PACTS High Crash Locations Study
Desktop Assessments

PREPARED FOR

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July 7, 2020
YARMOUTH: Intersection of East Main Street and North Road

Overview map of non-HCL reviewed in this assessment.

Assessment

This site includes the intersection of North Road and East Main Street in Yarmouth, which is a three-legged one-way stop controlled intersection with only the North Road approach being stop-controlled.

This is not a High Crash Location (HCL). It was last listed as a HCL in 2015. As a result, information was obtained using the MaineDOT Crash Query Tool to identify crashes between 2016-2019, which show five crashes, three rear end/sideswipe crashes and two went off road crashes.

Pending Projects

No major recent or pending MaineDOT projects.

Municipal Input

There is a large amount of traffic that travels on North Road and as a result, there are large traffic queues during peak traffic hours, particularly in the morning. Vehicles are at a standstill on North Rd, East Main St and the East Main St Ramp to Rte 1. Often it can be difficult to turn left from North Road onto East Main Street due to the high volume of traffic. In addition, vehicles have left the roadway, travelling through the “T” intersection and entering private yards, striking vehicles parked in driveways.

Recommendations

- Add dotted edge line along East Main Street across the approach of North Street. This will better delineate the travel lane so that drivers can approach the travel lane to increase sight distance, without entering the on-coming travel lane.
- Provide intersection warning signs (MUTCD W2-4 and W1-7), on the North Road approach.
- Restrict left turns from North Road onto E Main Street during peak hours.
- The north leg (East Main Street) has approximately one quarter of the AADT of the south (East Main Street) and west legs (North Street), so consider switching the stop control to the north leg for southbound vehicles on East Main Street; this would also include resiping pavement markings.
- Investigate alternative intersection controls, such as the installation of a traffic signal or roundabout.
- Restripe to square up the intersection, reducing the skew angle.

Street view of intersection at East Main Street and North Road traveling North on East Main Street, from Google Maps
YARMOUTH: Intersection of East Main Street and North Road

Aerial view of East Main Street and North Road, from Google Maps
YARMOUTH: Intersection of East Main Street and North Road

Screen Capture from MaineDOT Crash Query Tool website showing crashes at this intersection between 2016-2019
**YARMOUTH: Intersection of Route 1 and Spring Street**

**Overview map of HCLs reviewed in this assessment**

**Assessment**
The intersection of Route 1 and Spring Street is a four-legged, two-way stop controlled intersection. The stop controlled approaches are on Spring Street and the Junipers Apartment Complex. Route 1 is median separated within the vicinity of the intersection and has multiple lanes in both directions.

**Recent or Pending Projects**
There was an intersection improvements project at the intersection adjacent to this one for the Exit 17 ramp to install a traffic signal.

**Municipal Input**
- Area is prone for crashes due to the combination of the intersections/merging in a small area. The intersections of Spring Street and Route 1, Juniper Drive, and Route 1, and the merging of traffic from exiting 295 SB (Exit 17) and Route 1 south all contribute to the amount of traffic movement in the area. You also have the on-ramp for 295 SB (Exit 17) in the immediate area as well.
- Trying to turn left from Spring Street (onto Route 1 south) or turning left from Juniper Drive (onto Route 1 north) can be quite difficult. When vehicles in more than one of those intersections try to make turns at the same time, movement in that area is dangerous.
YARMOUTH: Intersection of Route 1 and Spring Street

Safety Issues
There were 15 crashes within the intersection. Many of the crashes at this intersection were due to traffic crossing Route 1, particularly from Junipers Apartment Complex, and failing to yield to through traffic. This includes traffic traveling straight or left, from Spring Street and Junipers Apartment Complex, and turning onto Route 1 or crossing through the intersection. There are also several rear-end collisions on Spring Street.

Recommendations
- Restrict eastern exit from Cumberland gas station due to its close proximity to the intersection.
- Add pavement markings in the Route 1 median to better define where turning/through vehicles should be positioned.
- Restrict through and left turn movements from the minor streets by converting the intersection to a Restricted Crossing U-Turn (RCUT) intersection with downstream U-turns. The eastbound downstream U-turn could be located at the I-295 On/Off ramps. The westbound downstream U-turn could be located at the existing driveways of Coastal Hardware and Binga’s Wingas and Culligan Water or the signalized intersection leading to E Main Street and Maple’s.
Crash Data
The crash data used for this assessment was based on 2015-2017 crash data. The following table summarizes the crash data for this location and also shows additional crashes from 2018. The crash diagram for this location is shown on the following page.

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<tbody>
<tr>
<td>Route 1 and Spring St</td>
<td>19364</td>
<td>4 6 5 4</td>
<td>19</td>
<td>40.0%</td>
<td>2.26</td>
<td>3/4</td>
<td>30-40 mph</td>
<td>2,000-9,000</td>
</tr>
</tbody>
</table>

*See the abbreviations and definitions section at the beginning of this report for more information about each data point.

The legend below will aid in understanding the crash diagrams that follow.

**Legend**
- MOVING VEHICLE
- VEHICLE BACKING
- OVERTURNED
- OUT OF CONTROL
- REAR END COLLISION
- SIDESWIPE COLLISION
- HEAD ON COLLISION
- ANGLE COLLISION
- FIXED OBJECT
- PARKED OBJECT
- FAI AL
- INJURY TYPE
- PATH OF: P PEDESTRIAN B BICYCLE A ANIMAL S SLED
- PAVEMENT: D DRY, I ICY, W WET, S SNOW
- WEATHER: C CLEAR, F FOG, R RAIN, SL SLEET, S SNOW, CL CLOUDY
- TIME: A AM, P PM
YARMOUTH: Intersection of Route 1 and Spring Street

Intersection of Route 1 and Spring Street

Yarmouth
Node: 19364
Study Period: 2015-2017
# of Crashes: 15 / CRF: 2.26

Prepared by Office of Safety
JWM - 12/8/18
**FREEPORT: Intersections of I-295 SB Off-Ramp and Route 125/136/Mallett Drive**

**Assessment**

This site includes two intersections and a roadway segment:

**A. I-295 SB Off-Ramp:** The I-295 SB Off-Ramp at exit 22 is a single lane off-ramp separated by a median from the I-295 SB On-Ramp.

**B. I-295 SB Off-Ramp and Mallett Drive Intersection (Left/West):** This is a three way intersection between the off-ramp and Mallett Drive. There is a stop sign at the end of the off-ramp, traffic does not stop on Mallett Drive.

**C. I-295 SB Off-Ramp and Mallett Drive Intersection (Right/East):** This is a three way intersection with Mallett Drive with an angled approach. There is a yield sign at the end of the off-ramp here.

**Recent or Pending Projects**

The Mallett Drive bridge over I-295 is currently in design for rehabilitation or replacement and is currently scheduled to begin construction in October 2021.

**Municipal Input**

Noted concerns by the city include the following:

- This location is rather congested particularly because of the Durham Road/ Pownal Road intersection which has speed and road geometry issues.
- A signal warrant analysis is currently being conducted by MaineDOT on Mallett Drive with respect to the off-ramps.
- Three types of crashes:
  - Excessive speeds on the curved portion of the off-ramp causing vehicles to slide off during icy conditions.
  - Vehicles attempting to turn either west (left) or east (right) onto Mallett Drive and incorrectly anticipating speeds of oncoming traffic.
  - A rear-end collision (i.e. fender bender) by vehicles coming off I-295 southbound and waiting to make a turn onto Mallett Drive.
**FREEPORT:** Intersections of I-295 SB Off-Ramp and Route 125/136/Mallett Drive

**Safety Issues**

**A. SB Off-Ramp**
The major issue is vehicles speeding and running into the median. Of 11 crashes on this segment nine involved out-of-control vehicles, likely a result of speeding around the tight curve at the beginning of the on-ramp. Many of the crashes are in the early morning and early evening periods during late fall and winter months and are most likely occurring during dark conditions.

**B. SB Off-Ramp and Mallett Drive Intersection (Left/West):**
The majority of crashes (6 of 10) are a result of drivers failing to yield when turning left onto Mallett Drive.

**C. SB Off-Ramp and Mallett Drive Intersection (Right/East):**
All crashes are rear end collisions on the off-ramp.
FREEPORT: Intersections of I-295 SB Off-Ramp and Route 125/136/Mallett Drive

Recommendations

- **A. SB Off-Ramp**
  - Add high friction surface treatment to ramp.
  - Add advisory speed plaque and speed feedback signs at the start of the ramp.
  - Provide enhanced delineation through the curve with additional chevron signs and/or evenly spaced post-mounted delineators. Also, consider adding retroreflective strips to the chevron sign posts to provide additional visual grounding to drivers.

- **B. SB Off-Ramp and Mallett Drive Left**
  - Add stop bar to left-turn lane on the off-ramp.
  - On Mallett Drive northwestbound, begin the left-turn lane for Durham Drive farther west of the off-ramp. This should include an analysis that shortening the left-turn lane would still meet turn lane length design standards.
  - On Mallett Drive, consider separating the through lanes from the left turn lanes, similar to a continuous green T. To create the separation, add curbing (or another form of physical separation) starting at the left-turn lane approaching the ramp and extending through the ramp intersection, so that left turning vehicles both from Mallet and from the on-ramp, are separated from the through traffic. This will create a potential weaving conflicts between (1) vehicles that have turned left form the off-ramp merging onto the Mallet Drive through lane and (2) vehicles entering the left-turn lane from Mallet Drive to turn onto Durham Road. This should include an analysis that shortening the left-turn lane to Durham Road would still meet turn lane length design standards.

- **C. SB Off-Ramp and Mallett Drive Right**
  - Add high friction surface treatment on the ramp approach.
Crash Data
The crash data used for this assessment was based on 2015-2017 crash data. The following table summarizes the crash data for all three locations and also shows additional crashes from 2018. The crash diagrams for all three locations are shown on the following pages.

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<tbody>
<tr>
<td>295 SB Off-Ramp</td>
<td>18710 - 59619</td>
<td>3 2 6 0</td>
<td>11</td>
<td>18.2%</td>
<td>8.06</td>
<td>1</td>
<td>Unposted</td>
<td>3,500</td>
</tr>
<tr>
<td>295 SB Off-Ramp and Mallett Drive Left</td>
<td>59620</td>
<td>3 2 5 4</td>
<td>14</td>
<td>10.0%</td>
<td>2.11</td>
<td>1/3</td>
<td>35 mph</td>
<td>1,000-17,000</td>
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<tr>
<td>295 SB Off-Ramp and Mallett Drive Right</td>
<td>19275</td>
<td>2 3 4 1</td>
<td>10</td>
<td>22.2%</td>
<td>1.66</td>
<td>1/3</td>
<td>35 mph</td>
<td>1,000-17,000</td>
</tr>
</tbody>
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The legend below will aid in understanding the crash diagrams that follow.
FREEPORT: Intersections of I-295 SB Off-Ramp and Route 125/136/Mallett Drive

A. SB Off-Ramp
FREEPORT: Intersections of I-295 SB Off-Ramp and Route 125/136/Mallett Drive

B. 295 SB Off-Ramp and Mallett Drive Left

![Diagram of the intersection showing crash locations and relevant data.]

Freeport
Node: 59620
Study Period: 2015-2017
# of Crashes: 10/CRF: 2.11
Prepared by Office of Safety
(R.A. - 8/7/18)
FREEPORT: Intersections of I-295 SB Off-Ramp and Route 125/136/Mallett Drive

C. 295 SB Off-Ramp and Mallett Drive Right

Freeport
Node #19275
Study Period 2015-2017
# of Crashes 9 / CRF= 1.66
Prepared by Office of Safety OMF H/T/HB

Mallett Dr.

I-295 SB Off Ramp
**Assessment**
This intersection of Blackstrap Road/Skillin Road and Gray Road is a four-legged, two-way stop-controlled intersection with an overhead flashing beacon. Blackstrap and Skillin Roads are both stop controlled.

**Recent or Pending Projects**
Light Capital Paving was completed in 2018 on three of the four legs.

**Municipal Input**
Noted concerns from the city include the following:
- The need for a traffic signal
- High speeds and many near misses
- Increasing traffic and commuter delays

**Safety Issues**
There are 11 crashes at this intersection. Most of the crashes (9 of the 11) involved vehicles from Skillin Road, particularly those failing to yield to southbound traffic on Gray Road. Two of the Skillins Road crashes were rear-end collisions and one was a sideswipe.

**Recommendations**
- Wide approaches at Skillin Road and Blackstrap Road allow for right turning vehicles to bypass vehicles waiting for a gap to turn left or travel through the intersection. This creates visibility issues for both vehicles as they cannot clearly see oncoming traffic on Gray Road. The approach should be narrowed to ensure that drivers have the best possible view of on-coming traffic on Gray Road.
- Add dotted edge lines along Gray Road, across the approaches for Skillin and Blackstrap Roads. These will delineate the travel lanes and will provide better guidance to drivers on the minor streets about how close they can pull up to the Gray Road travel lanes.
- Install advance intersection warning signs on Gray Road.
- Consider changing the intersection control to an all-way stop or traffic signal depending on warrants.
CUMBERLAND: Intersection of Gray Road, Blackstrap Road, and Skillin Road

Aerial view of Blackstrap Road, Skillin Road, and Gray Road, from Google Maps
CUMBERLAND: Intersection of Gray Road, Blackstrap Road, and Skillin Road

Crash Data
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</thead>
<tbody>
<tr>
<td>Gray Rd, Blackstrap Rd, and Skillin Rd</td>
<td>17087</td>
<td>4 4 3 1</td>
<td>12</td>
<td>36.4%</td>
<td>3.08</td>
<td>3/4</td>
<td>35-40 mph</td>
<td>3,000-6,500</td>
</tr>
</tbody>
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The legend below will aid in understanding the crash diagrams that follow.
CUMBERLAND: Intersection of Gray Road, Blackstrap Road, and Skillin Road

Intersection of Gray Road, Blackstrap Road, and Skillin Road
**FALMOUTH: Exit 53 On-/Off-Ramp to I-95**

**Assessment**
This site includes one roadway segment, the on and off ramp to I-95 at Exit 53. This segment includes a toll booth. Driving toward Gray Road, there is a left only and a through right lane.

**Recent or Pending Projects**
No major recent or pending projects.

**Municipal Input**
Noted concerns from the city include the following:
- Have not seen accidents nor do I sense this is an unsafe area.
- Dispute as to what the actual traffic growth has been using exit 53. Some claim the growth there has been significant, more than projected. It would be helpful to have reliable data for that.

- High volume intersection with very low crash data. Good traffic light management and excellent line of sight contribute to this success.

**Safety Issues**
There are nine crashes on this segment; six in the easbound direction and three in the westbound direction. Four of the five crashes at this intersection are related to cars failing to yield when changing lanes. This is particularly problematic on the off-ramp. The other crashes are rear-end collisions, distractions, and a plow striking the toll booth.

There is a weaving section in the eastbound direction where drivers must change lanes in a short distance. An overhead sign provides advance lane designation, but it can easily be overlooked due to its relatively small size.
FALMOUTH: Exit 53 On-/Off-Ramp to I-95

Recommendations

- **Eastbound direction:**
  - Provide arrow pavement markings to indicate lane designation just after the merge area, before the toll booth.
  - Provide enhanced/larger overhead lane designation signs.
  - Extend the solid white lane line further to the west of the intersection with Gray Road to discourage weaving and unexpected lane changes.
FALMOUTH: Exit 53 On-/Off-Ramp to I-95

Crash Data
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<tbody>
<tr>
<td>I-95 On-/Off-Ramp</td>
<td>70699</td>
<td>2 6 1 0</td>
<td>9</td>
<td>11.1%</td>
<td>2.36</td>
<td>1</td>
<td>Unposted</td>
<td>12,500</td>
</tr>
</tbody>
</table>

*See the abbreviations and definitions section at the beginning of this report for more information about each data point.*

The legend below will aid in understanding the crash diagram that follows.

**LEGEND**

- MOVING VEHICLE
- VEHICLE BACKING
- OVERTURNED
- OUT OF CONTROL
- REAR END COLLISION
- SIDESWIPE COLLISION
- HEAD ON COLLISION
- ANGLE COLLISION [A B C]
- FIXED OBJECT
- PARKED VEHICLE
- FATAL
- INJURY TYPE
- PATH OF: F PEDESTRIAN E BICYCLE A ANIMAL S SLED

**PAVEMENT:** D - DRY, I - ICY, W - WET, S - SNOW

**WEATHER:** C - CLEAR, F - FOG, R - RAIN, S - SLEET, S - SHOW, CL - CLOUDY

**TIME:** A - AM, P - PM
FALMOUTH: Exit 53 On-/Off-Ramp to I-95

I-95 On-/Off-Ramp

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