Final Traffic Circulation Study
Town of York, Maine

PREPARED FOR:
Town of York
York Town Hall
186 York St.
York, Maine 03909

PREPARED BY:
Gorrill-Palmer Consulting Engineers, Inc.
P.O. Box 1237, 15 Shaker Road
Gray, Maine 04039
(207)657-6910

March 15, 2011

Final
Traffic Circulation Study
Town of York
March 2011

Table of Contents

Introduction.....3

Existing Conditions.....5

Town / Committee / Public Participation.....9

Route 1 Connector Impacts.....10

Capacity Analysis.....10

Conceptual Alternatives and Recommendations.....11

Prioritization of Recommendation.....18

Preliminary Opinions of Probable Construction Cost.....19

Appendix A
Study Area
Turning Movement Diagrams; Vehicles, Pedestrians
Concept Plans

Appendix B
Raw Crash Data
Preliminary Opinion of Cost

Gorrill-Palmer Consulting Engineers, Inc.
Engineering Excellence Since 1998
P.O. Box 1237/15 Shaker Road
Gray, Maine 04039
207.657.6910/mailbox@gorrillpalmer.com

Acknowledgements

Special thanks go to those individuals who comprised the review committee, the Board of Selectmen, those individuals who attended the public meetings, and staff from York who were integral in the completion of this study. Many contributed to more than one group.

Introduction

Background

The York Beach area is a unique place, not only attracting visitors from all over, but also serving local residents and businesses. The difference in vehicle, pedestrian and bicycle traffic between summertime beach season and the remainder of the year is dramatic. As a result of the complete change in demands from peak to non-peak seasons, the demands on the local network also changes considerably. Currently, the traffic patterns of the area change from peak to non-peak times of the year, creating confusion for drivers and making it difficult to conform to state and national standards for striping and signing. This change in traffic patterns also makes it difficult to construct the appropriate geometrics to reinforce a constant traffic pattern.

Railroad Ave. looking toward Main Street.

Previous Studies

This area has been under review by the Town for several years in an effort to improve the overall experience of the area. To that end, there have been several studies to aid the Town in making decisions for the Beach area. Those studies include:

- York Beach Village Center, Master Plan Recommendations in August 2009
- York Beach Village Center Subcommittee Streetscape Scenarios Presentation January 2009
- York Beach Parking Study by Paradigm Engineering in November 2008

Goal of the Traffic Circulation Study

The Town and its residents, business owners and stakeholders have long since identified that the busy season has been extending into the spring and fall in response in part to marketing efforts, and as such, the sharp distinction between peak and non-peak seasons is becoming blurred. As a result, what has worked in the past may not be the best solution for the future. Based on this concern, the Board of Selectmen issued a Request for Proposals stating that "The Town's overall goals are to improve the access into and out of York Beach Village, and to make the traffic flow in York Beach Village safer and more efficient". This study is intended to fulfill that goal.

Study Area

The area for this study is considered the "beach" area, which primarily includes the roadway network that changes traffic patterns from the peak to the non-peak season, and is most affected by the summertime influx of visitors. That area includes:

- Church Street
- Long Beach Avenue
- Ocean Avenue
- Ocean Avenue Ext.
- Ridge Road
- Main Street
- Railroad Avenue
- Railroad Avenue Ext.
- Bay Street

This area is shown in the graphic below:

Project Study Area

Existing Conditions

The beach area includes a wide mixture of uses, including residences, hotel/motels, retail businesses, restaurants, York Wild Kingdom, Fire Station, a parking area, churches, post office, a camping area, and an athletic field. This results in a significant variety of drivers, pedestrians, and bicyclists with different goals and objectives in mind.

Existing Issues

Seasonal Traffic
Seasonal One-Way Traffic Flow
Emergency Vehicle Access
Accommodating Non-Motorized Modes

The beach area includes a seasonal one-way "loop" consisting of Church Street, Long Beach Avenue, Ocean Avenue, and Railroad Avenue. All these roads are striped with two lanes. This loop is only operational during the peak traffic months from May to November. At the beginning of the peak season in May, each road changes from a typical two-way traffic pattern (one lane for each direction) to a one-way counter-clockwise pattern (two lanes in one direction). The pattern changes back again at the end of the peak season in November. Although this variable configuration has served the Town over many years, the "shoulder" seasons before and after the peak season are beginning to blur into the peak season, and businesses are starting to attract more patrons during the off season. This trend is beginning to reduce the difference in traffic characteristics between peak and non-peak seasons and calls the changing of patterns into question.

The result of this changing pattern is confusion for drivers, not only because the traffic pattern changes, but striping and signing is inconsistent with the traffic patterns for a portion of the year. For instance, Ocean Avenue is striped with a dashed white line separating the two lanes of traffic. Per national standards and common convention, white indicates traffic is traveling in the same direction, which is not the case in the non-peak season.

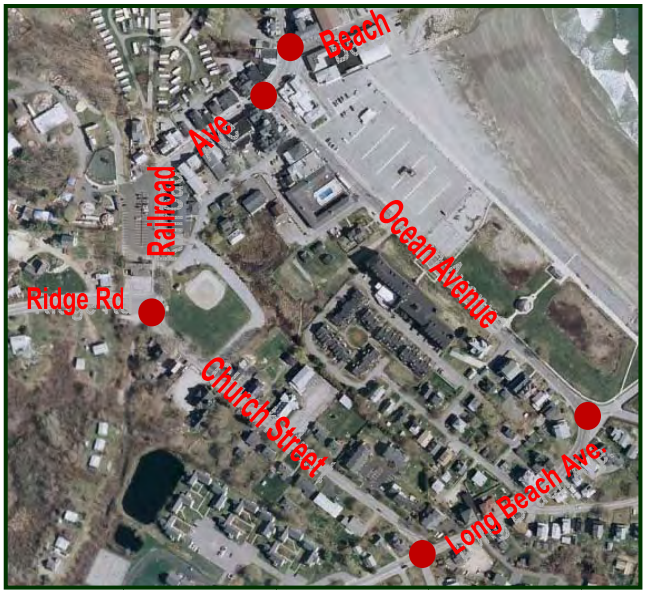
To document issues identified by the Town and to identify other issues, data collection was completed including; vehicular counts, pedestrian counts, crash data and field observations. Each is described in more detail as follows:

Vehicular and Pedestrian Counts

To identify the traffic and pedestrian volumes during the peak, Gorrill-Palmer completed vehicular and pedestrian counts on Saturday July 17, 2010 from 2:30 to 4:30 PM. It was a clear and sunny Saturday hovering around 90 degrees, ideal weather for data collection.

The counts were performed at five key locations within the study area:

- Long Beach Avenue at Church St. Ext / Church St.
- Long Beach Avenue at Ocean Ave Ext / Ocean Ave
- Ocean Ave at Main St / Railroad Ave
- Main St at Beach St / Access to Parking
- Railroad Ave at Ridge Road / Church St



Intersection Count Locations

The results of the counts are shown on Figures 2 & 3 in Appendix A for the vehicular and pedestrian volumes, respectively, and indicate that the overall peak hour occurred around 3:30 – 4:30 PM. Peak hour volumes during the count are as follows:

Vehicles:

- Long Beach Avenue between Church Street and Ocean Ave — 657 vehicles / hr
- Ocean Avenue between Long Beach Ave and Railroad Ave — 662 vehicles / hr
- Railroad Ave between Ocean Ave and Ridge Road / Church St — 746 vehicles / hr
- Church Street between Ridge Rd / Railroad Ave and Long Beach Ave — 784 vehicles / hr

As the data shows, the highest volume of traffic was experienced on Church Street; with the lowest volume of traffic on Long Beach Avenue; however, the volumes were fairly consistent on each roadway.

Pedestrians:

- Crossing Main south of Ocean Ave — 182 pedestrians / hr
- Crossing Main north of Ocean Ave — 396 pedestrians / hr
- Crossing Ocean Ave east of Main — 217 pedestrians / hr
- Crossing access to Parking Area east of Main — 214 pedestrians / hr
- Crossing Beach St east of Main — 220 pedestrians / hr
- Crossing Main north of Beach St — 168 pedestrians / hr
- Crossing Church St west of Long Beach Ave — 88 pedestrians / hr
- Crossing Ocean Ave Ext. north of Willow Ave — 77 pedestrians / hr
- All other crossings counted were at or less than — 20 pedestrians / hr

The busiest pedestrian activity was as expected and occurred at the intersection of Ocean Avenue at Main Street and Railroad Avenue, where the concentration of businesses are located. The combined number of pedestrian crossings across those legs during the peak hour was in excess of 795 people (if one person crossed multiple legs they were counted each time).

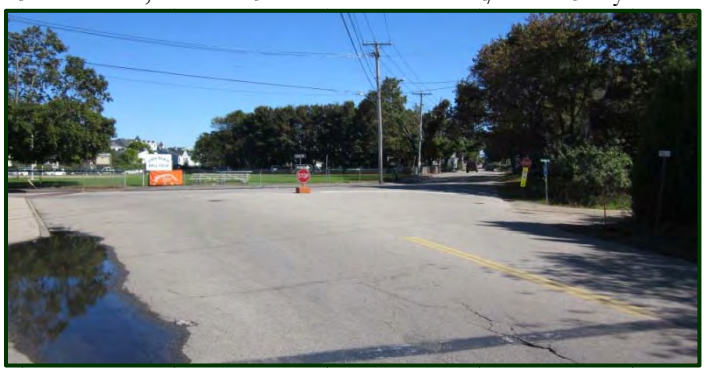
Pedestrian crossing Main Street at Ocean Avenue.

Observations

In order to maximize detailed observations in the study area during peak conditions, each of the locations counted were performed by experienced engineers who completed visual observations during the data collection. The observations were recorded and are listed as follows. These observations were critical in helping to identify issues and eventually mitigation for this area:

- Ridge Road at Railroad Avenue and Church Street

  - Did not appear two lanes were needed on Church from Railroad to Long Beach Ave
  - Vehicles picked up speed after turning onto Church Street where it is straight and flat
  - Way-finding signs were not adequate: Many people stopped and asked for directions, many drivers stopped at the intersection appearing confused as to which way to go, Street sign size and location appeared inadequate (especially for the significant proportion of drivers who were elderly)
  - Intersection lacked channelization and many drivers appeared to use it differently; i.e. some on Ridge approach used it as two lanes, some as one.
  - Appeared to be substantial speed differential; noticed out of state and/or elderly were generally slower and in state and/or younger were faster
  - Noticed a relatively high volume of recirculation of cars
  - Numerous vehicles on Railroad (who do not have to STOP) thought they had to stop, appearing to cause frustration to those behind them
  - Pedestrians appeared hesitant to cross the street in this area



Ridge Road at Railroad Avenue and Church Street.

- Beach Street at Main Street and Off-Street Parking

  - Pedestrians were not channelized to the crosswalks, causing confusion and inconsistency for drivers
  - Over the two-hour count period, there were three vehicles traveling out of the one-way in on Beach Street
  - The restaurant on the corner of the intersection offers valet parking

- Most of the vehicles turning left from Main toward the beach appeared to be "locals" where as there were very few out of state vehicles making that maneuver

➢ Ocean Avenue at Main Street and Railroad Avenue

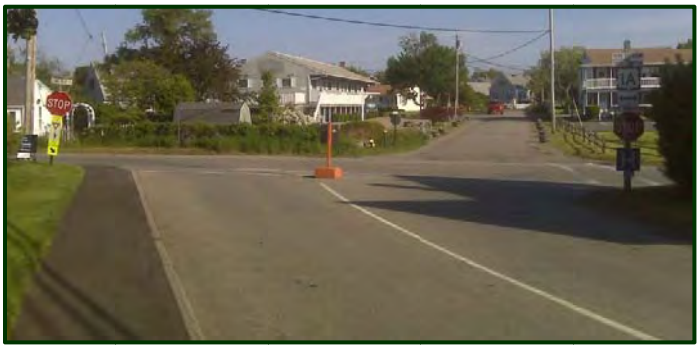
- The volume of pedestrians was significant and were not well channelized
- There were several vehicles that made a left turn movement from the right turning lane on Ocean Avenue
- Although Main Street through vehicles are allowed to proceed at the same time a left turning vehicle off Ocean is proceeding since there are two receiving lanes, this does not occur due to the narrowness created by on-street parking

Ocean Ave at Main St and Railroad Ave.

➢ Ocean Avenue at Willow Avenue and Ocean Avenue Extension

- Numerous drivers on Long Beach Avenue traveling toward the beach failed to turn with the road and continued straight, only to make a u-turn to continue on Ocean Ave
- Intersection appeared to be significantly larger than needed with little channelization, causing confusion at times
- Appeared to be a need for a crosswalk from this intersection across Ocean Ave. – Proper advanced sight distance would be critical at this location, especially since there are two lanes of traffic coming around a turn

➢ Church Street Extension at Long Beach Avenue and Church Street



Church St. Ext. at Long Beach Ave. and Church St.

- Some vehicles turning right from Church onto Long Beach did not realize they were turning onto a two-way street and turned into the oncoming lane
- There were several near misses between vehicles turning left from Church onto Long Beach and Long Beach through traffic. This appeared to be because there were few gaps and left turning vehicles got frustrated and took smaller gaps

➢ Overall Observations

- A local shuttle bus went through the area numerous times but did not appear anywhere near capacity. Given it was a warm and sunny day and the parking lots appeared full, it appeared that the utilization of this service was relatively low

Crash History

To identify potential areas of atypical crash history, Gorrill-Palmer Consulting Engineers requested and received the latest available MaineDOT three-year crash history (2007-2009) for the study area. A copy of the MaineDOT crash data is provided in Appendix B.

In order to evaluate whether a location has a crash problem, Maine DOT uses two criteria to define High Crash Location (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor {CRF} compares the actual crash rate to the rate for similar intersection in the state. A CRF of less than 1.00 indicates a rate of less than average) **and**:
2. A minimum of eight crashes over a three-year period.

Based on the MaineDOT three year crash history, there are no high crash locations within the study area. The most number of crashes that occurred in any one location over the three year period was two crashes (less than one per year). The following locations each had two crashes for the three year period:

- Intersection of Broadway / Broadway Ext / Long Beach Ave
- Roadway Segment of Ocean Ave from Bay St to Railroad Ave
- Roadway Segment of Railroad Ave from Ocean Ave to just north of Bay St

This crash frequency, at less than one incident per year on average, is not sufficient to establish a clear pattern of factors contributing to collisions.

Town / Committee / Public Participation

In addition to the observations made during the counts as described previously, Gorrill-Palmer Consulting Engineers obtained significant additional information on operational issues from individuals that live, drive through, and work in the area. This included a wide variety of interests from residents, business owners, the Fire Chief, the Police Chief, the Director of Public Works, committee members and Selectmen. It was clear from listening to all the comments and suggestions that some were conflicting, thus making it impossible to satisfy all, but all the comments were combined with our own observations and professional experience to develop recommendations. These recommendations are reflected in the conceptual plans provided in Appendix A.

Participants in Meetings

Fire Chief
Police Chief
Director of Public Works
Project Committee Members
Board of Selectmen
Members of the Public

Route 1 Connector Impacts

The Town is currently exploring the potential of a connector road between Route 1 and Ridge Road. The intersection with Ridge Road would be west of the intersection with Railroad Ave and Church Street and adjacent to the existing post office on Ridge Road. In evaluating the alternatives, this connector road was considered. It is impossible to isolate exactly what impact the connector road would have without doing an origin – destination study, which is very involved and is outside the scope of this study. However, based on the turning movement counts that were done, some assumptions were made to determine approximate impacts.

Based on our review, it appears that if the peak season one-way traffic pattern for the area is maintained throughout the year as recommended, then the most significant traffic pattern impacts will occur for the following movements:

- Ridge Road / Railroad Ave / Church Street
  - Increase the through volume from Ridge Road onto Church St
  - Increase the right turn volume from Railroad Ave onto Ridge Road
  - Decrease the left turn volume from Railroad Ave onto Church St
- Church Street / Long Beach Ave
  - Decrease the right turn volume from Church onto Long Beach Ave
  - Increase the left turn volume from Church onto Long Beach Ave

Capacity Analysis

Typically, capacity is a critical part of evaluating the alternatives in doing a corridor study such as this; however, in this particular study, it was not as relevant. The reason for this is the specific locations and traffic patterns of the area. Due to the developed nature of the area and competing uses such as pedestrians, bicyclists, parking, businesses, and residences; significant reconstruction to create additional capacity is limited. Since it was determined that maintaining a one-way traffic pattern was the short term desire, with possible two-way traffic on Church Street and a portion of Long Beach Avenue in the future, capacity analysis was less of a controlling factor and the focus was more on using the existing area to its fullest potential and providing clear guidance to drivers and users of the area.

Conceptual Alternatives and Recommendations

Once the data collection effort was complete, field observations were made, and input from the Town, residents, business owners and stakeholders was received; recommendations were identified and alternatives were created. A detailed discussion of the Traffic Circulation Pattern, Specific Location Recommendations, and Non-Specific Location Recommendations are as follows, with concept plans provided in Appendix A:

Traffic Circulation Pattern

Proposed Pattern

Short Term Recommendation:

Based on our observations, discussions with Town representatives, committee members, and public, a year round traffic pattern should be adopted by the Town and the switching of traffic patterns for peak and non-peak seasons should be discontinued. The initial pattern should be a counter-clockwise one-way circulation pattern using Church Street, Long Beach Avenue, Ocean Avenue and Railroad Avenue.

Long Term Recommendation:

Church Street and a portion of Long Beach Avenue should be explored further to determine if those roadways could become two-way roadways. This is discussed in more detail in the following section.

Once the preferred traffic pattern was determined, specific locations within the study area were reviewed to identify what alternatives might address the concerns that were previously identified. The following is a more detailed description of specific locations within the study area. Detailed concept plans are provided in Appendix A.

Specific Location Recommendations

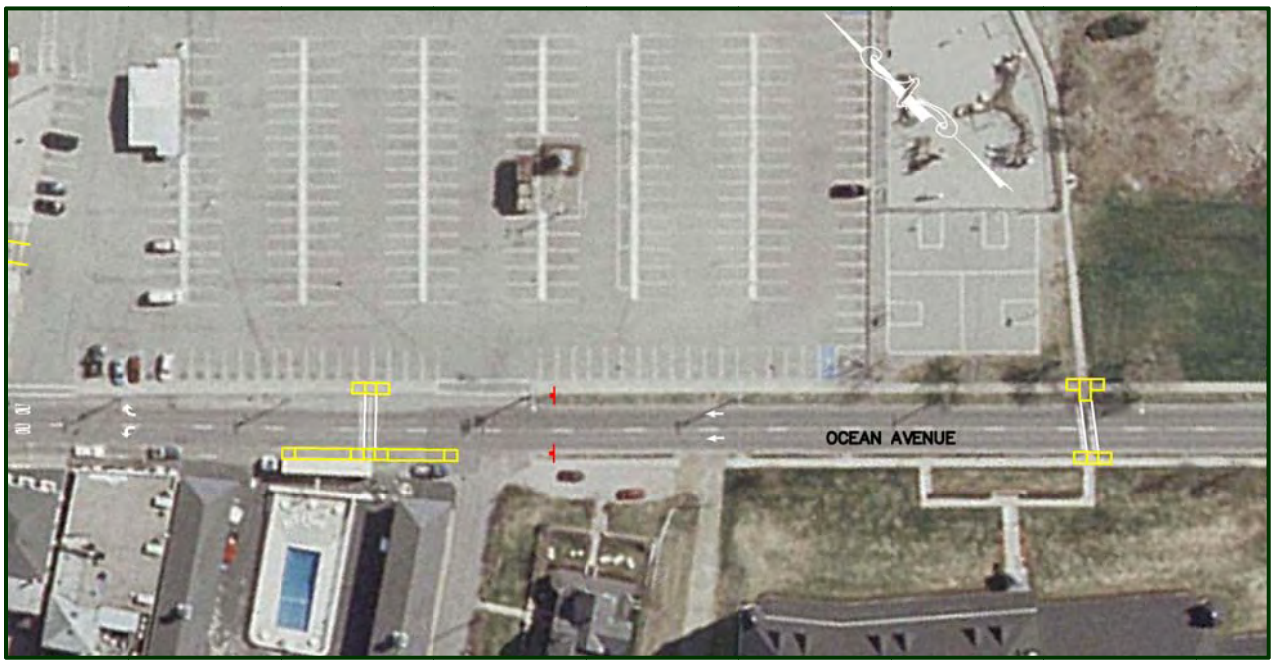
The following is a detailed description of alternatives for specific locations within the study area.

Long Beach Avenue at Ocean Ave Extension and Ocean Avenue

Proposed modifications to this intersection include reducing the expanse of open pavement to provide channelization for both pedestrians and vehicles. This intersection work would include the removal of some pavement, curbing work, some striping and potentially some drainage work.

Recommendations for Long Beach Avenue at Ocean Avenue and Ocean Avenue Ext.

This intersection was also evaluated for a roundabout; however, this concept would result in extensive impacts to adjacent properties and would have costs considerably more than the recommended alternative, making it unlikely to ever be constructed.



Recommendations for Ocean Avenue from Long Beach Avenue to Main Street.

Ocean Ave from Long Beach Ave to Main St

This roadway segment has gone through a few iterations in this study, including being reduced to a single lane with on-street parking and pedestrian bumpouts to maintaining it primarily as is. The resulting recommendation was to leave this section primarily as is, with additional signage and striping to inform drivers they are required to make a left or right turn lane when they approach the Main Street intersection.

Now that a single year-round traffic pattern has been identified, it is recommended that appropriate pedestrian signage be placed at all crosswalks, including those along this section. Should this additional signage and striping not elicit the desired results, the Town may wish to try temporary raised crosswalks for Ocean Avenue, as it is relatively long, straight, and flat. These temporary crosswalks are designed to allow normal drainage, and can be removed during the non-peak season for plowing and road maintenance. During the peak season, their placement would encourage slower vehicular speeds and raise the awareness on the pedestrian crosswalks.

Recommendations for Ocean Ave at Main at Beach St, Parking Area and Railroad Ave.

Area of Ocean Avenue at Main Street, Beach Street and Parking Access

The improvements for this area could be divided into immediate and future improvements. The immediate improvements would include removing six parking spaces in and adjacent to the intersections and striping for better channelization. The longer term mitigation would include extension of the sidewalk in the areas where spaces were removed and physical channelization for pedestrians. It could also include revising some of the previous striped channelization areas to consist of stamped pavement or slightly raised concrete (1½ inches).

One concept that was originally presented but not pursed was one that diverted all Ocean Ave right turning traffic over to use the existing parking access road. This would have required a short diversion road through Ellis Short Sands Park. This concept would have reduced the overall vehicular-pedestrian conflicts in the immediate area; however, there were concerns that it would unduly impact the Park, and as such, support for implementation would be extremely unlikely.

Railroad Avenue from Ocean Avenue to Ridge Road and Church Street

This section of Railroad Avenue is currently striped as two travel lanes, with parking along each side. However, because the lanes are narrow (eight to nine feet), the tendency is for vehicles to utilize them as a single travel lane. It is recommended that Railroad Avenue have its lane striping modified by removing the existing dashed white center line and striping it as a 16-foot wide travel lane and a six-inch white edge line on each side. This striping will still allow for parking on each side of the road. There is also one crosswalk location where removal of a parking space is recommended and a pedestrian bumpout be provided. It should be noted that the overall width available for emergency vehicles (approximately seventeen feet total) is the same as it is today.

Recommendations for Ridge Road at Railroad Avenue and Church Street.

Ridge Road at Railroad Avenue and Church Street

Similar to the intersection of Long Beach Road at Ocean Avenue, this intersection modification includes reducing the expanse of open pavement to provide channelization for both pedestrians and vehicles. This would include the removal of some pavement, curbing work, some striping and potentially some drainage work. The design of this intersection allows for free flow movements off Ridge Road, which would eliminate the concern for stacking of vehicles in front of the fire station.

It should be noted that this intersection was evaluated for a roundabout. However, it would have had extensive impacts to adjacent properties and would have costs considerably more than the proposed alternative, making it unlikely to be constructed for the foreseeable future.

Church St from Railroad Avenue to Long Beach Avenue

Church Street and a portion of Long Beach Avenue should be explored further to determine if those roadways could become two-way roadways. The benefit of making these two-way roadways would be a reduction of traffic at the busiest intersection of Ocean Avenue at Railroad Avenue and Main Street. The intersection would become less congested with less vehicular – pedestrian conflicts. This change to two-way traffic would also reduce the inconvenience of those persons originating near the Nubble peninsula, destined for points west of the study area.

The primary negatives to making Church Street a two-way is that it may eliminate church parking along the corridor and it would also result in either an intersection with Railroad Avenue that would require vehicles on Railroad Avenue to STOP or the construction of the roundabout. There was some concern raised that if these vehicles were STOP controlled they would create a queue of vehicles in front of the fire station. Therefore, these issues would need to be resolved prior to making Church Street two-way. In addition, if Long Beach Avenue were to become two-way, a sight distance restriction in the northwest corner of the intersection of Church Street at Long Beach Avenue will also need to be addressed. While this alternative was explored on a preliminary basis during this study, topographic and boundary survey would need to be completed to determine if the roadway could be widened slightly to accommodate two-way traffic and parking. This was beyond the scope of this study.

Recommendations for Church Street, including intersection with Long Beach Avenue.

Church Street at Long Beach Avenue

Improvements at this intersection include additional pavement striping, lane use signage, and a striped channelization island. The channelization island should help keep Long Beach Ave through vehicles in their lane through the intersection assisting left turning vehicles from Church onto Long Beach.

Bay Street

It is recommended that the northerly most section of Bay Street (approximately 75 feet in length) be configured for one-way flow toward Ocean Avenue. This street is the closest intersecting street on Ocean Avenue to the Main Street intersection. Making this section of Bay Street one-way toward Ocean Avenue will help to reduce confusion and conflicting movements nearest the busiest intersection in the study area. Having the one-way toward Ocean Avenue instead of away from Ocean Avenue will give shorter emergency vehicles such as ambulances another means to reach the beach area without going against traffic on Railroad Avenue or going around the one-way loop.

Non-Specific Location Recommendations

The following are alternatives that are applicable throughout the study area and are not specific to any one location.

Striping and Signage

As the beach area currently alternates between one-way and two-way traffic patterns, it has been difficult to provide the proper striping and signage that was appropriate for year-round use. Now that a single traffic pattern will be in effect year-round, it is recommended that the study area be evaluated for conformance with standard striping and signing, removing striping and signage that conflicts with the traffic pattern and additional striping and signage be added that enforces the year round pattern. This could include; lane use pavement markings, way-finding signs, STOP signs in appropriate locations, STOP bars in appropriate locations etc.

Pedestrians

As identified previously, pedestrian counts were completed at the five key locations within the study area. Based on those counts and observations, it was evident that the busiest location is the area of Main Street from Ocean Avenue to Beach Street, although are a number of marked crosswalks throughout the study area. While this study was intended to focus on traffic circulation, the following issues related to pedestrian movement:

- *ADA Accessible Landings:* The Americans with Disabilities Act requires sidewalks and ramps to be accessible to pedestrians that are physically challenged. This includes the provision of wheel chair ramps and detectable warning devices on the ramps where possible. A significant

proportion of the crosswalk locations not meet ADA requirements, based on one or multiple design issues.

- *Pedestrian Walking Area:* As identified previously, the busiest area for pedestrians was the area of Main Street near the intersections of Ocean Avenue, Beach Street, and access to the parking area. One of the issues identified for pedestrians (also affecting vehicles to some degree) was that pedestrians did not appear to have enough area to gather and walk around the area businesses, resulting in some spillover into the streets. As shown on the conceptual plan in this area, additional locations are identified (shown in green) that would allow for additional pedestrian space. The proposed area is primarily existing parking spaces (approximately 6 spaces) that are directly within the intersections and most congested area and would be recommended for removal regardless of if the additional area was needed for pedestrians. Because the additional area is primarily used for parking, this is not a reduction in travel area for vehicles, including emergency vehicles. These additional areas also serve to shorten the distance pedestrians need to cross, reducing their exposure to vehicular traffic.

- *Street/Sidewalk Configuration:* Previous studies identified the need for wider sidewalks, particularly along Railroad Avenue; however, there are conflicting needs for both adequate width for cars and emergency vehicles, as well as maintaining on-street parking. While several alternatives to the current configuration were explored, based on discussions with the committee, Town staff, and the public, the preference was to balance the needs and keep the sidewalks the existing width, the same travel width, and parking along each side of the street.

- *Pedestrian Channelization:* Although there was generally ample availability of pedestrian crosswalks in the area, which appear to be in the desirable locations, the area on Main Street between Ocean Avenue and Beach Street still experienced pedestrians walking at will across the travelway. This results in confusion and conflicts with vehicular traffic and an unsafe situation for both. Gorrill-Palmer Consulting Engineers recommends some form of channelization, such as bollards with rope or chains strung between them, be implemented that focuses pedestrians that want to cross in this area to cross at the crosswalks.

- *Advanced Visibility of Crosswalks*: As part of an overall restriping and signing program for the area, we recommend that each of the crosswalks be reviewed for the appropriate pedestrian crossing signage. These should be erected in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) with regards to location and height. Currently, none of the crosswalks observed had the appropriate signage.

- *Visibility of Pedestrians in Crosswalks*: One of the issues identified in the observations was the advanced visibility of crosswalks. This is particularly notable on Main Street on the south leg of the intersection with Ocean Ave. There is some blocking of pedestrians in the crosswalk due to parked cars along Main Street. The proposed pedestrian expanded walking area described previously should resolve this issue. A crosswalk is shown as proposed on the conceptual plan along Railroad Ave. Parking should be prohibited directly in front of (a minimum of 20 feet) the crosswalk to allow for proper advanced visibility of pedestrians.

- One alternative that was discussed was the potential for a pedestrian mall. This would basically include discontinuing a road, or section of road, and allowing only pedestrians to use the area. Although this is very pedestrian friendly, the closure of a road, or section of a road will require diversion of traffic. For this type of roadway closure to work, it typically requires a parallel road that can accommodate the displaced traffic. Unfortunately, the layout of the beach area roadway network does not lend itself to parallel roads and therefore, a pedestrian mall area in this case would create more negatives than positives.

Other Modes of Travel

Satellite Parking Area: Gorrill-Palmer recognizes that significant expansion of existing parking in the immediate beach area is not likely; however, the Town could pursue a satellite parking area in the vicinity at some point in the future. If satellite parking was either free or little cost, and the shuttle was convenient to ride, the amount of vehicular congestion in the study area could be reduced. Such changes might be partially subsidized by the local businesses with advertisements on the shuttle to promote those businesses. The shuttle need only run during peak season, on peak days, but must maintain a regular schedule during those times to gain regular ridership.

Buses: The only bus system currently in the area is the York Trolley Company which runs from June to September and only travels between Short and Long Sands Beaches. This is part of a larger Shoreline Explorer network that provides access to Ogunquit, Wells, Sanford, Kennebunk or Kennebunkport; however, a rider must travel on up to seven different subsystems all with their own map, schedule and fares. There is currently no bus system that takes passengers from the general York area, such as hotels and campgrounds along Route 1 to the beaches. To aid in reducing vehicular traffic within the study area, the use of buses should be explored further.

Bicycles: Bicycles are a commonly underutilized mode of transportation that could help reduce the vehicular traffic within the study area. Techniques to improve the use of bicycles could range from providing more bicycle amenities such as secured bike racks, maps aimed toward bicycles provided in the area, to a facility that rents and services bikes within the study area. Because of the narrowness of most of the roads in the area, there is insufficient width for bicyclists to have their own lane. Therefore, we recommend "Share the Road" signs be erected along the roadway network to remind drivers that bicyclists are present.

Prioritization of Recommendations

Based on the previous discussions, the following is our prioritization of the recommendations. The prioritization is further divided into Immediate Improvements, Mid Range Improvements, and Long Range Improvements:

Immediate Improvements – These are improvements that could be done quickly with minimal to no costs:

- Change the traffic circulation pattern to a single year round pattern
- Overall Striping / Signage Upgrades
- Railroad Avenue Striping
- Church St / Long Beach Ave Striping
- Ocean Ave / Main St / Railroad Avenue / Beach St – removal of parking, striping
- Bay Street One-Way

Mid Range Improvements – Theses are improvements that could be done in the near future (within two to five years) with moderate costs involved:

- Provide ADA Accessible Landings
- Intersection Improvement at Long Beach Avenue / Ocean Ave / Ocean Ave Ext.
- Intersection Improvement at Railroad Ave / Ridge Road / Church Street
- Crosswalk Bumpout On Railroad Avenue

Long Range Improvements – These are improvements that could be done in the future (five to ten years) and are more costly to implement:

- Intersection Improvement at Ocean Ave / Main St / Railroad Ave – Additional Pedestrian Areas and Channelization
- Satellite Parking Area with Shuttle
- Explore Church, Long Beach Avenue and Railroad Avenue as two-way

Preliminary Opinion of Probable Construction Cost

The following is a summary of the preliminary opinion of construction cost for the recommended improvements. The opinions are based on 2009 MaineDOT unit prices. A summary of the larger opinions of cost are provided in Appendix B. These opinions of cost are approximate only and do not benefit from survey or detailed site evaluations and are subject to change. Costs could be lower the more that is done concurrently and with the same contractor.

Immediate Improvements	Opinion of Cost
Change traffic circulation pattern to a single year round pattern	$ 0
Overall Striping / Signage Upgrades	$ 10,000
Railroad Avenue Striping	$ 4,500
Church St / Long Beach Ave Striping	$ 1,500
Ocean Ave / Main St / Railroad Ave / Beach St – removal of parking, striping	$ 3,000
Bay Street One-Way (Signage and Striping)	$ 2,500
	$ 21,500

Mid-Range Improvements	Opinion of Cost
➢ Provide ADA Accessible Landings (Assumes 13 Crosswalks at $ 6,000 per Crosswalk)	$ 78,000
➢ Inter. Imp. at Long Beach Avenue / Ocean Ave / Ocean Ave Ext.	$ 115,000
➢ Inter. Imp. at Railroad Ave / Ridge Road / Church Street	$ 80,000
➢ Crosswalk Bumpout On Railroad Avenue	$ 12,000
	$ 285,000

Long-Range Improvements	Opinion of Cost
➢ Inter. Imp. at Ocean Ave / Main St / Railroad Ave – Additional Ped Areas and Channelization	$ 215,000
➢ Satellite Parking Area with Shuttle	$ Unknown

Appendix A

Study Area

Turning Movement Diagrams

Concept Plans

Location Map

Figure No. 1

YORK BEACH AREA TRAFFIC CIRCULATION PLAN, YORK, MAINE

GP Gorrill–Palmer Consulting Engineers, Inc.

Engineering Excellence Since 1998

PO Box 1237
15 Shaker Road
Gray, ME 04039

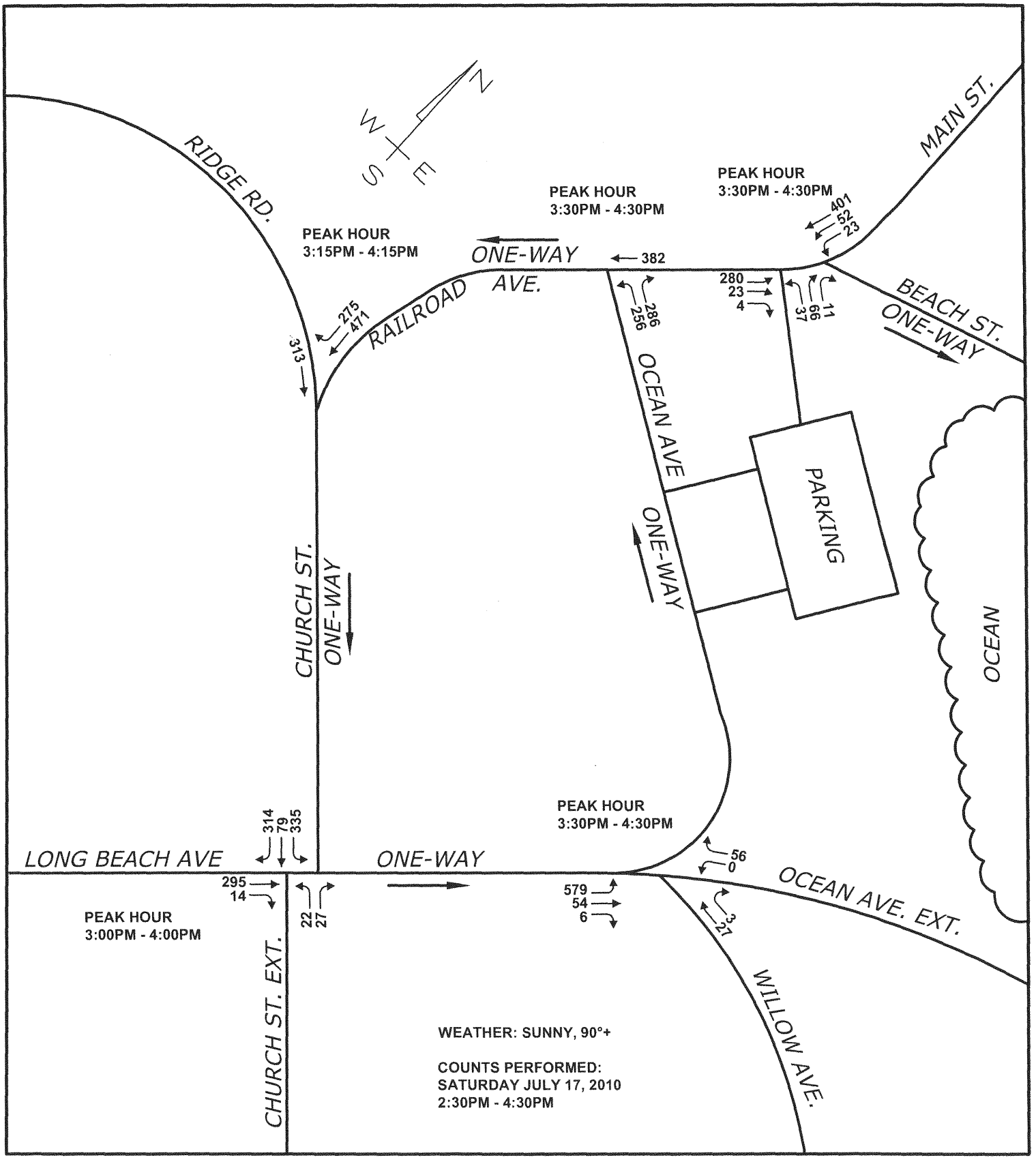
207-657-6910
Fax: 207-657-6912
mailbox@gorrillpalmer.com
www.gorrillpalmer.com

FEET
500 0 500

JN: 2423
DATE: MAR 2011
FILE: 2423_STUDY AREA.MXD
AERIAL SOURCE: MAINE GIS WEBSITE
AERIAL DATE: NOVEMBER 2004

Raw Traffic Volumes - Saturday

Figure No. 2



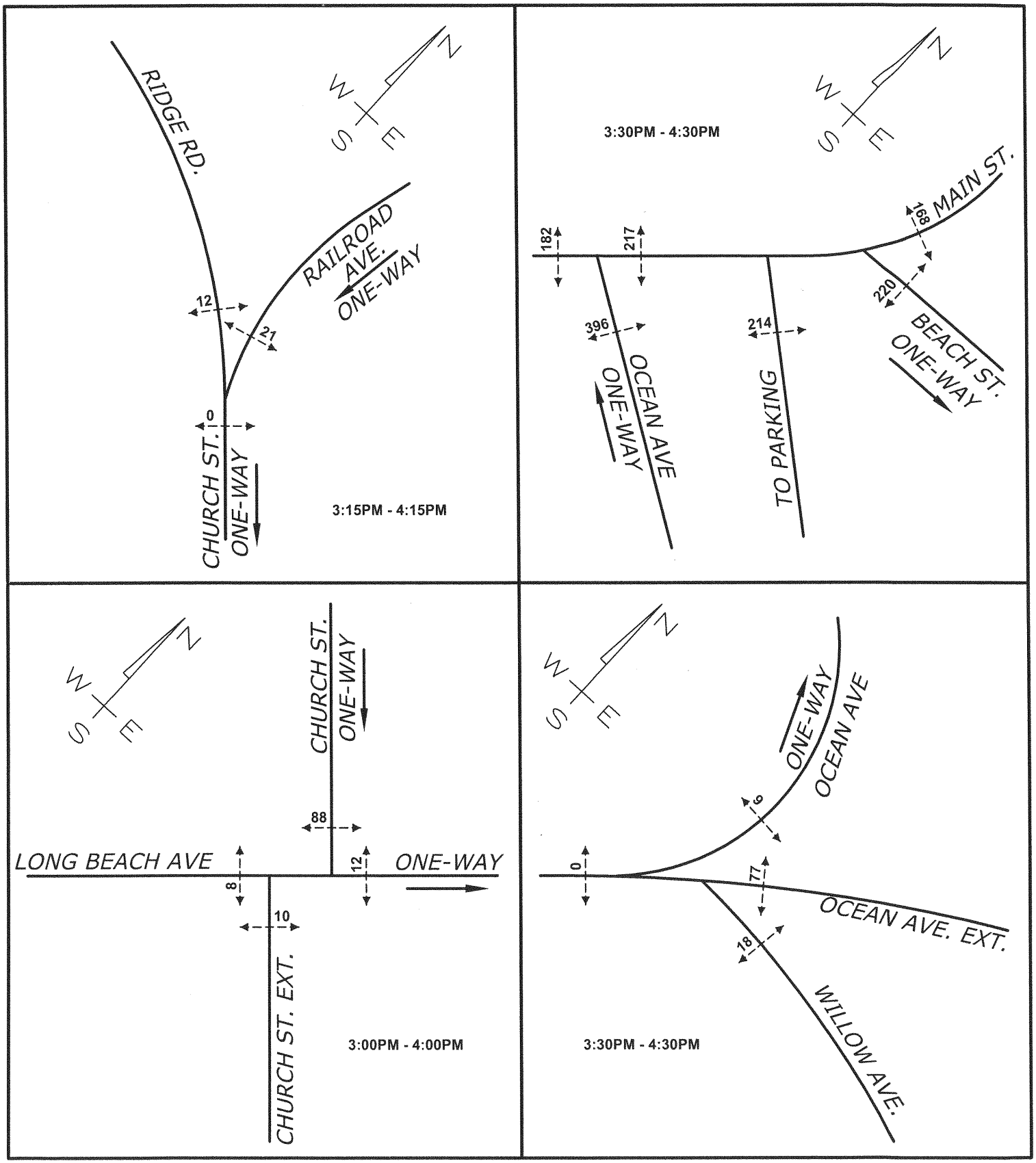
TRAFFIC CIRCULATION STUDY, YORK, MAINE

Design:	RED	Scale:	NONE
Draft:	DB	Date:	JULY 2010
Checked:	JJB	File Name:	2423_TRAF.dwg

GP Gorrill–Palmer Consulting Engineers, Inc.
Engineering Excellence Since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
Fax: 207-657-6912
mailbox@gorrillpalmer.com
www.gorrillpalmer.com

Raw Pedestrian Crossing Volumes - Saturday

Figure No. 3



TRAFFIC CIRCULATION STUDY, YORK, MAINE

Design:	RED	Scale:	NONE
Draft:	DB	Date:	JULY 2010
Checked:	JJB	File Name:	2423_TRAF.dwg

GP Gorrill–Palmer Consulting Engineers, Inc.
Engineering Excellence Since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
Fax: 207-657-6912
mailbox@gorrillpalmer.com
www.gorrillpalmer.com

Rev.	Date	Revision
-	-	-

Design: RED	Date: FEB 2011
Draft: DB	Job No.: 2423
Checked: –	Scale: 1"=250'
File Name: 2423_KEY MAP.dwg	

GP Gorrill-Palmer Consulting Engineers, Inc.
Engineering Excellence since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Key Map

Project: YORK BEACH VILLAGE TRAFFIC CIRCULATION STUDY

Figure No. *A*

CONCEPTUAL ONLY

50 0 25 50 100

1 inch = 50 ft.

AERIAL SOURCE: MAINEGIS WEBPAGE
AERIAL DATE: NOVEMBER 2004

U:\2423 - York Beach Traffic Study\Z - CAD\DWG\2423_CONCEPT_recover.dwg 2/8/2011 3:10:23 PM

Rev.	Date	Revision
-	-	-

Design: RED	Date: FEB 2011
Draft: DB	Job No.: 2423
Checked: –	Scale: 1"=50'
File Name: 2423_CONCEPT_recover.dwg	

GP Gorrill-Palmer Consulting Engineers, Inc.
Engineering Excellence since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Church Street, Ridge Road & Railroad Avenue

Project: YORK BEACH VILLAGE TRAFFIC CIRCULATION STUDY

Figure No. *B*

APPROXIMATE AREA OF EXISTING CROSSWALK TO REMAIN

PROVIDE ADA LANDINGS AND/OR DETECTABLE WARNING AREAS FOR ALL CROSSWALKS (TYP.)

LOSS OF THREE PARKING SPACES

RAISED CHANNELIZATION ISLANDS (TYP.)

PAINTED CHANNELIZATION ISLANDS (TYP.)

MAIN STREET

BEACH STREET

PAINTED CHANNELIZATION ISLANDS (TYP.)

16'

LOSS OF ONE PARKING SPACE

RAILROAD AVENUE

6" EDGE LINES (TYP.)

REMOVE EXISTING CENTERLINE

LOSS OF ONE PARKING SPACE

OCEAN AVENUE

LOSS OF TWO PARKING SPACES

PEDESTRIAN CHANNELIZATION BOLLARDS (TYP.)

REMOVE EXISTING ADA LANDING

ONLY

FIRE STATION

TWO-WAY TRAFFIC

ONE-WAY TRAFFIC

BAY STREET

ONE WAY

DO NOT ENTER

MATCH LINE SEE FIGURE B

MATCH LINE SEE FIGURE D

CONCEPTUAL ONLY

50 0 25 50 100

1 inch = 50 ft.

AERIAL SOURCE: MAINEGIS WEBPAGE
AERIAL DATE: NOVEMBER 2004

U:\2423 – York Beach Traffic Study\Z – CAD\DWG\2423_CONCEPT_recover.dwg 2/8/2011 3:10:27 PM

Rev.	Date	Revision
–	–	–

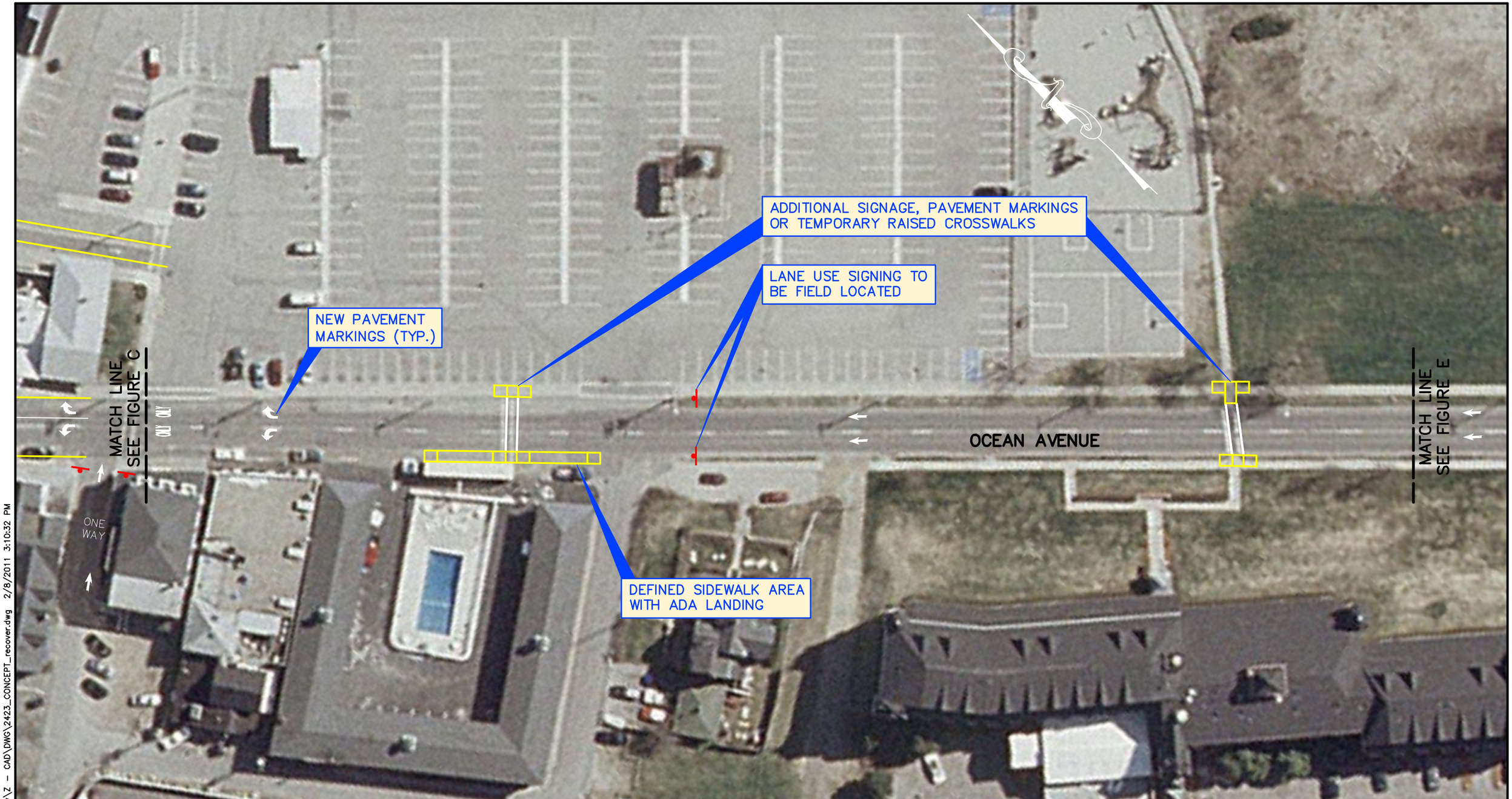
Design: RED	Date: FEB 2011
Draft: DB	Job No.: 2423
Checked: –	Scale: 1"=50'
File Name: 2423_CONCEPT_recover.dwg	

GP Gorrill-Palmer Consulting Engineers, Inc.
Engineering Excellence since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Railroad Ave., Ocean Ave., Main Street & Beach Street

Project: YORK BEACH VILLAGE TRAFFIC CIRCULATION STUDY

Figure No. C



CONCEPTUAL ONLY

AERIAL SOURCE: MAINEGIS WEBPAGE
AERIAL DATE: NOVEMBER 2004

50 0 25 50 100

1 inch = 50 ft.

U:\2423 – York Beach Traffic Study\Z – CAD\DWG\2423_CONCEPT_recover.dwg 2/8/2011 3:10:32 PM

Rev.	Date	Revision
–	–	–

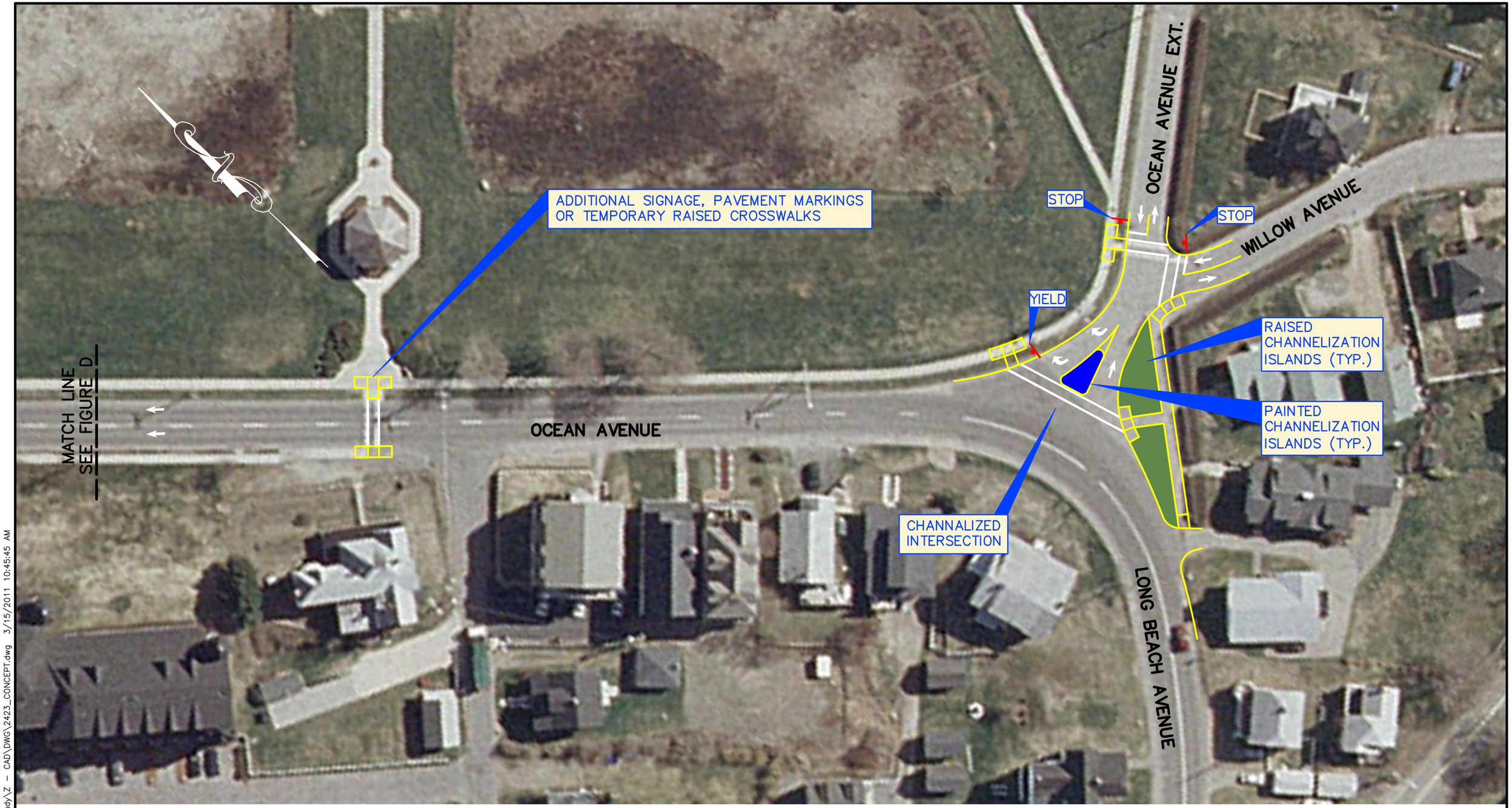
Design: RED	Date: FEB 2011
Draft: DB	Job No.: 2423
Checked: –	Scale: 1"=50'
File Name: 2423_CONCEPT_recover.dwg	

GP Gorrill–Palmer Consulting Engineers, Inc.
Engineering Excellence since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207–657–6910
FAX: 207–657–6912
E–Mail: mailbox@gorrillpalmer.com

Drawing Name: Ocean Avenue

Project: YORK BEACH VILLAGE TRAFFIC CIRCULATION STUDY

Figure No. D



CONCEPTUAL ONLY

AERIAL SOURCE: MAINEGIS WEBPAGE
AERIAL DATE: NOVEMBER 2004

50 0 25 50 100

1 inch = 50 ft.

U:\2423 – York Beach Traffic Study\Z – CAD\DWG\2423_CONCEPT.dwg 3/15/2011 10:45:45 AM

Rev.	Date	Revision
–	–	–

Design: RED	Date: FEB 2011
Draft: DB	Job No.: 2423
Checked: –	Scale: 1"=50'
File Name: 2423_CONCEPT.dwg	

GP Gorrill-Palmer Consulting Engineers, Inc.
Engineering Excellence since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Ocean Avenue, Ocean Avenue Ext. & Long Beach Avenue

Project: YORK BEACH VILLAGE TRAFFIC CIRCULATION STUDY

Figure No. *E*

FURTHER INVESTIGATION IS REQUIRED TO DETERMINE IF TWO-WAY TRAFFIC IS AN OPTION

LANE USE SIGNING TO BE FIELD LOCATED

FURTHER INVESTIGATION IS REQUIRED TO DETERMINE IF TWO-WAY TRAFFIC IS AN OPTION

PAINTED CHANNELIZATION ISLAND

CHURCH STREET

CHURCH STREET EXT.

LONG BEACH AVENUE

DESIGN OF INTERSECTION WILL BE BASED ON CHURCH STREET AND LONG BEACH AVENUE TRAFFIC PATTERNS

CONCEPTUAL ONLY

AERIAL SOURCE: MAINEGIS WEBPAGE
AERIAL DATE: NOVEMBER 2004

50 0 25 50 100

1 inch = 50 ft.

U:\2423 – York Beach Traffic Study\Z – CAD\DWG\2423_CONCEPT_recover.dwg 2/8/2011 3:10:40 PM

Rev.	Date	Revision
–	–	–

Design: RED	Date: FEB 2011
Draft: DB	Job No.: 2423
Checked: –	Scale: 1"=50'
File Name: 2423_CONCEPT_recover.dwg	

GP Gorrill-Palmer Consulting Engineers, Inc.
Engineering Excellence since 1998
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Long Beach Avenue, Church Street & Church Street Ext.

Project: YORK BEACH VILLAGE TRAFFIC CIRCULATION STUDY

Figure No. *F*

Appendix B

Raw Crash Data
Preliminary Opinion of Cost

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☑ Section Detail ☑ Crash Summary II ☐ 1320 Included ☐ 1320 & Driver Report Included

REPORT DESCRIPTION

Ocean Ave area

REPORT PARAMETERS

Year 2007, Start Month 1 through Year 2009 End Month: 12

Route: **0001A**	Start Node: **55645**	Start Offset: **0**	☐ Exclude First Node
	End Node: **55654**	End Offset: **0**	☐ Exclude Last Node
Route: **001AS**	Start Node: **55651**	Start Offset: **0**	☑ Exclude First Node
	End Node: **55645**	End Offset: **0**	☑ Exclude Last Node
Route: **3172111**	Start Node: **53695**	Start Offset: **0**	☑ Exclude First Node
	End Node: **55650**	End Offset: **0**	☑ Exclude Last Node
Route: **3172110**	Start Node: **53696**	Start Offset: **0**	☑ Exclude First Node
	End Node: **53697**	End Offset: **0**	☑ Exclude Last Node
Route: **3175265**	Start Node: **55649**	Start Offset: **0**	☑ Exclude First Node
	End Node: **53698**	End Offset: **0**	☐ Exclude Last Node
Route: **3171321**	Start Node: **55648**	Start Offset: **0**	☑ Exclude First Node
	End Node: **56122**	End Offset: **0**	☐ Exclude Last Node
Route: **3173049**	Start Node: **55646**	Start Offset: **0**	☑ Exclude First Node
	End Node: **56123**	End Offset: **0**	☐ Exclude Last Node
Route: **3172112**	Start Node: **55652**	Start Offset: **0**	☑ Exclude First Node
	End Node: **56150**	End Offset: **0**	☐ Exclude Last Node

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
55645	0001A - 6.59	Int of CHURCH ST, CHURCH ST EXT, LONG BEACH AV	2	1	0	0	0	0	1	0.0	4.205	0.08	0.33	0.00
										Statewide Crash Rate:		0.12		
55646	0001A - 6.66	Int of BROADWAY, BROADWAY EXT, LONG BEACH AV	2	2	0	0	0	1	1	50.0	2.378	0.28	0.38	0.00
										Statewide Crash Rate:		0.12		
55647	0001A - 6.72	Int of LONG BEACH AV, OCEAN AV, OCEAN AV EXT, WILLC	2	0	0	0	0	0	0	0.0	1.005	0.00	0.47	0.00
										Statewide Crash Rate:		0.12		
55648	0001A - 6.78	Int of MARIETTA AV, OCEAN AV	2	0	0	0	0	0	0	0.0	1.759	0.00	0.41	0.00
										Statewide Crash Rate:		0.12		
55649	0001A - 6.90	Int of HAWK ST, OCEAN AV	2	0	0	0	0	0	0	0.0	3.202	0.00	0.36	0.00
										Statewide Crash Rate:		0.12		
55650	0001A - 6.95	Int of BAY ST, OCEAN AV	2	0	0	0	0	0	0	0.0	2.343	0.00	0.39	0.00
										Statewide Crash Rate:		0.12		
55651	0001A - 6.98	Int of MAIN ST, OCEAN AV, RAILROAD AV	2	0	0	0	0	0	0	0.0	2.782	0.00	0.37	0.00
										Statewide Crash Rate:		0.12		
55652	0001A - 7.01	3106094 YOR,MICELAN RD,COUNTY RD	2	0	0	0	0	0	0	0.0	3.316	0.00	0.35	0.00
										Statewide Crash Rate:		0.12		
55653	0001A - 7.04	Non-Int MAIN ST	2	0	0	0	0	0	0	0.0	0.910	0.00	0.48	0.00
										Statewide Crash Rate:		0.12		
55654	0001A - 7.07	Int of FREEMAN ST, MAIN ST	2	1	0	0	0	1	0	100.0	1.938	0.17	0.40	0.00
										Statewide Crash Rate:		0.12		
56027	001AS - 2.56	Non-Int RAILROAD AV	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
										Statewide Crash Rate:		0.12		
53695	001AS - 2.59	Int of BAY ST, RAILROAD AV	2	1	0	0	0	0	1	0.0	2.019	0.17	0.40	0.00
										Statewide Crash Rate:		0.12		
56124	001AS - 2.61	Int of CHURCH ST, RAILROAD AV, RIDGE RD	2	0	0	0	0	0	0	0.0	0.650	0.00	0.50	0.00
										Statewide Crash Rate:		0.12		
53696	3172111 - 0.09	3103294 YOR,FRANKLIN ST,BAY ST	2	1	0	0	0	0	1	0.0	0.336	0.99	0.60	1.64
										Statewide Crash Rate:		0.14		
53697	3175265 - 0.03	3103295 YOR,FRANKLIN ST,HAWK ST	2	0	0	0	0	0	0	0.0	0.301	0.00	0.60	0.00
										Statewide Crash Rate:		0.14		
53698	3175265 - 0.05	3103296 YOR,HAWK ST END	2	0	0	0	0	0	0	0.0	0.009	0.00	-12.94	0.00
										Statewide Crash Rate:		0.14		
56122	3171321 - 0.06	3106595 YOR,MARIETTA AVE,BROADWAY EXT.	2	0	0	0	0	0	0	0.0	0.626	0.00	0.58	0.00
										Statewide Crash Rate:		0.14		
56122	3173049 - 0.07	3106595 YOR,MARIETTA AVE,BROADWAY EXT.	2	0	0	0	0	0	0	0.0	0.626	0.00	0.58	0.00
										Statewide Crash Rate:		0.14		
56123	3173049 - 0.11	3106596 YOR,BROADWAY EXT,END	2	0	0	0	0	0	0	0.0	0.251	0.00	0.59	0.00
										Statewide Crash Rate:		0.14		
56150	3172112 - 0.04	3106623 YOR,COUNTY RD,END	2	0	0	0	0	0	0	0.0	0.531	0.00	0.59	0.00
										Statewide Crash Rate:		0.14		
Study Years:	3.00	**NODE TOTALS:**		6	0	0	0	2	4	33.3	29.187	0.07	0.21	0.32

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Sections																		
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
55645	55646	236963	0 - 0.07	0001A - 6.59	0.07	2	1	0	0	0	0	0	0.0	0.00154	217.00	511.32	0.00
Int of CHURCH ST, CHURCH ST EXT, LONG BEACH AV				US 1A									Statewide Crash Rate:		151.99		
55646	55647	2656669	0 - 0.06	0001A - 6.66	0.06	2	1	0	0	0	0	1	0.0	0.00098	339.07	567.24	0.00
Int of BROADWAY, BROADWAY EXT, LONG BEACH AV				US 1A									Statewide Crash Rate:		151.99		
55647	55648	236968	0 - 0.06	0001A - 6.72	0.06	2	0	0	0	0	0	0	0.0	0.00096	0.00	570.45	0.00
Int of LONG BEACH AV, OCEAN AV, OCEAN AV EXT, WILLOW AV				US 1A									Statewide Crash Rate:		151.99		
55648	55649	2656686	0 - 0.12	0001A - 6.78	0.12	2	0	0	0	0	0	0	0.0	0.00234	0.00	459.99	0.00
Int of MARIETTA AV, OCEAN AV				US 1A									Statewide Crash Rate:		151.99		
55649	55650	2656645	0 - 0.05	0001A - 6.90	0.05	2	1	0	0	0	0	1	0.0	0.00110	304.26	553.82	0.00
Int of HAWK ST, OCEAN AV				US 1A									Statewide Crash Rate:		151.99		
55650	55651	2656671	0 - 0.03	0001A - 6.95	0.03	2	2	0	0	0	1	1	50.0	0.00067	988.84	610.94	1.62
Int of BAY ST, OCEAN AV				US 1A									Statewide Crash Rate:		151.99		
55651	55652	236975	0 - 0.03	0001A - 6.98	0.03	2	1	0	0	0	0	1	0.0	0.00099	335.04	565.77	0.00
Int of MAIN ST, OCEAN AV, RAILROAD AV				US 1A									Statewide Crash Rate:		151.99		
55652	55653	236977	0 - 0.03	0001A - 7.01	0.03	2	0	0	0	0	0	0	0.0	0.00055	0.00	631.47	0.00
3106094 YOR,MICELAN RD,COUNTY RD				US 1A									Statewide Crash Rate:		151.99		
55653	55654	236980	0 - 0.03	0001A - 7.01	0.03	2	0	0	0	0	0	0	0.0	0.00055	0.00	631.47	0.00
Non-Int MAIN ST				US 1A									Statewide Crash Rate:		151.99		
55645	56124	2656632	0 - 0.22	001AS - 2.39	0.22	2	0	0	0	0	0	0	0.0	0.00458	0.00	386.56	0.00
Int of CHURCH ST, CHURCH ST EXT, LONG BEACH AV				US 1AS									Statewide Crash Rate:		151.99		
55651	56027	2656626	0 - 0.10	001AS - 2.46	0.10	2	2	0	0	0	0	2	0.0	0.00000	0.00	0.00	0.00
Int of MAIN ST, OCEAN AV, RAILROAD AV				US 1AS									Statewide Crash Rate:		151.99		
53695	56027	2656628	0 - 0.03	001AS - 2.56	0.03	2	0	0	0	0	0	0	0.0	0.00058	0.00	625.69	0.00
Int of BAY ST, RAILROAD AV				US 1AS									Statewide Crash Rate:		151.99		
53695	56124	2656630	0 - 0.02	001AS - 2.59	0.02	2	0	0	0	0	0	0	0.0	0.00000	0.00	0.00	0.00
Int of BAY ST, RAILROAD AV				US 1AS									Statewide Crash Rate:		151.99		
53695	53696	241886	0 - 0.09	3172111 - 0	0.09	2	0	0	0	0	0	0	0.0	0.00014	0.00	1722.44	0.00
Int of BAY ST, RAILROAD AV				RD INV 31 72111									Statewide Crash Rate:		400.16		
53696	55650	241890	0 - 0.03	3172111 - 0.06	0.03	2	0	0	0	0	0	0	0.0	0.00007	0.00	1608.85	0.00
3103294 YOR,FRANKLIN ST,BAY ST				RD INV 31 72111									Statewide Crash Rate:		400.16		
53696	53697	241889	0 - 0.05	3172110 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00013	0.00	1726.86	0.00
3103294 YOR,FRANKLIN ST,BAY ST				RD INV 31 72110									Statewide Crash Rate:		400.16		
53697	55649	241892	0 - 0.03	3175265 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00010	0.00	1699.57	0.00
3103295 YOR,FRANKLIN ST,HAWK ST				RD INV 31 75265									Statewide Crash Rate:		400.16		
53697	53698	241891	0 - 0.02	3175265 - 0.01	0.02	2	0	0	0	0	0	0	0.0	0.00000	0.00	-	0.00
3103295 YOR,FRANKLIN ST,HAWK ST				RD INV 31 75265									Statewide Crash Rate:		400.16	31271.01	
55648	56122	236972	0 - 0.06	3171321 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00020	0.00	1675.60	0.00
Int of MARIETTA AV, OCEAN AV				RD INV 31 71321									Statewide Crash Rate:		400.16		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
55646	56122	236967	0 - 0.07	3173049 - 0	0.07	2	0	0	0	0	0	0	0.0	0.00030	0.00	1565.17	0.00
Inf of BROADWAY, BROADWAY EXT, LONG BEACH AV				RD INV 31 73049									Statewide Crash Rate:		400.16		
56122	56123	237509	0 - 0.04	3173049 - 0.03	0.04	2	0	0	0	0	0	0	0.0	0.00020	0.00	1669.40	0.00
3106595 YOR,MARIETTA AVE,BROADWAY EXT,				RD INV 31 73049									Statewide Crash Rate:		400.16		
55652	56150	236979	0 - 0.04	3172112 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00042	0.00	1451.36	0.00
3106094 YOR,MICELAN RD,COUNTY RD				RD INV 31 72112									Statewide Crash Rate:		400.16		
Study Years: 3.00				**Section Totals:**	1.28		8	0	0	0	1	6	12.5	0.01640	162.63	319.51	0.51
				Grand Totals:	1.28		14	0	0	0	3	10	21.4	0.01640	284.60	459.92	0.62

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
55645	55646	236963	0 - 0.07	0001A - 6.59	1	0	0	0	0	0	2009-6043	03/06/2009	6.63	
55646	55647	2656669	0 - 0.06	0001A - 6.66	1	0	0	0	0	1	2008-19530	06/06/2008	6.69	PD
55647	55648	236968	0 - 0.06	0001A - 6.72	0	0	0	0	0	0				
55648	55649	2656686	0 - 0.12	0001A - 6.78	0	0	0	0	0	0				
55649	55650	2656645	0 - 0.05	0001A - 6.90	1	0	0	0	0	1	2007-20614	08/09/2007	6.93	PD
55650	55651	2656671	0 - 0.03	0001A - 6.95	2	0	0	0	1	1	2007-18587	07/25/2007	6.96	C
											2007-16417	07/02/2007	6.97	PD
55651	55652	236975	0 - 0.03	0001A - 6.98	1	0	0	0	0	1	2007-16416	07/02/2007	7	PD
55652	55653	236977	0 - 0.03	0001A - 7.01	0	0	0	0	0	0				
55653	55654	236980	0 - 0.03	0001A - 7.04	0	0	0	0	0	0				
55651	56027	2656626	0 - 0.10	001AS - 2.46	2	0	0	0	0	2	2007-19825	08/02/2007	2.50	PD
											2007-17584	07/15/2007	2.53	PD
53695	56027	2656628	0 - 0.03	001AS - 2.56	0	0	0	0	0	0				
53695	56124	2656630	0 - 0.02	001AS - 2.59	0	0	0	0	0	0				
55645	56124	2656632	0 - 0.22	001AS - 2.61	0	0	0	0	0	0				
53695	53696	241886	0 - 0.09	3172111 - 0	0	0	0	0	0	0				
53696	55650	241890	0 - 0.03	3172111 - 0.09	0	0	0	0	0	0				
53696	53697	241889	0 - 0.05	3172110 - 0	0	0	0	0	0	0				
53697	55649	241892	0 - 0.03	3175265 - 0	0	0	0	0	0	0				
53697	53698	241891	0 - 0.02	3175265 - 0.03	0	0	0	0	0	0				
55648	56122	236972	0 - 0.06	3171321 - 0	0	0	0	0	0	0				
55646	56122	236967	0 - 0.07	3173049 - 0	0	0	0	0	0	0				
56122	56123	237509	0 - 0.04	3173049 - 0.07	0	0	0	0	0	0				
55652	56150	236979	0 - 0.04	3172112 - 0	0	0	0	0	0	0				
				Totals:	8	0	0	0	1	6				

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM													
	Hour of Day																									
Day Of Week	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Un**	**Tot**
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	3
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEDNESDAY	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
FRIDAY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
SATURDAY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Totals	0	1	0	0	0	0	0	1	0	0	1	1	2	1	2	1	1	1	1	1	0	0	0	0	0	**14**

Crashes by Year and Month

Month	2007	2008	2009	Total
JANUARY	0	0	0	0
FEBRUARY	0	0	0	0
MARCH	0	0	1	1
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	1	1	1	3
JULY	5	0	0	5
AUGUST	3	0	1	4
SEPTEMBER	1	0	0	1
OCTOBER	0	0	0	0
NOVEMBER	0	0	0	0
DECEMBER	0	0	0	0
Total	**10**	**1**	**3**	**14**

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-2 Door	4	32-3 Axle Tractor with Tandem Axle Semi	0
2-4 Door	10	33-3 Axle Tractor with Tridem Axle Semi	0
3-Convertible	0	35-3 Axle Tractor with Single Axle Semi & 2 Axle Trailer	0
4-Station Wagon	0	36-3 Axle Tractor with Tandem Axle Semi & 2 Axle Trailer	0
5-Van	4	37-5 Axle Semi; Split Trailer Tandem	0
6-Pickup Truck	4	38-6 Axle Semi; Split Trailer Tandem with Center Axle	0
7-SUV	2	39-6 Axle; Standard Trailer Tandem with Center Axle	0
10-Truck Tractor Only (Bobtail)	0	40-4 Axle Single Unit	0
12-School Bus	0	42-4 Axle Tractor with Tandem Axle Semi	0
13-Motor Home	1	50-Any Other Axle Configuration	0
14-Motorcycle	0	60-Other Unit	0
15-Moped	0	70-ATV	0
16-Motor Bike	1	81-2 Axle Bus	0
17-Bicycle	0	82-3 Axle Bus	0
18-Snowmobile	0	98-Farm Vehicles / Tractors	0
20-2 Axle Single Unit with Dual Tires	0	99-Unknown	1
21-2 Axle Tractor with Single Axle Semi	0	**Total**	**27**
22-2 Axle Tractor with Tandem Axle Semi	0		
25-2 Axle Tractor with Single Axle Semi & 2 Axle Trailer	0		
30-3 Axle Single Unit	0		
31-3 Axle Tractor with Single Axle Semi	0		

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary II - Characteristics

Crashes by Apparent Contributing Factor And Driver

Apparent Contributing Factor	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Improper Action	3	10	0	0	0	0	13
Failure to Yield Right of Way	2	1	0	0	0	0	3
Illegal Unsafe Speed	0	0	0	0	0	0	0
Following Too Close	1	0	0	0	0	0	1
Disregard Traffic Control Device	0	0	0	0	0	0	0
Driving Left of Center Not Passing	0	0	0	0	0	0	0
Improper Passing, Overtaking	0	0	0	0	0	0	0
Improper Unsafe Lane Change	1	0	0	0	0	0	1
Improper Parking Start, Stop	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Unsafe Backing	2	0	0	0	0	0	2
No Signal or Improper Signal	0	0	0	0	0	0	0
Impeding Traffic	0	0	0	0	0	0	0
Driver Inattention, Distraction	2	0	0	0	0	0	2
Driver Inexperience	0	0	0	0	0	0	0
Pedestrian Violation Error	0	0	0	0	0	0	0
Physical Impairment	0	1	0	0	0	0	1
Vision Obscured, Windshield Glass	0	0	0	0	0	0	0
Vision Obscured, Sun, Headlights	0	0	0	0	0	0	0
Other Vision Obscurement	0	0	0	0	0	0	0
Other Human Violation Factor	1	0	0	0	0	0	1
Hit and Run	0	0	0	0	0	0	0
Defective Brakes	0	0	0	0	0	0	0
Defective Tire, Tire Failure	0	0	0	0	0	0	0
Defective Lights	0	0	0	0	0	0	0
Defective Suspension	0	0	0	0	0	0	0
Defective Steering	0	0	0	0	0	0	0
Other Vehicle Defect or Factor	1	1	0	0	0	0	2
Unknown	0	0	0	0	0	0	0
Total	**13**	**13**	**0**	**0**	**0**	**0**	**26**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Normal	13	11	0	0	0	0	24
Under the Influence	0	1	0	0	0	0	1
Had Been Drinking	0	0	0	0	0	0	0
Had Been Using Drugs	0	0	0	0	0	0	0
Asleep	0	0	0	0	0	0	0
Fatigued	0	0	0	0	0	0	0
ill	0	0	0	0	0	0	0
Handicapped	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	**13**	**12**	**0**	**0**	**0**	**0**	**25**

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	0	0	0	0	0	0
20-24	3	0	0	0	0	3
25-29	0	0	0	0	0	0
30-39	6	0	0	0	0	6
40-49	6	0	0	0	0	6
50-59	5	0	0	0	0	5
60-69	4	0	0	0	0	4
70-79	2	0	0	0	0	2
80-Over	0	0	0	0	0	0
Unknown	1	0	0	0	0	1
Total	**27**	**0**	**0**	**0**	**0**	**27**

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary II - Characteristics

Fixed Object Struck

Fixed Object Struck	Total
1-Construction, Barricades Equipment, etc.	0
2-Traffic Signal	0
3-R.R. Crossing Device	0
4-Light Pole	0
5-Utility Pole (Tel. Electrical)	0
6-Sign Structure Post	0
7-Mail Boxes or Posts	0
8-Other Poles, posts or supports	0
9-Fire Hydrant/Parking Meter	0
10-Tree or Shrubbery	0
11-Crash Cushion	0
12-Median Safety Barrier	0
13-Bridge Piers (including protective guard rails)	0
14-Other Guardrails	0
15-Fencing (not median barrier)	0
16-Culvert Headwall	0
17-Embankment, Ditch, Curb	0
18-Building, Wall	0
19-Rock Outcrops or Ledge	0
20-Other	0
21-Gate or Cable	0
22-Pressure Ridge	0
Total	**0**

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Flashing	0
3-Overhead Flashers	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	3
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	10
14-Other	1
Total	**14**

Road Character

Road Character	Total
1-Level Straight	10
2-Level Curved	1
3-On Grade Straight	1
4-On Grade Curved	1
5-Top of Hill Straight	0
6-Top of Hill Curved	1
7-Bottom of Hill Straight	0
8-Bottom of Hill Curved	0
9-Other	0
Total	**14**

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	3	3
PD	10	0
Total	**13**	**3**

Light

Light	Total
1-Dawn (Morning)	1
2-Daylight	11
3-Dusk (Evening)	1
4-Dark (Street Lights On)	1
5-Dark (No Street Lights)	0
6-Dark (Street Lights Off)	0
7-Other	0
Total	**14**

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five Leg Intersection	Driveways	Bridges	Interchanges	Other	Total
Object in Road	0	0	0	0	0	0	0	0	0	0
Rear End / Sideswipe	4	0	2	1	0	1	0	0	0	8
Head-on / Sideswipe	0	1	0	0	0	0	0	0	0	1
Intersection Movement	0	0	2	1	0	1	0	0	0	4
Pedestrians	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0
Ran Off Road	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0
Bike	0	0	0	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	0	0	0	1
Jackknife	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0
Rock Thrown	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0
Total	**5**	**1**	**4**	**2**	**0**	**2**	**0**	**0**	**0**	**14**

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Debris	Dry	Ice, Packed Snow, Not Sanded	Ice, Packed Snow, Sanded	Muddy	Oily	Other	Snow Slush, Not Sanded	Snow, Slush, Sanded	Wet	Total
Blowing Sand or Dust											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Clear											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	1	0	0	0	0	0	0	0	0	1
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	8	0	0	0	0	0	0	0	1	9
Dusk (Evening)	0	1	0	0	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0	0	0	0	0
Cloudy											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	1	0	0	0	0	0	0	0	1	2
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Fog, Smog, Smoke											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

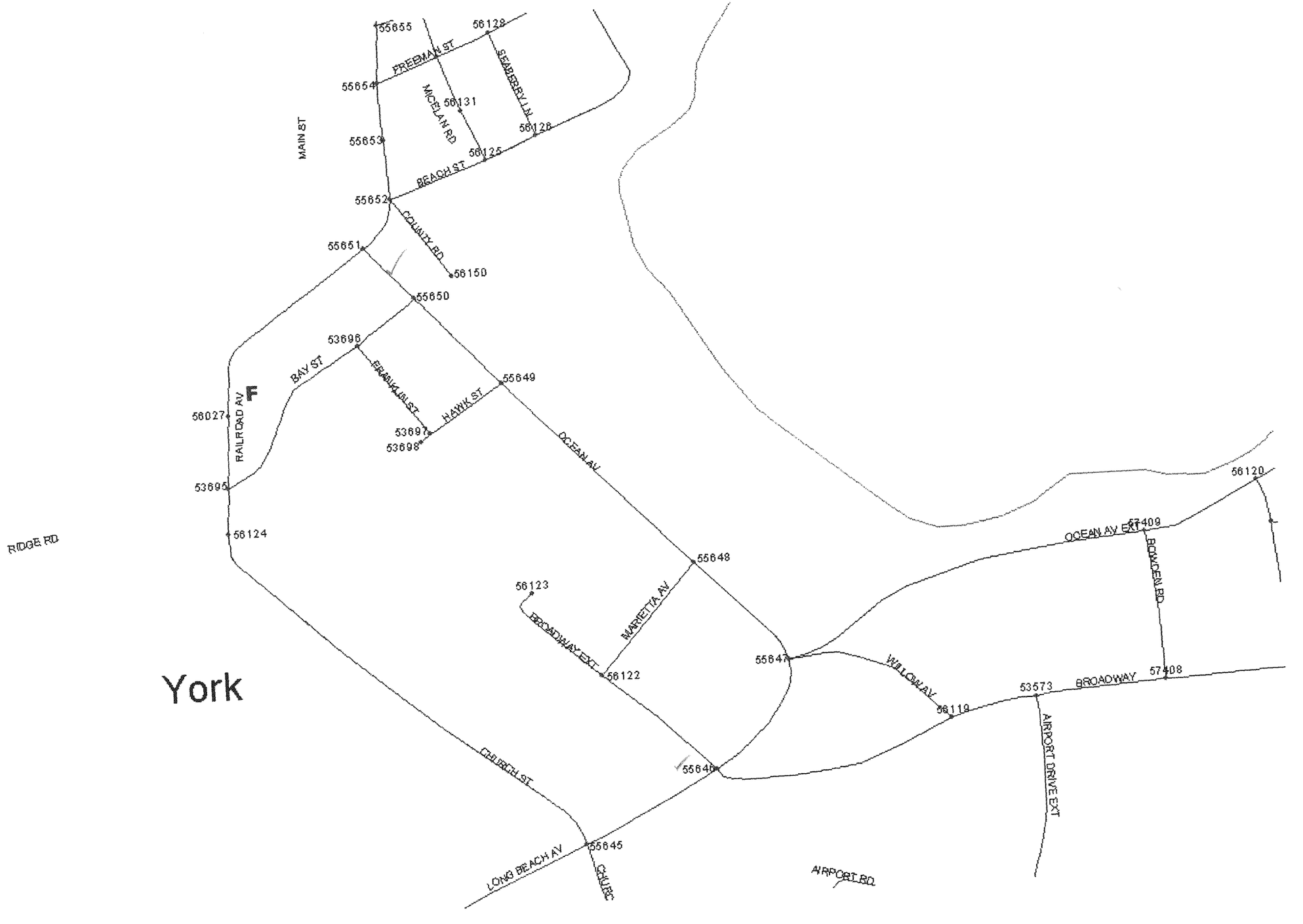
Weather Light	Debris	Dry	Ice, Packed Snow, Not Sanded	Ice, Packed Snow, Sanded	Muddy	Oily	Other	Snow Slush, Not Sanded	Snow, Slush, Sanded	Wet	Total
Other											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Rain											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	1	1
Daylight	0	0	0	0	0	0	0	0	0	0	0
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Severe Cross Winds											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
Sleet, Hail, Freezing Rain											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Debris	Dry	Ice, Packed Snow, Not Sanded	Ice, Packed Snow, Sanded	Muddy	Oily	Other	Snow Slush, Not Sanded	Snow, Slush, Sanded	Wet	Total
Snow											
Dark (No Street Lights)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights Off)	0	0	0	0	0	0	0	0	0	0	0
Dark (Street Lights On)	0	0	0	0	0	0	0	0	0	0	0
Dawn (Morning)	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0
Dusk (Evening)	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**14**


York
F
55655
56128
FREEMAN ST
55654
MCCLAN RD
56131
SEABERRY LN
56128
MAIN ST
55653
56125
BEACH ST
55652
COUNTY RD
55651
56150
55650
53696
BAY ST
FRANKLIN ST
55649
HAWK ST
56027
RAILROAD AV
53697
53698
OCEAN AV
53695
56124
RIDGE RD
56120
OCEAN AV EXT
57409
BOWDEN RD
55648
56123
MARIETTA AV
BROADWAY EXT
56122
55647
WILLOW AV
53573
BROADWAY
57408
56119
AIRPORT DRIVE EXT
CHURCH ST
55646
LONG BEACH AV
55645
CHURC
AIRPORT RD

Gorrill-Palmer Consulting Engineers Inc.
Preliminary Opinion of Probable Construction Cost

3/14/2011

Job Number: JN 2423 - York Beach
Project Location: York Beach
Comments: Conceptual Roadway Improvements
Date: 1/24/2011
References: 60 Scale Plan entitled "Overall Conceptual Roadway Improvements Plan", dated December 2010
MaineDOT 2009 Unit Prices
Calculated By: RJB
Checked By: RCN

Notes:
1. Opinion of cost does not include Legal or Engineering Costs.
2. Opinion of cost does not include the remediation or removal of any special or hazardous materials such as Asbestos, PCB's, etc.
3. Opinion of cost does not include costs associated with right of way
4. Opinion of cost does not include costs associated with wetlands, which are not anticipated
5. Opinion of cost is based on MDOT 2009 unit prices
6. Opinion of cost does not include utility relocations
7. Opinion of cost assumes all sections completed concurrently
8. Opinion of cost does not include an overlay

Item	Item Description	Unit	Quantity										MaineDOT 2009 Unit Prices	Amount									
			Section 1	Section 2			Section 2	Section 3	Section 4	Section 5	Section 6	Total		Section 1	Section 2			Section 2	Section 3	Section 4	Section 5	Section 6	Total
				2A	2B	2C									2A	2B	2C						
202.2	REM BITUMINOUS CONC PAVEMENT	SY	330	90	80	80	250	450	170	500	0	1700	$ 8.63	$ 2,847.90	$ 776.70	$ 690.40	$ 690.40	$ 2,157.50	$ 3,883.50	$ 1,467.10	$ 4,315.00	$ -	**$ 14,671.00**
203.2	COMMON EXCAVATION	CY	0	0	0	0	0	0	0	90	0	90	$ 16.83	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,514.70	$ -	**$ 1,514.70**
206.07	STR ROCK EXC - DR & MINOR STR	CY	20	0	25	25	50	20	50	20	0	160	$ 168.32	$ 3,366.40	$ -	$ 4,208.00	$ 4,208.00	$ 8,416.00	$ 3,366.40	$ 8,416.00	$ 3,366.40	$ -	**$ 26,931.20**
304.1	AGGR SUBB COURSE - GRAVEL	CY	60	10	5	5	20	130	20	390	0	620	$ 29.47	$ 1,768.20	$ 294.70	$ 147.35	$ 147.35	$ 589.40	$ 3,831.10	$ 589.40	$ 11,493.30	$ -	**$ 18,271.40**
403.207	HOT MIX ASPHALT 19.0 MM HMA	T	10	0	5	5	10	10	10	90	0	130	$ 150.00	$ 1,500.00	$ -	$ 750.00	$ 750.00	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 13,500.00	$ -	**$ 19,500.00**
403.208	HOT MIX ASPHALT 12.5 MM HMA SURFACE	T	10	0	5	5	10	10	10	50	0	90	$ 150.00	$ 1,500.00	$ -	$ 750.00	$ 750.00	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 7,500.00	$ -	**$ 13,500.00**
403.209	HOT MIX ASPHALT 9.5 MM HMA (INCID.)	T	30	0	0	0	0	0	0	0	0	30	$ 150.00	$ 4,500.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 4,500.00**
409.15	BITUMINOUS TACK COAT - APPLIED	G	10	0	5	5	10	10	10	20	0	60	$ 13.86	$ 138.60	$ -	$ 69.30	$ 69.30	$ 138.60	$ 138.60	$ 138.60	$ 277.20	$ -	**$ 831.60**
502.341	STR CONC ROADWAY MEDIAN	CY	0	30	0	0	30	30	0	0	0	60	$ 499.99	$ -	$ 14,999.70	$ -	$ -	$ 14,999.70	$ 14,999.70	$ -	$ -	$ -	**$ 29,999.40**
603.159	12" CULV PIPE OPTION III	LF	200	0	200	200	400	300	500	200	0	1600	$ 53.34	$ 10,668.00	$ -	$ 10,668.00	$ 10,668.00	$ 21,336.00	$ 16,002.00	$ 26,670.00	$ 10,668.00	$ -	**$ 85,344.00**
604.072	CATCH BASIN TYPE A1-C	EA	2	0	2	2	4	3	5	2	0	16	$ 3,006.09	$ 6,012.18	$ -	$ 6,012.18	$ 6,012.18	$ 12,024.36	$ 9,018.27	$ 15,030.45	$ 6,012.18	$ -	**$ 48,097.44**
604.16	ALTER CATCH BASIN TO MANHOLE	EA	2	0	2	2	4	3	5	2	0	16	$ 1,236.41	$ 2,472.82	$ -	$ 2,472.82	$ 2,472.82	$ 4,945.64	$ 3,709.23	$ 6,182.05	$ 2,472.82	$ -	**$ 19,782.56**
606.0001	PEDESTRIAN CHANNELIZATION BOLLARDS	LS	0	0	0	0	0	1	0	0	0	1	-	$ -	$ -	$ -	$ -	$ -	$ 15,000.00	$ -	$ -	$ -	**$ 15,000.00**
608.07	PLAIN CONCRETE SIDEWALK	SY	0	0	0	0	0	280	0	0	0	280	$ 135.67	$ -	$ -	$ -	$ -	$ -	$ 37,987.60	$ -	$ -	$ -	**$ 37,987.60**
608.08	REINFORCED CONCRETE SIDEWALK	SY	0	0	15	15	30	60	40	0	0	130	$ 82.53	$ -	$ -	$ 1,237.95	$ 1,237.95	$ 2,475.90	$ 4,951.80	$ 3,301.20	$ -	$ -	**$ 10,728.90**
608.26	CURB RAMP DETECTABLE WARNING FIELD	SF	0	0	20	20	40	140	50	0	0	230	$ 68.19	$ -	$ -	$ 1,363.80	$ 1,363.80	$ 2,727.60	$ 9,546.60	$ 3,409.50	$ -	$ -	**$ 15,683.70**
609.11	VERT CURB TYPE 1	LF	60	0	40	40	80	240	100	280	0	760	$ 32.27	$ 1,936.20	$ -	$ 1,290.80	$ 1,290.80	$ 2,581.60	$ 7,744.80	$ 3,227.00	$ 9,035.60	$ -	**$ 24,525.20**
609.237	TERMINAL CURB TYPE 1 - 7 FOOT	EA	2	0	4	4	8	28	10	6	0	54	$ 362.98	$ 725.96	$ -	$ 1,451.92	$ 1,451.92	$ 2,903.84	$ 10,163.44	$ 3,629.80	$ 2,177.88	$ -	**$ 19,600.92**
609.34	CURB TYPE 5	LF	200	0	0	0	0	0	0	0	0	200	$ 27.04	$ 5,408.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 5,408.00**
615.0701	LOAM - PLAN QUANTITY	CY	20	0	10	10	20	0	20	60	0	120	$ 54.94	$ 1,098.80	$ -	$ 549.40	$ 549.40	$ 1,098.80	$ -	$ 1,098.80	$ 3,296.40	$ -	**$ 6,592.80**
618.1301	SEEDING METHOD NUMBER 1 - PLAN QUANTIT	UN	2	0	0.5	0.5	1	0	2	5	0	10	$ 43.55	$ 87.10	$ -	$ 21.78	$ 21.78	$ 43.55	$ -	$ 87.10	$ 217.75	$ -	**$ 435.50**
619.1201	MULCH - PLAN QUANTITY	UN	2	0	0.5	0.5	1	0	2	5	0	10	$ 38.60	$ 77.20	$ -	$ 19.30	$ 19.30	$ 38.60	$ -	$ 77.20	$ 193.00	$ -	**$ 386.00**
627.711	WH OR YELL PAINT PVMT MRK LINE (PL QUA	LF	500	700	0	0	700	500	0	150	0	1850	$ 0.66	$ 330.00	$ 462.00	$ -	$ -	$ 462.00	$ 330.00	$ -	$ 99.00	$ -	**$ 1,221.00**
627.75	WHITE OR YELLOW PVMT AND CURB MARK	SF	0	0	100	100	200	850	300	100	0	1450	$ 3.99	$ -	$ -	$ 399.00	$ 399.00	$ 798.00	$ 3,391.50	$ 1,197.00	$ 399.00	$ -	**$ 5,785.50**
645.292	REG,WARN,CONF,RT SIGNS TYPE II	SF	60	0	40	40	80	150	60	10	40	400	$ 44.17	$ 2,650.20	$ -	$ 1,766.80	$ 1,766.80	$ 3,533.60	$ 6,625.50	$ 2,650.20	$ 441.70	$ 1,766.80	**$ 17,668.00**
652.39	WORK ZONE TRAFFIC CONTROL	LS	1	1	1	1	1	1	1	1	1	8	-	$ 10,000.00	$ 4,000.00	$ 5,000.00	$ 5,000.00	$ 14,000.00	$ 26,000.00	$ 16,000.00	$ 15,000.00	$ -	**$ 81,000.00**
656.75	TEMP. SOIL EROS. AND WATER POLL. CONTR	LS	1	1	1	1	3	1	1	1	1	8	-	$ 1,000.00	$ -	$ 500.00	$ 500.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ -	**$ 5,000.00**
658.2	ACRYLIC LATEX FINISH, GREEN	SY	160	0	0	0	0	0	0	0	0	160	$ 15.29	$ 2,446.40	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 2,446.40**
659.1	MOBILIZATION	LS	1	1	1	1	3	1	1	1	1	8	-	$ 7,000.00	$ 3,000.00	$ 4,000.00	$ 4,000.00	$ 11,000.00	$ 19,000.00	$ 10,000.00	$ 10,000.00	$ 200.00	**$ 57,200.00**
												SUBTOTAL		**$ 68,000.00**	**$ 24,000.00**	**$ 44,000.00**	**$ 44,000.00**	**$ 112,000.00**	**$ 200,000.00**	**$ 108,000.00**	**$ 103,000.00**	**$ 2,000.00**	**$ 593,000.00**
												CONTINGENCY (15%)		**$ 11,000.00**	**$ 4,000.00**	**$ 7,000.00**	**$ 7,000.00**	**$ 18,000.00**	**$ 30,000.00**	**$ 17,000.00**	**$ 16,000.00**	**$ 300.00**	**$ 92,300.00**
												TOTAL*		**$ 79,000.00**	**$ 28,000.00**	**$ 51,000.00**	**$ 51,000.00**	**$ 130,000.00**	**$ 230,000.00**	**$ 125,000.00**	**$ 119,000.00**	**$ 2,300.00**	**$ 685,300.00**

*Opinion of cost based on 2009 MaineDOT Unit Prices and other assumptions listed in 1 through 8 above.

Section 1 - Ridge Road/Railroad Avenue Intersection Improvements
1. Install raised island in intersection
2. Define right turn onto Ridge Road

Section 2 - Railroad Avenue Improvments
1. Install concrete island across York Zoo parking area
2. Install bumpouts and stripe on street parking on north end of roadway

Section 3 - Railroad Avenue/Ocean Avenue Intersection Improvements
1. Install concrete islands
2. Install pedestrian channelization and sidewalk

Section 4 - Ocean Avenue Improvements
1.Install pedestrian Bump Outs

Section 5 - Ocean Avenue/Ocean Avenue Extension/Will Avenue Intersection Improvements
1. Channelize intersection

Section 6 - One Way Traffic Flow
1. Add signage