

MAYOR AND COUNCIL MEETING
WORK SESSION

July 24, 2018

6:45 P.M.

Present: Councilmembers: Capilli, Epstein, Farinaro, Oppelt, Mintz (via phone) and Mayor Misciagna
Absent: Councilmembers: Metzdorf
Also Present: Durene Ayer, CFO
Michael DeMarrais, Esq.
Julie Falkenstern, BA
Magdalena Giandomenico, Borough Clerk
Daniel C. Lee, P.E., C.M.E., Borough Engineer, Neglia

Mayor Misciagna read the compliance statement earlier as required by the Open Public Meeting Act, P.L. 1975, and Chapter 231.

On a motion made by Council President Capilli and Seconded by Councilwoman Epstein to confirm. Motion carried unanimously.

I. Cell Phone Booster:

- Council President Capilli mentioned how Sprint was out in the middle of the night installing small strand cell device in bucket trucks. When Verizon made a similar request previously, they were informed by Bill Beattie they cannot do this, but Sprint did not ask anyone. The Borough owes the poles, but they owe the lines. A discussion ensued.
 - Mayor Misciagna mentioned how there is a loophole, because normally they cannot work on wires if they are using our poles.
 - Michael DeMarrais, Esq. mentioned looking into the noise ordinance to address them doing this in the middle of the night.
 - Bill Beattie has reached out to a contact at the company and is waiting to hear back from them.

II. 25mph Speed Limit Park Ave

- Mayor Misciagna mentioned how he has called the County Engineer, Joe Femia, but has not received any calls back. Since it is a County Road, we need permission from the Freeholder's to change the speed limit and to endorse such change we are adopting Res. No. 018-217 - Request Approval of BC Freeholders to Reduce Speed Limit on Section of Park Avenue. All in favor to adopt and forward a certified copy to the Bergen County Freeholder Board.

III. Marijuana Ordinance

- Council President Capilli spoke about drafting a Marijuana Ordinance similar to the one from Upper Saddle River. A discussion ensued.
 - Mayor Misciagna mentioned how on a local level we can not restrict state law, we saw that when it came to enforcing stronger local laws governing drinking in public.
 - Councilman Farinaro mentioned how many residents have approached him about a local marijuana ordinance and Councilwoman Epstein mentioned how the Board of Health would also be in favor.
 - Council President Capilli polled the council to see if they would like the Attorney to start working on one: Councilmembers: Capilli, Epstein, Farinaro, Oppelt and Mayor Misciagna all in favor. Councilman Mintz opposed.

IV. School Violence Prevention

- Borough Administrator Falkenstern spoke about how the login has been corrected and the application has been partially submitted and will be fully submitted by the end of the week.
- Pedestrian safety is getting worked on.

V. Engineer's Report, dated July 24, 2018:

1. GLEN ROAD BRIDGE / CULVERT

Per information prepared by Brooker Engineering and provided to the Borough, the Glen Road Culvert / Bridge requires structural improvements. An NJDOT grant was received by the Borough which is expected to expire within 90 days pending receipt of a letter from the NJDOT. To date, this letter has not been received by the Borough.

As requested by the Borough, Neglia Engineering Associates secured the bridge engineering sub-consultant services on behalf of the Boroughs of Park Ridge and Woodcliff Lake to evaluate the bridge's current condition and provide an engineer's estimate to repair the bridge. On March 14, 2018, the final report was issued to the Borough from our office for review and consideration by the Governing Body. The report offered the following design considerations:

RECOMMENDATION	APPROXIMATE BUDGET!	SERVICE LIFE	Bridge Replacement
	\$1,180,000	40 years	
Bridge Rehabilitation	\$700,000*	25 years	

! These budgets do not include any soft costs and do not include budget to repair the existing leaking water main and guiderail.

* At the time of the analysis, existing bridge construction drawings could not be located. The bridge conditions uncovered during construction could lead to unknown conditions requiring budgetary exceedance. If the bridge documents could be located by either Boroughs, these unknowns and potential exceedances could be limited.

At this time, we would respectfully request that the Borough Water Department address the existing water main leak occurring and that the Borough Department of Public Works (Woodcliff Lake and / or Park Ridge) address the lattice, bridge fall protection railing. In addition to these priority improvements, the Boroughs would need to address in 2019 the existing bridge scour that is occurring now. The Bridge Rehabilitation / Bridge Replacements should occur within the bridge's service life timeframe of three years (Early 2021).

Evan Jacobs, Neglia Engineering Associates consulting engineer for Woodcliff Lake has recommended to Woodcliff Lake that they include the bridge in the Borough's grant applications so that this project can move forward. The Park Ridge NJDOT grant for this project was on the list of open grants received by our office from Rich Loveless, NJDOT. **Upon receipt of the NJDOT letter regarding the status of the project, our office will prepare a response explaining the reason for the delay in progress on the project to preserve the funds for same. Evan Jacobs continues to press Woodcliff Lake to address this issue.**

2. PARK AVENUE BRIDGE REPAIR (EAST OF BOROUGH HALL)

We are in receipt of the previously requested CAD files from Brooker Engineering. We submitted our revised proposal on June 12, 2018 and respectfully request authorization for same. The revised proposal includes credits for utilizing the work previously performed by Brooker Engineering.

3. MILL POND – NJDEP DAM SAFETY ANALYSIS

The DEP issued a letter in response to our Dam Safety Inspection report submitted on June 26, 2018. The letter indicates the dam structure to be in Satisfactory condition as reported by Agnoli Group and that the next report is due two (2) years from the date of the current report (April 20, 2020). The letter goes on to require Emergency Action Plan and Operation & Maintenance Manual updates by October 31, 2018. Our office will provide a proposal to address these matters. Council President Capilli asked for alternatives to dredging.

4. PARK AVENUE – ROADWAY IMPROVEMENTS / CENTERLINE SKEW

On February 28, 2018, our office met with Lt. Peter Mauro to review traffic conditions and issues on Park Avenue in the Borough. The following was discussed and determined:

1. The Borough Police Department will work with the Governing Body, the Borough Administrator, and Bergen County to explore a Speed Limit reduction from 30mph to 25mph on Park Avenue.
2. The Borough Police Department will work with the Borough Electric Department to install additional street lights where the utility poles exist.
3. The 40 Park Avenue development proposes an ADA Ramp and crosswalk at the western side of the Willet Street intersection to address pedestrians that wish to cross at this location in the future.
4. Park Avenue has an off-center centerline. To address this issue, the following would need to occur:
 - a. Park Avenue would need to be widened approximately 2 feet beginning near 33 Park Avenue (across the street from Marc's Deli). This widening would require utility pole relocation.
 - b. To accommodate the widening and centerline shift, approximately three parking spaces in front of the Police Station would need to be removed.
 - c. In the vicinity of Dedtrich Lane and Maple Avenue, a dotted line striping would be proposed to shift the centerline to the east of North / South Maple Avenue.
5. The Borough's prior engineer and Lt. Mauro met with the County Engineer's Office (Nancy Dargis) to explore the potential to relocate the off-center centerline as mentioned above. We understand that at this time Bergen County is requesting plan(s) to proceed with the project.

Thereafter, our office contacted Nancy Dargis to review and discuss the Bergen County submission requirements to address this condition. Bergen County requested a dimensional roadway plan with actual field conditions illustrated. Thereafter, our office issued a proposal for surveying and engineering services for the Park Avenue roadway improvements projects on March 15, 2018. This proposal addressed the preparation of a survey and a dimensional roadway plan as requested by Bergen County to pursue this improvement project. Our office would illustrate improvements on the one sheet dimensional plan which would attempt to address pedestrian and vehicular concerns as listed above. If the plan is deemed acceptable by the Borough and Bergen County, this plan could be perfected through the preparation of construction drawings and specifications.

Pursuant to the Council's request if the TAP Grant funding can be used for this project, we have added this item to the agenda to be discussed with Richard Loveless of the NJDOT. **Richard Loveless requested additional information to determine whether TAP Grant funding covers this scope of work. The dimensional roadway plan requested by the County would address this request. We respectfully recommend authorization of the above referenced proposal so the dimensional plan can be prepared and utilized for both the County and TAP grant analysis.**

5. PARK AVENUE – SPEED LIMIT REDUCTION

With assistance from Acting Clerk Giandomenico, we followed up with Nancy Dargis regarding the Mayor's letter requesting a speed limit reduction from 30 mph to 25 mph on Park Avenue between Broadway and Pascack Road. Ms. Dargis indicated that the section of road in question must be analyzed to determine whether it meets the criteria for the statutory speed limit of 25 mph which they have not had the time to address as of

yet. No timeframe was provided. **We received speed and accident data from Lt. Peter Mauro on July 17, 2018. We are in the process of evaluating same to determine if enough information is available to make a recommendation for the speed limit reduction of Park Avenue from Pascack Road to Kinderkamack Road from 30 to 25 mph. Should there be enough information available, we will prepare a letter substantiating the speed reduction for review and endorsement by Bergen County Planning and Engineering.**

6. NJDOT GRANT STATUS

Rich Loveless provided a list of open projects with NJDOT funding on May 21, 2018. The most urgent project is the Park Ridge Train Station which was funded in 2009 with a grant amount of \$79,000. We reviewed the project files and confirmed the project is complete. We requested final inspection from the NJDOT and are awaiting response to same. The next project to closeout is the Mill Road (Section 2) funded in 2016 with a grant amount of \$150,000. We met with the Borough Administrator and CFO on June 20, 2018 to confirm project status and will take next steps to closeout and receive balance of grant funds for same. **We received confirmation from the NJDOT of receipt of our request for closeout of the Park Ridge Train Station project. We are working with the Borough CFO and Administrator to closeout Mill Road (Section 2) funded in 2016.**

7. 2016 CDBG FUNDING – ADA IMPROVEMENTS AT BOROUGH HALL

On May 14, 2018, we submitted the final reimbursement request to Bergen County CDBG for final processing and issuance of the \$42,125 grant amount. Bergen County CDBG requested copies of canceled checks and resolution authorizing payment. An authorized resolution has been prepared and a copy of the canceled check will be obtained upon payment to Cifelli which should be available this week. **Pavement striping at Borough Hall was completed on July 10, 2018. Final payment has been released to the contractor. Upon receipt of a canceled check, the Resolution and canceled check will be sent to CDBG for processing and subsequent release of reimbursement to the Borough.**

8. 2018 CDBG FUNDING – REVISED APPLICATION

The Borough Administrator and I collaborated with Peter Wayne to confirm which roads in the 2006-2010 Low/Mod Income Area are in the most need of repairs and ultimately prepared applications for funding to resurface Terrace Street from Oakland Street to Highland Street, Oakland Street from Kinderkamack Road to Terrace Street and Woodland Street from Kinderkamack Road to Terrace Street. The total grant request was in the amount of \$87,599.33 to mill and resurface the three (3) roads. On June 20, 2018 we received verbal confirmation of a grant award in the amount of \$83,563.00. We recommend this project and Mill Road Phase 2 Additional Funding (Mallon to Quackenbush) (NJDOT 2017 Funding - \$150,000) and Phase 4 (Quackenbush to Pascack) (NJDOT 2018 Funding - \$138,822) be combined for better economies of scale. Our office can provide a proposal for survey, engineering design and construction administration services should the Borough wish to proceed with any combination of these three projects. Our proposal would have a reduced scope for the Mill Road portion, since that has already been designed by Brooker Engineering. **Pursuant to recent communication with CDBG, award letters will not be issued until September or October.**

9. MISCELLANEOUS

a.333 Park Avenue – Leaning retaining wall – No Borough involvement in the right of way between homeowner and County

b. 32 North Fifth Avenue – Culvert

c.95 Oak Avenue – Pavement Repair - Resolved

Open work Session adjourned into Closed Session at 8:10p.m.

VI. TAP Grant

- Borough Administrator mentioned the streetscape can follow from the redevelopment to the train stations. South side of Madison 2-3 blocks. Mayor Misciagna asked to also find out about the trails.

VII. Park Avenue (County Route 92) Speed Limit Review

VIII. Borough Engineer reviewed a letter submitted to Mayor Misciagna on July 24, 2018 from Michael J. Neglia, P.E., P.P., P.L.S., and Borough Engineer (copy attached below). A discussion ensued and the Borough will continue to strongly advocate for the change of speed limit.

Open Work Session adjourned to Closed Session at 7:45 pm

Open Work Session reconvened at 7:55pm

IX. Borough Website


- Councilwoman Epstein mentioned how the technology committee recommended going with John Flannigan from GovSites as the new website vendor. The website will be running as of August 15, 2018.

X. Board of Health

- Borough Administrator Falkenstern mentioned how the BOH dates of operations will be changing, but the Secretary will still be working 12 hours a week in 1-4pm work blocks.

On a motion made by Councilwoman Epstein and Seconded by Councilman Oppelt to confirm. Motion carried unanimously.

Respectfully submitted,



Magdalena Giandomenico
Acting Borough Clerk

July 24, 2018

Via: E-Mail and Hand Delivery

Mayor Keith Misciagna
53 Park Avenue
Park Ridge, NJ 07656

Re: Park Avenue (County Route 92) Speed Limit Review
Borough of Park Ridge
Bergen County, New Jersey
NEA File No.: PKRDADM18.001

Dear Mayor Misciagna:

Pursuant to our recent discussions, due to the relatively high number of accidents, we understand there is an elevated concern for the safety of pedestrians, cyclists and vehicular passengers traveling to and along the section of Park Avenue (Bergen County Route 92) between Kinderkamack Road (Bergen County Route 503) and Pascack Road (Bergen County Route 61) (hereafter referred to as the “Corridor”). Accordingly, our office utilized speed and crash data provided by the Borough of Park Ridge Police Department and data gathered from a visual inspection of the area to analyze whether a reduction in the posted speed limit would be warranted for the Corridor in accordance with FHWA speed limit guidance methods. Our analysis supports the reduction of the posted speed limit as is elaborated upon below.

The following information was reviewed and/or utilized in preparing our analysis:

1. Federal Highway Administration (FHWA) “Methods and Practices for Setting Speed Limits” April 2012;
2. Site visit for visual inspection of existing conditions performed on July 19, 2018 by Daniel C. Lee, P.E.;
3. Borough of Park Ridge Police Department Speed and Crash Data
 - a. StealthStat data recorded August 21, 2017 through August 26, 2017 at Park Avenue and Willet Street facing East recording traffic speeds in both directions;
 - b. StealthStat data recorded August 30, 2017 through September 4, 2017 at Park Avenue at Willet Street facing East recording traffic speeds in both directions;
 - c. StealthStat data dated recorded September 20, 2017 through September 25, 2017 at Park Avenue west of Kinderkamack Road (CR 503) recording traffic in both directions;
 - d. Borough of Park Ridge Police Department, Park Avenue Vehicle Crash Data for the period from August 1, 2016 through September 11, 2017;
 - e. Borough of Park Ridge Police Department, Park Avenue Pedestrian Crash Data for the period from August 1, 2009 through March 7, 2018;
4. USLIMITS Version 2.0 (<https://safety.fhwa.dot.gov/uslimits/>); and
5. Memo from Chief Joseph J. Madden, Borough of Park Ridge Police Department, dated July 19, 2018, supporting a speed reduction to 25 MPH along Park Avenue between Kinderkamack Road and Pascack Road.

Existing Conditions

A site visit was performed on July 19, 2018 to perform a visual inspection of the Corridor. The Corridor is commonly known as Park Avenue (Bergen County Route 92). The section of road in question is situated between Kinderkamack Road (Bergen County Route 503) to the east and Pascack Road (CR61) to the west and serves as the only access in the Borough between the east and west sides of the Borough. The Corridor is a two-lane undivided road, approximately 0.41 miles long and varies in width from 34’ to 40’ curb-to-curb with sidewalks on both sides.



The current speed limit within the Corridor is 30 mph. The road is paved with asphalt which is in poor to good condition. Parallel parking is permitted along both sides of the majority of the corridor. In the areas where parking is not permitted, the entire pavement width is occupied by traveled lanes or striped for no parking or vehicular travel. The properties that front on Park Avenue along the Corridor consist of municipal, commercial, residential, houses of worship and public uses. Some of the many municipal and public uses include the High/Middle School (situated at the west end of the corridor), municipal building, library, fire department, police department, two athletic fields, the United States Post Office and the NJ Transit Park Ridge Train Station (situated at the east end of the corridor). In total, 30 driveways and 5 stop controlled intersections are situated along the Corridor.

Data Analysis – StealthStat and Crash Data

The provided StealthStat Data was obtained by the Borough of Park Ridge Police Department over three separate study periods. Analysis of the data by the Police Department indicated an approximate average daily traffic volume of 11,000 vehicles per day and 85th percentile speed of 30 mph. Our independent review of the raw StealthStat data confirmed the findings of the Police Department and also confirmed a 50th percentile speed of 25 mph which is required for additional analysis indicated later in this report. Vehicle Crash Data was also provided which indicated a total of 31 vehicle crashes between August 1, 2016 and September 11, 2017 and Pedestrian Crash Data from December 5, 2013 and February 8, 2018 indicated a total six (6) injuries via five (5) crashes with two (2) of those injuries resulting in fatalities.

FHWA Methods and Practices for Setting Speed Limits

The Federal Highway Administration issued the Methods and Practices for Setting Speed Limits: Informational Report as a guide on how to best approach establishing speed limits. Following are our analysis of two of the recommended methods and our findings regarding same.

Engineering Approach - “Operating Speed Method”

The FHWA “Operating Speed Method”, recommends the use of the 85th percentile speed to establish the first approximation of the speed limit. The first approximation should then be further evaluated based on engineering and traffic investigation. The final speed should take into account adjustments for crash data, narrow roadway pavement and high driveway density among other considerations. Accordingly, the 30 mph 85th percentile speed determined by the StealthStat data is appropriate for the corridor as a first approximation. However, further consideration must be applied including, most importantly, crash data. Our subsequent analysis of the speed limit using USLIMITS 2.0 takes into consideration the crash data, high driveway density and traffic volume to determine a more appropriate speed limit for the Corridor.

FHWA Expert System - USLIMITS 2.0

Information from the Visual Inspection and data contained within the StealthStat Reports, as well as the Vehicle and Pedestrian Crash Data were extrapolated and entered into USLIMITS 2.0 (<https://safety.fhwa.dot.gov/uslimits/>) “which is a web based tool designed [by the Federal Highway Administration] to help practitioners set reasonable, safe, and consistent speed limits for specific segments of roads”.

The results of the USLIMITS 2.0 analysis indicated the crash rate for the Corridor is 1,738 per 100 Million Vehicle Miles which is nearly four times greater than the critical rate of 468 for similar roads. Additionally, the injury crash rate for the Corridor is 168 per 100 Million Vehicle Miles which exceeds the average injury crash rate of 73 for similar roads by more than 30 percent but does not exceed the critical rate of 207 for similar roads. Briefly stated,

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ENGINEERING ASSOCIATES

vehicle crash rates and injury crash rates are at levels far above that for similar roads which is indicative of unsafe conditions.

The USLIMITS 2.0 analysis also recommends "a comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out." However, it is our professional opinion that pursuing review of engineering and traffic control deficiencies is not appropriate at this time given the existing conditions of the Corridor. From an engineering perspective, the corridor is gradually sloped from Kinderkamack Road to Pascack Road with no apparent impacts to visibility from horizontal or vertical curves and therefore there are no apparent engineering design deficiencies that can readily be addressed. From a traffic control perspective, the implementation of traffic calming devices such as speed tables, roundabouts or lane narrowing would be detrimental to emergency services response times as well as eliminating parking spaces which would be detrimental to businesses and municipal services in the area which rely on the street parking. Further, traffic calming measures would not be appropriate on this route as the Corridor is a vital access between the east and west sides of the Borough and implementing same would likely disrupt the free flow of traffic in the area.

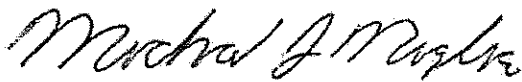
Based on these findings, the USLIMITS 2.0 speed limit analysis resulted in a **recommended speed limit of 25 mph**. A copy of the results of the USLIMITS 2.0 results are enclosed with this letter.

Conclusion

Based on our visual inspection of the corridor, review of the Borough of Park Ridge Police Department memo, speed survey data, vehicle crash and pedestrian crash data, in particular the two (2) fatalities on Father's Day of 2016, and the results of the FHWA USLIMITS 2.0 Speed Zoning Report, it is our professional opinion that reduction of the speed limit from 30 mph to 25 mph will create a safer environment for pedestrians, cyclists and vehicles traveling through the Corridor and therefore is clearly a warranted reduction. We recommend the County take immediate action to legally revise the posted speed limit from 30 mph to 25 mph.

Please do not hesitate to contact our office should you have any questions regarding this matter or require our services to assist in executing this change.

Very truly yours,
Neglia Engineering Associates

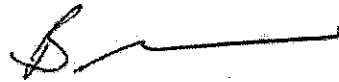


Michael J. Neglia, P.E., P.P., P.L.S.
Borough Engineer
Borough of Park Ridge

MJN/BAI/DCL
Enclosure

cc: Borough of Park Ridge Council (*via Borough Clerk*)
Julie Falkenstern, Business Administrator (*via e-mail*)
Magdalena Giandomenico, Acting Borough Clerk (*via e-mail*)
Police Chief Joseph Madden (*via regular mail*)
Lt. Peter Mauro (*via e-mail*)
Daniel C. Lee, P.E., C.M.E., Neglia Engineering (*via e-mail*)

Very truly yours,
Neglia Engineering Associates



Brian A. Intindola, P.E., C.M.E.
For the Borough Engineer
Borough of Park Ridge

USLIMITS2 Speed Zoning Report

Project Name: Speed Reduction Analysis - Park Avenue (Bergen CR 92), Park Ridge

Analyst: Neglia Engineering Associates

Date: 07-23-2018

Basic Project Information

Project Number: PKRDADM18.001
Route Name: Park Avenue (Bergen CR92)
From: Kinderkamack Road (Bergen CR 503)
To: Pascack Road (Bergen CR 61)
State: New Jersey
County: Bergen County
City: Park Ridge borough
Route Type: Road Section in Developed Area
Route Status: Existing

Roadway Information

Section Length: 0.41 mile(s)
Statutory Speed Limit: None
Existing Speed Limit: 30 mph
Adverse Alignment: No
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Commercial
Number of Driveways: 30
Number of Signals: 0

Crash Data Information

Crash Data Years: 1.08
Crash AADT: 11000 veh/day
Total Number of Crashes: 31
Total Number of Injury Crashes: 3
Section Crash Rate: 1738 per 100 MVM
Section Injury Crash Rate: 168 per 100 MVM
Crash Rate Average for Similar Roads: 247
Injury Rate Average for Similar Roads: 73

Traffic Information

85th Percentile Speed: 30 mph
50th Percentile Speed: 25 mph
AADT: 11000 veh/day
On Street Parking and Usage: High
Pedestrian / Bicyclist Activity: High

Project Description: Park Avenue speed limit analysis per request of the Borough of Park Ridge

Recommended Speed Limit:



Note: The section crash rate of 1738 per 100 MVM is above the critical rate (468). The injury crash rate for the section of 168 per 100 MVM is more than 30 percent above the average for similar roads (73) but below the critical rate (207). A comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out.

Disclaimer: The U.S. Government assumes no liability for the use of the information contained in this report. This report does not constitute a standard, specification, or regulation.

Equations Used in Crash Data Calculations

Exposure (M)

$$M = (\text{Section AADT} * 365 * \text{Section Length} * \text{Duration of Crash Data}) / (100000000)$$
$$M = (11000 * 365 * 0.41 * 1.08) / (100000000)$$
$$M = 0.0178$$

Crash Rate (Rc)

$$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Rc = (28.62 * 100000000) / (11000 * 365 * 0.41)$$
$$Rc = 1738.32 \text{ crashes per 100 MVM}$$

Injury Rate (Ri)

$$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$

$$Ri = (2.77 * 100000000) / (11000 * 365 * 0.41)$$

$$Ri = 168.22 \text{ injuries per 100 MVM}$$

Critical Crash Rate (Cc)

$$Cc = \text{Crash Average of Similar Sections} + 1.645 * (\text{Crash Average of Similar Sections} / \text{Exposure})^{(1/2)} + (1 / (2 * \text{Exposure}))$$

$$Cc = 246.62 + 1.645 * (246.62 / 0.0178)^{(1/2)} + (1 / (2 * 0.0178))$$

$$Cc = 468.11 \text{ crashes per 100 MVM}$$

Critical Injury Rate (Ic)

$$Ic = \text{Injury Crash Average of Similar Sections} + 1.645 * (\text{Injury Crash Average of Similar Sections} / \text{Exposure})^{(1/2)} + (1 / (2 * \text{Exposure}))$$

$$Ic = 73.14 + 1.645 * (73.14 / 0.0178)^{(1/2)} + (1 / (2 * 0.0178))$$

$$Ic = 206.53 \text{ injuries per 100 MVM}$$