Traffic Calming Evaluation

Borough of Spring Lake, Monmouth County, New Jersey

Preliminary Report

Presented to Borough Council

November 14, 2016

Study Locations

- Ocean Road-Railroad Tracks to 4th Avenue
- 5th Avenue and Warren Avenue
- 5th Avenue and Washington Avenue
- 3rd Avenue and Ludlow Avenue
- 3rd Avenue and Pitney Avenue
- 3rd Avenue –Lake Como Border to South Boulevard

Scope of Study

Task 1 - Data Collection

- Discussed concerns at the study locations with Municipal officials
- Inventory physical roadway conditions and traffic control
- Obtain copies of accident reports and available travel speed data
- Conducted spot speed recordings

Task 2 - Data Analysis

- Review the obtained material to determine possible perceived issues.
- Observe operating conditions to note vehicular/pedestrian/bicycle activity and outline observed issues.
- Provide a qualitative assessment of observed operations.
- Outline possible traffic calming measures to address the observed and perceived issues.
- Develop short and long-term measures for traffic calming at each location.
- Prepare a concept sketch for the suggested traffic calming measures with estimated construction costs.

Task 3 – Public Input/ Finalize Report

RELATIONSHIP TO BOROUGH 2010 MASTER PLAN

- Improve intersections or roadway segments through the implementation of creative engineering, traffic calming, and design techniques
- Utilize traffic calming measures in areas of high pedestrian activity.
- Create a more bicycle and pedestrian friendly environment that provides a safe and viable alternative to driving
- Traffic Calming and Congestion Management through the imposition of roundabouts, raised/textured paving elements at intersections (similar to Belmar).
- Review the feasibility of utilizing four-way stops at intersections that have experienced a high rate of accidents.

Primary Types of Traffic Calming Treatments

Vertical Control Measures

speed tables or raised intersections

speed humps

raised crosswalks

Horizontal Control Measures; treatments to force drivers to shift laterally

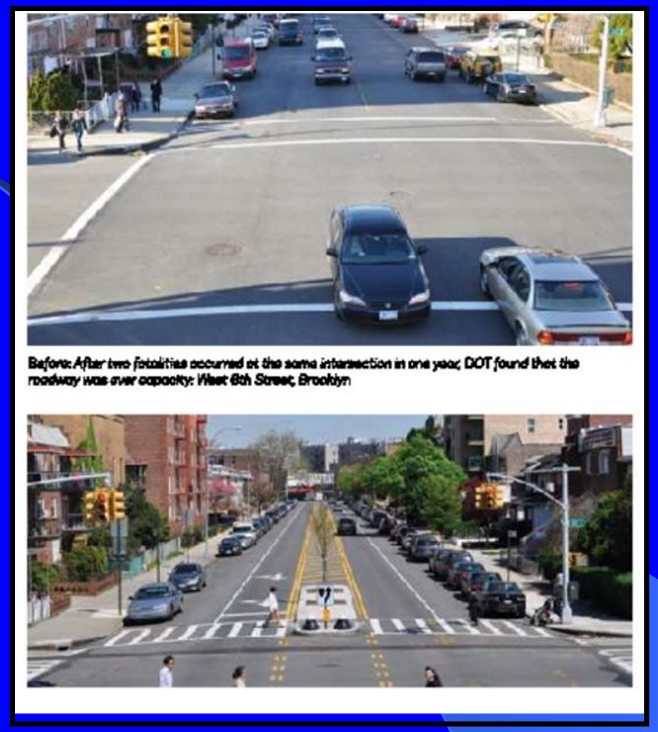
corner bumpouts/curb extensions

medians, realigned intersections, lane shifts, etc.

roundabouts

Travel way narrowing, visual enhancements

Knockdowns/chokers



Lane widths / on-street parking

Enhanced Pavement Markings

Ocean Road

Prospect Ave
2nd St
Ocean Rd
Shore Rd
Pennsy
4th Ave
© 2016 Google
Imagery Date: 4/16/2016 40°08'36.77" N 74°02'05.98"

Ocean Road Observations

This roadway is about 30 ft. wide with no striping.

There were no reported accidents to suggest specific traffic calming measures.

Recorded speeds were approximately 28 to 30 mph in either direction.

Parking is permitted on the northerly side which provides some measure of reducing the street width, but parking was random.

There was minimal bicycle activity observed but use was split between in the street and on the sidewalk.

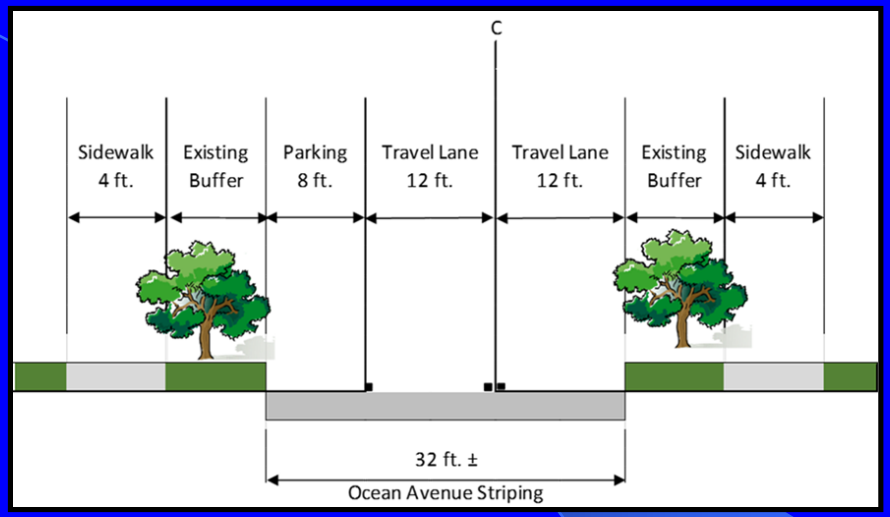
The visual perception is the street is wide open. And there is nothing to physical to reduce the street width, or provide visually indicators to a motorist to subconsciously reduce speed or raise their attention to the roadway.

Potential Traffic Calming Measures

- Install additional speed limit signs
- Install radar speed limit signs to provide more feedback to motorists with the intent of providing more awareness of their vehicle speed.
- The police can also employ temporary portable radar speed Limit signs at random times to reinforce the posted speed limit. This could be an alternative to installing permanent radar speed limit signs.
- Since the street is straight and level and visually “open”, stripe the roadway to introduce a visual “reduction” of the street width.
- Paint a white edge line to define the parking lane and a centerline to delineate the two travel lanes. This will physically reduce the travel lane width and provide a narrower travel lane width of 11 or 12 feet.
- Ocean Road is also a good candidate for speed humps. To be effective, at least two speed humps across the entire roadway should be considered.

Striping Concept

Existing



Centerline and Edge Line Striping

Before

After

Ocean Road– Implementation and Estimated Cost

Traffic Calming Measure	Time Frame	Estimated Cost
Install additional Speed Limit signs	Short Term	$200 - $400
Install Radar Speed Limit signs	Short Term	$5,000 - $7,000
Install traffic stripes	Short Term	$1,500
Install speed humps	Short Term	$6,000

5th Avenue and Warren Avenue

5th & Warren Avenue – Crash History

- Five (5) reported accidents over the past 3-1/2 years.
- The number of accidents is very low. Three (60%) involved right angle accidents and one involved a vehicle turning right from the left/thru lane.
- Review of the accident reports does not suggest any specific pattern of accidents that could be addressed by traffic calming measures.

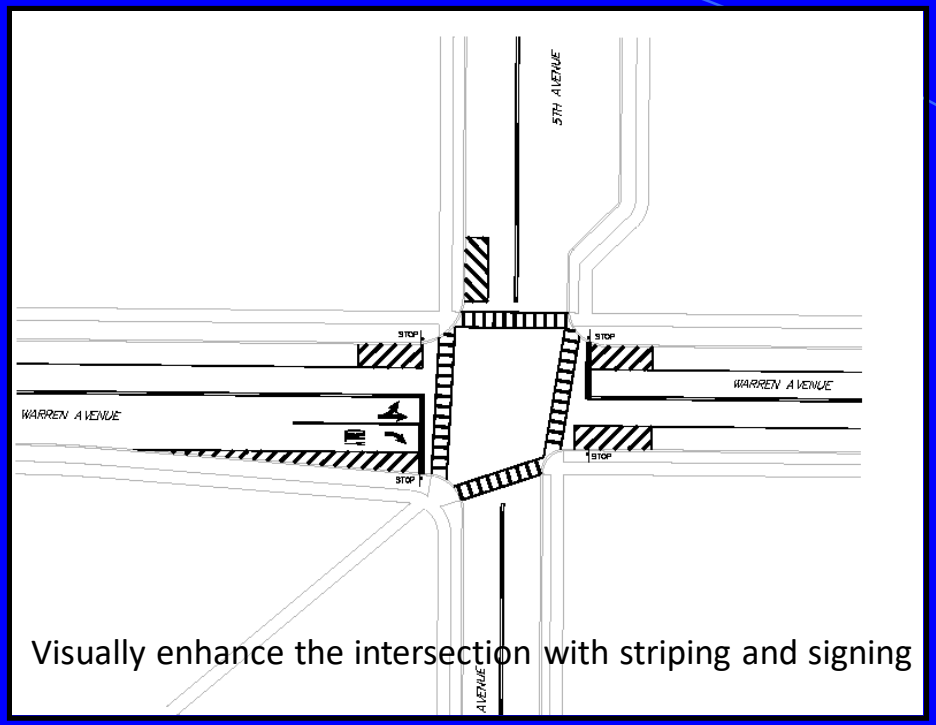
Observations

- The Stop and Stop Ahead signs do not meet the current retro-reflectivity standards.
- The pavement markings/pedestrian crosswalks are not very visible.
- Motorists using the eastbound right turn lane often had their sight lines obstructed by vehicles in the shared left/thru lane requiring them to extend further into the intersection to see.
- Many motorists were observed to roll into the intersection.
- In addition, a number of southbound vehicles on 5th Avenue did not use turn signals to turn right onto Warren Avenue but slowed down. Some of the thru vehicles also slowed down because of this or to pass the turning vehicles. This creates a potentially dangerous situation.

Observations

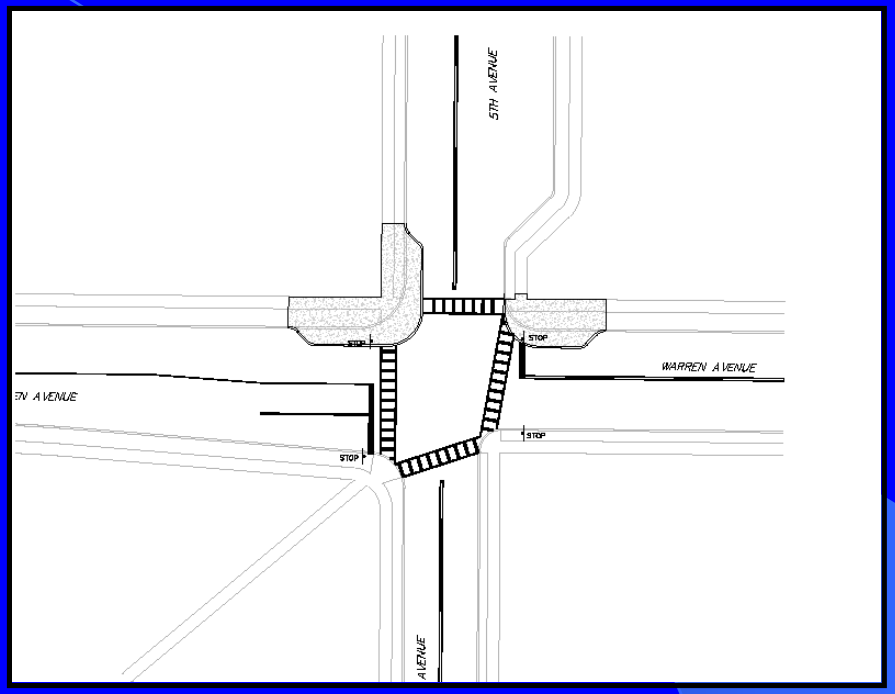
Vehicles always seemed to be parked in front of The Chateau even though prohibited on 5th Avenue, obstructing sight distance to the north.

Possible Traffic Calming Concepts



Visually enhance the intersection with striping and signing

- Replace the Stop and Stop Ahead signs with new signs meeting the current retro-reflectivity criteria. Increase the size of the Stop sign to 36" x 36".
- Stripe the crosswalks with transverse markings to increase visibility.
- Stripe the corners with diagonal striping to serve as "bumpouts" to further delineate travel through the intersection.



Construct corner bumpouts. This may not be feasible considering the fire station nearby. Further review is necessary.

Overserved issues are more capacity related. However, intersection is a candidate for 4-way Stop. Traffic volumes required.

5th & Warren Avenue – Implementation and Estimated Cost

Traffic Calming Measure	Time Frame	Estimated Cost
Replace the Stop and Stop Ahead signs with new signs meeting the current retro-reflectivity criteria	Short Term	$400 - $600
Convert intersection to 4-way Stop	Short Term	$1,500 - $2,000
Convert intersection to 4-way Stop with transverse markings of crosswalks to increase visibility	Short Term	$3,500 - $4,000
Stripe the crosswalks with transverse markings to increase visibility	Short Term	$2,000 - $3,000
Stripe the corners with diagonal striping to serve as “bumpouts” to further delineate travel through the intersection	Short Term	$7,500 - $9,000
Construct corner bumpouts on northwest and northeast corners.	Mid Term	$15,000 - $30,000

5th Avenue and Washington Avenue

5th & Washington Avenue – Crash History

- One reported accident over the past 3 years.
- Accident involved a right-angle accident between an eastbound vehicle on Washington Avenue which failed to stop.
- The lack of reported accidents may suggest that volumes are relatively low, or that motorists use extra precaution due to the limited sight distance from westbound Washington Avenue.

Observations

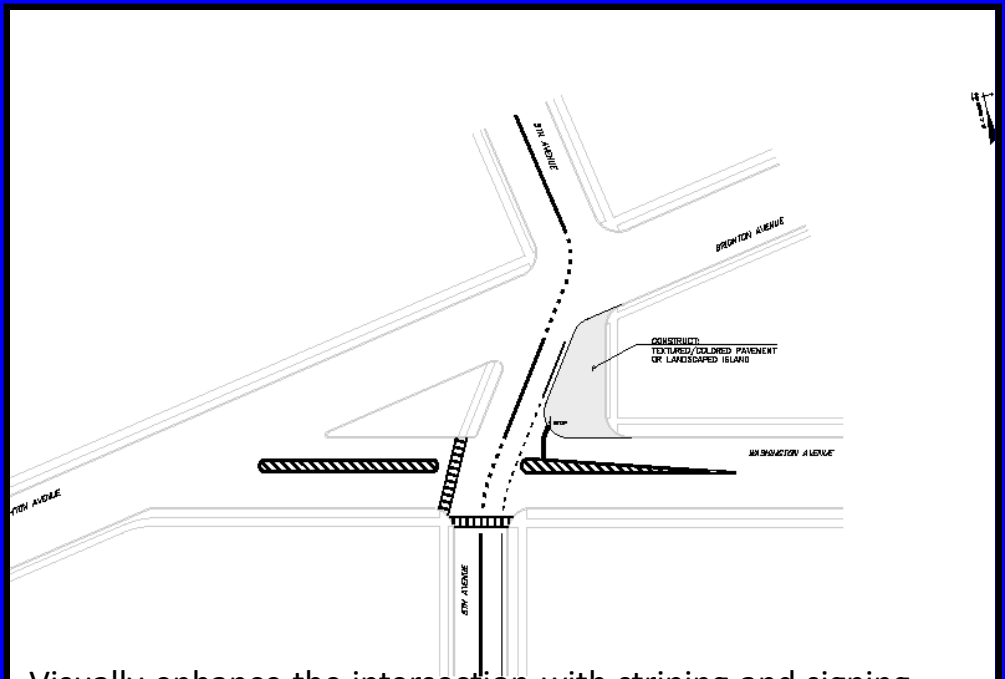
- There was minimal traffic along Washington Avenue during the hours observed. Brighton Avenue had the higher volume of traffic during these periods.
- Observations noted that the stop line on westbound Washington Avenue is set back from 5th Avenue. This makes it difficult to see approaching vehicles from the south.
- The widened pavement area to the north gives the feeling that a motorist is “in” the intersection.

Observations

The sight line to the south is also impeded by the presence a large mature tree and mature hedges about 80 feet to the south. This requires a motorist to extend into the intersection to see northbound approaching vehicles.

From the stop line, sight distance is about 70 to 80 feet which equates to a safe stopping sight distance (SSD) of about 10 to 15 mph.

Possible Traffic Calming Concepts



Visually enhance the intersection with striping and signing

- Provide striping through the intersection to delineate the travel lane.
- Install textured/colored pavement between Washington and Brighton Avenue to narrow the roadway width.
- Reconstruct the curbline between Washington and Brighton Avenue to narrow the roadway width.

5th & Washington Avenue- Implementation and Estimated Cost

Traffic Calming Measure	Time Frame	Estimated Cost
Remove the tree at the southeast corner	Short Term	$1,500 - $2,000
Provide striping through the intersection to delineate the travel lane	Short Term	$1,500 - $2,000
Install textured/colored pavement between Washington and Brighton Avenue to narrow the roadway width.	Short Term	$5,000 - $7,500
Reconstruct the curbline between Washington and Brighton Avenue to narrow the roadway width.	Mid Term	$12,000 - $20,000

3rd Avenue and Ludlow Avenue

3rd Avenue and Ludlow Avenue

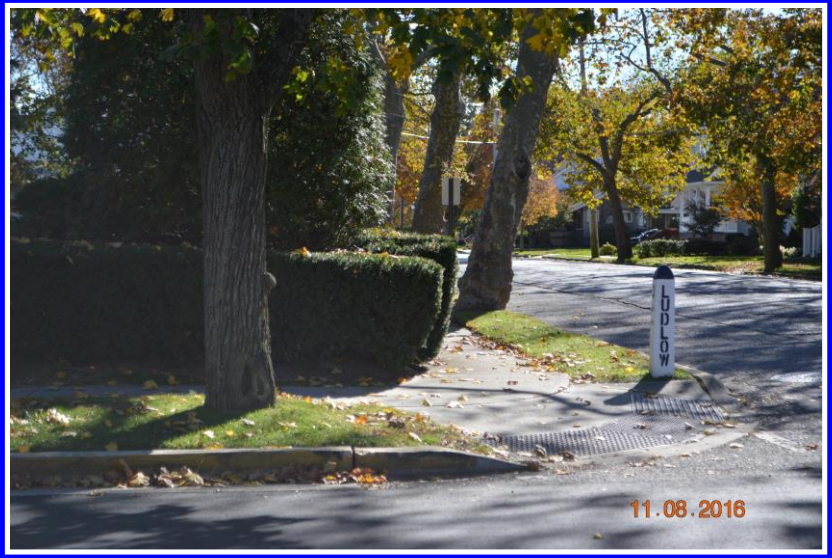
3rd & Ludlow Avenue – Crash History

- Eleven (11) reported accidents over the past 3 years.
- All the crashes were right angle accident and were basically spread among the southbound, northbound, and eastbound approaches.
- Six crashes were due to eastbound vehicles and four crashes due to westbound traffic on Ludlow Avenue. More significant is the fact that 10 of the 11 crashes (90%) were due to a vehicle failing to stop. This is quite alarming since there are three *Stop* signs on both Ludlow Avenue approaches

3rd & Ludlow Avenue – Observations

- The Stop signs and Stop Ahead signs were somewhat faded and not up to current retro-reflectivity criteria and the pedestrian crosswalks not very visible
- Many motorists on eastbound Ludlow Avenue did not come to a complete stop.
- Motorists on eastbound Ludlow Avenue, while seeing approaching vehicles, waited until approaching vehicle got closer before deciding to cross 3rd Avenue.
- Many motorists on 3rd Avenue did not use turn signals.
- Weekday and Saturday on-street parking was random, but this is not the case during a service.
- The street width of 3rd Avenue was about 38 feet which is about 12 feet less than 3rd Avenue further to the north.
- A number of bicyclists used 3rd Avenue as well as crossing 3rd Avenue at the intersection.

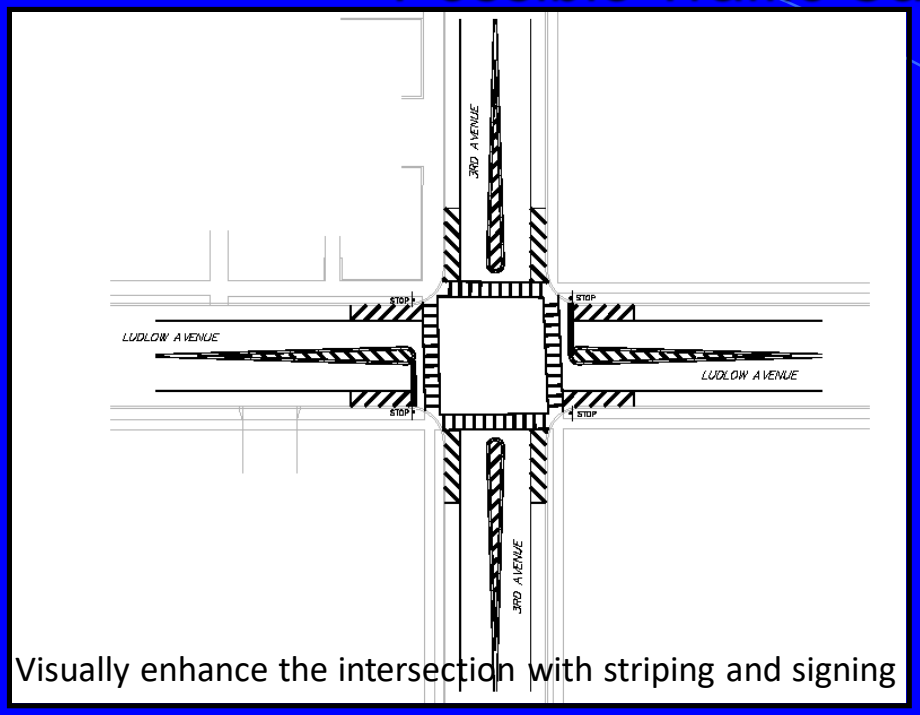
Observations



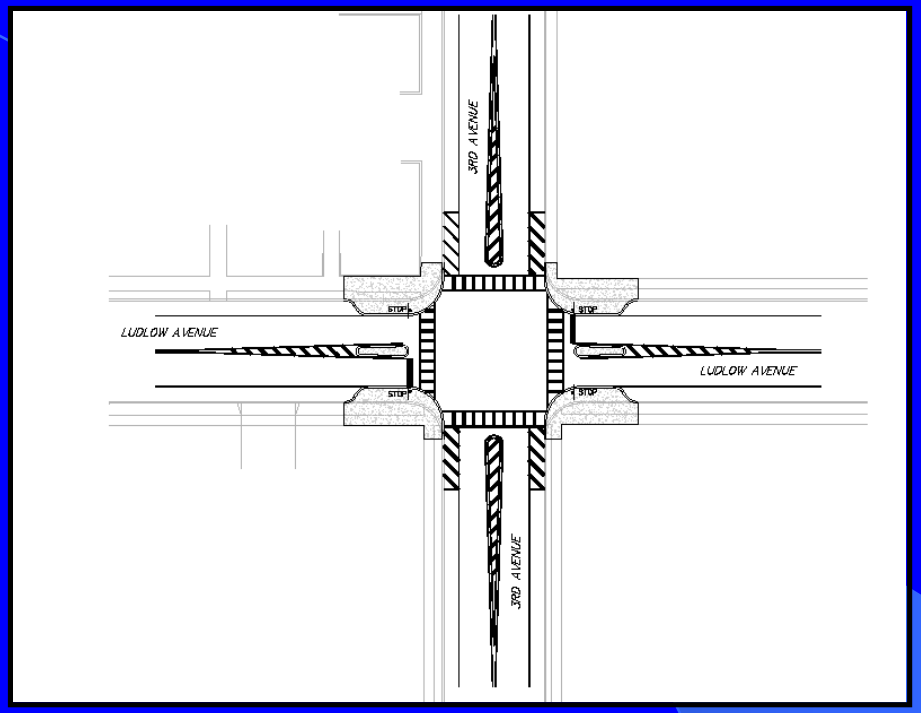
The sight distance is slightly impeded by vegetation westbound approach.

Masonry wall on Church corner does not appear to substantially restrict sight distance.

Possible Traffic Calming Concepts



Visually enhance the intersection with striping and signing



- Replace the Stop and Stop Ahead signs with new signs meeting the current retro-reflectivity criteria. Increase the size of the Stop sign to 36" x 36".
- Stripe the crosswalks with transverse markings to increase visibility.
- Stripe the corners with diagonal striping to serve as "bumpouts" to further delineate travel through the intersection.
- Construct corner bumpouts. This may not be feasible in front of the church because of possible funeral parking. Further review is necessary.
- Candidate for 4-way Stop. Traffic volumes required.

3rd & Ludlow Avenue – Implementation and Estimated Cost

Traffic Calming Measure`	Time Frame	Estimated Cost
Replace the Stop and Stop Ahead signs with new signs meeting the current retro-reflectivity criteria. Increase the size of the Stop sign to 36" x 36"	Short Term	$400 - $600
Paint "Stop Ahead" pavement markings on the Ludlow Avenue approaches.	Short Term	$400 - $600
Install LED Illuminated Stop Signs	Short Term	$5,000 - $8,000
Convert intersection to a 4-way Stop	Short Term	$1,500 - $2,000
Stripe the crosswalks with transverse markings to increase visibility	Short Term	$1,500 - $2,000
Stripe the corners with diagonal striping to serve as "bumpouts" to further delineate travel through the intersection	Short Term	$7,500 - $9,000
Construct corner bumpouts. This may not be feasible in front of the church because of possible funeral parking. Further review is necessary.	Mid Term	$40,000 - $50,000
Construct mini-roundabout with striping for splitter islands	Long Term	$60,000

3rd Avenue and Pitney Avenue

3rd & Pitney Avenue – Crash History

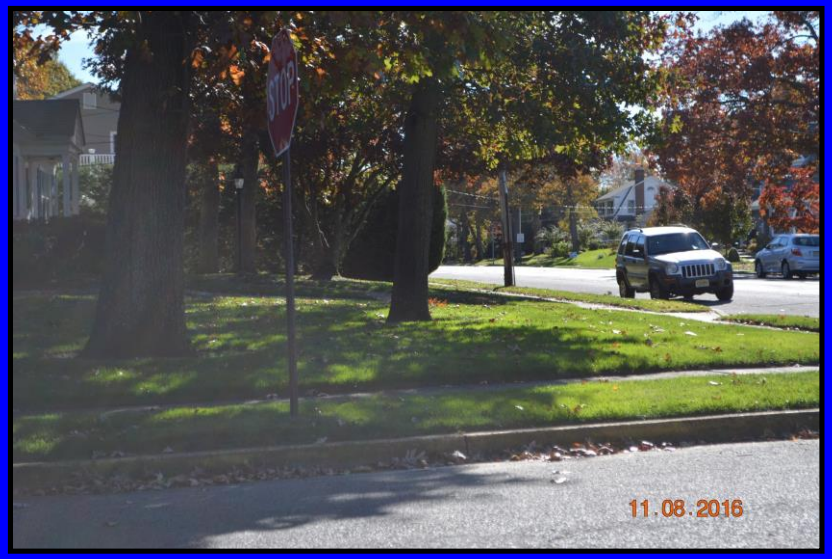
- Six (6) reported accidents over the past 3-1/2 years.
- Four of these (67%) involved sight line issues from westbound Pitney Avenue.
- One involved a vehicle striking a bicyclist just north of Pitney Avenue. This may be the result of sight lines northbound thru the intersection, lack of a striped bicycle lane, or both.

Observations

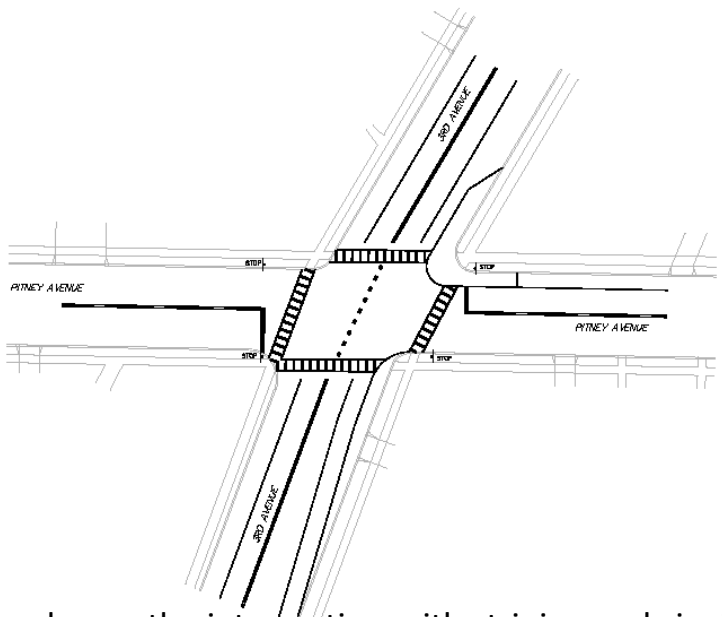
- The skewed alignment of 3rd Avenue through the intersection creates some difficulty with sight distance especially on Pitney Avenue westbound which is on the inside of the “curve”.
- The Stop signs and Stop Ahead signs are faded and do not meet current retro-reflectivity standards. The Stop Ahead signs are an older version and not compliant with current standards.
- The pedestrian crosswalks were faded.
- Observations also noted a number of bicyclists using the roadway along both sides of 3rd Avenue.
- Parking along either roadway was light during the weekday and increased somewhat during a Saturday with parking on 3rd Avenue south of Pitney Avenue being used more than the northerly side.
- Random speed measurements were made midday on a weekday and found that the average speed was approximately 30 mph in either direction.

Observations

- Sight distance is impeded by vegetation in the southwest corner and a wall in the northeast corner.
- Motorists had to encroach beyond the curb line of 3rd Avenue to get unobstructed sight lines.



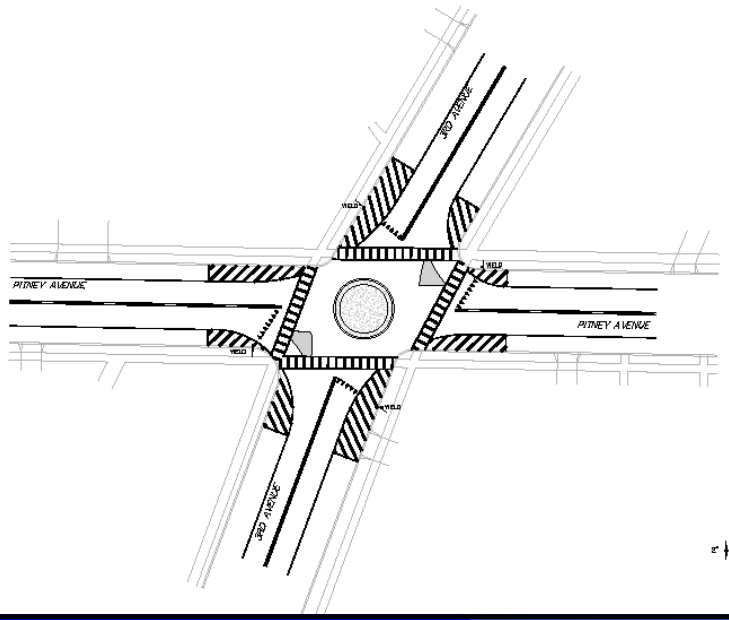
Possible Traffic Calming Concepts



Visually enhance the intersection with striping and signing

- Replace the Stop and Stop Ahead signs with new signs.
- Stripe the crosswalks with transverse markings to increase visibility.
- Stripe 3rd Avenue to realign the roadway travel lanes with striping to serve as "bumpouts" to further delineate travel through the intersection.

Construct corner bumpouts at the intersection. This will permit vehicles to extend further into the roadway to increase sight distance to the south and north. This will also reduce pedestrian crossing distance of 3rd Avenue



Construct mini-roundabout with striping/concrete splitter islands.

Median can also be constructed with corner bumpouts

Mini or Neighborhood Roundabout

3rd & Pitney Avenue – Implementation and Estimated Cost

Traffic Calming Measure	Time Frame	Estimated Cost
Replace the Stop and Stop Ahead signs with new signs meeting the current retro-reflectivity criteria	Short Term	$200 - $400
Stripe the crosswalks with transverse markings to increase visibility	Short Term	$3,500
Stripe 3rd Avenue to realign the roadway travel lanes with striping to serve as "bumpouts" to further delineate travel through the intersection	Short Term	$4,500
Construct corner bumpouts at the intersection. This will permit vehicles to extend further into the roadway to increase sight distance to the south and north. This will also reduce pedestrian crossing distance of 3rd Avenue.	Mid Term	$20,000 - $30,000 with landscaping $35,000 - $45,000 with concrete or pavers
Construct mini-roundabout with striping/concrete splitter islands	Long Term	$60,000 - $75,000
Reconstruct the 3rd Avenue alignment thru the intersections to reduce the effect of the angle and increase sight lines.	Long Term	Requires right-way acquisition on the east side of intersection.

3rd Avenue
Lake Como Border to South Boulevard

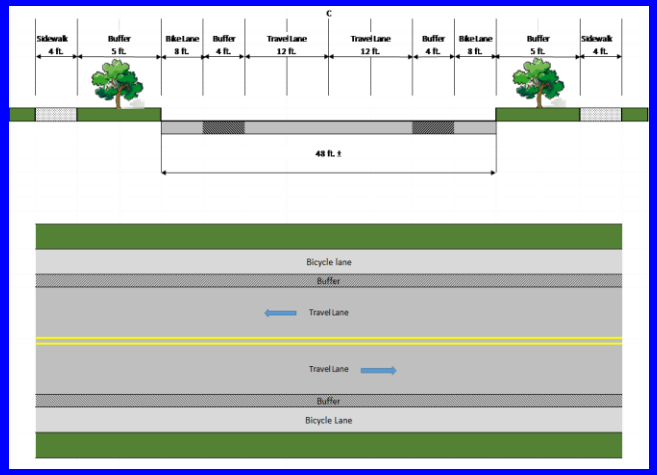
Observations

- Speeding along 3rd Avenue seems to be a concern. This is supported by the fact that there are rumble strips coming in from Lake Como, and the Radar Speed sign near Marucci Park Access.
- Random speed measurements were made midday on a weekday and found that the average speed was approximately 35 mph in the southbound direction and 30 mph in the northbound direction.
- 3rd Avenue is also very wide (50'±) which also encourages higher travel speeds.
- The landscape changes coming in from Lake Como from a mix of residential and commercial with heavy on-street parking to a wide open area with virtually no parking.
- This physical and visual change results in motorists tending to increase speed. A motorist will travel the roadway at a speed that feels reasonable for the roadway environment.
- Observations also noted a rather high bicycle usage along 3rd Avenue. While there are sidewalks along all streets, cyclists were using the roadway as the bike lane.

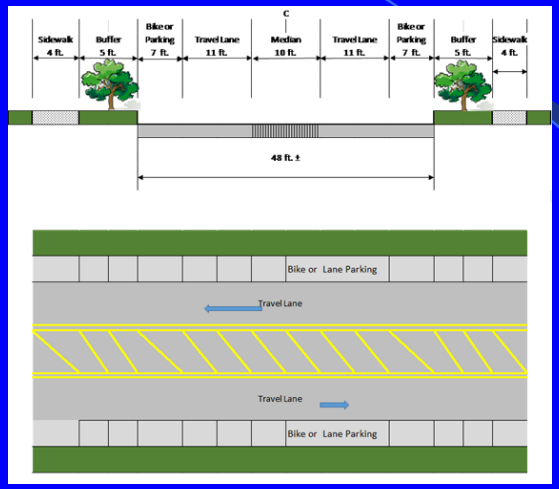
Potential Traffic Calming Measures

- Traffic calming measures that have the potential to address speeding range from increased enforcement, speed humps, or physical constraints to narrow the roadway such as lane diets, corner bump outs, etc.
- Since it does not appear that on-street parking would increase substantially to the point that provides a physical and visual reduction in the width of 3rd Avenue, other measures or techniques are necessary to provide this reduction.
- Because the landscape changes from Lake Como, and 3rd Avenue is very wide. This provides the Borough with are opportunities to enhance the entrance into Spring Lake with streetscape improvements.

Concepts



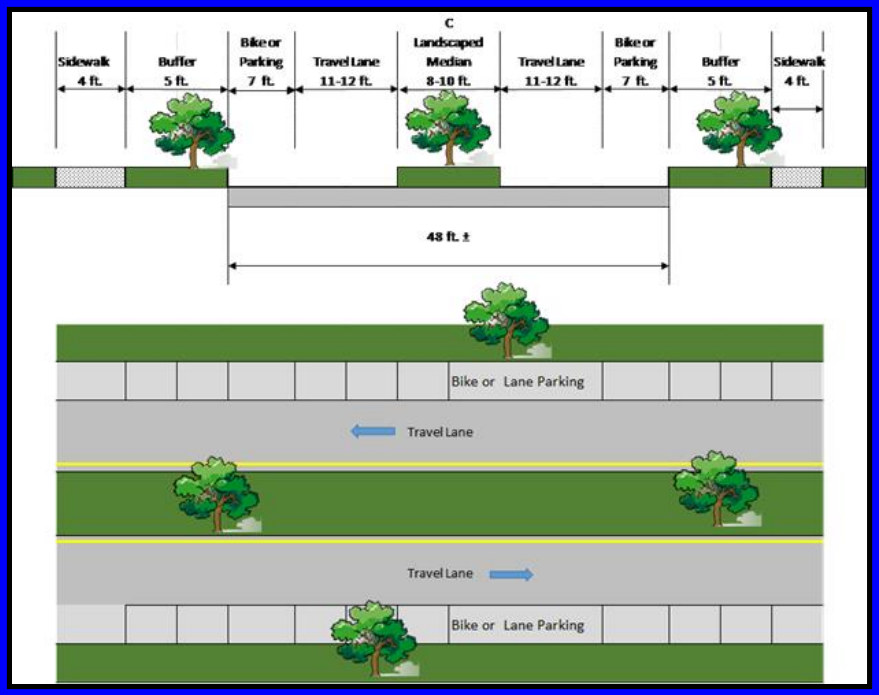
Centerline Striping with Bike Lane



Striped Median with Bike Lane

Bike Lanes Consistent with Master Plan

3rd Avenue



Landscaped Median with Bike Lane

Medians with or without Corner Bumpouts

Textured Pavement
East Front Street, Red Bank

Median with Corner Bumpouts
Route 71, Avon

Enhance Entrance into Spring Lake

3rd Avenue – Implementation and Estimated Cost

Traffic Calming Measure	Time Frame	Estimated Cost
Change striping to No Passing, stripe bicycle lanes, parking lanes	Short Term	$3,000 - $5,000
Median striping, bicycle lanes, parking lanes	Short Term	$8,000 - $10,000
Construct random bump outs	Mid Term	$15,000 - $30,000
Extend curbline Monroe Avenue to South Boulevard	Long Term	$55,000 - $65,000
Landscaped Median-Monroe Avenue to South Boulevard	Long Term	$50,000 - $60,000
Landscaped Median-random locations	Long Term	$15,000 - $30,000
Roundabout	Long Term	$30,000 - $100,000

Traffic Calming Evaluation
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November 14, 2016

Public Input
and
Discussion