per Vehicle)	Average Control Delay (Seconds per Vehicle)	Maximum service flow rate (per lane)
A	0-10	≤ 10	490
B	>10-15	>10-20	810
C	>15-25	>20-35	1170
D	>25-35	>35-55	1550
E	>35-50	>55-80	1900
F	>50	>80	>1900
Note: LOS for Corridor from Multilane Highway for 45 MPH, HCM pp21-3			

The level of service for roadway links and intersections is defined by the Transportation Research Board's *Highway Capacity Manual* (HCM) and is based on a number of factors defined by the HCM. LOS is graduated into 6 categories given letter designations from A to F, with LOS - A representing the best operating condition and LOS - F the worst.

The following definitions for LOS on roadway links are from the 1985 HCM (these definitions are not included in the current version of the HCM, however, they effectively and simply portray the relative LOS).

- Σ LOS - A represents "free flow" where individual users are virtually unaffected by the presence of others.
- Σ LOS - B is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable.
- Σ LOS - C is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. The general level of comfort and convenience declines noticeably at this level.
- Σ LOS - D represents high-density, but stable flow. The driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.
- Σ LOS - E represents operating conditions at or near the capacity level. Comfort and convenience are extremely poor, and driver or pedestrian frustration is generally high.

Operations at this level are generally unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdowns.

- Σ LOS - F is used to define forced or breakdown flow. This condition exists whenever the amount of traffic approaching a point exceeds the amount that can traverse the point. Queues form behind such locations.

Level of service E is defined as the value that corresponds to the maximum possible flow rate. For most planning and design purposes, however, service flow rates D or C are generally considered to be the lowest acceptable levels of service.

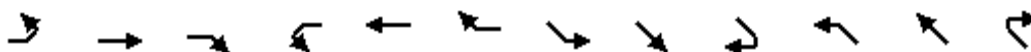
Appendix J

Route 6 Intersection Turning Movements and Level of Service

*Synchro Base Model Output-HDM Signalized and Unsignalized Intersection Capacity
Analysis Reports*



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			0.95	0.95	
Frbp, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	0.99	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1721			3525	3413	
Flt Permitted	0.97			0.74	1.00	
Satd. Flow (perm)	1721			2634	3413	
Volume (vph)	88	81	90	1251	1253	79
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	88	81	90	1251	1253	79
Lane Group Flow (vph)	169	0	0	1341	1332	0
Confl. Bikes (#/hr)		1				1
Heavy Vehicles (%)	0%	0%	3%	2%	5%	0%
Turn Type		pm+pt				
Protected Phases	4		5	2	6	
Permitted Phases	4		2			
Actuated Green, G (s)	10.9			53.0	53.0	
Effective Green, g (s)	11.9			54.0	54.0	
Actuated g/C Ratio	0.16			0.73	0.73	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	277			1925	2494	
v/s Ratio Prot	c0.10				0.39	
v/s Ratio Perm				c0.51		
v/c Ratio	0.61			0.70	0.53	
Uniform Delay, d1	28.8			5.5	4.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	3.9			1.1	0.2	
Delay (s)	32.8			6.6	4.6	
Level of Service	C			A	A	
Approach Delay (s)	32.8			6.6	4.6	
Approach LOS	C			A	A	
Intersection Summary						
HCM Average Control Delay			7.2		HCM Level of Service	A
HCM Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			73.9		Sum of lost time (s)	8.0
Intersection Capacity Utilization			94.2%		ICU Level of Service	E
c Critical Lane Group						



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			1.00		1.00	1.00		1.00	1.00	
Flt Protected		0.97			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1762			1781		1770	3531		1770	3539	
Flt Permitted		0.80			0.72		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1453			1336		1770	3531		1770	3539	
Volume (vph)	21	8	7	200	18	0	52	1145	19	9	1216	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	8	7	200	18	0	52	1145	19	9	1216	0
Lane Group Flow (vph)	0	36	0	0	218	0	52	1164	0	9	1216	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4			8								
Actuated Green, G (s)		13.2			13.2		1.9	24.7		0.6	23.4	
Effective Green, g (s)		14.2			14.2		2.9	25.7		1.6	24.4	
Actuated g/C Ratio		0.27			0.27		0.05	0.48		0.03	0.46	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		386			355		96	1696		53	1614	
v/s Ratio Prot							c0.03	0.33		0.01	c0.34	
v/s Ratio Perm		0.02			c0.16							
v/c Ratio		0.09			0.61		0.54	0.69		0.17	0.75	
Uniform Delay, d1		14.8			17.2		24.7	10.8		25.3	12.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			3.1		6.1	1.2		1.5	2.0	
Delay (s)		14.9			20.4		30.8	11.9		26.8	14.1	
Level of Service		B			C		C	B		C	B	
Approach Delay (s)		14.9			20.4			12.8			14.2	
Approach LOS		B			C			B			B	

Intersection Summary

HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	A
c Critical Lane Group			

Cape Cod Commission
HCM Signalized Intersection Capacity Analysis

16: Bracket Road & Rt 6
1/3/2003



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↕			↕			↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.98			0.97			0.99			1.00	
Flt Protected		0.98			0.98			1.00			1.00	
Satd. Flow (prot)		1808			1776			3501			3488	
Flt Permitted		0.82			0.74			0.90			0.77	
Satd. Flow (perm)		1514			1345			3170			2680	
Volume (vph)	64	100	34	136	81	72	30	1105	86	78	1087	26
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	100	34	136	81	72	30	1105	86	78	1087	26
Lane Group Flow (vph)	0	198	0	0	289	0	0	1221	0	0	1191	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	2%	1%	1%	3%	1%
Turn Type	custom			Perm			Perm			Perm		
Protected Phases					8			2			6	
Permitted Phases	4	4		8			2			6		
Actuated Green, G (s)		16.5			16.5			35.4			35.4	
Effective Green, g (s)		17.5			17.5			36.4			36.4	
Actuated g/C Ratio		0.28			0.28			0.59			0.59	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		428			380			1864			1576	
v/s Ratio Prot												
v/s Ratio Perm		0.13			0.21			0.39			0.44	
v/c Ratio		0.46			0.76			0.66			0.76	
Uniform Delay, d1		18.3			20.3			8.5			9.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			8.7			0.8			2.1	
Delay (s)		19.1			29.0			9.4			11.6	
Level of Service		B			C			A			B	
Approach Delay (s)		19.1			29.0			9.4			11.6	
Approach LOS		B			C			A			B	

Intersection Summary

HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	61.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.7%	ICU Level of Service	F

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00			0.95		1.00	0.95	
Frt		0.91			0.91			1.00		1.00	1.00	
Flt Protected		0.98			0.98			1.00		0.95	1.00	
Satd. Flow (prot)		1701			1703			3533		1805	3470	
Flt Permitted		0.91			0.89			1.00		0.25	1.00	
Satd. Flow (perm)		1567			1548			3533		482	3470	
Volume (vph)	1	0	2	36	2	74	0	1028	13	74	1263	3
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	0	2	36	2	74	0	1028	13	74	1263	3
Lane Group Flow (vph)	0	3	0	0	112	0	0	1041	0	74	1266	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	4%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.1			8.1			44.0		44.0	44.0	
Effective Green, g (s)		9.1			9.1			45.0		45.0	45.0	
Actuated g/C Ratio		0.15			0.15			0.72		0.72	0.72	
Clearance Time (s)		5.0			5.0			5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		230			227			2560		349	2514	
v/s Ratio Prot								0.29			c0.36	
v/s Ratio Perm		0.00			c0.07					0.15		
v/c Ratio		0.01			0.49			0.41		0.21	0.50	
Uniform Delay, d1		22.7			24.4			3.3		2.8	3.7	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			1.7			0.1		0.3	0.2	
Delay (s)		22.7			26.1			3.4		3.1	3.9	
Level of Service		C			C			A		A	A	
Approach Delay (s)		22.7			26.1			3.4			3.8	
Approach LOS		C			C			A			A	

Intersection Summary

HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	D

c Critical Lane Group

Cape Cod Commission
HCM Unsignalized Intersection Capacity Analysis

2: So Eastham St & Rt 6
1/3/2003



Movement	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations	W			↑↑	↑↑	
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	3	28	48	1365	1362	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	3	28	48	1365	1362	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	2146	686	1372			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	93	91			
cM capacity (veh/h)	39	395	507			

Direction, Lane #	EB 1	NE 1	NE 2	SW 1	SW 2
Volume Total	31	503	910	908	464
Volume Left	3	48	0	0	0
Volume Right	28	0	0	0	10
cSH	208	507	1700	1700	1700
Volume to Capacity	0.15	0.09	0.54	0.53	0.27
Queue Length (ft)	13	8	0	0	0
Control Delay (s)	25.3	2.7	0.0	0.0	0.0
Lane LOS	D	A			
Approach Delay (s)	25.3	1.0		0.0	
Approach LOS	D				

Intersection Summary					
Average Delay		0.8			
Intersection Capacity Utilization		72.9%	ICU Level of Service		C

Cape Cod Commission
HCM Unsignalized Intersection Capacity Analysis

3: Hay Rd & Rt 6
1/3/2003



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑↑	↑↑	
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	10	25	48	1329	1299	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	10	25	48	1329	1299	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	2070	660	1319			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	94	91			
cM capacity (veh/h)	43	411	520			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	35	491	886	866	453
Volume Left	10	48	0	0	0
Volume Right	25	0	0	0	20
cSH	120	520	1700	1700	1700
Volume to Capacity	0.29	0.09	0.52	0.51	0.27
Queue Length (ft)	28	8	0	0	0
Control Delay (s)	46.7	2.7	0.0	0.0	0.0
Lane LOS	E	A			
Approach Delay (s)	46.7	0.9		0.0	
Approach LOS	E				

Intersection Summary					
Average Delay		1.1			
Intersection Capacity Utilization		71.2%	ICU Level of Service	C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	0	5	8	0	19	3	1358	5	14	1395	23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	3	0	5	8	0	19	3	1358	5	14	1395	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
vC, conflicting volume	2138	2804	709	2097	2812	682	1418			1363		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	100	99	73	100	95	99			97		
cM capacity (veh/h)	26	18	381	29	18	397	487			500		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	27	682	684	712	720
Volume Left	3	8	3	0	14	0
Volume Right	5	19	0	5	0	23
cSH	63	84	487	1700	500	1700
Volume to Capacity	0.13	0.32	0.01	0.40	0.03	0.42
Queue Length (ft)	10	30	0	0	2	0
Control Delay (s)	70.3	66.7	0.2	0.0	0.8	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	70.3	66.7	0.1		0.4	
Approach LOS	F	F				

Intersection Summary

Average Delay	1.1					
Intersection Capacity Utilization	54.5%		ICU Level of Service		A	

Cape Cod Commission
HCM Unsignalized Intersection Capacity Analysis

7: Depot Rd & Rt 6
1/3/2003

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	4	4	0	4	7	1306	0	2	1215	12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	0	0	4	4	0	4	7	1306	0	2	1215	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
vC, conflicting volume	1896	2545	614	1936	2551	653	1227			1306		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	90	100	99	99			100		
cM capacity (veh/h)	42	27	440	40	27	410	575			537		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	8	660	653	610	620
Volume Left	0	4	7	0	2	0
Volume Right	4	4	0	0	0	12
cSH	440	72	575	1700	537	1700
Volume to Capacity	0.01	0.11	0.01	0.38	0.00	0.36
Queue Length (ft)	1	9	1	0	0	0
Control Delay (s)	13.3	60.9	0.3	0.0	0.1	0.0
Lane LOS	B	F	A		A	
Approach Delay (s)	13.3	60.9	0.2		0.1	
Approach LOS	B	F				

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	50.7%
ICU Level of Service	A



Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations	W		↑↑			↑↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	17	23	1316	20	29	1225
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	17	23	1316	20	29	1225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	1996	668			1336	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	66	94			94	
cM capacity (veh/h)	51	405			523	

Direction, Lane #	EB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	40	877	459	437	817
Volume Left	17	0	0	29	0
Volume Right	23	0	20	0	0
cSH	102	1700	1700	523	1700
Volume to Capacity	0.39	0.52	0.27	0.06	0.48
Queue Length (ft)	40	0	0	4	0
Control Delay (s)	61.4	0.0	0.0	1.7	0.0
Lane LOS	F			A	
Approach Delay (s)	61.4	0.0		0.6	
Approach LOS	F				

Intersection Summary					
Average Delay		1.2			
Intersection Capacity Utilization		54.7%	ICU Level of Service	A	



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↕↕	↕↕		↕↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	22	1375	1206	96	24	17
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	22	1375	1206	96	24	17
Pedestrians		2	2			
Lane Width (ft)		12.0	12.0			
Walking Speed (ft/s)		4.0	4.0			
Percent Blockage		0	0			
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
vC, conflicting volume	1302				1988	653
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				54	96
cM capacity (veh/h)	539				52	414
Direction, Lane #	SE 1	SE 2	NW 1	NW 2	SW 1	
Volume Total	480	917	804	498	41	
Volume Left	22	0	0	0	24	
Volume Right	0	0	0	96	17	
cSH	539	1700	1700	1700	82	
Volume to Capacity	0.04	0.54	0.47	0.29	0.50	
Queue Length (ft)	3	0	0	0	53	
Control Delay (s)	1.2	0.0	0.0	0.0	86.9	
Lane LOS	A				F	
Approach Delay (s)	0.4		0.0		86.9	
Approach LOS					F	
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			57.2%		ICU Level of Service	A



Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations	↰		↰↱			↰↱
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	19	13	1359	20	4	1198
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	19	13	1359	20	4	1198
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	1976	690			1379	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	97			99	
cM capacity (veh/h)	55	393			504	

Direction, Lane #	EB 1	SE 1	SE 2	NW 1	NW 2
Volume Total	32	906	473	403	799
Volume Left	19	0	0	4	0
Volume Right	13	0	20	0	0
cSH	84	1700	1700	504	1700
Volume to Capacity	0.38	0.53	0.28	0.01	0.47
Queue Length (ft)	37	0	0	1	0
Control Delay (s)	71.5	0.0	0.0	0.2	0.0
Lane LOS	F			A	
Approach Delay (s)	71.5	0.0		0.1	
Approach LOS	F				

Intersection Summary					
Average Delay		0.9			
Intersection Capacity Utilization		48.2%	ICU Level of Service	A	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑↑	↑↑	
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	8	26	40	1189	1350	35
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	8	26	40	1189	1350	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	2042	692	1385			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	93	92			
cM capacity (veh/h)	46	391	490			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	34	436	793	900	485
Volume Left	8	40	0	0	0
Volume Right	26	0	0	0	35
cSH	141	490	1700	1700	1700
Volume to Capacity	0.24	0.08	0.47	0.53	0.29
Queue Length (ft)	22	7	0	0	0
Control Delay (s)	38.4	2.4	0.0	0.0	0.0
Lane LOS	E	A			
Approach Delay (s)	38.4	0.9		0.0	
Approach LOS	E				

Intersection Summary					
Average Delay		0.9			
Intersection Capacity Utilization		59.3%	ICU Level of Service	A	



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations		↕↕	↕↕		↕↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	143	1135	1389	6	4	89
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	143	1135	1389	6	4	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
vC, conflicting volume	1395				2246	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				85	77
cM capacity (veh/h)	497				26	388

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SE 1
Volume Total	521	757	926	469	93
Volume Left	143	0	0	0	4
Volume Right	0	0	0	6	89
cSH	497	1700	1700	1700	242
Volume to Capacity	0.29	0.45	0.54	0.28	0.38
Queue Length (ft)	30	0	0	0	43
Control Delay (s)	8.2	0.0	0.0	0.0	28.8
Lane LOS	A				D
Approach Delay (s)	3.4		0.0		28.8
Approach LOS					D

Intersection Summary					
Average Delay		2.5			
Intersection Capacity Utilization		89.8%		ICU Level of Service	D

						
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑			↑↑	↑↑	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1080	65	5	1130	28	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	1080	65	5	1130	28	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
vC, conflicting volume			1145		1688	572
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		67	99
cM capacity (veh/h)			606		86	468
Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SW 1	
Volume Total	720	425	382	753	34	
Volume Left	0	0	5	0	28	
Volume Right	0	65	0	0	6	
cSH	1700	1700	606	1700	100	
Volume to Capacity	0.42	0.25	0.01	0.44	0.34	
Queue Length (ft)	0	0	1	0	33	
Control Delay (s)	0.0	0.0	0.3	0.0	58.4	
Lane LOS			A		F	
Approach Delay (s)	0.0		0.1		58.4	
Approach LOS					F	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑↑	↑↑	
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	11	47	84	1019	1323	16
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	11	47	84	1019	1323	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	2008	670	1339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	88	84			
cM capacity (veh/h)	44	405	521			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	58	84	510	510	882	457
Volume Left	11	84	0	0	0	0
Volume Right	47	0	0	0	0	16
cSH	159	521	1700	1700	1700	1700
Volume to Capacity	0.37	0.16	0.30	0.30	0.52	0.27
Queue Length (ft)	38	14	0	0	0	0
Control Delay (s)	40.1	13.2	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	40.1	1.0			0.0	
Approach LOS	E					

Intersection Summary						
Average Delay		1.4				
Intersection Capacity Utilization		55.2%		ICU Level of Service		A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	21	30	23	1014	1060	24
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	21	30	23	1014	1060	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	2132	1072	1084			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	60	89	96			
cM capacity (veh/h)	53	270	651			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	51	1037	1084
Volume Left	21	23	0
Volume Right	30	0	24
cSH	101	651	1700
Volume to Capacity	0.51	0.04	0.64
Queue Length (ft)	56	3	0
Control Delay (s)	72.7	1.2	0.0
Lane LOS	F	A	
Approach Delay (s)	72.7	1.2	0.0
Approach LOS	F		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	96.5%	ICU Level of Service	E



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↰	↱		↰	↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	762	843	64	46	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	3	762	843	64	46	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
vC, conflicting volume	907				1643	875
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				58	99
cM capacity (veh/h)	759				110	351

Direction, Lane #	NB 1	SB 1	NE 1
Volume Total	765	907	48
Volume Left	3	0	46
Volume Right	0	64	2
cSH	759	1700	113
Volume to Capacity	0.00	0.53	0.42
Queue Length (ft)	0	0	45
Control Delay (s)	0.1	0.0	58.4
Lane LOS	A		F
Approach Delay (s)	0.1	0.0	58.4
Approach LOS			F

Intersection Summary

Average Delay	1.7		
Intersection Capacity Utilization	58.2%	ICU Level of Service	A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	R
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	3	9	1330	7	3	1391
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	3	9	1330	7	3	1391
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
vC, conflicting volume	2035	668			1337	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	98			99	
cM capacity (veh/h)	49	400			512	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	887	450	467	927
Volume Left	3	0	0	3	0
Volume Right	9	0	7	0	0
cSH	143	1700	1700	512	1700
Volume to Capacity	0.08	0.52	0.26	0.01	0.55
Queue Length (ft)	7	0	0	0	0
Control Delay (s)	32.4	0.0	0.0	0.2	0.0
Lane LOS	D			A	
Approach Delay (s)	32.4	0.0		0.1	
Approach LOS	D				

Intersection Summary					
Average Delay		0.2			
Intersection Capacity Utilization		49.4%	ICU Level of Service	A	



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↕↕	↕↕		↕↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	15	1338	1380	19	8	14
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (veh/h)	15	1338	1380	19	8	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
vC, conflicting volume	1399				2088	700
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				82	96
cM capacity (veh/h)	484				44	382

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	NE 1
Volume Total	461	892	920	479	22
Volume Left	15	0	0	0	8
Volume Right	0	0	0	19	14
cSH	484	1700	1700	1700	101
Volume to Capacity	0.03	0.52	0.54	0.28	0.22
Queue Length (ft)	2	0	0	0	19
Control Delay (s)	0.9	0.0	0.0	0.0	50.5
Lane LOS	A				F
Approach Delay (s)	0.3		0.0		50.5
Approach LOS					F

Intersection Summary

Average Delay	0.6			
Intersection Capacity Utilization	52.3%	ICU Level of Service	A	

Appendix K

***SimTraffic* Intersection Performance Reports**

SimTraffic - Simulation Results Intersection Performance Reports

All Intersections	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	69.73	96.00	170.17	25
2010 Future "No Build"	158.70	206.43	266.80	22
Alternative A	86.30	121.87	196.93	25
Alternative B	81.20	114.77	190.17	25
Alternative C	88.93	123.93	197.07	23
Alternative D	299.97	372.87	407.17	17
Alternative D w/20% Less Traffic	101.80	137.23	195.70	25

All Intersections	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	69.73	96.00	170.17	25
2010 Future "No Build"	128%	115%	57%	-14%
<i>Below represents the percent change from the future no build scenario</i>				
Alternative A	-46%	-41%	-26%	15%
Alternative B	-49%	-44%	-29%	13%
Alternative C	-44%	-40%	-26%	8%
Alternative D	89%	81%	53%	-20%
Alternative D w/20% Less Traffic	-36%	-34%	-27%	16%

SimTraffic - Simulation Results Intersection Performance Reports

South Eastham Street	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	2.77	3.60	13.93	32.33
2010 Future "No Build"	23.43	29.63	34.73	13.00
Alternative A	2.03	2.43	13.97	34.00
Alternative B	2.10	2.53	13.97	34.33
Alternative C	4.43	5.53	15.97	29.33
Alternative D	1.73	2.13	13.30	34.33
Alternative D w/20% Less Traffic	1.17	1.60	11.13	36.00

Hay Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	1.27	1.77	7.50	32.67
2010 Future "No Build"	1.93	2.50	8.33	30.67
Alternative A	1.67	2.03	8.23	31.67
Alternative B	1.50	1.90	7.97	32.00
Alternative C	3.70	4.77	10.10	25.67
Alternative D	1.17	1.40	7.70	33.00
Alternative D w/20% Less Traffic	0.87	1.20	6.63	34.00

SimTraffic - Simulation Results Intersection Performance Reports

Govenor Prence Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	1.40	1.83	7.73	32.33
2010 Future "No Build"	1.53	1.83	8.03	32.67
Alternative A	1.37	1.63	8.00	32.67
Alternative B	2.40	2.93	9.00	29.00
Alternative C	6.57	8.17	13.07	21.67
Alternative D	17.83	18.33	26.07	12.00
Alternative D w/20% Less Traffic	11.00	13.50	18.03	14.67

Samoset Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	9.17	11.73	13.03	10.67
2010 Future "No Build"	12.33	15.03	16.57	9.00
Alternative A	8.50	10.00	12.70	12.33
Alternative B	8.07	9.67	12.40	12.67
Alternative C	7.40	9.03	11.60	13.33
Alternative D	1.47	1.73	5.07	26.00
Alternative D w/20% Less Traffic	1.03	1.43	4.03	26.67

SimTraffic - Simulation Results Intersection Performance Reports

Depot Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	2.10	2.93	5.90	25.33
2010 Future "No Build"	3.20	4.27	7.27	22.00
Alternative A	2.53	3.27	6.70	24.67
Alternative B	2.10	2.77	6.20	26.00
Alternative C	2.07	2.77	6.20	26.00
Alternative D	0.97	1.23	5.33	32.67
Alternative D w/20% Less Traffic	0.70	0.97	4.33	34.00

Salt Pond Lights	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	7.93	10.80	13.80	12.67
2010 Future "No Build"	9.80	12.50	15.93	11.67
Alternative A	10.83	13.40	17.17	11.00
Alternative B	10.07	12.67	16.37	11.33
Alternative C	9.73	12.43	15.90	11.67
Alternative D	35.57	42.20	42.23	5.33
Alternative D w/20% Less Traffic	19.73	27.93	25.40	7.33

SimTraffic - Simulation Results Intersection Performance Reports

Kingsbury Beach Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	1.27	1.73	6.70	31.67
2010 Future "No Build"	1.47	1.90	7.23	31.67
Alternative A	1.60	2.00	7.47	31.00
Alternative B	1.40	1.80	7.17	32.00
Alternative C	1.40	1.80	7.10	31.67
Alternative D	13.87	16.03	20.17	14.00
Alternative D w/20% Less Traffic	0.87	1.17	6.40	34.00

Old Orchard	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	1.40	1.83	5.43	28.67
2010 Future "No Build"	1.67	2.00	5.93	28.33
Alternative A	1.67	2.00	6.00	28.33
Alternative B	1.90	2.23	6.17	27.00
Alternative C	1.70	2.13	5.93	27.67
Alternative D	14.60	17.03	19.13	10.33
Alternative D w/20% Less Traffic	1.13	1.47	5.17	30.67

SimTraffic - Simulation Results Intersection Performance Reports

Great Pond	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	0.73	1.00	4.33	32.67
2010 Future "No Build"	1.00	1.30	4.80	31.67
Alternative A	1.00	1.27	4.90	31.67
Alternative B	0.93	1.17	4.77	32.00
Alternative C	0.97	1.27	4.80	31.67
Alternative D	12.27	14.00	16.53	10.67
Alternative D w/20% Less Traffic	0.77	0.93	4.63	33.67

McCoy Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	1.47	1.87	6.30	29.00
2010 Future "No Build"	2.90	3.50	8.03	24.67
Alternative A	1.77	2.10	7.03	28.33
Alternative B	1.90	2.33	7.17	27.67
Alternative C	1.93	2.37	7.20	27.67
Alternative D	20.73	25.23	26.53	7.67
Alternative D w/20% Less Traffic	0.93	1.17	6.33	29.33

SimTraffic - Simulation Results Intersection Performance Reports

Massasoit Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	4.50	5.83	8.53	18.33
2010 Future "No Build"	8.13	9.90	12.50	14.00
Alternative A	3.10	3.70	7.43	23.33
Alternative B	5.40	6.50	9.73	17.33
Alternative C	5.13	6.23	9.43	18.00
Alternative D	44.73	53.20	49.27	5.67
Alternative D w/20% Less Traffic	2.13	2.67	6.53	24.67

Bracket Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	23.87	29.93	36.20	12.67
2010 Future "No Build"	61.80	70.77	75.37	7.33
Alternative A	16.40	18.43	30.33	17.33
Alternative B	15.20	17.57	28.90	17.67
Alternative C	16.17	18.50	29.73	17.00
Alternative D	104.40	132.87	111.70	3.00
Alternative D w/20% Less Traffic	43.30	52.47	50.80	5.33

SimTraffic - Simulation Results Intersection Performance Reports

Railroad Avenue	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	1.10	1.73	6.00	32.00
2010 Future "No Build"	1.80	2.50	7.13	29.33
Alternative A	1.53	2.13	7.00	30.67
Alternative B	1.40	2.00	6.70	31.00
Alternative C	1.40	2.03	6.73	31.00
Alternative D	1.70	2.20	7.73	28.67
Alternative D w/20% Less Traffic	1.43	2.03	6.93	29.00
<i>*significant blocking at other intersections and future network congestion actually allow for delay to be decreased in the future year</i>				

Wampum Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	3.13	4.60	6.90	20.33
2010 Future "No Build"	3.77	4.90	7.87	19.33
Alternative A	3.57	4.57	7.73	20.33
Alternative B	3.43	4.50	7.50	20.33
Alternative C	3.47	4.60	7.50	20.33
Alternative D	13.50	16.97	17.83	8.67
Alternative D w/20% Less Traffic	9.93	14.33	13.70	10.00
<i>*significant blocking at other intersections and future network congestion actually allow for delay to be decreased in the future year</i>				

SimTraffic - Simulation Results Intersection Performance Reports

Aspinet Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	2.70	3.93	16.90	33.00
2010 Future "No Build"	4.50	5.87	20.77	31.33
Alternative A	3.70	4.80	20.27	32.33
Alternative B	3.50	4.63	19.50	32.33
Alternative C	3.60	4.77	19.57	32.33
Alternative D	4.00	5.33	20.60	32.00
Alternative D w/20% Less Traffic	2.33	3.67	15.77	34.00

West Road	Total Delay (hr)	Delay / Veh (s)	Travel Time (hr)	Avg Speed (mph)
BASE YEAR	4.93	10.87	10.97	22.00
2010 Future "No Build"	19.43	38.03	26.30	11.00
Alternative A	25.03	48.10	32.00	10.00
Alternative B	19.90	39.57	26.67	10.67
Alternative C	19.27	37.53	26.23	10.67
Alternative D	11.43	22.97	17.97	14.67
Alternative D w/20% Less Traffic	4.47	10.70	9.87	21.00

Appendix L

***SimTraffic* Network and Corridor Performance Reports**

SimTraffic - Simulation Results

Network and Corridor Performance Results

(by corridor section)

Alternative	Total Delay (hr)					Delay / Veh (s)				
	Section 1	Section 2	Section 3	Corridor Total	Network Total	Section 1	Section 2	Section 3	Corridor Total	Network Total
2001 Base	86.53	47.17	33.70	167.40	334.47	13.90	11.60	22.57	48.07	145.97
2010 Base	153.63	62.20	83.53	299.37	604.10	23.93	14.10	50.53	88.57	246.93
2010 Alternative A	60.43	53.67	34.43	148.53	495.53	9.17	12.00	20.80	41.97	200.67
2010 Alternative B	59.93	53.70	37.10	150.73	455.43	9.03	11.97	22.17	43.17	185.10
2010 Alternative C	83.00	52.87	35.30	171.17	475.03	11.47	11.90	21.47	44.83	194.67
2010 Alternative D	140.00	567.77	51.03	758.80	1142.90	20.73	118.53	25.60	164.87	344.73
2010 Alternative D w/20% Less Traffic	66.43	60.77	32.63	159.83	248.83	11.43	13.70	18.40	43.53	84.73
2001 Base	86.53	47.17	33.70	167.40	334.47	13.90	11.60	22.57	48.07	145.97
2010 Base	153.63	62.20	83.53	299.37	604.10	23.93	14.10	50.53	88.57	246.93
Change	77.54%	31.87%	147.87%	78.83%	80.62%	72.18%	21.55%	123.93%	84.26%	69.17%
Below represents percent change from the future no build year traffic condition										
2010 Alternative A	-60.66%	-13.72%	-58.78%	-50.38%	-17.97%	-61.70%	-14.89%	-58.84%	-52.62%	-18.74%
2010 Alternative B	-60.99%	-13.67%	-55.59%	-49.65%	-24.61%	-62.26%	-15.13%	-56.13%	-51.26%	-25.04%
2010 Alternative C	-45.98%	-15.01%	-57.74%	-42.82%	-21.37%	-52.09%	-15.60%	-57.52%	-49.38%	-21.17%
2010 Alternative D	-8.87%	812.81%	-38.91%	153.47%	89.19%	-13.37%	740.66%	-49.34%	86.15%	39.61%
2010 Alternative D w/20% Less Traffic	-56.76%	-2.30%	-60.93%	-46.61%	-58.81%	-52.23%	-2.84%	-63.59%	-50.85%	-65.69%

Alternative	Travel Time (hr)					Avg Speed (mph)				
	Section 1	Section 2	Section 3	Corridor Total	Network Total	Section 1	Section 2	Section 3	Corridor Total	Network Total
2001 Base	248.13	175.97	148.07	572.17	812.10	26.00	28.67	31.33	86.00	24.67
2010 Base	319.83	205.17	212.87	737.87	1111.50	20.67	26.67	25.00	72.33	21.00
2010 Alternative A	231.37	199.10	161.83	592.30	1011.27	29.33	28.00	32.00	89.33	25.33
2010 Alternative B	231.20	199.97	165.73	596.90	973.70	29.33	28.00	31.33	88.67	25.33
2010 Alternative C	249.73	197.73	162.43	609.90	984.80	28.67	28.00	31.67	88.33	24.00
2010 Alternative D	322.80	713.87	180.70	1217.37	1702.53	28.00	10.33	28.33	66.67	16.00
2010 Alternative D w/20% Less Traffic	224.37	192.97	147.53	564.87	744.93	32.00	26.67	30.33	89.00	25.33
2001 Base	248.13	175.97	148.07	572.17	812.10	26.00	28.67	31.33	86.00	24.67
2010 Base	319.83	205.17	212.87	737.87	1111.50	20.67	26.67	25.00	72.33	21.00
Change	28.90%	16.59%	43.76%	28.96%	36.87%	-20.51%	-6.98%	-20.21%	-15.89%	-14.86%
Below represents percent change from the future no build year traffic condition										
2010 Alternative A	-27.66%	-2.96%	-23.97%	-19.73%	-9.02%	41.94%	5.00%	28.00%	23.50%	20.63%
2010 Alternative B	-27.71%	-2.53%	-22.14%	-19.10%	-12.40%	41.94%	5.00%	25.33%	22.58%	20.63%
2010 Alternative C	-21.92%	-3.62%	-23.69%	-17.34%	-11.40%	38.71%	5.00%	26.67%	22.12%	14.29%
2010 Alternative D	0.93%	247.94%	-15.11%	64.98%	53.17%	35.48%	-61.25%	13.33%	-7.83%	-23.81%
2010 Alternative D w/20% Less Traffic	-29.85%	-5.95%	-30.69%	-23.45%	-32.98%	54.84%	0.00%	21.33%	23.04%	20.63%

Appendix M

Project Cost Assumptions *(Including network section breakout)*

Cost Assumptions Worksheet

Estimate Summary				
Estimate	Description	Amount		
1	Rt 6 @ Orleans Rotary North End – Stripe 2 lanes entering (approx. 150’)	\$10,000.00		
2	Rt 6 @ Samoset Road – new northbound Left Turning Lane	\$100,000.00		
3	Rt 6 @ Depot Road - no northbound left turns allowed onto Depot Road	\$7,000.00		
4	Rt 6 @ Massasoit Road – new northbound left turning lane	\$100,000.00		
5	Rt 6 @ Brackett Road – new southbound left turning lane on Rt 6	\$100,000.00		
6	Rt 6 @ Brackett Road – new westbound left turning lane	\$100,000.00		
7	Signalize Governor Prence Road	\$300,000.00		
8A	One Lane Section in Southern Eastham - Restripe existing	\$150,000.00		
8B	One Lane Section in Southern Eastham - Center Universal Left	\$200,000.00		
8C	One Lane Section in Southern Eastham - Alt. Left Turns, striped	\$225,000.00		
8D	One Lane Section in Southern Eastham - Alt. Left Turns, mountable barrier	\$1,300,000.00		
9	Signalize Governor Prence Road, Center Barrier, and install Signage	\$9,000,000.00		
Project Alternative				
	Alternative A (Estimates 1-6)	\$417,000.00		
	Alternative B (Estimates 1-7)	\$717,000.00		
	Alternative C (Alt A and a one lane segment alternative)	Range of	\$567,000.00 to	\$1,717,000.00
	Alternative D (Estimate 9)	\$9,000,000.00		