ROAD SAFETY AUDIT

Route 28A from Lake Drive to Palmer Avenue

Falmouth and Bourne, MA

July 2025

Prepared For:
MassDOT

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Table of Contents

Contents

List of Appendices

List of Figures

List of Tables

Background

The Federal Highway Administration (FHWA) defines a Road Safety Audit (RSA) as the formal safety examination of an existing or future road or intersection by an independent, multidisciplinary team. The purpose of an RSA is to identify potential safety issues and opportunities for safety improvements considering all roadway users. This RSA evaluates the Route 28A corridor from Lake Drive in Bourne, MA to Palmer Avenue in Falmouth, MA (the Study Area). The Route 28A corridor incorporates the following roadways:

- Sandwich Road (Route 28A) in Bourne, between Lake Drive and the Falmouth Town Line;
- North Falmouth Highway (Route 28A) in Falmouth, between the Bourne Town Line and Thomas B. Landers Road; and
- West Falmouth Highway (Route 28A) in Falmouth, between Thomas B. Landers Road and Palmer Avenue

An RSA was performed at the request of MassDOT, based on input from Town officials and state legislators. Portions of this corridor have been identified by the Massachusetts Department of Transportation (MassDOT) as high crash locations under the Highway Safety Improvement Program (HSIP). MassDOT defines an HSIP-eligible intersection crash cluster as one in which the total number of "equivalent property damage only" (EPDO) crashes in the cluster is within the top 5% of all clusters within the regional planning agency (RPA) region. High-crash roadway segments are identified based on MassDOT's Network Screening (Crash-Based) Tool and are ranked in the Top 5% of segments within the RPA region based on the difference between expected and predicted fatal and injury crash frequency. The following locations along the Route 28A corridor are identified as high-crash locations:

- Intersections:
    - North Falmouth Highway (Route 28A) at Nathan Ellis Highway (Route 151), Falmouth – 2017-2019 HSIP Cluster. This intersection has also been identified as having Excess Expected Fatal and Injury Crashes (2017-2021 data) within the region.
- Roadway Segments (based on 2013-2017 data):
    - North Falmouth Highway (Route 28A), Falmouth:
        - between Tara Lane and Pebble Lane
        - between Blue Shutters Lane and Chambers Hill Road

Additionally, the following locations along the Route 28A corridor were identified as having safety risks for:

- Roadway Departure Risk Segments (2017-2021 data):
    - Sandwich Road (Route 28A) in Bourne between Lake Drive and the Falmouth Town Line
    - North Falmouth Highway (Route 28A) in Falmouth between Althea Road and Thomas B. Landers Road
- Bicycle Safety Risk Segments (2017-2021 data):
    - North Falmouth Highway (Route 28A) in Falmouth between Nathan Ellis Highway (Route 151) and Edgerton Drive.

- Intersection Safety Risks (2017-2021 data):
    - North Falmouth Highway (Route 28A) at Nathan Ellis Highway (Route 151) in Falmouth
        - Pedestrians
        - Angle Crashes

It should be noted that a portion of the Route 28A corridor in Falmouth, between Old Dock Road and Chapoquoit Road, was the focus of a separate RSA that was held in April 2023 and will therefore not be included as part of this RSA report.

A key objective of the RSA is to identify short-term, mid-term, and long-term safety improvements that can be implemented within the study area and incorporated in potential projects.

Project Data

An RSA for the corridor was completed on Friday, January 17, 2025. The agenda for the RSA meeting, which was held at Falmouth Town Fall located at 59 Town Hall Square, is provided in Appendix A of this report. As shown below in Table 1, the audit team consisted of a multidisciplinary team with representatives from state, regional, and local entities providing expertise in the engineering, planning, and emergency response fields. The audit team also included representation from the West Falmouth Village Association, who provided first-hand accounts of safety concerns within the Study Area. Contact information for the RSA attendees is provided in Appendix B of this report.

Each RSA participant received an email invitation to the RSA on January 9, 2025. Background material was provided within the email invitation. This information included a collision diagram and crash data summary for the study area, RSA prompt lists, and the Federal Highway Administration (FHWA) Proven Countermeasures list. Participants were encouraged to visit the site prior to the audit and were urged to consider elements on MassDOT's RSA Prompt List. Appendix C contains a copy of the background data (collision diagrams, crash data summary tables, and charts) that was distributed to the audit team members prior to the RSA meeting.

On the day of the audit, a pre-audit meeting was held to discuss background information, the audit process, review the distributed materials, and discuss some of the safety issues that the audit team members had observed individually. The audit site walk consisted of field observations along the corridor. Handwritten notes and photographs documented the observations made by audit team members during the site walk. Following the audit site walk, a post-audit meeting was held where the audit team confirmed the observations made in the field and discussed potential countermeasures to enhance the safety of areas noted in the pre-audit meeting and site walk.

Table 1: Participating Audit Team Members

Audit Team Member	Agency/Affiliation
Phil Viveiros	Bowman
Lucy Almeida	Bowman
David McGraw	Falmouth Police
Joshua Oliver	Falmouth Police
Todd Taylor	West Falmouth Village Association
Jim Gray	West Falmouth Village Association
Tim Lydon	Town of Bourne Engineering
Sean Lewis	Town of Bourne Engineering
Colleen Medeiros	Cape Cod Commission
Aleksander Pelletier	MassDOT
Derek Jackson	MassDOT D5 Projects
William Ready	MassDOT D5 Traffic
Sydney Mis	MassDOT D5 Traffic
Nick Croft	Town of Falmouth Engineering
Peter McConarty	Falmouth DPW
James McLoughlin	Falmouth DPW
Amanda Braga-Tipton	Office of State Representative David T. Vieira
Kevin Fitzgerald	MassDOT Traffic Safety
Dakota DelSignore	MassDOT Traffic Safety
Timothy Smith	Falmouth Fire/Rescue

Project Location and Description

Route 28A Corridor

The Study Area consists of the entirety of Route 28A in Bourne and Falmouth, spanning approximately 8 miles, extending from Lake Drive (Otis Rotary) in Bourne, MA to Palmer Avenue in Falmouth, MA (see Figure 1). Route 28A is classified as an Urban Minor Arterial under MassDOT jurisdiction for its entire length and serves as an alternative north-south route to Route 28. It is a two-lane roadway along the majority of the corridor. The corridor has travel lanes that are generally 11 feet wide (with wider lanes near County Road), a double-yellow centerline, and varying shoulder widths, with some sections lacking a continuous shoulder. Based on MassDOT Special Speed Regulation #344, the posted speed limit varies from 20 mph to 50 mph as follows (traveling south along Route 28A):

- Bourne:
  - 20 mph – Otis Rotary to just south of Rolling Oaks Drive (0.14 miles)
  - 40 mph – South of Rolling Oaks Drive to approx. 1,000 feet south of Long Hill Road (0.44 miles)

  - 50 mph – Approx. 1,000 feet south of Long Hill Road to approx. 970 feet south of Scraggy Neck Road Extension (1.31 miles)
  - 45 mph – Approx. 970 feet south of Scraggy Neck Road Extension to Falmouth Town Line (0.35 miles)

- Falmouth:
  - 45 mph – Bourne Town Line to approx. 500 feet north of Nathan Ellis Highway (Route 151) (0.68 miles)
  - 40 mph – Approx. 500 feet north of Nathan Ellis Highway (Route 151) to approx. 300 feet north of Willow Field Drive (0.23 miles)
  - 45 mph – Approx. 300 feet north of Willow Field Drive to approx. 810 feet north of Curley Boulevard (0.72 miles)
  - 35 mph – Approx. 810 feet north of Curley Boulevard to Althea Road (0.25 miles)
  - 40 mph – Althea Road to approx. 375 feet south of Carlisle Road (1.84 miles)
  - 35 mph – Approx. 375 feet south of Carlisle Road to approx. 185 feet south of Chapoquoit Road (0.75 miles)
  - 40 mph – Approx. 185 feet south of Chapoquoit Road to Route 28 (1.13 miles)

Pedestrian accommodations throughout the corridor are limited, with disconnected sidewalk segments and few designated crossings. Sidewalks are present in several locations, including a southbound segment in West Falmouth from approximately 781 West Falmouth Highway to Blair Lane (including near West Falmouth Square), and from approximately 860 West Falmouth Highway to Eric Clauson Lane. Additional sidewalk segments exist near Curley Boulevard and between County Road and Edgerton Road. However, these segments are not continuous and many are in disrepair, limiting their overall usefulness. Within the study area, there are five crosswalks across Route 28A, all located in Falmouth: the North Falmouth Post Office (near Heather Lane), at Pebble Lane, at Old Dock Road, the West Falmouth Library, and Fire Station #4 (near Blacksmith Shop Road). Additionally, striped crosswalks are present on the west side of Route 28A at the County Road, Old Dock Road, and Chapoquoit Road crossings in Falmouth.

Route 28A is a signed bike route, though it lacks dedicated bicycle facilities or pavement markings for cyclists. The Shining Sea Bikeway, which runs from North Falmouth to Woods Hole, parallels Route 28A to the west throughout much of the Study Area from County Road to Palmer Avenue. It crosses a number of roadways west of Route 28A, with designated bikeway parking lots within the study area available at County Road and Old Dock Road. The northern portion of the Route 28A corridor – from Lake Drive (Otis Rotary) to Nathan Ellis Highway (Route 151) – is served by the Cape Cod Regional Transit Authority (CCRTA) via its "Bourne Run" year-round fixed route service between the Buzzards Bay train station and Mashpee Commons. While CCRTA runs its fixed route service as a "flag-down" service (i.e., passengers can be dropped off/picked up anywhere along the route), there are scheduled stops within the study area at the following locations:

- Bourne:
  - Cataumet Motel/Steamship Authority Parking Lot (just south of Long Pond Way)

- Falmouth:
    - Megansett Crossing (approximately 350 feet south of North Hill Drive)
    - North of Nathan Ellis Highway (Route 151)
    - Bucatino Restaurant (on Route 151 just east of Route 28A)

The corridor provides access to West Falmouth Village, Old Silver Beach, Chapoquoit Beach, and the Shining Sea Bikeway, making it an important link for residents, businesses, and recreational users. Traffic volumes vary seasonally, with increased congestion during the summer months due to tourism and beach activity. The surrounding land use is a mix of residential, commercial, and recreational spaces, contributing to diverse travel patterns along the roadway.

Other Corridor Roadways

In addition to serving as a key corridor for local and regional travel, Route 28A features several intersections with other notable roadways that influence traffic flow and connectivity within the Study Area. These locations vary in design and function, accommodating residential, commercial, and recreational traffic.

- Lake Drive (Bourne) is a two-lane, two-way roadway with no shoulders and sidewalks. It is functionally classified as an Urban Minor Arterial under local jurisdiction. It connects to the Otis Rotary (Route 28), which facilitates movement between Route 28A, Route 28, and nearby local roads. The rotary is a key node for regional traffic, providing access to Bourne, Falmouth, and the surrounding areas.

  The Lake Drive eastbound approach to the intersection with Route 28A is signalized, with a dedicated signal head governing movements from Lake Drive. It has a single general-purpose approach lane for all vehicles. There are no exclusive turn lanes or marked guidance, and the lane curves slightly into the intersection. Pavement markings are somewhat faded at the stop line. Signal heads are mounted on signal posts on both sides of the approach. On the eastbound departure lane entering the Otis Rotary, there is an advance roundabout warning sign with flashing yellow beacons and yield control present. The surrounding land use consists of residential properties and wooded areas. There are no visible commercial uses or pedestrian destinations directly adjacent to Lake Drive. No sidewalks, crosswalks, or dedicated bicycle facilities are present on the Lake Drive approach or at the intersection itself.

- Roberta Avenue (Bourne) is classified as a local road. Based on MassDOT's Road Inventory map, it is under MassDOT jurisdiction at the intersection with Route 28A, then is under local jurisdiction just east of Handy Road. This roadway primarily serves residential properties and connects the local neighborhood to the Route 28A corridor. The intersection experiences moderate traffic, primarily from residential commuters.

  The Roberta Avenue southbound approach to the intersection with Route 28A is signalized, with three dedicated post-mounted signal heads mounted on both sides of the approach governing movements from Roberta Avenue. It has a single general-purpose approach lane for all vehicles. There are faded pavement markings at the stop line. The surrounding land use consists of residential properties and wooded areas. There are no visible commercial uses or pedestrian destinations

directly adjacent to Roberta Avenue. No sidewalks, crosswalks, or dedicated bicycle facilities are present on the Roberta Avenue approach or at the intersection itself.

- Long Hill Road (Bourne) is classified as a Local Road under local jurisdiction. It intersects with Route 28A (Sandwich Road) at an unsignalized skewed four-leg intersection with stop control on both the eastern and western legs of Long Hill Road. The eastbound approach is curved, which may limit sight distance for vehicles turning onto Route 28A. The westbound approach is a dead-end segment that appears more linear and serves as access to several businesses, but lacks pavement markings, curbing, or sidewalks. There is a single general-purpose lane on both the eastbound and westbound approaches. No sidewalks, crosswalks, or dedicated bicycle facilities are present on the Long Hill Road approaches or at the intersection itself.

- County Road (Bourne) is a two-lane, two-way roadway with no sidewalks and limited shoulders. It is functionally classified as an Urban Minor Arterial under local jurisdiction. It intersects Route 28A (Sandwich Road) at a skewed unsignalized intersection in a mixed-use area that includes several commercial properties and access points. The County Road approach to the intersection is split for left and right turns around a large delta island, with Stop signs at each County Street approach and a flashing red beacon mounted on the triangular island to reinforce the stop condition. Vehicles entering County Road via left turns from Route 28A northbound or via right turns from Route 28A southbound are also accommodated on either side of the delta island. The surrounding land uses include restaurants, cafes, marine services, and residential areas. Several commercial driveways and parking lot access points are located in close proximity to the intersection. There are no sidewalks except for a small portion of the County Road to Route 28 SB approach, no crosswalks, or dedicated bicycle facilities on the County Road approaches or at the intersection itself.

- Nathan Ellis Highway (Route 151) (Falmouth) is classified as an Urban Minor Arterial under local jurisdiction east of Route 28A, while County Road (Falmouth) is classified as an Urban Collector under local jurisdiction west of Route 28A. Together, these roadways serve as a major east-west connector between Falmouth and Mashpee. At its intersection with Route 28A (North Falmouth Highway), Route 151 provides access to residential, commercial, and recreational areas. This signalized intersection experiences significant traffic volumes, particularly during peak travel times, and serves as a key regional connection.

  Nathan Ellis Highway (Route 151) and County Road intersect North Falmouth Highway (Route 28A) at a signalized four-way intersection in a mixed-use area with commercial buildings on three of the four corners. All approaches provide a single general-purpose lane, accommodating all vehicle movements, with post-mounted traffic signals provided for each approach. There is a sidewalk in the vicinity of the intersection along the westerly side of Route 28A; a striped crosswalk (without pedestrian signals) is provided along the County Road eastbound approach. No crosswalks are present across Route 28A at this location. There are no bicycle facilities present at either side street approach or at the intersection itself.

- Curley Boulevard (Falmouth) is classified as a Local Road under local jurisdiction that provides access to Old Silver Beach, a popular seasonal destination. The roadway primarily serves residential areas and connects to the Silver Beach Rotary, an elongated circular intersection on the Route 28A corridor that also includes Rockledge Drive to the east. Due to its proximity to Old Silver Beach, Curley Boulevard experiences fluctuating traffic volumes throughout the year, with significant increases during the summer months

  The rotary entrances from Route 28A and Curley Boulevard are yield-controlled at all approaches with a flashing yellow beacon and triangular median island to guide traffic. In contrast, the Rockledge Drive westbound approach intersects the Silver Beach Rotary as a "T"-intersection and does not have rotary geometry. It lacks a posted Stop or Yield sign. All approaches include a single general-purpose lane, narrow geometry, and signage (including chevrons and One-Way signs) to prevent wrong-way movements. There is sidewalk on only the southerly side of the Curley Boulevard approach; otherwise, there are no crosswalks or dedicated bicycle facilities present on the approach or at the intersection.

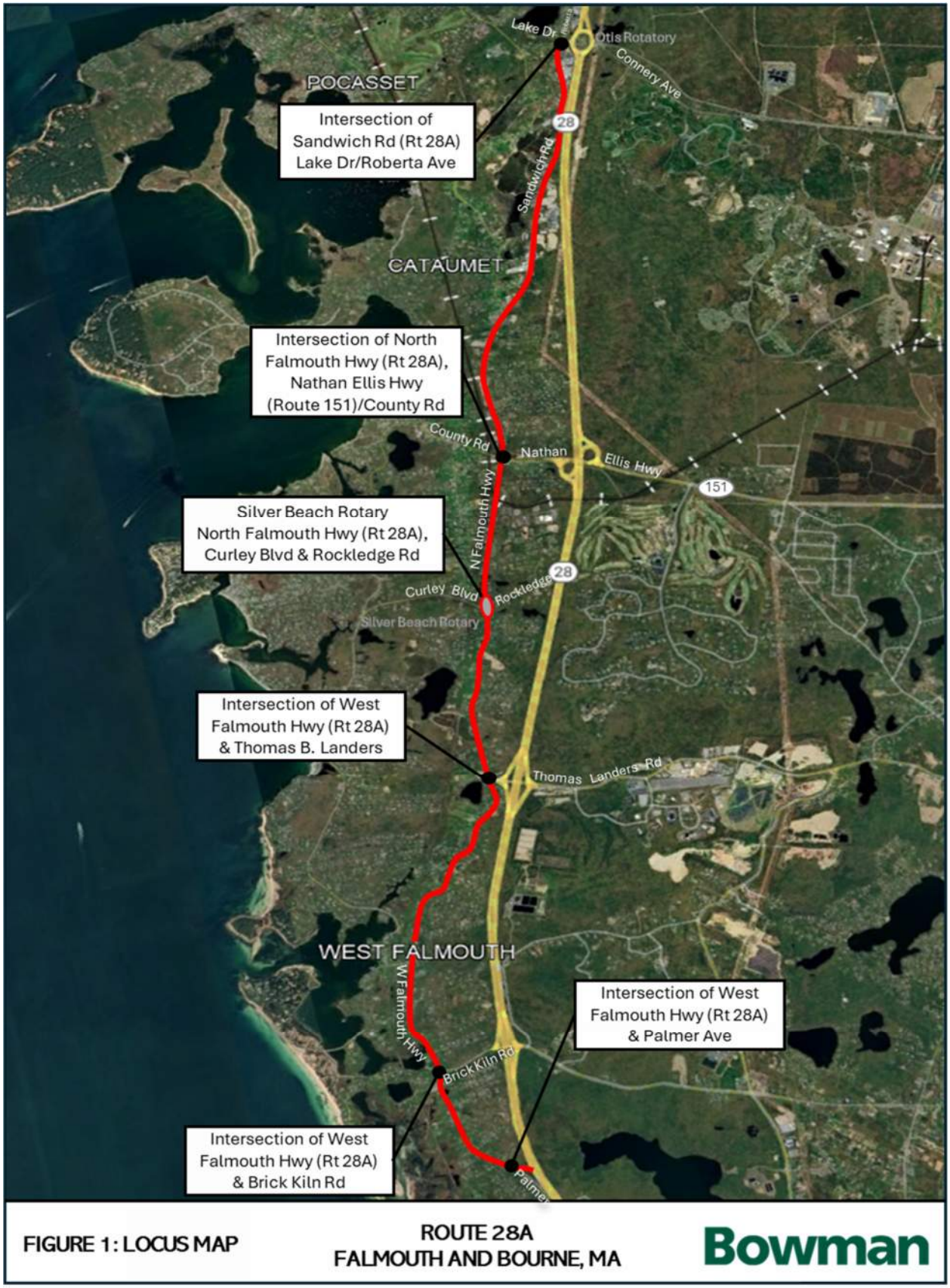
- Thomas B. Landers Road (Falmouth) is classified as an Urban Minor Arterial and is under MassDOT jurisdiction up to just east of the Route 28 interchange, where the roadway comes under local jurisdiction. It connects Route 28A with industrial areas to the east and provides direct access to Route 28 to the east. The roadway serves both residential and commercial traffic. The surrounding land uses include wooded and residential areas.

  The T-intersection is unsignalized with wide corner radii and operates with stop control on the Thomas B. Landers Road westbound approach, which features a single general-purpose lane bordered by a short median island that accommodates both left-turn and right-turn movements onto Route 28A. The eastern leg of the intersection features two separate departure lanes from Route 28A: a channelized lane for northbound traffic turning right and another for southbound traffic turning left onto Thomas B. Landers Road, separated by a triangular island. There are no sidewalks, crosswalks, or bicycle facilities present on Thomas B. Landers Road or at the intersection.

- Brick Kiln Road (Falmouth), east of Route 28A, is functionally classified as an Urban Minor Arterial under MassDOT jurisdiction until Fire Tower Road, east of which the roadway comes under local jurisdiction. Brick Kiln Road intersects Route 28A at an unsignalized T-intersection and provides a connection to East Falmouth. Although it functions as a T-intersection, there is a west leg that is a narrow, two-way, one-lane dead-end road that resembles a driveway. This west leg is also known as Little Neck Bars Road and is functionally classified as a local road under local jurisdiction.

  The intersection includes a wide eastbound approach from Brick Kiln Road with no dedicated turn lanes. Brick Kiln Road also provides access to and from Route 28 to the east via a partial diamond interchange; there is no direct access ramp from Brick Kiln Road to Route 28 southbound from this location. Adjacent land uses include residential neighborhoods, local businesses, and access to Falmouth High School. The intersection handles moderate traffic volumes, with a mix of local and regional traffic.

- Palmer Avenue (Falmouth) is functionally classified as an Urban Minor Arterial under local jurisdiction. It marks the endpoint of the Route 28A corridor (which connects to and from Route 28 southbound east of Palmer Avenue) and provides access to downtown Falmouth and nearby ferry terminals. Palmer Avenue is a two-lane road with a double-yellow centerline and no sidewalks. At the intersection with Route 28A, Palmer Avenue has a splitter island to divide traffic and the approach is stop controlled at the Palmer Avenue northbound approach. The intersection with Route 28A facilitates traffic movement between local and regional destinations, serving as a gateway to Falmouth's commercial and recreational areas.


Lake Dr
Otis Rotatory
Connery Ave
POCASSET
Intersection of Sandwich Rd (Rt 28A) Lake Dr/Roberta Ave
28
Sandwich Rd
CATAUMET
Intersection of North Falmouth Hwy (Rt 28A), Nathan Ellis Hwy (Route 151)/County Rd
County Rd
Nathan
Ellis Hwy
151
Silver Beach Rotary North Falmouth Hwy (Rt 28A), Curley Blvd & Rockledge Rd
N Falmouth Hwy
Curley Blvd
Rockledge
28
Silver Beach Rotary
Intersection of West Falmouth Hwy (Rt 28A) & Thomas B. Landers
Thomas Landers Rd
WEST FALMOUTH
W Falmouth Hwy
Intersection of West Falmouth Hwy (Rt 28A) & Palmer Ave
Brick Kiln Rd
Intersection of West Falmouth Hwy (Rt 28A) & Brick Kiln Rd
Palmer
FIGURE 1: LOCUS MAP
ROUTE 28A
FALMOUTH AND BOURNE, MA
Bowman

Crash Data

Crash data was compiled for the Study Area during the four-year period from 2018-2021. The source of the crash data was the Falmouth and Bourne Police Departments. Most reported crashes (54) occurred at intersections, with some crashes occurring along the corridor at driveways. A total of ninety-one (91) crashes were reported within the study area. Seventy-five (75) of those crashes were reported along the Route 28A corridor; of these, 45 crashes occurred in Falmouth while 30 crashes occurred in Bourne. Sixteen (16) crashes were reported at the Nathan Ellis Highway (Route 151)/County Road intersection in Falmouth.

Of the seventy-five (75) crashes reported along the Route 28A corridor, twenty-nine (37%) were angle crashes, twenty-four (32%) involved single vehicles, seventeen (23%) were rear-end collisions, three (5%) were head-on crashes, and two (3%) were sideswipe crashes. Fifty-eight crashes (74%) occurred during daylight, while ten (15%) occurred on dark roadways with lighting and six (10%) on dark unlit roadways. One crash occurred at dusk. Most crashes occurred under clear weather conditions (79%), followed by rainy (11%), cloudy (9%) and snowy (1%) weather. Four crashes (5%) involved vulnerable road users, including three involving bicyclists (Crashes #26, 42 & 47) and one involving a pedestrian (Crash #48). Of the reported crashes, forty-one (55%) involved property damage only, while thirty-two (43%) resulted in injuries and two had no known injury status reported. No fatalities were reported during the study period.

A review of the month-by-month crash data indicates a noticeable increase in crashes during the summer and early fall months, which aligns with seasonal traffic volumes and tourism activity in the area. Specifically, 54% of all crashes occurred between July and October, with each of these four months accounting for 13–15% of total crashes. This seasonal trend underscores the importance of evaluating traffic safety during peak demand periods. Additionally, a review of the time-of-day crash data indicates that crashes are more common during daylight hours, particularly in the afternoon peak periods.

Below are summaries of the crash patterns for the top five (5) locations along the Route 28A corridor (excluding the Route 151/ County Road intersection), based on the number of crashes reported:

- Route 28A Segments: Thirty-seven (37) crashes were reported along Route 28A (not at intersections). Of these, thirteen (13) were angle crashes, twelve (12) involved single vehicles, and ten (10) were rear-end collisions. Four (4) crashes involved vulnerable road users, three (3) bicyclists and one (1) pedestrian. The majority of crashes (25) occurred during daylight, while five (5) occurred on dark roadways with lighting and seven (7) on dark unlit roadways. Most crashes occurred under clear weather conditions (28 crashes), followed by rainy (7 crashes) and cloudy weather (2 crashes). Time-of-day data indicates crashes were fairly evenly distributed, with occurrences during both daytime and nighttime hours. Of the reported crashes, twenty-one (21) involved property damage only, while fifteen (15) resulted in injuries. No fatalities were reported.

- Lake Drive/Roberta Avenue: At the Lake Drive/Roberta Avenue intersection, eight (8) crashes were reported. Seven (7) were angle crashes, and one (1) involved a single vehicle departing the roadway. Five (5) crashes resulted in injuries, while the other three (3) involved property damage only. All crashes occurred during daylight, with seven (7) taking place on clear days and one (1) in

snowy conditions. Most crashes occurred between 10 AM and 3 PM, indicating heightened risk during midday hours.

- Brick Kiln Road: Four (4) crashes were reported at Brick Kiln Road, consisting of two (2) rear-end collisions, one (1) angle crash, and one (1) single-vehicle crash. Three (3) crashes occurred in daylight, and one (1) took place on a dark, lighted roadway. Three (3) crashes involved property damage only, and one (1) crash caused injuries.

- Heather Lane (near N. Falmouth Post Office Plaza): Heather Lane also experienced four (4) crashes, with two (2) rear-end collisions and two (2) single-vehicle crashes involving bicycles crossing Route 28A. All crashes occurred during daylight and clear, dry weather, with an even distribution of occurrences throughout the day. Two (2) crashes caused injuries, while the other two (2) resulted in property damage only.

- Thomas B. Landers Road: Thomas B. Landers Road experienced three (3) crashes, with two (2) angle crashes and one (1) rear-end collision. All crashes occurred during daylight and dry weather, with an even distribution of occurrences throughout the day. Two (2) crashes occurred during cloudy weather conditions, while one (1) crash occurred during clear weather conditions. All crashes resulted in property damage only.

Crash data at the Route 151 (Nathan Ellis Highway)/County Road intersection was separately tabulated and summarized, as a total of sixteen (16) crashes were reported at this location, the most of any single intersection within the corridor. Of these, eight (8) crashes (50%) were angle crashes, four (4) crashes (25%) were rear-end collisions, three (3) crashes (19%) involved a single vehicle, and one (1) crash (6%) was a sideswipe. Twelve (12) crashes (75%) occurred during daylight, while four (4) occurred on dark lighted roadways. Clear weather was a factor in twelve (12) crashes (75%), while rain and cloudy conditions contributed to the remaining incidents. Of these crashes, twelve (12) resulted in property damage only, and four (4) resulted in injuries.

Detailed crash diagrams are provided in Appendix C.

Audit Observations and Potential Safety Enhancements

During the RSA meeting prior to the field visit, a brief introduction of the RSA process and a summary of crash information was presented to the audit participants. Following this presentation, the members of the audit team were asked to discuss existing issues that may affect safety within the Study Area. The audit team then conducted a site visit of the Study Area. The weather at the time of the site visit was clear and dry, with an approximate temperature of 32 degrees. The audit team recognized that the observed vehicle, bicycle, and pedestrian volumes were likely much lower than in the peak summer months.

During the site visit, various safety concerns and deficiencies were observed and documented. Provided below is a list of the documented safety concerns and the potential enhancements that were identified during the RSA. Several of these concerns require additional evaluation and design work to further develop and determine the feasibility of the safety enhancements. The safety concerns for the intersction of Route 28A with Route 151 and County Road are listed separate from the corridor safety concerns.

Safety Issue #1: Roadway Visibility and Signage

Observations:

Visibility and sight distance deficiencies were identified as a recurring safety issue along the Route 28A corridor, contributing to driver uncertainty and increased crash risk. Intersection visibility concerns were noted at multiple locations, where obstructions such as vegetation, utility poles, and roadside grading affect driver's ability to see oncoming traffic. For example, limited visibility at the entrance to the Silver Beach Rotary from Rockledge Drive, due to vegetation and vertical curvature (grade), creates a challenging turning condition and may contribute to driver error.

Image 1: View from Rockledge Drive Looking West towards the Silver Beach Rotary with Limited Visibility (Google)

Visibility issues were also noted along curved segments of Route 28A in Falmouth, where limited sight distance and poor geometry contribute to driver uncertainty or unexpected conditions ahead. In some cases, such as near Althea Road, motorists were reported to not stop properly for school buses, suggesting a lack of awareness or insufficient warning signage.

Signage deficiencies along the Route 28A corridor were another critical issue raised during the discussion. Participants emphasized issues with proper placement, particularly for stop signs, no passing zone signs (see Safety Issue #3), and speed limit signs. Corridor-wide concerns included a lack of enhanced signage at key locations. Although black and white chevron R6-4 signs were installed at the Silver Beach Rotary during 2024 as part of a signing work order, participants still noted visibility and guidance issues at the rotary entrance. The audit team also noted that this location lacks intersection warning signage to alert drivers of the approaching traffic circle. Additionally, the audit team noted that a lack of curve warning signage along the corridor may contribute to driver unawareness and safety in areas with limited sight lines. Crash data supports this concern, with ten roadway departure crashes (Crashes #1, 20, 30, 39, 40, 41, 54, 62, 63, and 68) occurring at or near curves where drivers lost control and veered off the roadway. Many of these crashes involved collisions with utility poles, trees, embankments, or other fixed objects, often under poor weather or high-speed conditions.

Image 2: View from Rockledge Drive Looking Northwest at the Silver Beach Rotary with Limited Signage

Signage visibility and retroreflectivity, especially during nighttime and low-light conditions, was noted as a safety issue by audit participants. Adequate roadway lighting was also recognized as essential for safety and visibility. Along the Route 28A corridor, 21% of crashes occurred under non-daylight conditions, highlighting the importance of illumination for nighttime safety.

Physical obstructions such as overgrown vegetation, utility poles, roadside grading and approach angles were identified as key impediments to visibility at multiple locations along the corridor. The following locations were specifically cited by the audit team:

- Thomas Landers Road: Crash records indicate that the listed driver contributing circumstance for two of the three crashes at this location was "Visibility Obstructed," even though these crashes occurred during daylight hours (Crashes #6 and #31), suggesting that the roadway layout and the presence of vehicles can impede roadway visibility for turning maneuvers onto Route 28A.
- West Falmouth Square plaza (south of Brick Kiln Road): This location was noted to have sightline obstructions from vegetation on Route 28A and a parking layout placing vehicles close to the edge of the roadway.

Image 3: West Falmouth Square (Post Office): Vegetation Obstructing Sight Lines for Vehicles Exiting Parking Lot (Google)

Enhancements:

- Consider conducting a corridor-wide assessment of sight distance and obstructions by evaluating sight distance triangles at driveways and intersections to identify vegetation, utility poles, or other objects impacting visibility.
- Consider conducting a corridor-wide review of curve warning and intersection warning signage to identify areas where added signage can improve driver awareness and safety in areas with limited sight lines.
- Consider removing/mitigating obstructions to sight distance throughout the corridor.
- Consider implementing appropriate countermeasures to address sight distance deficiencies, such as clearing vegetation, relocating obstructions, or adjusting roadway features to improve sight lines.
- Consider enhancing and standardizing signage throughout the corridor by reviewing and updating stop signs, no-passing zone signs, speed limit signs, and other critical roadway markers to ensure they are visible, retroreflective, and properly placed.
- Consider installing flashing LED STOP signs and advanced warning signage, where appropriate, to provide increased conspicuity of signage to drivers.
- At the Silver Beach Rotary, consider replacing existing black and white chevron R6-4 signs with new One-Way (R6-1 or R6-2) signs and reflectors to improve driver awareness, and consider installing additional roundabout pavement markings (including yield lines). Ensure that all new and existing signage and markings meet current standards, particularly for nighttime and low-light conditions.
- Consider improving roadway lighting to enhance visibility and safety by identifying areas where additional lighting or upgrades to existing infrastructure are needed, with a specific focus on key intersections such as at Thomas Landers Road.
- Consider developing a proactive vegetation and obstruction management plan that includes regular assessment and maintenance of roadside areas to prevent visibility issues for drivers, pedestrians, and cyclists. This should address overgrown vegetation, encroaching landscaping, and sightline obstructions near intersections, curves, and driveways.
- Consider coordinating with utility companies and relevant authorities to evaluate the placement and maintenance of utility poles and other fixed infrastructure contributing to sight distance concerns.

Image 4: Thomas Landers Road/Route 28 intersection with no Roadway Lighting.

Safety Issue #2: Speeding

Observations:

The discussion during the meeting highlighted concerns regarding speed limits and transitions along the Route 28A corridor. Participants noted issues with the placement, frequency, and visibility of speed limit

signs, as well as whether the current speed limits align with land use and development patterns, particularly in more densely populated village center areas. It was also noted that drivers unfamiliar with the area may travel at higher speeds, which may be correlated to these issues.

While INRIX speed data (January–December 2024) provided by MassDOT does not indicate widespread excessive speeding, it reveals that a subset of drivers, particularly north of Route 151, exceed 45 mph during early morning hours. This suggests that speeding may be more of an isolated or off-peak issue rather than a corridor-wide pattern. However, participants emphasized that perceived speeding is often linked to roadway context, as speeds that may be statistically moderate can still feel unsafe when drivers enter areas with more pedestrian activity, driveways, or businesses.

In addition to concerns about excessive speed and visual context, crash data revealed a notable pattern of crashes along Route 28A that often involved vehicles slowing or stopping to execute either left or right turns at numerous unsignalized intersections or driveways, with trailing vehicles either failing to stop in time or attempting an evasive maneuver. The reported crash data included nine rear-end crashes (Crashes # 11, 16, 17, 19, 32, 44, 61, 65, and 72) and two additional crashes (Crashes # 18, 51) that exemplify this pattern. Many of these crashes included reported contributing factors such as “Inattention” and “Followed Too Closely”.

In particular, the segment near West Falmouth Square was identified as a concern. Participants noted that drivers entering this village area may not reduce their speed appropriately due to unclear transitions and lack of visual cues. The current location of the 35-mph speed limit signs was viewed as misaligned with the actual village context, contributing to inconsistent driver behavior and reduced compliance. Wide lanes, long uninterrupted segments, and a lack of gateway features may further contribute to driver overconfidence, reduced speed compliance and speed inconsistency.

Image 5: View from Route 28A Looking North towards Chapoquoit Road with 35-mph sign on the near right (Google)

Image 6: View from Route 28A Looking South at Chapoquoit Road with 40-mph sign on the far right (Google)

Enhancements:

- Consider reviewing and modifying speed regulations, especially in village center areas, to ensure they reflect surrounding land use and development, and consider conducting speed studies as needed to support any proposed changes.
- Evaluate relocating the start of the 35-mph speed zone north of Frazer Road to improve alignment with the village area and enhance driver compliance.
- Consider assessing and enhancing existing speed limit signage in key areas, such as Chapoquoit Road/West Falmouth Square and near the business district.
- Identify missing, damaged, or poorly placed speed limit signs and consider replacing or installing new speed limit signs where needed.
- Consider evaluating the potential use of gateway treatments at key transition points to alert drivers entering reduced speed zones.
- Ensure all speed limit signs are properly placed, visible, and retroreflective to maximize effectiveness, particularly for nighttime and low-light conditions.
- Evaluate narrowing lane widths where possible to slow vehicle speeds along the Route 28A corridor.
- Consider increasing speed awareness and compliance through enhanced enforcement, including police presence.
- Consider installing speed feedback signs, particularly in areas with recurring speed-related concerns, to increase driver awareness and encourage compliance with posted speed limits.
- Evaluate the feasibility of installing dedicated left-turn lanes, refuge areas, or advance warning signage at high-frequency driveway and unsignalized intersection locations along Route 28A. Improvements should focus on reducing rear-end crash risk associated with slowing or stopped vehicles making left turns.

Safety Issue #3: Passing Zones

Observations:

The discussion during the meeting also highlighted concerns related to the presence and placement of passing zones along the Route 28A corridor. Participants identified several locations where the existing passing zones were seen as potentially unnecessary or not aligned with the current driving conditions and road user needs. In particular, concerns were raised about several two-way passing zones, which can be more problematic due to the difficulty in judging gaps in oncoming traffic and the high-speed differential required to overtake another vehicle.

There were suggestions by some members of the audit team that some of the existing passing zones may not be warranted or could be adjusted. Several existing two-way passing zones along Route 28A were thought to not meet the standards established in recent MassDOT standard operating procedures and guidance.

In addition to the corridor-wide concerns, the participants highlighted a specific location of concern:

- West Falmouth Square and Blair Lane: The participants noted the presence of a passing zone in this area and suggested that this passing zone may not be necessary, posing safety concerns given the surrounding roadway context and turning movements.

Enhancements:

- Evaluate the need for passing zones throughout the entire Route 28A corridor, considering factors such as speed limit, sight distance, traffic patterns, and road user needs.
  - In the West Falmouth Square area, specifically review the passing zone near Blair Lane and consider removing it to enhance safety.
- Consider reviewing all no passing zone signage along the corridor and relocate or replace as needed to ensure that signage is visible, and placed accordingly to clearly communicate the restrictions to drivers.

Image 7: View from Route 28A Looking South towards Blair Lane with end of passing zone (Google)

Safety Issue #4: Vulnerable Road User Accommodations

Observations:

Image 8: Desire lines for pedestrian accommodation on Route 28A North

Pedestrian safety and accessibility were key concerns discussed during the meeting. Participants highlighted the lack of pedestrian infrastructure and connectivity along Route 28A, making it challenging for people walking to access surrounding areas. Corridor-wide concerns included the absence of crosswalks, inconsistent presence of sidewalks, guardrail encroaching on sidewalks, and limited connections to the nearby bike path. Audit participants noted that there are long stretches of Route 28A with no sidewalk available. In many areas where historic sidewalks exist, members of the audit team perceived a safety risk due to extreme disrepair. Where sidewalks are present, participants also noted a lack of ADA-compliant curb ramps. In addition, lack of pedestrian comfort was noted in areas where sidewalks were narrow and located close to the travel lane, particularly along the segment from County Road (Bourne) to Old Main Road.

Participants noted that pedestrian desire lines reflect where people are walking despite the absence of safe or designated paths. They also noted that both year-round and seasonal pedestrian movements differ significantly due to the substantial population increase during summer months (from approximately 35,000–40,000 to 120,000).

The Silver Beach Rotary, in particular, was noted to be lacking pedestrian accommodations. Audit participants noted pedestrian desire lines marked by visible worn paths through grass or unpaved areas, indicating pedestrian activity where no sidewalk exists. Participants also noted that there are currently no ways for pedestrians to cross the rotary, despite observed demand generated by nearby uses, including the North Falmouth Elementary School.

Bicycle safety and accommodation were also discussed during the meeting, as participants recognized the importance of providing safe and accessible facilities for cyclists along the Route 28A corridor. Based on the crash data provided to audit participants, four crashes along the corridor (Crashes #26, #42, #47, and #48) involved a bicycle; three of these crashes resulted in a personal injury and two of these crashes were reported at the same crosswalk on Route 28A, near Heather Lane. Participants highlighted deficiencies in bicycle infrastructure and connectivity throughout the corridor, particularly in relation to the Shining Sea Bikeway and the lack of consistent bike lanes or shared-use paths. They noted that the Shining Sea Bikeway currently terminates at County Road in Falmouth and does not continue north into Bourne, creating a limitation for cyclists traveling the full corridor.

Audit participants also noticed bike route signage is present on Route 28A near Palmer Avenue, which is placed just east of the intersection. This may be misleading, as it is meant to direct bicyclists down Palmer Avenue southbound, but is placed on Route 28A east of the Palmer Avenue intersection heading towards Route 28. Additionally, participants noted challenges for cyclists in accessing the Shining Sea Bikeway from surrounding areas and referenced concerns about gaps in first- and last-mile connectivity. The audit team also noted that the existence of numerous sloped drain covers is difficult for most bicyclists to navigate.

The two-way bike lane on Curley Boulevard, west of the Silver Beach Rotary, was also discussed. Participants noted that it does not directly connect to the Silver Beach Rotary, resulting in a lack of bicycle accommodations at the rotary and a break in continuity for cyclists.

The discussion also touched on the existing transit service and accommodations along the Route 28A corridor and noted challenges related to safety and accessibility for transit users. They highlighted the lack of well-marked bus stops along the corridor, particularly for the existing "Bourne Run" transit route that runs from Mashpee to Bourne. It was also noted that the signalized intersection of Route 28A at Route 151 has a bus stop but lacks a designated waiting area for passengers. In addition, several commercial centers of activity, such as the Daily Brew in Bourne, were identified by audit participants as key destinations where pedestrian access to nearby bus stops appeared limited or unclear.

Enhancements:

- Consider a corridor-wide study to identify pedestrian desire lines and high-demand crossing locations along Route 28A.
- Consider prioritizing and installing new crosswalks and sidewalks at locations identified in the study to improve pedestrian connectivity and safety.
- Consider installing a marked crosswalk at Sanderling Drive in Bourne, where the Town has specifically requested improved pedestrian accommodations.
- Consider evaluating existing pedestrian crossings along the corridor to identify locations where enhanced signage (including advance warning signs), markings, or visibility improvements may be warranted.
- Evaluate the feasibility of extending the sidewalk network, particularly to provide connections to the Shining Sea Bikeway. Ensure all new or upgraded pedestrian infrastructure, including sidewalks and crosswalks, complies with Americans with Disabilities Act (ADA) standards.
- At the Silver Beach Rotary, consider measures to improve pedestrian safety and accessibility, such as installing crosswalk markings and pedestrian signage.
- Consider opportunities to improve bike ridership within the rotary by reviewing lane configurations, signage, and potential conflict points.
- Evaluate the feasibility of implementing shared-use paths or buffered bicycle lanes along Route 28A to provide dedicated and protected facilities for cyclists. Alternative low-impact solutions should be explored to enhance cyclist safety where full separation is not feasible.
- Along the west and east side of the West Falmouth Highway section of Route 28A, evaluate the condition of the existing sidewalk structure to determine whether the sidewalk needs to be repaired or replaced.

- Assess connections between the corridor and the Shining Sea Bikeway and consider opportunities to improve accessibility and safety for bicyclists.
- Consider adding or improving the presence and visibility of "Safe Bicycle Passing" signs along the corridor to raise driver awareness and promote safe interactions between motorists and cyclists.
- Consider enhancing bicycle-related signage to raise driver awareness and clearly communicate expectations for sharing the road.
- Evaluate the feasibility of installing well-marked bus stop signs or shelters at key transit locations along the corridor to improve visibility and accessibility for transit users.
- Coordinate with CCRTA to ensure that the bus stop locations and amenities are optimally placed and designed to meet the needs of the local community, including both year-round and seasonal riders.
- Consider exploring opportunities to improve the first and last mile connections between the transit stops and the surrounding pedestrian and bicycle networks to enhance multimodal accessibility.

Image 9: Looking South on Route 28A near Scraggy Neck Road.

- Consider evaluating the condition of the existing sidewalks and determine whether they can be repaired/restored to a safe condition or whether they require significant upgrades.
- Consider developing a proactive vegetation and obstruction management plan that includes regular assessment and maintenance and repair of sidewalks to ensure they provide a safe walking surface.

Safety Issue #5: Drainage Issues

Observations:

Drainage-related concerns were also discussed during the meeting. Participants highlighted a few specific drainage-related issues along the corridor. There were discussions about ongoing drainage issues related to developments east of Route 28A, where the stormwater was running past the completed buildings due to the delayed application of the topcoat of asphalt. Proposed new development introduces new stormwater surface runoff, causing ponding in the roadway. Participants noted that the engineering design issues with the roadway drainage system, including elevated water connections and silt buildup, were contributing to the ongoing drainage problems along the corridor. The Thomas B. Landers intersection was one specific location audit participants noted was susceptible to these issues, although no crashes were identified in the review period at this location that could be linked to poor drainage or water runoff.

Although participants did not directly link the drainage issues to specific safety problems, the crash data indicates that 11 crashes occurred on wet or icy road surfaces (Crashes #1, #33, #35, #36, #37, #38, #39, #40, #53, #54, and #79). Several potential safety implications can be traced to roadway drainage issues,

including water pooling on the roadway potentially causing hydroplaning, silt buildup reducing road traction, improper drainage leading to surface degradation, and water runoff contributing to icy conditions during winter months.

Enhancements:

- Consider coordinating with state and local agencies to ensure that the engineering design and implementation of the drainage system along the corridor are properly addressed and functioning as intended.
- Consider identifying any interim or temporary countermeasures that can be implemented to mitigate existing drainage issues, such as clearing debris or adjusting water connections.
- Consider conducting more frequent maintenance of existing catch basins.
- Consider conducting a comprehensive review of the drainage infrastructure and design along the entire corridor to identify any other problem areas and develop appropriate solutions.
- Consider improving drainage and roadway maintenance at locations where water runoff creates hazards, such as Thomas B. Landers Road.

Safety Issue #6: Roadway Design and Geometry

Observations:

Participants raised concerns about the design and geometry of intersections along the Route 28A corridor. Wide turning radii and high-speed approaches at specific locations such as Silver Beach Rotary and Brick Kiln Road contribute to unsafe driving behaviors and increased crash risks.

General concerns were noted regarding intersection design and geometry throughout the corridor. Participants emphasized that wide turning radii and high-speed approaches at some intersections encourage drivers to maintain high speeds even while turning, creating significant safety risks.

Image 10: Silver Beach Rotary looking at the North Falmouth Hwy South rotary exit with guardrail on the right side.

Specific intersection concerns along the corridor (excluding the Route 151/County Road intersection) included:

- Lake Drive/Roberta Avenue/Sandwich Road: Lack of turn lanes, fast right-turn speeds, signal visibility issues and sightline obstructions were cited by audit participants as concerns. Vehicles on Sandwich Road (from Otis Rotary), turning left onto Route 28A have limited visibility and fail to yield to oncoming through vehicles on Lake Drive which may have contributed to six angle crashes (#7, 8, 14, 22, 43, 58). The intersection geometry, including the uphill grade when heading north on Lake Drive, may further limit visibility. Additionally, the lack of a center median at the Otis

Rotary may reduce opportunities to calm traffic entering or exiting the intersection. This may be further impacted by the existing channelized right-turn lane layout, which could encourage higher turning speeds.

- County Road/Sandwich Road: The audit team cited inadequate signage, lack of lighting, and fast left and right turn speeds facilitated by the design of the intersection that contribute to safety concerns. The excessive number of adjacent driveways and curb cuts near the intersection creates additional conflict points for vehicles turning out of County Road onto Route 28A southbound. Eight crashes occurred at or near this intersection (Crashes #11, #28. #29, #37, #42, #45, #46, and #55) that are attribuatble to these issues; all but three of them resulted in personal injury. Audit participants specifically noted that the skewed intersection geometry and multiple turning options contribute to poor driver decision-making and visibility, making the intersection feel uncontrolled and chaotic, especially during peak traffic conditions.
- Old Main Road/Perry Road: At this location, audit participants noted skewed intersection geometry with steep approaches, limited visibility, and a layout that includes a two-way auxiliary turn lane (for vehicles making left turns onto Old Main Road or right turns from Old Main Road) that resembles a driveway, making it difficult for drivers to ascertain vehicles accessing this lane. Two crashes occurred at or near this intersection (Crashes #21 and #61) that are attribuatble to these issues.
- Silver Beach Rotary/Rockledge Drive (Silver Beach Rotary): Frequent wrong-way traffic and poor signage were cited as concerns by the audit team. The existing island configuration impairs turn guidance and visibility, particularly for eastbound drivers on Curley Boulevard. Due to the configuration and expansive pavement width, drivers have difficulty determining who has the right of way at this location. One notable incident occurred during the field audit at this location where a vehicle driving east on Curley Boulevard mistakenly turned left into the rotary, traveling the wrong way. Additionally, the speed differential between vehicles traveling north and south on Route 28A and vehicles executing turning movements can create conflicts.
- Thomas B. Landers Road: Drivers exiting the highway tend to maintain highway speeds as they transition onto Route 28A, particularly when turning right toward North Falmouth Highway, creating a safety concern. The audit team also noted that the pole-mounted flashing beacon mounted on the splitter island at the Thomas B. Landers Road approach has not been successful in slowing vehicles down, possibly due to its location not being conspicuous to approaching drivers.
- Brick Kiln Road: Wide right turns, despite restriping for traffic calming, continue to encourage high-speed movements. The intersection with Route 28A features a downhill approach with a curve that limits sight distance, a pole-mounted flashing beacon on the splitter island at the Brick Kiln Road approach (similarly configured to that at Thomas B. Landers Road), and a wide configuration with only the narrow splitter island separating access and egress lanes. While four crashes were recorded at this intersection during the study period (Crashes #13, #27, #33, and #64), audit participants noted that multiple crashes have occurred at this location, some of which may not be reflected in the statewide crash database. Audit participants also highlighted the lack of access to Route 28 southbound from this location as an impediment to emergency vehicle response for this section of Falmouth.
- Palmer Avenue: Although this location (approximately 200 feet west of the Route 28 southbound off-/on-ramps) is controlled by a stop sign and a pole-mounted flashing beacon on the splitter island at the Palmer Avenue approach, participants raised concerns about driver behavior and the effectiveness of existing traffic controls, leading to high-speed vehicle movements, particularly from vehicles exiting Route 28 southbound directly onto West Falmouth Highway. They noted that the location's proximity to Route 28 limits driver reaction time and increases the risk of conflicts. In addition, similar to the Otis Rotary location, the lack of physical separation between Route 28

southbound off- and on-ramp movements and the speed of those movements increases crash risks; Multiple near-misses were noted by the audit team between vehicles exiting Palmer Avenue and those coming from the Route 28 southbound off-ramp. Two crashes were recorded at this intersection; one was an angle crash (Crash #56) and one was a rear-end crash (Crash #17). Both crashes involved vehicles coming from the Route 28 southbound exit-ramp, occurred during non-daylight hours, and resulted in personal injury.

Concerns were also raised about the condition and placement of crash barriers and guardrails along the Route 28A corridor. At Silver Beach Rotary, the southbound crash barrier or guardrail was noted as non-compliant with current safety standards due to low height, lack of reflective elements, absence of modern end treatments, and visibility obstruction from overgrown vegetation. Another key issue raised was the significant seasonal increase in traffic, particularly during the summer months, impacting roadway operations and safety.

Enhancements:

- Consider evaluating and improving intersection designs along the corridor by assessing turning radii and approach angles and identifying opportunities to realign intersections to create safer 90-degree angles.
- Consider implementing vehicle calming measures to slow turning vehicles through geometric modifications such as tighter curb radii, raised medians, and other design improvements at major intersections, major neighborhood entrances, and key driveways to reduce crash risks. The design improvements should take into consideration unique seasonal factors such as travelers who are not familiar with the roads and traffic flow, increased bicycle activity, and unescorted children included in the pedestrian volumes.
- At the Silver Beach Rotary (Curley Boulevard entrance), evaluate the potential for extending the island to improve driver guidance and visibility.
- At the Silver Beach Rotary, consider additional roundabout-style pavement markings (including yield lines and lane assignment markings) and enhanced warning and regulatory signage (such as flashing Yield signs at entrances and advance warning signs) to clarify movements for drivers.
- At the County Road/Sandwich Road intersection, consider evaluating the potential for redesign as a roundabout or T-intersection to improve safety and traffic flow.

- At the Lake Drive/Roberta Avenue intersection, consider the feasibility of alternative intersection controls through the Intersection Control Evaluation (ICE) process.
- At the Lake Drive/Roberta Avenue intersection, consider installing an exclusive left turn lane coming from the Otis Rotary as a short-term measure to address safety concerns involving vehicles turning onto Route 28A southbound.
- Consider assessing the need for a median installation between Route 28 and Route 28A, particularly near the Otis Rotary and Palmer Avenue, to enhance traffic control and roadway safety.
- Consider conducting a corridor-wide evaluation of crash barriers and guardrails to assess condition, placement, and compliance with safety standards, prioritizing repairs, replacements, or relocations as needed, including upgrades at Silver Beach Rotary.
- Consider conducting a feasibility study for a southbound on-ramp from Brick Kiln Road to Route 28 at the underpass location.

Image 11: View from Route 28A Onramp to Route 28 SB Looking West at the Lake Drive / Roberta Avenue / Sandwich Road Intersection with no median barrier (Google)

Safety Issue #7: Route 28A and Route 151

Observations:

The intersection of Route 28A and Route 151 (Nathan Ellis Highway/County Road) was identified as a key area of concern due to multiple safety and operational issues. Crash data supports these concerns, with sixteen (16) reported crashes at this location, the highest of any intersection in the corridor, including a high percentage (50%) of angle crashes, which are often associated with turning conflicts. Existing signals at this intersection are post-mounted, making them harder to distinguish as drivers approach the intersection; Crashes #2, #3, #4, #8, #12, and #14 (Diagram A) can be partially attributed to signal visibility issues. In addition, each roadway approach widens approaching the intersection, creating a wide expanse of pavement within the intersection that encourages passing vehicles attempting to turn within the intersection (Crash #7 – Diagram A) and red light running (Crashes #4 and #12 – Diagram A).

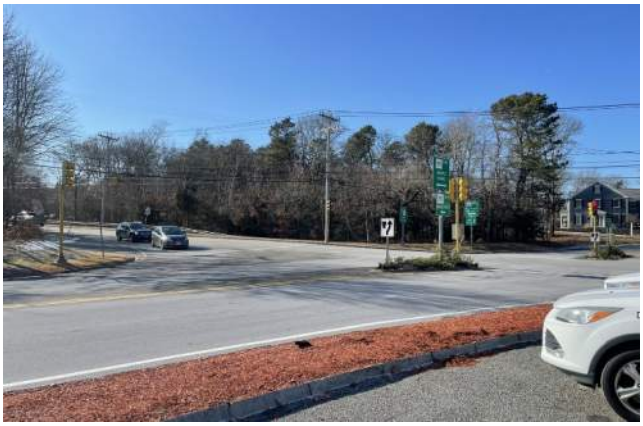


Image 12: View from Silver Beach Pizza & Seafood to Route 151 / North Falmouth Highway intersection with poor layout

There are no dedicated left-turn lanes at this location, and local audit participants emphasized the difficulty of executing a southbound left turn onto Route 151 due to limited gaps in traffic and challenges judging

oncoming vehicle speeds. Three crashes reported at this location (Crashes #1, #5, and #13 – Diagram A) involved a southbound vehicle attempting a left turn onto Route 151. The offset left-turn paths create a hazardous and confusing situation where northbound and southbound vehicle movements overlap.

Some audit participants noted concerns with the proximity of driveways to the intersection, particularly on the eastern side of Route 28A (including on Nathan Ellis Highway). Beaman Lane, a public way (similar to a driveway) enters the intersection uncontrolled at the southeast corner of the intersection, and was also cited as a safety concern due to the lack of traffic control and the potential for unexpected vehicle movements. Participants also noted the number of driveways near the intersection as a potential access management issue, increasing the complexity of turning movements and potential conflict points. Concerns were also raised about inadequate lighting and signage, reducing visibility and driver awareness, particularly in low-light conditions.

Participants noted the lack of bicycle amenities, crosswalks and pedestrian signals, which pose significant risks for vulnerable road users. Despite the lack of crashes involving pedestrians or bicyclists at this location during the crash data review period, the absence of crosswalks or pedestrian signals makes it difficult or impossible for pedestrians to cross the intersection safely. The lack of bicycle amenities was also noteworthy to the audit team given the intersection's proximity to the northern end of the Shining Sea Bikeway. Although the intersection is served by CCRTA's "Bourne Run" transit route, amenities to ensure the safety and accessibility of transit users are lacking at this intersection.

Enhancements:

- Evaluate the feasibility of upgrading signal equipment by installing mast arms to mount overhead signals and adding retroreflective backplates to improve visibility and driver awareness.
- Review and adjust vehicle signal phasing and clearance intervals to reduce turning conflicts and improve overall traffic operations.
- Consider revisiting the previously proposed roundabout design for this location (MassDOT Project #607444) as a potential alternative to a traditional signalized intersection, considering its potential to improve safety, reduce conflict points, and accommodate various user types.
- Consider installing marked crosswalks with ADA-compliant curb ramps and pedestrian signals with dedicated pedestrian phasing as part of an intersection redesign to enhance safety and connectivity for pedestrians.
- Consider improved regulatory and warning signage to increase awareness of traffic signals at the intersection.
- Consider assessing and implement lighting enhancements to improve nighttime visibility for all road users.
- Consider geometric modifications, such as dedicated turn lanes, adjusted lane alignments, and realigning approaches to reduce operational conflicts, to improve traffic flow and reduce conflicts.
- Consider enhancing transit accommodations by ensuring transit stops and/or bus shelters are well-marked, accessible, and safely positioned within the intersection layout.
- Consider identifying and addressing access management issues, including evaluating the number and proximity of driveways near the intersection (including Beaman Lane), to reduce conflict points.

Recommendations

After the site visit, audit participants returned to discuss the safety issues and consider various improvements. The audit participants were encouraged to consider improvements of various time horizons for each existing safety issue. Each improvement considered is categorized as short-term, mid-term, or long-term based on the definitions shown in Table 2. Additionally, a cost category is assigned to each improvement based on the parameters set forth in Table 2. It should be noted that the anticipated time frames associated with potential safety enhancements are based on the expected time it would take to implement the enhancement, once funded. The actual dates are dependent on available funding and projects.

Table 2: Estimated Time Frame and Costs Breakdown

Time Frame		Costs	
Short-Term	<1 Year	Low	<$10,000
Mid-Term	1-3 Years	Medium	$10,001-$50,000
Long-Term	>3 Years	High	>$50,000

Summary of Road Safety Audit

A summary of the potential recommendations discussed by the RSA team are summarized in Table 3. The recommendations are summarized based on the potential safety payoff, timeframe, approximate cost, and roadway jurisdiction. The safety payoff is a subjective judgment of the potential effectiveness of the safety recommendations listed below.

Table 3: Potential Safety Enhancement Summary

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Roadway Visibility and Signage	Consider conducting a corridor-wide assessment of sight distance and obstructions by evaluating sight distance triangles at driveways and intersections to identify vegetation, utility poles, or other objects impacting visibility.	Medium	Short-Term	Medium	MassDOT
Roadway Visibility and Signage	Consider conducting a corridor-wide review of curve warning and intersection warning signage to identify areas where added signage can improve driver awareness and safety in areas with limited sight lines.	Medium	Short-Term	Low	MassDOT
Roadway Visibility and Signage	Consider removing/mitigating obstructions to sight distance throughout the corridor.	High	Mid-Term	Medium/ High	MassDOT
Roadway Visibility and Signage	Consider implementing appropriate countermeasures to address sight distance deficiencies, such as clearing vegetation, relocating obstructions, or adjusting roadway features to improve sight lines.	High	Mid-Term	High	MassDOT/ Town of Falmouth/ Town of Bourne
Roadway Visibility and Signage	Consider enhancing and standardizing signage throughout the corridor by reviewing and updating stop signs, no-passing zone signs, speed limit signs, and other critical roadway markers to ensure they are visible, retroreflective, and properly placed.	Medium	Short-Term	Low	MassDOT/ Town of Falmouth/ Town of Bourne

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Roadway Visibility and Signage	Consider installing flashing LED STOP signs and advanced warning signage, where appropriate, to provide increased conspicuity of signage to drivers.	Medium	Short-Term	Low	MassDOT
Roadway Visibility and Signage	At the Silver Beach Rotary, consider replacing existing black and white chevron R6-4 signs with new One-Way (R6-1 or R6-2) signs and reflectors to improve driver awareness, and consider installing additional roundabout pavement markings (including yield lines). Ensure that all new and existing signage and markings meet current standards, particularly for nighttime and low-light conditions.	Medium	Short-Term	Low	MassDOT
Roadway Visibility and Signage	Consider improving roadway lighting to enhance visibility and safety by identifying areas where additional lighting or upgrades to existing infrastructure are needed, with a specific focus on key intersections such as at Thomas Landers Road.	High	Mid-Term	High	MassDOT/ Town of Falmouth/ Town of Bourne

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Roadway Visibility and Signage	Consider developing a proactive vegetation and obstruction management plan that includes regular assessment and maintenance to prevent visibility issues for drivers, pedestrians, and cyclists. This should address overgrown vegetation, encroaching landscaping, and sightline obstructions near intersections, curves, and driveways.	Medium	Short-Term	Low	MassDOT/ Town of Falmouth/ Town of Bourne
Roadway Visibility and Signage	Consider coordinating with utility companies and relevant authorities to evaluate the placement and maintenance of utility poles and other fixed infrastructure contributing to sight distance concerns.	Medium	Mid/Long-Term	High	MassDOT/ Town of Falmouth/ Town of Bourne/ Utility Companies
Speeding	Consider reviewing and modifying speed regulations, especially in village center areas, to ensure they reflect surrounding land use and development, and consider conducting speed studies as needed to support any proposed changes.	Medium	Mid-Term	Low	MassDOT
Speeding	Evaluate relocating the start of the 35-mph speed zone north of Frazer Road to improve alignment with the village area and enhance driver compliance.	Low	Mid-Term	Low	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Speeding	Consider assessing and enhancing existing speed limit signage in key areas, such as Chapoquoit Road/West Falmouth Square and near the business district.	Medium	Short-Term	Low	MassDOT
Speeding	Identify missing, damaged, or poorly placed speed limit signs and consider replacing or installing new speed limit signs where needed.	Low	Short-Term	Low	MassDOT
Speeding	Consider evaluating the potential use of gateway treatments at key transition points to alert drivers entering reduced speed zones	Medium	Mid-Term	Low/Medium	MassDOT
Speeding	Ensure all speed limit signs are properly placed, visible, and retroreflective to maximize effectiveness, particularly for nighttime and low-light conditions.	Low	Short/Mid-Term	Low	MassDOT
Speeding	Evaluate narrowing lane widths where possible to slow vehicle speeds along the Route 28A corridor.	Medium	Short/Mid-Term	Low	MassDOT
Speeding	Consider increasing speed awareness and compliance through enhanced enforcement, including police presence.	Medium	Short/Mid-Term	Medium/ High	MassDOT/ Town of Falmouth/ Town of Bourne
Speeding	Consider installing speed feedback signs, particularly in areas with recurring speed-related concerns, to increase driver awareness and encourage compliance with posted speed limits.	Medium	Short-Term	Low	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Speeding	Evaluate the feasibility of installing dedicated left-turn lanes, refuge areas, or advance warning signage at high-frequency driveway and unsignalized intersection locations along Route 28A. Improvements should focus on reducing rear-end crash risk associated with slowing or stopped vehicles making left turns.	High	Mid-Term	Medium/ High	MassDOT
Passing Zones	Evaluate the need for passing zones throughout the entire Route 28A corridor, considering factors such as speed limit, sight distance, traffic patterns, and road user needs.	Medium	Mid-Term	Low	MassDOT
Passing Zones	In the West Falmouth Square area, specifically review the passing zone near Blair Lane and consider removing it to enhance safety.	Medium	Short-Term	Low	MassDOT
Passing Zones	Consider reviewing all no passing zone signage along the corridor and relocate or replace as needed to ensure that signage is visible, and placed accordingly to clearly communicate the restrictions to drivers.	Medium	Short-Term	Low	MassDOT
Vulnerable Road User Accommodations	Conduct a corridor-wide study to identify pedestrian desire lines and high-demand crossing locations along Route 28A.	High	Short-Term	Medium	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Vulnerable Road User Accommodations	Consider prioritizing and installing new crosswalks and sidewalks at locations identified in the study to improve pedestrian connectivity and safety.	High	Mid-Term	High	MassDOT
Vulnerable Road User Accommodations	Consider installing a marked crosswalk at Sanderling Drive in Bourne, where the Town has specifically requested improved pedestrian accommodations.	High	Short-Term	Medium	MassDOT
Vulnerable Road User Accommodations	Consider evaluating existing pedestrian crossings along the corridor to identify locations where enhanced signage (including advance warning signs), markings, or visibility improvements may be warranted.	High	Short-Term	Medium	MassDOT/ Town of Falmouth/ Town of Bourne
Vulnerable Road User Accommodations	Evaluate the feasibility of extending the sidewalk network, particularly to provide connections to the Shining Sea Bikeway. Ensure all new or upgraded pedestrian infrastructure, including sidewalks and crosswalks, complies with Americans with Disabilities Act (ADA) standards.	High	Long-Term	High	MassDOT
Vulnerable Road User Accommodations	At the Silver Beach Rotary, consider measures to improve pedestrian safety and accessibility, such as installing crosswalk markings and pedestrian signage.	High	Mid-Term	Medium	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Vulnerable Road User Accommodations	Consider opportunities to improve bike ridership within the rotary by evaluating lane configurations, signage, and potential conflict points.	High	Long-Term	High	MassDOT
Vulnerable Road User Accommodations	Evaluate the feasibility of implementing shared-use paths or buffered bicycle lanes along Route 28A to provide dedicated and protected facilities for cyclists. Alternative low-impact solutions should be explored to enhance cyclist safety where full separation is not feasible.	High	Long-Term	High	MassDOT
Vulnerable Road User Accommodations	Along the west and east side of the West Falmouth Highway section of Route 28A, evaluate the condition of the existing sidewalk structure to determine whether the sidewalk needs to be repaired or replaced.	Medium	Mid/Long-Term	Medium/ High	MassDOT
Vulnerable Road User Accommodations	Assess connections between the corridor and the Shining Sea Bikeway and consider opportunities to improve accessibility and safety for bicyclists.	Medium	Long-Term	Medium	MassDOT/ Town of Falmouth/ Town of Bourne
Vulnerable Road User Accommodations	Consider additing or improving the presence and visibility of "Safe Bicycle Passing" signs along the corridor to raise driver awareness and promote safe interactions between motorists and cyclists.	Low	Short-Term	Low	MassDOT/ Town of Falmouth/ Town of Bourne

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Vulnerable Road User Accommodations	Consider enhancing bicycle-related signage to raise driver awareness and clearly communicate expectations for sharing the road.	Low	Short -Term	Low	MassDOT
Vulnerable Road User Accommodations	Evaluate the feasibility of installing well-marked bus stop signs or shelters at key transit locations along the corridor to improve visibility and accessibility for transit users.	Low	Mid-Term	High	MassDOT/CCRTA
Vulnerable Road User Accommodations	Coordinate with CCRTA to ensure that the bus stop locations and amenities are appropriately placed and designed to meet the needs of the local community, including both year-round and seasonal riders.	Medium	Short-Term	Medium	MassDOT/CCRTA
Vulnerable Road User Accommodations	Consider exploring opportunities to improve the first and last mile connections between transit stops and the surrounding pedestrian and bicycle networks to enhance multimodal accessibility.	High	Long-Term	High	MassDOT/ Town of Falmouth/ Town of Bourne
Vulnerable Road User Accommodations	Consider evaluating the condition of the existing sidewalks and determine whether they can be repaired/restored to a safe condition or whether they require significant upgrades	Medium	Mid/Long-Term	Medium/ High	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Vulnerable Road User Accommodations	Consider developing a proactive vegetation and obstruction management plan that includes regular assessment and maintenance and repair of sidewalks to ensure they provide a safe walking surface.	Low	Mid-Term	Medium	MassDOT
Drainage Issues	Consider coordinating with state and local agencies to ensure that the engineering design and implementation of the drainage system along the corridor are properly addressed and functioning as intended.	Low	Short-Term	Medium	MassDOT/ Town of Falmouth/ Town of Bourne
Drainage Issues	Consider identifying any interim or temporary countermeasures that can be implemented to mitigate existing drainage issues, such as clearing debris or adjusting water connections.	Low	Short-Term	Low	MassDOT
Drainage Issues	Conduct more frequent maintenance of existing catch basins	Low	Mid-Term	Low	MassDOT
Drainage Issues	Conduct a comprehensive review of the drainage infrastructure and design along the entire corridor to identify problem areas and develop appropriate solutions.	Low	Mid/Long-Term	Medium	MassDOT
Drainage Issues	Consider improving drainage and roadway maintenance at locations where water runoff creates hazards, such as Thomas B. Landers Road	Low	Mid-Term	High	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Roadway Design and Geometry	Consider evaluating and improving intersection designs along the corridor by assessing turning radii and approach angles and identifying opportunities to realign intersections to create safer 90-degree angles.	High	Long-Term	High	MassDOT
Roadway Design and Geometry	Consider implementing traffic-calming measures to slow turning vehicles through geometric modifications such as tighter curb radii, raised medians, and other design improvements to reduce crash risks. The design improvements should take into consideration unique seasonal factors such as travelers who are not familiar with the roads and traffic flow, increased bicycle activity, and unescorted children included in the pedestrian volumes.	High	Mid-Term	High	MassDOT
Roadway Design and Geometry	At the Silver Beach Rotary (Curley Boulevard entrance), evaluate the potential for extending the island to improve driver guidance and visibility.	High	Mid-Term	Medium	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Roadway Design and Geometry	At the Silver Beach Rotary, consider additional roundabout-style pavement markings (including yield lines and lane assignment markings) and enhanced warning and regulatory signage (such as flashing Yield signs at entrances and advance warning signs) to clarify movements for drivers.	High	Short-Term	Low/ Medium	MassDOT
Roadway Design and Geometry	At the County Road/Sandwich Road intersection, evaluate the potential for redesign as a roundabout or T-intersection to improve safety and traffic flow.	High	Long-Term	High	MassDOT
Roadway Design and Geometry	At the Lake Drive/Roberta Avenue intersection, consider the feasibility of alternative intersection controls through the ICE process.	High	Mid-Term	High	MassDOT
Roadway Design and Geometry	At the Lake Drive/Roberta Avenue intersection, consider installing an exclusive left turn lane coming from the Otis Rotary to address safety concerns involving vehicles turning onto Route 28A southbound.	Medium	Short/Mid-Term	High	MassDOT
Roadway Design and Geometry	Consider assessing the need for a median installation between Route 28 and Route 28A, particularly near the Otis Rotary and Palmer Avenue, to enhance traffic control and roadway safety.	Medium	Short-Term	Low	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Roadway Design and Geometry	Consider conducting a corridor-wide evaluation of crash barriers and guardrails to assess condition, placement, and compliance with safety standards, prioritizing repairs, replacements, or relocations as needed, including upgrades at Silver Beach Rotary.	High	Mid-Term	High	MassDOT
Roadway Design and Geometry	Consider conducting a feasibility study for a southbound on-ramp from Brick Kiln Road to Route 28 at the underpass location.	Medium	Mid-Term	Medium	MassDOT
Route 28A and Route 151	Evaluate the feasibility of upgrading signal equipment by installing mast arms to mount overhead signals and adding retroreflective backplates to improve visibility and driver awareness.	High	Long-Term	High	MassDOT
Route 28A and Route 151	Review and adjust vehicle signal phasing and clearance intervals to reduce turning conflicts and overall traffic operations.	High	Short-Term	Low	MassDOT
Route 28A and Route 151	Consider revisiting the previously proposed roundabout design for this location (MassDOT Project #607444) as a potential alternative to a traditional signalized intersection, considering its ability to improve safety, reduce conflict points, and accommodate various user types.	High	Long-Term	High	MassDOT

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Route 28A and Route 151	Consider installing marked crosswalks with ADA-compliant curb ramps and pedestrian signals with dedicated pedestrian phasing as part of an intersection redesign to enhance safety and connectivity for pedestrians.	High	Mid/Long-Term	High	MassDOT
Route 28A and Route 151	Consider improved regulatory and warning signage to increase awareness of traffic signals at the intersection.	Low	Short-Term	Low	MassDOT
Route 28A and Route 151	Consider assessing and implementing lighting enhancements to improve nighttime visibility for all road users.	High	Mid-Term	High	Town of Falmouth/ MassDOT/ Utility Companies
Route 28A and Route 151	Consider geometric modifications, such as dedicated turn lanes, adjusted lane alignments, and realigning approaches to reduce operational conflicts, to improve traffic flow and reduce conflicts.	High	Long-Term	High	MassDOT
Route 28A and Route 151	Consider enhancing transit accommodations by ensuring transit stops and/or bus shelters are well-marked, accessible, and safely positioned within the intersection layout.	Low	Mid-Term	Medium	MassDOT/CCRTA

Safety Issue	Potential Safety Enhancement	Safety Payoff	Time Frame	Cost	Jurisdiction
Route 28A and Route 151	Consider identifying and addressing access management issues, including evaluating the number and proximity of driveways near the intersection (including Beaman Lane), to reduce conflict points.	Medium	Mid-Term	High	MassDOT/ Town of Falmouth/ Property Owners

Appendix A. RSA Meeting Agenda

Agenda

Road Safety Audit

Falmouth and Bourne, MA

Route 28A from Lake Drive to Palmer Avenue

Meeting Location: Select Board Meeting Room
59 Town Hall Square, Falmouth, MA
January 17, 2025
9:30 AM – 3:00 PM

Type of meeting:	**High crash location – Road Safety Audit**
Attendees:	**Invited participants to comprise a multidisciplinary team**
Please bring:	**Thoughts and enthusiasm!!**
9:30 AM	**Welcome and Introductions**
9:45 AM	**Discussion of Safety Issues** • Crash history, speed regulations, recent and existing projects – all provided in advance • Existing geometries and conditions
11:00 AM	**Site Visit** • Drive the corridor of Route 28A • As a group, identify areas for improvement
1:00 PM	**Lunch**
1:45 PM	**Discussion of Potential Improvements** • Discuss observations and finalize safety issue areas • Discuss potential improvements and finalize recommendations
3:00 PM	**Adjourn for the Day – but the RSA has not ended**

Instructions for Participants:

- **Before attending the RSA on January 17, participants are encouraged to drive/walk through the intersection 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 B. RSA Team Contact List

Participating Audit Team Members

Date: January 17, 2024 Location: Falmouth Town Hall
59 Town Hall Square, Falmouth, MA

Audit Team Members	Agency/ Affiliation	Email Address	Phone Number
Phil Viveiros	Bowman	pviveiros@bowman.com	508-967-3043
Lucy Almeida	Bowman	lalmeida@bowman.com	401-213-5935
David McGraw	Falmouth Police	David.mcgraw@falmouthpolicema.gov	774-255-4527 x4620
Joshua Oliver	Falmouth Police	Joshua.oliver@falmouthpolicema.gov	774-392-5783
Todd Taylor	West Falmouth Village Association	Toddtayl@verizon.net	508-548-4321
Jim Gray	West Falmouth Village Association	jegray336@gmail.com	603-372-2563
Tim Lydon	Town of Bourne Engineering	TLydon@bourne-ma.gov	508-759-0600 x1345
Sean Lewis	Town of Bourne Engineering	Slewis@bourne-ma.gov	774-426-0707
Colleen Medeiros	Cape Cod Commission	Colleen.medeiros@capecodcommission.org	508-744-1226
Aleksander Pelletier	MassDOT	Aleksander.j.Pelletier @dot.state.ma.us	508-567-0007
Derek Jackson	MassDOT D5 Projects	Derek.m.Jackson@dot.state.ma.us	617-699-0044
William Ready	MassDOT D5 Traffic	William.J.Ready@dot.state.ma.us	857-378-0278
Sydney Mis	MassDOT D5 Traffic	sydney.b.mis@dot.state.ma.us	857-276-1169
Nick Croft	Town of Falmouth Engineering	nicholas.croft@falmouthma.gov	774-392-4047
Peter McConarty	Falmouth DPW	peter.mcconarty@falmouthma.gov	508-457-2543
James McLoughlin	Falmouth DPW	james.mcloughlin@falmouthma.gov	774-392-6471 X3104
Amanda Braga-Tipton	Office of State Representative David T. Vieira	Amanda.Bragatipton@mahouse.gov	508-548-8683
Kevin Fitzgerald	MassDOT Traffic Safety	Kevin.fitzgerald@dot.state.ma.us	
Dakota DelSignore	MassDOT Traffic Safety	dakota.d.delsignore@dot.state.ma.us	857-274-3389
Timothy Smith	Falmouth Fire/Rescue	timothy.smith@falmouthfirema.gov	508-495-2511

Appendix C. Detailed Crash Data

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM LOCUS MAP

SYMBOLS		TYPE OF CRASH	SEVERITY
Moving Vehicle		Head on	# Injury
Backing Vehicle		Rear End	
Non–Involved Vehicle		Angle	
Involved	Non–Involved		
Pedestrian		Turning Movement	# Fatal
Bicycle		Sideswipe	# Property Damage Only
Animal		Out of Control	
Direction of Motion		Night Time Crash	
Parked Vehicle			
Fixed Object			

FALMOUTH, MA

AERIAL MAP 1: ROUTE 28A FROM OTIS ROTARY TO PALMER AVE

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: June 2024
PREPARED BY: SQ

*NOT TO SCALE

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM LOCUS MAP

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
		Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

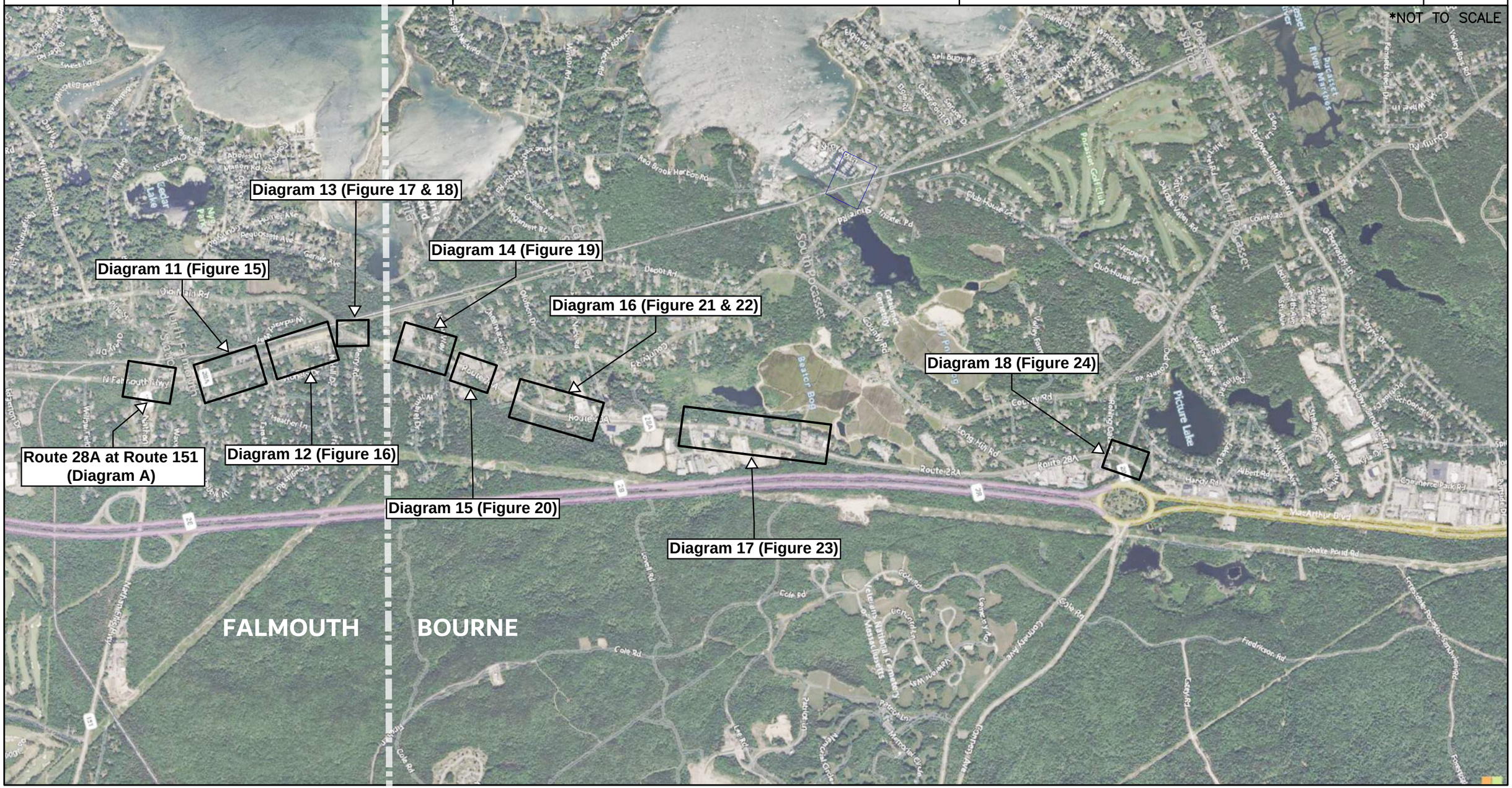
FALMOUTH & BOURNE, MA

AERIAL MAP 2: ROUTE 28A FROM OTIS ROTARY TO PALMER AVE

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH & BOURNE POLICE DEPARTMENT
DATE PREPARED: June 2024
PREPARED BY: SQ

*NOT TO SCALE



MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 1

SYMBOLS

Involved / Non-Involved

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Bicycle
- Animal
- Direction of Motion
- Parked Vehicle
- Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (West Falmouth Highway) at Old Homestead Road to Palmer Avenue

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

N

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

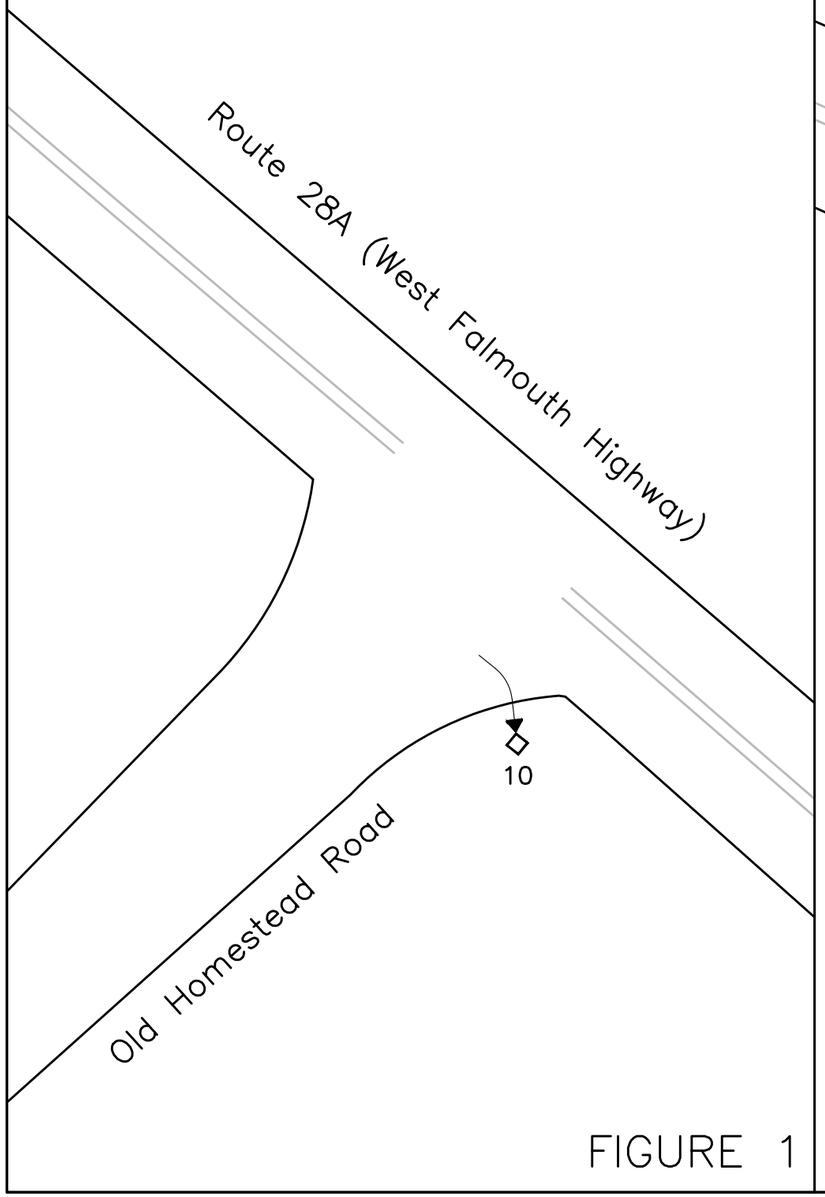


FIGURE 1

*NOT TO SCALE

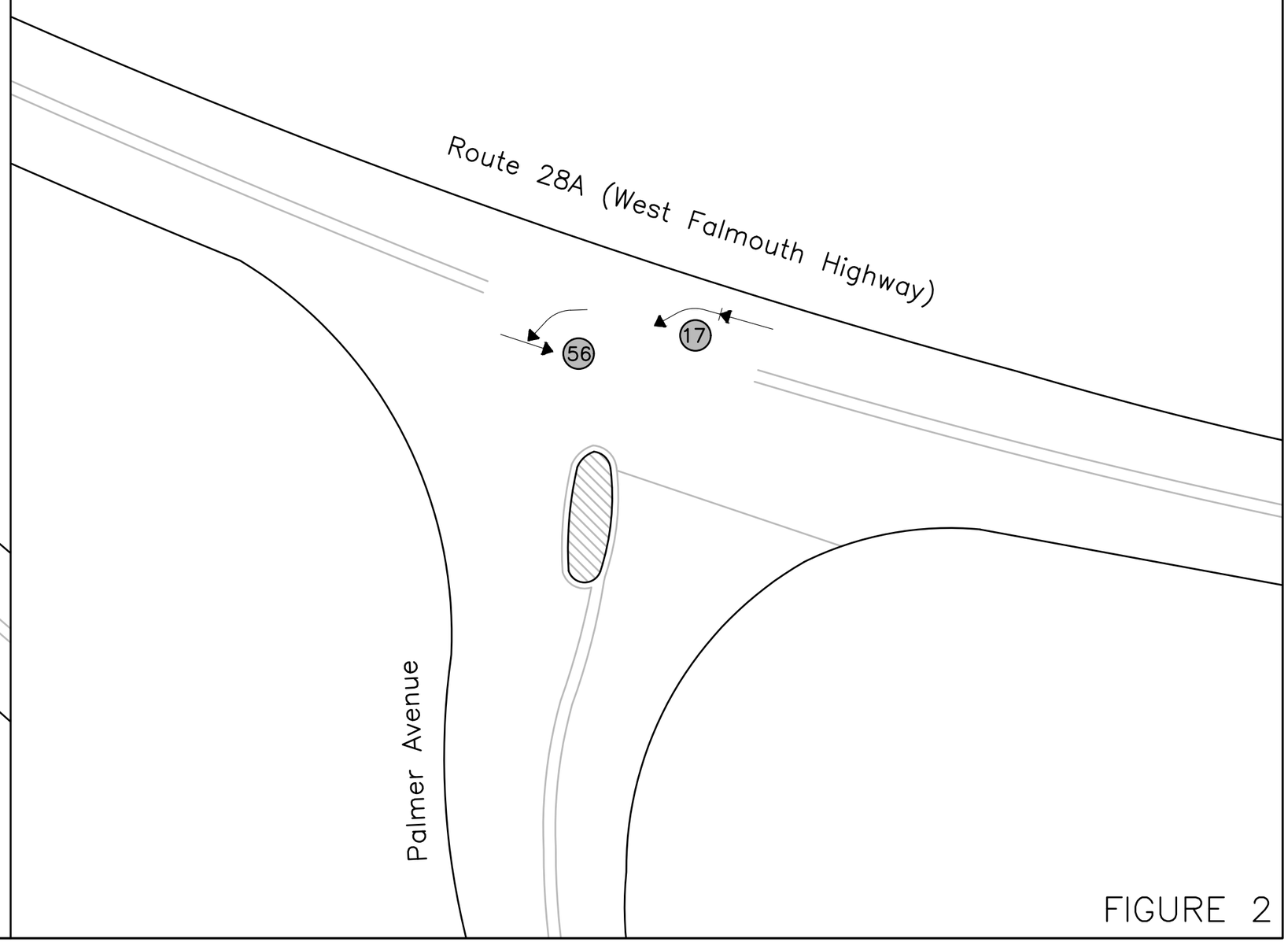


FIGURE 2

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 2

SYMBOLS

Involved / Non-Involved

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Bicycle
- Animal
- Direction of Motion
- Parked Vehicle
- Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (West Falmouth Highway) at Garrison Road to Hawks Way

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

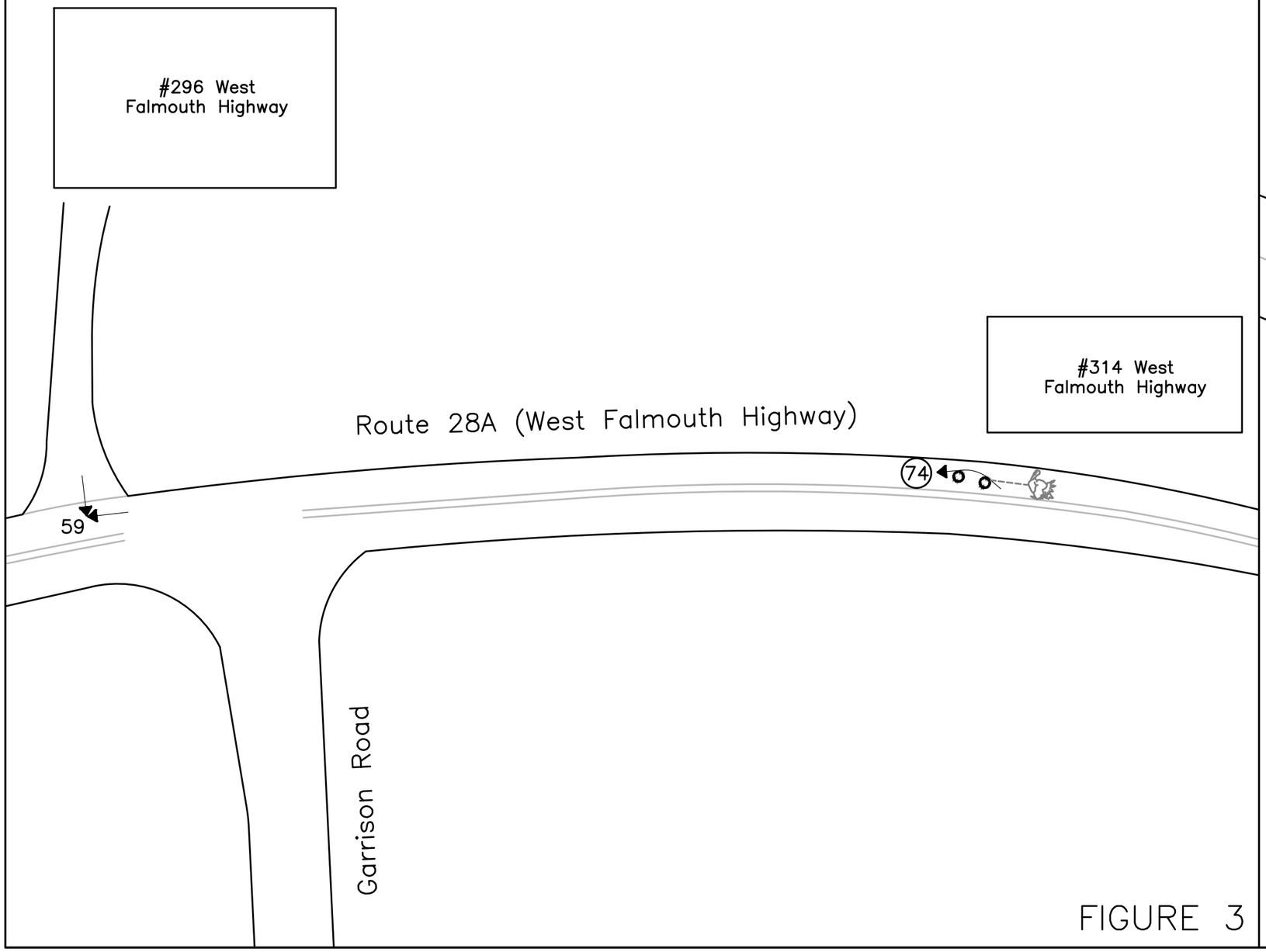


FIGURE 3

*NOT TO SCALE

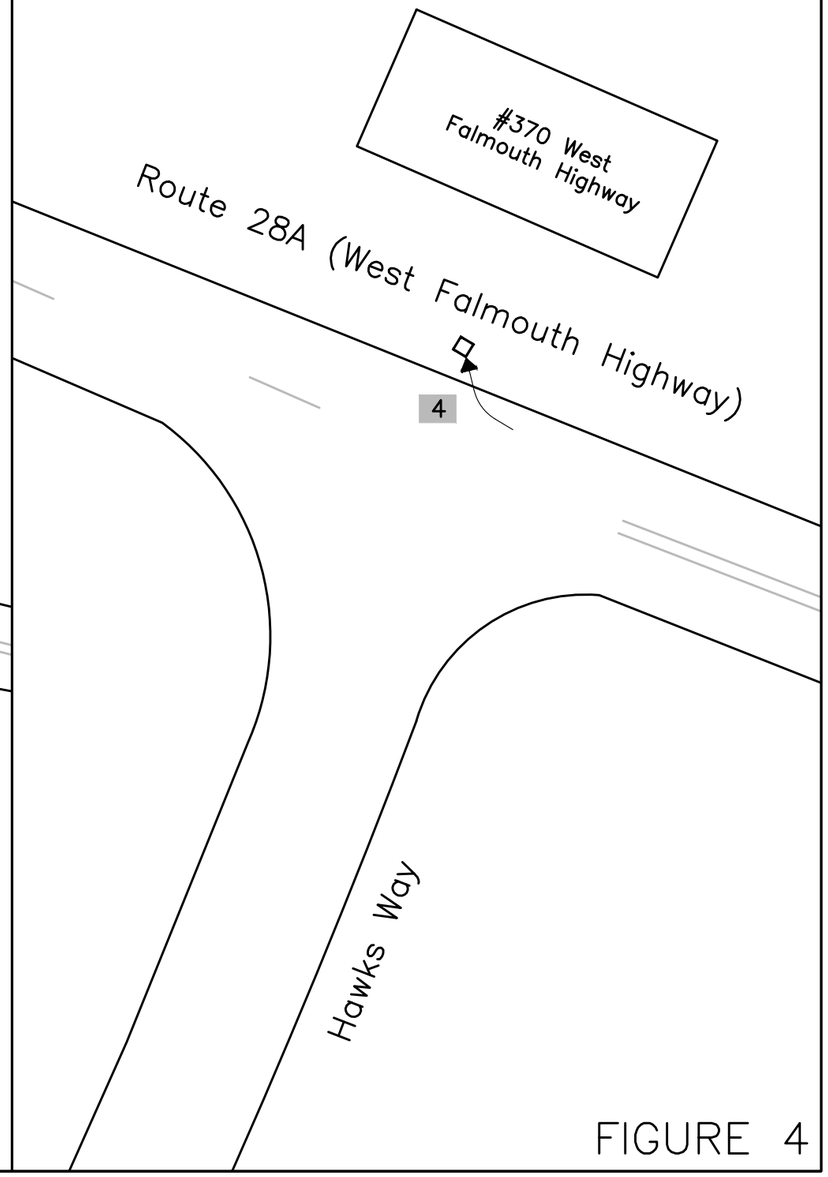


FIGURE 4

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 3

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
→	- - →	Direction of Motion
		Parked Vehicle
□	□	Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

FALMOUTH, MA

Route 28A (West Falmouth Highway) at Brick Kiln Road to Katelyn Hills Drive

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

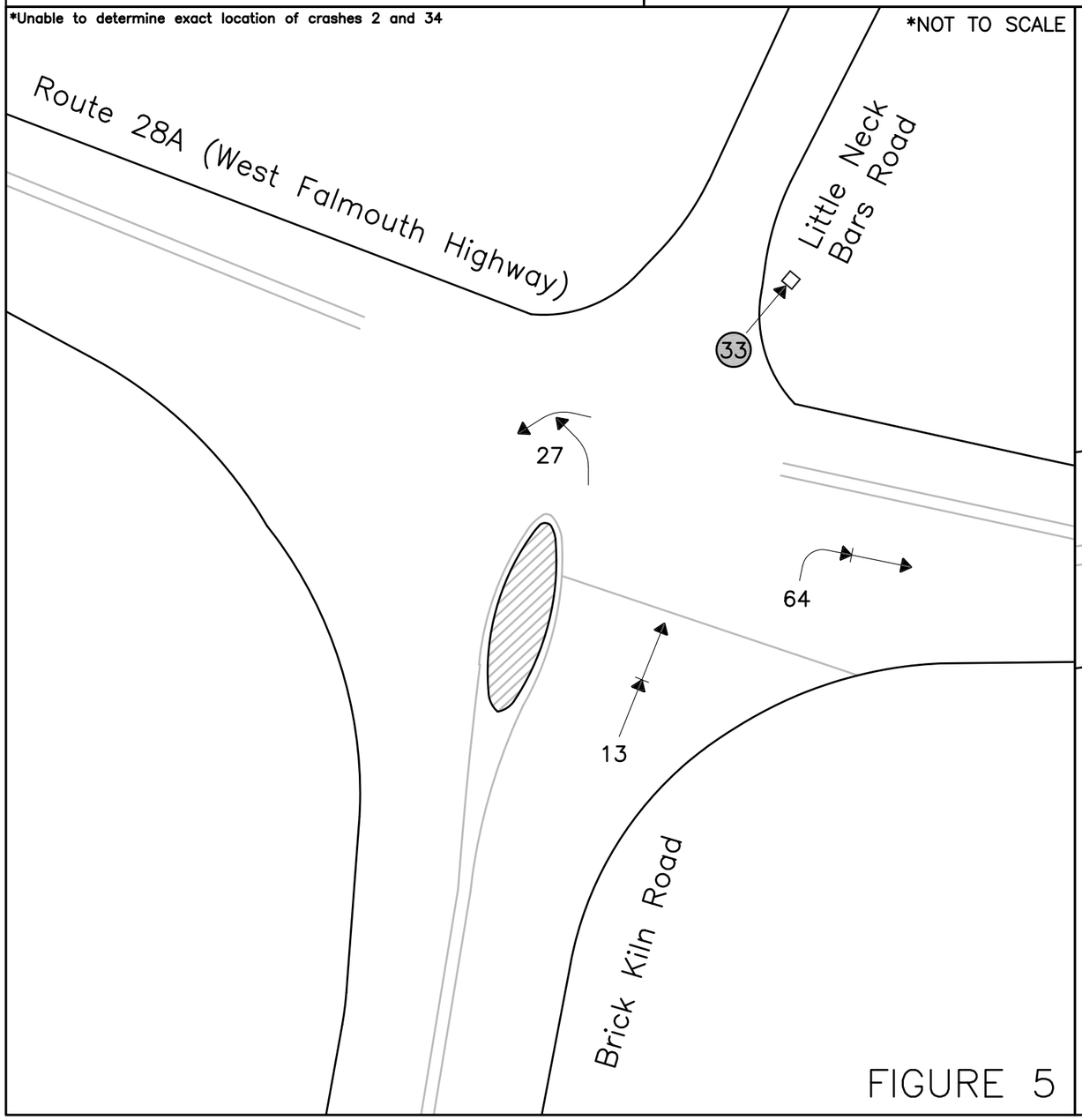


FIGURE 5

*NOT TO SCALE

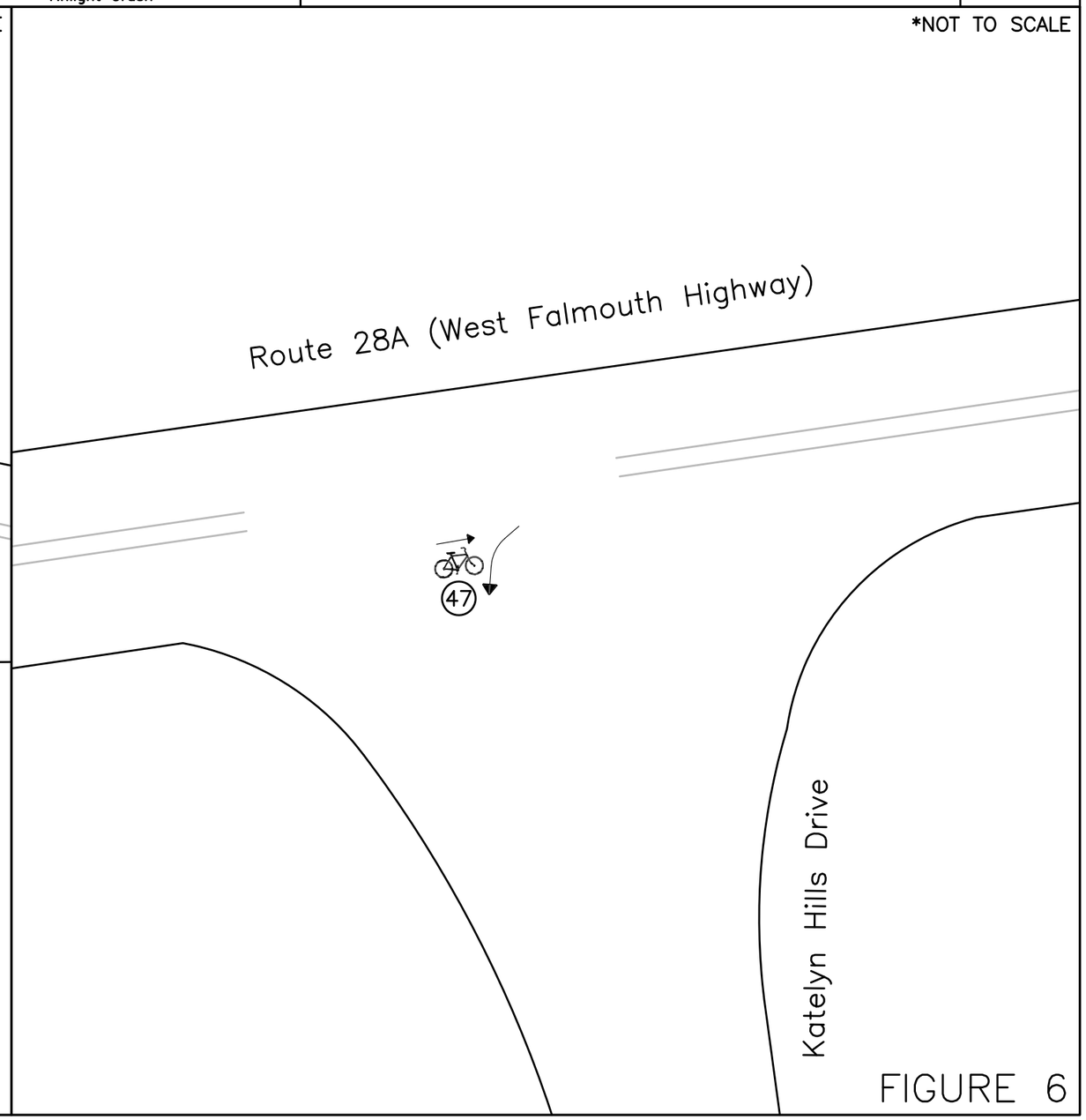


FIGURE 6

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 4

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
		Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

FALMOUTH, MA

Route 28A (West Falmouth Highway) at 524 West Falmouth Highway to 691 West Falmouth Highway

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

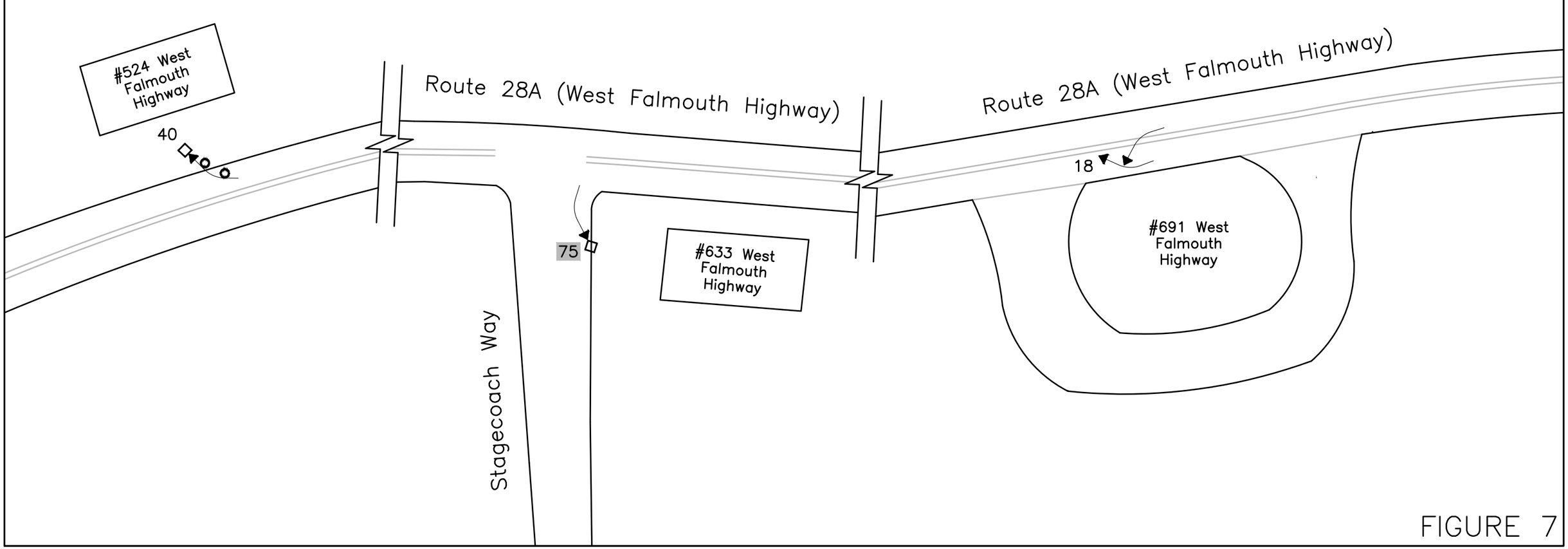


FIGURE 7

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 5

SYMBOLS

Involved / Non-Involved

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Bicycle
- Animal
- Direction of Motion
- Parked Vehicle
- Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (West Falmouth Highway) at Carlisle Road to 830 West Falmouth Highway

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

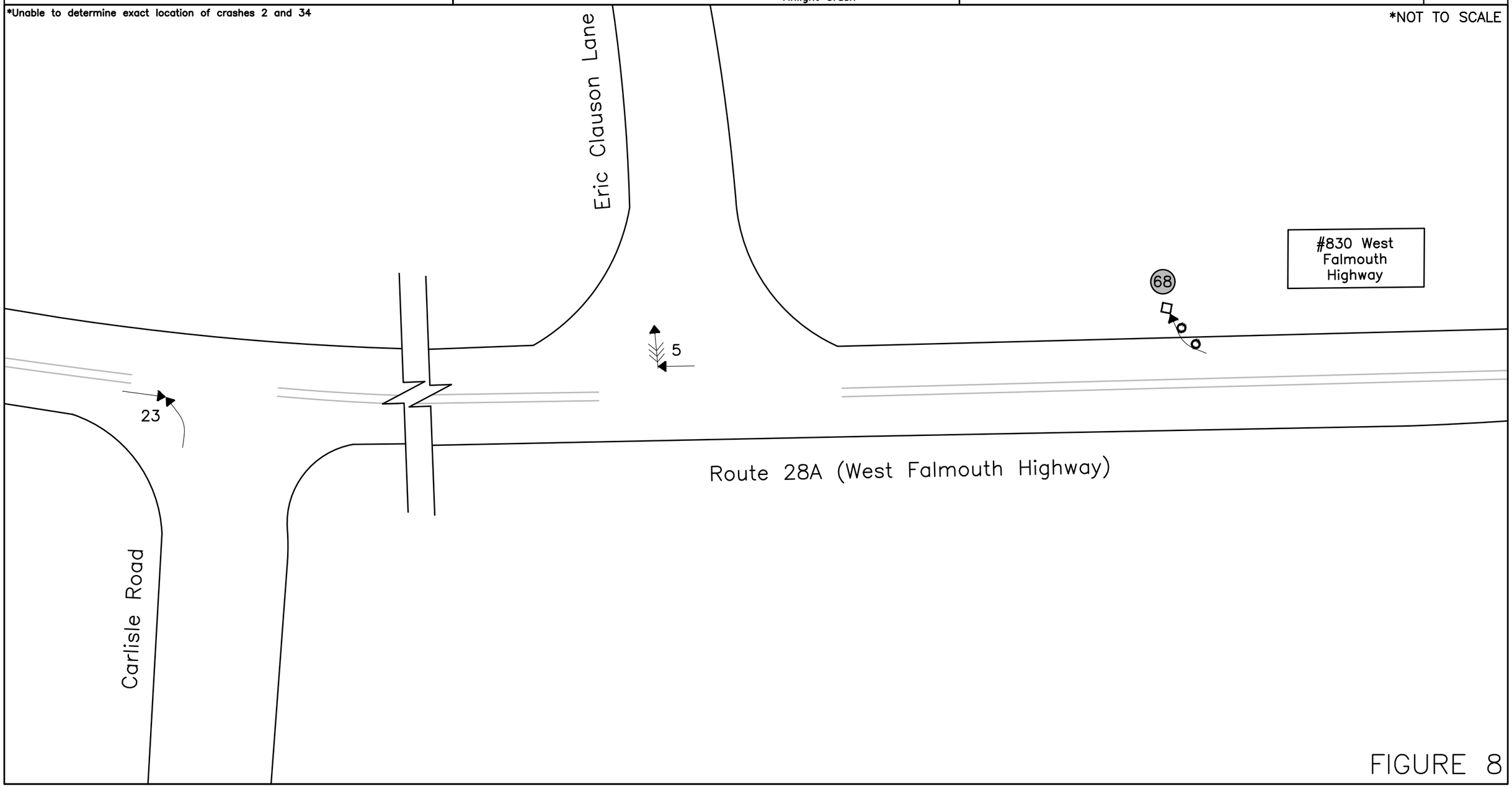


FIGURE 8

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 6

SYMBOLS

Involved / Non-Involved

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Bicycle
- Animal
- Direction of Motion
- Parked Vehicle
- Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at Thomas B Landers Road to Burke Lane

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

N

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

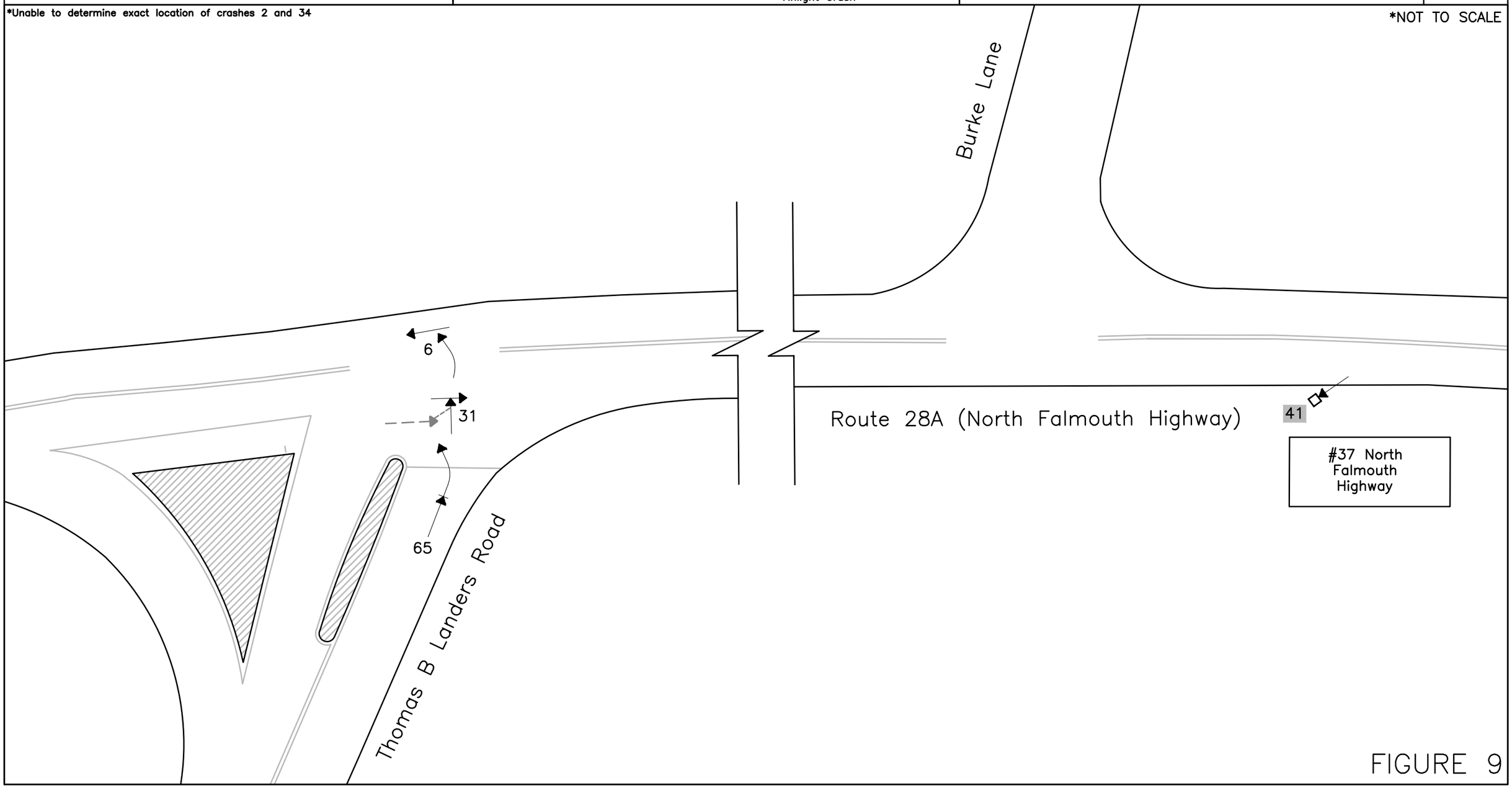


FIGURE 9

MassDOT
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Highway Division

CRASH DIAGRAM 7

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
→	⇢	Direction of Motion
		Parked Vehicle
□	□	Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at 142 North Falmouth Highway to McMenamy Drive

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

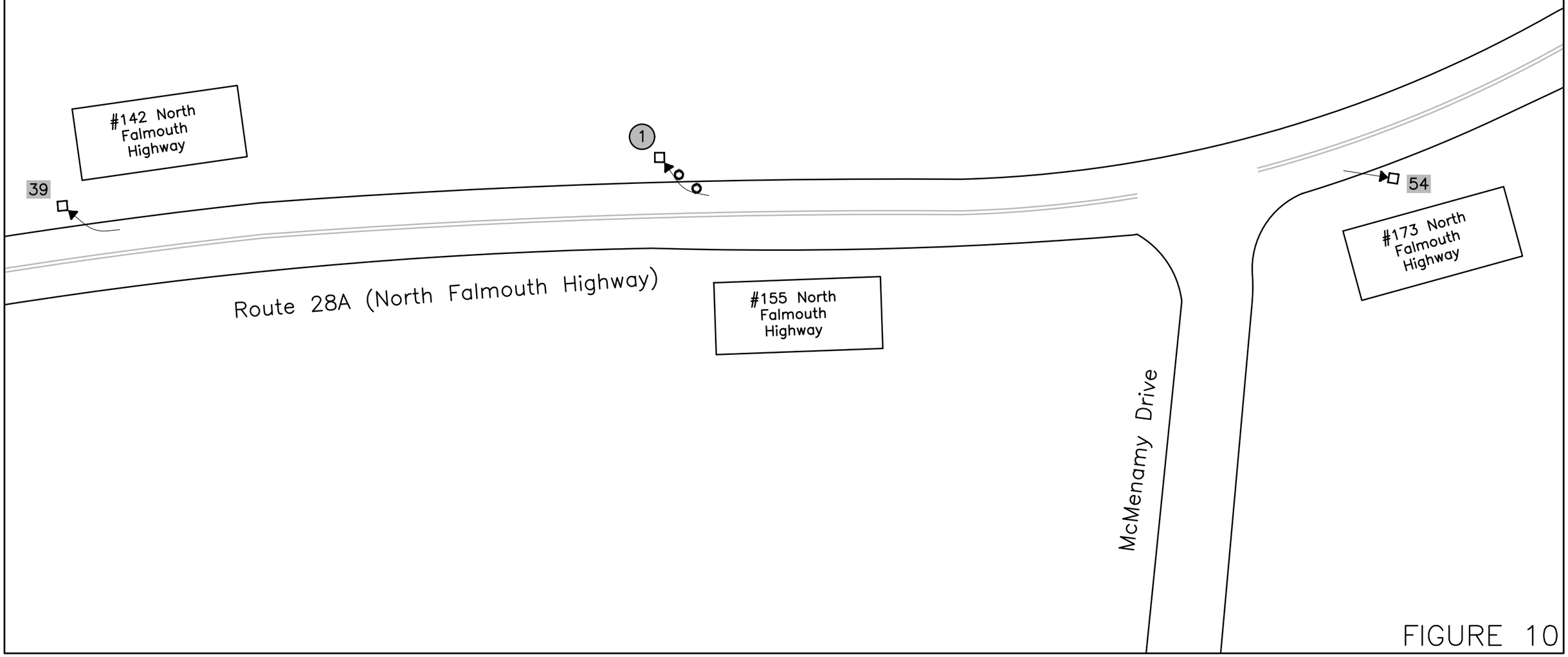

FIGURE 10

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Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 8

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
		Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at Trickett Street to Curley Boulevard

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

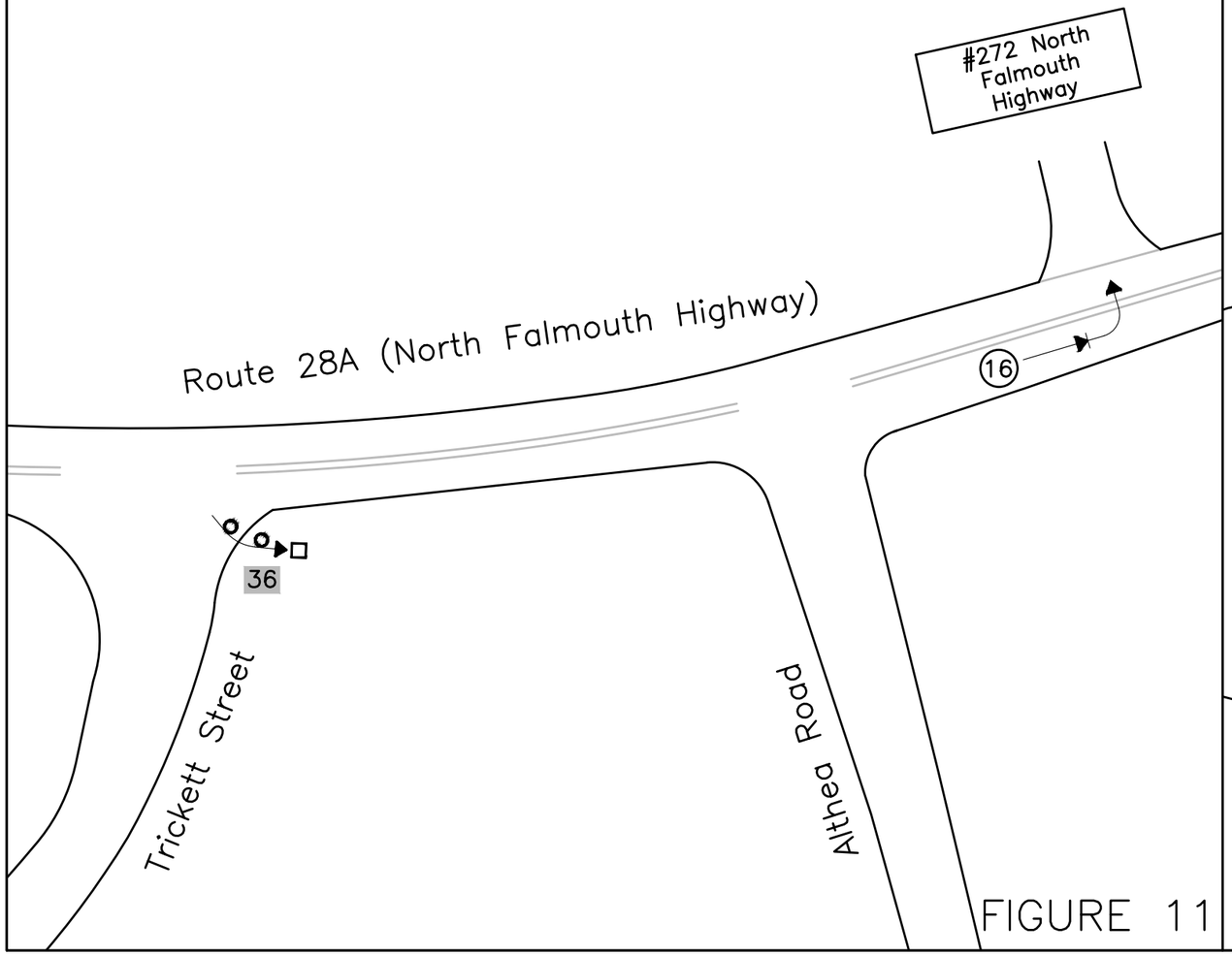


FIGURE 11

*NOT TO SCALE

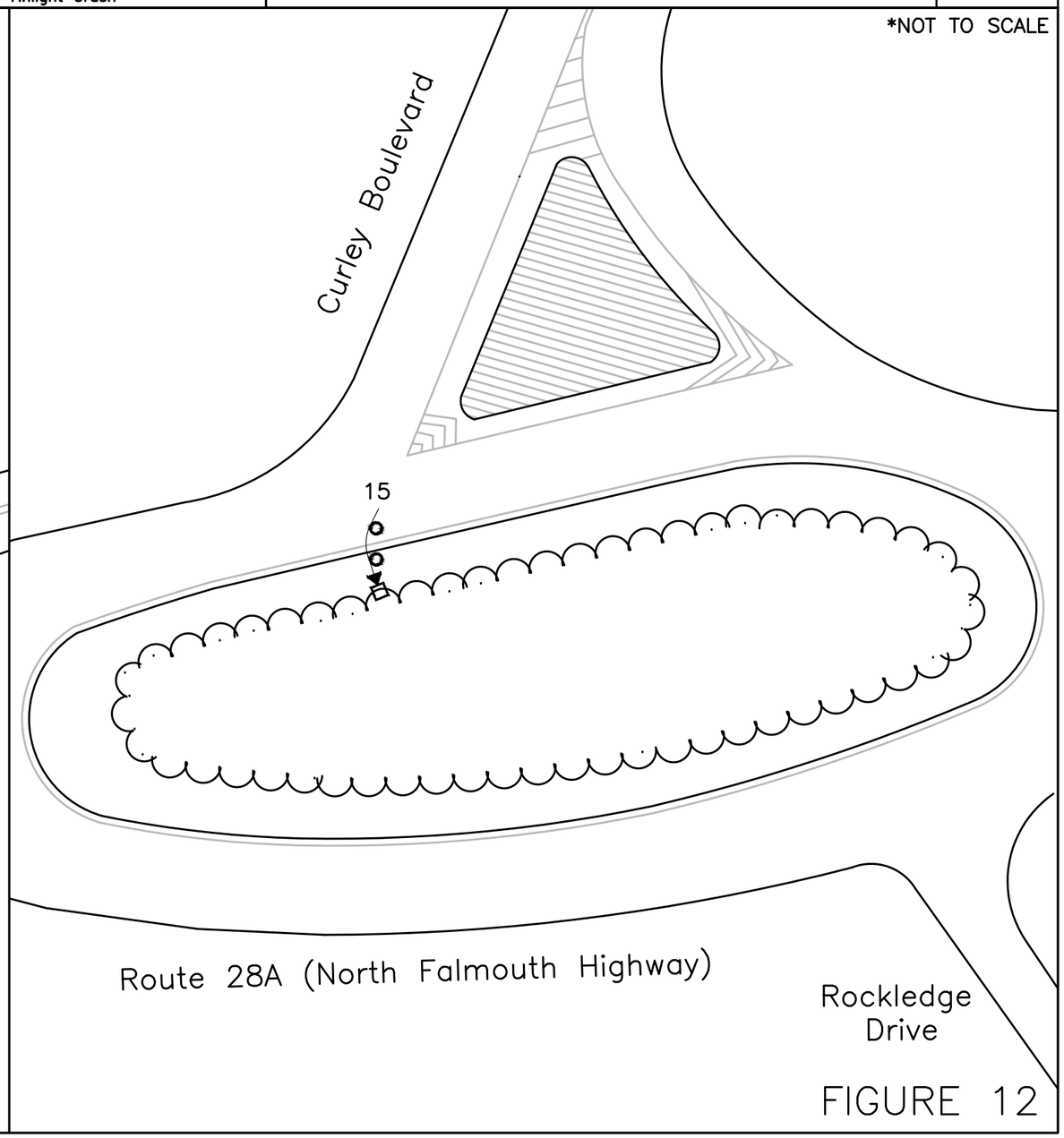


FIGURE 12

massDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 9

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
→	- - →	Direction of Motion
		Parked Vehicle
□	□	Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at Dove Hill Road

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

N

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

#362 North Falmouth Highway	#372 North Falmouth Highway

Route 28A (North Falmouth Highway)

51

32, 60

Dove Hill Road

FIGURE 13

massDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 10

SYMBOLS

Involved / Non-Involved

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Bicycle
- Animal
- Direction of Motion
- Parked Vehicle
- Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at Winslow Road

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

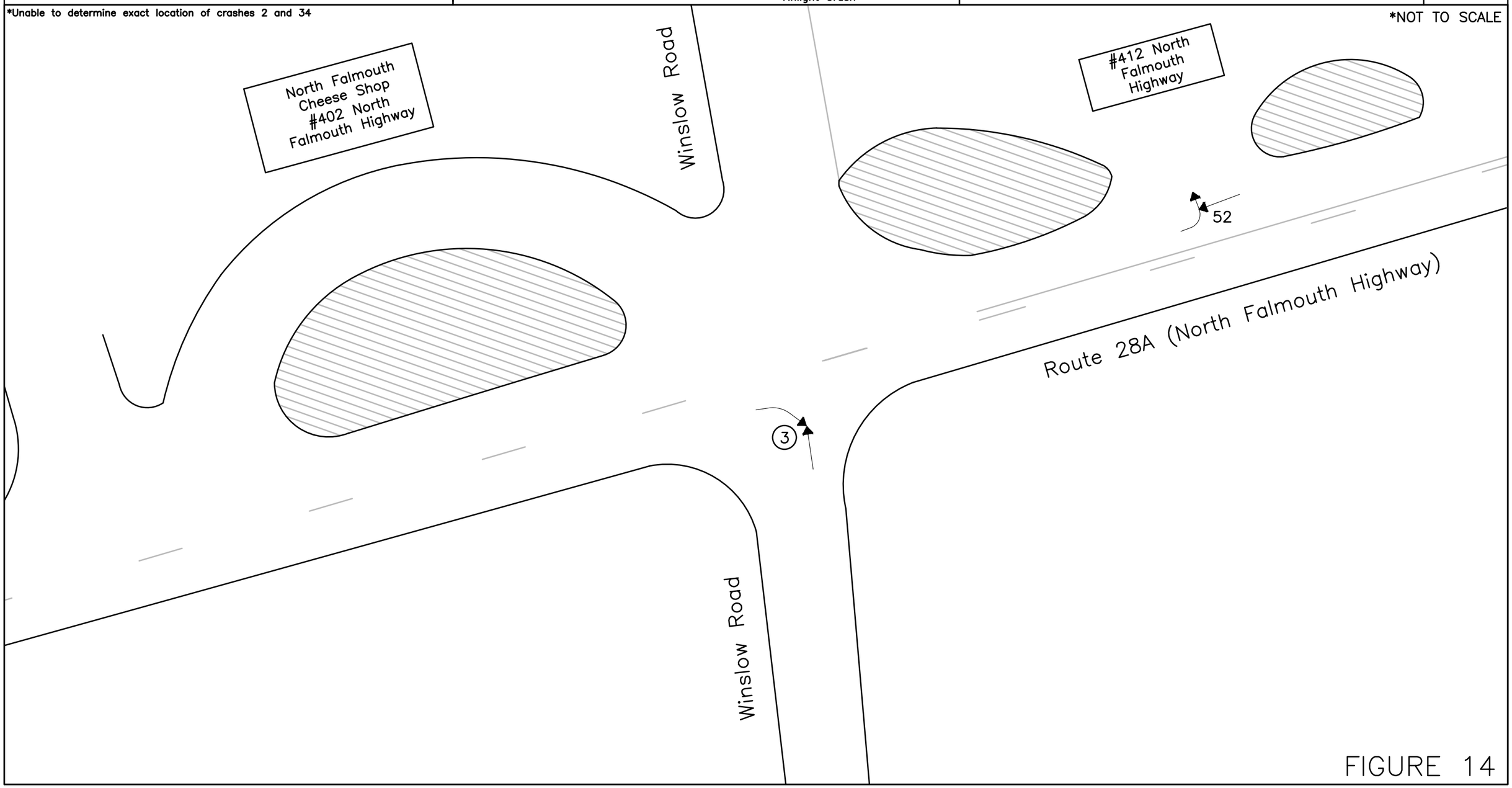


FIGURE 14

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 11

SYMBOLS

Involved / Non-Involved

- Moving Vehicle
- Backing Vehicle
- Non-Involved Vehicle
- Pedestrian
- Bicycle
- Animal
- Direction of Motion
- Parked Vehicle
- Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at Pebble Lane to Heather Lane

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

N

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

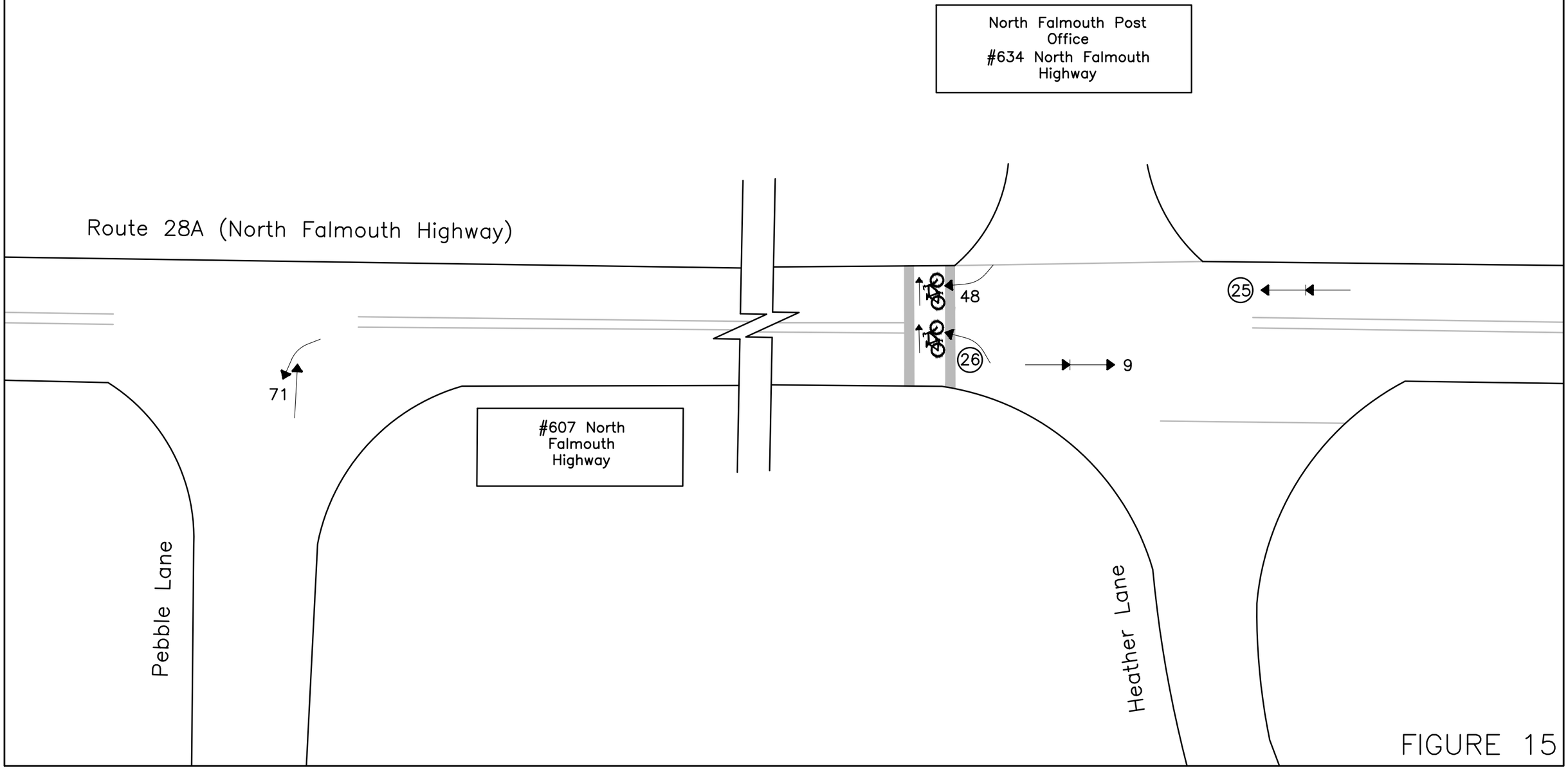


FIGURE 15

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 12

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
→	- - →	Direction of Motion
		Parked Vehicle
□	□	Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at 660 North Falmouth Highway to North Hill Drive

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

N

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

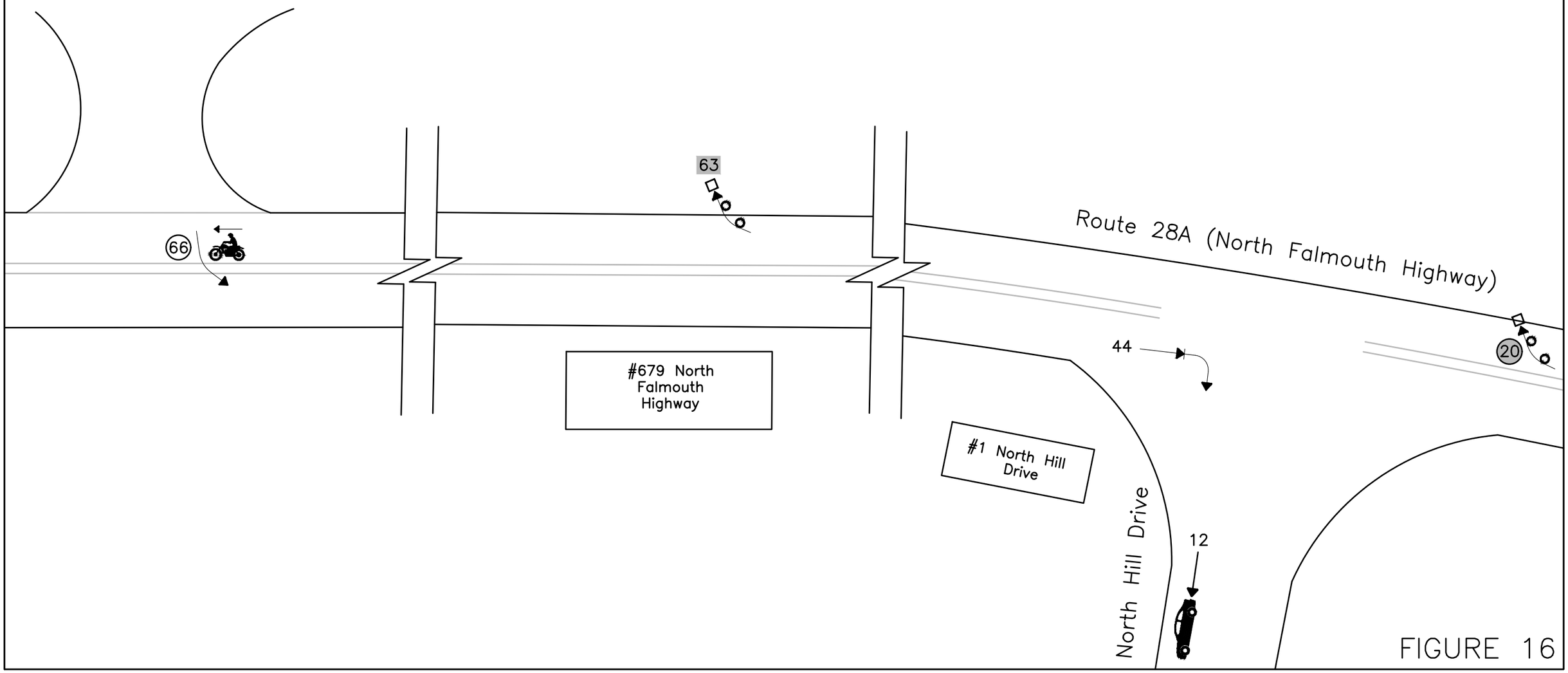


FIGURE 16

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 13

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
		Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

FALMOUTH, MA

Route 28A (North Falmouth Highway) at Old Main Road to 737 North Falmouth Highway

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*NOT TO SCALE

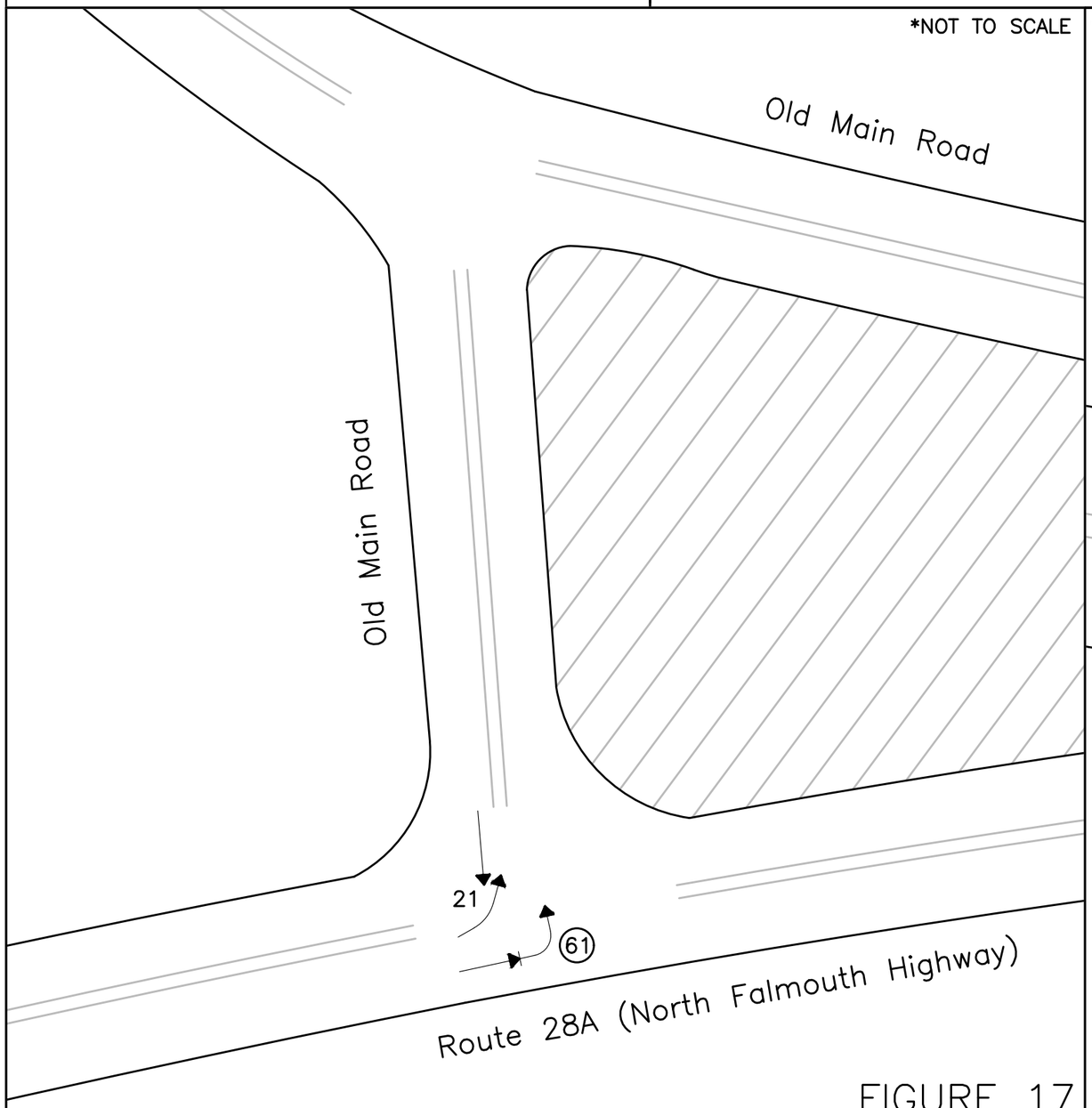


FIGURE 17

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

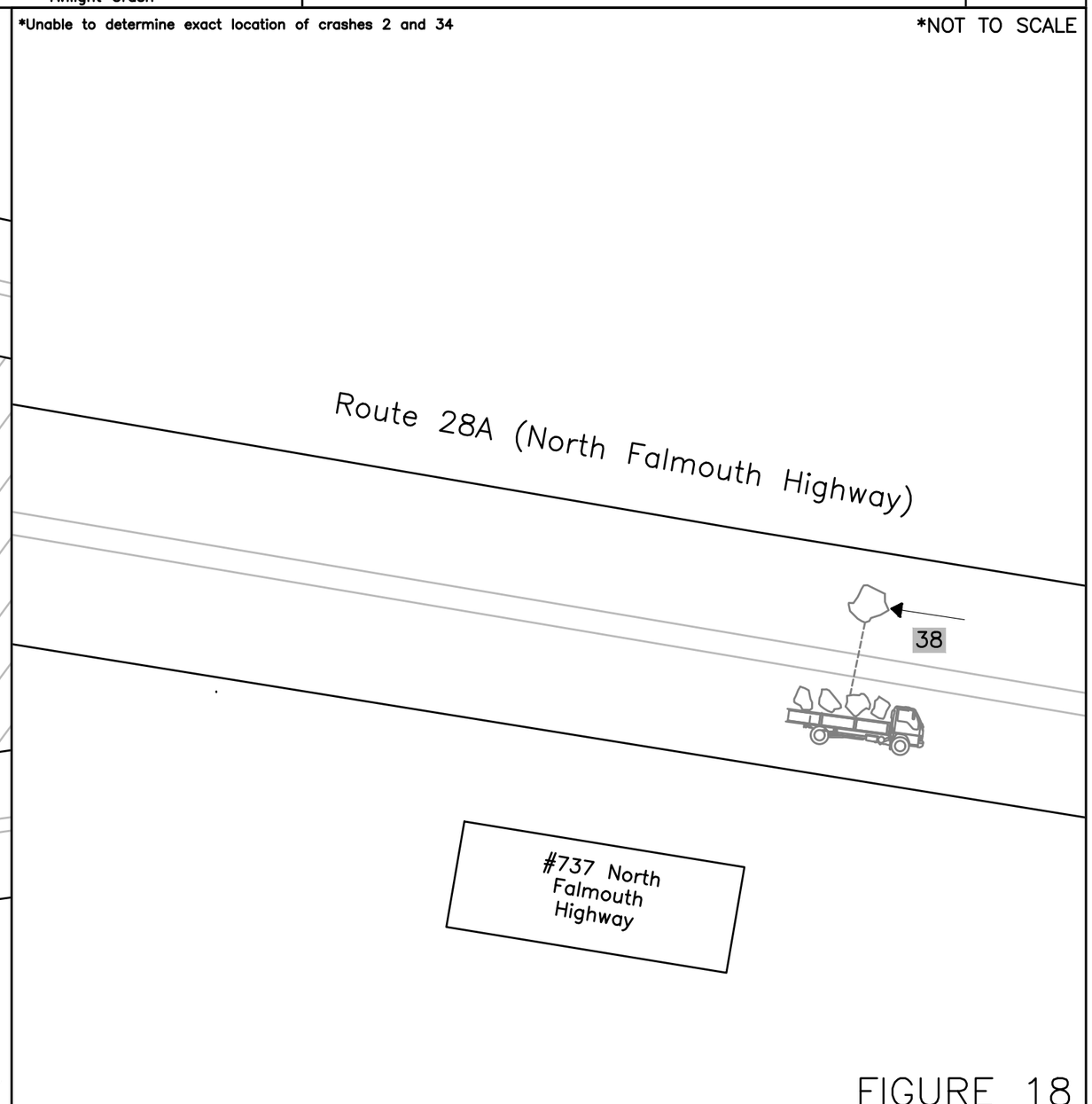


FIGURE 18

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 14

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
→	⇢	Direction of Motion
		Parked Vehicle
□	□	Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

BOURNE, MA

Route 28A (Sandwich Road) at 1412 MA–28A to Sanderling Drive

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: BOURNE POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

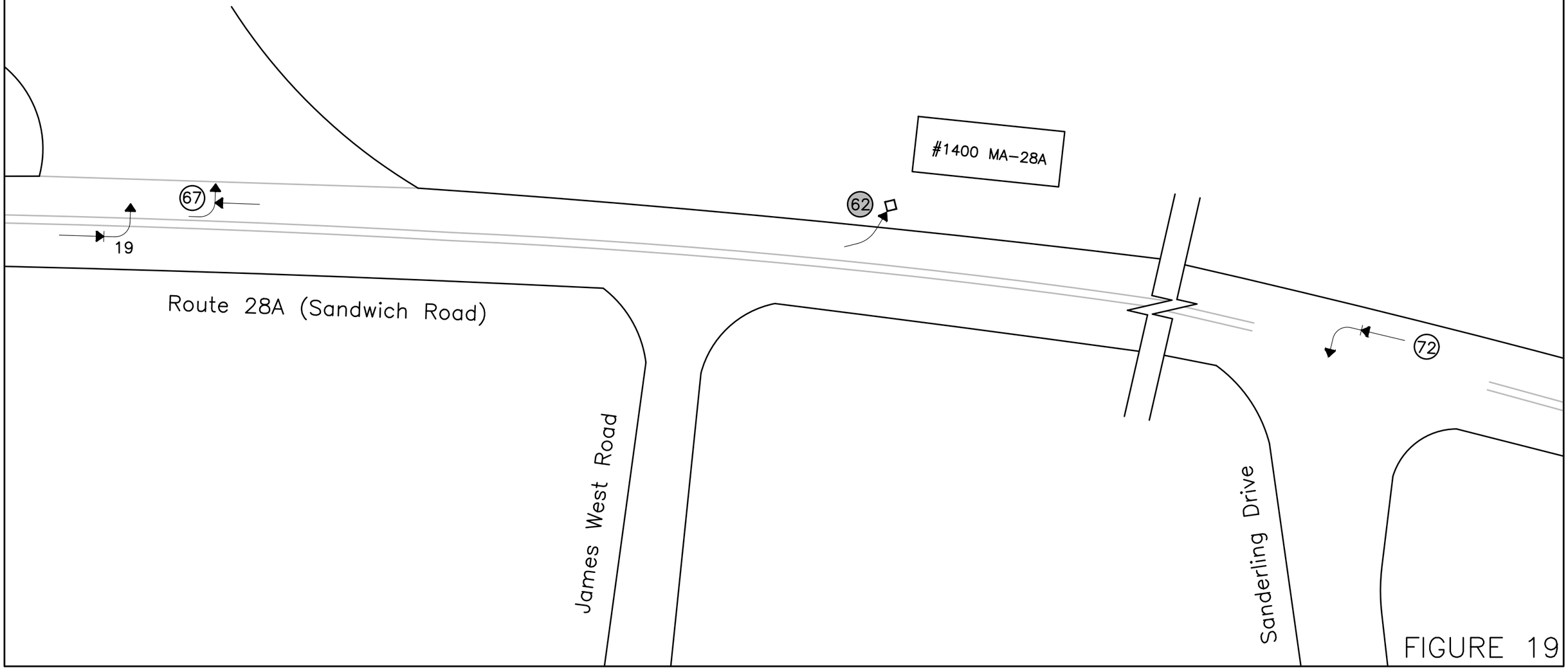


FIGURE 19

massDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 15

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non–Involved Vehicle

Involved / Non–Involved

- Pedestrian
- Bicycle
- Animal
- Direction of Motion
- Parked Vehicle
- Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

BOURNE, MA

Route 28A (Sandwich Road) at 1370 MA–28A to County Road

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: BOURNE POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

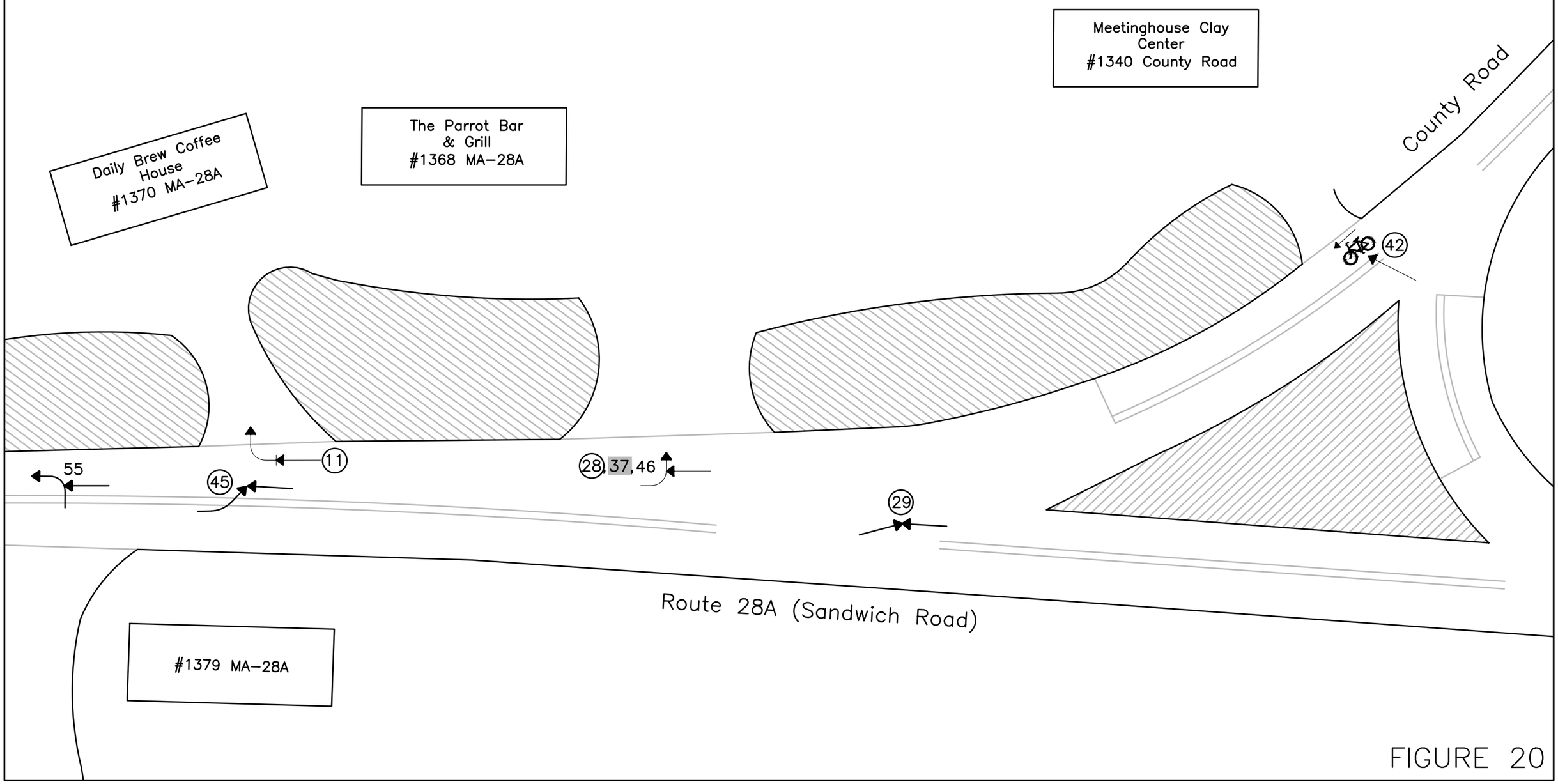


FIGURE 20

MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 16

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
		Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

BOURNE, MA

Route 28A (Sandwich Road) at 1352 MA–28A to 1248 MA–28A

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: BOURNE POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

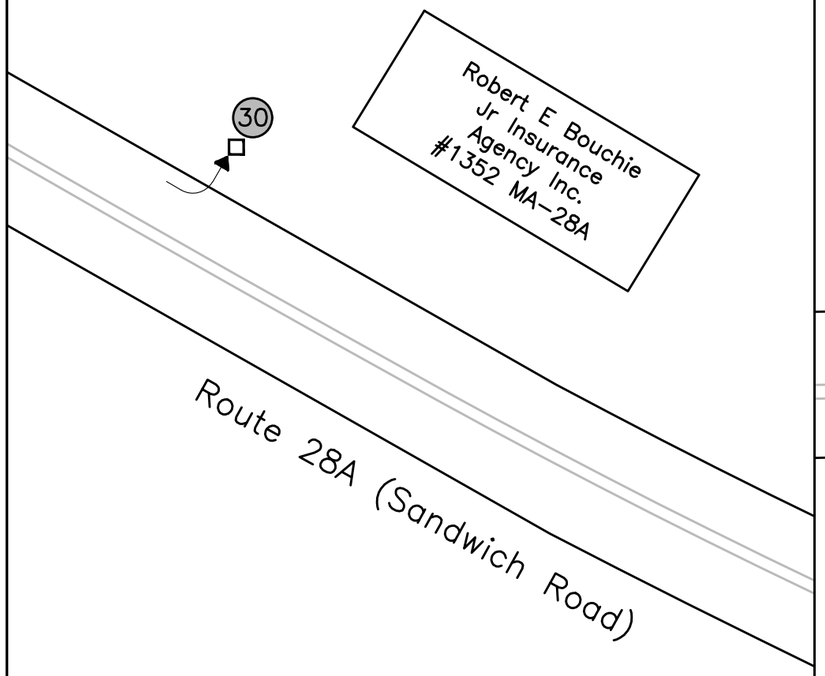


FIGURE 21

*NOT TO SCALE

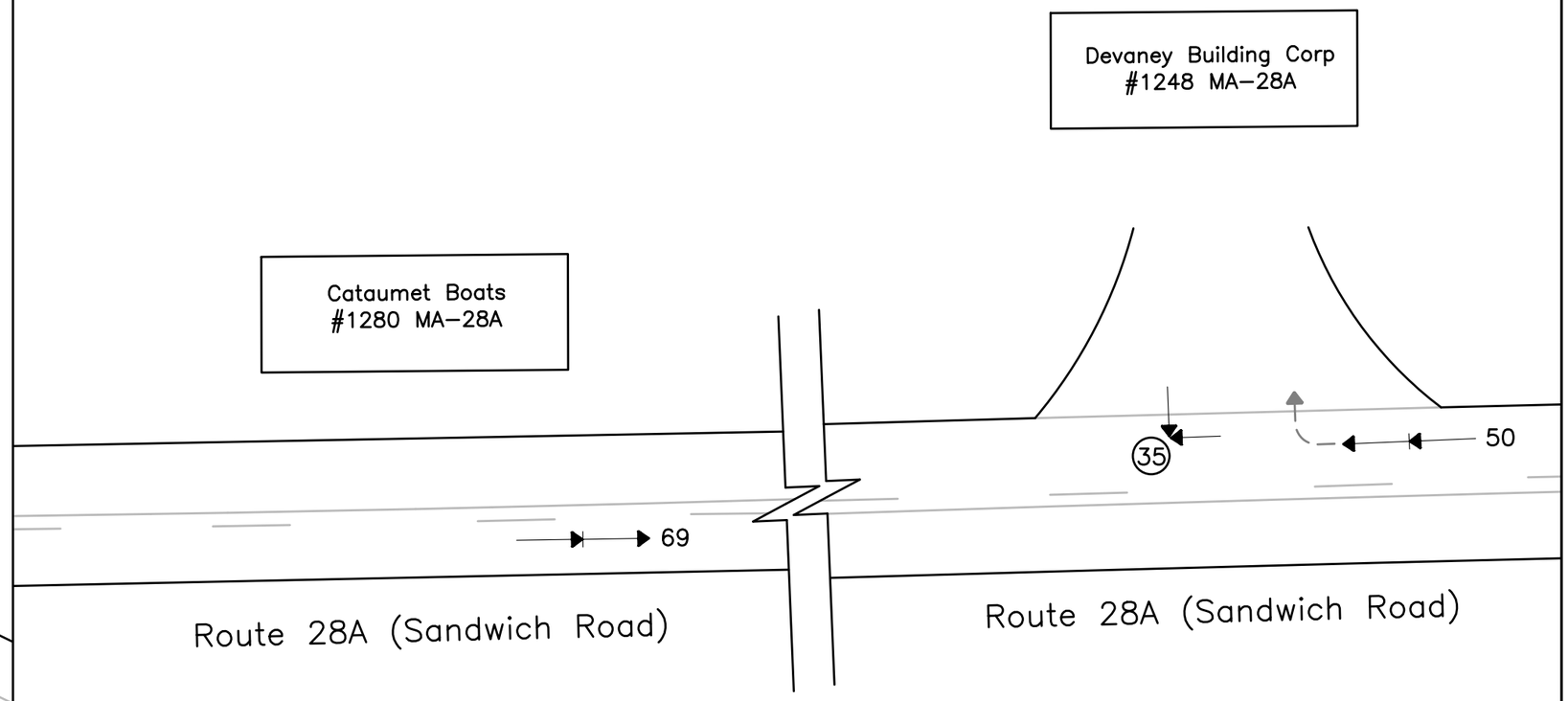


FIGURE 22

massDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 17

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
		Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

BOURNE, MA

Route 28A (Sandwich Road) at Millennium Drive to 1132 MA–28A

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: BOURNE POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

*Unable to determine exact location of crashes 2 and 34

*NOT TO SCALE

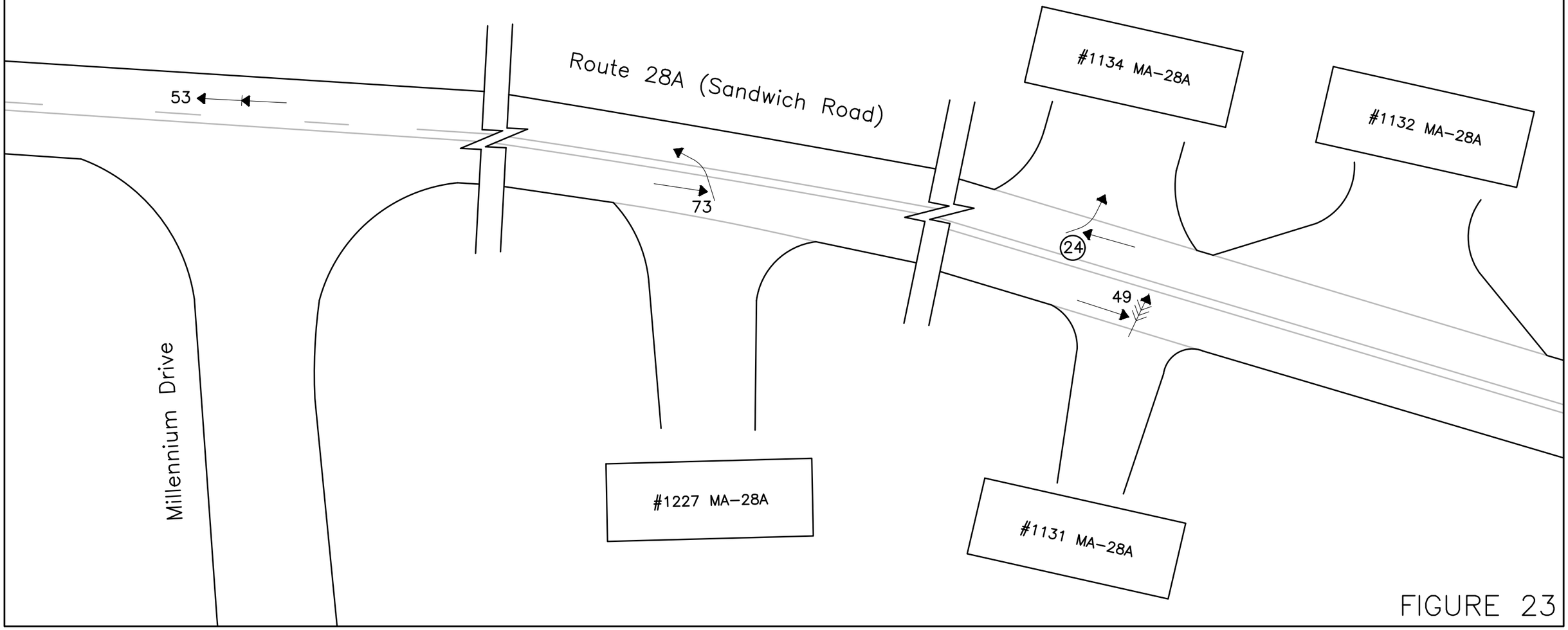


FIGURE 23

massDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM 18

SYMBOLS

Moving Vehicle
Backing Vehicle
Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
		Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

Head on
Rear End
Angle
Turning Movement
Sideswipe
Out of Control
Night Time or Twilight Crash

SEVERITY

(#) Injury
(#) Fatal
Property Damage Only

BOURNE, MA

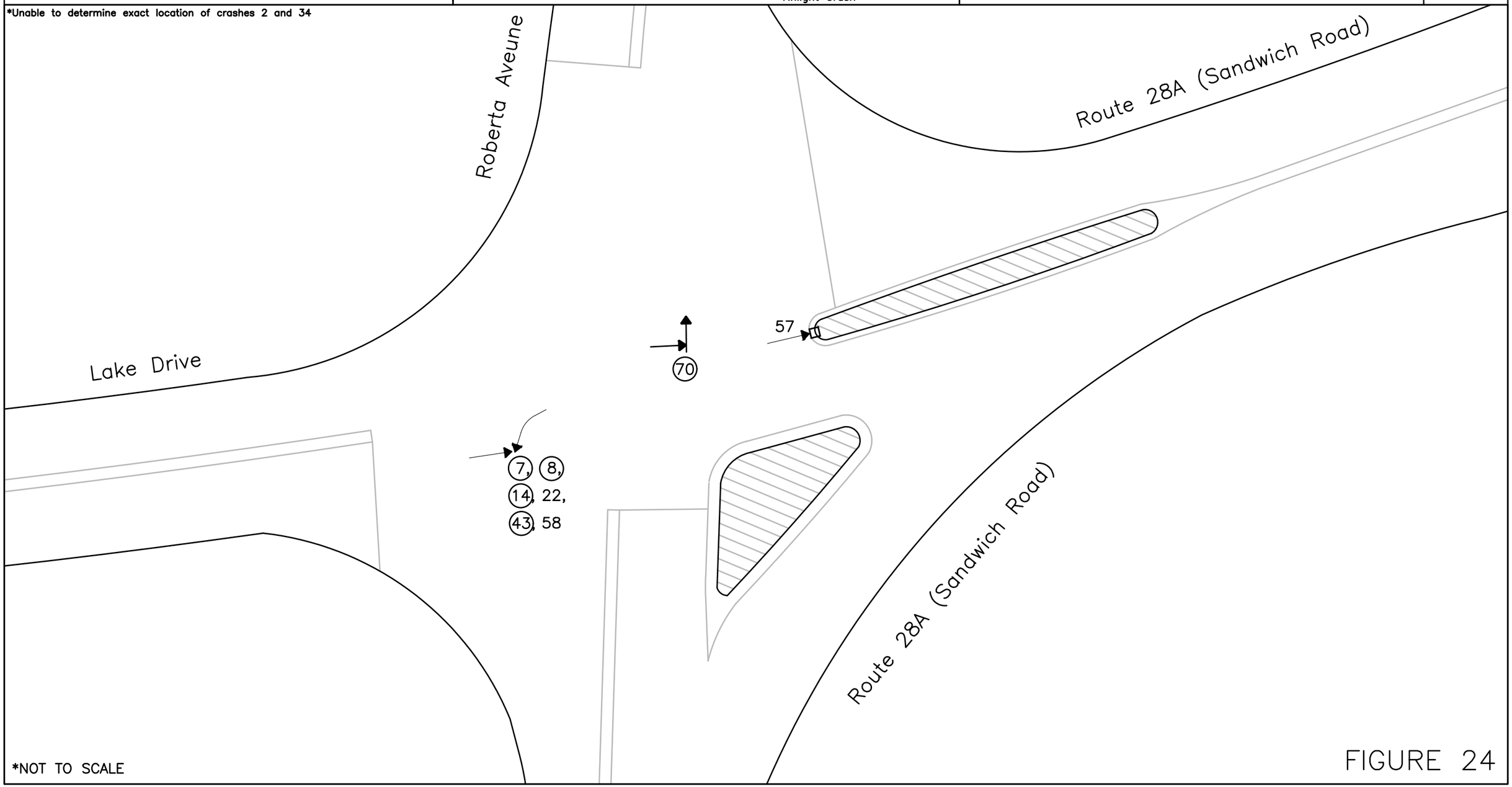
Route 28A (Sandwich Road) at Lake Drive and Roberta Avenue

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: BOURNE POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

N

*Unable to determine exact location of crashes 2 and 34



*NOT TO SCALE

FIGURE 24

Crash Data Summary Table

Route 28A from Otis Rotary to Palmer Ave, Falmouth & Bourne, MA
2018 - 2021

Crash Diagram Ref #	Sheet #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Crash Severity	D1 Age	D2 Age	D3 Age	Comments
#		*mm/dd/yy*	*Day*	*hh:mm*	*Type*	*Type*	*Type*	*Type*	*Type*	*Type*	#	#	#	
1	7	01/03/18	Wednesday	11:41 PM	Single vehicle crash	Dark - roadway not lighted	Cloudy	Ice	Driving too fast for conditions	Injury	17			V1 southbound on Route 28A when they lost control after hitting a patch of ice; V1 spun around and crashed into a large tree near 155 North Falmouth Highway.
*2	N/A	04/05/18	Thursday	6:22 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Injury	54	63		V1 southbound on Route 28A when V2 turned left from a driveway into the path of V1; resulting in a collision. Operator of V2 stated they believed there was enough of a gap to make the turn.
3	10	04/20/18	Friday	6:35 PM	Head on	Daylight	Clear	Dry	Physical impairment	Injury	90	31		V2 was taking a right from Route 28A onto Winslow Road when they failed to keep in their lane and struck V1 who was eastbound on Winslow Road.
4	2	05/26/18	Saturday	9:29 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Property Damage Only	25			V1 southbound on Route 28A when they drove off the road and struck a tree near 370 West Falmouth Highway (Route 28A) across from Hank's Way.
5	5	06/07/18	Thursday	2:03 PM	Angle	Daylight	Clear	Dry	Inattention	Property Damage Only	86	52		V1 was reversing from Eric Clauson Lane onto Route 28A when they were struck by V2 traveling southbound on Route 28A. V1 had the assistance of a flagman, V2 failed to stop for the flagman.
6	6	06/09/18	Saturday	1:02 PM	Angle	Daylight	Clear	Dry	Visibility obstructed	Property Damage Only	46	17		V1 was traveling southbound on Route 28A when they were struck by V2, who was turning left onto Route 28A southbound from Thomas Landers Road. OP2 stated they did not see V1 as their view was obstructed by a vehicle traveling northbound on Route 28A.
7	18	07/08/18	Sunday	11:44 AM	Angle	Daylight	Clear	Dry	Inattention	Injury	18	27		V1 (motorcycle) eastbound on Lake Drive towards the Otis Rotary when V2 turned left onto Route 28A in front of V1 resulting in a collision. OP2 stated they did not see V1.
8	18	07/09/18	Monday	2:28 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Injury	68	29		V1 was traveling eastbound through the intersection when they were struck by V2. V2 was attempting to turn left onto Route 28A southbound from Otis Rotary and did not yield to V1.
9	11	07/18/18	Wednesday	11:43 AM	Rear-end	Daylight	Clear	Dry	Inattention	Property Damage Only	79	55		V1 was stopped in traffic northbound on Route 28A when they were rear-ended by V2.
10	1	07/31/18	Tuesday	5:36 PM	Single vehicle crash	Daylight	Clear	Dry	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.	Property Damage Only	59			V1 southbound on Route 28A when they departed the roadway and struck a tree on Old Homestead Road. OP1 stated they were attempting to avoid a vehicle that made an abrupt turn in front of them.
11	15	08/10/18	Friday	11:45 AM	Rear-end	Daylight	Clear	Dry	Inattention	Injury	22	31		V1 and V2 (motorcycle) southbound on Route 28A, when V2 rear-ended V1. V1 had their turn signal on and was attemping to turn right into the Parrot Bar and Grill parking lot.
12	12	08/12/18	Sunday	11:30 AM	Single vehicle crash	Daylight	Clear	Dry	Unknown	Unknown	Unknown			V1 was parked on the side of North Hill Road when V2 turned onto the road from an unknown direction and struck the left rear bumper of V1.
13	3	08/16/18	Thursday	5:51 PM	Rear-end	Daylight	Clear	Dry	Inattention	Property Damage Only	21	61		V1 was stopped at the stop sign westbound on Brick Kiln Road waiting to turn right. V2, approaching the stop sign, looked away at oncoming traffic and rear-ended V1.
14	18	09/05/18	Wednesday	10:06 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Injury	51	25		V1 was traveling eastbound through the intersection when they were struck by V2, which was attempting to turn left onto Route 28A southbound from Otis Rotary and did not yield to V1.
15	8	09/06/18	Saturday	1:54 PM	Single vehicle crash	Daylight	Clear	Dry	Operating defective equipment	Property Damage Only	28			V1 (Truck & Trailer) was traveling eastbound on Curley Boulevard when their trailer detached; the truck parked while the trailer continued on into the Route 28A Rotary, finally coming to rest when it struck bushes and shrubbery in the rotary median.
16	8	09/22/18	Saturday	8:59 AM	Rear-end	Daylight	Clear	Dry	Inattention	Injury	52	41		V1 was stopped on Route 28A, readying for a left turn into a driveway, when they were rear-ended by V2. OP2 stated they were traveling northbound on Route 28A when V1 suddenly stopped with their left turn signal on, V2 attempted to slow/stop but was unable to and rear-ended V1.
17	1	10/10/18	Wednesday	7:15 PM	Rear-end	Dark - roadway not lighted	Clear	Dry	Followed too closely	Injury	23	69		V1 and V2 northbound on Route 28A. V1 slowed to turn left onto Palmer Avenue when they were rear-ended by V2.
18	4	10/16/18	Tuesday	12:47 PM	Angle	Daylight	Clear	Dry	Unknown	Property Damage Only	29	50		V1 (postal truck) was traveling southbound around 691 West Falmouth Highway (Route 28A) with their 4 way amber lights on as it was making deliveries. V1 slowed for a left turn into a driveway when V2 (truck & trailer), who was following behind V1, went around V1 and into their turning path; V2 attempted an evasive maneuver but was unsuccessful, subsequently V1 collided with the trailer of V2. OP2 stated they believed V1 was slowing to pull to the right.
19	14	11/12/18	Monday	10:48 AM	Rear-end	Daylight	Clear	Dry	Followed too closely	Property Damage Only	87	87		V1 was stopped northbound on Route 28A waiting to turn into 1412 North Falmouth Highway when they were rear-ended by V2.
20	12	11/16/18	Friday	7:11 PM	Single vehicle crash	Dark - lighted roadway	Cloudy	Dry	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Injury	23			V1 was traveling at a high speed southbound on Route 28A when they struck a curb, lost control, veered across both lanes and crashed into a large rock and fire hydrant before rolling. V1 was attempting to over-correct their steering after striking the curb.

Crash Data Summary Table

Route 28A from Otis Rotary to Palmer Ave, Falmouth & Bourne, MA
2018 - 2021

Crash Diagram Ref #	Sheet #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Crash Severity	D1 Age	D2 Age	D3 Age	Comments
#		mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	
21	13	11/28/18	Wednesday	1:54 PM	Angle	Daylight	Cloudy	Dry	Failed to yield right of way	Property Damage Only	61	62		V1 was stopped at the intersection of Old Main Road and Route 28A, preparing to make a right turn, when they were struck by V2 who was making a left turn from Route 28A.
22	18	02/17/19	Sunday	3:03 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	34	30		V1 was traveling eastbound through the intersection when V2 traveling westbound turned left onto Route 28A into the path of V1; resulting in a collision.
23	5	04/24/19	Wednesday	7:13 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	17	53		V1 northbound on Route 28A when they collided with V2, who was making a left turn from Carlisle Road onto Route 28A. V2 failed to see/yield to V1.
24	17	06/03/19	Monday	5:28 PM	Angle	Daylight	Clear	Dry	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Injury	Unknown	38		V1 was turning left into 1134 Route 28A when they were struck by V2 (motorcycle) southbound on Route 28A. V2 was reported doing a "wheelie" at a high speed.
25	11	07/27/19	Saturday	3:38 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	Injury	58	42		V1 and V2 southbound on Route 28A when V1 was rear-ended by V2 while slowing/stopping for traffic. OP2 stated they were distracted while eating ice cream.
26	11	07/27/19	Saturday	3:07 PM	Single vehicle crash	Daylight	Clear	Dry	No improper driving	Injury	31			V1 made a left turn from Heather Lane into the southbound lane of Route 28A and struck a bicyclist within the marked crosswalk. It was reported that the cyclist rode across the street and did not dismount.
27	3	07/29/19	Monday	11:49 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	43	81		V1 was turning left from Route 28A Southbound onto Brick Kiln Road when it was struck by V2 who was attempting to turn left out of Brick Kiln Road.
28	15	08/09/19	Friday	6:46 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Injury	34	20	40	V1 southbound on Route 28A when they struck V2 who was turning left into the Parrot Bar and Grill. The impact of the collision sent V2 into V3, who was at the driveway entrance to the restaurant.
29	15	08/27/19	Tuesday	10:24 AM	Head on	Daylight	Clear	Dry	Failed to yield right of way	Injury	81	31		V1 southbound on Route 28A when they were struck head-on by V2 who was attempting to turn left onto County Road.
30	16	08/31/19	Saturday	1:25 AM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	Illness	Injury	32			V1 northbound on Route 28A when they departed the roadway and crashed into a fence.
31	6	09/17/19	Tuesday	11:26 AM	Angle	Daylight	Cloudy	Dry	Visibility obstructed	Property Damage Only	69	50		V1 was stopped on Thomas B Landers Road westbound attempting to enter Route 28A when they made contact with V1 northbound on Route 28A. A large construction truck on the northbound shoulder of Route 28A obstructed the view of both vehicles.
32	9	09/21/19	Saturday	10:52 AM	Rear-end	Daylight	Clear	Dry	Distracted	Injury	62	67		V1 and V2 northbound on Route 28A when V2 rear-ended V1. OP2 stated they were distracted prior to the crash.
33	3	09/27/19	Friday	1:01 AM	Single vehicle crash	Dark - lighted roadway	Rain	Wet	Driving too fast for conditions	Injury	24			V1 was westbound on Brick Kiln Road when they ran the stop sign at the intersection with Route 28A. V1 then proceeded to cross Route 28A onto Little Neck Bars Road and struck a sign.
*34	N/A	10/03/19	Thursday	9:06 AM	Sideswipe, opposite direction	Daylight	Clear	Dry	Unknown	Property Damage Only	43	46		V1 (truck) and V2 were traveling in opposing directions on Route 28A when V2 crossed over the double yellow to overtake a boxtruck, during this maneuver V2 sideswiped V1.
35	16	10/10/19	Thursday	10:39 AM	Angle	Daylight	Rain	Wet	Failed to yield right of way	Injury	73	42		V1 southbound on Route 28A when they collided with V2 who was turning left out of 1248 Route 28A.
36	8	10/22/19	Tuesday	7:57 PM	Single vehicle crash	Dark - lighted roadway	Rain	Wet	Driving too fast for conditions	Property Damage Only	20			V1 northbound on Route 28A when they lost control after attempting to brake for a vehicle pulling out of Althea Road. V1 then departed the roadway, grazing a utility pole and striking trees. OP1 stated they may have been driving too fast during wet road conditions.
37	15	11/05/19	Tuesday	8:06 PM	Angle	Dark - lighted roadway	Cloudy	Wet	Failed to yield right of way	Property Damage Only	68	38		V1 southbound on Route 28A when they struck V2 who was attempting to turn left into the Parrot Bar & Grill northbound on Route 28A.
38	13	11/22/19	Friday	6:59 PM	Single vehicle crash	Dusk	Rain	Wet	No improper driving	Property Damage Only	49			V1 southbound on Route 28A when they were struck by a boulder that fell off from a truck in the northbound lane.
39	7	01/05/20	Sunday	2:05 AM	Single vehicle crash	Dark - lighted roadway	Rain	Wet	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Property Damage Only	58			V1 southbound around 142 North Falmouth Highway (Route 28A) when they departed the roadway into an embankment on the right side of the road.
40	4	04/26/20	Sunday	5:41 PM	Single vehicle crash	Daylight	Rain	Wet	Failure to keep in proper lane or running off road	Property Damage Only	18			V1 was southbound on Route 28A when they departed the road and crashed into some shrubs at 524 West Falmouth Highway. The roadway conditons were extremely damp from heavy rain prior to the crash.
41	6	05/03/20	Sunday	12:46 PM	Single vehicle crash	Dark - lighted roadway	Clear	Dry	Inattention	Property Damage Only	34			V1 southbound on Route 28A when they crossed over the center line into the opposing lane of traffic. V1 then partially departed the roadway, striking a mailbox on 37 North Falmouth Highway.

Crash Data Summary Table

Route 28A from Otis Rotary to Palmer Ave, Falmouth & Bourne, MA
2018 - 2021

Crash Diagram Ref #	Sheet #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Crash Severity	D1 Age	D2 Age	D3 Age	Comments
#		mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	
42	15	05/24/20	Sunday	4:02 PM	Single vehicle crash	Daylight	Clear	Dry	Glare	Injury	50			V1 was crossing County Road from the slip lane of Route 28A southbound when they struck a cyclist who was southbound on County Road. OP1 stated they did not see the cyclist due to solar glare.
43	18	06/24/20	Wednesday	7:35 PM	Angle	Daylight	Clear	Dry	Disregarded traffic signs, signals, road markings	Injury	20	43		V1 was traveling eastbound through the intersection when V2 turned left onto Route 28A coming from Otis Rotary into the path of V1, resulting in a collision.
44	12	07/16/20	Thursday	7:17 PM	Rear-end	Daylight	Clear	Dry	Inattention	Property Damage Only	37	19		V1 and V2 northbound on Route 28A, V1 was stopped for a right turn onto North Hill Drive when they were rear-ended by V2.
45	15	07/21/20	Tuesday	12:15 PM	Head on	Daylight	Clear	Dry	Failed to yield right of way	Injury	26	43		V1 southbound on Route 28A when they were struck by V2 who was attempting to turn left into the Daily Brew parking lot from Route 28A northbound.
46	15	07/29/20	Wednesday	11:33 AM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	71	40		V1 southbound on Route 28A when they were struck by V2 who was attempting to turn left into a parking lot from Route 28A northbound.
47	3	08/03/20	Monday	11:04 AM	Single vehicle crash	Daylight	Clear	Dry	Failed to yield right of way	Injury	66			V1 was attempting to turn left onto Katelyn Hills Drive from Route 28A Southbound when they were struck by a cyclist who was northbound on Route 28A. OP1 stated they did not see the cyclist prior to making the turn.
48	11	08/06/20	Thursday	10:39 AM	Single vehicle crash	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	80			V1 was turning right out of the North Falmouth Post Office onto Route 28A southbound when they struck a pedestrian walking their bicycle in the crosswalk.
49	17	08/12/20	Wednesday	12:08 PM	Angle	Daylight	Clear	Dry	Inattention	Property Damage Only	81	24		V1 (tractor trailer) was backing into a dirt lot at 1131 Route 28A when they were struck by V2. V2 was northbound on Route 28A when they failed to stop for V1 when they were already established in the roadway.
50	16	09/08/20	Tuesday	4:23 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	Property Damage Only	42	22		V1 and V2 southbound on Route 28A. V1 was stopped in traffic for vehicles turning off the roadway when they were rear-ended by V2.
51	9	09/23/20	Wednesday	10:37 AM	Sideswipe, same direction	Daylight	Clear	Dry	No improper driving	Property Damage Only	40	59		V1 and V2 southbound on Route 28A when V1 was sideswiped by V2. V1 was attempting to make a left turn into Dover Hill Road when V2 passed on the left, sideswiping V1.
52	10	10/04/20	Sunday	2:36 PM	Angle	Daylight	Clear	Dry	No improper driving	Property Damage Only	57	87		V1 southbound on Route 28A when they struck V2 who was attempting to turn left into 412 North Falmouth Highway from Route 28A northbound. Witnesses state that V2 made an abrupt stop, followed by a quick left turn into the path of V1.
53	17	10/05/20	Monday	9:57 AM	Rear-end	Daylight	Rain	Wet	Made an improper turn	Property Damage Only	51	53		V1 southbound on Route 28A when V2 turned left from Millenium Drive into the path of V1; V1 was unable to stop on time and rear-ended V2.
54	7	10/28/20	Wednesday	11:47 PM	Single vehicle crash	Dark - roadway not lighted	Clear	Wet	Physical impairment, Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Property Damage Only	24			V1 northbound on Route 28A when they crashed into a utility pole in front of 173 North Falmouth Highway. OP1 was distracted by his phone. Police state alcohol may have been a factor.
55	15	01/26/21	Tuesday	1:40 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	58	39		V1 southbound on Route 28A. V2 was turning left into Route 28A from the driveway of #1379; V2 did not yield to V1 which caused V1 to strike V2.
56	1	01/29/21	Friday	5:27 PM	Angle	Dark - lighted roadway	Clear	Dry	Inattention	Injury	80	54		V1 southbound on Route 28A when they were struck by V2 who was attempting to turn left onto Palmer Ave from Route 28A northbound.
57	18	02/18/21	Thursday	3:01 PM	Single vehicle crash	Daylight	Snow	Snow	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Property Damage Only	49			V1 was traveling eastbound through the intersection at a low speed when they struck a street sign on a island. OUI Liquor.
58	18	03/23/21	Tuesday	2:54 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	17	45		V1 was traveling eastbound through the intersection when V2 turned left onto Route 28A from Otis Rotary into the path of V1, resulting in a collision.
59	2	04/05/21	Monday	1:38 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Property Damage Only	57	52		V1 southbound on Route 28A. V2 was pulling out of the driveway of 296 West Falmouth Highway onto Route 28A. V2 drove into the path of V1, causing V1 to strike V2. OP2 stated they didn't see V1.
60	9	05/19/21	Wednesday	5:24 PM	Rear-end	Daylight	Clear	Dry	Unknown	Property Damage Only	23	18		V1 turned left onto Route 28A northbound from 372 North Falmouth Highway. V2 northbound on Route 28A rear-ended V1 as they entered the roadway.
61	13	05/22/21	Saturday	6:03 PM	Rear-end	Daylight	Cloudy	Dry	Distracted	Injury	21	57		V1 and V2 northbound on Route 28A. V1 stopped to take a left turn when they were rear-ended by V2.
62	14	05/24/21	Monday	2:28 AM	Single vehicle crash	Dark - roadway not lighted	Clear	Dry	Fatigued/asleep	Injury	31			V1 northbound on Route 28A when they crossed into the opposing lane and departed the roadway into a utility pole. OP2 stated they fell asleep.

Crash Data Summary Table

Route 28A from Otis Rotary to Palmer Ave, Falmouth & Bourne, MA
2018 - 2021

Crash Diagram Ref #	Sheet #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Crash Severity	D1 Age	D2 Age	D3 Age	Comments
#		mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	
63	12	06/06/21	Sunday	12:52 AM	Single vehicle crash	Dark - lighted roadway	Clear	Dry	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Unknown	41			V1 southbound on Route 28A. As they were coming into a curve in the road, V1 departed the roadway and struck a guide wire on a utility pole. V1 was reported to be traveling at a high rate of speed.
64	3	06/24/21	Thursday	5:05 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	Property Damage Only	62	52		V1 turned right onto Route 28A northbound from Brick Kiln Road. V2 repeated the same maneuver and in the process rear-ended V1 on Route 28A.
65	6	07/01/21	Thursday	4:07 PM	Rear-end	Daylight	Cloudy	Dry	No improper driving	Property Damage Only	20	21		V1 and V2 stopped westbound on Thomas B. Landers Road. V1 was rear-end by V2 as they were waiting for a gap in traffic to turn left onto Route 28A southbound. OP2 stated they thought V1 had already completed the turn.
66	12	08/12/21	Thursday	12:45 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Injury	58	80		V1 (motorcycle) southbound on Route 28A when V2 turned into the path of V1, causing V1 to strike V2. V2 was attempting to turn left from 660 North Falmouth Highway onto Route 28A northbound and did not see V1.
67	14	08/15/21	Sunday	3:16 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Injury	67	66		V1 southbound on Route 28A when they collided with V2 who failed to yield while turning left into 1412 Route 28A.
68	5	09/01/21	Wednesday	4:17 AM	Single vehicle crash	Dark - lighted roadway	Clear	Dry	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Injury	42			V1 was traveling at a high speed southbound on Route 28A when they veered off the roadway into a telephone pole, shrubbery, and finally an embankment.
69	16	09/04/21	Saturday	4:59 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	Property Damage Only	22	22		V1 and V2 southbound on Route 28A when V1 was rear-ended by V2. OP2 stated they sneezed and looked away at the time of the crash.
70	18	09/30/21	Thursday	9:34 AM	Angle	Daylight	Clear	Dry	Unknown	Injury	61	32		V1 northbound on Route 28A when they were struck by V2, who was eastbound on Lake Drive. OP2 claimed they had a green light and that V1 had failed to stop for their red light.
71	11	09/30/21	Thursday	2:55 PM	Angle	Daylight	Clear	Dry	Failure to keep in proper lane or running off road	Property Damage Only	75	80		V1 was stopped westbound at the intersection of Pebble Lane and Route 28A. V2, southbound on Route 28A, attempted to make a left turn onto Pebble Lane when they entered V1's lane and struck V1.
72	14	10/03/21	Sunday	1:32 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	Injury	49	59		V1 and V2 southbound on Route 28A. V1 was slowing to turn left onto Sanderling Drive when they were rear-ended by V2.
73	17	10/04/21	Monday	6:47 AM	Angle	Daylight	Rain	Wet	Inattention	Property Damage Only	17	48		V1 (tractor trailer) was attempting to turn left onto Route 28A from the parking lot of 1227 Route 28A when they were struck by V2 northbound on Route 28A. OP2 stated they were unable to see V1 due to heavy rainfall.
74	2	10/21/21	Thursday	5:27 PM	Single vehicle crash	Daylight	Clear	Dry	No improper driving	Injury	67			V1 (motorcycle) southbound on Route 28A when a turkey ran into the path of V1, causing them to lose control; V1 fell to its side and skidded down the roadway before coming to a stop.
75	4	12/16/21	Thursday	7:01 PM	Single vehicle crash	Dark - lighted roadway	Clear	Dry	Made an improper turn	Property Damage Only	84			V1 southbound on Route 28A took a left turn into 633 West Falmouth Highway, in the process they crashed into a tree stump.

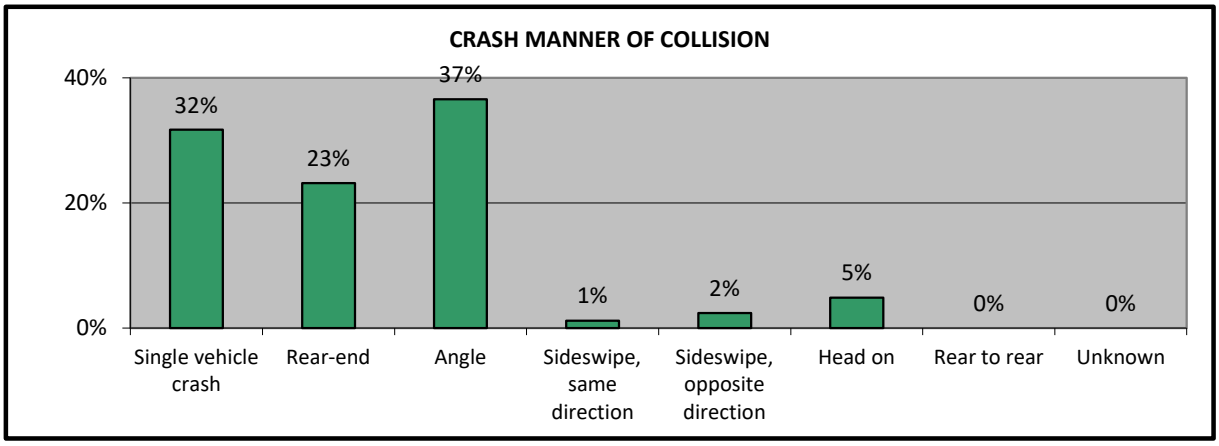
*Exact location of crash is unable to be determined

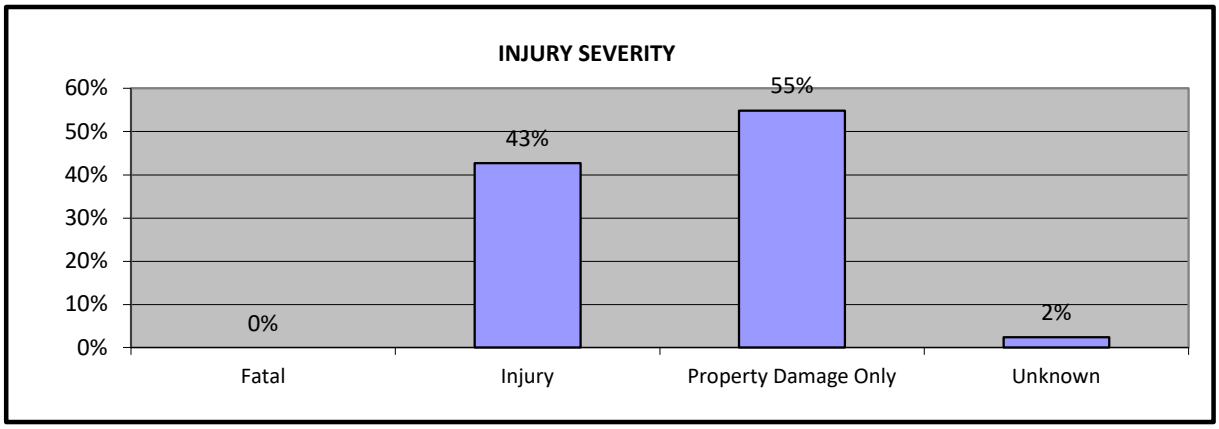
**Courtesy Crash - A term used to describe a crash that occurs subsequent to a non-involved mainline driver who gives the right of way, contrary to the rules of the road, to another driver.

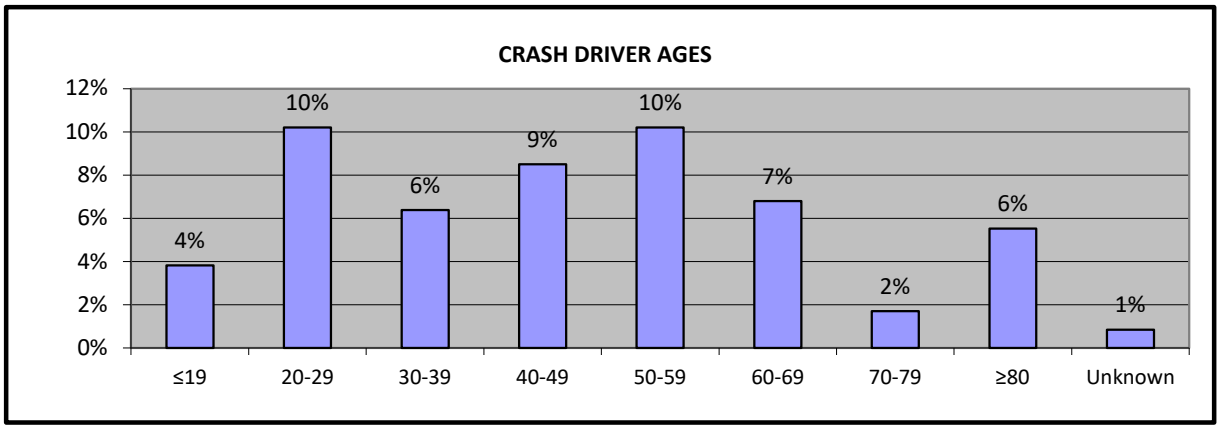
Summaries based on crash reports obtained from the Falmouth & Bourne Police Departments.

Crash Data Summary Charts

Route 28A from Otis Rotary to Palmer Ave, Falmouth & Bourne, MA

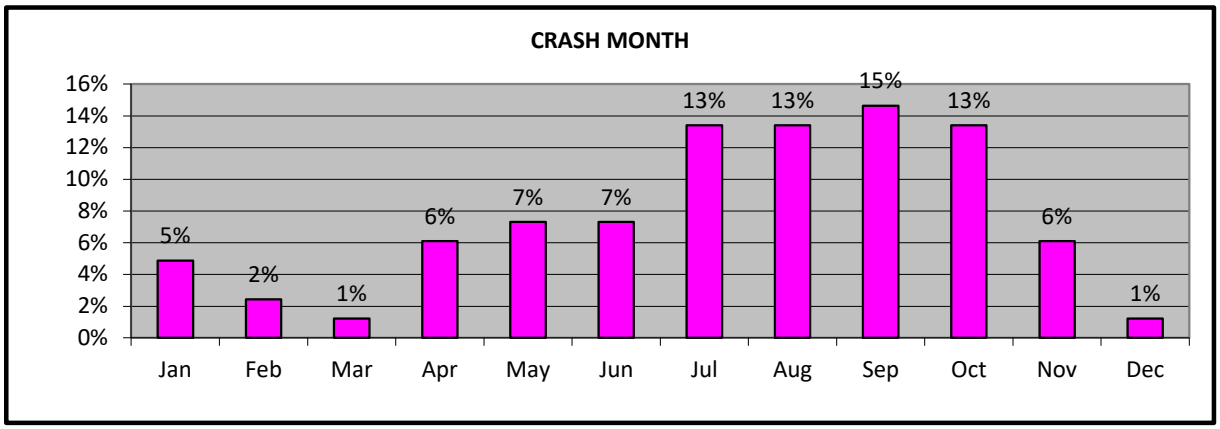


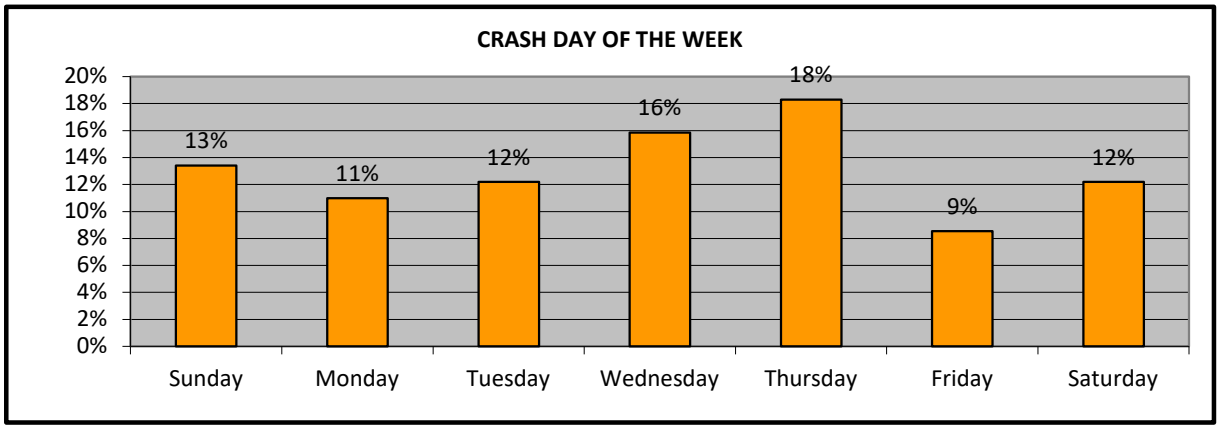


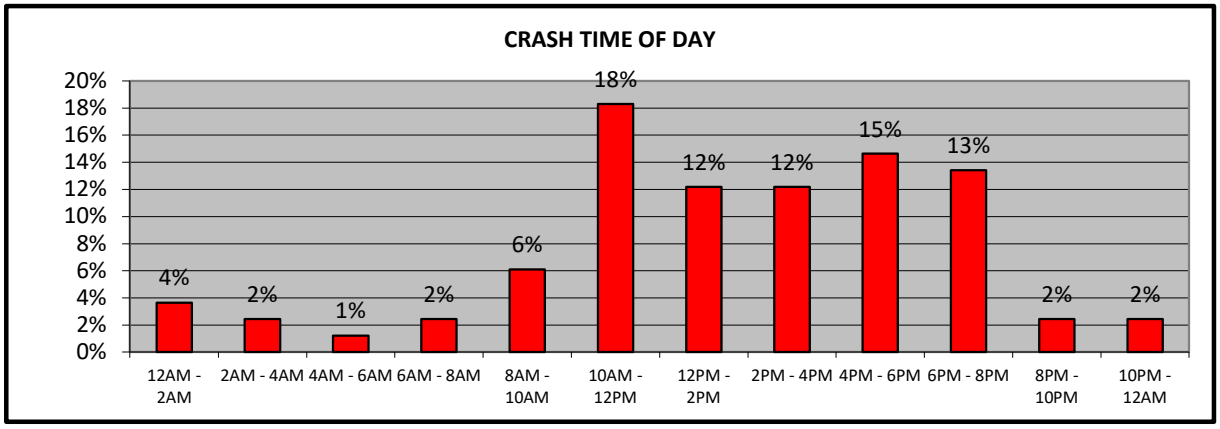


Crash Data Summary Charts

Route 28A from Otis Rotary to Palmer Ave, Falmouth & Bourne, MA

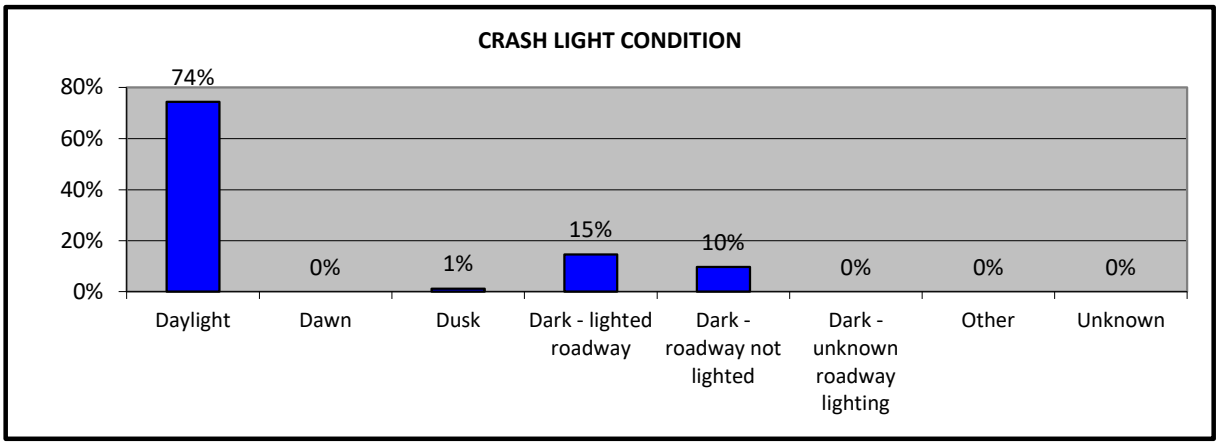


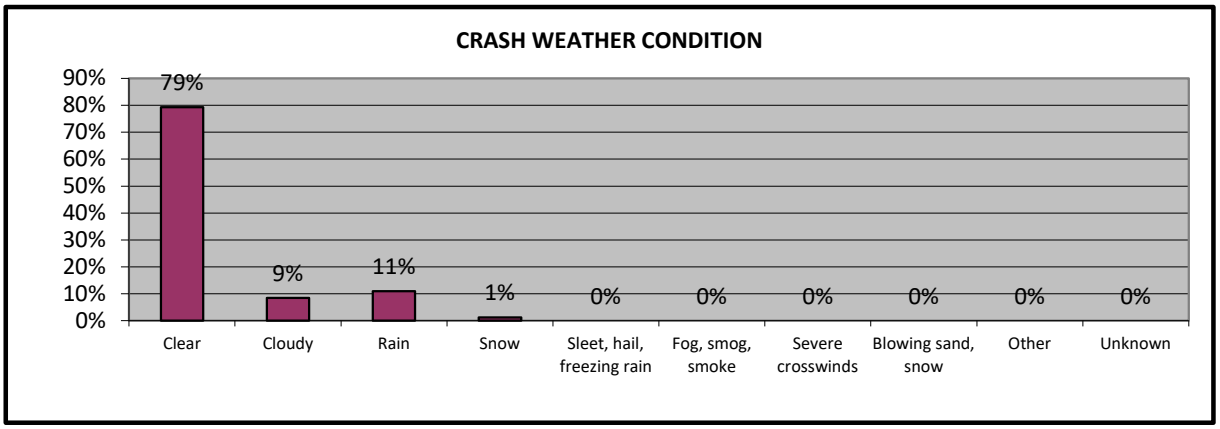


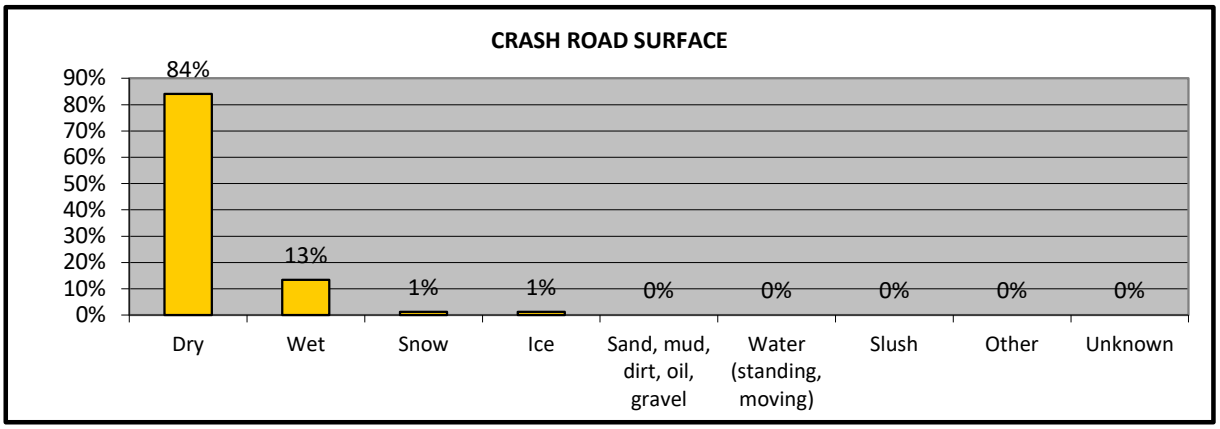


Crash Data Summary Charts

Route 28A from Otis Rotary to Palmer Ave, Falmouth & Bourne, MA







MassDOT
Massachusetts Department of Transportation
Highway Division

CRASH DIAGRAM A

SYMBOLS

- Moving Vehicle
- Backing Vehicle
- Non–Involved Vehicle

Involved	Non–Involved	
		Pedestrian
		Bicycle
		Animal
→	⇢	Direction of Motion
		Parked Vehicle
		Fixed Object

TYPE OF CRASH

- Head on
- Rear End
- Angle
- Turning Movement
- Sideswipe
- Out of Control
- Night Time or Twilight Crash

SEVERITY

- (#) Injury
- (#) Fatal
- # Property Damage Only

FALMOUTH, MA

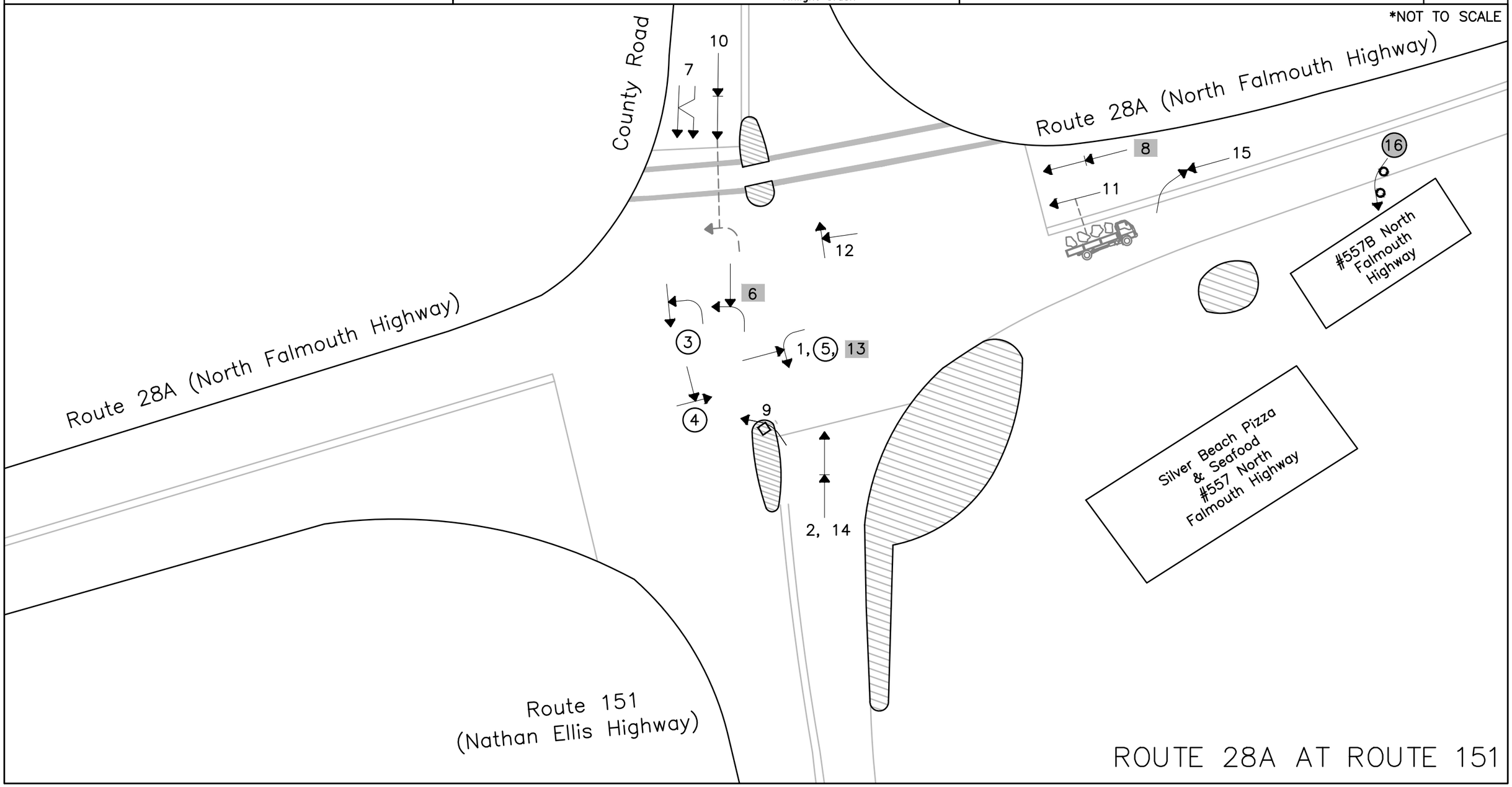
Route 28A (North Falmouth Highway) at Route 151 (Nathan Ellis Highway) and County Road

REGION: CCC

TIME PERIOD ANALYZED: 2018–2021
SOURCE OF CRASH REPORTS: FALMOUTH POLICE DEPARTMENT
DATE PREPARED: 08/12/2024
PREPARED BY: SQ

SHEET 1 OF 1

*NOT TO SCALE



ROUTE 28A AT ROUTE 151

Crash Data Summary Table

Route 28A (North Falmouth Highway) at Route 151 (Nathan Ellis Highway) and County Road, Falmouth, MA

2018 - 2021

Crash Diagram Ref #	Crash Date	Crash Day	Time of Day	Manner of Collision	Light Condition	Weather Condition	Road Surface	Driver Contributing Code	Crash Severity	D1 Age	D2 Age	D3 Age	Comments
#	mm/dd/yy	Day	hh:mm	Type	Type	Type	Type	Type	Type	#	#	#	
1	05/16/18	Wednesday	3:48 PM	Angle	Daylight	Cloudy	Dry	Failed to yield right of way	Property Damage Only	37	30		V1 was making a left turn from Route 28A onto Route 151 when they were struck by V2 who was northbound on Route 28A.
2	05/25/18	Friday	2:00 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	Property Damage Only	22	58		V1 and V2 was stopped at the intersection of Route 28A and Route 151 on the westbound approach when V2 rear-ended V1. OP2 stated they thought the light was green before rear-ending V1.
3	06/04/18	Monday	3:30 PM	Angle	Daylight	Rain	Wet	Failed to yield right of way	Injury	19	75		V1 eastbound on County Road when they were struck by V2 who was attempting to turn left onto Route 28A southbound. V1 had a green light and the right of way, V2 failed to yield.
4	06/20/18	Wednesday	7:09 AM	Angle	Daylight	Clear	Dry	Inattention	Injury	58	35		V1 eastbound on County Road when they struck V2 northbound on Route 28A. V1 had a green light, while V2 ran the red light.
5	06/20/18	Wednesday	5:59 PM	Angle	Daylight	Clear	Dry	Failed to yield right of way	Injury	30	60		V1 was traveling northbound on Route 28A with a green light when they were struck by V2 who was attempting to turn left onto Route 151 from Route 28A SB. Operator of V2 stated they misjudged the speed and distance of V1.
6	06/29/18	Friday	9:40 PM	Angle	Dark - lighted roadway	Clear	Dry	Failed to yield right of way	Property Damage Only	57	28		V1 was traveling west on Route 151 and V2 was traveling east on County Road. Both vehicles had a green light and preceded into the intersection, when V1 turned left in front of V2, resulting in a collision.
7	07/12/18	Thursday	5:29 PM	Sideswipe, same direction	Daylight	Clear	Dry	Inattention	Property Damage Only	20	17		V1 and V2 eastbound on County Road. V1 was approaching the intersection and had attempted to pass V2 on the right when V2 sideswiped them as V2 was attempting to go around an uninvolved vehicle.
8	12/19/18	Wednesday	5:43 PM	Rear-end	Dark - lighted roadway	Clear	Dry	Inattention	Property Damage Only	63	56		V1 and V2 southbound on Route 28A. V1 was rear-ended by V2 as it was slowing down for the upcoming traffic light.
9	07/06/19	Saturday	1:06 PM	Single vehicle crash	Daylight	Clear	Dry	Other improper action	Property Damage Only	32			V1 (tractor trailer) was attemping to turn left onto Route 28A from Route 151 as another vehicle was approaching, when they turned too sharply and knocked down a traffic light.
10	07/27/19	Saturday	6:19 PM	Rear-end	Daylight	Clear	Dry	Followed too closely	Property Damage Only	65	84	Unknown	V1 and V2 stopped eastbound on County Road for red light. As the light turned green V1 traveled forward briefly before stopping for an opposing left turning vehicle, in the process V2 rear-ended V1.
11	09/27/19	Friday	10:40 AM	Single vehicle crash	Daylight	Clear	Dry	No improper driving	Property Damage Only	63	41		V1 was stopped at the traffic light southbound on Route 28A when large rocks fell out of a dump truck onto V1. The Dump truck was turning right when one of the locking pins in the dump body failed, causing the rocks to spill.
12	07/21/20	Tuesday	5:58 PM	Angle	Daylight	Clear	Dry	Inattention	Property Damage Only	31	66		V1 was westbound crossing the intersection of Route 28A and County Road when they were struck by V2 who ran a red light traveling southbound from Route 28A.
13	07/23/20	Thursday	9:38 PM	Angle	Dark - lighted roadway	Clear	Dry	Failed to yield right of way	Property Damage Only	57	19		V1 northbound on Route 28A when V2 pulled into the path of V1, causing V1 to strike V2. V2, southbound on Route 28A, was attempting to turn left onto Route 151; OP2 stated they did not see V1.
14	10/28/20	Wednesday	2:08 PM	Rear-end	Daylight	Rain	Wet	Inattention	Property Damage Only	48	80		V1 was stopped for a red light at the intersection of Route 28A and Route 151 when they were rear-ended by V2.
15	06/22/21	Tuesday	6:45 PM	Angle	Daylight	Rain	Wet	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Property Damage Only	57	49		V1 southbound on Route 28A was slowing down for the red light when they were struck by V2. V2 was attempting to turn right onto Route 28A from Route 151 when they turned too wide and entered the other lane, striking V1.
16	08/14/21	Saturday	9:37 PM	Single vehicle crash	Dark - lighted roadway	Clear	Dry	No improper driving	Injury	56			V1 (truck) southbound on Route 28A when they struck the curb on the right side of the road. Operator of V1 stated they could not keep the truck on the road after striking the curb, which caused the truck to drive into a building on left side of the road.

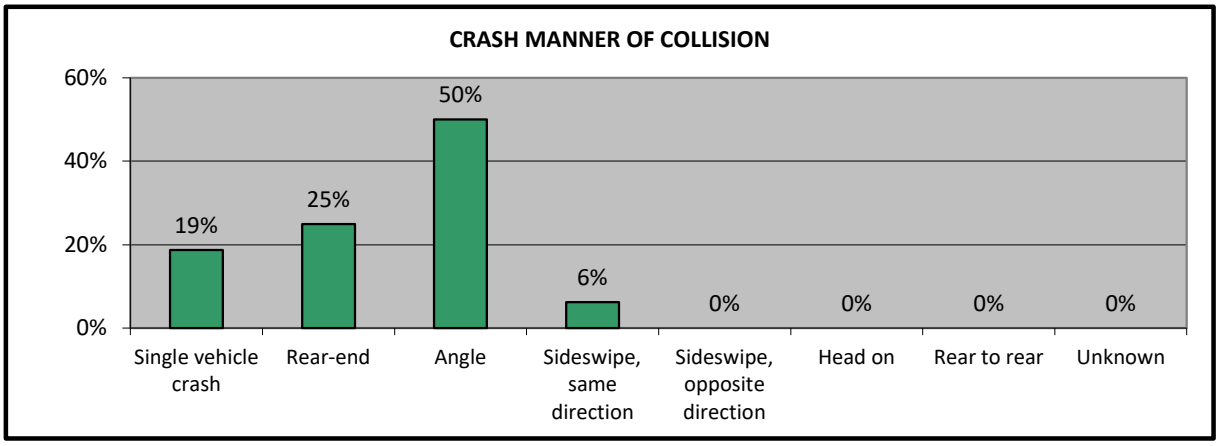
*Exact location of crash is unable to be determined

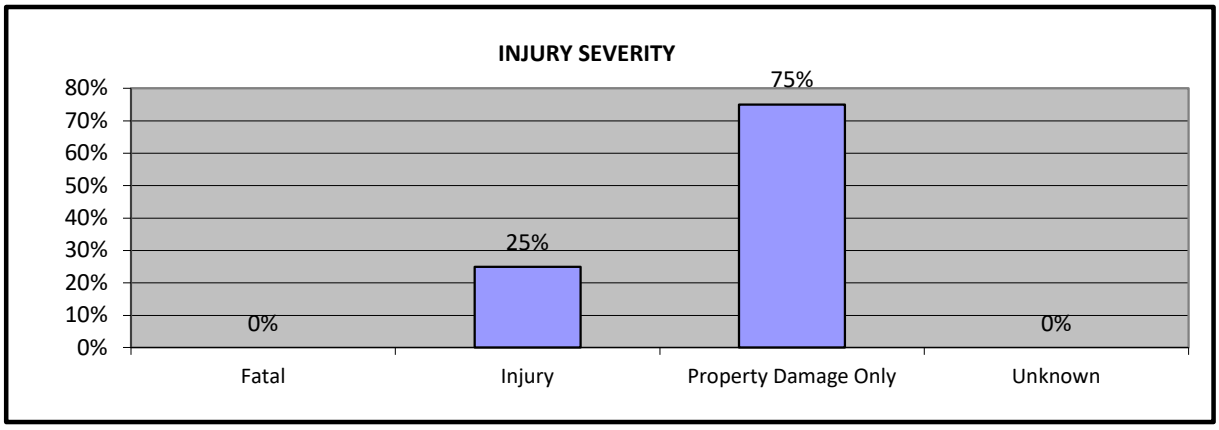
**Courtesy Crash - A term used to describe a crash that occurs subsequent to a non-involved mainline driver who gives the right of way, contrary to the rules of the road, to another driver.

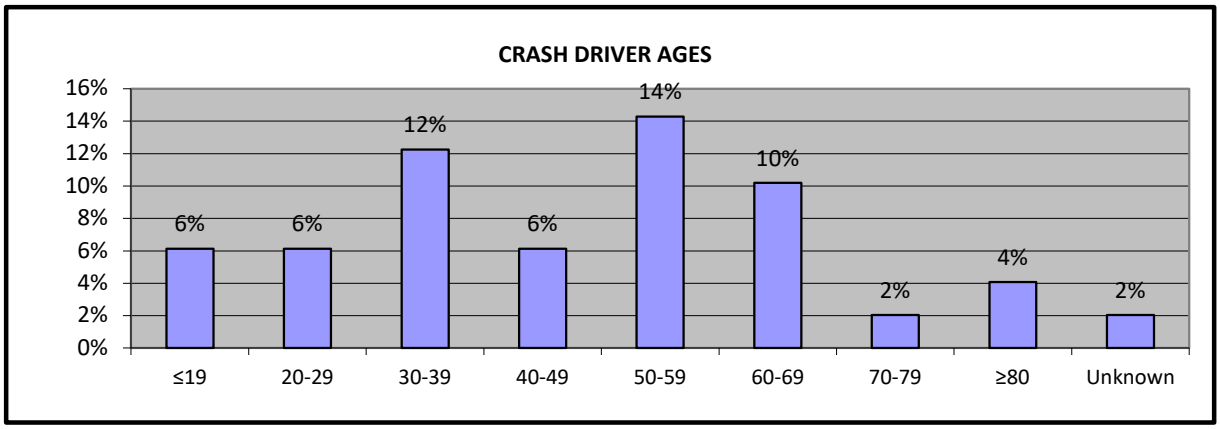
Summaries based on crash reports obtained from the Falmouth Police Department.

Crash Data Summary Charts

Route 28A (North Falmouth Highway) at Route 151 (Nathan Ellis Highway) and County Road, Falmouth, MA

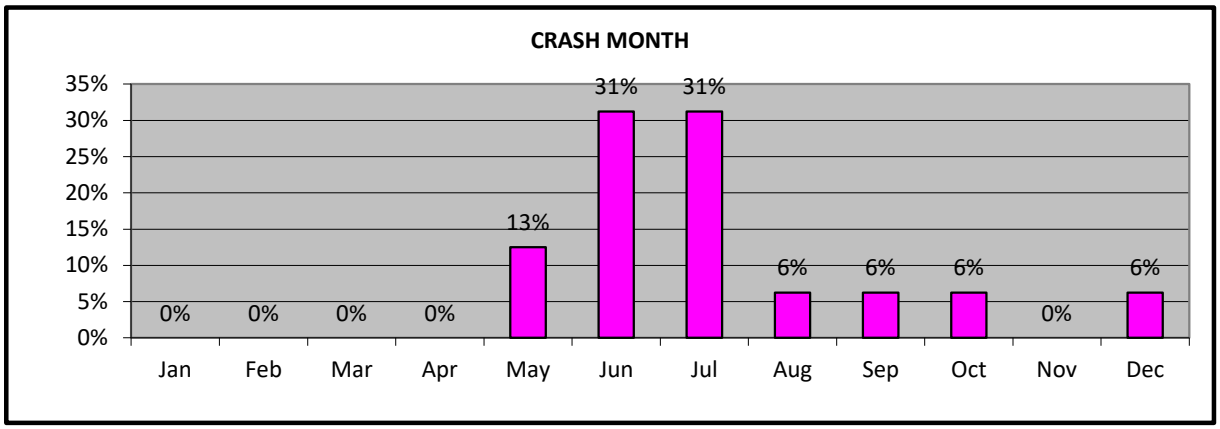


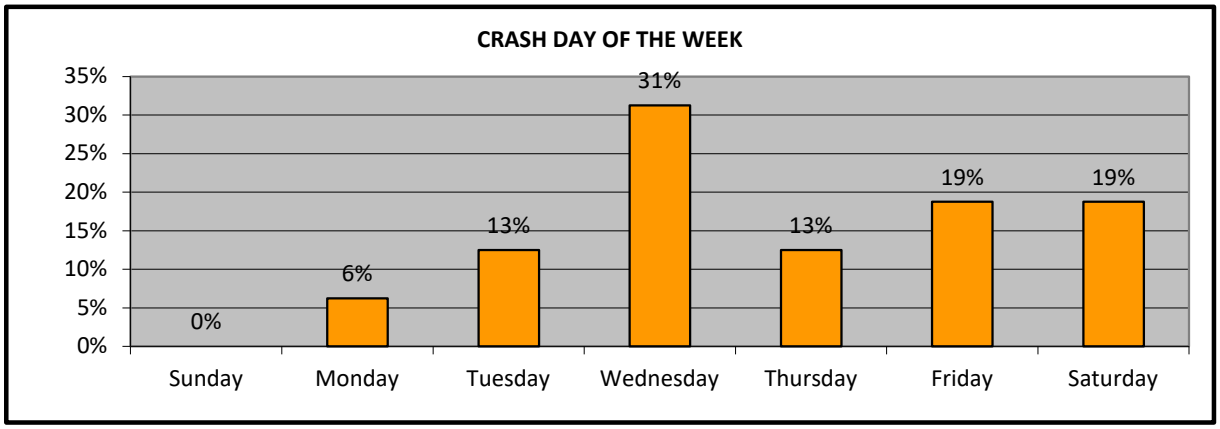


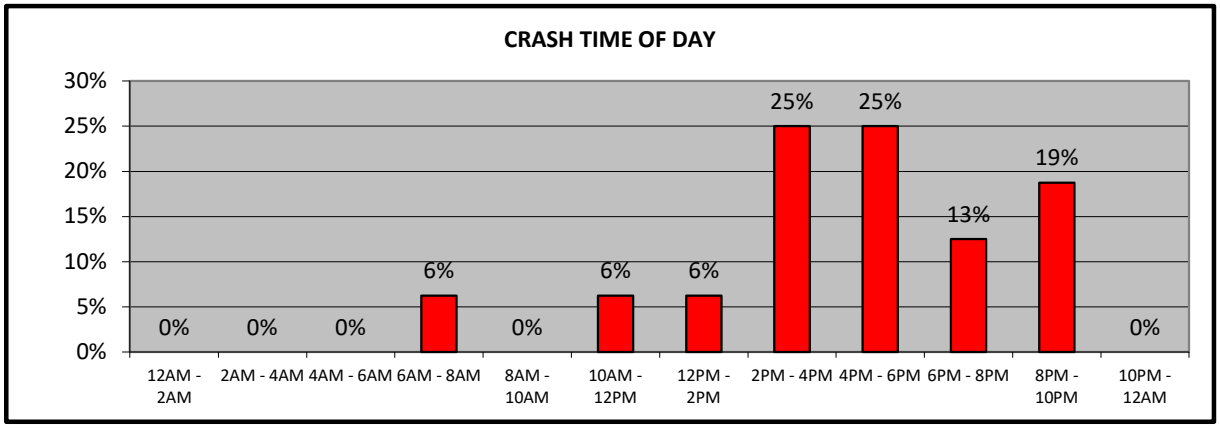


Crash Data Summary Charts

Route 28A (North Falmouth Highway) at Route 151 (Nathan Ellis Highway) and County Road, Falmouth, MA

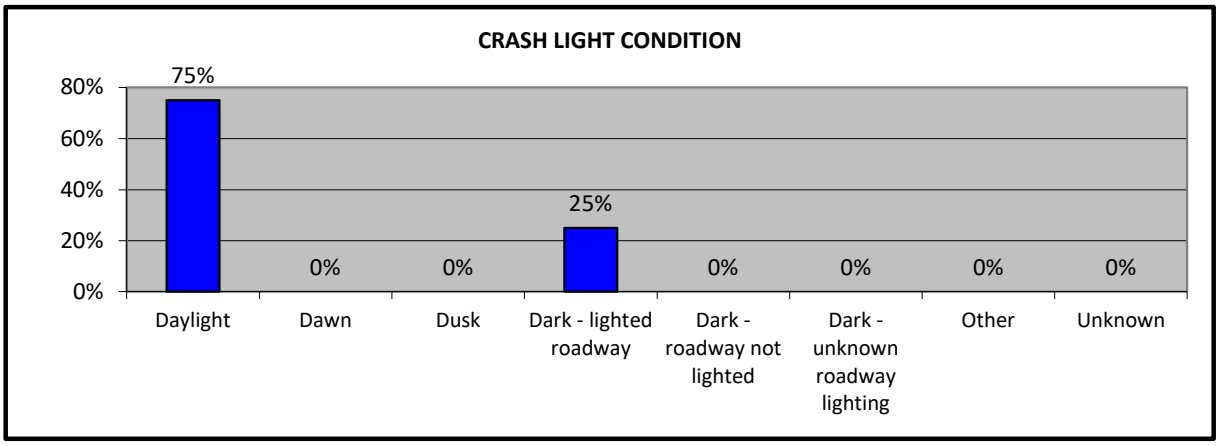


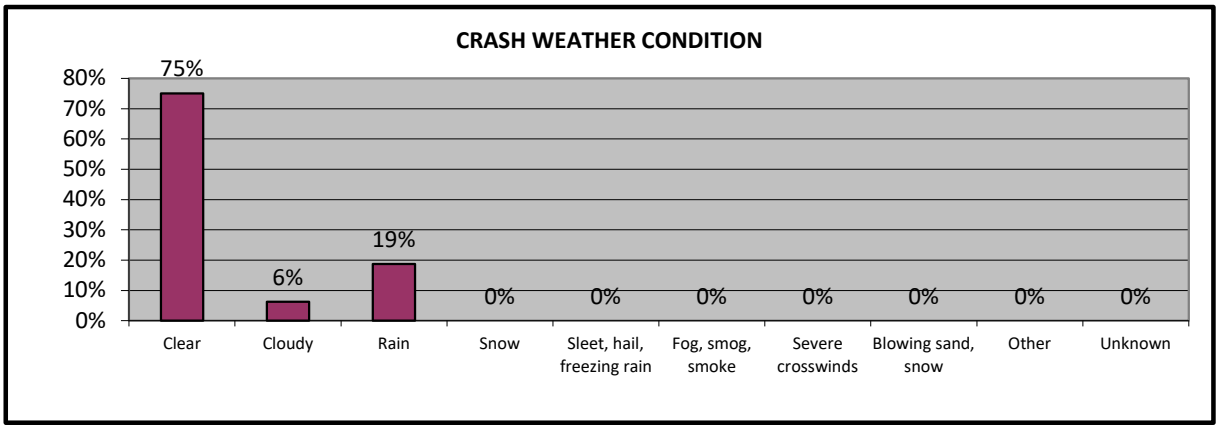


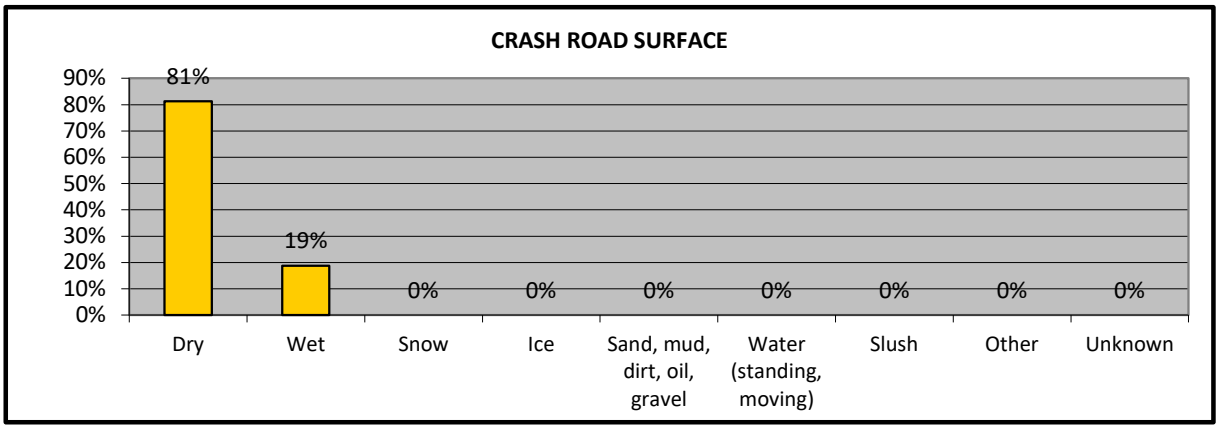


Crash Data Summary Charts

Route 28A (North Falmouth Highway) at Route 151 (Nathan Ellis Highway) and County Road, Falmouth, MA



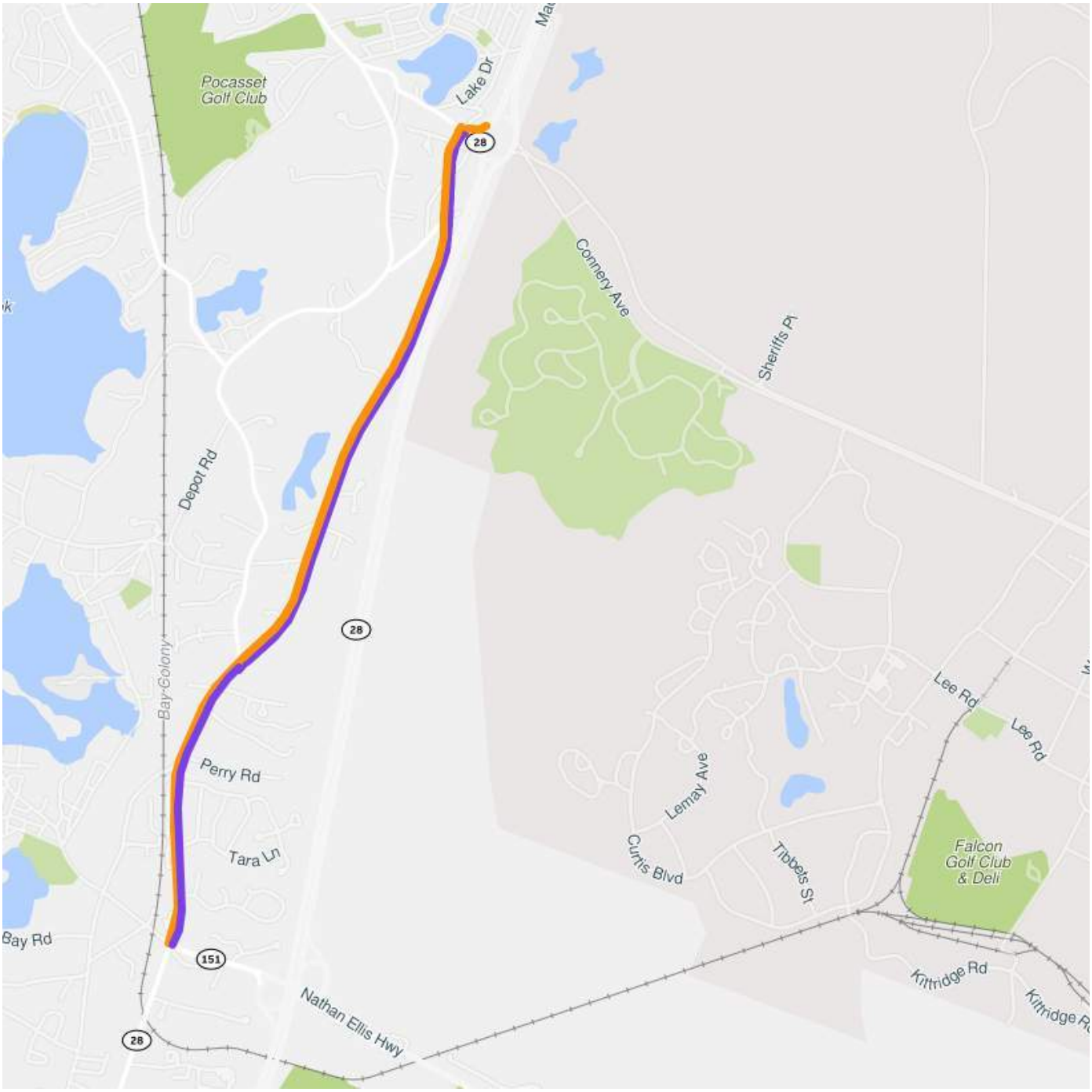




Appendix D. INRIX Speed Data

RT 28A between Lake Dr and RT 151 (Nathan Ellis Hwy)
Jan 2024-Dec 2024

Ritis Screenshot



Segment Codes Used

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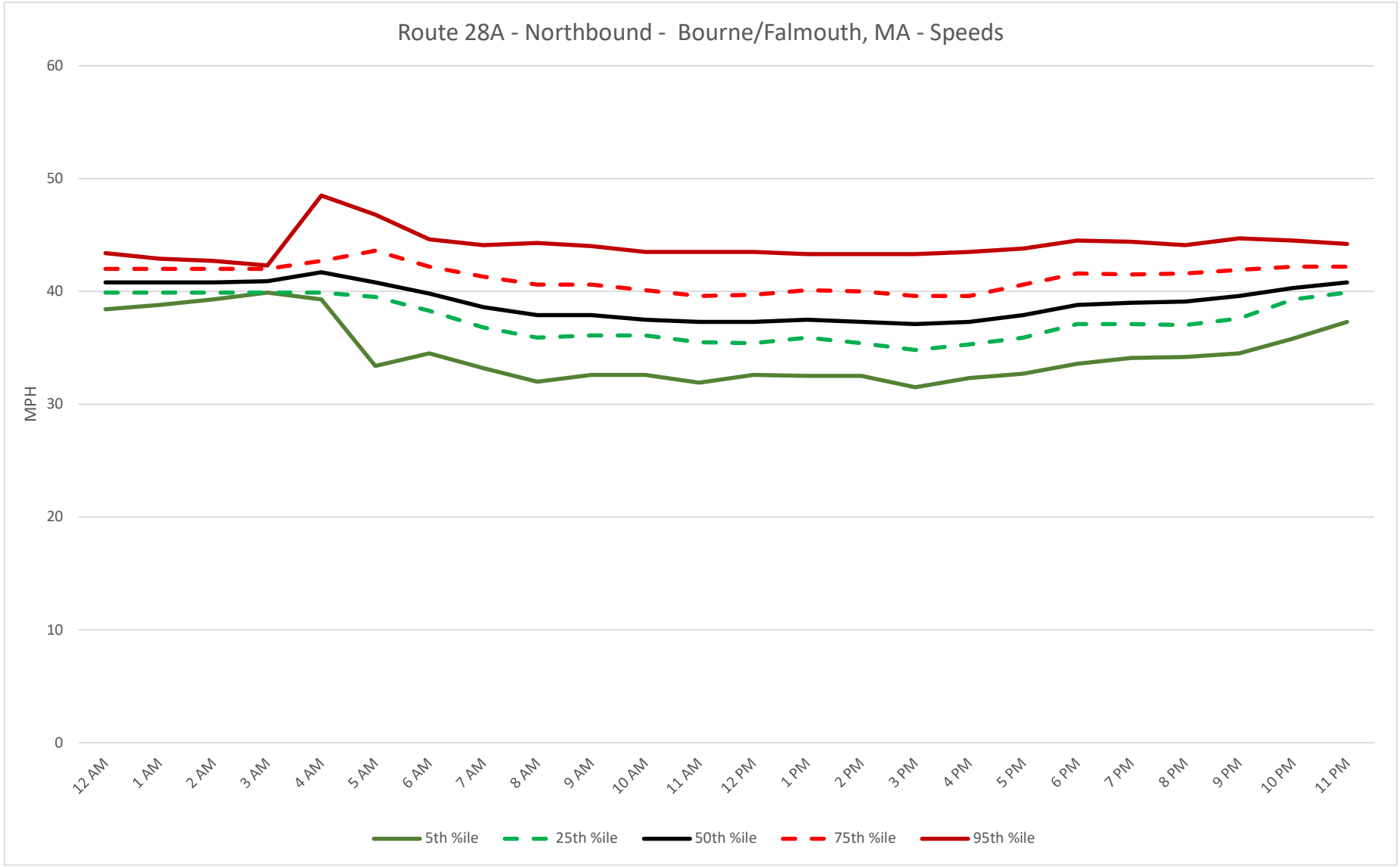
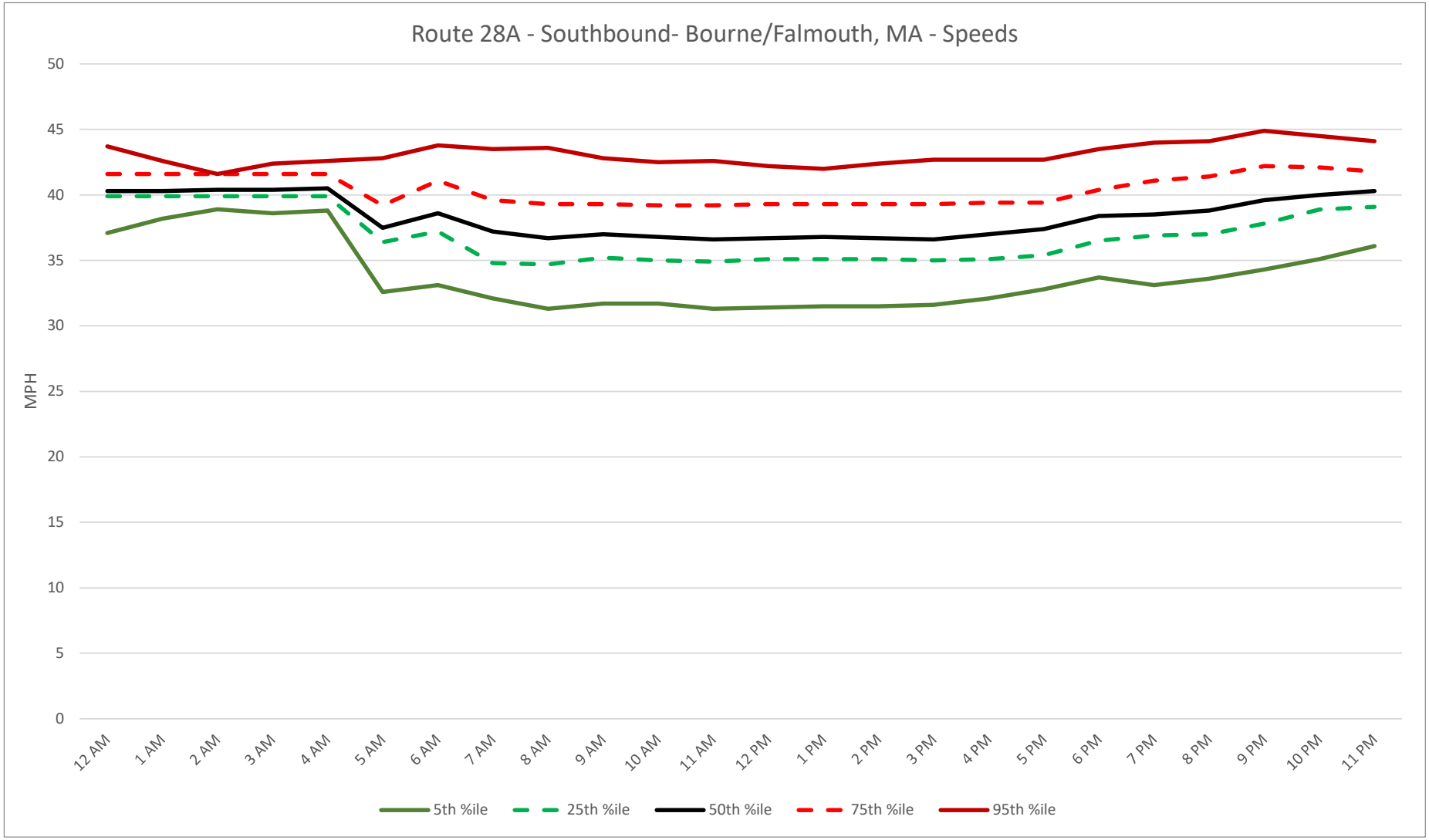
1263225093, 1263225074, 1263149488, 1262973972, 1263201894, 1263201795

RT 28A between Lake Dr and RT 151 (Nathan Ellis Hwy)
Jan 2024-Dec 2024

	Northbound/Eastbound						Southbound/Westbound				
Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile	Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
12 AM	40.8	38.4	43.4	39.9	42	12 AM	40.3	37.1	43.7	39.9	41.6
1 AM	40.8	38.8	42.9	39.9	42	1 AM	40.3	38.2	42.6	39.9	41.6
2 AM	40.8	39.3	42.7	39.9	42	2 AM	40.4	38.9	41.6	39.9	41.6
3 AM	40.9	39.9	42.3	39.9	42	3 AM	40.4	38.6	42.4	39.9	41.6
4 AM	41.7	39.3	48.5	39.9	42.7	4 AM	40.5	38.8	42.6	39.9	41.6
5 AM	40.8	33.4	46.8	39.5	43.6	5 AM	37.5	32.6	42.8	36.4	39.2
6 AM	39.8	34.5	44.6	38.3	42.2	6 AM	38.6	33.1	43.8	37.2	41.1
7 AM	38.6	33.2	44.1	36.8	41.3	7 AM	37.2	32.1	43.5	34.8	39.6
8 AM	37.9	32	44.3	35.9	40.6	8 AM	36.7	31.3	43.6	34.7	39.3
9 AM	37.9	32.6	44	36.1	40.6	9 AM	37	31.7	42.8	35.2	39.3
10 AM	37.5	32.6	43.5	36.1	40.1	10 AM	36.8	31.7	42.5	35	39.2
11 AM	37.3	31.9	43.5	35.5	39.6	11 AM	36.6	31.3	42.6	34.9	39.2
12 PM	37.3	32.6	43.5	35.4	39.7	12 PM	36.7	31.4	42.2	35.1	39.3
1 PM	37.5	32.5	43.3	35.9	40.1	1 PM	36.8	31.5	42	35.1	39.3
2 PM	37.3	32.5	43.3	35.4	40	2 PM	36.7	31.5	42.4	35.1	39.3
3 PM	37.1	31.5	43.3	34.8	39.6	3 PM	36.6	31.6	42.7	35	39.3
4 PM	37.3	32.3	43.5	35.3	39.6	4 PM	37	32.1	42.7	35.1	39.4
5 PM	37.9	32.7	43.8	35.9	40.6	5 PM	37.4	32.8	42.7	35.4	39.4
6 PM	38.8	33.6	44.5	37.1	41.6	6 PM	38.4	33.7	43.5	36.5	40.4
7 PM	39	34.1	44.4	37.1	41.5	7 PM	38.5	33.1	44	36.9	41.1
8 PM	39.1	34.2	44.1	37	41.6	8 PM	38.8	33.6	44.1	37	41.4
9 PM	39.6	34.5	44.7	37.6	41.9	9 PM	39.6	34.3	44.9	37.8	42.2
10 PM	40.3	35.8	44.5	39.3	42.2	10 PM	40	35.1	44.5	38.9	42.1
11 PM	40.8	37.3	44.2	39.9	42.2	11 PM	40.3	36.1	44.1	39.1	41.8

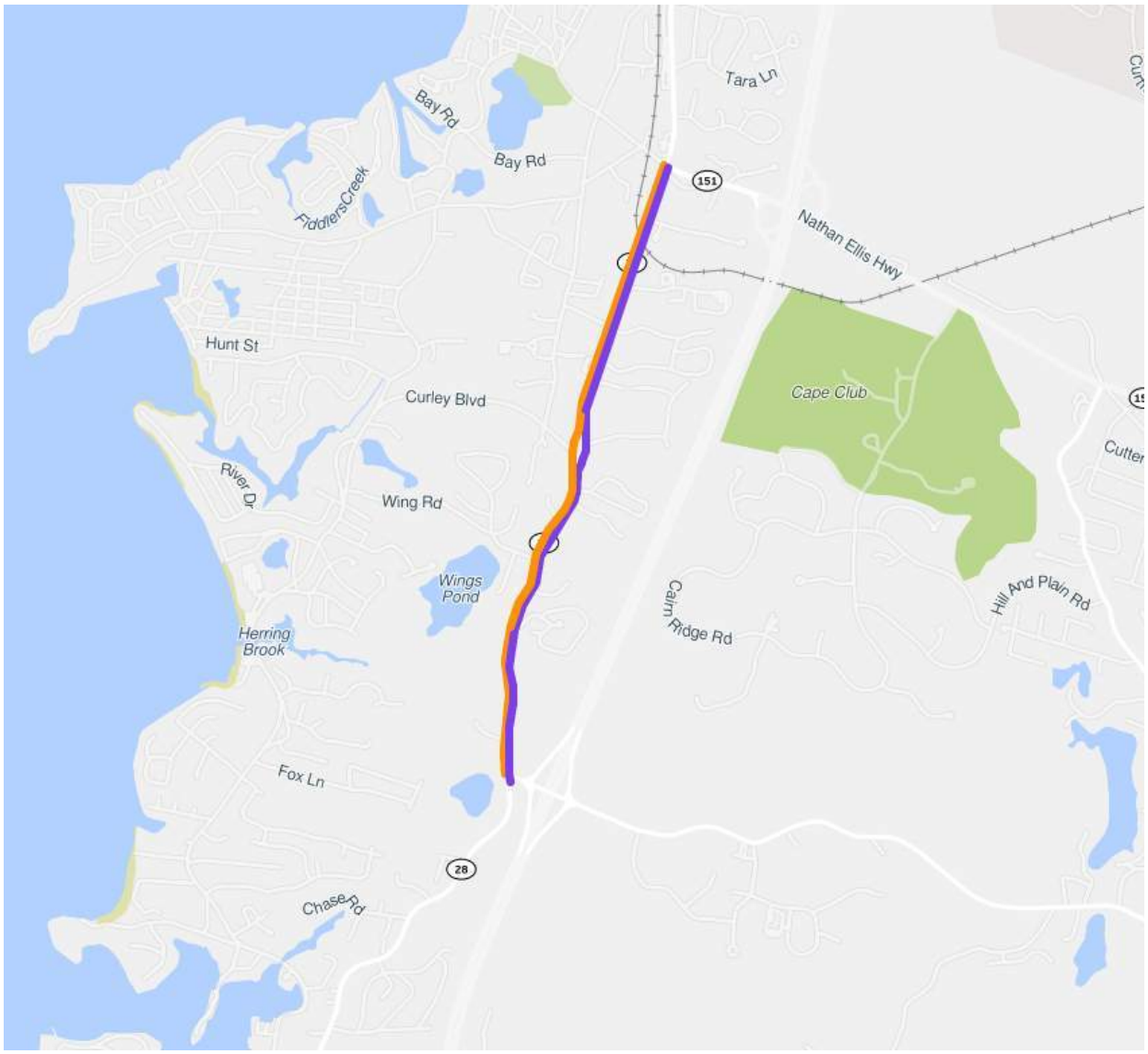
	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile		50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
Maximum Speed	41.7	39.9	48.5	39.9	43.6	Maximum Speed	40.5	38.9	44.9	39.9	42.2
Hour of Maximum	4 AM	3 AM	4 AM	12 AM	5 AM	Hour of Maximum	4 AM	2 AM	9 PM	12 AM	9 PM
Average Speed	39.0	34.6	44.1	37.4	41.2	Average Speed	38.3	33.8	43.1	36.9	40.4
AM Peak Average Speed	38.0	32.6	44.0	36.2	40.7	AM Peak Average Speed	36.9	31.7	43.1	34.9	39.4
PM Peak Average Speed	37.8	32.5	43.8	35.8	40.4	PM Peak Average Speed	37.4	32.6	42.9	35.5	39.6


Route 28A - Northbound - Bourne/Falmouth, MA - Speeds
60
50
40
30
20
10
0
MPH
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile


Route 28A - Southbound- Bourne/Falmouth, MA - Speeds
MPH
50
45
40
35
30
25
20
15
10
5
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile

RT 28A between RT 151 and Thomas B Landers Rd
Jan 2024-Dec 2024

Ritis Screenshot

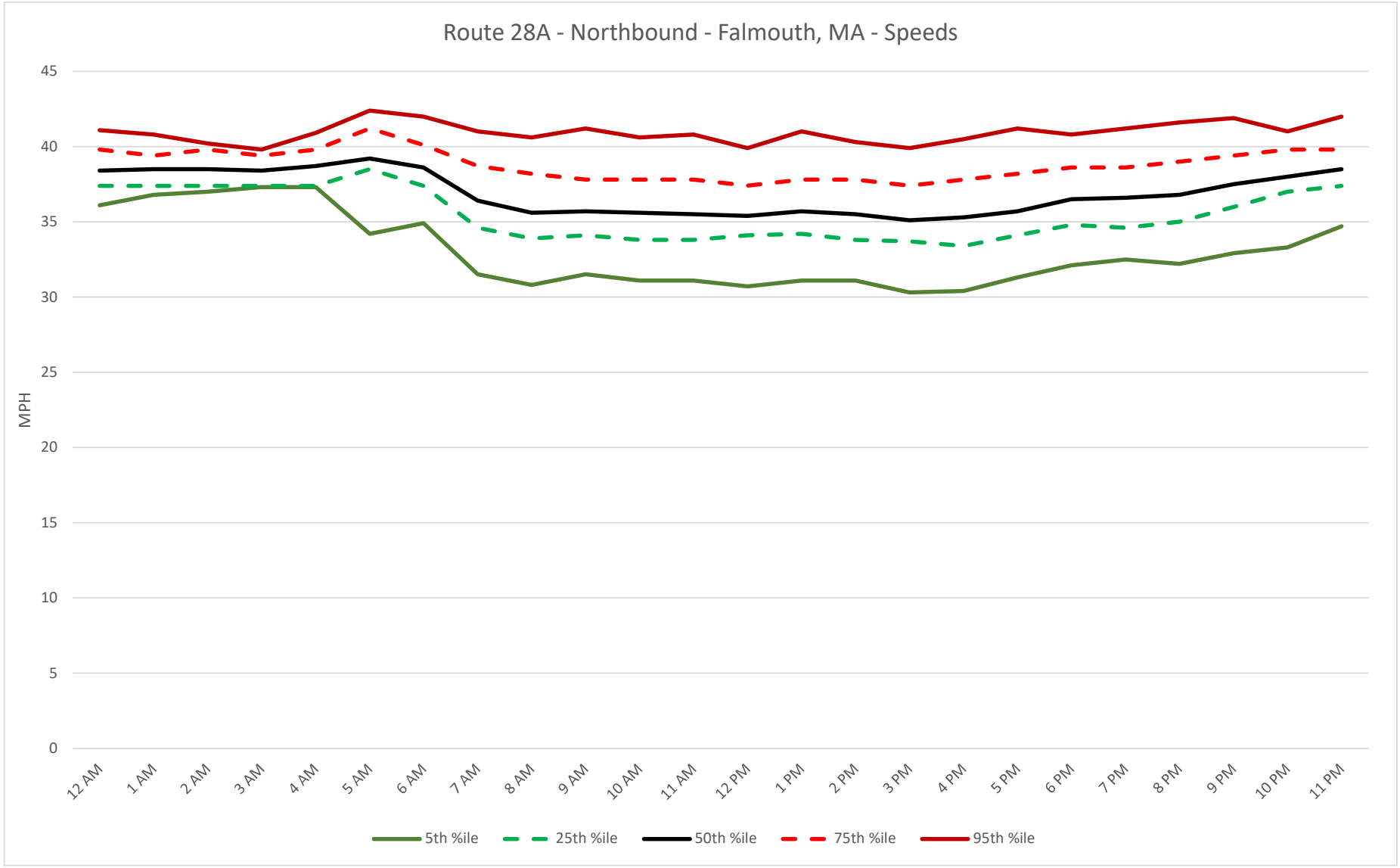


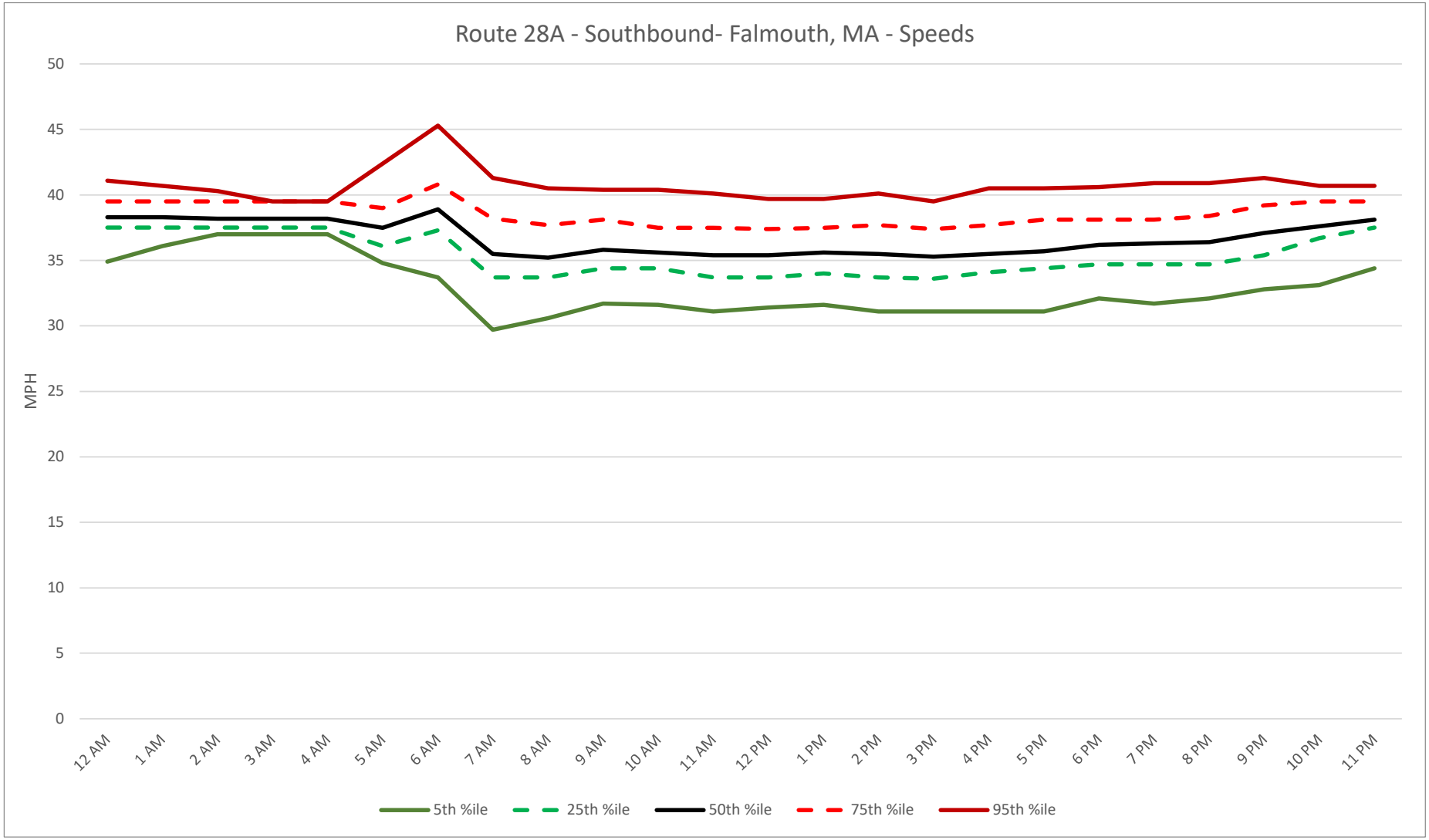
Segment Codes Used
1263122410, 440979661, 448965612, 448965613, 448965614, 1263122493, 1263122461, 429062262, 1

RT 28A between RT 151 and Thomas B Landers Rd
Jan 2024-Dec 2024

	Northbound/Eastbound						Southbound/Westbound				
Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile	Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
12 AM	38.4	36.1	41.1	37.4	39.8	12 AM	38.3	34.9	41.1	37.5	39.5
1 AM	38.5	36.8	40.8	37.4	39.4	1 AM	38.3	36.1	40.7	37.5	39.5
2 AM	38.5	37	40.2	37.4	39.8	2 AM	38.2	37	40.3	37.5	39.5
3 AM	38.4	37.3	39.8	37.4	39.4	3 AM	38.2	37	39.5	37.5	39.5
4 AM	38.7	37.3	40.9	37.4	39.8	4 AM	38.2	37	39.5	37.5	39.5
5 AM	39.2	34.2	42.4	38.5	41.2	5 AM	37.5	34.8	42.4	36.1	39
6 AM	38.6	34.9	42	37.4	40.1	6 AM	38.9	33.7	45.3	37.3	40.8
7 AM	36.4	31.5	41	34.6	38.7	7 AM	35.5	29.7	41.3	33.7	38.2
8 AM	35.6	30.8	40.6	33.9	38.2	8 AM	35.2	30.6	40.5	33.7	37.7
9 AM	35.7	31.5	41.2	34.1	37.8	9 AM	35.8	31.7	40.4	34.4	38.1
10 AM	35.6	31.1	40.6	33.8	37.8	10 AM	35.6	31.6	40.4	34.4	37.5
11 AM	35.5	31.1	40.8	33.8	37.8	11 AM	35.4	31.1	40.1	33.7	37.5
12 PM	35.4	30.7	39.9	34.1	37.4	12 PM	35.4	31.4	39.7	33.7	37.4
1 PM	35.7	31.1	41	34.2	37.8	1 PM	35.6	31.6	39.7	34	37.5
2 PM	35.5	31.1	40.3	33.8	37.8	2 PM	35.5	31.1	40.1	33.7	37.7
3 PM	35.1	30.3	39.9	33.7	37.4	3 PM	35.3	31.1	39.5	33.6	37.4
4 PM	35.3	30.4	40.5	33.4	37.8	4 PM	35.5	31.1	40.5	34.1	37.7
5 PM	35.7	31.3	41.2	34.1	38.2	5 PM	35.7	31.1	40.5	34.4	38.1
6 PM	36.5	32.1	40.8	34.8	38.6	6 PM	36.2	32.1	40.6	34.7	38.1
7 PM	36.6	32.5	41.2	34.6	38.6	7 PM	36.3	31.7	40.9	34.7	38.1
8 PM	36.8	32.2	41.6	35	39	8 PM	36.4	32.1	40.9	34.7	38.4
9 PM	37.5	32.9	41.9	36	39.4	9 PM	37.1	32.8	41.3	35.4	39.2
10 PM	38	33.3	41	37	39.8	10 PM	37.6	33.1	40.7	36.7	39.5
11 PM	38.5	34.7	42	37.4	39.8	11 PM	38.1	34.4	40.7	37.5	39.5

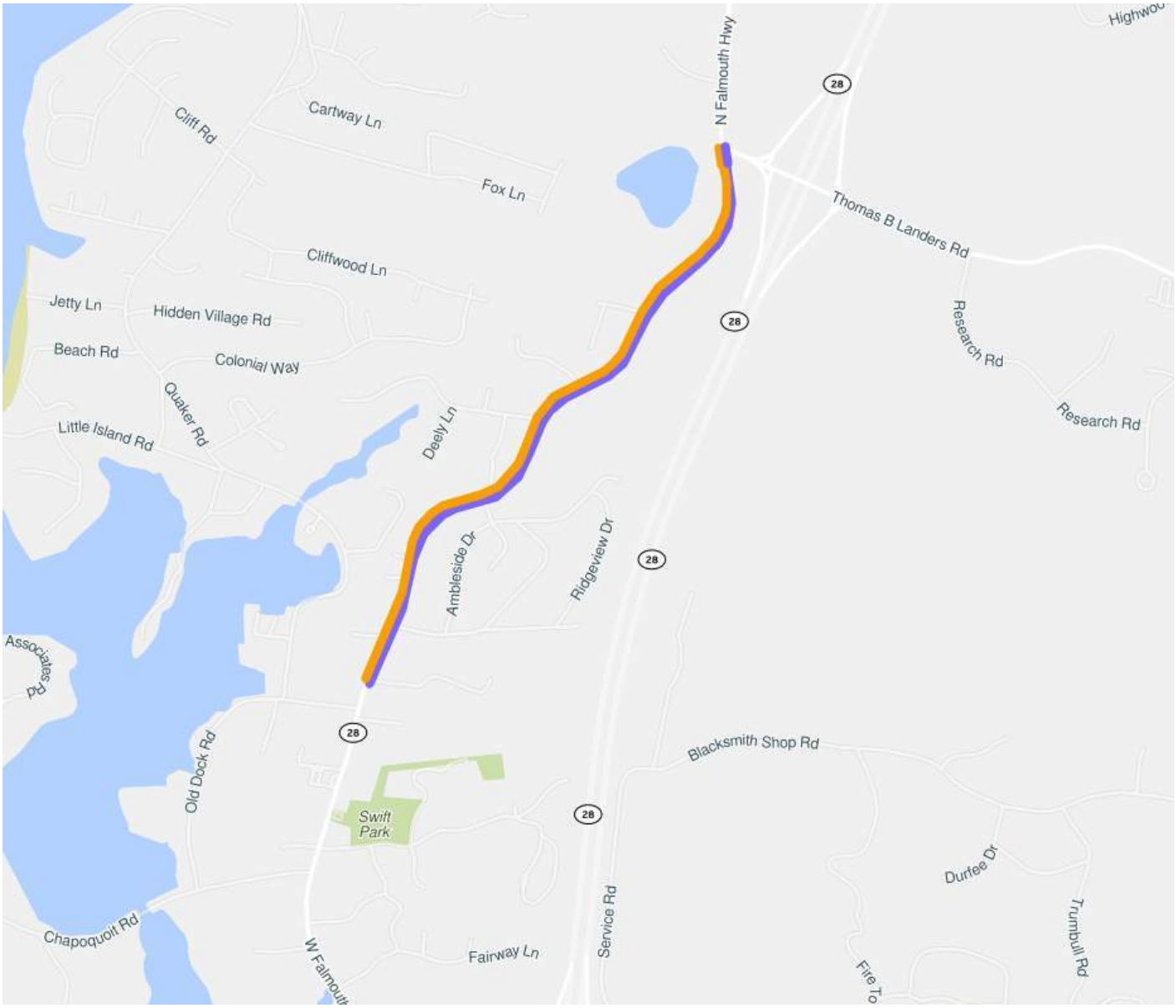
	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile		50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
Maximum Speed	39.2	37.3	42.4	38.5	41.2	Maximum Speed	38.9	37	45.3	37.5	40.8
Hour of Maximum	5 AM	3 AM	5 AM	5 AM	5 AM	Hour of Maximum	6 AM	2 AM	6 AM	12 AM	6 AM
Average Speed	36.9	33.0	40.9	35.5	38.8	Average Speed	36.7	32.9	40.7	35.3	38.5
AM Peak Average Speed	35.8	31.2	40.9	34.1	38.1	AM Peak Average Speed	35.5	30.9	40.7	34.1	37.9
PM Peak Average Speed	35.7	31.0	40.6	34.0	38.0	PM Peak Average Speed	35.7	31.4	40.3	34.2	37.8


Route 28A - Northbound - Falmouth, MA - Speeds
MPH
45
40
35
30
25
20
15
10
5
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile


Route 28A - Southbound- Falmouth, MA - Speeds
MPH
50
45
40
35
30
25
20
15
10
5
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile

RT 28A between Thomas B Landers Rd and Stage Coach Way
Jan 2024-Dec 2024

Ritis Screenshot



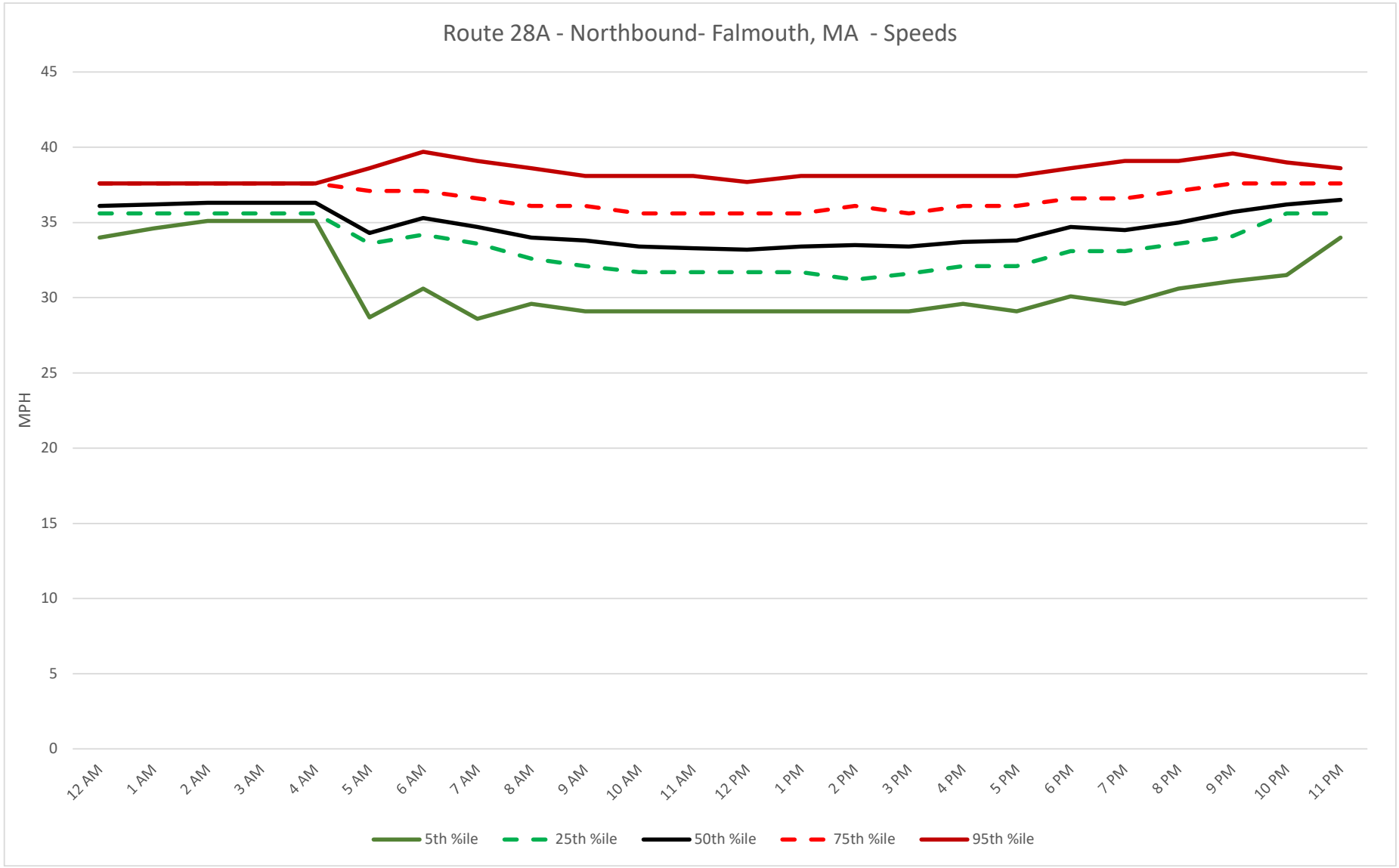
Segment Codes Used 1263087633, 1263087732, 440979661, 440979660, 1263087683, 1263087716

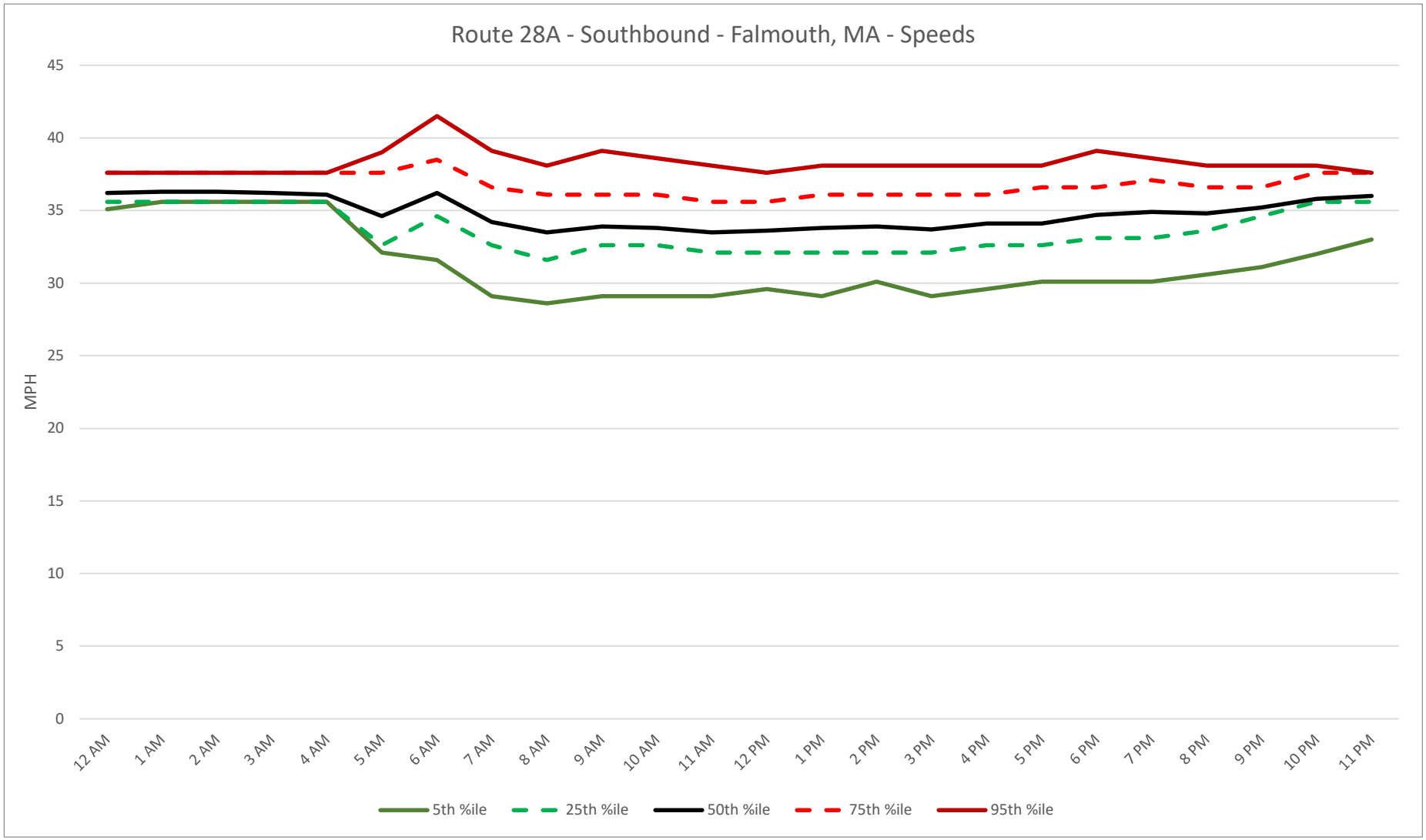
RT 28A between Thomas B Landers Rd and Stage Coach Way: Jan 2024-Dec 2024

	Northbound/Eastbound						Southbound/Westbound				
Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile	Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
12 AM	36.1	34	37.6	35.6	37.6	12 AM	36.2	35.1	37.6	35.6	37.6
1 AM	36.2	34.6	37.6	35.6	37.6	1 AM	36.3	35.6	37.6	35.6	37.6
2 AM	36.3	35.1	37.6	35.6	37.6	2 AM	36.3	35.6	37.6	35.6	37.6
3 AM	36.3	35.1	37.6	35.6	37.6	3 AM	36.2	35.6	37.6	35.6	37.6
4 AM	36.3	35.1	37.6	35.6	37.6	4 AM	36.1	35.6	37.6	35.6	37.6
5 AM	34.3	28.7	38.6	33.6	37.1	5 AM	34.6	32.1	39	32.6	37.6
6 AM	35.3	30.6	39.7	34.2	37.1	6 AM	36.2	31.6	41.5	34.6	38.5
7 AM	34.7	28.6	39.1	33.6	36.6	7 AM	34.2	29.1	39.1	32.6	36.6
8 AM	34	29.6	38.6	32.6	36.1	8 AM	33.5	28.6	38.1	31.6	36.1
9 AM	33.8	29.1	38.1	32.1	36.1	9 AM	33.9	29.1	39.1	32.6	36.1
10 AM	33.4	29.1	38.1	31.7	35.6	10 AM	33.8	29.1	38.6	32.6	36.1
11 AM	33.3	29.1	38.1	31.7	35.6	11 AM	33.5	29.1	38.1	32.1	35.6
12 PM	33.2	29.1	37.7	31.7	35.6	12 PM	33.6	29.6	37.6	32.1	35.6
1 PM	33.4	29.1	38.1	31.7	35.6	1 PM	33.8	29.1	38.1	32.1	36.1
2 PM	33.5	29.1	38.1	31.2	36.1	2 PM	33.9	30.1	38.1	32.1	36.1
3 PM	33.4	29.1	38.1	31.6	35.6	3 PM	33.7	29.1	38.1	32.1	36.1
4 PM	33.7	29.6	38.1	32.1	36.1	4 PM	34.1	29.6	38.1	32.6	36.1
5 PM	33.8	29.1	38.1	32.1	36.1	5 PM	34.1	30.1	38.1	32.6	36.6
6 PM	34.7	30.1	38.6	33.1	36.6	6 PM	34.7	30.1	39.1	33.1	36.6
7 PM	34.5	29.6	39.1	33.1	36.6	7 PM	34.9	30.1	38.6	33.1	37.1
8 PM	35	30.6	39.1	33.6	37.1	8 PM	34.8	30.6	38.1	33.6	36.6
9 PM	35.7	31.1	39.6	34.1	37.6	9 PM	35.2	31.1	38.1	34.6	36.6
10 PM	36.2	31.5	39	35.6	37.6	10 PM	35.8	32	38.1	35.6	37.6
11 PM	36.5	34	38.6	35.6	37.6	11 PM	36	33	37.6	35.6	37.6

	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile		50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
Maximum Speed	36.5	35.1	39.7	35.6	37.6	Maximum Speed	36.3	35.6	41.5	35.6	38.5
Hour of Maximum	11 PM	2 AM	6 AM	12 AM	12 AM	Hour of Maximum	1 AM	1 AM	6 AM	12 AM	6 AM
Average Speed	34.7	30.9	38.4	33.5	36.7	Average Speed	34.8	31.3	38.3	33.6	36.8
AM Peak Average Speed	34.0	29.1	38.5	32.5	36.1	AM Peak Average Speed	33.9	29.0	38.7	32.4	36.2
PM Peak Average Speed	33.9	29.5	38.2	32.2	36.1	PM Peak Average Speed	34.2	29.7	38.4	32.6	36.4

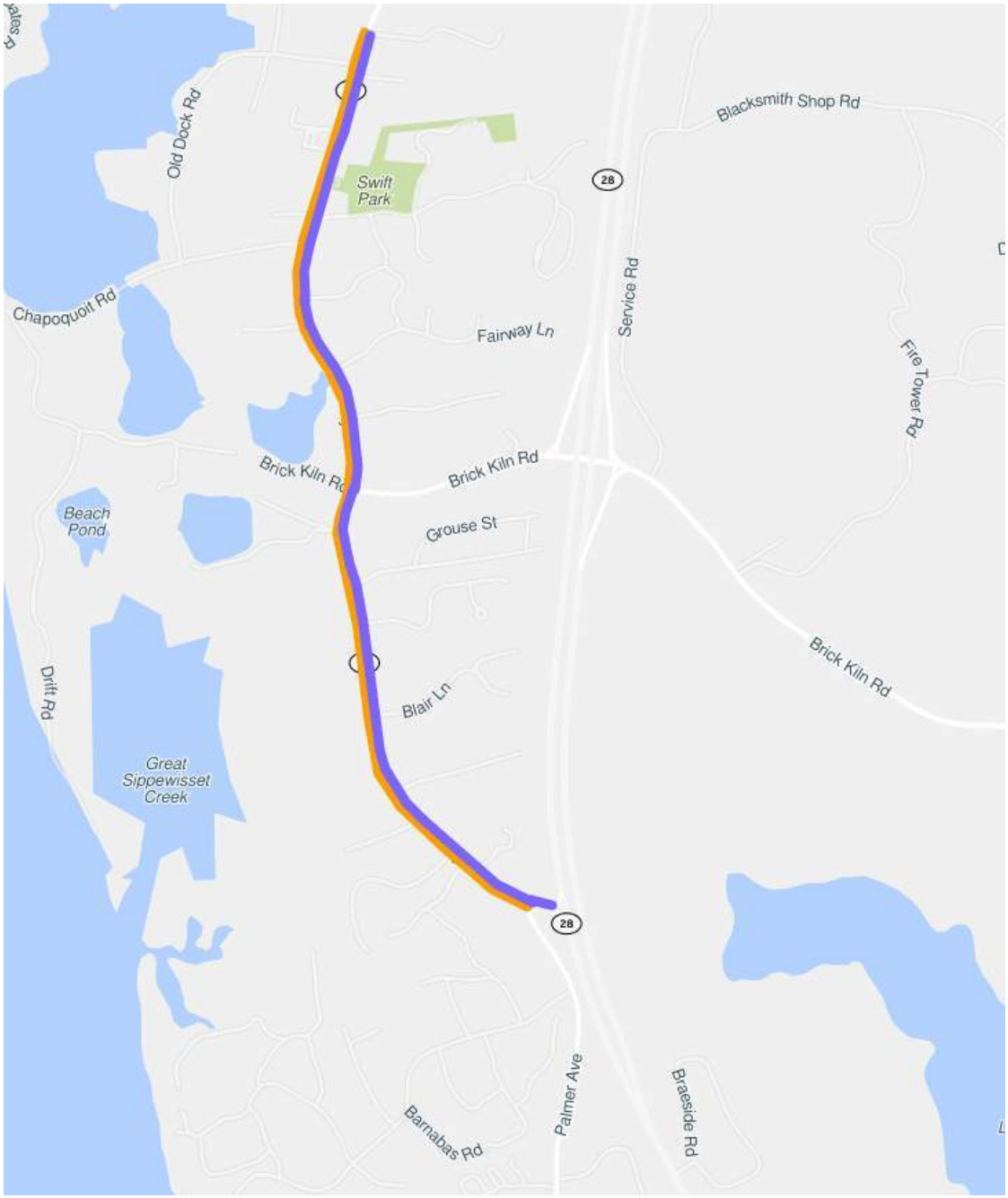
Segment Codes


Route 28A - Northbound- Falmouth, MA - Speeds
MPH
45
40
35
30
25
20
15
10
5
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile


Route 28A - Southbound - Falmouth, MA - Speeds
MPH
45
40
35
30
25
20
15
10
5
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile

RT 28A between Stage Coach Way and Palmer Ave
Jan 2024-Dec 2024

Ritis Screenshot



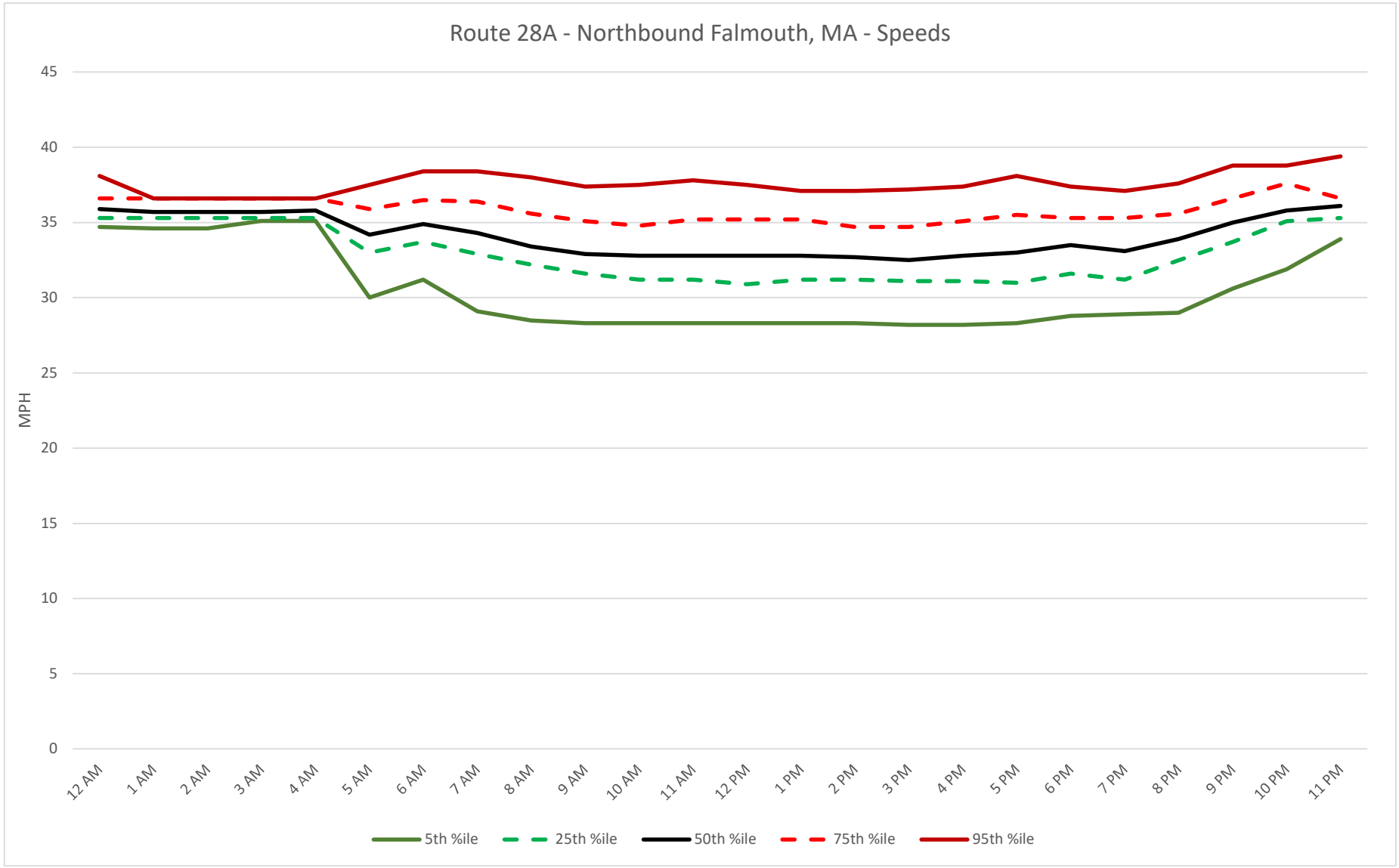
Segment Codes Used

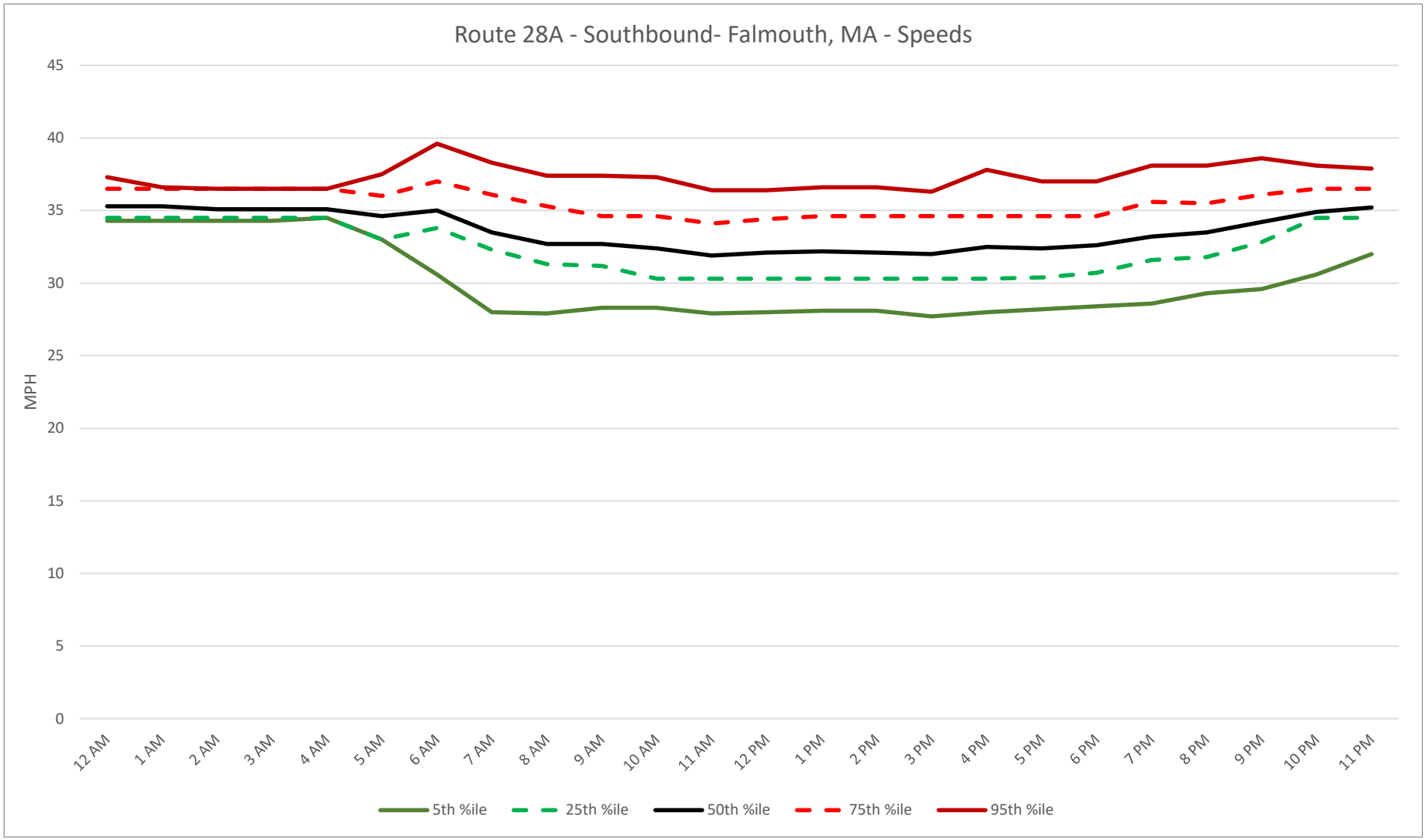
440979660, 1263181732, 475205397, 1263181745, 475223032, 475175274, 475162583, 475167599, 47
475215955, 441005989, 475201305, 475193664, 475186988

RT 28A between Stage Coach Way and Palmer Ave
Jan 2024-Dec 2024

	Northbound/Eastbound						Southbound/Westbound				
Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile	Time	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
12 AM	35.9	34.7	38.1	35.3	36.6	12 AM	35.3	34.3	37.3	34.5	36.5
1 AM	35.7	34.6	36.6	35.3	36.6	1 AM	35.3	34.3	36.6	34.5	36.5
2 AM	35.7	34.6	36.6	35.3	36.6	2 AM	35.1	34.3	36.5	34.5	36.5
3 AM	35.7	35.1	36.6	35.3	36.6	3 AM	35.1	34.3	36.5	34.5	36.5
4 AM	35.8	35.1	36.6	35.3	36.6	4 AM	35.1	34.5	36.5	34.5	36.5
5 AM	34.2	30	37.5	33	35.9	5 AM	34.6	33	37.5	33	36
6 AM	34.9	31.2	38.4	33.7	36.5	6 AM	35	30.6	39.6	33.8	37
7 AM	34.3	29.1	38.4	32.9	36.4	7 AM	33.5	28	38.3	32.3	36.1
8 AM	33.4	28.5	38	32.2	35.6	8 AM	32.7	27.9	37.4	31.3	35.3
9 AM	32.9	28.3	37.4	31.6	35.1	9 AM	32.7	28.3	37.4	31.2	34.6
10 AM	32.8	28.3	37.5	31.2	34.8	10 AM	32.4	28.3	37.3	30.3	34.6
11 AM	32.8	28.3	37.8	31.2	35.2	11 AM	31.9	27.9	36.4	30.3	34.1
12 PM	32.8	28.3	37.5	30.9	35.2	12 PM	32.1	28	36.4	30.3	34.4
1 PM	32.8	28.3	37.1	31.2	35.2	1 PM	32.2	28.1	36.6	30.3	34.6
2 PM	32.7	28.3	37.1	31.2	34.7	2 PM	32.1	28.1	36.6	30.3	34.6
3 PM	32.5	28.2	37.2	31.1	34.7	3 PM	32	27.7	36.3	30.3	34.6
4 PM	32.8	28.2	37.4	31.1	35.1	4 PM	32.5	28	37.8	30.3	34.6
5 PM	33	28.3	38.1	31	35.5	5 PM	32.4	28.2	37	30.4	34.6
6 PM	33.5	28.8	37.4	31.6	35.3	6 PM	32.6	28.4	37	30.7	34.6
7 PM	33.1	28.9	37.1	31.2	35.3	7 PM	33.2	28.6	38.1	31.6	35.6
8 PM	33.9	29	37.6	32.5	35.6	8 PM	33.5	29.3	38.1	31.8	35.5
9 PM	35	30.6	38.8	33.7	36.6	9 PM	34.2	29.6	38.6	32.8	36.1
10 PM	35.8	31.9	38.8	35.1	37.6	10 PM	34.9	30.6	38.1	34.5	36.5
11 PM	36.1	33.9	39.4	35.3	36.6	11 PM	35.2	32	37.9	34.5	36.5

	50th %ile	5th %ile	95th %ile	25th %ile	75th %ile		50th %ile	5th %ile	95th %ile	25th %ile	75th %ile
Maximum Speed	36.1	35.1	39.4	35.3	37.6	Maximum Speed	35.3	34.5	39.6	34.5	37
Hour of Maximum	11 PM	3 AM	11 PM	12 AM	10 PM	Hour of Maximum	12 AM	4 AM	6 AM	12 AM	6 AM
Average Speed	34.1	30.4	37.6	32.8	35.8	Average Speed	33.6	30.1	37.3	32.2	35.5
AM Peak Average Speed	33.4	28.6	37.8	32.0	35.5	AM Peak Average Speed	32.8	28.1	37.6	31.3	35.2
PM Peak Average Speed	33.0	28.4	37.5	31.2	35.2	PM Peak Average Speed	32.4	28.1	37.0	30.4	34.6


Route 28A - Northbound Falmouth, MA - Speeds
MPH
45
40
35
30
25
20
15
10
5
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile


Route 28A - Southbound- Falmouth, MA - Speeds
MPH
45
40
35
30
25
20
15
10
5
0
12 AM
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
5th %ile
25th %ile
50th %ile
75th %ile
95th %ile

Appendix E. Road Safety Audit References

Road Safety Audit References

Massachusetts Traffic Safety Toolbox, Massachusetts Highway Department, www.mhd.state.ma.us/safetytoolbox.

Road Safety Audits, A Synthesis of Highway Practice. NCHRP Synthesis 336. Transportation Research Board, National Cooperative Highway Research Program, 2004.

Road Safety Audits. Institute of Transportation Engineers and U.S. Department of Transportation, Federal Highway Administration, www.roadwaysafetyaudits.org.

FHWA Road Safety Audit Guidelines. U.S. Department of Transportation, Federal Highway Administration, 2006.

Road Safety Audit, 2nd edition. Austroads, 2000.

Road Safety Audits. ITE Technical Council Committee 4S-7. Institute of Transportation Engineers, February 1995.