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A. Safety Data from the Project Area

An analysis of crash history has been performed for the segment of the NYS Route 33 Kensington Expressway from High Street to East Ferry Street as well as intersections along Best Street with NYS Route 33 Westbound ramps, NYS Route 33 Eastbound ramps and West Parade Street / Herman Street to determine if results and trends identified in previous safety analysis are still valid.

The original safety analysis used for comparison was performed in 2016 in accordance with the Highway Design Manual Chapter 5 for the Project Scoping Report dated November 2017 (Highway Project P.I.N. 5512.52). The analysis included the NYS Route 33 mainline as well as adjacent local surface streets within the project area. The analysis considered crashes occurring during a 3-year period from August 1, 2013 to July 31, 2016.

An updated safety analysis was performed in August, 2022 to evaluate crashes that occurred during the 18-month period of September 1, 2018 to February 29, 2020 (pre-COVID-19). The updated analysis includes the NYS Route 33 mainline between High Street and East Ferry Street and the signalized intersections of Best Street with NYS Route 33 Eastbound and Westbound ramps and Best Street with West Parade Street / Herman Street.

The updated safety analysis results have been compared to the 2016 safety analysis results, and the findings are summarized below. Additional detail including tables and summaries are included in Section D: Comparison of the Updated Safety Review.

Crash Rates

The comparison of crash rates indicates that the segment of NYS Route 33 Eastbound and Westbound experienced higher crash rates during the more recent period. However, crash rates during both analysis periods were lower than Statewide average crash rates. Crash rates at the intersections of Best Street at NYS Route 33 Westbound ramps and Best Street at West Parade Street / Herman Street have remained fairly consistent during the two analysis periods. The crash rate at the Best Street intersection with NYS Route 33 Eastbound ramps has increased and is higher than the Statewide average during the more recent analysis period.

Crash Types

The comparison of crash types indicates that rear end, sideswipe, and fixed object are the predominant crash types along the NYS Route 33 mainline during both analysis periods. At the Best Street intersections, rear end and right angle are the predominant crash types during both analysis periods.

Crash Severity

The comparison of crash severity indicates that along the NYS Route 33 mainline, the percentage of crashes resulting in injury has decreased during the more recent analysis period. The more recent analysis period did include a fatality.

B. 2017 PSR Safety Section 2.3.1.8

2.3.1.8. Safety Considerations, Accident History, and Analysis (Analysis performed in 2016)

An accident analysis was performed in 2016 in accordance with the Highway Design Manual Chapter 5 for the project scoping report dated, November 2017 (Highway Project P.I.N. 5512.52). The analysis included the NYS Route 33 mainline as well as adjacent local surface streets within the project area. NYS DOT provided MV-104 crash reports for the time period of August 1, 2013 to July 31, 2016. The analysis included the following street limits:

- NYS Route 33 – High Street to the pedestrian overpass near Northland Avenue
- Best Street – Norway Park to West Parade Avenue
- Humboldt Parkway Northbound – Northampton Street to Northland Avenue
- Humboldt Parkway Southbound – Northampton Street to Northland Avenue

Approximately 179 crashes occurred within the project area during the 36-month period. Of those, 59 occurred on NYS 33 and associated ramps. The remainder occurred on the local street network.

2.3.1.8. (1) Route 33 (Kensington Expressway)

The accident rate for the segment of NYS Route 33 mainline was calculated to be 0.44 accidents per million vehicle miles (acc/mvm). This is less than the statewide average accident rate for similar facilities, which is 1.02 acc/mvm.

The MV-104 forms list overpasses and ramps as locations for crashes but often do not provide distances or direction from them. The NYS Route 33 mainline near Best Street had the highest incidence of crashes and the segment north of East Ferry Street was second highest. Eastbound (EB) and westbound (WB) lanes had approximately the same number of crashes at 25 and 26 respectively. Five crashes occurred on ramps. Crashes occurring in proximity to the signalized intersections with local streets were counted in the local street crashes. Three of the NYS Route 33 mainline crashes did not indicate which direction the vehicles were traveling on the expressway.

One crash resulted in a fatality. The crash occurred when a vehicle traveling the wrong way on Woodlawn Avenue crossed Humboldt Parkway, broke through the guiderail, and ended up on the median barrier in the expressway. Of the remaining crashes, 26 reported injuries and 32 were reported as property damage only.

Fixed object and rear end collisions were the most frequently reported types of crashes, both at 34%. Sideswipes account for 24% of the crashes. There were three right angle and one head-on crash noted. In those crashes, vehicles were traveling in the same direction when one of them lost control and changed orientation to broadside or reversed to the direction of travel. They are not typical of those classifications of crashes.

2.3.1.8. (2) Local Street Network

The number of crashes occurring at each intersection within the study area is summarized in Table 2.3.1.8-A. The intersection of East Ferry Street with Humboldt Parkway accounted for 60 of the 120 crashes reported on the local street network during the study period.

Exhibit – 2.3.1.8-A Local Street Crash Totals

	Number of Crashes	Percentage of Total
Total Crashes (Local Streets)	120	100%
Crashes at Intersections	106	88.3%
Humboldt at East Ferry Street	60	50.0%
Humboldt at East Utica Street	17	14.2%
Best Street at NYS 33 Ramps	10	8.3%
Non-Intersection	14	11.7%
Pedestrian	2	1.7%
Bicycle	1	0.8%

Right angle crashes were the most common intersection crash type with 60 reported during the study period. The East Ferry Street intersections were again highest with this crash type at 36 with East Utica Street intersections at a distant second with 8 right angle crashes. The second most common crash type was rear end. A summary of intersection crashes, by type, is included in Table 2.3.1.8-B.

**Exhibit - 2.3.1.8-B Local Street Crash Summary
Humboldt Parkway from Best Street to Northland Street**

Intersection	Signalized	All Types	Left Turn Sideswipe	Rear End	Sideswipe (same)	Left Turn Head-on	Right Angle	Right Turn Sideswipe	Right Turn Head-on	Fixed Object
Best Street at Norway Park	N	3		1			2			
Best Street at NY 33 WB Ramp	Y	8	2	1	1	2	1			1
Best Street at NY 33 EB Ramp	Y	2		1				1		
Best Street at West Parade Avenue	Y	3		1			1		1	
Humboldt Pkwy S at Northampton Street	Y	6		2			4			
Humboldt Pkwy N at Northampton Street	Y	2		2						
Humboldt Pkwy N at Girard Place	N	2					2			
Humboldt Pkwy S at East Utica Street	Y	12		3	3		6			
Humboldt Pkwy N at East Utica Street	Y	5		2	1		2			
Humboldt Pkwy S at East Ferry Street	Y	31	1	8	5	1	13	1	2	
Humboldt Pkwy N at East Ferry Street	Y	29	1	3	2		23			
Humboldt Pkwy S at Goulding Avenue	N	2		2						
Humboldt Pkwy S at Butler Avenue	N	2								2
Humboldt Pkwy N at Sidney Street	N	1		1						
Humboldt Pkwy S at Brunswick Boulevard	N	3		3						
Total		120	4	30	12	3	54	2	3	3

Key: Indicates Intersection(s) with highest number of crashes
 Indicates crash type with highest number of occurrences

Upon review of the collision diagram for East Ferry Street & Humboldt Parkway northbound (NB) (Appendix C), it is evident that the eastbound right-angle collisions with northbound traffic are the most

prevalent. This accounts for one third of the crashes at this intersection. Many of the MV-104 reports stated that both drivers claimed to have the green light right of way.

Similar data was found for the intersection of Humboldt Parkway southbound (SB) at East Utica Street. This intersection had 12 crashes with 6 of those being right angle (3 EB, 3 WB). The southbound side of Humboldt Parkway at Northampton Street also was higher than the northbound side, six versus two crashes.

The Humboldt Parkway intersections with East Ferry Street have the fifth and sixth highest AADT volumes of the intersections studied. They rank first and second for number of crashes per million entering vehicles.

Of the three Best Street intersections studied, the NYS 33 WB exit ramp intersection has the highest rate of crashes relative to traffic. This intersection is atypical in that it has Linden Park connected directly to Best Street immediately adjacent to the NYS 33 WB exit ramp. This street is one-way southbound and left turns onto Best Street are prohibited. No clusters are evident. The crash types were varied.

Calculated intersection crash rates and statewide average crash rates are summarized in Table 2.3.1.8-C.

**Exhibit - 2.3.1.8-C Local Street Intersection Crash Rates
 Humboldt Parkway from Best Street to E. Delevan Avenue**

Intersection	Crash Rate (Acc/MEV)	Statewide Average Crash Rate (Acc/MEV)	AADT
Best Street at NYS 33 WB Ramp	0.54	0.50	15,186
Best Street at NYS 33 EB Ramp	0.17	0.50	21,140
Best Street at West Parade Avenue	0.15	0.50	18,800
Humboldt Pkwy S at Northampton Street	1.33	0.50	4,125
Humboldt Pkwy N at Northampton Street	0.59	0.50	3,075
Humboldt Pkwy S at East Utica Street	1.27	0.50	9,375
Humboldt Pkwy N at East Utica Street	0.52	0.50	8,782
Humboldt Pkwy S at East Ferry Street	2.04	0.50	13,425
Humboldt Pkwy N at East Ferry Street	1.78	0.50	14,913

Key: Indicates Intersection(s) with highest crash rates
 Indicates intersection with highest traffic volume
X.XX Indicates intersections with crash rates higher than statewide average

The average intersection crash rate for state highways in New York is 0.50 accidents per million entering vehicles (Acc/MEV). While the study intersections are not on State highways, it is reasonable to use statewide average data in comparison for a four-legged signalized intersection with 1-3 lanes. Only two of the signalized intersections studied had crash rates lower than the statewide average rate. Humboldt Parkway SB at East Ferry Street had a crash rate that is four times higher than the statewide average rate. The East Ferry Street and East Utica Street intersections also have higher than average crash rates. The rate for the southbound intersection at Northampton Street would also be considered higher than average.

Linear crash rates were calculated along Humboldt Parkway northbound and southbound (Northampton Street to Northland Avenue). The Humboldt Parkway northbound crash rate was calculated at 9.23 accidents per million vehicle miles (Acc/MVM), while the southbound crash rate was calculated at 6.66

Acc/MVM. The segment rates include crashes occurring at intersections within the segment limits. The northbound and southbound calculated crash rates are higher than the statewide average for similar facilities of 4.77 Acc/MVM.

The analysis indicated that approximately 59% of crashes resulted in injury, which is a higher severity of crashes than would be expected from this type of street. This is a similar rate as reported in a March 2007 memo from the NYSDOT Region 5 Traffic Safety office for the same study area.

In conclusion, the findings of the 2016 crash analysis are consistent with those of previous studies conducted by NYSDOT in the last decade. East Ferry Street and East Utica Street intersections with Humboldt Parkway remain the areas with the highest crash occurrences. Past recommendations included changing signal timing and equipment and defining travel lanes with striping. Measures to improve safety will be investigated during the preliminary design phase.

C. 2022 Safety Assessment Update

The safety analysis for NYS Route 33 and the adjacent local streets has been updated to evaluate crashes that occurred during the 18-month period of September 1, 2018 to February 29, 2020 (pre-COVID-19). Pre-COVID-19 data was analyzed as it represents typical traffic operation through the project area. The updated analysis includes the NYS Route 33 mainline between High Street and East Ferry Street and the signalized intersections of Best Street with NYS Route 33 Eastbound and Westbound ramps and Best Street with West Parade Street / Herman Street. The updated safety analysis results have been compared to the 2016 safety analysis results for the segment of NYS Route 33 mainline between High Street and East Ferry Street and the three signalized intersections at Best Street only.

The updated safety analysis includes the following segment and intersections within the City of Buffalo:

- NYS Route 33 – High Street to East Ferry Street
- Best Street at NYS Route 33 WB ramp intersection
- Best Street at NYS Route 33 EB ramp intersection
- Best Street at West Parade Street / Herman Street intersection

Table 1 and Table 2 summarize the crash severity, calculated crash rates, and comparison to statewide average crash rates and summary of the type of accidents for the segment within the study area, respectively. Table 3 and Table 4 summarize the crash severity, calculated crash rates and comparison to statewide average crash rates, and a summary of the type of accidents for each intersection.

Table 1: Crash Severity and Crash Rates – Segments

Segment	Number of Crashes	PDO	Injury	Fatality	Crash Rate (Acc/MVM)	Statewide Average Crash Rate (Acc/MVM)
NYS Route 33 Eastbound: High Street to East Ferry Street	18	14	3	1	0.81	1.34
NYS Route 33 Westbound: East Ferry Street to High Street	22	12	10	0	0.97	1.34
Total	40	26	13	1		

Key: Calculated crash rate exceeds the statewide average crash rate
 Acc/MVM Accidents per Million Vehicle Miles
 PDO Property Damage Only

Note: Statewide Average Crash Rate data from NYSDOT's *Average Accident Rates for State Highways by Facility Type* (Data from September 1, 2017 to August 31, 2019) for Controlled Access Facility, Urban Function Class, Divided, 6 Lanes, All Types.

Table 2: Crash Type Summary – Segments

Intersection	All Types	Left Turn Sideswipe	Rear End	Sideswipe (same)	Left Turn Head-on	Right Angle	Right Turn Sideswipe	Head-on	Fixed Object
NYS Route 33 Eastbound: High Street to E Ferry Street	18	0	5	7	0	0	0	0	6
NYS Route 33 Westbound: East Ferry Street to High Street	22	0	9	8	0	0	0	0	5
Total	40	0	14	15	0	0	0	0	11

As summarized in Table 1, a total of 40 segment crashes occurred, with 26 (65%) resulting in property damage, 13 (33%) resulting in injury, and 1 (1%) resulting in fatality. The fatality involved a crash where a driver lost control and collided with the median. The crash was attributed to poor weather conditions.

As summarized in Table 2, the predominant NYS Route 33 segment crash types were sideswipe (15 total crashes) and rear end (14 total crashes).

Table 3: Crash Severity and Crash Rates – Intersections

Intersection	Number of Crashes	PDO	Injury	Fatality	Crash Rate (Acc/MEV)	Statewide Average Crash Rate (Acc/MEV)
Best Street at NYS 33 WB Ramp	5	3	2	0	0.53	0.56
Best Street at NYS 33 EB Ramp	8	6	2	0	0.69	0.56
Best Street at West Parade Street	1	1	0	0	0.09	0.56
Total	14	10	4	0		

Key: Calculated crash rate exceeds statewide average crash rate
 Acc/MEV Accidents per Million Entering Vehicles
 PDO Property Damage Only

Note: Statewide Average Crash Rate data from NYSDOT's *Average Accident Rates for State Highways by Facility Type* (Data from September 1, 2017 to August 31, 2019) for Urban Function Class, 4 Legged Intersections, Signal 1-4 Lanes, All Types.

Table 4: Crash Type Summary – Intersections

Intersection	Signalized	All Types	Left Turn Sideswipe	Rear End	Sideswipe (same)	Left Turn Head-on	Right Angle	Right Turn Sideswipe	Right Turn Head-on	Fixed Object
Best Street at NYS 33 WB Ramp	Y	5	0	2	0	1	1	0	0	1
Best Street at NYS 33 EB Ramp	Y	8	0	4	1	0	2	0	0	1
Best Street at West Parade Street	Y	1	0	0	1	0	0	0	0	0
Total		14	0	6	2	1	3	0	0	2

As summarized in Table 3, the safety analysis indicated that the intersection of Best Street at NYS Route 33 EB Ramp experienced a crash rate that is higher than the statewide average rate. A total of 14 crashes occurred at the three studied intersections, with 10 (71%) resulting in property damage and 4 (29%) resulting in injury. No fatalities were documented. The highest crash rate of 0.69 Acc/MEV was experienced at the Best Street and NYS 33 EB Ramp intersection.

As summarized in Table 4, the predominant intersection crash type is rear end, with 6 reported during the time period. The second-highest crash type is right angle, with 3 crashes reported during the study time period.

D. Comparison of the Updated Safety Review

A comparison of the updated crash data for the segment of NYS Route 33 from High Street to East Ferry Street was performed to determine if the findings of the 2016 Scoping Report safety analysis are still valid. The comparison includes the segment of NYS Route 33 (High Street to East Ferry Street) as well as the Best Street intersections with NYS Route 33 Eastbound ramps, NYS Route 33 Westbound ramps, and West Parade Street / Herman Street. The time period analyzed for the 2016 analysis was August 1, 2013 to July 31, 2016, and the time period analyzed for the 2022 analysis was September 1, 2018 to February 29, 2020 (pre-COVID-19).

Table 5, Table 6, and Table 7 compare the crash rate, crash types, and crash severity, respectively, for the segment of NY Route 33.

Table 5: Crash Rate Comparison – Segments

Segment	Analysis Year	Crash Rate (Acc/MVM)	Statewide Average Crash Rate (Acc/MVM)
NYS Route 33 Eastbound: High Street to East Ferry Street	2016	0.46	1.02
	2022	0.81	1.34
NYS Route 33 Westbound: East Ferry Street to High Street	2016	0.47	1.02
	2022	0.97	1.34

The comparison of crash rates indicates that the NYS Route 33 Eastbound and Westbound crash rates have increased since the 2016 analysis, to a rate of 0.81 and 0.97 Acc/MVM, respectively. However, crash rates are below the Statewide average crash rate for both analyzed time periods.

Table 6: Crash Type Comparison – Segments

Segment	Analysis Year	All Types	Left Turn Sideswipe	Rear End	Sideswipe (same)	Left Turn Head-on	Right Angle	Right Turn Sideswipe	Head-on	Fixed Object	All Types – Average Number of crashes per year
NYS Route 33 Eastbound: High Street to East Ferry Street	2016	25	0	10	6	0	2	0	0	7	8.3
	2022	18	0	5	7	0	0	0	0	6	12.0
NYS Route 33 Westbound: East Ferry Street to High Street	2016	26	0	8	7	0	0	0	1	10	8.7
	2022	22	0	9	8	0	0	0	0	5	14.7
Total	2016	51	0	18	13	0	2	0	1	17	17.0
	2022	40	0	14	15	0	0	0	0	11	26.7

The comparison of crash types indicates that rear end, sideswipe and fixed object crashes are the predominant types during both analysis periods. The small number of additional crash types documented in the 2016 analysis (right angle and head on) were not present in the updated crash analysis.

Table 7: Crash Severity Comparison – Segments

Segment	Analysis Year	Property Damage Only (PDO)	Injury	Fatality
NYS Route 33 Eastbound: High Street to East Ferry Street	2016	15 (60%)	10 (40%)	0
	2022	14 (78%)	3 (17%)	1 (5%)
NYS Route 33 Westbound: East Ferry Street to High Street	2016	13 (50%)	13 (50%)	0
	2022	12 (55%)	10 (45%)	0

The comparison of crash severity indicates that the percentage of crashes resulting in injury has decreased since the 2016 analysis. However, the more recent analysis time period included a crash resulting in fatality.

Table 8, and Table 9 compare the crash rate and crash types, respectively, for the intersections of Best Street with NYS Route 33 Westbound ramp, NYS Route 33 Eastbound ramp, and West Parade Street / Herman Street.

Table 8: Crash Rate Comparison – Intersections

Intersection	Analysis Year	Crash Rate (Acc/MEV)	Statewide Average Crash Rate (Acc/MEV)
Best Street at NYS 33 WB Ramp	2016	0.54	0.50
	2022	0.53	0.56
Best Street at NYS 33 EB Ramp	2016	0.17	0.50
	2022	0.69	0.56
Best Street at West Parade Street	2016	0.15	0.50
	2022	0.09	0.56

The comparison of intersection crash rates indicates that the Best Street intersections with NYS Route 33 Westbound ramp and West Parade Street / Herman Street have relatively consistent crash rates during the two analysis periods. The crash rate at the Best Street intersection with NYS Route 33 Eastbound ramp has increased, and is greater than the Statewide average crash rate during the more recent analysis period.

Table 9: Crash Type Comparison – Intersections

Segment	Analysis Year	All Types	Left Turn Sideswipe	Rear End	Sideswipe (same)	Left Turn Head-on	Right Angle	Right Turn Sideswipe	Head-on	Fixed Object	All Types – Average Number of crashes per year
Best Street at NYS Route 33 Westbound Ramp	2016	8	2	1	1	2	1	0	0	1	2.7
	2022	5	0	2	0	1	1	0	0	1	3.3
Best Street at NYS Route 33 Eastbound Ramp	2016	2	0	1	0	0	0	1	0	0	0.7
	2022	8	0	4	1	0	2	0	0	1	5.3
Best Street at West Parade Street	2016	3	0	1	0	0	1	0	1	0	1.0
	2022	1	0	0	1	0	0	0	0	0	0.7
Total	2016	13	2	3	1	2	2	1	1	1	4.3
	2022	14	0	6	2	1	3	0	0	2	9.3

The comparison of intersection crash types indicates that the predominant crash types of rear end and right angle are fairly consistent during the two analysis periods. The average number of crashes per year (all types) has increased at the Best Street intersections with NYS Route 33 Eastbound and Westbound ramps, and has decreased at the Best Street intersection with West Parade Street / Herman Street.