ROAD SAFETY AUDIT

Route 28 between Bourne Rotary and Otis Rotary

Town of Bourne

April 2013

Prepared for:
Massachusetts Department of Transportation

Moving Massachusetts Forward. massDOT

Prepared by:
Howard/Stein-Hudson Associates
38 Chauncy Street
Boston, MA 02111

Howard/Stein-Hudson Associates, Inc.
CREATIVE SOLUTIONS • EFFECTIVE PARTNERING

Table of Contents

List of Appendices

List of Figures

List of Tables

Background

The Road Safety Audit (RSA) focused on the segment of Route 28 (General MacArthur Boulevard) between the Bourne Rotary and the Otis Rotary. According to crash records provided by the Town of Bourne Police Department and the Massachusetts State Police, 275 crashes were reported along the 4.2-mile roadway segment between June 2009 and June 2012, including one reported fatality and 62 crashes resulting in personal injury. The Bourne Rotary and the Otis Rotary, which experienced 99 and 85 crashes, respectively, over the three-year period, are listed as high-crash locations within the Cape Cod Commission (CCC) area. The intersection of Waterhouse Road/Route 28 is also listed as a high-crash location because the Equivalent Property Damage Only (EPDO) value is greater than 30. The Massachusetts Department of Transportation (MassDOT) has determined that the Town of Bourne would be eligible to receive Highway Safety Improvement Program (HSIP) funding for reconstruction of this roadway segment if an RSA were conducted and the proposed design incorporated the safety improvements identified in the RSA.

Route 28 is a four-lane divided roadway between the Bourne Rotary and the Otis Rotary. The RSA study area is illustrated in **Figure 1.** There are several commercial destinations located within the Bourne Rotary; including IHOP; Gulf; Knight's Inn; American Lobster Mart; and The Ultimate Battleground, a paintball and airsoft center. A Massachusetts State Police barracks is also located within the Bourne Rotary. The Otis Rotary provides access to the Massachusetts National Cemetery, Camp Edwards, and the Barnstable County Correctional Facility, all of which are located off Connery Avenue. Route 28 southbound contains numerous commercial driveways and side streets. Destinations along Route 28 southbound include Dunkin Donuts, McDonalds, Atlantic Subaru, Bayview Campground, Sports Auto World, Stir Crazy, and Battle's Used Cars. Some of these destinations have direct access to Route 28 southbound; others have driveways on side streets that have direct access to Route 28 southbound. The Bourne Town Landfill is located on Route 28 northbound, approximately one mile south of the Bourne Rotary.

Route 28 is scheduled to be resurfaced between the Bourne Bridge and the Falmouth Town Line beginning in the spring of 2014. Aside from resurfacing, the project will include new pavement markings, removal of obstructive vegetation, and possibly low-cost signage improvements. The design engineer on the project is AI Engineers.

In general, the RSA is intended to identify potential safety improvements that can be evaluated and included as part of future design efforts for future reconstruction. The short-term, low-cost potential improvements could be considered by the responsible agency for implementation prior to reconstruction, as appropriate.

Figure 1. Locus Map

Source: Google Maps

Not to scale.

Project Data

The audit team conducted an RSA for the Route 28 corridor in Bourne between the Bourne Rotary and Otis Rotary on Monday, April 5, 2013. The RSA agenda appears in **Appendix A. Table 1** lists the audit team members and their affiliations. **Appendix B** provides contact information for all team members.

Prior to the RSA, in order to begin assessing possible safety issues, the team reviewed collision diagrams and crash detail summaries based on crash records supplied by the Bourne Police Department for the corridor. **Appendix C** provides the detailed crash data for the study area. Additional information, including speed regulations and a preliminary pavement marking plan, is provided in **Appendix D**.

Table 1. Participating Audit Team Members

Audit Team Member	Agency/Affiliation
John Stowe	Town of Bourne Police Department
George Sala	Town of Bourne Department of Public Works
Jon Nelson	Town of Bourne Planning Board
Chris Farrell	Town of Bourne Planning Board
Dan Barrett	Town of Bourne Solid Waste
Martin Greene	Town of Bourne Fire Department
Stanley Gwara	A.I. Engineers
Eric Wagner	A.I. Engineers
Clay Schofield	Cape Cod Commission
Priscilla Leclerc	Cape Cod Commission
James Plath	Massachusetts State Police
John Kotfila	Massachusetts State Police
Roger Lemieux	MassDOT District 5
Bill Travers	MassDOT District 5 Projects
Edward C. Feeney	MassDOT District 5 Traffic
Barbara Lachance	MassDOT District 5 Traffic
Lisa Schletzbaum	MassDOT Highway Division Safety Section
Corey O'Connor	MassDOT Highway Division Safety Section
Mike Tremblay	Howard/Stein-Hudson Associates
Keri Pyke	Howard/Stein-Hudson Associates

According to the data provided by the Bourne Police Department, 275 crashes were reported along Route 28 within the study area between June 2009 and June 2012, including 62 crashes resulting in personal injury and 1 fatality. Of the 275 crashes, 218 (79%) occurred on dry pavement, 37 (14%) occurred on wet pavement, 14 (5%) occurred when there was snow or ice on the roadway, and 6 (2%) occurred where sand, gravel, oil, or other debris was reported to be on the roadway. Most crashes occurred during the daylight hours: 79% of crashes occurred during the day, while 19% occurred at night, and 2% occurred at

dawn or dusk. No crashes were reported to have involved a pedestrian or a bicyclist. Eight of the 275 reported crashes (3%) involved motorists who were operating under the influence of alcohol.

Project Location Description

The RSA focused on the 4.2-mile segment of Route 28 from the Bourne Rotary to the Otis Rotary.

The ***Bourne Rotary*** is a two-lane rotary with four approaches. The Trowbridge Road eastbound approach consists of one lane in each direction. The Route 28 northbound and southbound approaches each consist of two lanes in each direction; this allows vehicles to travel to and from the rotary onto Route 28 from the inside and outside lanes. The Sandwich Road westbound approach consists of one travel lane in each direction. In addition to the roadway approaches, three driveways also have direct access to the rotary. A Massachusetts State Police barracks driveway is located on the northwest corner of the rotary, between the Trowbridge Road eastbound and Route 28 southbound approaches; a dirt driveway accessing The Ultimate Battleground is located on the southeast corner of the rotary, just east of the Route 28 northbound approach; and two driveways for a Gulf gas station are located on the southwest corner of the rotary, just west of the Route 28 northbound approach. The speed limit is 25 mph within the Bourne Rotary. The rotary has an inner radius of approximately 150 feet. An aerial image of the Bourne Rotary is shown in **Figure 2.**

The ***Otis Rotary*** is an oval-shaped, two-lane rotary with four approaches. The Route 28A eastbound approach consists of one travel lane in each direction. The Connery Avenue westbound approach consists of one travel lane in each direction. The Route 28 northbound and southbound approaches each consist of two travel lanes in each direction, allowing vehicles to travel into and out of the rotary using both travel lanes. The diameter of the rotary is approximately 550 feet from east to west, but approximately 775 feet from north to south. This skewed geometry allows through traffic on Route 28 northbound or southbound to continue through the rotary along Route 28 without slowing down significantly. Public safety officials attending the RSA stated that vehicles often travel through the rotary at speeds that exceed the posted speed limit on the Route 28 mainline, which is generally 55 mph. The posted speed limit approaching the Otis Rotary is 25 miles per hour from Route 28 northbound and is 35 mph from Route 28 southbound. An aerial image of the Otis Rotary is shown in **Figure 3.**

In addition to the rotaries, the RSA focused on the Route 28 corridor between the two rotaries.

Route 28 (General MacArthur Boulevard) is a four-lane median-divided roadway that falls under MassDOT jurisdiction and is classified by the MassDOT Office of Transportation Planning 2010 Road Inventory file as an urban principal arterial. Route 28 southbound serves numerous commercial uses, resulting in a number of driveways along the corridor. Turnarounds are provided between the northbound and southbound directions approximately every 0.5-1.0 miles. Route 28 provides connections between Interstate 195 and Route 25 to Falmouth, Hyannis, and other locations along southern Cape Cod. Aerial images depicting the area of Route 28 near Waterhouse Road, Clay Pond Road, and Barlow's Landing Road are shown in **Figure 4, Figure 5,** and **Figure 6,** respectively.

Figure 2. Bourne Rotary

Source: MassGIS

Not to scale.

Figure 3. Otis Rotary

Source: MassGIS

Not to scale.

Figure 4. Route 28/Waterhouse Road

Source: Google Maps

Not to scale.

Figure 5. Route 28/Clay Pond Road

Source: Google Maps

Not to scale.

Figure 6. Route 28/Barlow's Landing Road

Source: Google Maps

Not to scale.

Road Safety Audit Observations

Based on field observations on Monday, April 5, 2013, the RSA team determined that Route 28, including the Bourne Rotary and the Otis Rotary, has the following issues that affect safety:

- Signage;
- Pavement Markings;
- Sight Distance;
- Access Management;
- Rotary/Intersection Geometry;
- Lighting;
- Drainage;
- Turnarounds;
- Vehicle Travel Speeds;
- The concrete gore area near Clay Pond Road; and
- Pedestrian and Bicycle Accommodations.

The following sections describe in more detail the safety issues and potential enhancements determined during the RSA. Several of these issues require further study and engineering judgment to determine the feasibility of implementing the improvements to address them.

Location 1: Bourne Rotary

The RSA team made the following observations with regard to signage, pavement markings, access management, and sight distance at the Bourne Rotary.

Observations:

Signage

The RSA team noted that there is very little advance guide signage indicating the street names route numbers, and/or destinations of the available exits from the rotary. The only guide signage for exits to the rotary are within the rotary itself. This can create confusion, especially among drivers that are unfamiliar with the rotary, since motorists may not know when their exit is approaching until they read a sign located at the exit itself. There is no existing signage that indicates which lane a vehicle should be in if it is exiting the rotary or continuing to circulate. This lack of direction can cause angle crashes between vehicles exiting the rotary from the inside lane and vehicles remaining in the rotary in the outside lane. Twenty-nine crashes occurred between vehicles exiting the rotary onto Route 28 southbound from the inside lane and vehicles continuing around the rotary in the outside lane. Three similar crashes involved vehicles exiting to Sandwich Road, and one similar crash occurred involving a vehicle attempting to exit to Route 28 northbound occurred.

There is no advanced guide signage indicating the possible exits from the rotary.

Guide signage for Route 6 eastbound is misleading and poorly placed. Some signage is too small to read.

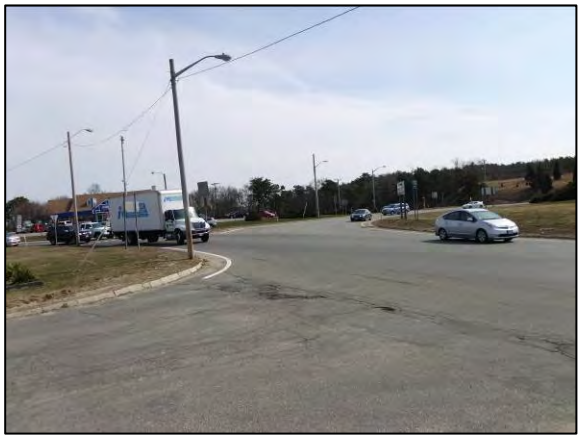
Team members also noted that some of the existing guide signage is too small to read, and that some motorists slow down unexpectedly to read guide signage.

Guide signage is located along the inside of the rotary, including a sign facing the Route 28 southbound approach to the rotary that indicates vehicles should enter the rotary to access the National Cemetery. This sign is not necessary, as any motorist close enough to read the sign would have no choice but to enter the rotary, and it may be distracting to motorists looking for other information.

A second sign, located across from the Trowbridge Road eastbound entrance to the rotary, indicates vehicles should turn left for Route 6 eastbound. This sign is misleading; while continuing to circle the rotary will eventually allow for access to Route 6 eastbound, the sign implies that the turn is imminent, and entering Route 6 eastbound will require a traditional left turn, where in reality, motorists bear right to exit the rotary onto Route 6. The sign is visible to motorists entering the rotary from Trowbridge Road; this may lead to motorists that are unfamiliar with the area turning left into the rotary. Signage placed on the center island of the rotary distracts motorists from signage along the outside of the rotary.

The speed limit on Route 28 northbound drops from 55 mph to 40 mph about 0.36 miles south of the rotary, and drops to 25 mph less than a quarter-mile later.

RSA team members noted that the posted speed limits along the Route 28 northbound approach to the rotary are very closely spaced. According to speed regulations provided by MassDOT, the speed limit changes from 55 mph to 40 mph approximately 0.36 miles south of the Bourne Rotary. After another 0.23 miles the speed limit drops again, to 25 mph just 0.13 miles from the rotary, resulting in a 64% reduction in speed over less than a quarter-mile. Thirteen rear-end crashes occurred along the Route 28 northbound approach to the Bourne Rotary, including three that involved three vehicles and four that resulted in personal injury. For comparison, only four rear-end crashes occurred along the Route 28 southbound approach to the rotary. "Reduced Speed Ahead" (W3-5) signs are provided between the 40 mph speed limit signage and the 25 mph speed limit signage to warn motorists of these changes in the speed limit; however, these signs are too small to read from a distance, and motorists may see the downstream 25 mph speed limit signs prior to being able to read the "Reduced Speed Ahead" signage. According to *Manual on Uniform Traffic Control Devices* (MUTCD) guidelines, "Reduced Speed Ahead" (W3-5) should be placed in advance of a location where the speed limit decreases by 10 mph or more.



There are no longitudinal lane markings or arrow markings within the Bourne Rotary to guide vehicles through the rotary.

Pavement Markings

There are no pavement markings within the Bourne Rotary itself that indicate that it is a two-lane rotary. Six sideswipe crashes were reported within the rotary, indicating that

motorists may not be aware that the rotary functions as two travel lanes, or that motorists are unsure as to where to position themselves within the rotary.

There are also no pavement markings within the rotary to indicate lane use. It is unclear as to whether exiting the rotary from the inside lane is permitted at any exit, at the Route 28 exits only, or not at all. As mentioned previously in the *signage* section, 33 crashes involved a vehicle exiting the rotary from the inside lane while a vehicle continued to circulate the rotary in the outside lane.

RSA team members also noted that there are no pavement markings along the Trowbridge Road eastbound and Sandwich Road westbound approaches that indicate the intended number of travel lanes entering the rotary. Each is wide enough for two vehicles to stack at the entrance to the rotary; however, allowing multiple entrance lanes may cause confusion.

The vegetation in the center of the Bourne Rotary may be distracting, and may restrict sight lines of entering traffic.

Sight Distance

RSA team members noted that the decorative vegetation facing Route 28 southbound traffic entering the rotary, spelling out "Cape Cod", may be distracting for motorists. It was also noted that the height of the vegetation behind the Cape Cod topiary in the center of the rotary may make it difficult for motorists to judge the speed of circulating traffic. However, team members said anecdotally that the number and severity of crashes through the rotary has dropped dramatically since the mound was built.

Access Management

There are four driveways that allow direct access to the Bourne Rotary. The driveway to The Ultimate Battleground is not paved and does not have a defined edge. A team member stated that the driveway often floods, and water flows into the rotary. There are also two driveways that serve the Gulf gas station and the American Lobster Mart. Team members noted that the easternmost of the two driveways is located extremely close to the Route 28 southbound exit, causing confusion when vehicles exit the Gulf driveway. Eight crashes involved vehicles exiting the Gulf gas station into the rotary; six occurred at the easternmost of the two driveways.

Team members also noted that there are currently two driveways to the IHOP along Route 28 northbound, north of the rotary. Team members stated that Route 28 southbound vehicles approaching the rotary often turn left across faster-moving northbound traffic in order to access IHOP, and that vehicles turning left out of IHOP onto the Route 28 southbound approach to the rotary often find themselves in the northbound travel lanes waiting for a gap to form in the

southbound queue. It was also noted that vehicles often cut through the IHOP parking lot to avoid the rotary.

Rotary Geometry

RSA team members noted that vehicles often enter the Bourne Rotary from Route 28 at high speeds, which may contribute to motorist frustration within the rotary and interfere with vehicles being able to exit the rotary safely. It was noted that, since Route 28 traffic enters and exits as two lanes, vehicles entering from Sandwich Road or Trowbridge Road must compete with fast-moving Route 28 through traffic in order to navigate the rotary. A team member noted that Route 28 northbound traffic is not adequately deflected, and high travel speeds are able to be maintained through the rotary.

Pedestrian Facilities

A team member noted that, while a sidewalk is provided over the Bourne Bridge, there are no sidewalks around the Bourne Rotary. Pedestrians currently cut through the State Police barracks to access Trowbridge Road, despite a "Do Not Enter" sign at the driveway entrance.

Potential Enhancements:

1. Consider the safety benefits of providing advance guide signage along the approaches to the rotary. Consider providing diagrammic guide signs (D1-5 or D1-5A) for each individual approach so that motorists know which exit they need to take before entering the rotary.

2. Remove the guide signage from the center island of the rotary.

3. Remove guide signage that is too small for circulating traffic to read. Replace with MUTCD-compliant signage if the signage is deemed necessary. Ensure that all guide signage visible from the rotary or the approaches to the rotary is useful and necessary.

D1-5

A diagrammic guide sign shows each exit within the rotary before a vehicle enters the rotary (Source: MUTCD).

4. Provide larger "Reduced Speed Ahead" signage (W3-5) along the Route 28 northbound approach to the rotary. Consider whether more gradually reducing the speed limit along the approach would reduce the number of rear-end crashes.

5. Continue enforcing speeding violations within the rotary and along approaches to the rotary.

6. As part of long-term planning efforts, consider the safety benefits of providing overhead signage to improve motorist visibility.

7. Consider the safety benefits of providing longitudinal markings and arrow pavement markings within the rotary, including dashed pavement markings to assist entering and exiting vehicles, as part of the upcoming Route 28 corridor resurfacing project.

8. Consider providing additional pavement markings along the Trowbridge Road eastbound and Sandwich Road westbound approaches to the rotary that clearly indicate that vehicles should form a single travel lane.

9. Consider the safety benefits of removing large trees and trimming overgrown vegetation on the mound behind the "Cape Cod" topiary within the rotary. Consider the feasibility and safety benefits of restricting the two Gulf gas station driveways to either entrance- or exit-only using signage and/or pavement markings.

10. Consider the feasibility of closing the easternmost Gulf gas station driveway. The maneuverability of fuel delivery trucks should be taken into consideration.

11. Consider the safety benefits of restricting left-turn movements into and out of the IHOP driveways along Route 28.

12. Consider the feasibility of closing one of the two IHOP driveways located along the northern leg of Route 28, in the vicinity of the Bourne Bridge.

13. Provide pavement markings along the Route 28 northbound approach to the rotary that would help to deflect and slow vehicles entering the rotary.

14. As part of mid-term reconstruction efforts, evaluate the safety benefits of realigning the Route 28 northbound approach so that traffic is deflected at a greater angle in order to slow vehicles entering the rotary.

15. In long-term planning efforts, consider the feasibility and safety benefits of replacing the Bourne Rotary with a grade-separated option, such as a diamond interchange.

16. Install "Except Pedestrians" placards on the "Do Not Enter" signage at the State Police Barracks to encourage pedestrians to use the State Police Barracks driveway instead of the rotary to access Trowbridge Road.

Location #2: Otis Rotary

The RSA team made the following observations with regard to rotary geometry, sight distance, signage, pavement markings, drainage, and lighting at the Otis Rotary.

The oval shape of the Otis Rotary means that Route 28 through traffic may not need to slow down when traveling through the rotary.

Rotary Geometry

The Otis Rotary, unlike a traditional rotary, is oval-shaped, with an east-west diameter of approximately 550 feet, and a north-south diameter of approximately 775 feet. Vehicles traveling through the rotary along Route 28 northbound or southbound are not deflected as much as the eastbound and westbound approaches, meaning relatively high travel speeds can be maintained within the rotary. The ovate geometry may also give motorists the perception that they may drive faster within the rotary, only to need to slow down once they arrive at the northern or southern ends of the rotary, where the turning radii are tighter. An RSA team member noted that vehicles entering the rotary have a "freeway" mentality when entering the roadway, resulting in higher travel speeds. The Route 28 northbound and southbound approaches are not sufficiently deflected upon entering the rotary, which allow vehicles to enter at high speeds and travel through the rotary without slowing down. Twenty-one of the 85 crashes (25%) that were reported at the Otis Rotary were single-vehicle crashes in which the motorist lost control of the vehicle and/or hit a fixed object.

RSA team members also noted that the sharp curve radius along the Connery Avenue exit from the rotary can be unexpected.

Sight Distance

The sharp turning radii at the north and south ends of the Otis Rotary combined with tall vegetation in the center island of the rotary cause sight distance limitations, particularly at the Route 28A eastbound approach to the rotary. Twelve rear-end crashes were reported on this approach. At least six of these crashes occurred because a queued vehicle assumed the vehicle they were following had already entered the rotary.

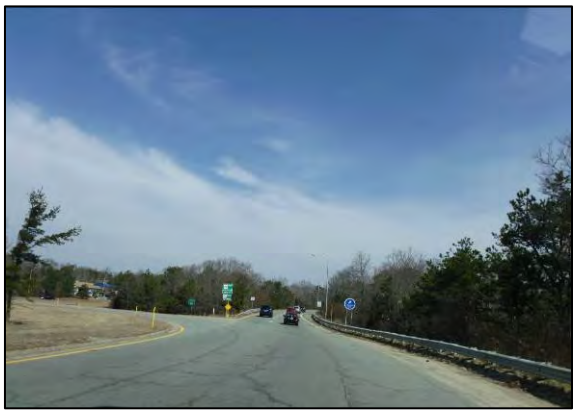
Signage

Similar to the Bourne Rotary, the only guide signage that indicates possible destinations within the Otis Rotary is located at each exit; there is no advance guide signage. This can create motorist uncertainty, especially considering the faster travel speeds within the Otis Rotary. There is also no signage indicating intended lane use within the rotary. The guide signage that is provided at the exits from the rotary is, in many cases, too small to read while circulating within the rotary.

Pavement Markings

Similar to the Bourne Rotary, there are no pavement markings formalizing two travel lanes within the Otis Rotary. Four sideswipe crashes were reported within the Otis Rotary.

There are also no pavement markings that would indicate lane use within the rotary. Twenty-five crashes involved a vehicle exiting the rotary from the inside travel lane while a vehicle continued to circulate around the rotary in the outside travel lane.



There are no lane striping or lane-use arrows within the rotary.

Lighting

RSA team members stated that some light fixtures may have been knocked down and never replaced, and that some areas seem dark during the nighttime hours. Of the 13 crashes that occurred during the nighttime hours at the Otis Rotary, only 10 were reported to have occurred on a lit roadway; the remaining three were reported to have occurred on an unlit roadway. Inadequate lighting may cause difficulty seeing guide signage or other vehicles within the rotary. One fatal crash appears to have occurred at 12:02 AM, in dark lighting conditions.

Drainage

RSA team members noted that the area between the Route 28 northbound approach and Connery Avenue is susceptible to flooding. One out-of-control crash was reported in the area that occurred on wet pavement conditions.

Potential Enhancements:

1. Consider the safety benefits of providing warning signage, including yellow flashing beacons along the Route 28 northbound and southbound approaches to the rotary, similar to what is provided along the Route 28 southbound approach to the Bourne Rotary, in order to warn motorists to be more alert within the rotary.

2. Add deflection along the Route 28 approaches to the rotary using pavement markings to encourage motorists to enter the rotary at slower speeds.

3. As part of long-term planning efforts, consider the feasibility and safety benefits of altering the alignment of the Route 28 northbound and southbound approaches, so that they align with the center point of the central island within the Otis Rotary.

4. Continue to enforce speeding violations within the rotary and on the approaches to the rotary.

5. As part of long-term planning efforts, consider replacing the rotary with a grade-separated intersection, such as a diamond interchange. A team member stated during the RSA that a diamond alignment fits well within the footprint of the rotary.

6. Consider the safety benefits of providing advance guide signage along the approaches to the rotary. Consider providing diagrammic guide signs (D1-5 or D1-5A) for each individual approach so that motorists know which exit they need to take before entering the rotary.

7. Remove guide signage that is too small for circulating traffic to read. Replace with MUTCD-compliant signage if the signage is deemed necessary. Ensure that all guide signage visible from the rotary or the approaches to the rotary is useful and necessary.

8. As part of mid-term planning efforts, consider the safety benefits of providing overhead signage within the rotary to improve visibility for motorists.

9. Consider providing curve warning signage and/or chevron signs at the Connery Avenue exit from the rotary.

10. Consider the safety benefits of providing lane pavement markings and arrow pavement markings within the rotary, including dashed pavement markings to assist entering and exiting vehicles, as part of the upcoming Route 28 corridor resurfacing project.

11. Consider the feasibility and safety benefits of replacing any damaged or previously removed lighting within the Otis Rotary.

12. As part of mid-long-term reconstruction efforts, provide adequate drainage within the Otis Rotary, particularly between Route 28 northbound and Connery Avenue.

Location #3: Route 28 at Waterhouse Road

RSA team members noted the following safety issues at the intersection of Route 28/Waterhouse Road with regard to sight distance, intersection geometry, and signage.

Sight lines to the north of the turnaround in the vicinity of Waterhouse Road are obstructed by vegetation in the median and a crest vertical curve.

Sight Distance

Seven angle crashes, four of which resulted in personal injury, involved a vehicle traveling along Route 28 southbound and a vehicle crossing Route 28 southbound from the northbound-to-southbound turnaround onto Waterhouse Road. RSA team members noted that sight distance to the north of the turnaround is obstructed by overgrown vegetation. Sight lines to the north of the turnaround are also impacted by the crest vertical curve on Route 28 southbound. This may make it more difficult for vehicles in the turnaround area to judge the speed of traffic on Route 28, which, according to team members, often travels at speeds that exceed the 50 mph posted speed limit.

Intersection Geometry

The Waterhouse Road eastbound approach intersects Route 28 southbound at an acute angle. Motorists waiting to merge onto Route 28 southbound must look over their left shoulder in order to see oncoming traffic. This makes it difficult to see and judge the speed of oncoming traffic, and may lead to rear-end crashes when a motorist assumes the vehicle at the front of the queue on Waterhouse Road will accept a gap, but does not. An RSA team member also stated that motorists often "piggyback" one another when merging onto Route 28, meaning two vehicles will often attempt to enter Route 28 at once. This may lead to rear-end crashes if the first vehicle unexpectedly decides not to merge.

Waterhouse Road intersects Route 28 southbound at an acute angle.

Team members noted that the turnaround near Waterhouse Road has no acceleration lane. Vehicles turning from the turnaround onto Route 28 southbound must accelerate in the travel lane. There is also no marked deceleration lane approaching Waterhouse Road; however, the outside travel lane does widen as it approaches Waterhouse Road.

A driveway for Bayview Campground is located approximately 50 feet south of the Waterhouse Road eastbound approach to Route 28 southbound. One crash involved a vehicle merging onto Route 28 southbound from Waterhouse Road and a vehicle turning into the Bayview Campground from Route 28 southbound.

Signage

RSA team members noted that there are guide signs for "Trading Post Corner" along Route 28 northbound, Route 28 southbound, and the turnaround near Waterhouse Road, but there are no advance guide signs for Waterhouse Road. Team members acknowledged that many visitors to the area now use GPS for directions, meaning that motorists are often looking for street names, not landmarks or locally-known nicknames for destinations. There is no advance guide signage for Waterhouse Road along either direction of Route 28.

Team members also noted that there is informational signing along Route 28 southbound, near the intersection for Waterhouse Road, informing motorists to take a right turn into the Bayview Campground. Shortly downstream of this sign is a regulatory sign stating "no turns". While this sign is likely intended for Route 28 southbound vehicles who may wish to make a sharp right turn onto Waterhouse Road, it implies that right turns into the Bayview Campground driveway are prohibited. A large sign for Bayview Campground is located at the driveway.

Potential Enhancements:

1. Clear any vegetation in the median that may obstruct sight lines to the north of the turnaround near Waterhouse Road.

2. Consider formalizing a deceleration lane along the Route 28 southbound approach to Waterhouse Road, if feasible.

3. As part of long-term construction efforts, consider the feasibility of altering the alignment of Waterhouse Road in order to create a T-intersection with Route 28 southbound. This would improve sight lines to the north of the intersection and prevent vehicles from entering Route 28 from Waterhouse Road without stopping. It would also increase the distance between the Waterhouse Road eastbound approach and the Bayview Campground driveway. An acceleration lane should be provided for Waterhouse Road traffic to safely merge onto Route 28 southbound, and intersection warning signs should be provided along the Route 28 southbound approach to Waterhouse Road.

4. Replace guide signage for Trading Post Corner with advance guide signage for Waterhouse Road along Route 28 northbound and southbound.

5. Replace the conflicting sign for the Bayview Campground along the Waterhouse Road eastbound approach with MUTCD-compliant brown Recreational and Cultural Interest Area guide signage, if the signage is deemed necessary. Consider moving the "No Turns" sign (R3-3) northward to avoid confusion.

Corridor-Wide Issues

RSA team members noted the following safety issues along Route 28 between the Bourne Rotary and the Otis Rotary with respect to turnarounds, travel speeds, the flush concrete median near Clay Pond Road, signage, and pedestrian and bicycle accommodations.

Turnarounds

Most turnarounds between the northbound and southbound directions on Route 28 do not provide an acceleration lane.

Nine turnarounds are located along the Route 28 corridor between the Bourne Rotary and the Otis Rotary. Five turnarounds allow Route 28 southbound traffic to turn to Route 28 northbound and four turnarounds allow Route 28 northbound traffic to turn onto Route 28 southbound. The northbound-to-southbound turnaround north of Clay Pond Road and the southbound-to-northbound turnaround just north of Otis Park Drive are the only turnarounds that provide acceleration lanes; vehicles using the other turnarounds must wait for an acceptable gap in Route 28 traffic, and then accelerate in the travel lanes. This can lead to rear-end crashes both within the turnaround and on the Route 28 mainline. It can also lead to angle crashes when vehicles attempt to exit a turnaround into the left, high-speed lane. Four crashes were reported involving vehicles exiting turnarounds at locations with no acceleration lanes.

Team members discussed the number of turnarounds and their locations. Turnarounds are located between 0.5 miles and 1.0 miles apart; team members noted that some turnarounds may not be necessary due to their proximity to other turnarounds going in the same direction. Team members also noted that, since there are no turnarounds north of the Bourne Town Landfill, trucks leaving the landfill that wish to enter Route 28 southbound must do so using the Bourne Rotary.

Deceleration lanes are provided at each of the turnarounds along Route 28, though these deceleration lanes are typically too short to slow down safely and comfortably to enter the turnaround. Additionally, during peak periods, these deceleration lanes act as queuing lanes, making the effective length of the deceleration lane even shorter. Team members noted that queues from turnarounds may obscure the view of adjacent turnarounds from Route 28 through traffic. RSA team members also noted that advance signage for the turnarounds are typically too close to the deceleration lanes. Two crashes were reported involving vehicles traveling too fast when entering the turnaround areas.

Public safety officials attending the RSA stated that some turnarounds are not wide enough for heavy vehicles to turn safely. Two single-vehicle, fixed-object crashes were reported involving vehicles attempting to use a turnaround. One involved a heavy vehicle striking the guardrail.

Team members noted that vegetation in the median obstructs sight lines at most turnarounds.

Vehicle Travel Speeds

Between the Bourne Rotary and Otis Rotary, 15 crashes occurred when a motorist lost control of their vehicle. Seven of these crashes occurred in snowy conditions, three occurred on wet pavement, and one occurred on an icy roadway surface. Four occurred on dry pavement. These out-of-control crashes indicate that motorists often travel at excessive speeds, particularly in inclement weather. Eight additional crashes were reported to have involved vehicles driving erratically or traveling at excessive speeds. Three of these crashes occurred on dry pavement, three occurred on wet pavement, and two occurred in snowy conditions. Three of these eight crashes involved motorists operating under the influence.

A flush concrete median separates Route 28 southbound through traffic and traffic entering and exiting commercial businesses in the vicinity of Clay Pond Road.

Flush Median near Clay Pond Road

A flush concrete median area separates Route 28 southbound through traffic from traffic entering or exiting the commercial businesses in the vicinity of Clay Pond Road. The flush median discourages, but does not prevent, vehicles from mounting it. RSA team members stated that some motorists entering Route 28 from Clay Pond Road or from the nearby businesses may sometimes mistakenly believe the median separates the Route 28 northbound and southbound traffic, and turn left to proceed north on Route 28. Public safety officials attending the RSA stated that wrong-way drivers at this location are a common, nearly daily, occurrence. While not represented in the crash data, this confusion could cause serious head-on crashes.

Drainage

RSA team members noted that Route 28 southbound often floods north of Waterhouse Road due to damaged drainage structures. One out-of-control crash occurred along Route 28 southbound, north of Waterhouse Road, after a vehicle drove through standing water. Team members also noted that Route 28 floods in the vicinity of Clay Pond Road due to the slope of Clay Pond Road and insufficient drainage. One crash occurred on wet pavement in the vicinity of Clay Pond Road. One crash occurred south of Otis Park Drive when a vehicle hydroplaned on wet pavement.

Signage

RSA team members noted that “No Right Turn” and “One Way” signage at turnaround exits and at side streets along Route 28 southbound may not be large enough for motorists to see, especially when

they are searching for an acceptable gap in traffic. One crash occurred when a vehicle turned left out of Brigadoon Road, traveling northbound along Route 28 southbound.

Team members commented that speed limit signs are inconsistent along the corridor. Speed limit signs are placed only where the speed limit changes. According to MUTCD standards, "…speed limit signs shall be installed beyond major intersection locations and other locations where it is necessary to remind users of the speed limit that is applicable".

It was noted that the older population on Cape Cod, which currently has 25% of the year-round population over 65 years old, is projected to increase as more "baby boomers" retire to Cape Cod.

Pedestrian and Bicycle Accommodations

There are no designated pedestrian or bicycle areas along Route 28. According to RSA team members, a bike path along Route 28 is currently planned to be implemented using available right-of-way to the east of Route 28.

Potential Enhancements:

1. Trim any vegetation within the Route 28 median that may obstruct the sight lines of vehicles using turnarounds.

2. Consider locations where adding acceleration lanes and/or extending deceleration lanes may be feasible. Consider reallocating space from breakdown lanes, if possible.

3. As part of long-term planning efforts, evaluate the placement of all turnaround locations. Consider the distance between turnarounds and merging distance between turnarounds and points of interest such as intersections or commercial driveways. Ensure that all turnarounds are constructed to allow for heavy vehicle movements, particularly in the vicinity of the Bourne Town Landfill. All turnarounds should have adequate acceleration and deceleration lanes so that traffic can safely slow or merge with Route 28 traffic.

4. Continue to enforce speed violations along Route 28, especially in inclement weather, where possible.

5. Consider providing additional speed limit signage (R2-1) after major intersections and commercial driveways, and where excessive speeds are common. Consider the use of oversized speed limit signage in areas where the speed limit decreases significantly, or where speeding is common, such as at the bottom of crest vertical curves.

6. Consider the appropriateness of using visual speed bars in deceleration lanes, including deceleration lanes for local businesses, to alert motorists of a change in roadway characteristics within the deceleration lane.

7. Consider use of oversized "One Way" (R6-1) signs at intersections and driveways along Route 28 and "All Traffic Turn Left" (W19-5 mod) at turnarounds within Route 28, replacing

or complementing the existing signage, to reduce the occurrence of wrong-way travel along Route 28. Also consider installing Wrong Way (R5-1a) signs, as appropriate, along Route 28.

8. Consider the use of flexible delineators on the flush concrete median in the vicinity of Clay Pond Road to prevent wrong-way turns.

9. As part of long-term reconstruction efforts, consider replacing the flush concrete median with a raised median to prevent wrong-way travel along Route 28.

10. As part of long-term reconstruction efforts, repair or replace damaged drainage structures and ensure that all areas drain properly.

11. As part of long-term reconstruction efforts, consider providing pedestrian and bicycle accommodations, such as the planned shared-use path parallel to Route 28. Consider pedestrian/bicycle crossing infrastructure in conjunction with the proposed Route 28 parallel shared-use path.

12. Consider enlarging signs and sign legend/text, providing better lighting, and maintaining pavement markings to accommodate the rising population of older drivers on Cape Cod.

Potential Safety Enhancements

Based on its observations and discussions, the RSA team identified the issues and possible enhancements that could improve safety along Route 28 between Bourne Rotary and the Otis Rotary. Because the upcoming project is a resurfacing project, many of the long-term enhancements may be too costly to incorporate. However, it is envisioned that the short-term enhancements can be evaluated/included as part of the resurfacing project. The long-term and high-cost enhancements should be evaluated and could be implemented when greater resources become available.

Short-term enhancements include, but are not limited to:

- Provide advance guide signage;
- Remove difficult to read, outdated, and unnecessary signage;
- Provide longitudinal and arrow pavement markings within rotaries;
- Trim overgrown vegetation;
- Restrict turning movements from driveways;
- Provide adequate acceleration and deceleration lanes; and
- Provide additional speed limit and "Reduced Speed Ahead" signage.

To enhance the safety of the corridor, the ***long-term enhancements*** are to:

- Consider replacing the Bourne Rotary and/or the Otis Rotary with a grade-separated interchange;
- Evaluate turnaround locations;
- Convert the Route 28/Waterhouse Road intersection into a traditional "T" intersection;
- Improve access management by closing commercial driveways;
- Improve lighting at the Otis Rotary;
- Improve drainage; and
- Provide pedestrian and bicycle accommodations.

Table 2 summarizes these safety issues, possible enhancements, estimated safety payoff, time frame, cost, and responsibility. Safety payoff estimates are based on engineering judgment and are categorized as low, medium, and high. The time frame is categorized as short-term (<1 year), mid-term (1 to 3 years), or long-term (typically >3 years).

The costs are categorized as low (<$10,000), medium ($10,000 to $50,000), or high (>$50,000). It is the responsibility of MassDOT to ensure that the designer incorporates the relevant safety enhancements identified as part of this RSA. The RSA is intended to identify all potential safety improvements. Those improvements that can be evaluated and included as part of the design process for the resurfacing should be.

Table 2. Summary of Potential Safety Enhancements

Safety Issue	Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Party
Location 1: Bourne Rotary	Consider the safety benefits of providing advance guide signage along the approaches to the rotary. Consider providing diagrammic guide signs (D1-5 or D1-5A) for each individual approach so that motorists know which exit they need to take before entering the rotary.	Low	Short-term	Low	MassDOT
	Remove the guide signage from the center island of the rotary.	Low	Short-term	Low	MassDOT
	Remove guide signage that is too small for circulating traffic to read. Replace with MUTCD-compliant signage if the signage is deemed necessary. Ensure that all guide signage visible from the rotary or the approaches to the rotary is useful and necessary.	Low	Short-term	Low	MassDOT
	Provide larger "Reduced Speed Ahead" signage (W3-5) along the Route 28 northbound approach to the rotary. Consider whether more gradually reducing the speed limit along the approach would reduce the number of rear-end crashes.	Low	Short-term	Low	MassDOT
	Continue to enforce speeding violations within the rotary and along approaches to the rotary, where possible.	Medium	Short-term	Low	Town of Bourne Police/ Massachusetts State Police
	As part of long-term planning efforts, consider the safety benefits of providing overhead signage to improve motorist visibility.	Medium	Mid-term	High	MassDOT
	Consider the safety benefits of providing longitudinal markings and arrow pavement markings within the rotary, including dashed pavement markings to assist entering and exiting vehicles, as part of the upcoming Route 28 corridor resurfacing project.	High	Short-term	Low	MassDOT
	Consider providing additional pavement markings along the Trowbridge Road eastbound and Sandwich Road westbound approaches to the rotary that clearly indicate that vehicles should form a single travel lane.	Low	Short-term	Low	MassDOT
	Consider the safety benefits of removing large trees and trimming overgrown vegetation within the rotary.	Low	Short-term	Low	MassDOT

Table 2. Summary of Potential Safety Enhancements (continued)

Safety Issue	Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Party
Location 1: Bourne Rotary	Consider the feasibility and safety benefits of restricting the two Gulf gas station driveways to either entrance- or exit-only using signage and/or pavement markings.	Low	Short-term	Low	MassDOT/Town of Bourne/Gulf
	Consider the feasibility of closing the easternmost Gulf gas station driveway. The maneuverability of fuel delivery trucks should be taken into consideration.	Medium	Mid-term	Medium	MassDOT/Town of Bourne/Gulf
	Consider the safety benefits of restricting left-turn movements into and out of the IHOP driveways along Route 28.	Low	Short-term	Low	MassDOT/Town of Bourne/IHOP
	Consider the feasibility of closing one of the two IHOP driveways located along the northern leg of Route 28, in the vicinity of the Bourne Bridge.	Low	Mid-term	Medium	MassDOT/Town of Bourne/IHOP
	Provide pavement markings along the Route 28 northbound approach to the rotary that would help to deflect and slow vehicles entering the rotary.	Low	Short-term	Low	MassDOT
	As part of mid-term reconstruction efforts, evaluate the safety benefits of realigning the Route 28 northbound approach so that traffic is deflected at a greater angle in order to slow vehicles entering the rotary.	Medium	Mid-term	High	MassDOT
	In long-term planning efforts, consider the feasibility and safety benefits of replacing the Bourne Rotary with a grade-separated option, such as a diamond interchange.	High	Long-term	High	MassDOT
	Install “Except Pedestrians” placards on the “Do Not Enter” signage at the State Police Barracks to encourage pedestrians to use the State Police Barracks driveway instead of the rotary to access Trowbridge Road	Low	Short-term	Low	MassDOT

Table 2. Summary of Potential Safety Enhancements (continued)

Safety Issue	Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Party
Location 2: Otis Rotary	Consider the safety benefits of providing warning signage, including yellow flashing beacons along the Route 28 northbound and southbound approaches to the rotary, similar to what is provided along the Route 28 southbound approach to the Bourne Rotary, in order to warn motorists to be more alert within the rotary.	Medium	Short-term	Medium	MassDOT
	Add deflection along the Route 28 approaches to the rotary using pavement markings to encourage motorists to enter the rotary at slower speeds.	Medium	Short-term	Low	MassDOT
	As part of long-term planning efforts, consider the feasibility and safety benefits of altering the alignment of the Route 28 northbound and southbound approaches, so that they align with the center point of the central island within the Otis Rotary.	High	Long-term	High	MassDOT
	Continue to enforce speeding violations within the rotary and on the approaches to the rotary	Medium	Short-term	Low	Town of Bourne Police/ Massachusetts State Police
	As part of long-term planning efforts, consider replacing the rotary with a grade-separated intersection, such as a diamond interchange. A team member stated during the RSA that a diamond alignment fits well within the footprint of the rotary.	High	Long-term	High	MassDOT
	Consider the safety benefits of providing advance guide signage along the approaches to the rotary. Consider providing diagrammic guide signs (D1-5 or D1-5A) for each individual approach so that motorists know which exit they need to take before entering the rotary.	Low	Short-term	Low	MassDOT
	Remove guide signage that is too small for circulating traffic to read. Replace with MUTCD-compliant signage if the signage is deemed necessary. Ensure that all guide signage visible from the rotary or its approaches is useful and necessary.	Low	Short-term	Low	MassDOT

Table 2. Summary of Potential Safety Enhancements (continued)

Safety Issue	Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Party
Location 2: Otis Rotary	As part of mid-term planning efforts, consider the safety benefits of providing overhead signage within the rotary to improve visibility for motorists.	Medium	Mid-term	High	MassDOT
	Consider providing curve warning signs and/or chevron signs at the Connery Avenue exit from the rotary.	Low	Short-term	Low	MassDOT
	Consider the safety benefits of providing lane pavement markings and arrow pavement markings within the rotary, including dashed pavement markings to assist entering and exiting vehicles, as part of the upcoming Route 28 corridor resurfacing project.	High	Short-term	Low	MassDOT
	Consider the feasibility and safety benefits of replacing any damaged or previously removed lighting within the Otis Rotary.	Low	Mid-term	Medium	MassDOT
	As part of mid-long-term reconstruction efforts, provide adequate drainage within the Otis Rotary, particularly between Route 28 northbound and Connery Avenue.	Low	Mid-term	Medium	MassDOT
Location 3: Route 28 at Waterhouse Road	Clear any vegetation in the median that may obstruct sight lines to the north of the turnaround near Waterhouse Road.	Low	Short-term	Low	MassDOT
	Consider formalizing a deceleration lane along the Route 28 southbound approach to Waterhouse Road, if feasible.	Low	Short-term	Low	MassDOT
	As part of long-term construction efforts, consider the feasibility of altering the alignment of Waterhouse Road in order to create a T-intersection with Route 28 southbound. This would improve sight lines to the north of the intersection and prevent vehicles from entering Route 28 from Waterhouse Road without stopping. It would also increase the distance between the Waterhouse Road eastbound approach and the Bayview Campground driveway. An acceleration lane should be provided for Waterhouse Road traffic to safely merge onto Route 28 southbound, and intersection warning signs should be provided along the Route 28 southbound approach to Waterhouse Road.	High	Long-term	High	MassDOT

Table 2. Summary of Potential Safety Enhancements (continued)

Safety Issue	Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Party
Location 3: Route 28 at Waterhouse Road	Replace guide signage for Trading Post Corner with advance guide signage for Waterhouse Road along Route 28 northbound and southbound.	Low	Short-term	Low	MassDOT
	Replace the conflicting sign for the Bayview Campground along the Waterhouse Road eastbound approach with MUTCD-compliant brown Recreational and Cultural Interest Area guide signage, if the signage is deemed necessary. Consider moving the "No Turns" sign (R3-3) northward to avoid confusion.	Low	Short-term	Low	MassDOT
Corridor-Wide Issues	Trim any vegetation within the Route 28 median that may obstruct the sight lines of vehicles using turnarounds.	Low	Short-term	Low	MassDOT
	Consider locations where adding acceleration lanes and/or extending deceleration lanes may be feasible. Consider reallocating space from breakdown lanes, if possible.	Medium	Mid-term	Medium	MassDOT
	As part of long-term planning efforts, evaluate the placement of all turnaround locations. Consider the distance between turnarounds and merging distance between turnarounds and points of interest such as intersections or commercial driveways. Ensure that all turnarounds are constructed to allow for heavy vehicle movements. All turnarounds should have adequate acceleration and deceleration lanes so that traffic can safely slow or merge with Route 28 traffic.	High	Long-term	High	MassDOT
	Continue to enforce speed violations along Route 28, especially in inclement weather, where possible.	High	Short-term	Low	Town of Bourne Police/ Massachusetts State Police
	Consider providing additional speed limit signage (R2-1) after major intersections and commercial driveways, and where excessive speeds are common. Consider the use of oversized speed limit signage in areas where the speed limit decreases significantly, or where speeding is common, such as at the bottom of crest vertical curves.	Low	Short-term	Low	MassDOT

Table 2. Summary of Potential Safety Enhancements (continued)

Safety Issue	Safety Enhancement	Safety Payoff	Time Frame	Cost	Responsible Party
Corridor-Wide Issues	Consider the appropriateness of using visual speed bars in deceleration lanes, including deceleration lanes for local businesses, to alert motorists of a change in roadway characteristics within the deceleration lane.	Low	Short-term	Low	MassDOT
	Consider use of oversized "One Way" (R6-1) signs such as "All Traffic Turn Right" (W19-5 mod) at intersections and driveways along Route 28 and "All Traffic Turn Left" (W19-5 mod) at turnarounds within Route 28, replacing or complementing the existing signage, to reduce the occurrence of wrong-way travel along Route 28. Also consider installing Wrong Way (R5-1a) signs, as appropriate, along Route 28.	Low	Short-term	Low	MassDOT
	Consider the use of flexible delineators on the flush concrete median in the vicinity of Clay Pond Road to prevent wrong-way turns.	Medium	Short-term	Low	MassDOT
	As part of long-term reconstruction efforts, consider replacing the flush concrete median with a raised median to prevent wrong-way travel along Route 28.	High	Long-term	High	MassDOT
	As part of long-term reconstruction efforts, repair or replace damaged drainage structures and ensure that all areas drain properly.	Medium	Long-term	High	MassDOT
	As part of long-term reconstruction efforts, consider providing pedestrian and bicycle accommodations, such as the planned shared-use path parallel to Route 28. Consider pedestrian/bicycle crossing infrastructure in conjunction with the proposed Route 28 parallel shared-use path.	High	Long-term	High	MassDOT
	Consider enlarging signs and sign legend/text, providing better lighting, and maintaining pavement markings to accommodate the rising population of older drivers on Cape Cod.	Medium	Short-term	Low	MassDOT

Agenda

Road Safety Audit

Bourne, MA

Route 28 from the Bourne Rotary to the Otis Rotary

Meeting Location: Bourne Town Hall
24 Perry Ave, Buzzards Bay, MA
Monday, April 8, 2013
8:00 AM – 12:00 noon

Type of meeting:	**High Crash Locations – Road Safety Audit**
Attendees:	**Invited Participants to Comprise a Multidisciplinary Team**
Please bring:	**Thoughts and Enthusiasm!!**
8:00 AM	**Welcome and Introductions**
8:15 AM	**Discussion of Safety Issues** • Crash history, Speed Regulations – provided in advance • Existing Geometries and Conditions
9:15 AM	**Site Visit** • Drive to the intersections of Borne Rotary, Waterhouse Road, Otis Rotary • As a group, identify areas for improvement
10:45 AM	**Discussion of Potential Improvements** • Discuss observations and finalize safety issue areas • Discuss potential improvements and finalize recommendations
12:00 noon	**Adjourn for the Day – but the RSA has not ended**

Instructions for Participants:

- **Before attending the RSA on April 8th, participants are encouraged to drive through the corridor and complete/consider elements on the RSA Prompt List with a focus on safety.**
- **All participants will be actively involved in the process throughout. Participants are encouraged to come with thoughts and ideas, but are reminded that the synergy that develops and respect for others' opinions are key elements to the success of the overall RSA process.**
- **After the RSA meeting, participants will be asked to comment and respond to the document materials to assure it is reflective of the RSA completed by the multidisciplinary team.**

Appendix A. RSA Meeting Agenda

Appendix B. RSA Audit Team Contact List

Participating Audit Team Members

Date: Monday, April 5, 2013 Location: Bourne Town Hall, 24 Perry Avenue, Buzzard's Bay

Audit Team Members	Agency/Affiliation	E-mail Address	Phone Number
John Stowe	Town of Bourne Police Department	jstowe@townofbourne.com	508-759-4420 x203
George Sala	Town of Bourne Department of Public Works	gsala@townofbourne.com	508-326-1050
Jon Nelson	Town of Bourne	jnelson@townofbourne.com	508-566-1349
Chris Farrell	Town of Bourne Planning Board	chrisfarrell911@gmail.com	774-313-0511
Dan Barrett	Town of Bourne Solid Waste	dbarrett@townofbourne.com	508-759-0651
Martin Greene	Town of Bourne Fire Department	mgreene@townofbourne.com	508-759-4412
Stanley Gwara	A.I. Engineers	sgwara@aiengineers.com	860-635-7740
Eric Wagner	A.I. Engineers	ewagner@aiengineers.com	860-635-7740
Clay Schofield	Cape Cod Commission	cschofield@capecodcommission.org	508-744-1231
Priscilla Leclerc	Cape Cod Commission	pleclerc@capecodcommission.org	508-362-3828
James Plath	Massachusetts State Police	james.plath@state.ma.us	508-922-7631
John Kotfila	Massachusetts State Police	john.kotfila@state.ma.us	508-759-4489
Roger Lemieux	MassDOT District 5	roger.lemieux@dot.state.ma.us	508-884-4391
Bill Travers	MassDOT District 5 Projects	bill.travers@dot.state.ma.us	508-884-4218
Edward C. Feeney	MassDOT District 5 Traffic	Edward.feeney@state.ma.us	508-884-4242
Barbara Lachance	MassDOT District 5 Traffic	Barbara.lachance@dot.state.ma.us	508-884-4260
Lisa Schletzbaum	MassDOT Highway Division Safety Section	lisa.schletzbaum@state.ma.us	857-368-9634
Corey O'Connor	MassDOT Highway Division Safety Section	corey.oconnor@state.ma.us	857-368-9638
Mike Tremblay	Howard/Stein-Hudson Associates	mtremblay@hshassoc.com	617-348-3347
Keri Pyke	Howard/Stein-Hudson Associates	kpyke@hshassoc.com	617-348-3301

Appendix C. Detailed Crash Data

COLLISION DIAGRAM

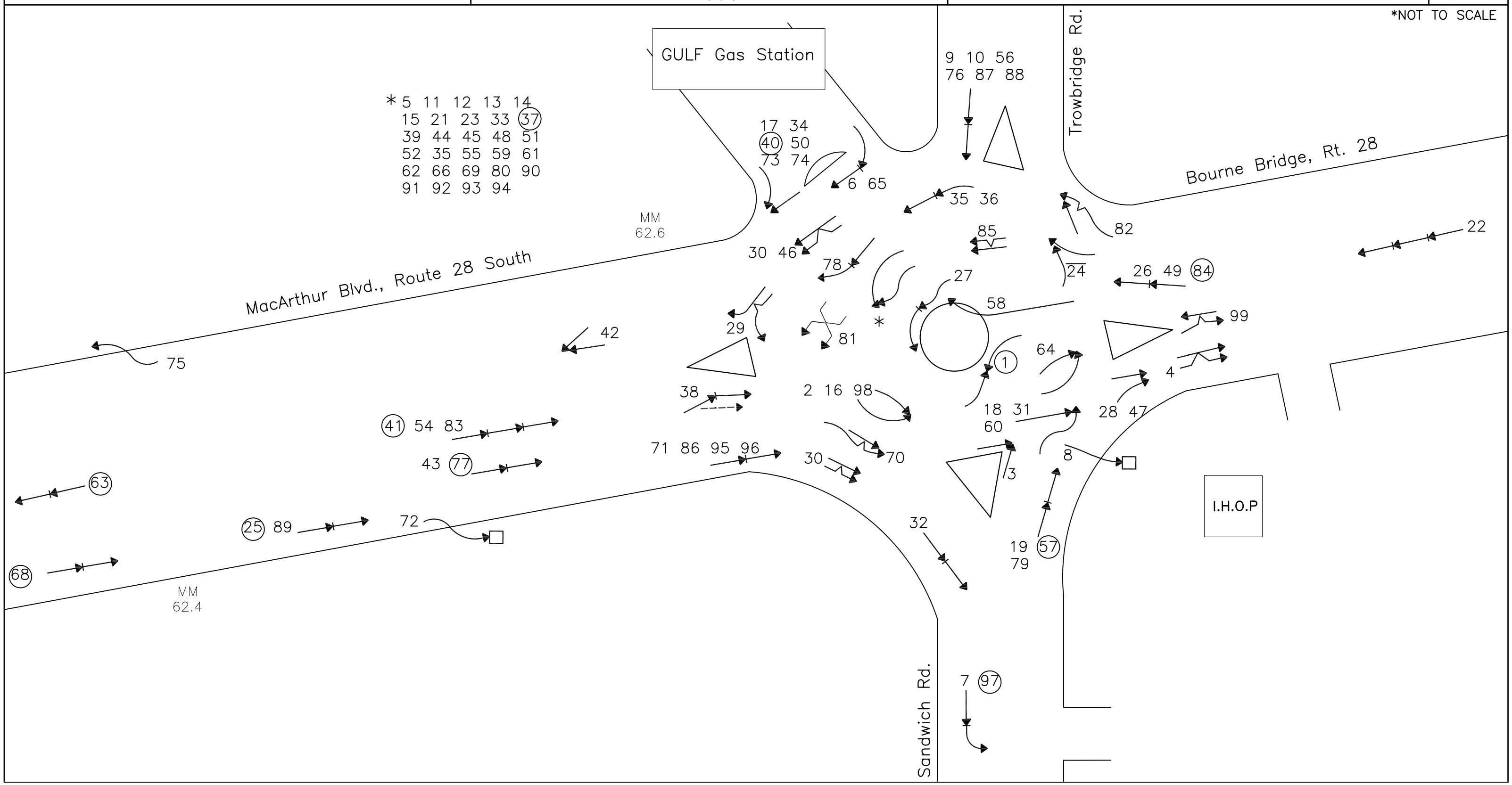
SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head on	
Backing Vehicle	Rear End	Injury
Non–Involved Vehicle	Angle	
Pedestrian	Turning Movement	Fatal
Bicycle	Sideswipe	
Animal	Out of Control	
Parked Vehicle		
Fixed Object		

Bourne, MA

Route 28, Bourne South Rotary (1)
REGION– CCC

TIME PERIOD ANALYZED: June 2009–June 2012
SOURCE OF CRASH REPORTS: Bourne PD and State Police
DATE PREPARED: 2/15/2013
PREPARED BY: SM

*NOT TO SCALE



Crash Data Summary Table

Route 28, Bourne South Rotary (1); Bourne, MA

June 2009 to June 2012

#	Crash Date	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Ages				Comments
								D1	D2	D3	*D4*	
1	06/01/09	2:28 AM	Head on	Dark - lighted roadway	Clear	Dry		53	35			Vehicle 1 entered the rotary in the opposite direction of flow
2	6/5/09	7:20 AM	Sideswipe, same direction	Daylight	Clear	Dry	Made an improper turn	18	49			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
3	06/26/09	3:12 PM	Angle	Daylight	Rain	Wet	Failed to yield to right of way	21	54			Vehicle 1 struck Vehicle 2 as it tried to enter the rotary
4	07/25/09	1:51 PM	Sideswipe, same direction	Daylight	Clear	Dry	Unknown	40	43			Vehicle 1 was preparing to enter IHOP
5	07/31/09	9:05 AM	Angle	Daylight	Cloudy	Dry		66	32			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
6	08/12/09	5:00 PM	Sideswipe, same direction	Daylight	Clear	Dry		22	45			Vehicle 1 merged into the rotary from Gas Station at the same time as Vehicle 2 was exiting onto 28S
7	08/19/09	10:15 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	40	unk			Vehicle 2 attempting to turn left into IHOP got rear- ended by Vehicle 1
8	08/23/09	2:15 AM	Single Vehicle Crash	Dark - lighted roadway	Rain	Wet	Driving too fast for conditions	22				Operator claims to have slipped on slippery pavement & struck curb
9	8/24/09	3:40 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	33	52			Veh 1 did not expect Veh 2 to stop
10	09/08/09	7:40 AM	Rear-end	Daylight		Dry		57	unk			Vehicle 1 started to merge but stopped because of heavy traffic
11	10/1/09	3:29 PM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	20	39			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
12	11/11/09	6:14 PM	Sideswipe, same direction	Dark - lighted roadway	Clear	Dry		26	44			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
13	11/19/09	7:15 AM	Angle	Daylight		Dry		34	45			Vehicle 2 was in the inner lane of rotary trying to exit, Vehicle 1 was continuing in the rotary outer lane
14	12/11/09	1:01 PM	Sideswipe, same direction	Daylight	Clear	Dry	Made an improper turn	69	31			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
15	12/13/09	10:33 PM	Sideswipe, same direction	Dark - lighted roadway	Clear	Dry	Failed to yield to right of way	30	62			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
16	12/18/09	12:40 PM	Angle	Daylight	Cloudy	Dry	Failed to yield to right of way	66	17			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane near Sandwich Road exit
17	01/15/10	8:39 PM	Angle	Dark - lighted roadway	Clear	Wet	Inattention	22	23			Vehicle 1 was exiting from Gulf gas station
18	01/23/10	11:55 AM	Angle	Daylight		Dry		19	72			Vehicle 1 was trying to exit on 28N, vehicle 2 entered the rotary from Sanwich rd
19	02/05/10	3:27 PM	Rear-end	Daylight	Clear	Dry	Unknown	38	46			Vehicle 2 stopped at the entry point yielding to rotary traffic
20	02/27/10	3:14 PM	Angle	Daylight	Clear	Dry	Failure to keep in proper lane or running off road	unk	48			Vehicle 1 passed Vehicle 2 and made slight contact with it
21	03/17/10	9:56 AM	Angle	Daylight		Dry	No Improper Driving	53	58			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
22	03/23/10	5:16 PM	Rear-end	Daylight		Wet	Followed too closely	53	61	27		Heavy traffic on Bourne bridge
23	03/27/10	12:58 PM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	21	45			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
24	03/30/10	10:39 PM	Angle	Dark - lighted roadway	Rain	Wet	Failed to yield to right of way	46	21			Vehicle 1 enters rotary in left lane as Vehicle 2 is exiting rotary from right lane
25	04/04/10	6:08 PM	Rear-end	Daylight	Clear	Dry	Distracted	49	37			
26	04/12/10	7:23 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	28	50			Heavy traffic on Bourne bridge
27	04/23/10	11:56 AM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	60	51			
28	04/23/10	5:34 PM	Single Vehicle Crash	Daylight	Clear	Dry	Unknown	unk	51			Hit and run

Crash Data Summary Table

Route 28, Bourne South Rotary (1); Bourne, MA

June 2009 to June 2012

#	Crash Date	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Ages				Comments
								D1	D2	D3	*D4*	
29	04/24/10	7:25 PM	Sideswipe, same direction	Dark - lighted roadway	Clear	Dry	No Improper Driving	44	unk			Vehicle 2 sideswiped Vehicle 1 at the Route 28S exit and continued on the rotary
30	05/07/10	2:24 PM	Sideswipe, same direction	Daylight	Clear	Dry	Unknown	17	39			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
31	05/07/10	5:26 PM	Sideswipe, opposite direction	Daylight	Clear	Dry	No Improper Driving	54	31			Vehicle 1 enters rotary in left lane as Vehicle 2 is exiting rotary from right lane
32	05/11/10	4:13 PM	Rear-end	Daylight	Clear	Dry	Inattention	19	49			
33	05/18/10	8:49 AM	Sideswipe, same direction	Daylight	Cloudy	Dry	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	unk	58			Vehicle 2 continuing around rotary in right lane, Vehicle 1 (driving erratically) exiting rotary in left lane
34	05/26/10	5:35 PM	Angle	Daylight		Dry	Disregarded traffic signs, signals, road markings	78	39			Vehicle 2 struck Vehicle 1 soon after making an entry from the Gas Station
35	05/26/10	6:35 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	20	64			Driver 1 did not believe that there was a collision
36	06/05/10	10:30 AM	Rear-end	Daylight	Cloudy	Dry	Inattention	27	20			
37	06/08/10	2:43 PM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	60	42			Vehicle 1 enters rotary in left lane as Vehicle 2 is exiting rotary from right lane
38	06/11/10	2:05 PM	Rear-end	Daylight	12:00 AM	Dry	Other improper action	26	unk			Vehicle 1 swerved to avoid uninvolved vehicle and struck Vehicle 2
39	06/17/10	6:10 PM	Angle	Daylight	12:00 AM	Dry	Failed to yield to right of way	50	18			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
40	06/25/10	9:10 PM	Angle	Dark - lighted roadway	Clear	Dry	Failed to yield to right of way	30	50			Vehicle 1 enters rotary from gas station as Vehicle 2 is exiting rotary
41	06/30/10	5:30 PM	Rear-end	Daylight	Clear	Dry		48	21	41		Vehicle 1 was stopping in traffic
42	07/02/10	4:00 PM	Angle	Daylight	Clear	Dry	No Improper Driving	63	unk			Vehicle 2 struck Vehicle 1 while changing from right to left lane
43	07/04/10	7:45 PM	Rear-end	Daylight	Clear	Dry	Inattention	18	45			
44	07/10/10	10:15 AM	Sideswipe, same direction	Daylight	12:00 AM	Dry		unk	unk			Vehicle 2 was a pick-up truck with a trailer, Driver 1 only saw the pick-up portion of vehicle and crossed over once that passed.
45	07/15/10	12:45 PM	Angle	Daylight	Clear	Dry	No Improper Driving	33	55			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
46	07/17/10	4:46 PM	Sideswipe, opposite direction	Daylight	Clear	Dry	Failed to yield to right of way	73	46			
47	07/21/10	7:12 AM	Sideswipe, same direction	Daylight	Clear	Dry	Failure to keep in proper lane or running off road	62	40			Vehicle 1 was confused on where to go and made a last minute choice to exit rotary
48	07/23/10	1:45 PM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	71	27			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
49	07/26/10	9:30 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	41	63			Heavy traffic in rotary caused Vehicle 1 to stop
50	07/27/10	8:34 PM	Angle	Dark - roadway not lighted	Clear	Dry	Distracted	26	20			Vehicle 1 attempted to exit gas station and was distracted by motorcycles
51	07/28/10	7:55 AM	Angle	Daylight	Clear	Dry	No Improper Driving	45	31			Vehicle 2 was in the inner lane of rotary trying to exit, Vehicle 1 was continuing in the rotary outer lane
52	08/09/10	11:45 AM	Angle	Daylight	Clear	Dry	Unknown	unk	67			Tractor trailer trailer struck and removed Vehicle 2's bumper.
53	08/14/10	11:50 AM	Angle	Daylight	Clear	Dry	0	18	42			Vehicle 2 cut off at the Route 28S exit from the inner lane while Vehicle 1 was continuing in the rotary outer lane
54	08/30/10	5:15 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	68	33	31		Heavy Rotary traffic, Vehicle 1 struck Vehicle 2 resulting in Vehicle 2 striking vehicle 3
55	09/14/10	2:45 PM	Angle	Daylight	Cloudy	Dry	Failed to yield to right of way	64	36			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
56	09/21/10	7:58 AM	Rear-end	Daylight		Dry	Other improper action	62	40			Driver 1 did not see Vehicle 2 stopping in front him
57	09/27/10	9:58 AM	Rear-end	Daylight	Cloudy	Dry	Inattention	72	27			

Crash Data Summary Table

Route 28, Bourne South Rotary (1); Bourne, MA

June 2009 to June 2012

#	Crash Date	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Ages				Comments
								D1	D2	D3	*D4*	
58	09/28/10	1:25 AM	Single Vehicle Crash	Dark - lighted roadway	Clear	Wet	Physical Impairment	21				Driver 1 was cited for driving under influence (alcohol)
59	10/02/10	10:02 AM	Angle	Daylight	Clear	Dry	Made an improper turn	36	59			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
60	11/13/10	11:25 AM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	41	56			Work zone on Bourne Bridge; Vehicle 1 had a trailer which struck the front of Vehicle 2
61	11/17/10	5:23 PM	Angle	Dark - lighted roadway		Dry	Failed to yield to right of way	51	19			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
62	11/28/10	12:39 PM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	20	37			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
63	12/30/10	1:01 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	54	42			Left lane was closed due to road work, Vehicle 2 was sitting in traffic when it got hit by Vehicle 1
64	01/04/11	11:00 AM	Angle	Daylight	Clear	Dry	Made an improper turn	63	18			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
65	03/03/11	5:00 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	61	70			Vehicle 2 struck the rear end of vehicle 1 while attempting to merge into rotary from the Gas Station
66	03/06/11	12:20 PM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	59	24			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane
67	05/14/11	7:55 PM	Sideswipe, same direction	Dusk	Clear	Dry	Unknown	53	unk			Vehicle 1 continuing around rotary in right lane, Vehicle 2 exiting rotary in left lane. Vehicle 2 fled the scene
68	05/20/11	5:00 PM	Rear-end	Daylight	Clear	Dry	Other improper action	43	43			Vehicle 1 stopped due to heavy rotary traffic
69	05/31/11	6:26 PM	Sideswipe, same direction	Daylight	Clear	Dry	Failure to keep in proper lane or running off road	19	75			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane.
70	06/08/11	8:56 AM	Sideswipe, same direction	Daylight	Clear	Dry	Unknown	unk	81			Hit and run; slowing vehicle was sideswiped by truck moving arounf rotary
71	06/08/11	4:25 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	53	36			Vehicle 2 stopped to enter the rotary
72	06/18/11	10:23 PM	Single Vehicle Crash	Daylight	Clear	Dry	No Improper Driving	31				Police cruiser was pulling into break down lane when it ran partially off road and hit sign post.
73	06/23/11	2:36 PM	Angle	Daylight	Cloudy	Wet	Failed to yield to right of way	41	21			Vehicle 2 struck the rear end of vehicle 1 while attempting to merge from the Gas Station
74	06/26/11	12:45 PM	Angle	Daylight	Cloudy	Dry	Failed to yield to right of way	58	47			Vehicle 1 attempted to enter rotary from gas station as Vehicle 2 was entering from Trowbridge Rd.
75	06/26/11	10:43 PM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Inattention	21				Vehicle "purposely traveled off the roadway and accidentally drove into a ditch."
76	6/30/11	12:49 PM	Rear-end	Daylight	Clear	Dry	Inattention	32	54			Veh 1 believed Veh 2 already entered rotary
77	7/8/11	2:21 PM	Rear-end	Daylight	Rain	Wet	Followed too closely	32	79			Traffic was slowing approaching rotary
78	7/15/11	10:54 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	25	52			Veh 2 was slowing to exit rotary
79	08/07/11	11:40 AM	Rear-end	Daylight	Rain	Dry	Disregarded traffic signs, signals, road markings	35	18			Heavy Stop and Go Traffic, Vehicle 2 could not stop after looking sideways for gap
80	09/09/11	5:32 PM	Sideswipe, same direction	Daylight	12:00 AM	Dry	Failed to yield to right of way	45	23			Vehicle 2 was in the inner lane of rotary trying to exit, Vehicle 1 was continuing in the rotary in the outer lane
81	9/9/11	10:08 PM	Sideswipe, same direction	Dark - roadway not lighted	Clear	Dry	Failure to keep in proper lane or running off road	23	22			Veh 1 was taking wrong exit therefore it "glided" into left lane while Veh 2 "glided" into the right lane
82	9/22/11	11:25 AM	Sideswipe, same direction	Daylight	Rain	Wet	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	unk	69			Veh 2 attempting to exit rotary while Veh 1 entered rotary
83	10/13/11	5:00 PM	Rear-end	Daylight	Rain	Wet	Inattention	49	41	44		Rear End crash. Three vehicles involved,
84	10/15/11	3:47 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	18	46			Vehicle 2 could not stop after looking sideways for gap
85	10/20/11	12:00 PM	Sideswipe, same direction	Daylight	Clear	Dry	Failure to keep in proper lane or running off road	53	unk			Hit and run
86	10/26/11	7:00 AM	Rear-end	Daylight	Cloudy	Wet	Other improper action	17	54			Vehicle 2 believed that Vehicle 1 merged into the rotary

Crash Data Summary Table

Route 28, Bourne South Rotary (1); Bourne, MA

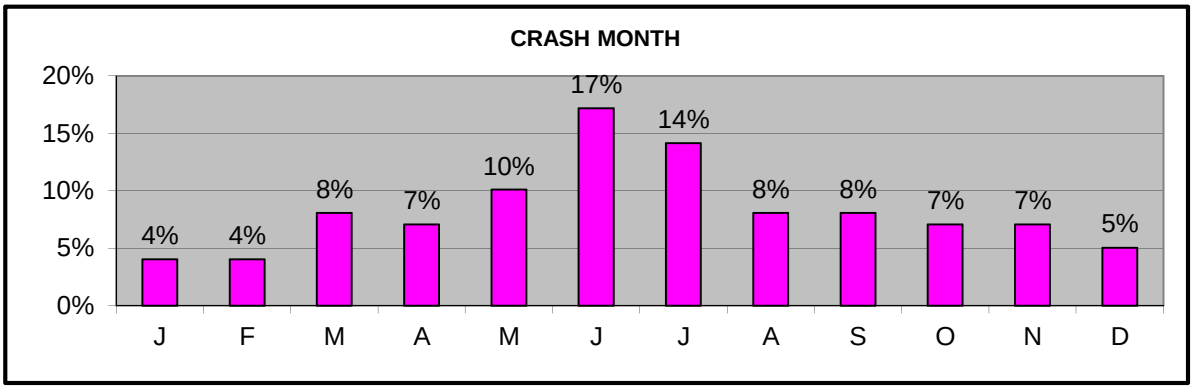
June 2009 to June 2012

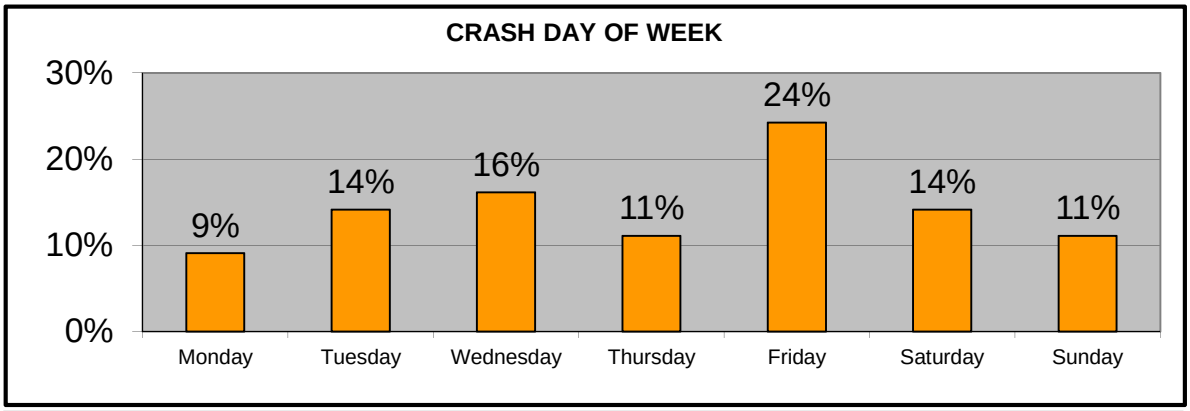
#	Crash Date	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Ages				Comments
								D1	D2	D3	*D4*	
87	10/28/11	4:50 PM	Rear-end	Daylight	Clear	Dry	Inattention	47	17			Vehicle was rearended as the yielded to rotary traffic
88	11/16/11	7:54 AM	Rear-end	Daylight	Cloudy	Dry	No Improper Driving	37	unk			Hit and Run; driver was stopped at the entrance to the rotary and was rear-ended
89	11/18/11	5:10 PM	Rear-end	Dark - lighted roadway	Clear	Dry	Followed too closely	29	22			Heavy traffic
90	12/27/11	8:29 AM	Angle	Daylight	Cloudy	Dry	Failed to yield to right of way	40	25			Vehicle 2 was in the inner lane of rotary trying to exit, Vehicle 1 was continuing in the rotary in the outer lane
91	01/09/12	11:22 AM	Angle	Daylight	Cloudy	Dry	Failed to yield to right of way	48	17			Vehicle 2 was in the inner lane of rotary trying to exit, Vehicle 1 was continuing in the rotary in the outer lane
92	02/17/12	3:24 PM	Sideswipe, same direction	Daylight	Cloudy	Dry	Failed to yield to right of way	17	93			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane.
93	02/22/12	11:06 AM	Angle	Daylight	Cloudy	Dry	Failed to yield to right of way	67	55			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane.
94	03/06/12	10:25 AM	Angle	Daylight	Cloudy	Dry		unk	unk			Vehicle 1 was in the inner lane of rotary trying to exit, Vehicle 2 was continuing in the rotary in outer lane.
95	03/30/12	5:01 PM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	30	31			rear-end crash when entering the rotary
96	04/15/12	4:53 PM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	60	55			Vehicle 2 stopped short and Vehicle 1 collided, after entering the rotary
97	04/18/12	6:16 PM	Rear-end	Daylight	Clear	Dry	Visibility Obstructed	20	39			Vehicle 2 attempting to turn left into IHOP got rear- ended by Vehicle 1
98	05/13/12	6:19 PM	Sideswipe, same direction	Daylight	Clear	Dry		unk	unk			Vehicle 2 was in the inner lane of rotary trying to exit, Vehicle 1 was continuing in the rotary in the outer lane
99	06/25/12	10:22 AM	Sideswipe, opposite direction	Daylight	Rain	Wet	Failure to keep in proper lane or running off road	75	58			Vehicle 1 made too wide a turn from rotary to Bourne bridge striking Vehicle 2

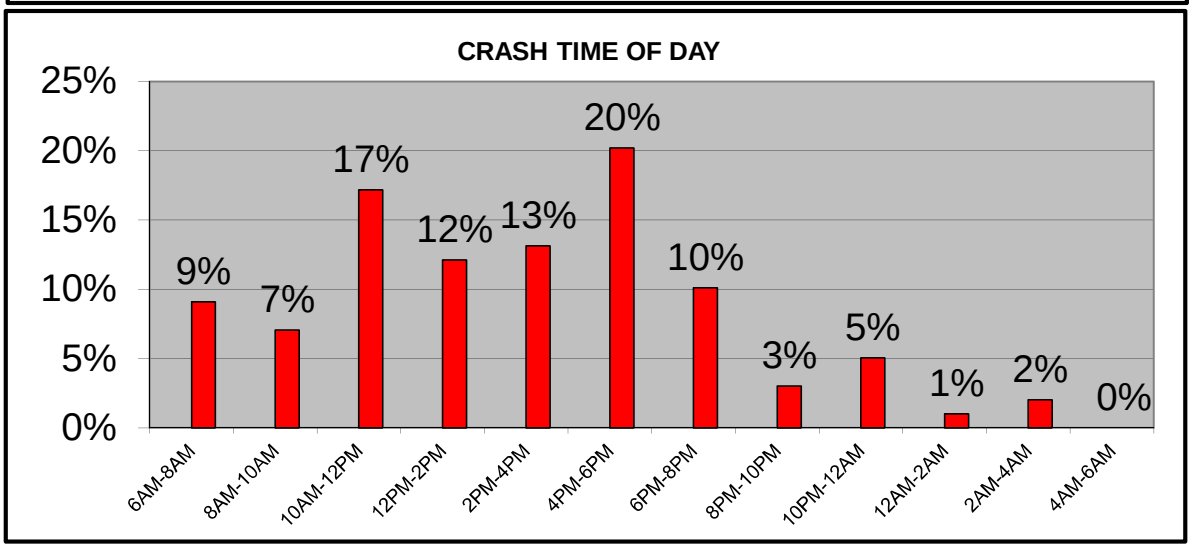
Source: Bourne Police Department and State Police

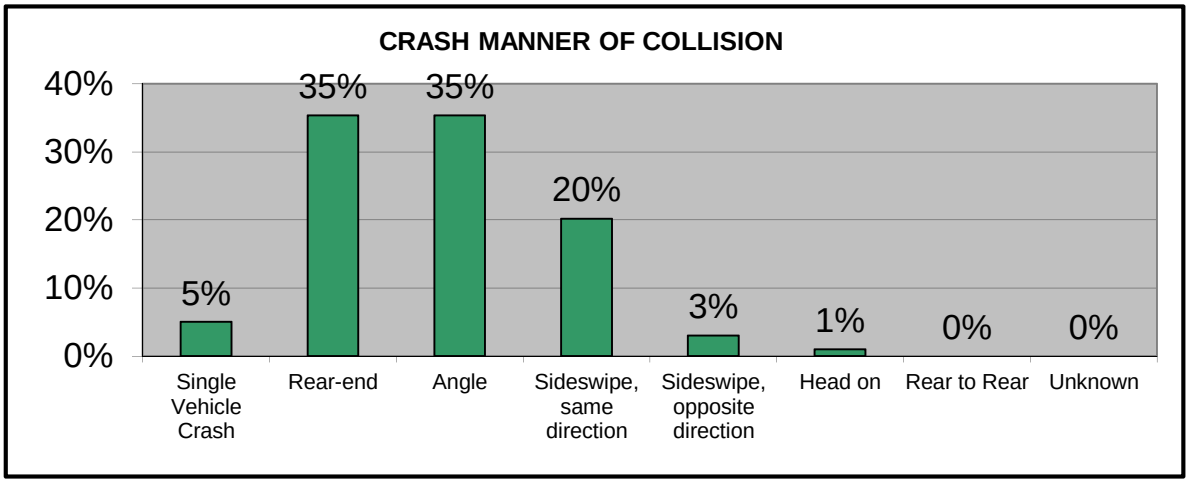
Crash Data Summary Tables and Charts

Route 28, Bourne South Rotary (1); Bourne, MA



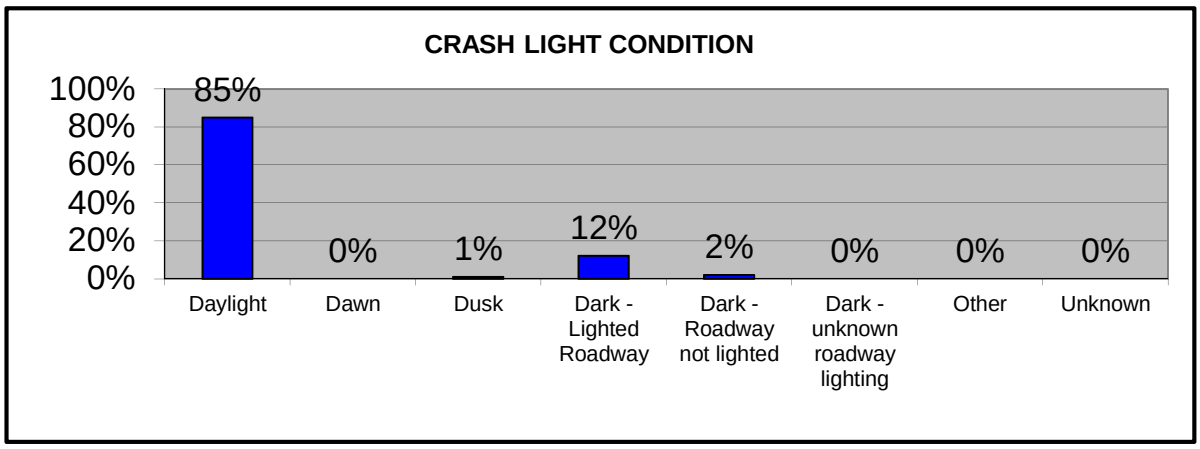


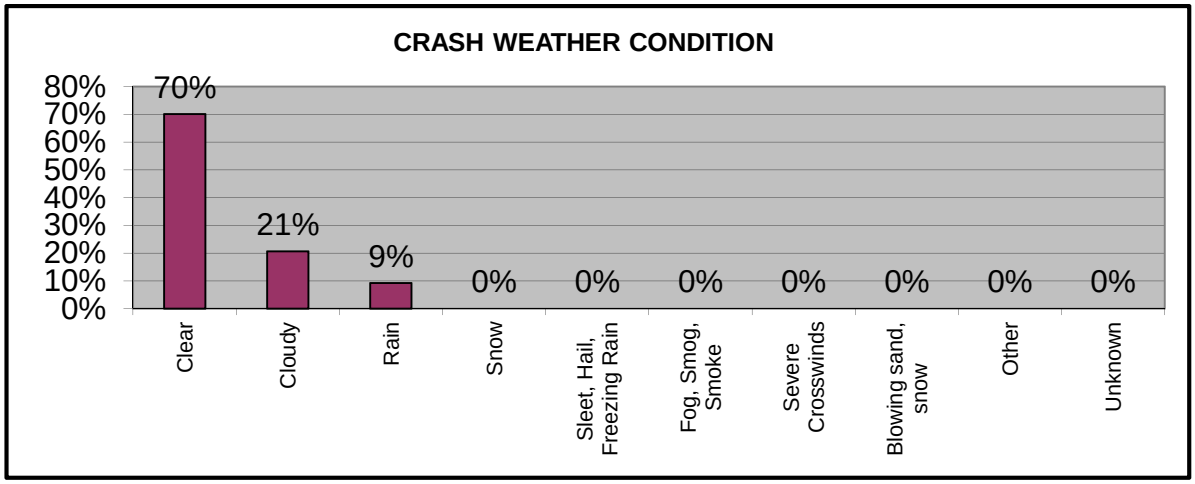


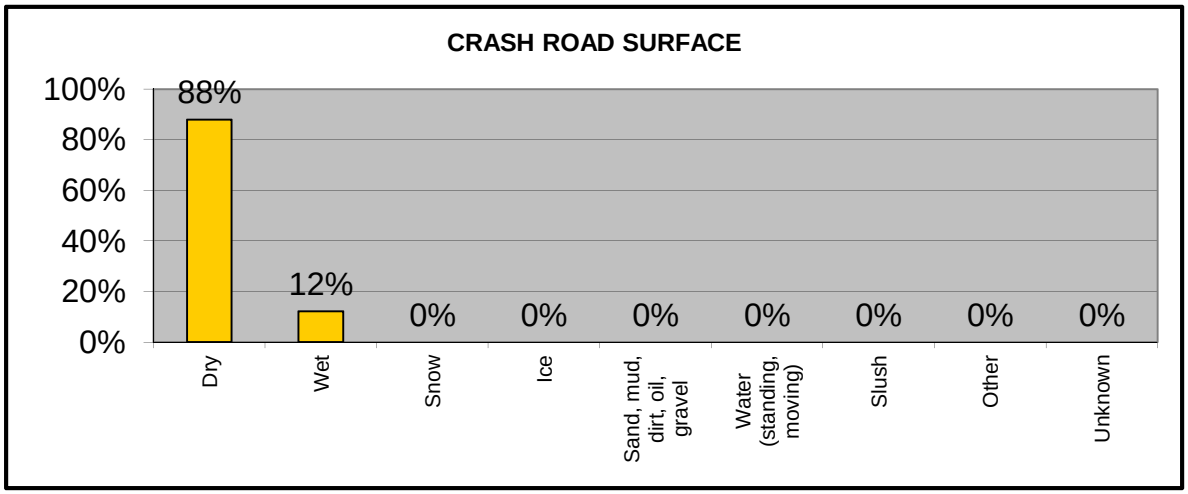


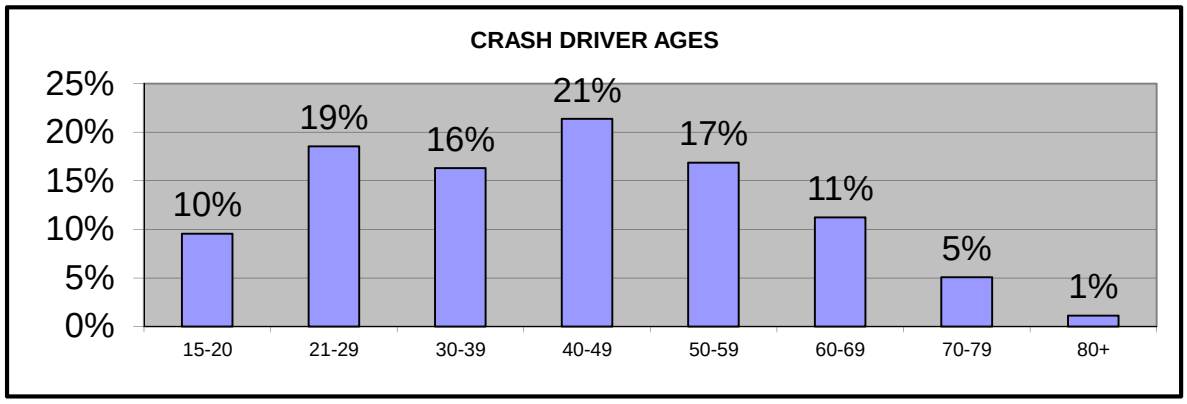
Crash Data Summary Tables and Charts

Route 28, Bourne South Rotary (1); Bourne, MA









COLLISION DIAGRAM

SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head on	
Backing Vehicle	Rear End	Injury
Non–Involved Vehicle	Angle	
Pedestrian	Turning Movement	Fatal
Bicycle	Sideswipe	
Animal	Out of Control	
Parked Vehicle		
Fixed Object		

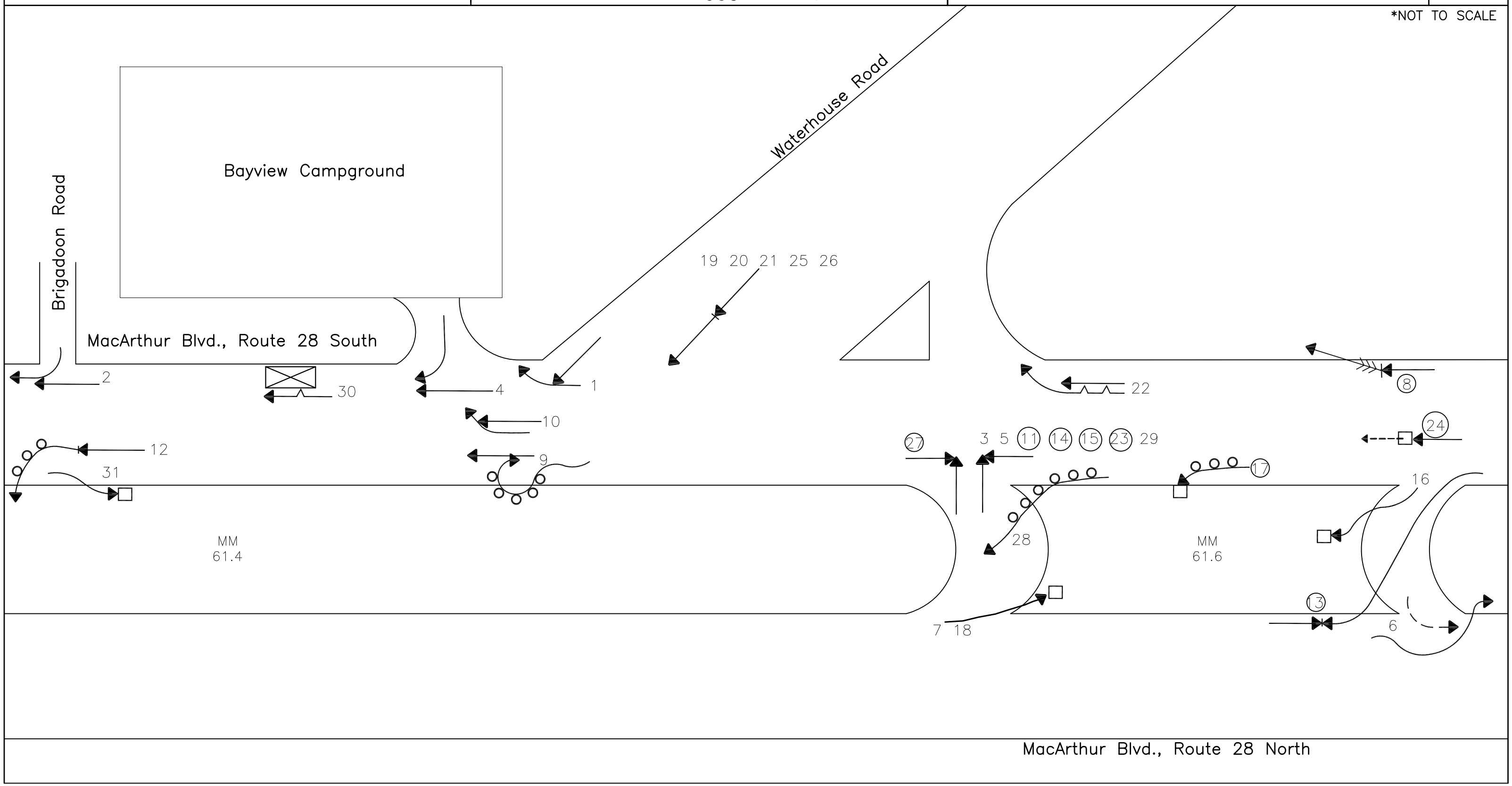
Bourne, MA

Route 28, Waterhouse Road (2)
REGION– CCC

TIME PERIOD ANALYZED: June 2009–June 2012
SOURCE OF CRASH REPORTS: Bourne PD and State Police
DATE PREPARED: 2/15/2013
PREPARED BY: SM

N

*NOT TO SCALE



Crash Data Summary Table

Route 28, Waterhouse Road (2); Bourne, MA

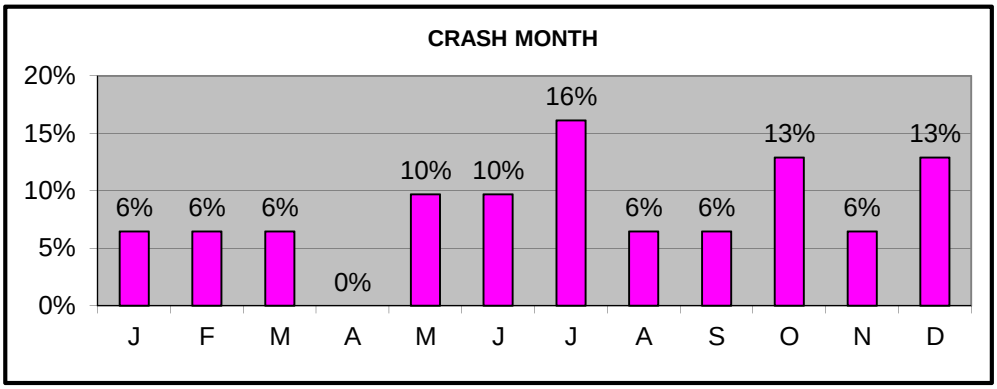
June 2009 - June 2012

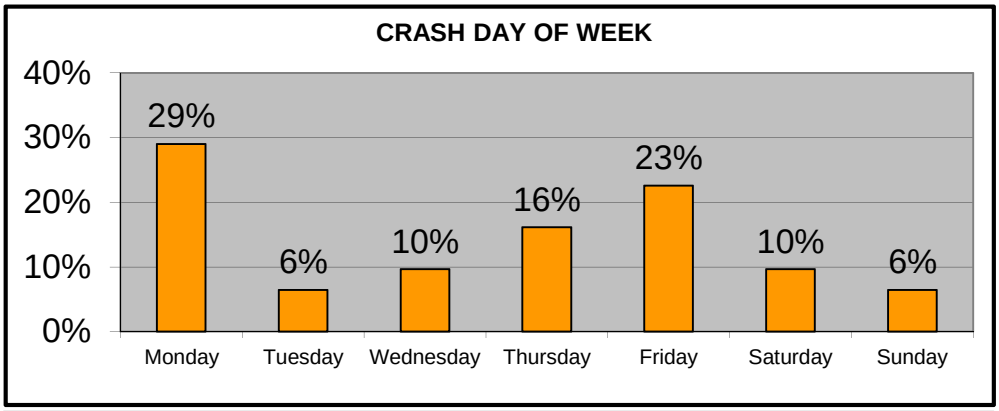
#	Crash Date	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Ages				Comments
								D1	D2	D3	*D4*	
1	6/19/09	7:16 PM	Sideswipe, same direction	Daylight	Clear	Dry	Failed to yield to right of way	20	38			Vehicle turning into Bayview campground was sideswiped by vehicle exiting Waterhouse Rd
2	7/13/09	3:10 PM	Rear-end	Daylight	Clear	Dry		45	50			V1 was entering onto 28S from Brigadoon Rd and cut in front of V2
3	7/20/09	12:51 PM	Angle	Daylight	Cloudy	Dry	Failed to yield to right of way	78	73			V1 failed to stop at stop sign at turn-around lane
4	8/3/09	4:27 PM	Rear-end	Daylight	Clear	Dry	Failed to yield to right of way	59	78			Vehicle travelling in right lane was struck by vehicle pulling out of Bay View Campground. D2 claims to have not seen V2
5	11/6/09	5:30 PM	Angle	Dark - roadway not lighted	Clear	Dry	Failed to yield to right of way	60	64			Veh 1 did not see Veh 2
6	11/21/09	8:35 AM	Single Vehicle Crash	Daylight		Dry		23				V1 swerved to avoid vehicle merging onto 28S from first turnaround and lost control
7	12/14/09	11:04 AM	Single Vehicle Crash	Daylight	Clear	Dry	Inattention	39				Operator miss judged the turnaround
8	12/20/09	6:22 AM	Rear-end	Daylight	Blowing Sand, Snow	Snow	Driving too fast for conditions	33	60			Rear ended Veh 2 (snow plow clearing snow in BDL)
9	3/1/10	5:52 AM	Angle	Dawn		Snow	No Improper Driving	34	49			Snowy conditions caused V1 to slide and strike V2
10	6/3/10	8:50 AM	Angle	Daylight		Dry		52	52			V2 cut off V1 in an attempt to enter Bayview Campground
11	6/18/10	4:10 PM	Angle	Daylight	Clear	Dry	Disregarded traffic signs, signals, road markings	20	48	43		V1 was in North-South turnaournd and did not stop at stop sign
12	7/9/10	12:35 AM	Rear-end	Dark - roadway not lighted	Clear	Dry	No Improper Driving	21	unk			V2 struck V1 from behind causing vehicle 1 to fishtail/enter the median
13	7/26/10	1:50 PM	Head on	Daylight	Clear	Dry	Wrong side or wrong way	45	35			V1 was in first South-North turnaround and could not slow down enough to complete the turn, ran into V2 travelling on 28N
14	10/21/10	5:50 PM	Sideswipe, opposite direction	Dusk	Clear	Wet	Disregarded traffic signs, signals, road markings	52	69			V1 failed to stop at stop sign
15	10/29/10	4:35 PM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	54	69			V1 started to cross over to Waterhouse Road from turnaround and was struck by V2 travlling on Route 28S
16	12/20/10	8:50 AM	Single Vehicle Crash	Daylight	Snow	Snow	Driving too fast for conditions	50				Attempting to use turn around
17	12/20/10	1:19 PM	Single Vehicle Crash	Daylight	Rain	Snow	No Improper Driving	51				Operator lost control of vehicle and hit guardrail
18	1/5/11	8:49 PM	Single Vehicle Crash	Dark - roadway not lighted	Clear	Sand, mud, dirt, oil, gravel	Failure to keep in proper lane or running off road	32				Liquor OUI. Vehicle failed to negotiate turn around
19	2/24/11	7:08 AM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	17	47			Vehicle was rear-ended as it waited to merge onto Route 28S
20	2/24/11	7:08 AM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	17	47			Rear end during merge
21	3/22/11	5:35 PM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	52	56			Rear end during merge
22	5/3/11	2:32 PM	Sideswipe, same direction	Daylight	Clear	Dry	Exceeded authorized speed limit	unk	18			Vehicle in the left lane sideswiped vehicle in right lane before it fled onto Waterhouse Rd
23	5/25/11	10:51 AM	Angle	Daylight	Clear	Dry	Disregarded traffic signs, signals, road markings	79	77			V1 pulled out of turnaround just as V2 was passing the turnaround
24	7/16/11	12:48 PM	Head on	Daylight	Clear	Wet	No Improper Driving	34	49			Tonneau cover blew off truck, hit Motorcyclist
25	8/5/11	3:10 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	37	30			Vehicle was rear-ended as it waited to merge onto Route 28S
26	9/1/11	2:05 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	18	54			Vehicle was rear-ended as it waited to merge onto Route 28S
27	9/24/11	8:54 PM	Angle	Dark - roadway not lighted	Cloudy	Dry	Wrong side or wrong way	23	57			Veh 1 began traveling in wrong direction at Brigadoone Rd
28	10/19/11	10:55 PM	Single Vehicle Crash	Dark - lighted roadway	Rain	Wet	Visibility Obstructed	29				Lost control after driving through puddle
29	10/24/11	10:42 AM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	56	59			Veh 1 didn't stop at stop sign
30	1/1/12	4:27 PM	Sideswipe, same direction	Dark, unknown roadway lighting	Clear	Dry	No Improper Driving	52	unk			Vehicle was stopped in breakdown lane to fill gas. As the operator opened the driver side door, the vehicle got sideswiped by a vehicle traveling on 28S
31	5/4/12	1:23 AM	Single Vehicle Crash	Dark - roadway not lighted	Clear	Dry	Wrong side or wrong way	24				Vehicle struck, Do-not-enter, No-Left-Turn/One-way sign, and rode on top of guardrail before stopping. Operator left vehicle by the time police arrived

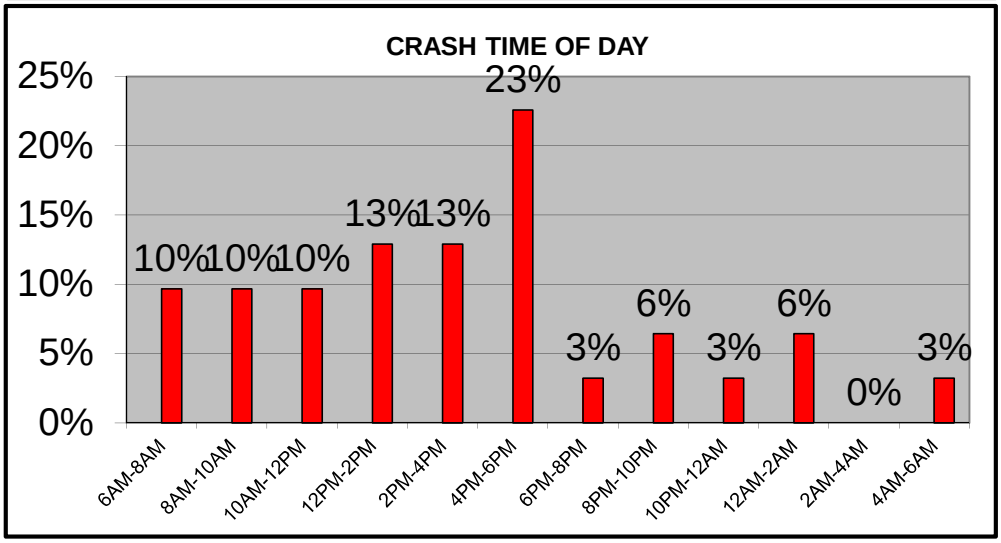
Source: Bourne Police Department and State Police

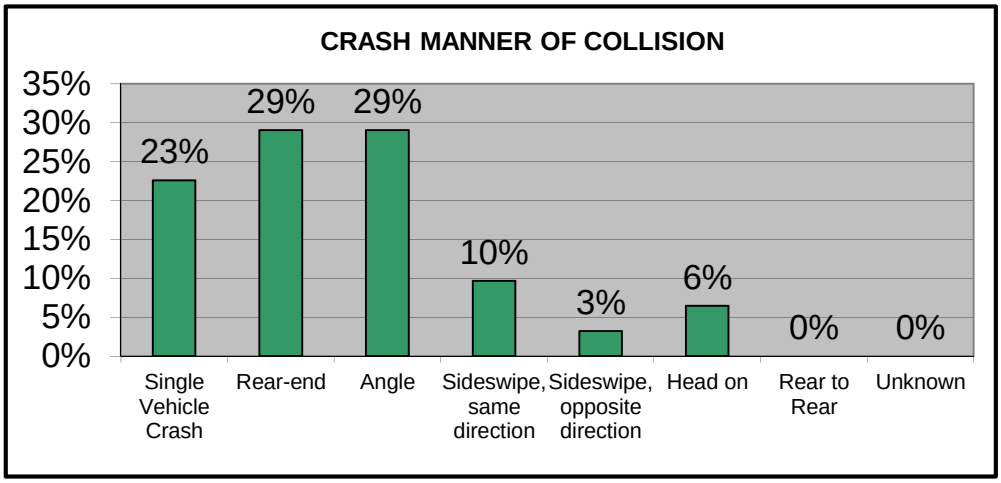
Crash Data Summary Tables and Charts

Route 28, Waterhouse Road (2); Bourne, MA



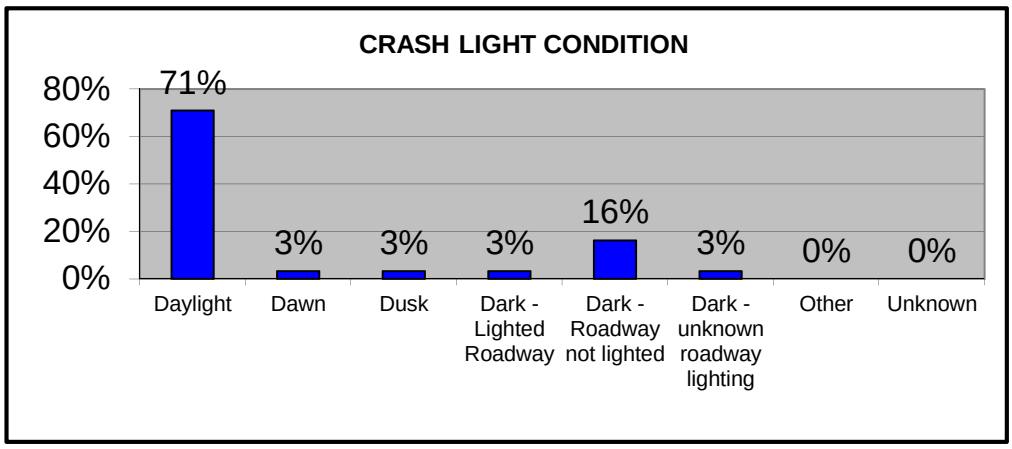


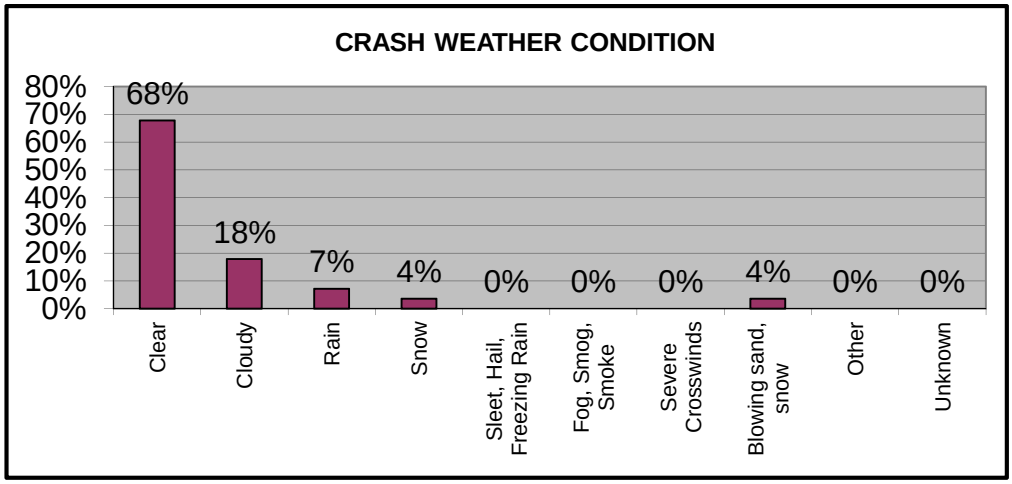


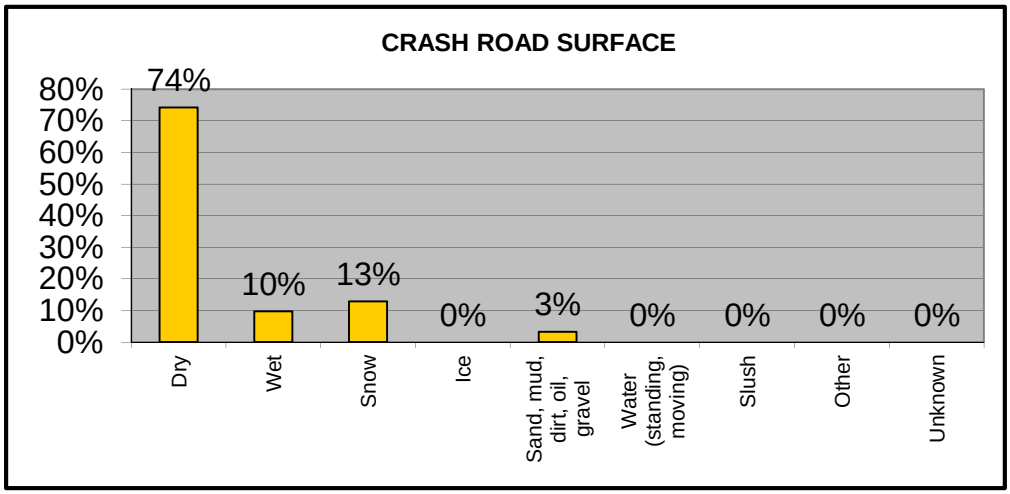


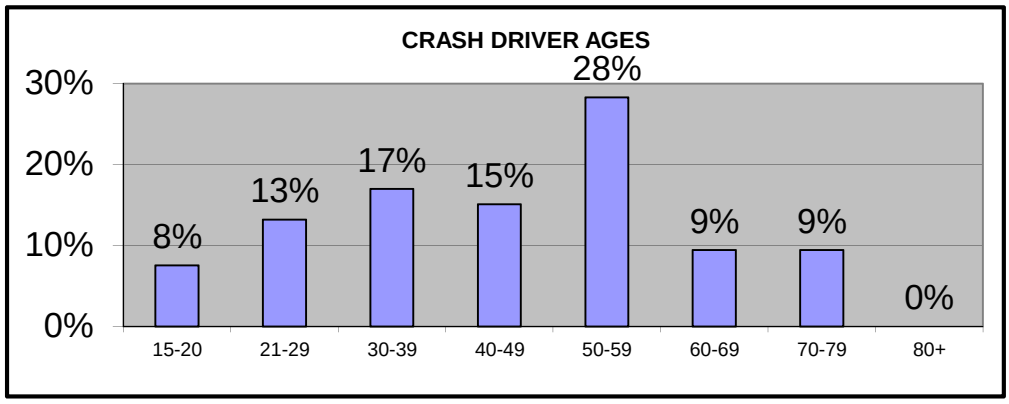
Crash Data Summary Tables and Charts

Route 28, Waterhouse Road (2); Bourne, MA









COLLISION DIAGRAM

SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head on	
Backing Vehicle	Rear End	Injury
Non–Involved Vehicle	Angle	
Pedestrian	Turning Movement	Fatal
Bicycle	Sideswipe	
Animal	Out of Control	
Parked Vehicle		
Fixed Object		

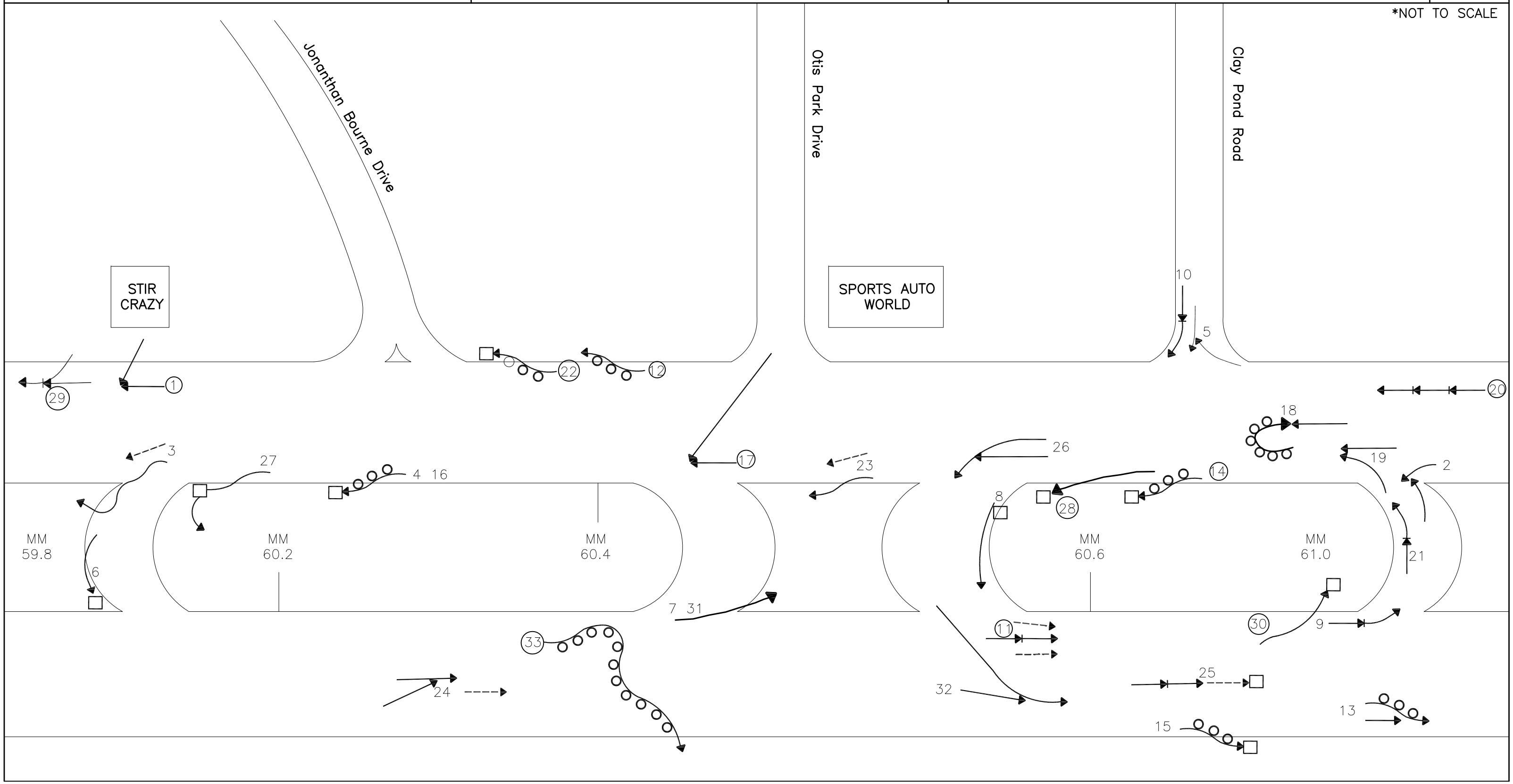
Bourne, MA

Route 28, Jonathan Bourne Drive/Otis Park Dr./ Clay Pond Road (3)
REGION– CCC

TIME PERIOD ANALYZED: June 2009–June 2012
SOURCE OF CRASH REPORTS: Bourne PD and State Police
DATE PREPARED: 2/15/2013
PREPARED BY: SM

N

*NOT TO SCALE



Crash Data Summary Table

Route 28, Jonathan Bourne Drive / Otis Park Drive / Clay Pond Road (3); Bourne, MA

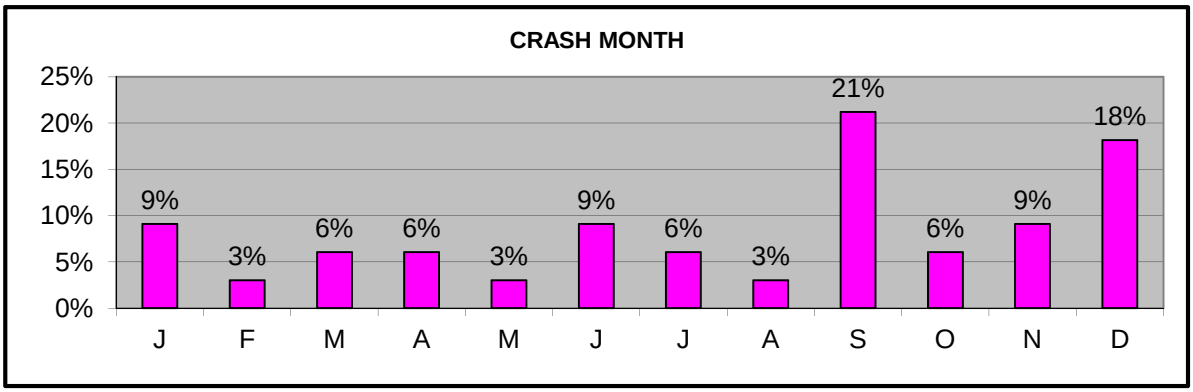
June 2009 - June 2012

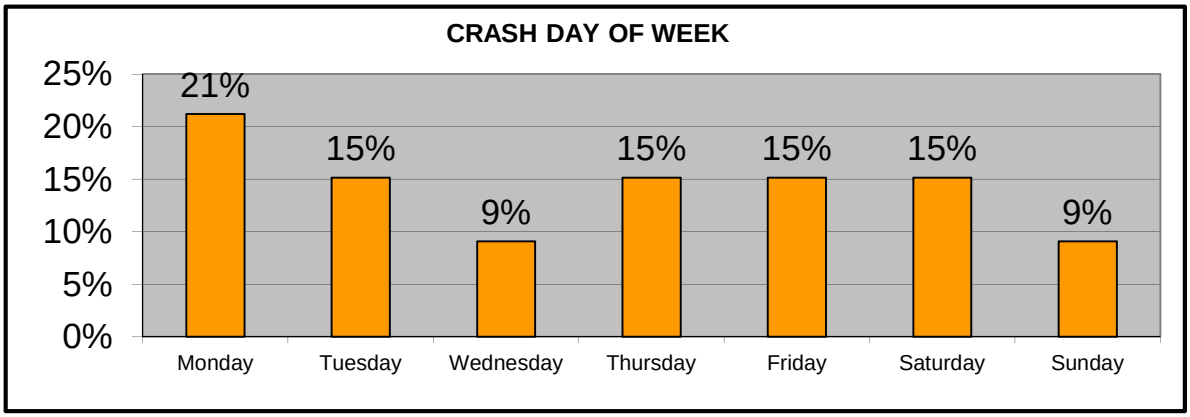
	Crash Date	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Ages				Comments
								D1	*D2*	*D3*		
1	6/16/09	4:55 PM	Angle	Daylight	Clear	Dry	Inattention	49	28			Vehicle 1 failed to yield to traffic
2	7/16/09	3:27 PM	Sideswipe, opposite direction	Daylight	Clear	Dry	Made an improper turn	60	88			Vehicle 2 entered turn-around lane the wrong way
3	9/3/09	6:25 PM	Single Vehicle Crash	Daylight	Clear	Dry	No Improper Driving	22	72			Vehicle 2 unsafely changed lanes causing Vehicle 1 to run off road. No contact was made.
4	9/20/09	2:32 AM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Exceeded authorized speed limit	20				Operator was speeding and lost control and struck a MassDOT sign
5	11/13/09	10:52 PM	Head on	Dark - lighted roadway	Cloudy	Wet	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	17	48			Vehicle 1 crossed double yellow line while it turned right and stuck vehicle 2
6	4/6/10	1:20 PM	Single Vehicle Crash	Daylight	Cloudy	Dry	Failure to keep in proper lane or running off road	31				
7	6/26/10	10:02 PM	Single Vehicle Crash	Dark - roadway not lighted	Cloudy	Dry	Inattention	69				Sand on the road caused vehicle to skid and end up at ditch while turning
8	8/6/10	5:35 PM	Single Vehicle Crash	Daylight	Clear	Dry	Made an improper turn	48				Tractor trailer unit's rear wheels got stuck in the guardrail while attempting to make a U-turn
9	9/6/10	2:28 PM	Rear-end	Daylight	Clear	Dry	Inattention	52	32			Both vehicles using turn around
10	11/23/10	7:53 PM	Rear-end	Dark - lighted roadway	Cloudy	Dry	Inattention	58	24			Hit and run
11	11/25/10	9:40 AM	Rear-end	Daylight	Clear	Dry	Inattention	38	78			Vehicle 1 had to slow abruptly due to unknown vehicle merging from turn around. Vehicle 2 rear ends Vehicle 1.
12	12/11/10	7:33 AM	Single Vehicle Crash	Dawn	Clear	Ice	Driving too fast for conditions	44				Vehicle lost control on ice
13	12/20/10	9:06 AM	Angle	Daylight	Snow	Snow	Driving too fast for conditions	34	48			Vehicle 1 spun out due to snowy conditions and was hit by vehicle 2
14	12/20/10	3:28 PM	Single Vehicle Crash	Daylight	Snow	Snow	Driving too fast for conditions	59				Vehicle lost control and slid off due to snowy conditions and hit a tree
15	12/20/10	8:09 PM	Single Vehicle Crash	Dark - roadway not lighted	Snow	Snow	No Improper Driving	40				Vehicle lost control and slid off road due to snowy conditions & hit a speed limit sign
16	1/12/11	2:52 PM	Single Vehicle Crash	Daylight	Snow	Snow	Driving too fast for conditions	31				Operator lost control of vehicle due to snowy conditions and hit street sign
17	3/28/11	4:32 PM	Angle	Daylight	Clear	Dry	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	53	74			Vehicle 1 exited Otis Park Drive and cut off Vehicle 2 while trying to get into the Rte 28N turn around
18	3/31/11	7:55 PM	Head on	Dark - roadway not lighted	Sleet, Hail, Freezing Rain	Snow	No Improper Driving	41	28			Heavy snow, Veh 2 spun out 180 degrees
19	4/11/11	9:50 AM	Angle	Daylight	Fog, Smog, Smoke	Wet	Failed to yield to right of way	73	64			Operator 1 claims to have not seen Vehicle 2. Conditions were foggy.
20	5/19/11	2:03 PM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	17	18	23		Vehicle 3 slowed abruptly for traffic detail officer
21	7/22/11	9:25 PM	Rear-end	Dark - roadway not lighted	Cloudy	Dry	Followed too closely	23	17			
22	9/6/11	2:13 PM	Single Vehicle Crash	Daylight	Rain	Wet	Driving too fast for conditions	61				Vehicle hydroplaned
23	9/12/11	9:50 AM	Single Vehicle Crash	Daylight	Cloudy	Dry	Other improper action	37	28			Sudden maneuver by D2 caused V1 to depart lane into median
24	9/16/11	12:09 PM	Rear-end	Daylight	Cloudy	Dry	No Improper Driving	30	44	unk		unknown vehicle dropped load causing vehicles to change lanes quickly
25	9/24/11	12:00 PM	Rear-end	Daylight	Cloudy	Wet	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	18	42			Uninvolved veh got"stuck on a log/road hazard" in middle of road and caused Veh 2 to stop suddenly. Veh 1 could not swerve away due to other uninvolved vehicles
26	10/2/11	8:16 PM	Rear-end	Dark - roadway not lighted	Clear	Dry	Inattention	19	35			D2 made sudden lane change
27	10/9/11	4:02 PM	Single Vehicle Crash	Daylight	Clear	Dry	Fatigued/asleep	71	44			D1 fell asleep, D2 impacted by falling wires because of crash
28	12/3/11	1:20 AM	Single Vehicle Crash	Dark - lighted roadway	Clear	Dry	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	58				OUI. Operator first stuck guard rail on left then continued off the road to the right to strike a large rail road tie planter box with sign.
29	12/14/11	6:44 AM	Rear-end	Dawn	Cloudy	Wet	Inattention	58	56			
30	1/3/12	8:55 AM	Single Vehicle Crash	Daylight	Cloudy	Dry	Failure to keep in proper lane or running off road	24				Vehicle 1 drifted from the left side of road to the right side
31	1/6/12	6:09 PM	Single Vehicle Crash	Dark - roadway not lighted	Cloudy	Wet	Exceeded authorized speed limit	77				Vehicle was speeding
32	2/8/12	9:19 AM	Angle	Daylight	Clear	Dry	Failed to yield to right of way	72	27			Vehicle 1 attempted to merge from turnaround directly into right lane, Vehicle 2 could not stop in time
33	6/2/12	10:37 AM	Single Vehicle Crash	Daylight	Cloudy	Dry	Failure to keep in proper lane or running off road	21				Vehicle lost control

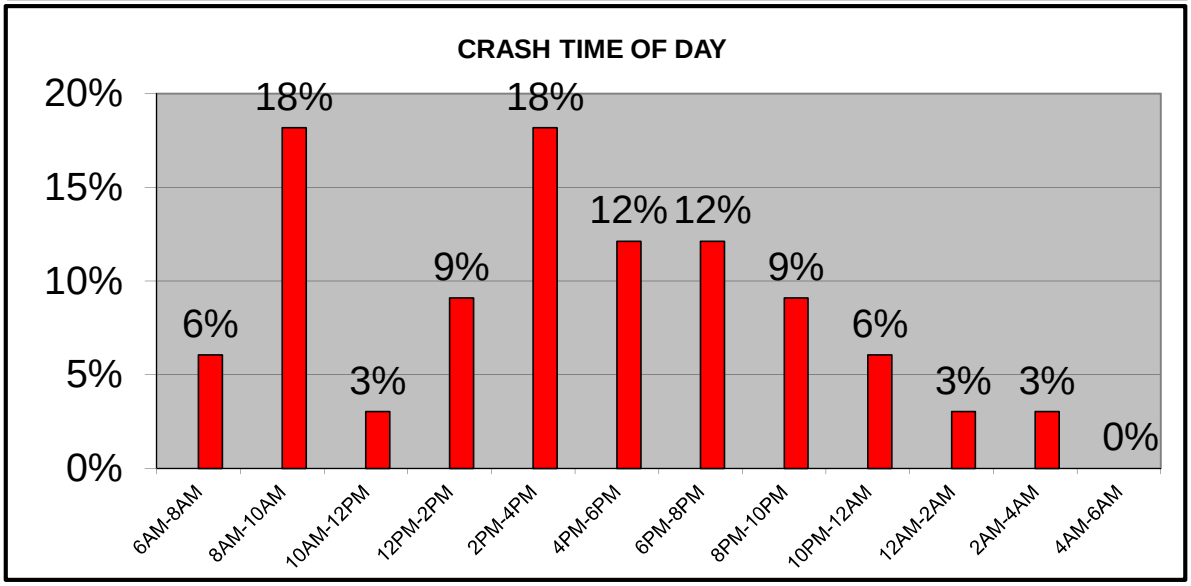
Source: Bourne Police Department and State Police

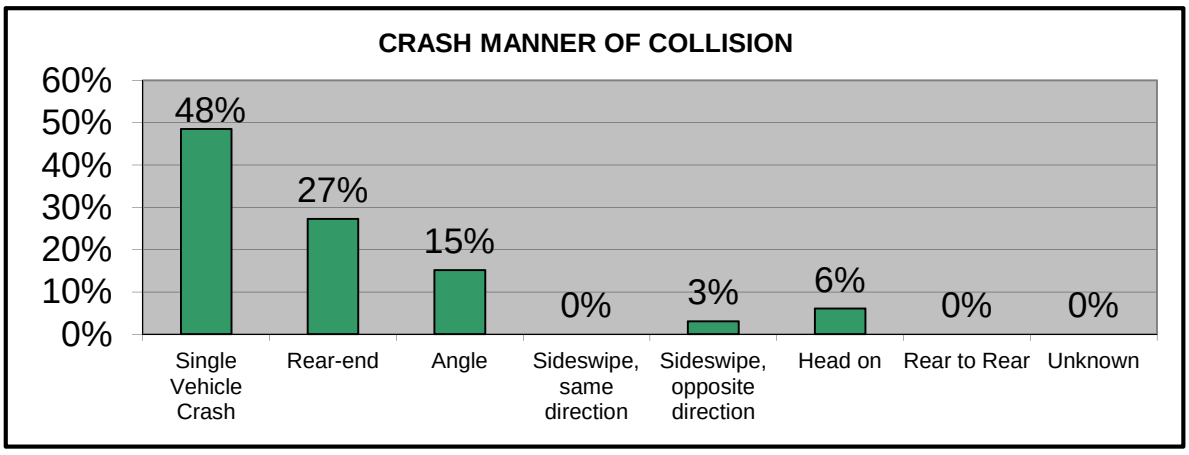
Crash Data Summary Tables and Charts

Route 28, Jonathan Bourne Drive / Otis Park Drive / Clay Pond Road (3); Bourne, MA



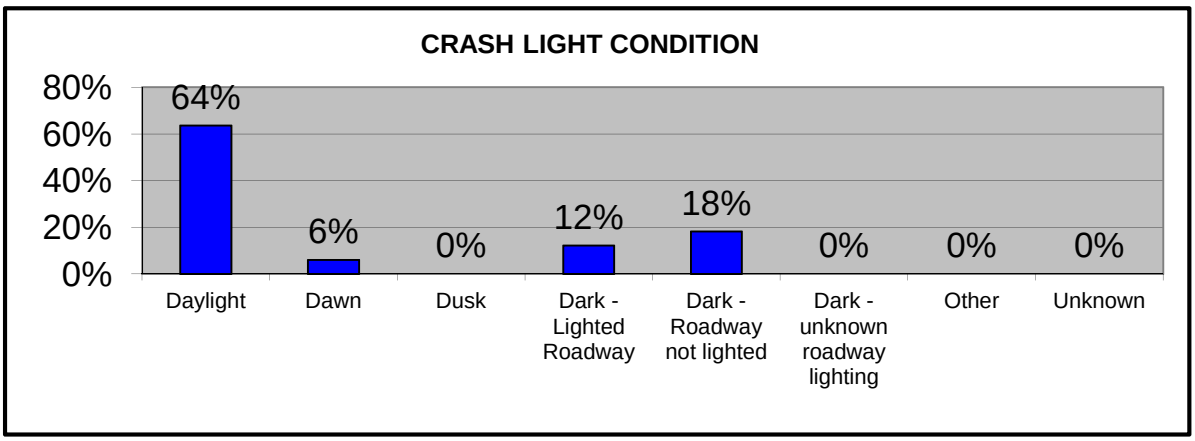


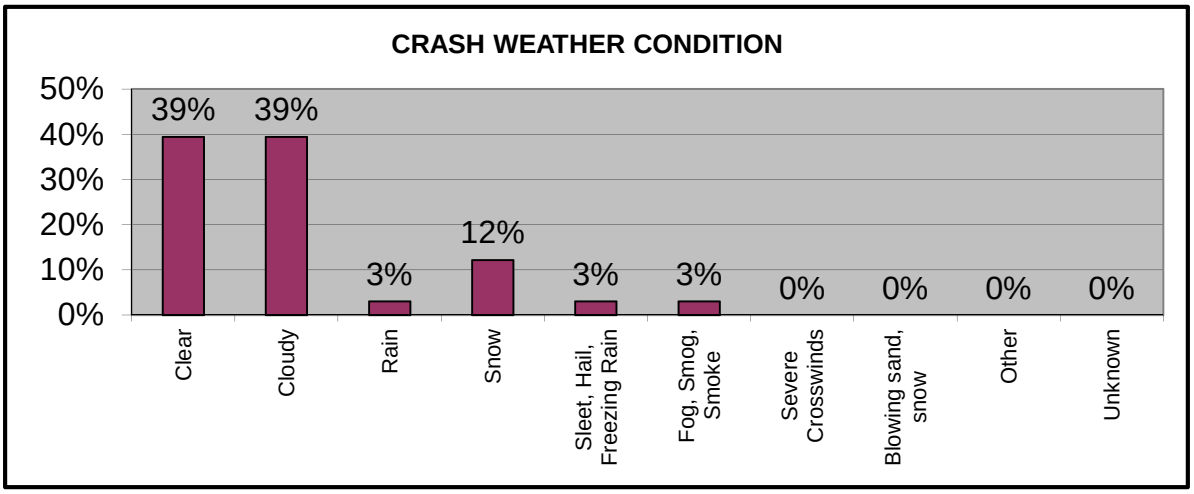


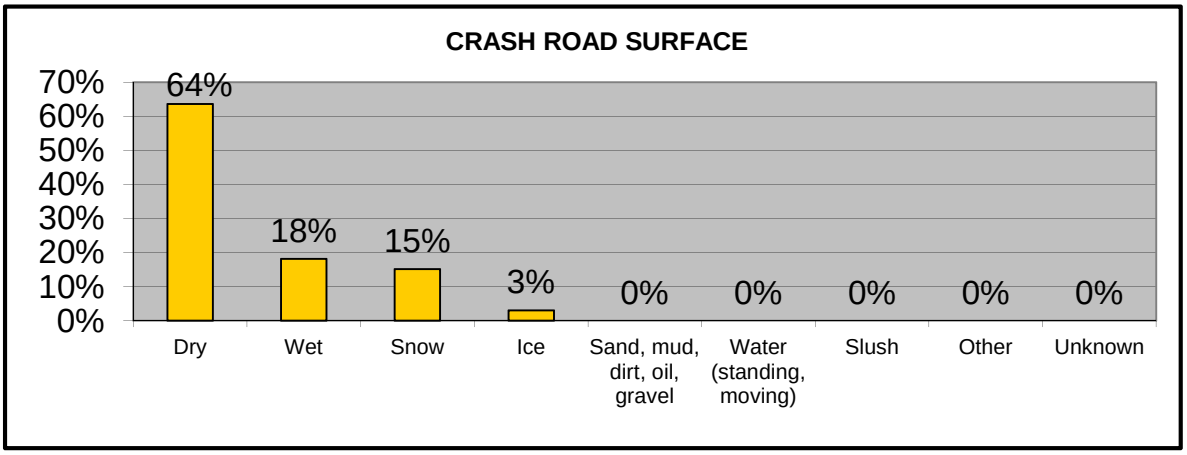


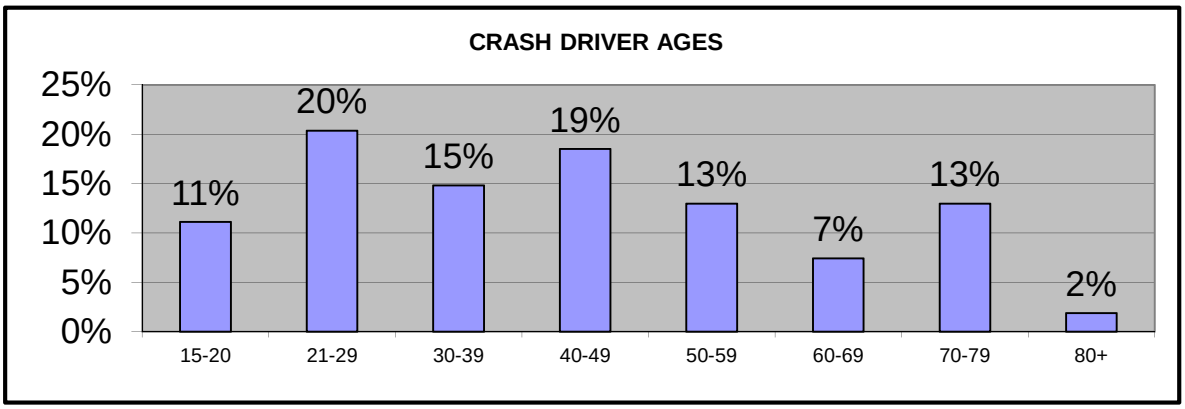
Crash Data Summary Tables and Charts

Route 28, Jonathan Bourne Drive / Otis Park Drive / Clay Pond Road (3); Bourne, MA









MassDOT
Massachusetts Department of Transportation
Highway Division

COLLISION DIAGRAM

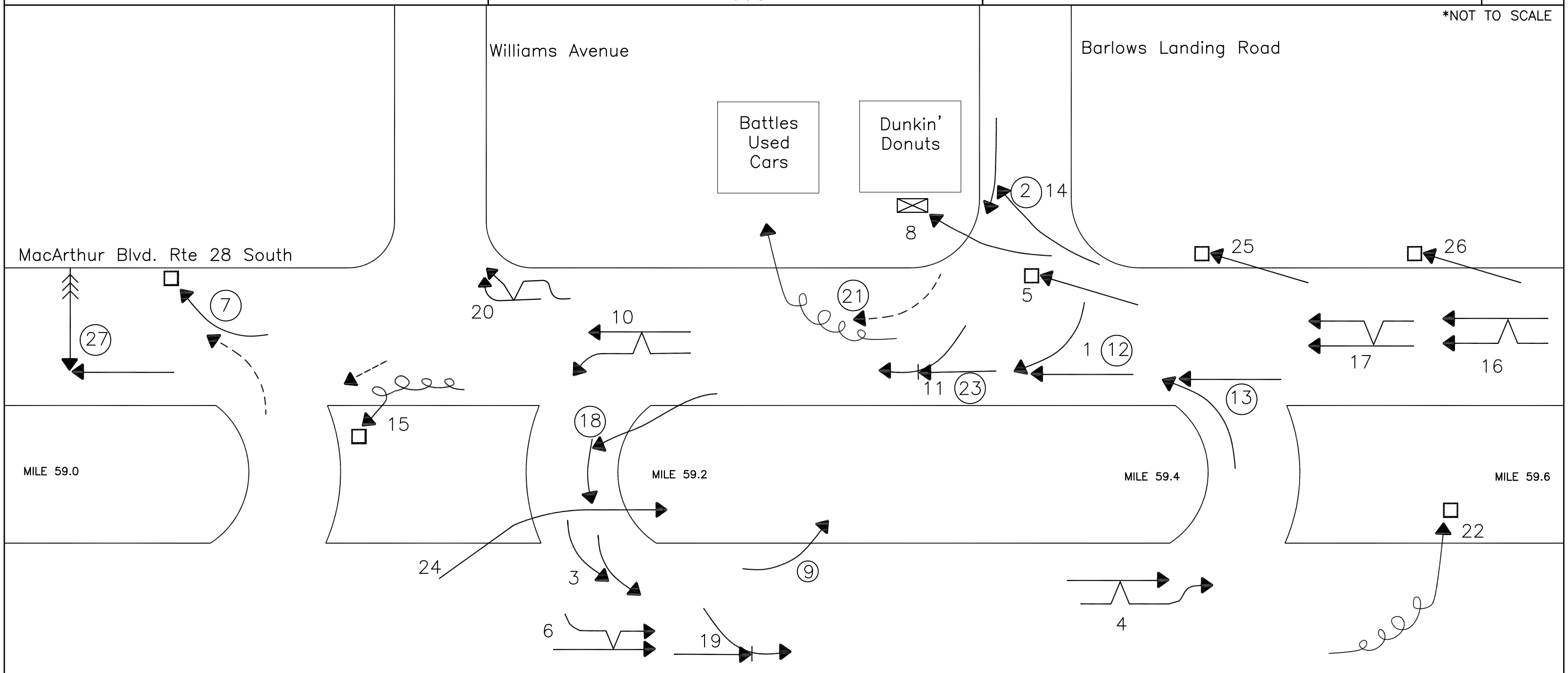
SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head on	
Backing Vehicle	Rear End	Injury
Non–Involved Vehicle	Angle	
Pedestrian	Turning Movement	Fatal
Bicycle	Sideswipe	
Animal	Out of Control	
Parked Vehicle		
Fixed Object		

Bourne, MA

Route 28, Barlows Landing Road/ Williams Ave. (4)
REGION– CCC

TIME PERIOD ANALYZED: June 2009–June 2012
SOURCE OF CRASH REPORTS: Bourne PD and State Police
DATE PREPARED: 2/15/2013
PREPARED BY: CO

*NOT TO SCALE



MacArthur Blvd. Rte 28 North

Crash Data Summary Table

Route 28, Barlows Landing Road / Williams Ave (4); Bourne, MA

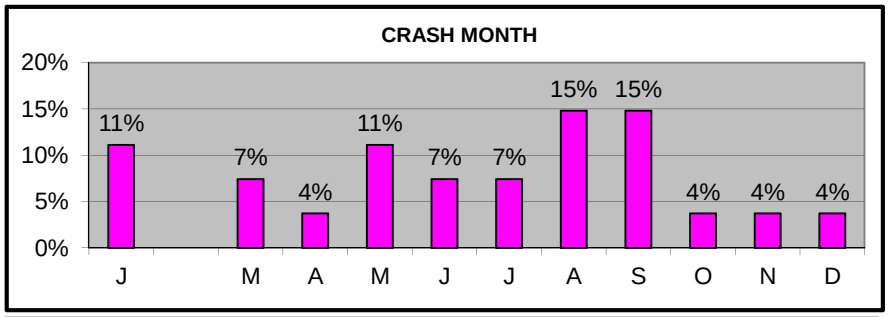
June 2009 - June 2012

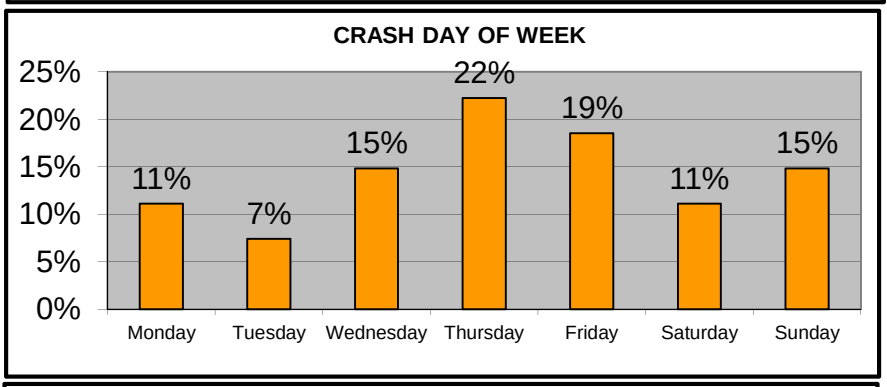
#	Crash Date	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Ages				Comments
								D1	*D2*	*D3*	*D4*	
1	6/4/09	8:05 AM	Angle	Daylight	Rain	Wet	Unknown	53	20			Vehicle 2 cut across lanes in an attempt to use turn around
2	6/19/09	2:13 PM	Head on	Daylight	unk	Wet	Unknown	16	45			Vehicle 1 exiting at high rate of speed, loses control
3	7/9/09	3:00 PM	Angle	Daylight	Clear	Dry	Inattention	47	48			Vehicle 1 pulled to right side of Vehicle 2 blocking its view. Vehicle 2 inched forward and Vehicle 1 assumed Vehicle 2 entered traffic
4	9/9/09	3:26 PM	Sideswipe, same direction	Daylight	Clear	Dry	Inattention	31	31			Vehicle 1 overtook vehicle 2 and side-swiped it while attempting to re-enter left lane.
5	9/12/09	6:37 PM	Single Vehicle Crash	Daylight	Rain	Wet	Driving too fast for conditions	52				OUI. Operator attempted to exit at a high rate of speed and traveled across island into Dunkin Donut's lawn striking sign on the way.
6	3/25/10	11:16 AM	Sideswipe, same direction	Daylight	Clear	Dry	Failed to yield to right of way	93	41			Vehicle 1 entered travel lane without yielding
7	3/31/10	3:05 PM	Single Vehicle Crash	Daylight	Cloudy	Dry	No Improper Driving	30				Unidentified vehicle failed to yield to vehicle 1 while entering from turn-around
8	5/21/10	6:20 AM	Angle	Daylight	Clear	Sand, mud, dirt, oil, gravel	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	33	unk			Veh 1 (police cruiser with active lights and siren) skidded across island and across grass to hit Veh 2 (parked in D&D) after attempting to avaid an unknown vehicle that did not adhere to lights and siren
9	7/18/10	10:42 PM	Single Vehicle Crash	Dark - roadway not lighted	Clear	Dry	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	24				OUI and speeding
10	8/20/10	9:26 PM	Sideswipe, same direction	Dark - roadway not lighted	Cloudy	Dry	Over-correcting/over-steering	unk	26			Vehicle 1 swoops to the right and hits Vehicle 2 in order to prepare to make the U-turn and then flees the scene.
11	8/21/10	9:25 PM	Rear-end	Dark - lighted roadway	unk	Dry	Failure to keep in proper lane or running off road	17	72			Vehicle 2 failed to use care in changing lanes after entering
12	9/29/10	2:55 PM	Angle	Daylight	Clear	Dry	Failure to keep in proper lane or running off road	19	45			Operator 1 claimed to have not seen Vehicle 2
13	11/6/10	6:32 AM	Angle	Dark - roadway not lighted	Cloudy	Dry	Visibility Obstructed	66	33	28		Vehicle 1 fails to stop at stop sign
14	12/20/10	2:27 PM	Angle	Daylight	Snow	Snow	Failure to keep in proper lane or running off road	20	46			Vehicle 1 crossed over center line while turning. Snowy conditions
15	1/27/11	1:00 AM	Single Vehicle Crash	Dark - roadway not lighted	Snow	Snow	slippery surface, vehicle, object, non-motorist in roadway, etc.	53				While avoiding uninvolved vehicle that lost control, Vehicle 1 loses control and slides off road due to snowy conditions
16	2/14/11	6:53 PM	Sideswipe, same direction	Dark - lighted roadway	Clear	Dry	Inattention	21	28			Vehicle 1 attempted to change lanes and did not see Vehicle 2
17	8/1/11	1:44 PM	Angle	Daylight	Clear	Dry	Inattention	70	37			Veh 1 wanted to change lanes to reach turn around but did not see Veh 2
18	8/5/11	8:39 AM	Rear-end	Daylight	Cloudy	Dry	Failure to keep in proper lane or running off road	57	57			Vehicle 1 leaves roadway for unknown reason
19	9/8/11	7:21 AM	Rear-end	Daylight	Rain	Dry	Failed to yield to right of way	73	17			
20	10/25/11	10:30 AM	Angle	Daylight	Clear	Dry	Followed too closely	30	34			Veh 2 slowing to exit right, Veh 2 followed too closley and swerved right and sideswiped Vwh 1
21	1/20/12	10:19 AM	Single Vehicle Crash	Daylight	Clear	Wet	Made an improper turn	31	59	unk	unk	Vehicle 1 cut-off vehicle 2, no contact between vehicles
22	1/29/12	6:42 PM	Single Vehicle Crash	Dark - roadway not lighted	Clear	Dry	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	56				Vehicle crossed over BDL then across both lanes into the median
23	2/9/12	10:05 AM	Rear-end	Daylight	Cloudy	Dry	Followed too closely	38	58			Vehicle 1 traveling in BDL, Vehicle 2 accelerating to speed in BDL, Vehicle 1 rear ends Vehicle 2
24	2/28/12	10:40 AM	Single Vehicle Crash	Daylight	Cloudy	Dry	Unknown	unk				Vehicle left roadway for unknown reason
25	4/22/12	1:34 PM	Single Vehicle Crash	Daylight	Rain	Wet	Fatigued/asleep	26				driver fell asleep
26	5/20/12	1:38 PM	Single Vehicle Crash	Daylight	Clear	Sand, mud, dirt, oil, gravel	Made an improper turn	19				While turning into Subway, Vehicle "skidded on sand"
27	5/23/12	11:29 PM	Angle	Dark - lighted roadway	Clear	Dry	Inattention	48	50			Vehicle1 (tractor trailer) backing into parking lot

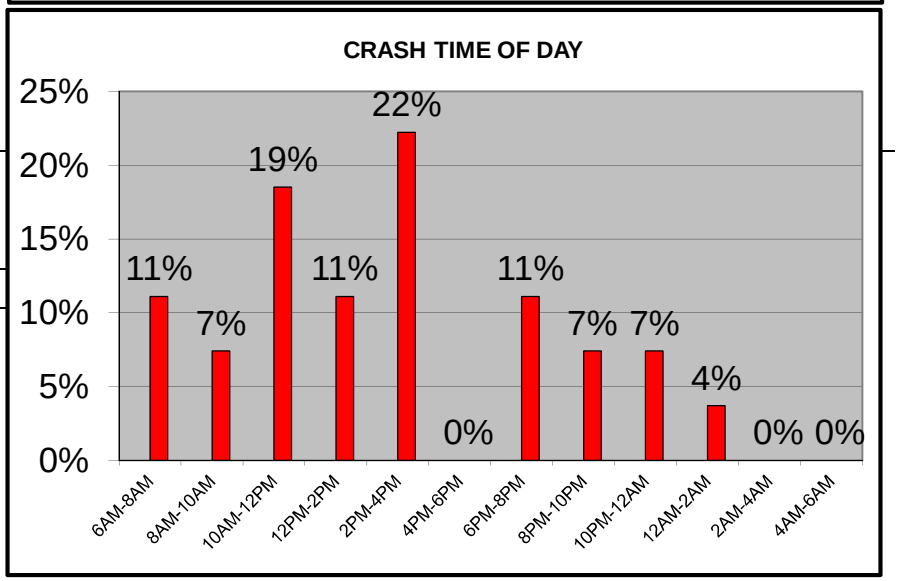
Source: Bourne Police Department and State Police

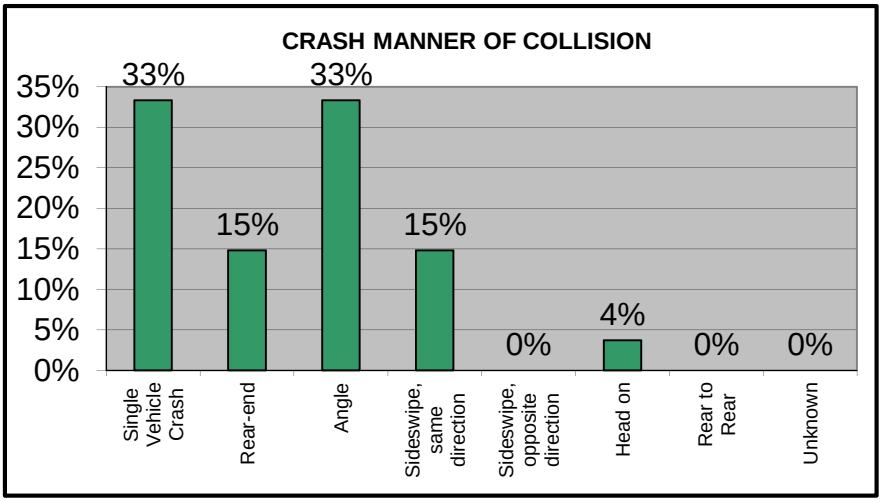
Crash Data Summary Tables and Charts

Route 28, Barlows Landing Road / Williams Ave (4); Bourne, MA



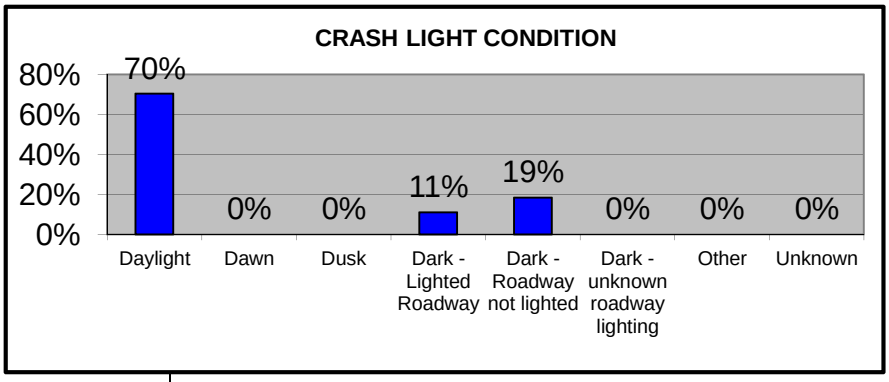


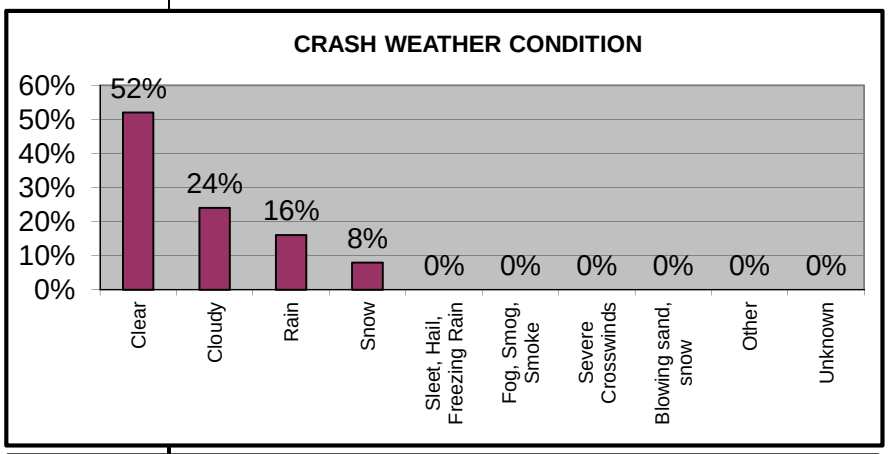


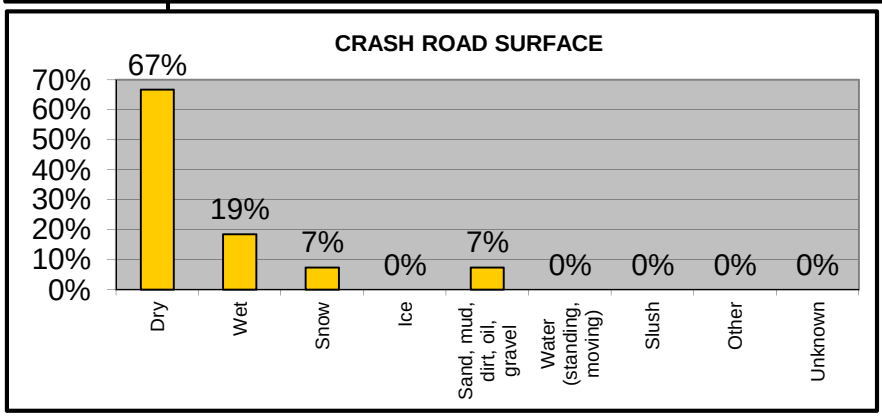


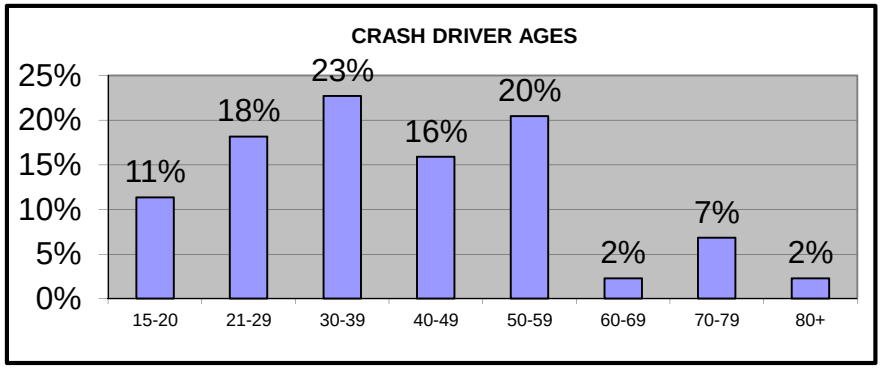
Crash Data Summary Tables and Charts

Route 28, Barlows Landing Road / Williams Ave (4); Bourne, MA









MassDOT
Massachusetts Department of Transportation
Highway Division

COLLISION DIAGRAM

SYMBOLS
- Moving Vehicle
- Backing Vehicle
- Non–Involved Vehicle
- Pedestrian
- Bicycle
- Animal
- Parked Vehicle
- Fixed Object

TYPES OF CRASH
- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control

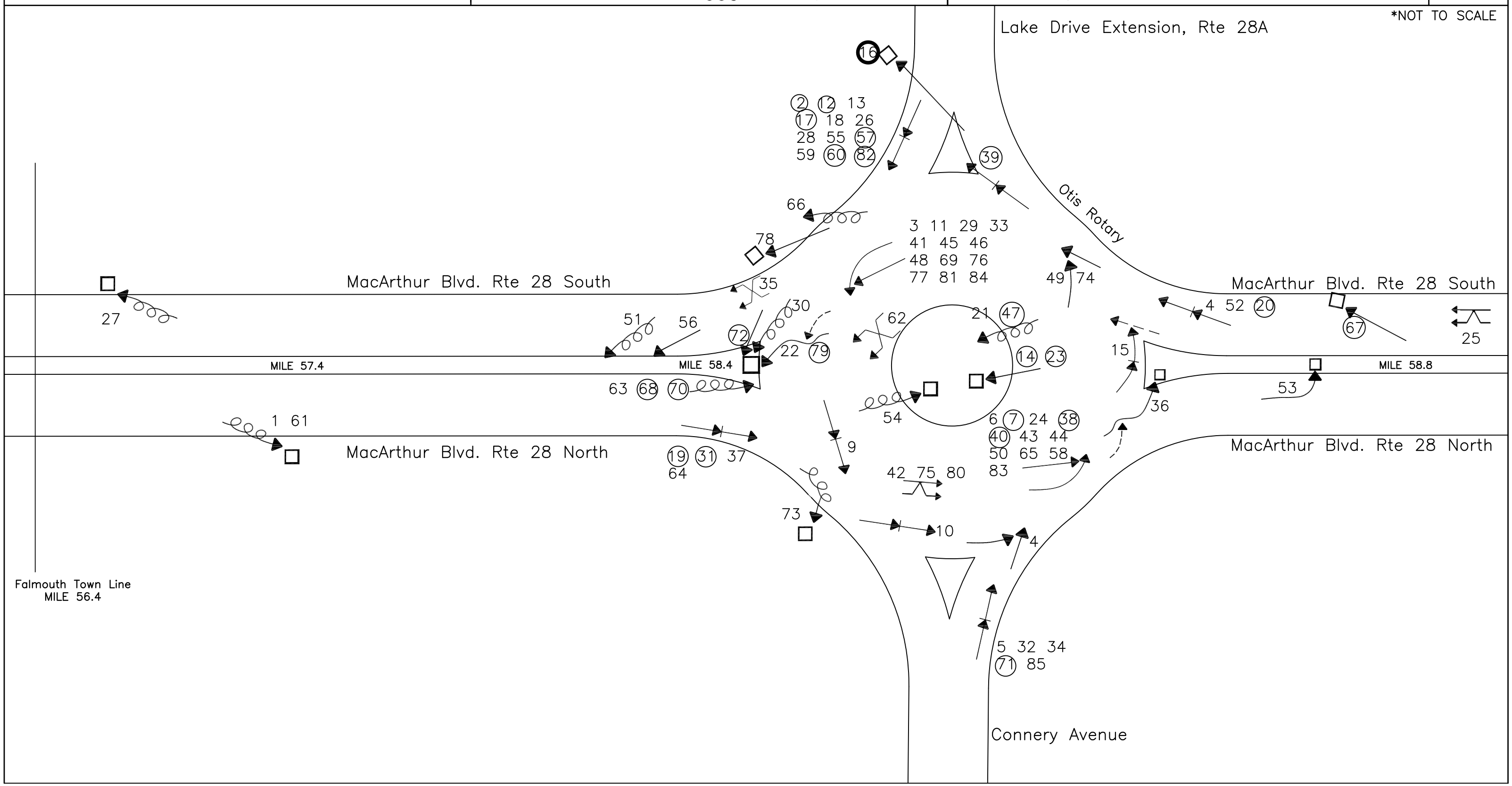
SEVERITY
- Injury
- Fatal

Bourne, MA

Route 28 at Otis Rotary (5)
REGION– CCC

TIME PERIOD ANALYZED: June 2009–June 2012
SOURCE OF CRASH REPORTS: Bourne PD and State Police
DATE PREPARED: 12/27/2012
PREPARED BY: CO

*NOT TO SCALE



Crash Data Summary Table

Route 28, Otis Rotary (5); Bourne, MA

June 2009 - June 2012

Crash Diagram Ref #	Crash Date	Time of Day	Manner of Collision		Light Condition		Weather Condition		Road Surface		Driver Contributing Code						Comments
	m/d/y		#	*Type*	#	*Type*	#	*Type*	#	*Type*	#	*Type*	*D1*	*D2*	*D3*	*D4*	
1	6/5/09	2:01 AM	1	Single Vehicle Crash	5	Dark - roadway not lighted	1	Clear	1	Dry	unk		25				OUI
2	6/12/09	1:24 PM	2	Rear-end	1	Daylight	3	Rain	2	Wet	19	Inattention	42	41			Funeral procession passing
3	6/16/09	7:59 AM	3	Angle	1	Daylight	2	Cloudy	1	Dry	unk		79	19			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
4	6/22/09	8:55 AM	2	Rear-end	1	Daylight	unk	unk	2	Wet	99	Unknown	60	36			Vehicle 1 stopped while entering rotary
5	7/3/09	2:15 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	67	66			Vehicle 1 assumed Vehicle 2 was proceeding into rotary
6	7/10/09	5:31 PM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	99	Unknown	unk	34			Hit & run crash; Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
7	7/14/09	7:52 AM	3	Angle	1	Daylight	1	Clear	1	Dry	99	Unknown	19	50			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
8	7/14/09	4:28 PM	4	Sideswipe, same direction	1	Daylight	2	Cloudy	2	Wet	4	Failed to yield to right of way	28	43			Vehicle 1 entering rotary while Vehicle 2 exits
9	7/16/09	4:45 PM	3	Angle	1	Daylight	1	Clear	1	Dry	99	Unknown	74	54			Operator claims to have fallen asleep
10	7/31/09	1:23 PM	2	Rear-end	1	Daylight	3	Rain	2	Wet	99	Unknown	42	21			Vehicle 2 was stopped in traffic in rotary
11	8/8/09	6:07 PM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	27	42			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
12	9/6/09	3:03 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	5	Followed too closely	58	42			Vehicle 1 assumed Vehicle 2 was proceeding into rotary
13	9/9/09	12:24 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	45	64			Funeral procession passing
14	9/11/09	11:27 AM	1	Single Vehicle Crash	1	Daylight		unk	1	Dry	99	Unknown	86				Elderly operator did not remember what happened
15	10/10/09	4:33 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	61	63			Uninvolved traffic failed to yield for rotary traffic
16	10/18/09	12:02 PM	1	Single Vehicle Crash	4	Dark - lighted roadway	1	Clear	1	Dry	99	Unknown	22				OUI, 100' skid marks observed, two passengers, one deceased
17	10/21/09	1:20 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	99	Unknown	67	50			Vehicle 1 stopped while entering rotary
18	10/29/09	6:02 PM	2	Rear-end	4	Dark - lighted roadway	1	Clear	1	Dry	19	Inattention	21	58			Veh 1 did not realize Veh 2 stopped
19	11/4/09	7:18 AM	2	Rear-end	1	Daylight	1	Clear	1	Dry	5	Followed too closely	54	18			Vehicle 1 assumed Vehicle 2 was proceeding into rotary
20	11/7/09	9:32 AM	2	Rear-end	1	Daylight	1	Clear	1	Dry	5	Followed too closely	37	16			"Vehicle… stopped to yield'
21	11/26/09	11:38 PM	1	Single Vehicle Crash	4	Dark - lighted roadway	3	Rain	2	Wet	2	Exceeded authorized speed limit	19				Vehicle was speeding
22	12/4/09	8:03 AM	1	Single Vehicle Crash	1	Daylight	99	unk	1	Dry	1	No Improper Driving	59				Unknown vehicle continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
23	12/26/09	2:02 AM	1	Single Vehicle Crash	4	Dark - lighted roadway	1	Clear	2	Wet	10	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	25				Vehicle unoccupied upon arrival
24	1/6/10	7:37 AM	4	Sideswipe, same direction	1	Daylight	2	Cloudy	1	Dry	4	Failed to yield to right of way	51	33	47		Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
25	1/28/10	1:09 PM	4	Sideswipe, same direction	1	Daylight	4	Snow	2	Wet	10	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	91	34			Veh 1 passed Veh 2 and struck mirror
26	1/29/10	4:55 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	52	44			
27	3/1/10	2:29 AM	1	Single Vehicle Crash	5	Dark - roadway not lighted	4	Snow	3	Snow	1	No Improper Driving	23				Vehicle lost traction in snowy condition and left roadway
28	3/16/10	5:40 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	unk	36			Vehicle 1 does not slow down as Vehicle 2 yields in front of it
29	3/25/10	10:06 AM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	68	47			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
30	4/2/10	5:56 AM	1	Single Vehicle Crash	2	Dawn	1	Clear	1	Dry	20	Distracted	30				Operator realized he wanted to exit rotary late, turned quickly and spun out.
31	4/5/10	2:57 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	25	62			Vehicle 1 assumed Vehicle 2 was proceeding into rotary
32	4/16/10	4:52 PM	2	Rear-end	1	Daylight	2	Cloudy	1	Dry	19	Inattention	38	33			Vehicle 1 assumed Vehicle 2 was proceeding into rotary
33	5/7/10	11:24 AM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	9	Failure to keep in proper lane or running off road	19	22			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane.
34	5/13/10	4:48 PM	2	Rear-end	1	Daylight		unk	1	Dry	5	Followed too closely	38	32			Vehicle 1 stopped while entering rotary due to heavy traffic
35	5/19/10	9:35 AM	3	Angle	1	Daylight	2	Cloudy	1	Dry	99	Unknown	57	46			

Crash Data Summary Table

Route 28, Otis Rotary (5); Bourne, MA

June 2009 - June 2012

Crash Diagram Ref #	Crash Date	Time of Day	Manner of Collision		Light Condition		Weather Condition		Road Surface		Driver Contributing Code						Comments
	m/d/y		#	*Type*	#	*Type*	#	*Type*	#	*Type*	#	*Type*	*D1*	*D2*	*D3*	*D4*	
36	5/24/10	6:41 PM	1	Single Vehicle Crash	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	39	52			Operator 1 was "unsure of rules of the road concerning rotaries" and failed to yield to right of way. No contact was made with Vehicle 2. Vehicle 2 hit curb & reflector sign.
37	6/1/10	7:32 AM	2	Rear-end	1	Daylight	2	Cloudy	1	Dry	19	Inattention	63	56			Vehicle 2 was "stopped or nearly stopped" while entering rotary
38	6/18/10	5:17 PM	3	Angle	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	27	30			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
39	6/29/10	3:39 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	16	Illness	83	83			Veh 2 rear ends Veh 1 causing both to hit flashing beacon
40	7/5/10	9:59 AM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	9	Failure to keep in proper lane or running off road	36	31			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
41	7/26/10	4:30 PM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	16	44			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
42	8/1/10	8:00 AM	4	Sideswipe, same direction	1	Daylight		unk	1	Dry	97	Other improper action	51	55			Vehicle 1 failed to use care while changing lanes
43	8/1/10	10:48 AM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	9	Failure to keep in proper lane or running off road	34	23			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
44	8/14/10	9:19 AM	4	Sideswipe, same direction	1	Daylight		unk	1	Dry	4	Failed to yield to right of way	42	45			Vehicle 1 continuing around rotary in right lane, Vehicle 2 exiting rotary in left lane
45	9/24/10	10:04 AM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	99	Unknown	31	29			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
46	9/24/10	2:21 PM	3	Angle	1	Daylight	2	Cloudy	1	Dry	4	Failed to yield to right of way	42	30			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
47	10/2/10	3:25 PM	1	Single Vehicle Crash	1	Daylight		unk	1	Dry	6	Made an improper turn	57				Vehicle 1 (motorcycle) claims to have been cut off by unknown vehicle
48	10/19/10	11:15 AM	3	Angle	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	34	30			Vehicle 1 continuing around rotary in right lane, Vehicle 2 exiting rotary in left lane
49	11/9/10	4:45 PM	3	Angle	4	Dark - lighted roadway	3	Rain	2	Wet	4	Failed to yield to right of way	58	70			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
50	11/11/10	11:19 AM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	99	Unknown	49	55			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
51	12/11/10	7:45 AM	1	Single Vehicle Crash	1	Daylight		unk	4	Ice	7	Driving too fast for conditions	22				Roads were icy
52	12/24/10	1:40 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	5	Followed too closely	36	unk			Hit and run
53	1/3/11	3:34 PM	1	Single Vehicle Crash	1	Daylight	1	Clear	1	Dry	23	Cellular telephone	28				Operator looked down at iPod and ran off road
54	1/9/11	11:30 AM	1	Single Vehicle Crash	1	Daylight	1	Clear	5	Sand, mud, dirt, oil, gravel	2	Exceeded authorized speed limit	17				Vehicle was speeding
55	1/24/11	8:44 AM	2	Rear-end	1	Daylight	1	Clear	1	Dry	5	Followed too closely	61	42			Operator claimed that gas pedal got stuck due to cold weather.
56	2/16/11	3:26 PM	1	Single Vehicle Crash	1	Daylight	2	Cloudy	1	Dry	23	Cellular telephone	49				Operator went to answer cell phone and drove off road
57	2/23/11	4:18 PM	2	Rear-end	1	Daylight		unk	1	Dry	19	Inattention	60	19			Vehicle 2 does not slow down as Vehicle 1 yields in front of it
58	4/7/11	3:18 PM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	9	Failure to keep in proper lane or running off road	68	66			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
59	5/5/11	7:50 AM	2	Rear-end	1	Daylight	2	Cloudy	1	Dry	97	Other improper action	53	24			Vehicle 1 stopped while entering rotary due to heavy traffic
60	5/11/11	9:21 AM	2	Rear-end	1	Daylight	2	Cloudy	2	Wet	5	Followed too closely	62	48			Vehicle 2 stopped for rotary traffic
61	5/17/11	4:57 PM	1	Single Vehicle Crash	1	Daylight	3	Rain	2	Wet	12	Over-correcting/over-steering	21				Operator "lost control of his vehicle"
62	6/4/11	7:07 AM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	99	Unknown	49	unk			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane. Vehicle 2 fled the scene.
63	7/4/11	12:14 AM	1	Single Vehicle Crash	4	Dark - lighted roadway	1	Clear	1	Dry	99	Unknown	unk				Vehicle failed to negotiate bend in road prior to entering rotary, traveled across island, across rotary, then hit ROTARY sign.
64	7/11/11	5:27 PM	2	Rear-end	1	Daylight	2	Cloudy	1	Dry	5	Followed too closely	21	unk			Rear-ended unknow vehicle (unknown veh flead).
65	7/14/11	10:15 AM	3	Angle	1	Daylight	1	Clear	1	Dry	19	Inattention	33	24			Vehicle 1 continuing around rotary in right lane, Vehicle 2 exiting rotary in left lane.
66	7/22/11	3:45 AM	1	Single Vehicle Crash	4	Dark - lighted roadway	6	Fog, Smog, Smoke	5	Sand, mud, dirt, oil, gravel	1	No Improper Driving	23				Vehicle lost control and drove into ditch due to heavy fog
67	8/6/11	9:33 PM	1	Single Vehicle Crash	4	Dark - lighted roadway	97	Other	1	Dry	99	Unknown	25				OUI
68	8/28/11	10:42 PM	1	Single Vehicle Crash	5	Dark - roadway not lighted	1	Clear	1	Dry	10	Operating Vehicle in erratic, reckless, careless, negligent, or aggressive manner	26				Vehicle failed to negotiate bend in road prior to entering rotary, traveled across island, across rotary, then hit ROTARY sign. OUI
69	9/27/11	6:50 AM	4	Sideswipe, same direction	1	Daylight	6	Fog, Smog, Smoke	1	Dry	1	No Improper Driving	43	46			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane.

Crash Data Summary Table

Route 28, Otis Rotary (5); Bourne, MA

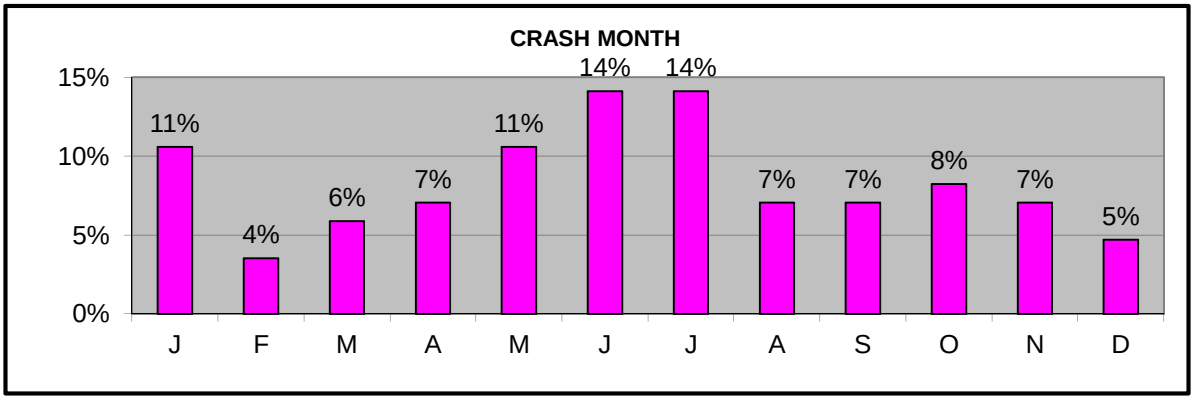
June 2009 - June 2012

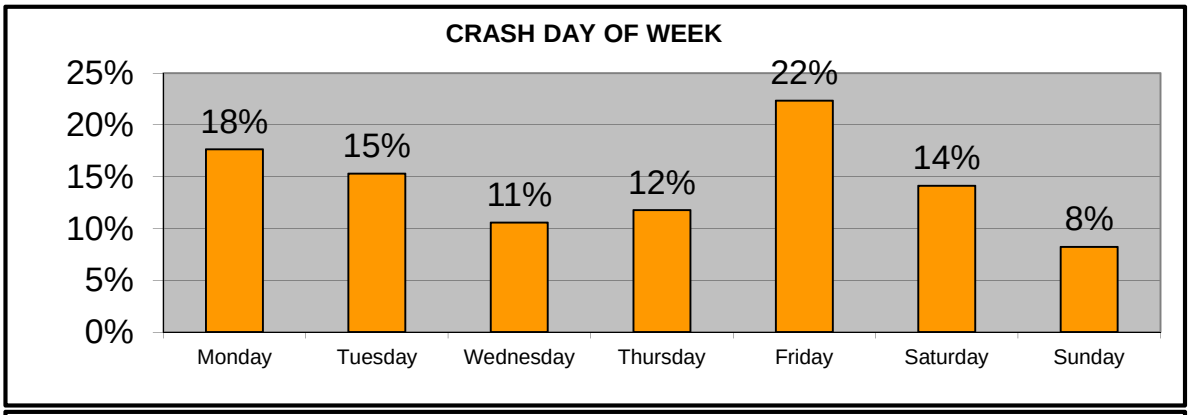
Crash Diagram Ref #	Crash Date	Time of Day	Manner of Collision		Light Condition		Weather Condition		Road Surface		Driver Contributing Code						Comments
	m/d/y		#	*Type*	#	*Type*	#	*Type*	#	*Type*	#	*Type*	*D1*	*D2*	*D3*	*D4*	
70	10/26/11	11:57 AM	1	Single Vehicle Crash	1	Daylight	2	Cloudy	1	Dry	9	Failure to keep in proper lane or running off road	36				Due to high speed, motorcycleist lost control and hit island curb
71	11/7/11	11:20 AM	2	Rear-end	1	Daylight	1	Clear	1	Dry	5	Followed too closely	47	41			Vehicle 1 assumed Vehicle 2 was proceeding into rotary
72	1/9/12	12:03 PM	1	Single Vehicle Crash	1	Daylight	1	Clear	1	Dry	20	Distracted	57				Dog jumped into drivers lap from back seat
73	1/17/12	7:28 PM	1	Single Vehicle Crash	4	Dark - lighted roadway	3	Rain	2	Wet	23	Cellular telephone	47				Distracted by cell phone ring and lost control of vehicle
74	1/30/12	3:50 PM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	17	59			Vehicle 2 failed to yield while entering rotary.
75	2/28/12	6:33 PM	4	Sideswipe, same direction	4	Dark - lighted roadway	1	Clear	1	Dry	1	No Improper Driving	26	22			
76	3/6/12	12:45 PM	3	Angle	1	Daylight	2	Cloudy	1	Dry	unk		unk	unk			Vehicle 1 continuing around rotary in right lane, Vehicle 2 exiting rotary in left lane
77	3/19/12	7:14 AM	1	Single Vehicle Crash	1	Daylight	1	Clear	1	Dry	4	Failed to yield to right of way	39	24			sideswipe reported as single vehicle crash
78	4/21/12	5:00 AM	1	Single Vehicle Crash	1	Daylight	2	Cloudy	1	Dry	9	Failure to keep in proper lane or running off road	38				Driver momentarily closed his eyes in a yawn
79	4/21/12	3:01 PM	1	Single Vehicle Crash	1	Daylight	1	Clear	5	Sand, mud, dirt, oil, gravel	6	Made an improper turn	38	unk			Vehicle 1 motorcycle
80	5/13/12	4:47 PM	4	Sideswipe, same direction	1	Daylight	1	Clear	1	Dry	unk		unk	unk			Vehicle 1 "drifted" into Vehicle 2
81	5/25/12	6:41 AM	2	Rear-end	1	Daylight	2	Cloudy	1	Dry	4	Failed to yield to right of way	46	18			Vehicle 1 continuing around rotary in right lane, Vehicle 2 exiting rotary in left lane
82	6/8/12	2:01 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	59	70			
83	6/16/12	1:09 PM	3	Angle	1	Daylight	1	Clear	1	Dry	19	Inattention	23	55			V2 changes lanes in the last minute to stay in the rotary
84	6/18/12	11:53 AM	4	Sideswipe, same direction	1	Daylight	2	Cloudy	1	Dry	4	Failed to yield to right of way	18	78			Vehicle 2 continuing around rotary in right lane, Vehicle 1 exiting rotary in left lane
85	6/29/12	1:50 PM	2	Rear-end	1	Daylight	1	Clear	1	Dry	19	Inattention	26	63			Vehicle 1 assumed Vehicle 2 was proceeding into rotary

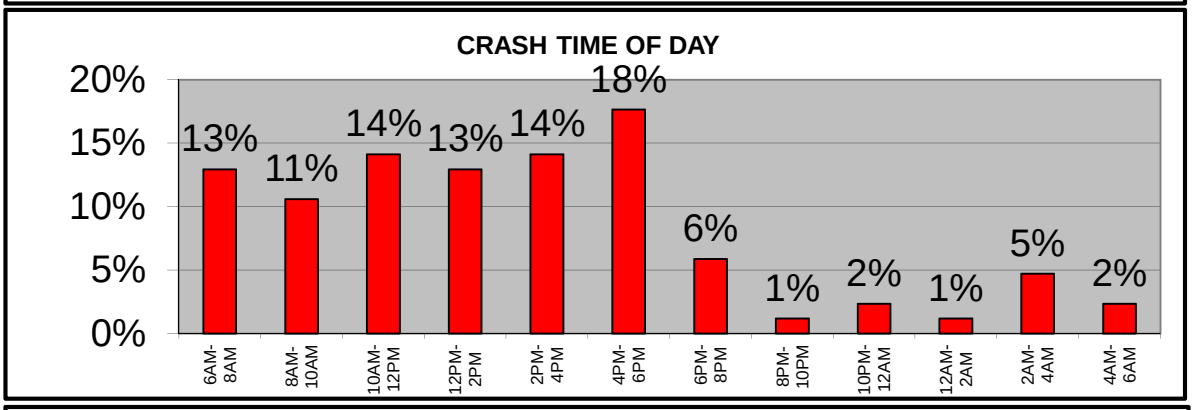
Source: Bourne Police Department and State Police

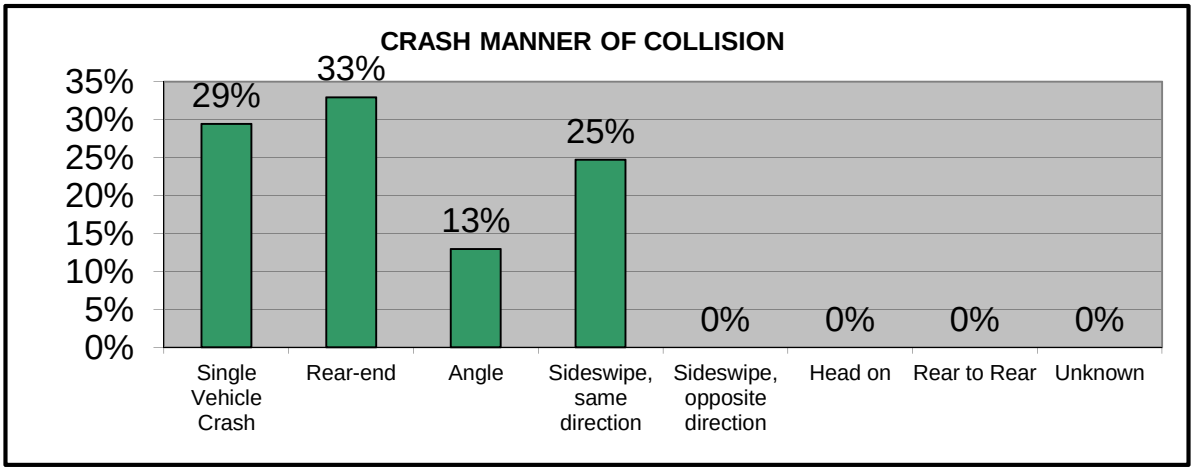
Crash Data Summary Tables and Charts

Route 28, Otis Rotary (5); Bourne, MA



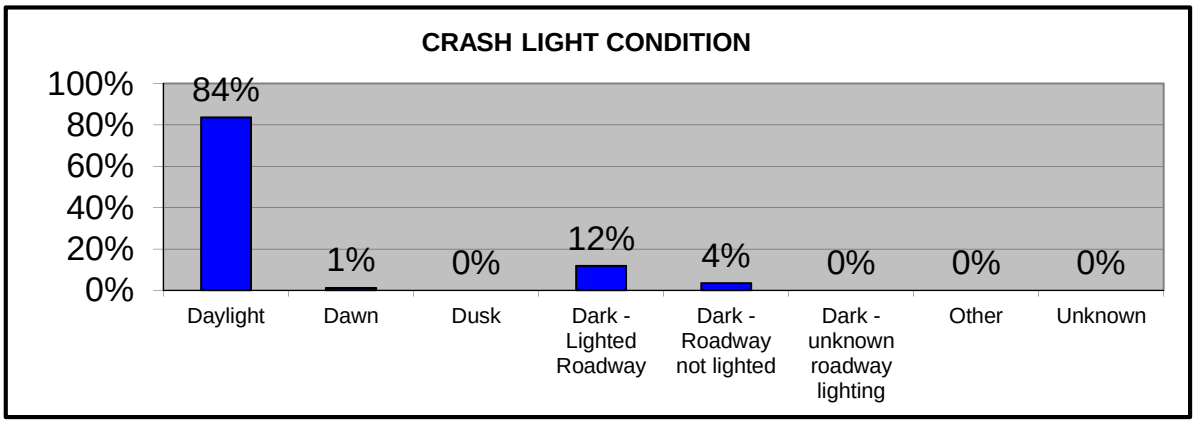


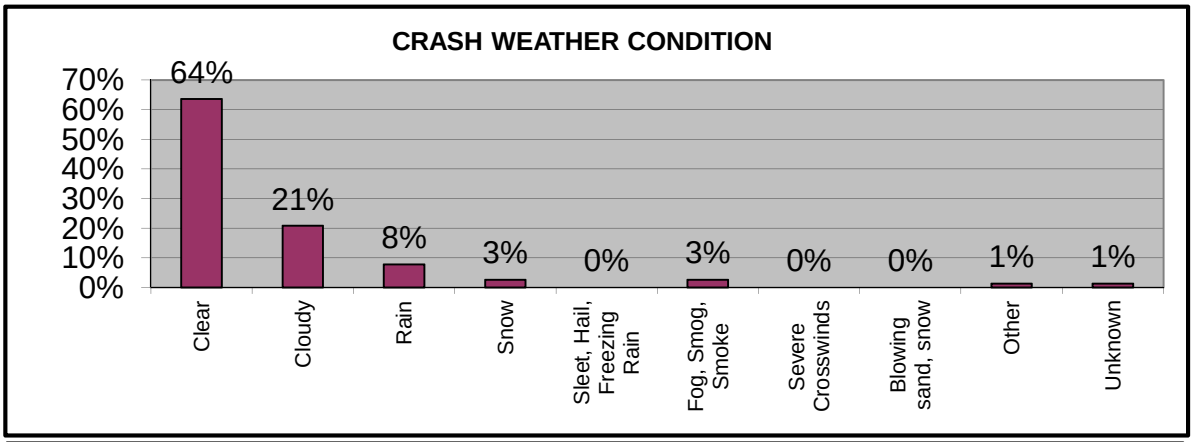


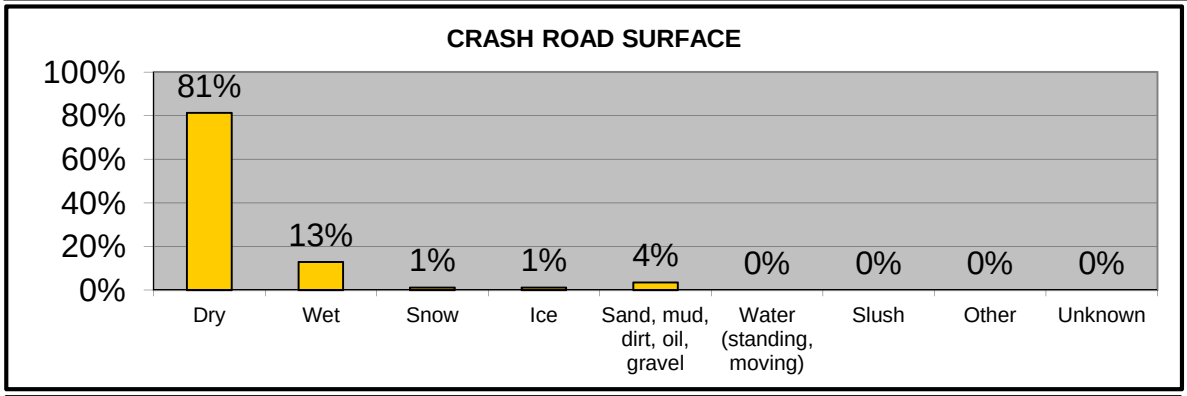


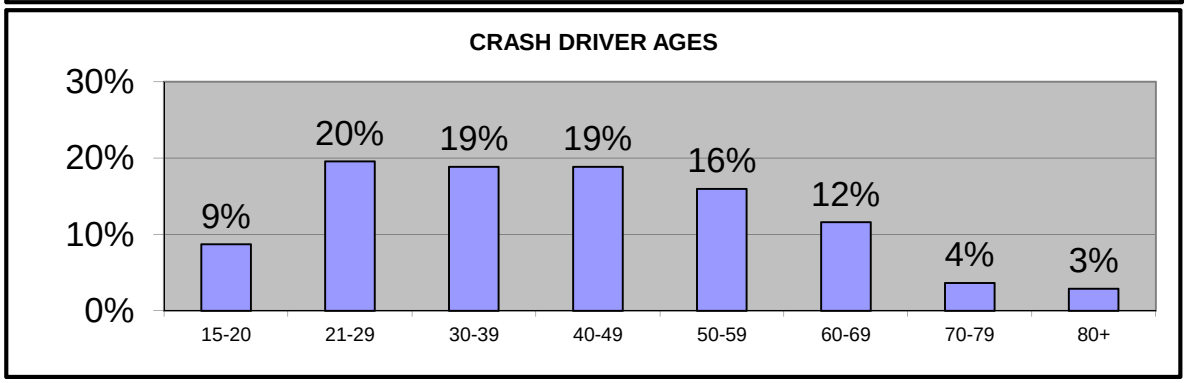
Crash Data Summary Tables and Charts

Route 28, Otis Rotary (5); Bourne, MA









Appendix D. Additional Information

April 13, 1967

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 344

Highway Location: BOURNE AND FALMOUTH

Authority in Control: COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

Name of Highway: State Highway - Route 28A

In accordance with the provisions of Section 18 of Chapter 90 of the General Laws (Ter. Ed.) the following Special Speed Regulation is hereby promulgated.

The following designated speed limits are established at which motor vehicles may be operated in the areas described.

SOUTHBOUND

Beginning at a point 370 feet south of Rotary at Entrance of Otis Air Force on Route 28A thence southerly in Bourne

0.14 miles at 20 miles per hour
0.44 " " 40 " " "
1.31 " " 50 " " "
0.35 " " 45 " " " to the Falmouth line;

Thence southerly in Falmouth

0.68 miles at 45 miles per hour
0.23 " " 40 " " "
0.72 " " 45 " " "
0.25 " " 35 " " "
1.84 " " 40 " " "
0.75 " " 35 " " "
1.13 " " 40 " " " ending at Station 293+00,

the total distance being 7.84 miles.

NORTHBOUND

Beginning at a point 310 feet north of the junction of Route 28 thence northerly on Route 28A in Falmouth

1.17 miles at 40 miles per hour
0.75 " " 35 " " "
1.82 " " 40 " " "
0.25 " " 35 " " "
0.72 " " 45 " " "
0.23 " " 40 " " "
0.68 " " 45 " " " to the Bourne line.

Thence northerly in Bourne

0.35 miles at 45 miles per hour
1.31 " " 50 " " "
0.44 " " 40 " " "
0.21 " " 20 " " " to the Rotary, the total distance being 7.93 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense, Section 14 of Chapter 90.

The Department of public Works and the Registrar of Motor Vehicles, acting jointly do hereby certify that this regulation is consistent with the public interest.

Standard signs must be erected at the beginning of each zone.

FOR THE DEPARTMENT

DATE: April 13, 1967

BY Edward J. Ribbs KK
EDWARD J. RIBBS
Associate Commissioner

for Highway Engineering

Richard E. McLaughlin
Registrar of Motor Vehicles

March 6, 1975

TOWN OF BOURNE
SPECIAL SPEED REGULATION NO. 1021 Sullivan

Highway Location: BOURNE

Authority In Control: TOWN OF BOURNE

Name of Highway: BARLOWS LANDING ROAD

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter. Ed.) as amended, the following Special Speed Regulation is

hereby Adopted

by the Board of Selectmen

of the Town of Bourne

That the following speed limits are established at which motor vehicles may be operated in the areas described:

BARLOWS LANDING ROAD-EASTBOUND

Beginning at Sherman Lane
Thence easterly on Barlows Landing Road
0.40 miles at 25 miles per hour
0.80 " " 30 " " "
0.81 " " 40 " " "
0.06 " " 25 " " " ending at Route 28;
the total distance being 2.07 miles.

BARLOWS LANDING ROAD-WESTBOUND

Beginning at a point 300 feet west of Route 28
Thence westerly on Barlows Landing Road
0.81 miles at 40 miles per hour
0.80 " " 30 " " "
0.40 " " 25 " " " ending at Sherman Lane; the total distance being 2.01 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed).

Date of Passage 1-13-75

Board of Selectmen

Attest
Town Clerk

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 1021

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE: March 6, 1975

FOR THE DEPARTMENT OF PUBLIC WORKS

BY:
Traffic Engineer

Acting Registrar of Motor Vehicles
E.Theodore Gunaris

Sullivan

MAR 26 1980

TOWN OF BOURNE
SPECIAL SPEED REGULATION NO. 6029

Highway Location: BOURNE

Authority In Control: TOWN OF BOURNE

Name of Highway: CLAY POND ROAD

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter. Ed.) as amended, the following Special Speed Regulation is

hereby Adopted

by the Board of Selectmen

of the Town of Bourne

That the following speed limits are established at which motor vehicles may be operated in the areas described:

CLAY POND ROAD-EASTBOUND

Beginning at a point 150 feet east of County Road
Thence easterly on Clay Pond Road
1.36 miles at 35 miles per hour
0.06 " " 25 " " " ending at Route 28;
the total distance being 1.42 miles.

CLAY POND ROAD-WESTBOUND

Beginning at a point 300 feet west of Route 28
Thence westerly on Clay Pond Road
1.34 miles at 35 miles per hour
0.05 " " 25 " " " ending at County Road;
the total distance being 1.39 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed.).

Date of Passage Feb. 7, 1980

Board of Selectmen

Attest Mary C. McDonough
Town Clerk

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 6029

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly, do hereby certify that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE: MAR 26 1980

FOR THE DEPARTMENT OF PUBLIC WORKS

BY: _____
Traffic Engineer

_____
Chief Deputy Registrar

MAR 26 1980

JUL 17 1985

TOWN OF BOURNE
SPECIAL SPEED REGULATION NO. 7314

Highway Location: BOURNE

Authority In Control: TOWN OF BOURNE

Name of Highway: OLD PLYMOUTH ROAD
TROWBRIDGE ROAD

In accordance with the provisions of Chapter 90, Section 18, of the General Laws (Ter. Ed.) as amended, the following Special Speed Regulation is

hereby Adopted

by the Board of Selectmen

of the Town of Bourne

That the following speed limits are established at which motor vehicles may be operated in the areas described:

OLD PLYMOUTH ROAD - NORTHBOUND

Beginning at Scussett Beach Road
Thence northerly on Old Plymounth Road
0.13 miles at 30 miles per hour
0.85 " " 35 " " "
0.80 " " 40 " " " ending at Route 3A;
the total distance being 1.78 miles.

OLD PLYMOUTH ROAD - SOUTHBOUND

Beginning at Route 3A
Thence southerly on Old Plymouth Road
0.80 miles at 40 miles per hour
0.85 " " 35 " " "
0.13 " " 30 " " " ending at Scussett
Beach Road; the total distance being 1.78 miles.

TROWBRIDGE ROAD - EASTBOUND

Beginning at County Road
Thence easterly on Trowbridge Road
0.54 miles at 35 miles per hour
0.08 " " 25 " " " ending at the South
Rotary (Route 28); the total distance being 0.62 miles.

TROWBRIDGE ROAD - WESTBOUND

Beginning at the south Rotary (Route 28)
Thence westerly on Trowbridge Road
0.54 miles at 35 miles per hour
0.08 " " 25 " " " ending at County Road;
the total distance being 0.62 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Chapter 90, Section 14, of the General Laws (Ter. Ed).

Date of Passage July 8, 1985

Board of Selectmen

Attest
Town Clerk

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 7314

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly do hereby certify that this regulation is consistent with the public interest.

Standard signs must be erected at the beginning of each zone.

DATE: JUL 17 1985

FOR THE DEPARTMENT OF PUBLIC WORKS

BY:
Traffic Engineer

Chief Deputy Registrar

October 31, 1972

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 752

Highway Location: BOURNE

Authority In Control: COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

Name of Highway: Waterhouse Rd.--Miscellaneous State Hwy.
Sandwich Rd. - " " "

In accordance with the provisions of Section 18 Chapter 90 of the General Laws (Ter. Ed.) the following Special Speed Regulation is hereby promulgated:

The following designated speed limits are established at which motor vehicle may be operated in the areas described:

WATERHOUSE ROAD - SOUTHBOUND

Beginning at a point 136 feet from the beginning of State Highway,

Thence southerly

0.15 miles at 35 miles per hour
1.01 " " 45 " " "
0.05 " " 30 " " " ending at the end of State Highway; the total distance being 1.21 miles.

WATERHOUSE ROAD - NORTHBOUND

Beginning at point 276 feet from the beginning of State Highway,

Thence northerly

1.01 miles at 45 miles per hour
0.18 " " 35 " " " ending at the end of State Highway; the total distance being 1.19 miles.

SANDWICH ROAD - EASTBOUND

Beginning at the beginning of State Highway,

Thence easterly

0.25 miles at 30 miles per hour
0.49 " " 40 " " "
0.08 " " 30 " " " ending at the end of State Highway; the total distance being 0.82 miles.

No. 752

SANDWICH ROAD - WESTBOUND

Beginning at a point 103 feet from the beginning of State Highway,

Thence Westerly

0.55 miles at 40 miles per hour
0.25 " " 30 " " " ending at the end
0.80

Operation of a motor vehicl at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense, Section 14 of Chapter 90.

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly do hereby certify in writing, that this regulation is consistent with the public interest.

Standard signs must be erected at the beginning of each zone.

DATE: October 31, 1972

FOR THE DEPARTMENT OF PUBLIC WORKS

BY: V. J. Cantone, P.E.
Traffic Engineer

David J. Lucey
Registrar of Motor Vehicles

NO. 326

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC WORKS

Special Speed Regulation Number 326

Highway Location:	ORLEANS, BREWSTER, CHATHAM, HARWICH, DENNIS, YARMOUTH, BARNSTABLE, MASHPEE, FALMOUTH, BOURNE	
Authority in Control:	COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS	
Name of Highway:	ORLEANS - Chatham Road	Route 28
	BREWSTER - Chatham Road	Route 28
	CHATHAM - Main Street	Route 28
	HARWICH - Main Street	Route 28
	DENNIS - Main Street	Route 28
	YARMOUTH - South Main Street	Route 28
	BARNSTABLE - Hyannis Road	Route 28
	MASHPEE - Falmouth Road	Route 28
	FALMOUTH - Palmer Avenue,	Route 28
	Waquoit Road and	Route 28
	State Highway	Route 28
	BOURNE - General MacArthur Boulevard	Route 28

In accordance with the provisions of Section 18 of Chapter 90 of the General Laws (Ter. Ed.) the following Special Speed Regulation is hereby promulgated.

Special Speed Regulation numbered 93, June 22, 1954 is hereby amended by striking out the Regulation in its entirety and inserting in place thereof the following revision and addenda.

The following designated speed limits are established at which motor vehicles may be operated in the area described.

WESTBOUND

Beginning in Orleans 791 feet west of the junction of Route 6A thence westerly 0.62 miles at 35 miles per hour
" 0.65 " " 40 " " "
" 0.48 " " 45 " " "
" 2.17 " " 40 " " "
" 0.51 " " 35 " " " to the Brewster town line.

thence westerly in Brewster
0.04 miles at 35 miles per hour to the Harwich town line.

thence westerly in Harwich
1.38 miles at 35 miles per hour to the Chatham town line.

thence westerly in Chatham

	1.52	miles	at 35	miles	per	hour
"	0.87	"	" 40	"	"	"
"	0.10	"	" 30	"	"	"
"	0.10	"	" 15	"	"	"
"	0.48	"	" 35	"	"	"
"	0.16	"	" 30	"	"	"
"	0.16	"	" 20	"	"	"
"	0.30	"	" 30	"	"	"
"	3.21	"	" 40	"	"	"
"	0.28	"	" 35	"	"	"
"	0.13	"	" 40	"	"	" to the Harwich town line.

thence westerly in Harwich

	1.71	miles	at 40	miles	per	hour
"	0.52	"	" 35	"	"	"
"	0.42	"	" 25	"	"	"
"	0.63	"	" 35	"	"	"
"	0.44	"	" 30	"	"	"
"	1.21	"	" 35	"	"	"
"	0.01	"	" 25	"	"	" to the Dennis town line.

thence westerly in Dennis

	0.36	miles	at 25	miles	per	hour
"	0.77	"	" 35	"	"	"
"	~~1.49~~ 1.41	"	" 40	"	"	"
"	~~0.20~~ .26	"	" 25	"	"	"
"	0.54	"	" 40	"	"	" to the Yarmouth town line.

thence westerly in Yarmouth

	0.07	miles	at 40	miles	per	hour
"	0.14	"	" 30	"	"	"
"	0.18	"	" 35	"	"	"
"	0.95	"	" 40	"	"	"
"	0.24	"	" 35	"	"	"
"	1.19	"	" 40	"	"	"
"	0.27	"	" 35	"	"	"
"	1.42	"	" 40	"	"	"
"	0.74	"	" 35	"	"	" to the Barnstable town line.

thence westerly in Barnstable

	0.90	miles	at 35	miles	per	hour
"	0.17	"	" 25	"	"	"
"	0.50	"	" 40	"	"	"
"	0.19	"	" 35	"	"	"
"	0.47	"	" 45	"	"	"
"	1.08	"	" 50	"	"	"
"	0.19	"	" 40	"	"	" ✓
"	0.66	"	" 50	"	"	" ✓
"	0.25	"	" 40	"	"	"
"	2.05	"	" 50	"	"	"
"	0.16	"	" 45	"	"	"
"	1.00	"	" 50	"	"	"
"	0.25	"	" 45	"	"	"
"	1.43	"	" 50	"	"	"
"	0.40	"	" 40	"	"	"
"	0.27	"	" 35	"	"	"
"	0.40	"	" 50	"	"	" to the Mashpee town line.

thence westerly in Mashpee

"	1.65	miles	at 50	miles	per	hour
"	0.28	"	" 25	"	"	"
"	1.70	"	" 50	"	"	" to the Falmouth town line.

thence westerly in Falmouth

	0.45	miles	at 50	miles	per	hour
"	2.80	"	" 40	"	"	"
"	0.81	"	" 35	"	"	"
"	1.27	"	" 40	"	"	"
"	1.14	"	" 35	"	"	" to the end of State Highway, east of town.

Beginning again at the beginning of State Highway west of town, thence westerly

	0.11	miles	at 25	miles	per	hour
"	0.82	"	" 35	"	"	"
"	0.97	"	" 45	"	"	"
"	5.47	"	" 65	"	"	" to the Bourne line.

thence westerly in Bourne

	1.83	miles	at 65	miles	per	hour
"	0.15	"	" 45	"	"	"
"	0.28	"	" 25	"	"	"
"	3.60	"	" 55	"	"	"
"	0.23	"	" 40	"	"	"
"	0.13	"	" 25	"	"	" ending at the rotary at Station 130+00; the total distance being 60.72 miles

EASTBOUND

Beginning in Bourne at the beginning of State Highway
thence easterly 0.17 miles at 25 miles per hour
" 0.22 " " 40 " " "
" 3.46 " " 55 " " "
" 0.17 " " 40 " " "
" 0.27 " " 35 " " "
" 2.02 " " 65 " " " to the Falmouth town line.

thence easterly in Falmouth
5.06 miles at 65 miles per hour
" 0.41 " " 50 " " "
" 0.97 " " 45 " " "
" 0.82 " " 35 " " "
" 0.11 " " 25 " " " to the end of State Highway, west of town

Beginning again in Falmouth east of town, 323 feet from the beginning of State Highway
thence easterly 1.06 miles at 35 miles per hour
" 1.29 " " 40 " " "
" 0.81 " " 35 " " "
" 2.85 " " 40 " " "
" 0.40 " " 50 " " " to the Mashpee town line.

thence easterly in Mashpee
" 1.76 miles at 50 miles per hour
" 0.24 " " 25 " " "
" 1.63 " " 50 " " " to the Barnstable town line

thence easterly in Barnstable
0.40 miles at 50 miles per hour
" 0.27 " " 35 " " "
" 0.38 " " 40 " " "
" 1.45 " " 50 " " "
" 0.25 " " 45 " " "
" 1.00 " " 50 " " "
" 0.16 " " 45 " " "
" 2.05 " " 50 " " "
" 0.25 " " 40 " " " —
" 0.65 " " 50 " " " —
" 0.19 " " 40 " " " —

easterly in Barnstable continued

thence	1.08	miles	at	50	miles	per	hour
"	0.49	"	"	45	"	"	"
"	0.17	"	"	35	"	"	"
"	0.50	"	"	40	"	"	"
"	0.17	"	"	25	"	"	"
"	0.90	"	"	35	"	"	"

to the Yarmouth town line.

thence easterly in Yarmouth

	0.74	miles	at	35	miles	per	hour
"	1.42	"	"	40	"	"	"
"	0.19	"	"	35	"	"	"
"	1.29	"	"	40	"	"	"
"	0.22	"	"	35	"	"	"
"	0.95	"	"	40	"	"	"
"	0.18	"	"	35	"	"	"
"	0.18	"	"	30	"	"	"
"	0.04	"	"	40	"	"	"

to the Dennis town line.

thence easterly in Dennis

	0.57	miles	at	40	miles	per	hour
"	0.20	"	"	25	"	"	"
"	1.45	"	"	40	"	"	"
"	0.77	"	"	35	"	"	"
"	0.36	"	"	25	"	"	"

to the Harwich town line.

thence easterly in Harwich

	0.03	miles	at	25	miles	per	hour
"	1.20	"	"	35	"	"	"
"	0.44	"	"	30	"	"	"
"	0.63	"	"	35	"	"	"
"	0.43	"	"	25	"	"	"
"	0.52	"	"	35	"	"	"
"	1.71	"	"	40	"	"	"

to the Chatham line.

thence easterly in Chatham

	0.06	miles	at	40	miles	per	hour
"	0.37	"	"	35	"	"	"
"	3.17	"	"	40	"	"	"
"	0.32	"	"	30	"	"	"
"	0.15	"	"	20	"	"	"
"	0.22	"	"	30	"	"	"
"	0.46	"	"	35	"	"	"
"	0.06	"	"	15	"	"	"
"	1.04	"	"	40	"	"	"
"	1.45	"	"	35	"	"	"

to the Harwich town line

thence ~~easterly~~ SOUTHERLY in Harwich
1.38 miles at 35 miles per hour to the Brewster town line.

thence ~~easterly~~ SOUTHERLY in Brewster
0.04 miles at 35 miles per hour to the Orleans town line.

thence ~~easterly~~ SOUTHERLY in Orleans
0.51 miles at 35 miles per hour
" 2.17 " " 40 " " "
" 0.48 " " 45 " " "
" 0.59 " " 40 " " "
" 0.70 " " 35 " " "
" 0.13 " " 30 " " " to the junction of Routes 28 and 6A; the total distance being 60.90 miles.

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense Section 14 of Chapter 90.

The Department of Public Works and the Registrar of Motor Vehicles acting jointly, do hereby certify in writing that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

FOR THE DEPARTMENT

DATE: March 18, 1966

BY: JOHN D. WARNER
K
JOHN D. WARNER
Associate Commissioner
for Highway Engineering

RICHARD E. MCLAUGHLIN
Registrar of Motor Vehicles

August 8, 1967

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NUMBER 326-A

Highway Location: BOURNE-FALMOUTH

Authority in Control: COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

Name of Highway: BOURNE - State Highway - Route 28
FALMOUTH - State Highway - Route 28

In accordance with the provisions of Section 18 of Chapter 90 of the General Laws (Ter. Ed.) the following Special Speed Regulation is hereby promulgated.

Special Speed Regulation Number 326 dated March 18, 1966 is hereby amended in Bourne and Falmouth for both Eastbound and Westbound directions as follows:

The following designated speed limits are established at which motor vehicles may be operated in the areas described.

WESTBOUND - FALMOUTH

By striking out the clause reading
5.47 miles at 65 miles per hour
and inserting in place thereof
5.47 miles at 60 miles per hour

WESTBOUND - BOURNE

By striking out the clause reading
1.83 miles at 65 miles per hour
and inserting in place thereof
1.83 miles at 60 miles per hour

EASTBOUND - BOURNE

By striking out the clause reading
2.02 miles at 65 miles per hour
and inserting in place thereof
2.02 miles at 60 miles per hour

EASTBOUND - FALMOUTH

By striking out the clause reading
5.06 miles at 65 miles per hour
and inserting in place thereof
5.06 miles at 60 miles per hour

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense, Section 14 of Chapter 90.

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly do hereby certify in writing, that this regulation is consistent with the public interest.

Standard signs must be erected at the beginning of each zone.

FOR THE DEPARTMENT

DATE: August 8, 1967

BY: Edward J. Ribbs kk
EDWARD J. RIBBS
COMMISSIONER

for Highway Engineering

Richard E. McLaughlin
Registrar of Motor Vehicles

April 26, 1974

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

SPECIAL SPEED REGULATION NO. 326-C

Highway Location: BOURNE

Authority in Control: COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

Name of Highway: Bourne - Route 28 - State Highway

In accordance with the provisions of Section 18 Chapter 90 of the General Laws (Ter. Ed.) the following Special Speed Regulation is hereby promulgated:

Special Speed Regulation Numbered 326 dated March 18, 1966 is hereby amended in Bourne as follows:

The following designated speed limits are established at which motor vehicles may be operated in the areas described.

Bourne - Route 28 - EASTBOUND

By striking out the clause reading

3.46 miles at 55 miles per hour,

And inserting in place thereof

0.95 miles at 50 miles per hour
2.51 " " 55 " " " .

Operation of a motor vehicle at a rate of speed in excess of these limits shall be prima facie evidence that such speed is greater than is reasonable and proper.

The provisions of this regulation shall not, however, abrogate in any sense, Section 14 of Chapter 90.

The Department of Public Works and the Registrar of Motor Vehicles, acting jointly do hereby certify in writing, that this regulation is consistent with the public interests.

Standard signs must be erected at the beginning of each zone.

DATE: April 26, 1974

FOR THE DEPARTMENT OF PUBLIC WORKS

BY: L. T. Rule
Traffic Engineer

David J. Lucey
Registrar of Motor Vehicles