



CAPE COD
COMMISSION

Barnstable County High Crash Locations

A REVIEW OF THE TOP 50 CRASH LOCATIONS ON
CAPE COD (2018-2020)

OCTOBER 2022

Prepared by Cape Cod Commission Transportation and GIS staff. This report was funded by the Massachusetts Department of Transportation and Federal Highway Administration through the Cape Cod Metropolitan Planning Organizations Unified Planning Work Program

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Introduction

GOALS AND OBJECTIVES

This report is the result of the Cape Cod Commission's effort to identify the most dangerous intersections in Barnstable County. The data used for this endeavor, includes reported crashes from 2018-2020. Data for this report was provided by the Massachusetts Department of Transportation (MassDOT).

Through the analysis of available data, a series of top crash location lists have been generated. The lists will assist in directing federal, state, and local funds towards improving intersections that pose the highest safety risk to its users. It is anticipated that this information will be useful to local police departments who have the resources and ability to reduce speed and unsafe driving through enforcement. It is the Commission's hope that this document will highlight the need for accurate and comprehensive reporting between the fifteen Barnstable County towns and state agencies. Beyond serving as support for improvement funds, this report will also help focus future safety studies on the locations with most need.

TOP CRASH LISTS

There are several methodologies that can be used to generate a list of top crash locations for a given geographic area. Two common methods include sorting by total crashes that occurred during a specified time period and sorting by crashes per one million entering vehicles (also known as a crash rate). Two other frequently used methods involve weighting each crash according to severity (whether the crash produced an injury or fatality). Each method has advantages and disadvantages. Using total crash numbers or a crash rate is simpler and requires less information to use. Using crash severity can be helpful to highlight an intersection with few but severe crashes. Using a rate against a dataset further refines the number of crashes or severity of an area. Each methodology will be discussed in further detail later in this report.

This report includes four high crash lists that identify the most dangerous intersections based on four different focuses.

DATA ANALYSES

The data provided by MassDOT is very comprehensive. Each crash cluster is accompanied with information regarding the number of crashes – specifying number of fatal, injurious, and property damage only crashes. The inclusion of the information concerning severity allows for the calculation of

BARNSTABLE COUNTY HIGH CRASH LOCATIONS

an intersection's Equivalent Property Damage Only (EPDO). EPDO is a value created by weighting each crash based on its severity and then aggregating the totals.

Figure 1 below, depicts the 13,753 spatially located crashes in Barnstable County from 2018 to 2020. There was a total of 14,405 crashes in Barnstable County during this 3-year period.

Commission staff have created the Cape Cod Crash Dashboard, an online data viewer to display the crash data analyzed in this report.

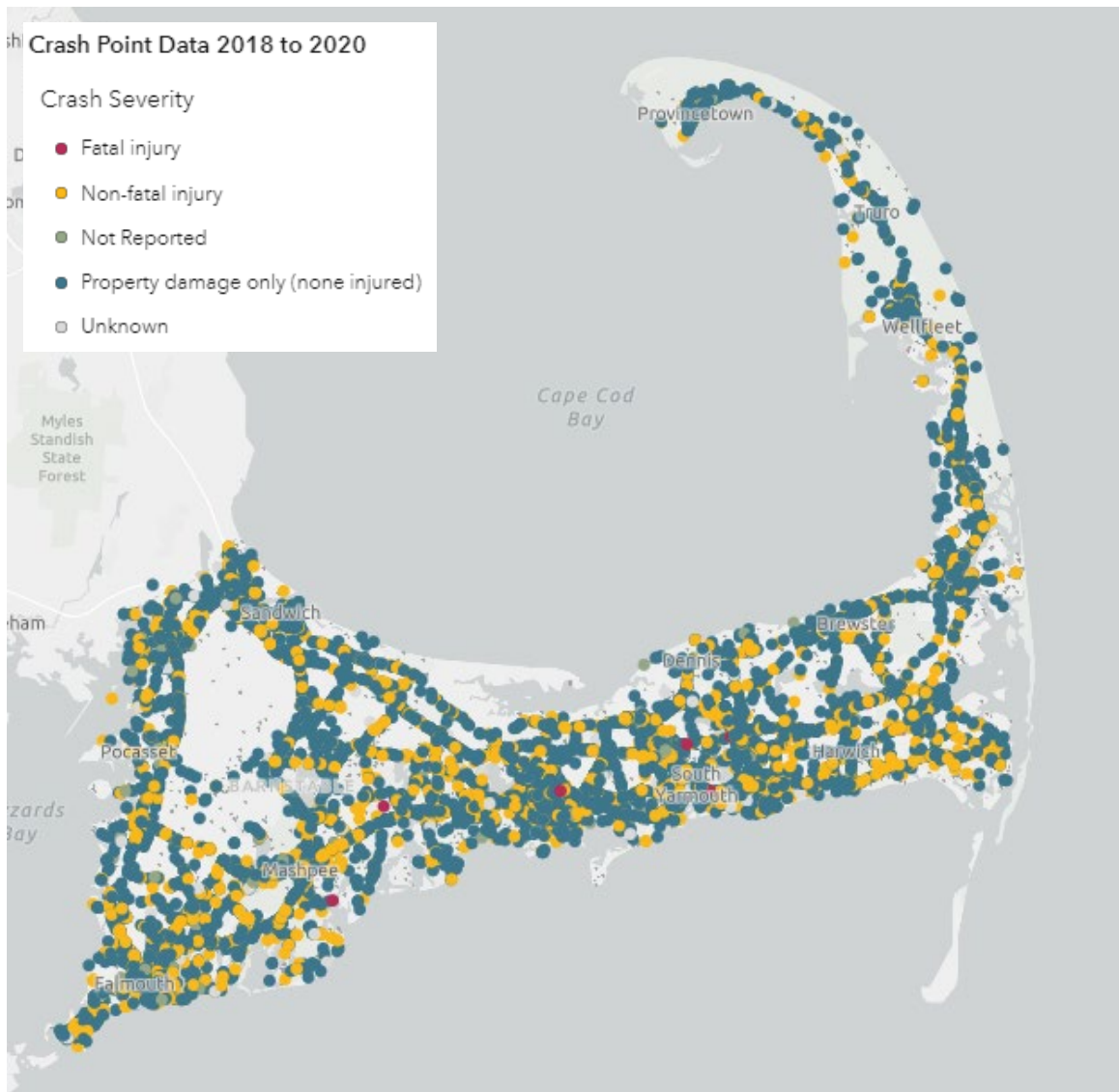


Figure 1: Geolocated Crash Points on Cape Cod (2018-2020)

Analysis

TOP CRASH LISTS

Top Locations Based on Number of Crashes:

The simplest method used in this report for establishing a high crash list is ranking intersections based on the largest number of crashes. The intersection with the greatest number of crashes receives the number one ranking.

Top Locations Based on Equivalent Property Damage Only:

The inclusion of severity information in the MassDOT data allows for the calculation of Equivalent Property Damage Only (EPDO). A list ranked by EPDO will bring more attention to locations where the crashes have produced injuries or fatalities. The formula for calculating EPDO is as follows:

$$EPDO = 21 \times (\# \text{ fatal crashes} + \text{injury crashes}) + \text{damage only crashes}$$

While the EPDO method is useful in identifying intersections with the most severe crashes, it should be noted that not all crashes and their resultant injuries can be attributed to a road's conditions or geometry. For example, a passenger's decision of whether to wear a seatbelt may determine whether an injury will be experienced. The intersection with the highest EPDO in this list is ranked number one.

Top Locations Based on Crash Rate:

It is expected that a road with higher traffic volumes will experience more vehicle crashes. Using a crash rate helps to avoid highlighting intersections whose problems may be magnified by a large traffic volume. With this methodology, the number of crashes is compared to the number of vehicles entering, and the resultant figure is in terms of crashes per million entering vehicles. To be certain to capture the top fifty crash locations based on crash rate, the top 100 intersections based on number of crashes were analyzed with the following formula:

$$R = ([C/Y] \times 1,000,000) / (V \times 365)$$

R = Crash Rate, C = Total Crashes, Y = # Years Analyzed, V = Daily Entering Volume

While this method is good for reducing the influence of high-volume roads, it also has the capacity to rank a very low volume road with few crashes very highly. The intersection with the highest crash rate in this list is ranked number one.

Top Locations Based on EPDO Rate:

This method uses the same theory as the crash rate, where there is an assumption that heavily traveled roads are expected to have higher EPDO designations, and it is not necessarily indicative of poor road

conditions or geometric flaws. To create this list, the intersections' EPDO is compared to the number of vehicles entering, and the resultant figure is in terms of crashes per million entering vehicles. To be certain to capture the top fifty crash locations based on EPDO rate, the top 100 locations with the highest EPDO were analyzed with the following formula:

$$\text{EPDO Rate} = ([\text{EPDO}/Y] \times 1,000,000)/(V \times 365)$$

Y = # Years Analyzed, V = Daily Entering Volume

The intersection with the highest EPDO rate in this list is ranked number one.

In the Appendix of the report

Traffic Volume Data

HIGH CRASH LOCATION LISTS

In each of the following four high crash location lists, locations are denoted with an index number within brackets (e.g., "1"). Each number corresponds to a number in the "Note #" column in the tables of Intersection Notes following the high crash location lists. The Notes table provides information relevant to studies that may have been performed, past or planned construction, or other changes that may influence an intersection's frequency of crashes. The Notes table is included in the Appendix.

Route 6 interchanges and circular intersections (rotaries and roundabouts) on Cape Cod were excluded from these lists, but individual lists were made for both based on the number of crashes during the same 3-year period. The following six tables present the rankings for the various ranking criteria:

- Top Locations based on Number of Crashes
- Top Locations based on Equivalent Property Damage Only
- Top Locations based on Crash Rate
- Top Locations based on EPDO Rate
- Top Route 6 Interchange Locations based on Number of Crashes
- Top Circular Intersections based on Number of Crashes



TOP LOCATIONS BASED ON NUMBER OF CRASHES

Rank Crashes	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
1	Barnstable	Route 28 at Yarmouth Road	72	372	2.649	13.685
2	Barnstable	Route 28 (Falmouth Road) at Bearses Way	60	339	2.070	11.694
3	Barnstable	Route 132 (Iyannough Road) at Bearses Way	58	238	2.112	8.667
4	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	55	375	2.418	16.489
5	Dennis	Route 134 (East-West Dennis Road) at Bob Crowell Road/Hemlock Lane	50	230	2.241	10.306
6	Yarmouth	Route 28 at East Main Street	46	226	2.053	10.088
7	Dennis	Route 134 (East-West Dennis Road) at Upper County Road	44	144	1.783	5.834
8	Dennis	Route 134 (East-West Dennis Road) at Patriot Square/Market Place	43	142	1.536	5.071
9	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	41	281	1.915	13.126
10	Dennis	Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	39	139	1.638	5.836
11	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	38	318	1.778	14.882
12	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opechee Road	36	256	1.189	8.458
13	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	34	193	1.367	7.760
14	Yarmouth	Route 28 at Old Main Street/North Main Street	34	214	2.003	12.609
15	Barnstable	Route 132 at Cape Cod Mall	31	149	1.050	5.048
16	Barnstable	Route 132 (Iyannough Road) at Phinneys Lane	31	151	0.839	4.088
17	Barnstable	Route 28 (Falmouth Road) at Phinney's Lane	28	208	1.134	8.424
18	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	26	206	1.494	11.834
19	Barnstable	Route 132 (Iyannough Road) at Independence Drive	26	66	0.989	2.511
20	Falmouth	Route 28 (Falmouth Road) at Trotting Park Road	25	85	1.932	6.569
21	Sandwich	Route 6A at Quaker Meetinghouse Road/Spring Hill Road	25	125	2.000	10.001
22	Falmouth	Route 28 (Teaticket Highway) at Falmouth Mall	25	179	1.661	11.890
23	Falmouth	Route 28 at Shorewood/John Parker Road	24	184	1.106	8.478
24	Falmouth	Route 28 at Fresh Pond Road	24	104	1.693	7.334
25	Barnstable	Route 28 at Bell Tower Mall	23	163	0.716	5.077
26	Falmouth	Jones Road at Gifford Street	23	143	1.434	8.913
27	Wellfleet	Route 6 at Main Street	23	123	1.570	8.396
28	Barnstable	Route 28 (Iyannough Road) at Mary Dunn Way/Enginehouse Road	23	143	1.101	6.844
29	Barnstable	Route 28 (Falmouth Road) at Main Street	22	142	1.003	6.475
30	Barnstable	Route 28 (Falmouth Road) at Route 149	22	102	0.844	3.912
31	Falmouth	Spring Bars Road at Worcester Court	22	201	2.311	21.118
32	Falmouth	Sandwich Road at Brick Kiln Road	22	102	1.567	7.266
33	Mashpee	Route 28 (Falmouth Road) at Orchard Road/Asher's Path	22	242	1.245	13.697
34	Yarmouth	Higgins Crowell Road at Willow Street	22	242	1.215	13.363
35	Eastham	Route 6 at Samoset Road/Depot Road	21	81	1.107	4.271
36	Falmouth	Route 28 at Beagle Lane/Maravista Avenue	21	161	1.404	10.767
37	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	21	241	2.713	31.140
38	Mashpee	Route 151 (Nathan Ellis Highway) at Ninigret Avenue	21	101	1.108	5.329
39	Mashpee	Route 151 (Nathan Ellis Highway) at Job's Fishing Road	21	181	1.010	8.709
40	Harwich	Route 124 at Route 39/Main Street	20	59	1.600	4.719
41	Sandwich	Route 6A at Route 130/Tupper Road	20	160	1.904	15.234
42	Barnstable	Route 28 (Iyannough Road) at Spring Street	19	99	0.912	4.750
43	Barnstable	Route 132 (Iyannough Road) at Cape Cod Mall West Entrance	19	118	0.608	3.776
44	Falmouth	Route 28 at Scranton Avenue	19	39	1.348	2.767
45	Harwich	Route 137 at Orleans Road	19	139	0.908	6.646
46	Yarmouth	Buck Island Road at Higgins Crowell Road	19	179	1.241	11.695
47	Yarmouth	Station Avenue at White's Path/Workshop Road	19	58	0.685	2.090
48	Barnstable	Route 28 (Falmouth Road) at Lumbert Mill Road	18	178	0.735	7.270
49	Falmouth	East Falmouth Highway/Teaticket Highway at Acapekset Road	18	178	0.975	9.640
50	Falmouth	Route 151 (Nathan Ellis Highway) at Currier Road	18	158	0.827	7.260

Table 1: Top 50 Crash Locations Based on Number of Crashes



TOP LOCATIONS BASED ON EQUIVALENT PROPERTY DAMAGE ONLY

Rank EPDO	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
1	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	55	375	2.418	16.489
2	Barnstable	Route 28 at Yarmouth Road	72	372	2.649	13.685
3	Barnstable	Route 28 (Falmouth Road) and Bearses Way	60	339	2.070	11.694
4	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	38	318	1.778	14.882
5	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	41	281	1.915	13.126
6	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opechee Road	36	256	1.189	8.458
7	Mashpee	Route 28 (Falmouth Road) at Orchard Road/Asher's Path	22	242	1.245	13.697
8	Yarmouth	Higgins Crowell Road at Willow Street	22	242	1.215	13.363
9	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	21	241	2.713	31.140
10	Barnstable	Route 132 (Iyannough Road) at Bearses Way	58	238	2.112	8.667
11	Dennis	Route 134 (East-West Dennis Road) at Bob Crowell Road/Hemlock Lane	50	230	2.241	10.306
12	Yarmouth	Route 28 at East Main Street	46	226	2.053	10.088
13	Yarmouth	Route 28 at Old Main Street/North Main Street	34	214	2.003	12.609
14	Barnstable	Route 28 (Falmouth Road) at Phinney's Lane	28	208	1.134	8.424
15	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	26	206	1.494	11.834
16	Falmouth	Spring Bars Road at Worcester Court	22	201	2.311	21.118
17	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	34	193	1.367	7.760
18	Falmouth	Route 28 at Shorewood/John Parker Road	24	184	1.106	8.478
19	Mashpee	Route 151 (Nathan Ellis Highway) at Job's Fishing Road	21	181	1.010	8.709
20	Yarmouth	Buck Island Road at Higgins Crowell Road	19	179	1.241	11.695
21	Falmouth	Route 28 (Teaticket Highway) at Falmouth Mall	25	179	1.661	11.890
22	Barnstable	Route 28 (Falmouth Road) at Lumbert Mill Road	18	178	0.735	7.270
23	Falmouth	East Falmouth Highway/Teaticket Highway at Acapesket Road	18	178	0.975	9.640
24	Barnstable	Route 28 at Bell Tower Mall	23	163	0.716	5.077
25	Falmouth	Route 28 at Beagle Lane/Maravista Avenue	21	161	1.404	10.767
26	Sandwich	Route 6A at Route 130/Tupper Road	20	160	1.904	15.234
27	Falmouth	Route 151 (Nathan Ellis Highway) at Currier Road	18	158	0.827	7.260
28	Falmouth	Waquoit Highway at Metoxit Road	16	156	1.261	12.296
29	Barnstable	Bearses Way at South Street	15	155	1.696	17.530
30	Mashpee	Route 151 at Market Street	14	154	0.727	7.995
31	Barnstable	Old Stage Road/Old Falmouth Road at Race Lane/Oak Street	11	151	1.114	15.293
32	Barnstable	Route 132 (Iyannough Road) at Phinneys Lane	31	151	0.839	4.088
33	Barnstable	Route 132 at Cape Cod Mall	31	149	1.050	5.048
34	Falmouth	Gifford Street at Dillingham Avenue	8	148	0.597	11.040
35	Dennis	Route 134 (East-West Dennis Road) at Upper County Road	44	144	1.783	5.834
36	Falmouth	Jones Road at Gifford Street	23	143	1.434	8.913
37	Barnstable	Route 28 (Iyannough Road) at Mary Dunn Way/Enginehouse Road	23	143	1.101	6.844
38	Barnstable	Route 28 (Falmouth Road) at Main Street	22	142	1.003	6.475
39	Dennis	Route 134 (East-West Dennis Road) at Patriot Square/Market Place	43	142	1.536	5.071
40	Dennis	Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	39	139	1.638	5.836
41	Harwich	Route 137 at Orleans Road	19	139	0.908	6.646
42	Barnstable	Route 28 (Falmouth Road) at Main Street/South County Road	15	135	0.739	6.654
43	Barnstable	Phinney's Lane at Old Strawberry Hill Road	16	135	1.648	13.906
44	Barnstable	Route 28 (Falmouth Road) at Santuit Newtown Road	14	134	0.660	6.317
45	Falmouth	Route 28 (Teaticket Highway) at Village Common Drive	10	130	0.626	8.132
46	Barnstable	Route 28 (Falmouth Road) at East Osterville Road	9	129	0.457	6.545
47	Sandwich	Route 6A at Quaker Meetinghouse Road/Spring Hill Road	25	125	2.000	10.001
48	Wellfleet	Route 6 at Main Street	23	123	1.570	8.396
49	Barnstable	Route 132 (Iyannough Road) at Cape Cod Mall West Entrance	19	118	0.608	3.776
50	Barnstable	Route 132 at Shootflying Hill Road	17	117	0.614	4.222

Table 2: Top 50 Crash Locations Based on EPDO Crashes



TOP LOCATIONS BASED ON CRASH RATE (PER MILLION ENTERING VEHICLES)

Rank Crash Rate	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
1	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	21	241	2.713	31.140
2	Barnstable	Route 28 at Yarmouth Road	72	372	2.649	13.685
3	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	55	375	2.418	16.489
4	Barnstable	South Street at Pleasant Street	13	93	2.395	17.131
5	Falmouth	Spring Bars Road at Worcester Court	22	201	2.311	21.118
6	Dennis	Route 134 (East-West Dennis Road) at Bob Crowell Road/Hemlock Lane	50	230	2.241	10.306
7	Barnstable	Route 132 (Iyannough Road) at Bearses Way	58	238	2.112	8.667
8	Barnstable	Route 28 (Falmouth Road) at Bearses Way	60	339	2.070	11.694
9	Yarmouth	Route 28 at East Main Street	46	226	2.053	10.088
10	Yarmouth	Route 28 at Old Main Street/North Main Street	34	214	2.003	12.609
11	Sandwich	Route 6A at Quaker Meetinghouse Road/Spring Hill Road	25	125	2.000	10.001
12	Falmouth	Route 28 (Falmouth Road) at Trotting Park Road	25	85	1.932	6.569
13	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	41	281	1.915	13.126
14	Sandwich	Route 6A at Route 130/Tupper Road	20	160	1.904	15.234
15	Barnstable	Stevens Street at Bassett Lane	16	96	1.818	10.910
16	Dennis	Route 134 (East-West Dennis Road) at Upper County Road	44	144	1.783	5.834
17	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	38	318	1.778	14.882
18	Barnstable	High School Road at South Street	15	155	1.696	17.530
19	Falmouth	Route 28 at Fresh Pond Road	24	104	1.693	7.334
20	Yarmouth	Forest Road at Old Town House Road	15	95	1.674	10.601
21	Falmouth	Route 28 (Teaticket Highway) at Falmouth Mall	25	179	1.661	11.890
22	Barnstable	Phinney's Lane at Old Strawberry Hill Road	16	135	1.648	13.906
23	Dennis	Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	39	139	1.638	5.836
24	Harwich	Route 124 at Route 39/Main Street	20	59	1.600	4.719
25	Wellfleet	Route 6 at Main Street	23	123	1.570	8.396
26	Falmouth	Sandwich Road at Brick Kiln Road	22	102	1.567	7.266
27	Dennis	Route 28 (Main Street at Sea Street	15	115	1.537	11.781
28	Dennis	Route 134 (East-West Dennis Road) at Patriot Square/Market Place	43	142	1.536	5.071
29	Barnstable	Barnstable Road at Center Street/Charles Street	14	54	1.526	5.886
30	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	26	206	1.494	11.834
31	Falmouth	Jones Road at Gifford Street	23	143	1.434	8.913
32	Barnstable	High School Road at Main Street	14	74	1.431	7.566
33	Falmouth	Route 28 at Beagle Lane/Maravista Avenue	21	161	1.404	10.767
34	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	34	193	1.367	7.760
35	Falmouth	Route 28 at Scranton Avenue	19	39	1.348	2.767
36	Falmouth	Route 151 (Nathan Ellis Highway) at Route 28A (North Falmouth Highway)	16	76	1.282	6.087
37	Falmouth	Waquoit Highway at Metoxit Road	16	156	1.261	12.296
38	Barnstable	North Street at Stevens Street	14	113	1.255	10.129
39	Mashpee	Route 28 (Falmouth Road) at Orchard Road/Asher's Path	22	242	1.245	13.697
40	Yarmouth	Buck Island Road at Higgins Crowell Road	19	179	1.241	11.695
41	Yarmouth	Route 28 (Main Street) at Old Main Street	16	14	1.234	1.080
42	Falmouth	Route 28 (Main Street) at Spring Bars Road/Dillingham Ave	15	55	1.222	4.480
43	Yarmouth	Higgins Crowell Road at Willow Street	22	242	1.215	13.363
44	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opechee Road	36	256	1.189	8.458
45	Mashpee	Great Neck Road N at Old Barnstable Road	17	117	1.172	8.064
46	Bourne	Meetinghouse Lane at State Road/Canal Street	17	55	1.167	3.775
47	Yarmouth	Station Ave at Wood Road	15	115	1.165	8.930
48	Barnstable	Route 28 (Falmouth Road) at Phinney's Lane	28	208	1.134	8.424
49	Barnstable	Old Stage Road/Old Falmouth Road at Race Lane/Oak Street	11	151	1.114	15.293
50	Mashpee	Route 151 (Nathan Ellis Highway) at Ninigret Avenue	21	101	1.108	5.329

Table 3: Top 50 Crash Locations Based on Crash Rate

TOP LOCATIONS BASED ON EPDO RATE (PER MILLION ENTERING VEHICLES)

Rank	Town	Location	Crash Count	EPDO	Crash Rate	EPDO Rate
1	Harwich	Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	21	241	2.713	31.140
2	Falmouth	Spring Bars Road at Worcester Court	22	201	2.311	21.118
3	Barnstable	High School Road at South Street	15	155	1.696	17.530
4	Barnstable	South Street at Pleasant Street	13	93	2.395	17.131
5	Barnstable	Route 28 (Falmouth Road) at Osterville-West Barnstable Road	55	375	2.418	16.489
6	Barnstable	Old Stage Road/Old Falmouth Road at Race Lane/Oak Street	11	151	1.114	15.293
7	Sandwich	Route 6A at Route 130/Tupper Road	20	160	1.904	15.234
8	Falmouth	Route 151 (Nathan Ellis Highway) at Sandwich Road	38	318	1.778	14.882
9	Barnstable	Phinney's Lane at Old Strawberry Hill Road	16	135	1.648	13.906
10	Mashpee	Route 28 (Falmouth Road) at Orchard Road/Asher's Path	22	242	1.245	13.697
11	Barnstable	Route 28 at Yarmouth Road	72	372	2.649	13.685
12	Yarmouth	Higgins Crowell Road at Willow Street	22	242	1.215	13.363
13	Barnstable	Route 28 (Falmouth Road) and Pitchers Way	41	281	1.915	13.126
14	Yarmouth	Route 28 at Old Main Street/North Main Street	34	214	2.003	12.609
15	Falmouth	Waquoit Highway at Metoxit Road	16	156	1.261	12.296
16	Falmouth	Route 28 (Teaticket Highway) at Falmouth Mall	25	179	1.661	11.890
17	Barnstable	Route 28 (Falmouth Road) at Strawberry Hill Road	26	206	1.494	11.834
18	Dennis	Route 28 (Main Street at Sea Street	15	115	1.537	11.781
19	Yarmouth	Buck Island Road at Higgins Crowell Road	19	179	1.241	11.695
20	Barnstable	Route 28 (Falmouth Road) at Bearses Way	60	339	2.070	11.694
21	Falmouth	Gifford Street at Dillingham Avenue	8	148	0.597	11.040
22	Barnstable	Stevens Street at Bassett Lane	16	96	1.818	10.910
23	Falmouth	Route 28 at Beagle Lane/Maravista Avenue	21	161	1.404	10.767
24	Yarmouth	Forest Road at Old Town House Road	15	95	1.674	10.601
25	Dennis	Route 134 (East-West Dennis Road) at Bob Crowell Road/Hemlock Lane	50	230	2.241	10.306
26	Barnstable	North Street at Stevens Street	14	113	1.255	10.129
27	Yarmouth	Route 28 at East Main Street	46	226	2.053	10.088
28	Sandwich	Route 6A at Quaker Meetinghouse Road/Spring Hill Road	25	125	2.000	10.001
29	Bourne	Barlows Landing Road at County Road	8	108	0.732	9.889
30	Barnstable	Yarmouth Road at Old Yarmouth Road/Maher Road	11	111	0.963	9.717
31	Falmouth	Route 28 (East Falmouth Highway) at Old Barnstable Road/Acapesket Road	18	178	0.975	9.640
32	Yarmouth	Station Ave at Wood Road	15	115	1.165	8.930
33	Falmouth	Jones Road at Gifford Street	23	143	1.434	8.913
34	Mashpee	Route 151 (Nathan Ellis Highway) at Job's Fishing Road	21	181	1.010	8.709
35	Barnstable	Route 132 (Iyannough Road) at Bearses Way	58	238	2.112	8.667
36	Falmouth	Route 28 at Shorewood/John Parker Road	24	184	1.106	8.478
37	Barnstable	Route 28 (Falmouth Road) at Old Stage Road/Camp Opechee Road	36	256	1.189	8.458
38	Barnstable	Route 28 (Falmouth Road) at Phinney's Lane	28	208	1.134	8.424
39	Harwich	Route 124 (Pleasant Lake Ave) at Queen Anne Road	11	111	0.834	8.415
40	Wellfleet	Route 6 at Main Street	23	123	1.570	8.396
41	Falmouth	Route 28 (Teaticket Highway) at Village Common Drive	10	130	0.626	8.132
42	Mashpee	Great Neck Road N at Old Barnstable Road	17	117	1.172	8.064
43	Mashpee	Route 151 at Market Street	14	154	0.727	7.995
44	Mashpee	Route 151 (Nathan Ellis Highway) at Old Barnstable Road	34	193	1.367	7.760
45	Barnstable	High School Road at Main Street	14	74	1.431	7.566
46	Falmouth	Route 28 (Main Street) at Falmouth Schools Admin. Driveway	9	109	0.613	7.429
47	Falmouth	Route 28 at Fresh Pond Road	24	104	1.693	7.334
48	Barnstable	Route 28 (Falmouth Road) at Lumbert Mill Road	18	178	0.735	7.270
49	Falmouth	Sandwich Road at Brick Kiln Road	22	102	1.567	7.266
50	Falmouth	Route 151 (Nathan Ellis Highway) at Currier Road	18	158	0.827	7.260

Table 4: Top 50 Crash Locations Based on EPDO Rate

TOP INTERCHANGE LOCATIONS BASED ON NUMBER OF CRASHES

Rank Crashes	Town	Old Exit Number	New Exit Number	Crash Count
1	Dennis	Exit 9A/9B	Exit 78 - Route 6 at Route 134	86
2	Barnstable	Exit 6	Exit 68 - Route 6 at Route 132	80
3	Yarmouth	Exit 7	Exit 72 - Route 6 at Willow Street	77
4	Harwich	Exit 10	Exit 82 - Route 6 at Route 124	67
5	Yarmouth	Exit 8	Exit 75 - Route 6 at Station Ave/Union Street	64
6	Bourne	Exit 1A	Exit 1A - Route 6 at Scenic Highway	53
7	Barnstable	Exit 5	Exit 65 - Route 6 at Route 149	50
8	Orleans	Exit 12	Exit 89 - Route 6 at Route 6A	40
9	Falmouth		Route 28 at Nathan Ellis Highway	38
10	Sandwich	Exit 3	Exit 61 - Route 6 at Quaker Meeting House Road	34
11	Harwich	Exit 11	Exit 85 - Route 6 at Route 137	33
12	Bourne	Exit 1C	Exit 55 - Route 6 at Mid-Cape Connector	28
13	Sandwich	Exit 4	Exit 63 - Route 6 at Chase Road	24
14	Sandwich	Exit 2	Exit 59 - Route 6 at Route 130	23
15	Falmouth		Route 28 at Thomas B Landers Road	8
16	Falmouth		Route 28 at Brick Kiln Road	3
17	Truro		Route 6 at Highland Road	2

Table 5: Interchange Crash Rankings

TOP CIRCULAR INTERSECTION LOCATIONS BASED ON NUMBER OF CRASHES

Rank Crashes	Town	Location	Crash Count
1	Bourne	Bourne Rotary (Route 28/Sandwich Rd/Bourne Bridge)	236
2	Barnstable	Barnstable Airport Rotary (Route 132/Route 28)	94
3	Mashpee	Mashpee Rotary (Route 28/Route 151)	84
4	Orleans/Eastham	Orleans/Eastham Rotary (Route 6/Route 6A/ Route 28)	79
5	Bourne	Otis Rotary (Route 28/Connery Ave)	76
6	Bourne	Belmont Rotary (Main Street/Route 25/28 ramp)	62
7	Bourne	Memorial Circle (Main Street/Buzzards Bay Bypass)	22
8	Barnstable	West End Rotary Hyannis (Main Street/W. Main Street)	19
9	Orleans	Route 6A (Cranberry Highway)/Canal Road	18
10	Barnstable	Route 149 (Prospect Street)/Race Lane	9
11	Harwich	Route 39 (Orleans-Harwich Road)/Queen Anne Road	9
12	Barnstable	Route 6 Ramp at Route 149	6
13	Sandwich	South Sandwich Road/Harlow Road at Cotuit Road	4
14	Barnstable	Bearses Way at Bassett Lane/HYCC	4
15	Chatham	Route 28 at Main Street	3
16	Falmouth	Route 28A (N Falmouth Boulevard)/Curley Boulevard	2
17	Dennis	West Dennis Beach Rotary	1
18	Yarmouth	Higgins Crowell Road	1
19	Provincetown	Provincetown Route 6A (Province Lands Road)	0
20	Mashpee	Triton Sound Circle	0
21	Yarmouth	Wampanoag Road	0
22	Yarmouth	Pleasant Street/River Street	0
23	Falmouth	Tower House Road	0
24	Mashpee	Rock Landing Road	0

Table 6: Circular Intersection Crash Rankings

It is worth noting that the two new roundabouts on Route 28 in Chatham (George Ryder Road and Barn Hill Road) are not shown in the above chart as they were not fully constructed during the years used to analyze crash data. These roundabouts will be examined in future crash reports.

Non-Motorist Crashes

From the overall crash dataset, MassDOT further narrows the data to highlight crashes involving non-motorists (bicyclists, pedestrians, wheelchairs, skaters, etc.). All the crashes included in the non-motorist data are also included in the data of all vehicular crashes. The following figure depicts all non-motorist located crashes in Barnstable County that were reported and located during 2018-2020. All non-motorist crashes included at least one motor vehicle.

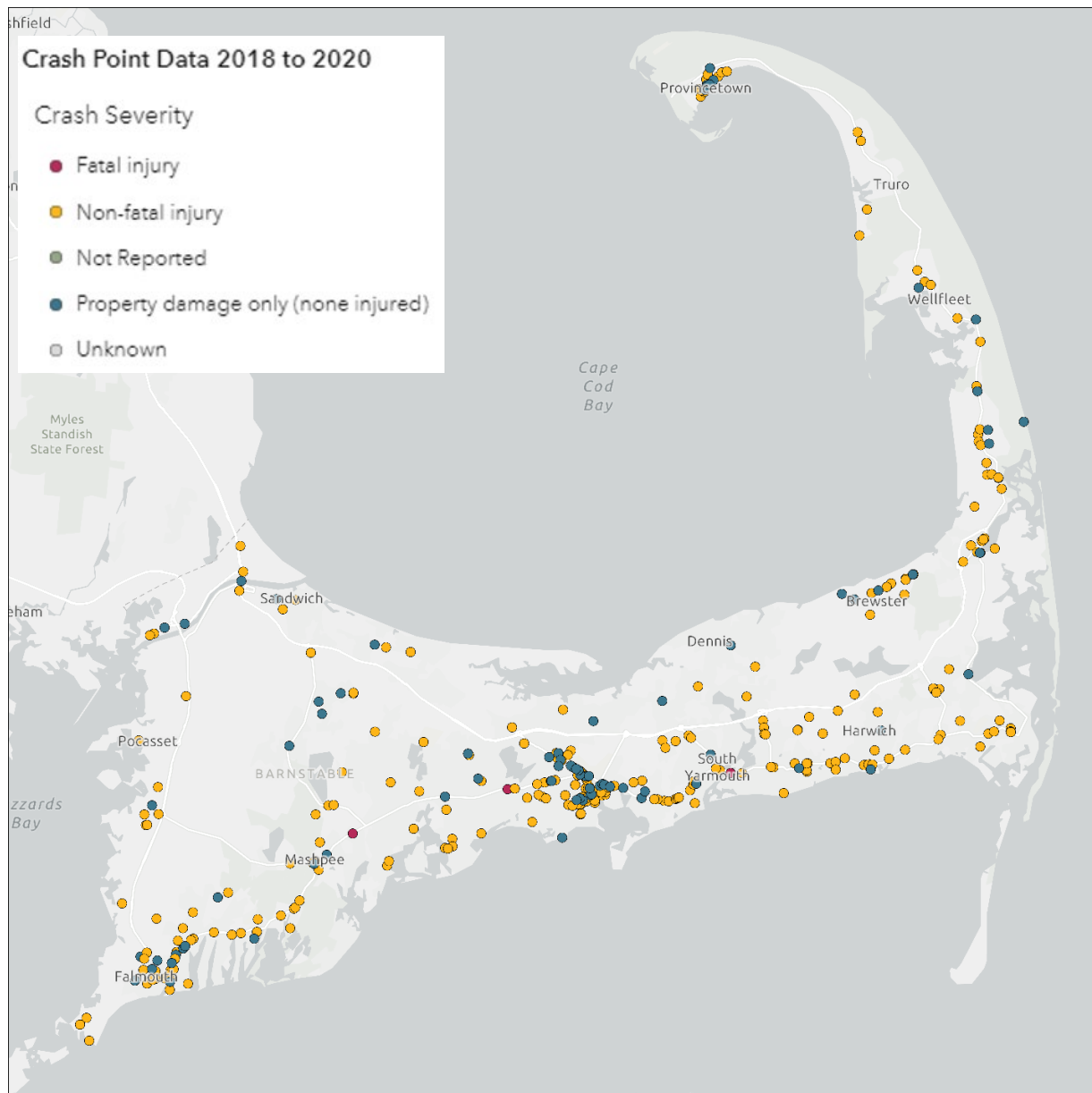


Figure 2: Geolocated Non-Motorist Crash Locations on Cape Cod (2018-2020)

For the period 2018-2020 there were 406 reported crashing involving non-motorists. Of the 406 reported non-motorist crashes, 4 resulted in a fatality. All 4 fatalities occurred along Route 28. Of the 406 non-motorist crashes 14 could not be mapped for lack of data.

Commission staff acknowledges that non-motorists are the roadway's most vulnerable users and staff is currently working on a more in-depth analysis of non-motorist crashes across Cape Cod. This report will look at more than three years of data and will take a deeper look at contributing factors of these types of crashes. This report will help the region identify areas of highest concern and risk for non-motorists.

Fatal Crashes

The most severe crash type (i.e., those involving fatalities) is given special attention by safety officials to ascertain any contributing factors. The MassDOT dataset indicates that 140 crashes involving a fatality occurred during the timeframe of 2013 through September 30, 2022. From 2018-2020 there were 33 fatal crashes on Cape Cod. A town-by-town breakdown is presented in the following table.

Town	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*	Total
Barnstable	3	3	3	5	2	3	0	1	1	3	24
Bourne	3	1	0	0	2	1	0	4	4	0	15
Brewster	0	1	1	0	0	0	0	0	0	0	2
Chatham	1	0	1	0	0	0	0	0	0	0	2
Dennis	2	1	1	0	1	1	0	4	1	0	11
Eastham	0	0	3	1	0	0	0	0	1	1	6
Falmouth	2	1	0	5	4	1	1	0	5	5	24
Harwich	0	1	0	0	0	4	3	0	2	0	10
Mashpee	0	0	0	2	1	1	0	1	1	0	6
Orleans	0	0	0	1	0	0	0	0	0	0	1
Provincetown	0	0	0	0	1	0	0	0	1	0	2
Sandwich	1	2	1	1	1	2	1	0	1	1	11
Truro	0	0	0	0	0	0	0	0	0	0	0
Wellfleet	2	2	0	0	0	0	0	0	0	1	5
Yarmouth	2	4	2	3	1	1	2	2	2	2	21
Total	16	16	12	18	13	14	7	12	19	12	140

Table 7: Fatal Crash Information (2013-2022)

Staff will update the table above (if needed) in early 2023 to ensure a full year of data for 2022.

Summary

The information provided in this report has been presented with the intention of serving as a resource to make Cape Cod safer for motorists, pedestrians, and bicyclists. Cape Cod Commission staff will use this report to prioritize locations for future Road Safety Audits. This list will also serve as a resource for transportation safety professionals looking to make strategic investments to improve safety in the region. There are many ways to create a list of most dangerous intersections, and each methodology has its strengths and weaknesses. For this reason, the Commission has produced four high crash lists without identification of a preferred option.

Geolocating crashes is an effective method used in identifying high crash areas. Better crash data will lead to better analysis, the most accurate identification of problem areas, and the deployment of appropriate safety improvements. Incomplete or inaccurate crash reporting may lead to a missed opportunity of funds for a project.

Accurate and comprehensive crash reporting will lead to better opportunities for safety improvements and focus further safety studies on the areas of most critical need.

Please visit capecodcommission.org/safety for a web dashboard of crashes across Cape Cod. Data in this portal includes locations of crashes as well as severity, bike and pedestrian related, and much more.



Appendix

INDEX OF INTERSECTIONS WITH NOTES

Location	Town	EPDO Rank	Crash Rank	Crash Rate Rank	EPDO Rate Rank	Notes
Route 28 (Falmouth Road) at Osterville-West Barnstable Road	Barnstable	1	4	3	5	Intersection reconstructed in 2020
Route 28 at Yarmouth Road	Barnstable	2	1	2	11	Under construction; 2021 TIP
Route 28 (Falmouth Road) at Bearses Way	Barnstable	3	2	8	20	Intersection reconstructed 2018
Route 151 (Nathan Ellis Highway) at Sandwich Road	Falmouth	4	11	17	8	Potential improvements identified in 2018 RSA
Route 28 (Falmouth Road) and Pitchers Way	Barnstable	5	9	13	13	Potential improvements identified in 2016 CCC Corridor Study; RSA 2022
Route 28 (Falmouth Road) at Old Stage Road/Camp Opechee Road	Barnstable	6	12	44	37	
Route 28 (Falmouth Road) at Orchard Road/Asher's Path	Mashpee	7	33	39	10	
Higgins Crowell Road at Willow Street	Yarmouth	8	34	43	12	
Route 39 (Orleans-Harwich Road) at Pleasant Bay Road	Harwich	9	37	1	1	2016 RSA; New striping and sightline clearing in 2016
Route 132 (Iyannough Road) at Bearses Way	Barnstable	10	3	7	35	Reconstructed in 2012, emergency vehicle pre-emption added in 2017; 2023 Corridor Study - VHB
Route 134 (East-West Dennis Road) at Bob Crowell Road/Hemlock Lane	Dennis	11	5	6	25	RSA 2019
Route 28 at East Main Street	Yarmouth	12	6	9	27	2021 CCC Corridor Study
Route 28 at Old Main Street/North Main Street	Yarmouth	13	14	10	14	RSA 2016; Major intersection reconstruction planned - 2024 TIP
Route 28 (Falmouth Road) at Phinney's Lane	Barnstable	14	17	48	38	2016 CCC Corridor Study
Route 28 (Falmouth Road) at Strawberry Hill Road	Barnstable	15	18	30	17	RSA 2015
Spring Bars Road at Worcester Court	Falmouth	16	31	5	2	CCC Spring Bars report analysis 2013
Route 151 (Nathan Ellis Highway) at Old Barnstable Road	Mashpee	17	13	34	44	RSA 2014; 2021 TIP under construction
Route 28 at Shorewood/John Parker Road	Falmouth	18	23	52	36	
Route 151 (Nathan Ellis Highway) at Job's Fishing Road	Mashpee	19	39	56	34	RSA 2018
Buck Island Road at Higgins Crowell Road	Yarmouth	20	46	40	19	
Route 28 (Teaticket Highway) at Falmouth Mall	Falmouth	21	22	21	16	
Route 28 (Falmouth Road) at Lumbert Mill Road	Barnstable	22	48	74	48	Signal added in 2011
Route 28 (East Falmouth Highway) at Old Barnstable Road/Acapesket Road	Falmouth	23	49	61	31	
Route 28 at Bell Tower Mall	Barnstable	24	25	78	67	2016 CCC Corridor Study
Route 28 at Beagle Lane/Maravista Avenue	Falmouth	25	36	33	23	

Route 6A at Route 130/Tupper Road	Sandwich	26	41	14	7	
Route 151 (Nathan Ellis Highway) at Currier Road	Falmouth	27	50	70	50	RSA 2018
Waquoit Highway at Metoxit Road	Falmouth	28	62	37	15	
High School Road at South Street	Barnstable	29	65	18	3	
Route 151 at Market Street	Mashpee	30	0	76	43	
Old Stage Road/Old Falmouth Road at Race Lane/Oak Street	Barnstable	31	0	49	6	
Route 132 (Iyannough Road) at Phinneys Lane	Barnstable	32	16	68	81	Emergency vehicle pre-emption added in 2017
Route 132 at Cape Cod Mall	Barnstable	33	15	54	69	2023 Corridor Study - VHB
Gifford Street at Dillingham Avenue	Falmouth	34	0	87	21	
Route 134 (East-West Dennis Road) at Upper County Road	Dennis	35	7	16	65	Reconstructed in 2014
Jones Road at Gifford Street	Falmouth	36	26	31	33	
Route 28 at Mary Dunn Way/Enginehouse Road	Barnstable	37	28	53	51	Under construction; 2021 TIP
Route 28 (Falmouth Road) at Main Street	Barnstable	38	29	58	57	
Route 134 (East-West Dennis Road) at Patriot Square/Market Place	Dennis	39	8	28	68	RSA 2019
Route 134 (East-West Dennis Road) at Theophilus F. Smith Road	Dennis	40	10	23	64	RSA 2019
Route 137 at Orleans Road	Harwich	41	45	64	53	
Route 28 (Falmouth Road) at Main Street/South County Road	Barnstable	42	66	73	52	
Phinney's Lane at Old Strawberry Hill Road	Barnstable	43	59	22	9	
Route 28 (Falmouth Road) at Santuit Newtown Road	Barnstable	44	72	80	59	RSA 2021
Route 28 (Teaticket Highway) at Village Common Drive	Falmouth	45	0	82	41	
Route 28 (Falmouth Road) at East Osterville Road	Barnstable	46	0	91	56	
Route 6A at Quaker Meetinghouse Road/Spring Hill Road	Sandwich	47	21	11	28	
Route 6 at Main Street	Wellfleet	48	27	25	40	2023 TIP; MassDOT Route 6 Outer Cape Complete Streets Study - 2019
Route 132 (Iyannough Road) at Cape Cod Mall West Entrance	Barnstable	49	43	86	83	2023 Corridor Study - VHB
Route 132 (Iyannough Road) at Shootflying Hill Road	Barnstable	50	51	84	80	Emergency vehicle pre-emption added in 2017

Great Neck Road N at Old Barnstable Road	Mashpee	51	55	45	42	
Route 28 (Main Street at Sea Street	Dennis	52	67	27	18	
Station Ave at Wood Road	Yarmouth	53	70	47	32	Signal warrant evaluation 2022
Route 132 (Iyannough Road) at Attucks Lane	Barnstable	54	0	92	86	Emergency vehicle pre-emption added in 2017
Route 28 at Higgins Crowell Road/Berry Avenue	Yarmouth	55	0	71	54	
North Street at Stevens Street	Barnstable	56	73	38	26	
Yarmouth Road at Old Yarmouth Road/Maher Road	Barnstable	57	0	62	30	
Independence Drive at Attucks Lane	Barnstable	58	0	83	60	
Route 124 (Pleasant Lake Ave) at Queen Anne Road	Harwich	59	0	69	39	
Route 28 (Main Street) at Falmouth Schools Admin. Driveway	Falmouth	60	0	85	46	
Barlows Landing Road at County Road	Bourne	61	0	75	29	
Route 28 at Fresh Pond Road	Falmouth	62	24	19	47	
Route 28 (Falmouth Road) at Route 149	Barnstable	63	30	67	82	
Sandwich Road at Brick Kiln Road	Falmouth	64	32	26	49	
Route 151 (Nathan Ellis Highway) at Ninigret Avenue	Mashpee	65	38	50	66	RSA 2018
Route 28 (Iyannough Road) at Spring Street	Barnstable	66	42	63	71	
Stevens Street at Bassett Lane	Barnstable	67	58	15	22	
Route 28 (Main Street) at Central Ave	Falmouth	68	69	90	85	
Forest Road at Old Town House Road	Yarmouth	69	71	20	24	
Route 28 (Davis Straits) at Jones Road/Worcester Court	Falmouth	70	0	81	76	
Pitchers Way at West Main Street	Barnstable	71	0	88	78	
South Street at Pleasant Street	Barnstable	72	0	4	4	
Route 6A at Union Street/Old Church Street	Yarmouth	74	0	65	58	
Route 6A at Linell Landing Road	Brewster	75	0	72	62	

Route 28 (Falmouth Road) at Trotting Park Road	Falmouth	0	20	12	55	
Route 124 at Route 39/Main Street	Harwich	0	40	24	72	
Barnstable Road at Center Street/Charles Street	Barnstable	0	75	29	63	
High School Road at Main Street	Barnstable	0	74	32	45	
Route 28 at Scranton Avenue	Falmouth	0	44	35	88	Future TIP [rproject brought forward by Town of Falmouth
Route 151 (Nathan Ellis Highway) at Route 28A (North Falmouth Highway)	Falmouth	0	63	36	61	
Route 28 (Main Street) at Old Main Street	Yarmouth	0	64	41	92	
Route 28 (Main Street) at Spring Bars Road/Dillingham Ave	Falmouth	0	68	42	74	CCC Spring Bars report analysis 2013; Future TIP project brought forward by Town of Falmouth
Meetinghouse Lane at State Road/Canal Street	Bourne	0	52	46	84	
Route 6 at Samoset Road/Depot Road	Eastham	0	35	51	77	MassDOT Route 6 Outer Cape Complete Streets Study - 2019
South Street at Ocean Street/Old Colony Road	Barnstable	0	57	55	70	
Route 6 at Brackett Road/Old County Road	Eastham	0	53	57	73	MassDOT Route 6 Outer Cape Complete Streets Study - 2019
Route 28 (East Falmouth Highway) at Old Meeting House Road/Davisville Road	Falmouth	0	54	59	75	Major intersection reconstruction 2013 TIP
Route 132 (Iyannough Road) at Independence Drive	Barnstable	0	19	60	90	Pedestrian upgrades and emergency vehicle pre-emption added in 2017; 2023 Corridor Study - VHB
Route 28 (Main Street) at Route 134 (East-West Dennis Road)/Swan River Road	Dennis	0	61	66	79	
Route 28 at Camp Street	Yarmouth	0	56	77	87	
Station Avenue at White's Path/Workshop Road	Yarmouth	0	47	79	91	Planned 2023 CCC Corridor Study
Route 6 (Scenic Highway) at Nightingale Road	Bourne	0	60	89	89	MassDOT Canal Area Study 2019

CAPE COD COMMISSION

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