

Appendix B8

Concept 10

Kensington Removal Traffic Study

PIN 5512.52
Concept 10 Kensington Removal Traffic Study
January 22, 2024

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Executive Summary:

A supplemental traffic study has been performed to assess the NYS Route 33 Kensington Expressway Removal (Concept 10) with traffic redistribution onto other roadways such as interstates and arterials. Traffic forecasting and redistribution for this scenario primarily utilized the Greater Buffalo Niagara Regional Transportation Council's (GBNRTC) Regional Travel Demand Model. The analysis focused on the ETC+20 design year (Year 2047) for the AM and PM peak hour periods and compared traffic operation for the No-Build scenario to the Kensington Removal (Concept 10) scenario.

This supplemental study provides results for the Measures of Effectiveness parameters of Level of Service (LOS), average delay per vehicle in seconds, travel speeds, and vehicle queuing lengths at intersections. The traffic study assessed the original December 2022 Project Scoping Report (PSR) intersections and roadways which included 62 intersections and 36 roadway segments within the immediate project area. Supplemental analysis is provided for the expanded areawide traffic redistributions for an additional 35 intersections and 40 road segments beyond the original PSR study area.

The PSR provided a screening analysis which utilized the Measure of Effectiveness parameter of Volume to Capacity (V/C) ratio. The PSR analysis compared roadway V/C between the Existing Kensington Expressway and Concept 10 Kensington Expressway Removal scenario (identified as Concept 10 in the PSR). Redistributed traffic under Concept 10 would impact traffic volumes on the remaining NYS Route 33 segment and surrounding roadways, relative to their respective capacities. One method to evaluate the operation of a roadway is to determine the volume to capacity (V/C) ratio. A roadway with a V/C above 1.0 has exceeded the volume that it can manage and can be expected to operate poorly with reduced speeds and significant congestion. Using data obtained from the GBNRTC regional travel demand model, adjacent roadways would be most impacted by the redistribution of traffic due to the implementation of Concept 10 based on 2019 traffic conditions.

Supplemental study intersections (35) and roadway segments (40) were identified for data collection and eventual study. Three consecutive days of traffic field counts for each location were collected over two weeks on October 16, 17, and 18, 2023 and October 24, 25, and 26, 2023.

Concept 10 traffic volumes were developed based on the GBNRTC Regional Travel Demand Model percentage changes due to redistributed traffic for the Kensington Expressway Removal. Field counts were adjusted by location specific percentage change factors to develop the ETC+20 design year condition.

Traffic analysis for the No-Build versus Concept 10 Kensington Expressway Removal scenarios used Synchro Version 11 software for intersections and arterials, and Vissim11 software for freeway segments and ramps.

The original Kensington Expressway Vissim model (2022) was expanded to include expressway segments included in the supplemental traffic analysis in order to compare the No-Build and Kensington Removal scenarios.

From an operations perspective, Concept 10 would result in a major redistribution of approximately 75,000 average daily vehicles throughout the region. The reconstructed Humboldt Parkway would not be able to replace the capacity provided by the expressway and drivers would select alternate routes that would minimize their travel time to their destination under the revised network conditions. It would be difficult for the surrounding freeways, such as NYS Route 198 (Scajaquada Expressway), Interstate 190 (I-190), Interstate 90 (I-90), and arterial roads, such as Fillmore Avenue, Jefferson Avenue, Main Street, and Genesee Street, to accommodate the increase in traffic and delays without major capacity improvements, particularly on the impacted freeway segments and affected intersections which are typically the restricting points in the roadway network.

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1. Intersections

The Concept 10 traffic analysis results show significant degradation of overall Level of Service and delay at the following 42 intersections:

LOS Impacts (Major)

Intersection ID	Intersection Name	AM	PM
4	Humboldt Pkwy SB & Northampton St		X
5	Humboldt Pkwy NB & Northampton St		X
8	Humboldt Pkwy SB & E. Ferry S	X	X
9	Humboldt Pkwy NB & E. Ferry St	X	X
12	Jefferson Ave & Genesee St	X	X
15	Fillmore Ave & Genesee St	X	X
16	Fillmore Ave & Best St	X	X
17	Fillmore Ave & E. Park Drive		X
19	Fillmore Ave & Northampton St	X	X
21	Fillmore Ave & Urban St		X
22	Fillmore Ave & French St	X	X
23	Fillmore Ave & E. Utica St	X	X
24	Fillmore Ave & E. Ferry St	X	
25	Fillmore Ave & Northland Ave	X	X
26	Fillmore Ave & E. Delavan Ave	X	X
27	Humboldt Pkwy NB & E. Delavan Ave	X	X
28	Humboldt Pkwy SB & E. Delavan Ave	X	X
29	Jefferson Ave & E. Delavan Ave	X	X
32	Jefferson Ave & E. Ferry St	X	X
33	Jefferson Ave & E. Utica St	X	X
34	Jefferson Ave & Riley St	X	X
35	Jefferson Ave & Northampton St	X	X
37	Jefferson Ave & E. North St	X	X
38	Jefferson Ave & High St	X	X
42	Humboldt Pkwy SB & Glenwood Ave		X
43	Humboldt Pkwy SB & Riley St	X	X
44	Humboldt Pkwy SB & Kingsley St	X	X
45	Humboldt Pkwy SB & W. Parade Ave	X	
50	Humboldt Pkwy SB & Florida St	X	X
51	Humboldt Pkwy SB & Northland Ave	X	X
52	Humboldt Pkwy SB & Brunswick Blvd	X	X
60	Best St & Wohlers Ave		X
62	Jefferson Ave & Eaton St & Kingsley St	X	X
64	Elmwood Ave & Kenmore Ave		X
67	Delaware Ave & Kenmore Ave		X
68	Delaware Ave & W. Ferry St		X
69	W. Ferry St & Main St	X	
77	Grider St & Pembroke Ave & NY 33 EB Ramp	X	
78	Grider St & E. Delavan Ave		X
81	Main St & E. Delavan Ave	X	X
88	Bailey Ave & E. Ferry St		X
89	Bailey Ave & Genesee St		X

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Additionally, Concept 10 shows one letter grade degradation of overall LOS degradation at the following 31 intersections:

LOS Impacts (Minor)

Intersection ID	Intersection Name	AM	PM
3	Best St & Herman St & W. Parade Ave		X
4	Humboldt Pkwy SB & Northampton St	X	
5	Humboldt Pkwy NB & Northampton St	X	
6	Humboldt Pkwy SB & E. Utica St		X
7	Humboldt Pkwy NB & E. Utica St		X
13	Herman St & Genesee St		X
18	Fillmore Ave & MLK Park	X	
21	Fillmore Ave & Urban St	X	
24	Fillmore Ave & E. Ferry St		X
30	Jefferson Ave & Northland Ave	X	X
36	Jefferson Ave & Best St		X
42	Humboldt Pkwy SB & Glenwood Ave	X	
47	Humboldt Pkwy NB & Riley St	X	X
53	Humboldt Pkwy SB & Goulding Ave	X	X
54	Humboldt Pkwy NB & Sidney St		X
55	Humboldt Pkwy NB & Northland Ave	X	X
60	Best St & Wohlers Ave	X	
63	Elmwood Ave & Sheridan Dr		X
65	Elmwood Ave & W. Ferry St		X
69	W. Ferry St & Main St		X
72	Genesee St & Best St & Walden Ave		X
73	Fillmore Ave & Sycamore St	X	
74	Fillmore Ave & Broadway		X
75	Fillmore Ave & William St & Memorial Dr		X
76	Grider St & Warwick Ave & NY 33 WB Ramp	X	X
78	Grider St & E. Delavan Ave	X	
82	Sycamore St & Walden Ave	X	
87	Bailey Ave & E. Delavan Ave		X
89	Bailey Ave & Genesee St	X	
90	Bailey Ave & Walden Ave	X	X
94	Harlem Rd & Walden Ave	X	

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2. Road Segments

A traffic analysis was performed using Synchro software to compare the No-Build and Concept 10 scenarios for roadway corridor impacts due to increased redistributed traffic. Speeds, emissions, and fuel consumption were calculated for select roadways which were identified as primary diversion routes.

- Humboldt Pkwy NB & SB – Northampton St to Delaware Ave
- Jefferson Ave – Genesee St to E. Delavan Ave
- Fillmore Ave – Genesee St to E. Delavan Ave
- Main St – E. Ferry to Kensington Ave
- Genesee St – Jefferson Ave to Best St
- Bailey Ave – William St to Delavan Ave

The analysis of segment travel speed, emission and fuel usage indicates that corridors closest to the project area, including Humboldt Parkway NB and SB, Jefferson Avenue, Fillmore Avenue, and Genesee Street are expected to experience reductions in travel speed and increased vehicle emission and fuel usage as a result of the Kensington Expressway removal.

The AM peak travel speeds along the Humboldt Parkway NB and SB corridors would decrease as much as 85.2% to an average of 1.3 mph. Travel speeds along the Jefferson Avenue, Fillmore Avenue, Main Street, Genesee Street, and Bailey Avenue corridors would decrease from 1.3% to as much as 86.1%. The corresponding total peak hour delay time per roadway would increase from 63 hours to 2,163 hours for the study roadways as noted in Table 7-1 of the study.

The PM peak travel speeds along the Humboldt Parkway NB and SB corridors would decrease as much as 82.2% to an average of 0.8 mph. Travel speeds along the Jefferson Avenue, Fillmore Avenue, Main Street, Genesee Street, and Bailey Avenue corridors would decrease from 5.6% to as much as 92.0%. The corresponding total peak hour delay time per roadway would increase from 224 hours to 2,894 hours for the study roadways as noted in Table 7-2 of the study.

Delays and operating speeds would be impacted by implementing Concept 10. The greatest impacts can be expected in the immediate project area and adjacent corridors including Humboldt Parkway NB & SB, Fillmore Avenue, Jefferson Avenue, Main Street, Genesee Street, and Bailey Avenue. The local street network and intersections would not operate at an acceptable LOS and would not be able to adequately accommodate the volume of redistributed traffic from the Kensington Expressway.

3. Freeways

The Concept 10 traffic model predicts that vehicles would experience increased density volumes and lower speeds on already near-capacity roadways and ramps. Significant degradation of LOS and vehicle speed is expected at:

- NYS Route 198 Eastbound between Parkside and NYS Route 33,
- I-90 Eastbound between I-190 and NYS Route 33,
- I-90 Westbound between Cleveland and Walden,
- I-90 Eastbound between William and Walden,
- I-190 Northbound between Route 5 Skyway and Route 198,
- I-190 Eastbound between Michigan and Ogden,
- I-90 Westbound Ramp to NYS Route 33 Westbound, and
- I-190 Eastbound between NYS Route 198 and the Peace Bridge

Other segments and ramps are projected to experience increased density, degraded LOS, or reduced vehicle speed.

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4. Additional Considerations

The traffic study also considered proposed capital projects involving road diets and installation of bicycle lanes, safety, crash history, and air quality impacts as they relate to Concept 10.

- **Road Diets & Bicycle Lanes**
Roadways are programmed for road diets and/or bike lane additions in accordance with the Bike Buffalo Niagara Regional Bicycle Master Plan and the GBNRTC 2023-2027 Transportation Improvement Program (TIP). These projects were incorporated into the traffic modeling and further reduce the number of lanes and capacity of the affected roadways for vehicular traffic.
- **Pedestrian & Bicyclists Safety**
An advantage of accommodating regional traffic movements on an expressway is that direct conflicts with pedestrians and bicyclists are avoided. Pushing traffic flows onto local streets that are also used by pedestrians and bicyclists would increase the number of crashes, injuries and fatalities affecting these vulnerable road users. Further, adding traffic to surface roads conflicts with future local and regional plans.
- **I-90 / Route 33 Crash History**
NYSDOT's Crash Location and Engineering Analysis Repository (CLEAR) safety management system was used to collect safety data for the NY 33 & I-90 interchange. The area includes the full interchange and ramps plus I-90 up to Cleveland Dr where it begins to split to I-290. A total of 460 crashes occurred during the most recent 3-year study period. This already problematic interchange would likely see increases in the number of crashes, injuries, and fatalities due to additional redistributed volumes.
- **Regional Air Quality**
Air emissions were calculated using the Synchro microsimulation traffic model for adjacent arterial roadways to the project. The traffic simulation analysis for specific roadway segments and intersections with volume increases and delay also experience increased mobile source emissions. Vehicle emissions of CO, HC, and Nox under stop-and-go traffic conditions on local streets with traffic signals result in higher emissions than the same traffic travelling in free-flow conditions on an expressway.

5. Concept 10 Construction Cost Estimate

An opinion of probable construction cost is defined as a level one cost estimate to facilitate budgetary and feasibility determinations, based on historical information with adjustments made for specific project conditions. Preliminary cost estimates indicate that the Concept 10 cost including filling in, and costs associated with mitigation measures required to accommodate the traffic diversions would likely exceed twice the cost of the current project.

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1. Introduction:

In response to public comments to further investigate the complete removal of NYS Route 33 (Kensington Expressway) between NYS Route 198 and Downtown Buffalo, a supplemental traffic study has been performed to assess the Kensington Expressway Removal (Concept 10) with traffic redistribution onto other roadways such as interstates and arterials. Traffic forecasting and redistribution for this scenario utilized the Greater Buffalo Niagara Regional Transportation Council's (GBNRTC) Regional Travel Demand Model.

This traffic study assessed the original Project Scoping Report (PSR) intersections and roadways. Supplemental analysis is provided for the expanded areawide traffic redistributions for an additional 35 intersections and 40 road segments beyond the original PSR study area. The analysis focused on the ETC+20 design year (Year 2047) for the AM and PM peak hour periods and compared traffic operation for the No-Build scenario to the Kensington Removal scenario. The study presents a comparison of relevant metrics for the intersections, roadway segments, and freeways / ramps analyzed including Level of Service (LOS), delay, queue lengths, travel times / speeds, and emissions / energy usage.

2. Background:

The PSR provided a screening analysis which compared roadway Volume to Capacity (V/C) ratios between the Existing Kensington Expressway and Concept 10 Kensington Expressway Removal scenario (identified as Concept 10 in the PSR). Redistributed traffic under Concept 10 would impact traffic volumes on the remaining NYS Route 33 segment and surrounding roadways, relative to their respective capacities. One method to evaluate the operation of a roadway is to determine the volume to capacity (V/C) ratio. A roadway with a V/C above 1.0 has exceeded the volume that it can manage and can be expected to operate poorly with reduced speeds and significant congestion. Using data obtained from the GBNRTC regional travel demand model, the following roadways would be most impacted by the redistribution of traffic due to the implementation of Concept 10 based on 2019 traffic conditions. See Table 1 for V/C ratios

- NYS Route 33 Eastbound from NYS Route 198 to Grider Street: V/C ratio would increase over 33% in the PM peak hour with a V/C above 1.0.
- I-90 is already operating near or above a V/C ratio of 1.0; the V/C ratio would increase with implementation of Concept 10.
- Main Street Northbound from NYS Route 198 to East Ferry Street: V/C ratio would increase by 37% in the PM peak hour with a V/C approaching 1.0.

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Table 1 – PSR Concept 10 Volume to Capacity Ratio Summary (2019 Traffic Volumes)

Roadway	Segment		Direction	AM Peak Hour			PM Peak Hour		
	Start	End		Existing V/C ratio	Concept 10 V/C ratio	% Change	Existing V/C ratio	Concept 10 V/C ratio	% Change
NYS Route 33	NYS Route 198	Grider St	EB	0.93	1.27	37%	1.31	1.74	33%
	Grider St	NYS Route 198	WB	0.89	0.47	-47%	0.85	0.45	-47%
NYS Route 198	Main St	NYS Route 33	EB	0.51	0.67	31%	0.62	0.79	27%
	NYS Route 33	Main St	WB	1.56	1.51	-3%	1.57	1.45	-8%
	Parkside Ave	Main St	EB	0.87	1.16	33%	0.98	0.71	-28%
	Main St	Parkside Ave	WB	0.57	0.7	23%	1.45	1.11	-23%
I-90, NYS Thruway	Walden Ave	NYS Route 33	EB	0.93	0.99	6%	1.03	1.12	9%
	NYS Route 33	Walden Ave	WB	0.82	0.91	11%	1.09	1.16	6%
	William St	Walden Ave	EB	0.96	1.02	6%	0.96	1.06	10%
	Walden Ave	William St	WB	0.7	0.8	14%	1.09	1.18	8%
	I-190	William St	EB	0.9	0.96	7%	0.93	1.03	11%
	William St	I-190	WB	0.72	0.8	11%	1.06	1.15	8%
Main St	E. Ferry St	NYS Route 198	NB	0.45	0.6	33%	0.71	0.97	37%
	NYS Route 198	E. Ferry St	SB	0.66	1.04	58%	0.72	1.06	47%

*EB – Eastbound, WB – Westbound, NB – Northbound, SB - Southbound

3. Methodology:

The traffic analysis required a complex process that encompassed the greater Buffalo area at key intersections and roadway segments. The original PSR traffic study included 62 intersections and 36 roadway segments within the immediate project area. The supplemental traffic study expanded the traffic modeling to include 35 additional intersections and 40 additional roadway segments to account for regional traffic redistributions associated with Concept 10 Kensington Expressway Removal.

a) Traffic Count Data Collection:

Supplemental study intersections (35) and roadway segments (40) were identified for data collection and eventual study as shown in Tables 2 and 3. Three consecutive days of traffic field counts for each location were collected over two weeks on October 16, 17, and 18, 2023 and October 24, 25, and 26, 2023.

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Table 2 – Supplemental Traffic Analysis Intersection Turning Movement Counts (35 locations)	
1	Elmwood Ave & Sheridan Dr
2	Elmwood Ave & Kenmore Ave
3	Elmwood Ave & W. Ferry St
4	Delaware Ave & Sheridan Dr
5	Delaware Ave & Kenmore Ave
6	Delaware Ave & W. Ferry St
7	W. Ferry St & Main St
8	Jefferson Ave & Sycamore St
9	Jefferson Ave & Broadway
10	Genesee St & Best St
11	Fillmore Ave & Sycamore St
12	Fillmore Ave & Broadway
13	Fillmore Ave & William St
14	Grider St & Warwick Ave & NY Route 33 EB Ramp
15	Grider St & Pembroke Ave & Route 33 WB Ramp
16	Grider St & E Delavan Ave
17	Main St & Kenmore Ave
18	Main St & Kensington Ave
19	Main St & E. Delavan Ave
20	Best St & Sycamore St & Walden Ave
21	Bailey Ave & Sheridan Dr
22	Bailey Ave & NY Route 263
23	Bailey Ave & Main St
24	Bailey Ave & Kensington Ave
25	Bailey Ave & E. Delavan Ave
26	Bailey Ave & E. Ferry St
27	Bailey Ave & Genesee St
28	Bailey Ave & Walden Ave
29	Bailey Ave & Broadway
30	Bailey Ave & William St
31	Harlem Rd & Genesee St
32	Harlem Rd & Walden Ave
33	Harlem Rd & William St
34	William St & I-90 WB Ramps
35	William St & I-90 EB Ramps

*All intersection count locations were collected for 3 consecutive days during the AM (6:30-8:30) and PM (4:00-6:00) peak periods. Total of 6 hours of coverage per intersection peak period (2 hours/day x 3 days).

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Table 3 – Supplemental Traffic Analysis Road Segment ATR Counts (40 locations)	
A	Sycamore St (between Jefferson Ave & Fillmore Ave)
B	Broadway (between Jefferson Ave & Fillmore Ave)
C	William St (between Jefferson Ave & Fillmore Ave)
D	E. Delavan Ave (between Fillmore Ave & Grider St)
E	E. Ferry St (between Fillmore Ave & Grider St)
F	Walden Ave (between Fillmore Ave & Sycamore St)
G	Sycamore St (between Fillmore Ave & Walden Ave)
H	Genesee St (between Doat St & Bailey Ave)
I	Walden Ave (between Bailey Ave & Pine Ridge Rd)
J	Broadway (between Bailey Ave & Harlem Rd)
K	William St (Between Rossler Ave & Harlem Rd)
L	Elmwood Ave (between Kenmore Ave & Hertel Ave)
M	Delaware Ave (between Kenmore Ave & Hertel Ave)
N	Main St (between Amherst St & Hertel Ave)
O	I-190 (between Vulcan St & Ontario St)
P	I-190 (between Amherst St & NYS Route 198)
Q	NYS Route 198 (between Delaware Ave & Parkside Ave)
R	NYS Route 198 (between Parkside Ave & Main St)
S	NYS Route 198 (between Main St & NYS Route 33)
T	NYS Route 33 (between NYS Route 198 & Grider St)
U	I-290 (between NYS Route 263 & NYS Route 324)
V	I-90 (between Cleveland Dr & NYS Route 33)
W	I-90 (between NYS Route 33 & Walden Ave)
X	I-90 (between Walden Ave & William St)
Y	I-90 (between William St & I-190)
Z	Main St (between Ferry St & NYS Route 198)
AA	Fillmore Ave (between Kensington Ave & Ferry St)
BB	Bailey Ave (between Walden Ave & Broadway)
CC	I-90 WB off ramp to NYS Route 33 WB
DD	NYS Route 33 WB off ramp to I-90 WB
EE	I-90 EB off ramp to NYS Route 33WB
FF	NYS Route 33 WB off ramp to I-90 EB
GG	I-90 EB off ramp to NYS Route 33 EB
HH	NYS Route 33 EB off ramp to I-90 EB
II	I-90 WB off ramp to NYS Route 33 EB
JJ	NYS Route 33 EB off ramp to I-90 WB
KK	I-190 (between Michigan Ave & Hamburg St)
LL	I-190 (between Hamburg St & Smith St)
MM	I-190 (between Smith St & Clinton St)
NN	I-190 (between Clinton St & S. Ogden St)

*Automatic Traffic Recorder continuous counts were collected for a minimum 72-hour period during weekdays.

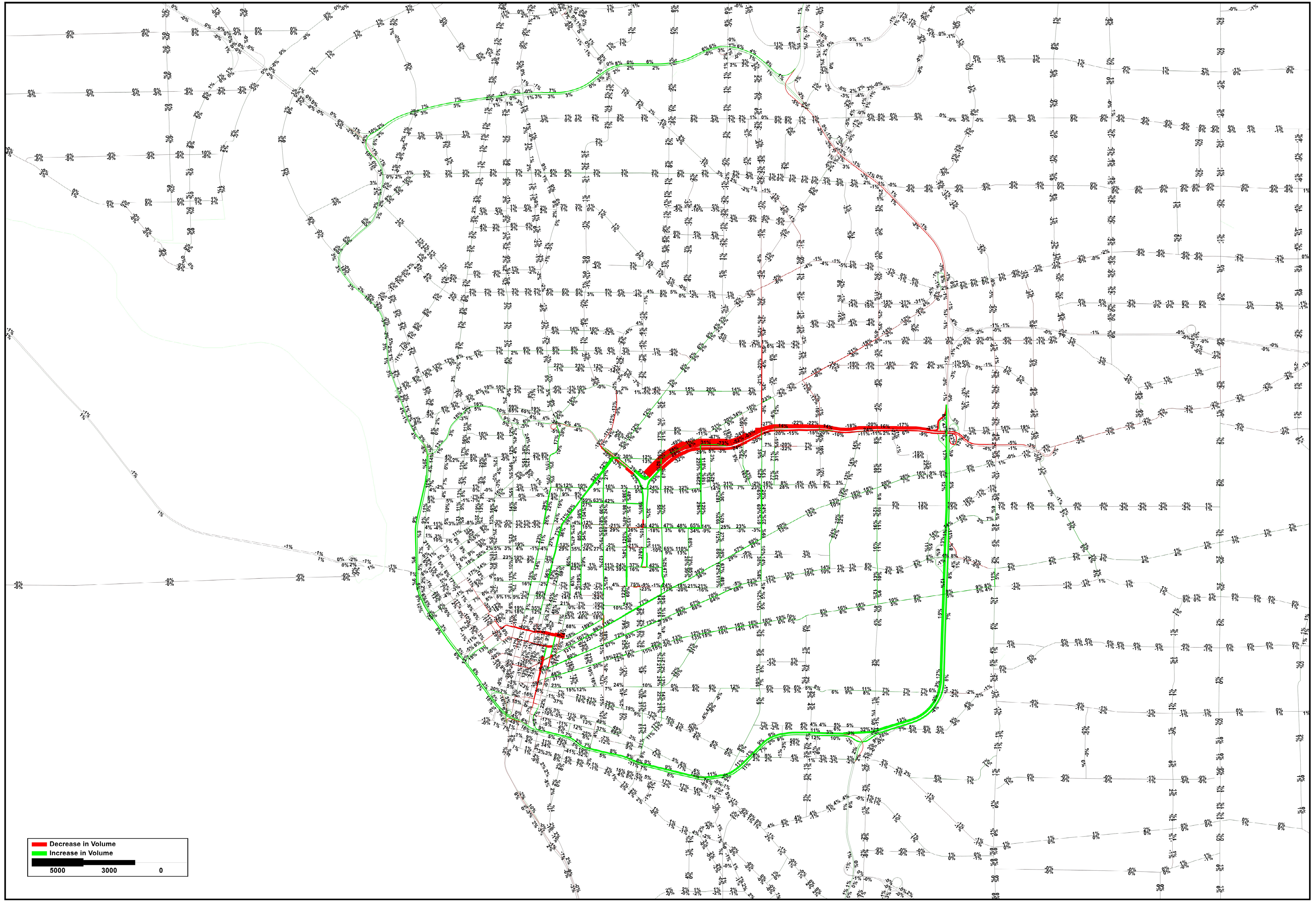
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b) Traffic Data Forecasting:

Concept 10 traffic volumes were developed based on the GBNRTC Regional Travel Demand Model (TDM) percentage changes due to redistributed traffic for the Kensington Expressway Removal scenario. Figures 1-1 and 1-2 show GBNRTC volume percentage changes for AM and PM peaks. Field counts were adjusted by location-specific percentage change factors to develop the ETC+20 design year condition as shown in Appendix A-1 through A-6 for the AM and PM peak hours

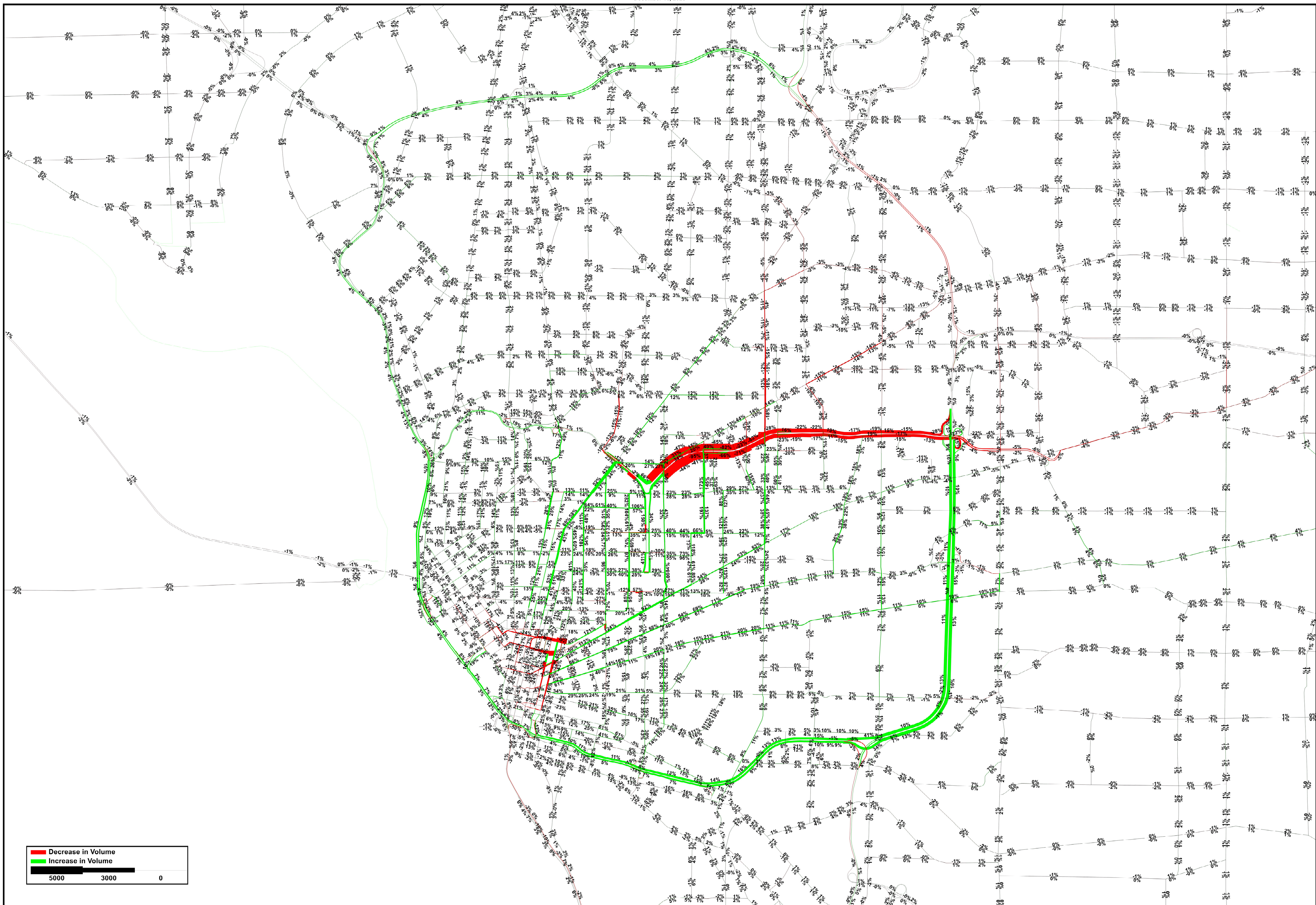
The GBNRTC's TDM used for Concept 10 shows an increase in vehicles in the peak hours as shown in Appendix A-1 through A-6 which will divert to the Humboldt Parkway NB and SB corridors, resulting in near gridlock conditions at the signalized intersections of E. Ferry Street, E. Utica Street, and Northampton Street. Recognizing that under these conditions drivers may choose alternate routes in the immediate project area, a modified traffic distribution scenario was developed that assumed 1,500 vehicles would be the maximum capacity before drivers would divert from the Humboldt NB and SB corridors to the nearest parallel arterial.

Figures 2-1, 2-2, and 2-3 show AM peak hour localized traffic distribution volumes at Humboldt Parkway and adjacent roadways. Figures 2-4, 2-5, and 2-6 shows PM peak hour localized traffic redistribution volumes. In the northbound direction, traffic was diverted using Northampton Street and Fillmore Street. In the southbound direction, traffic was diverted using E. Delavan Avenue, Jefferson Avenue, and Fillmore Street.



RT 33 Analysis
Alternative 4 - Full Expressway Removal between RT 198 and Downtown
Percent Change in AM Peak Period Volume
GBNRTC 2045 Forecast Model
Prepared August 2022

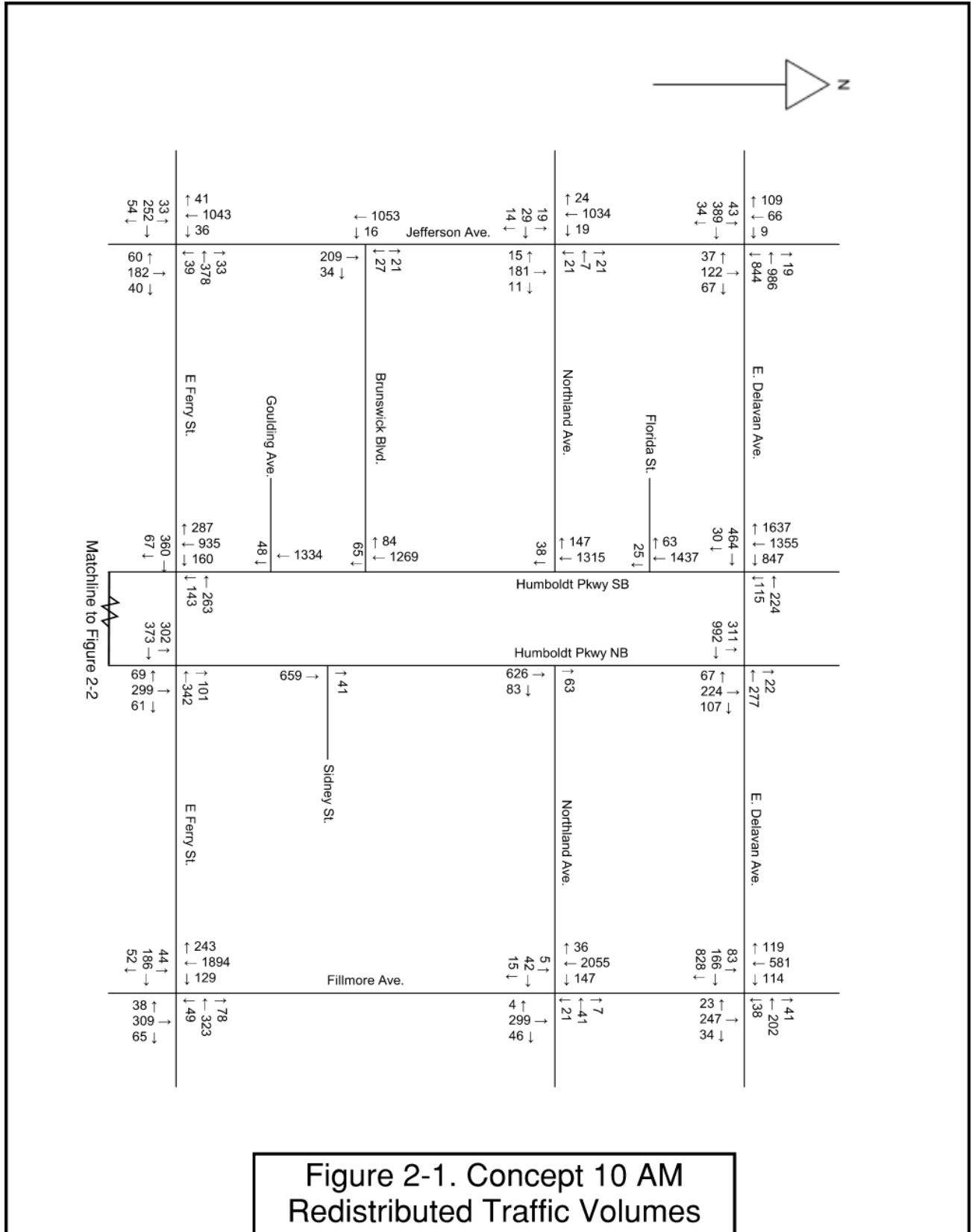
Figure 1-1. GBNRTC Volume
Percent Changes AM Peak



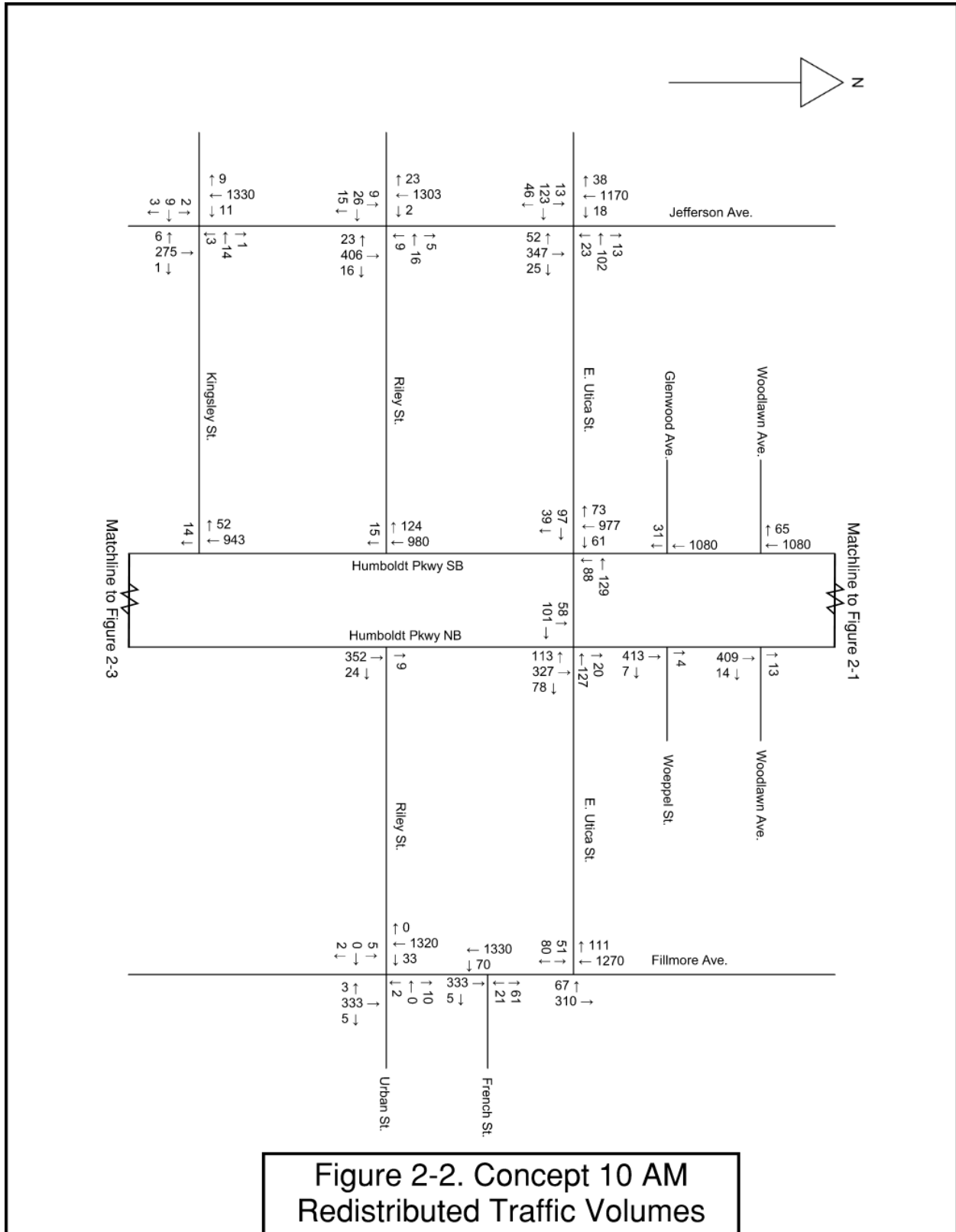
RT 33 Analysis
Alternative 4 - Full Expressway Removal between RT 198 and Downtown
Percent Change in PM Peak Period Volume
GBNRTC 2045 Forecast Model
Prepared August 2022

Figure 1-2. GBNRTC Volume
Percent Changes PM Peak

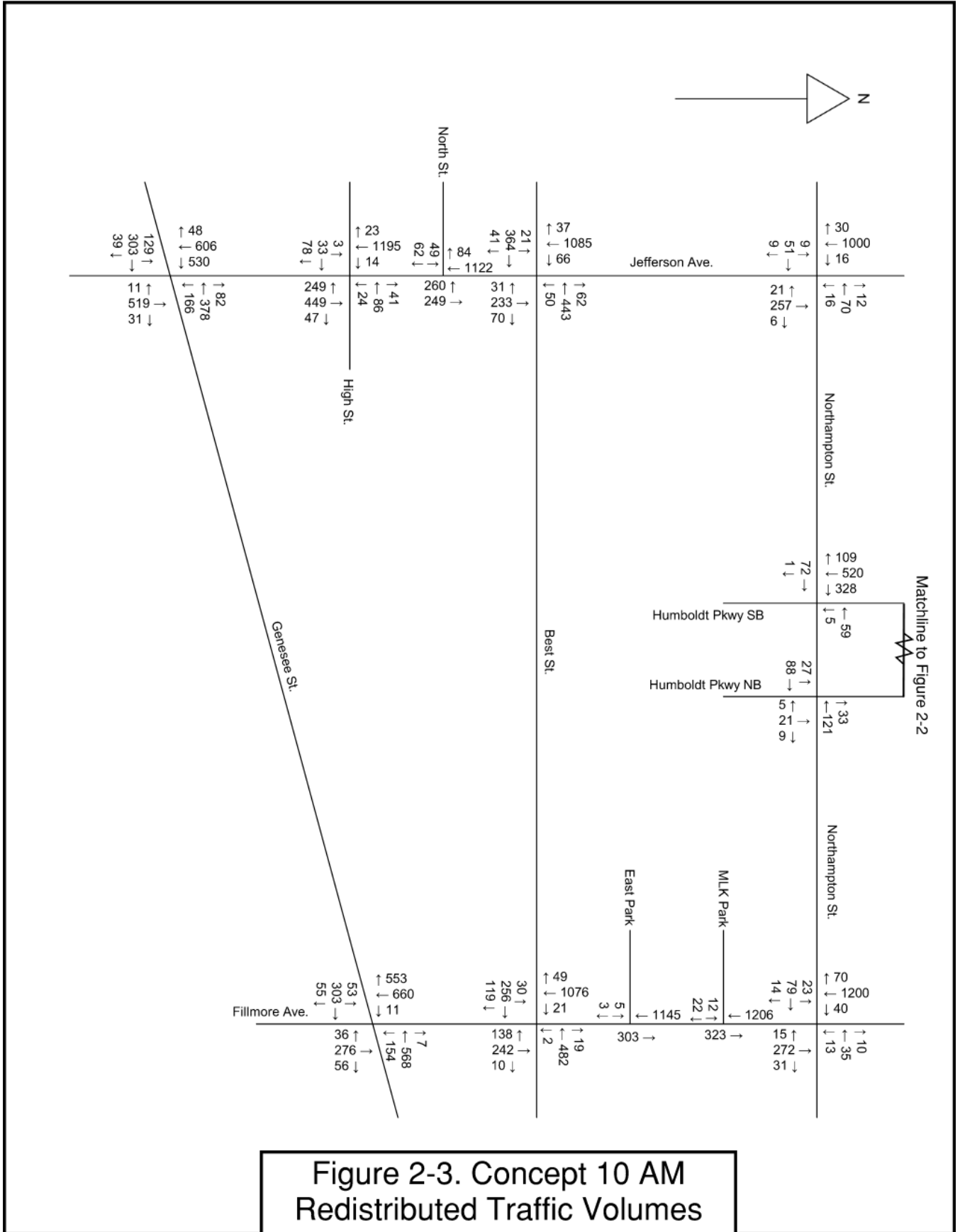
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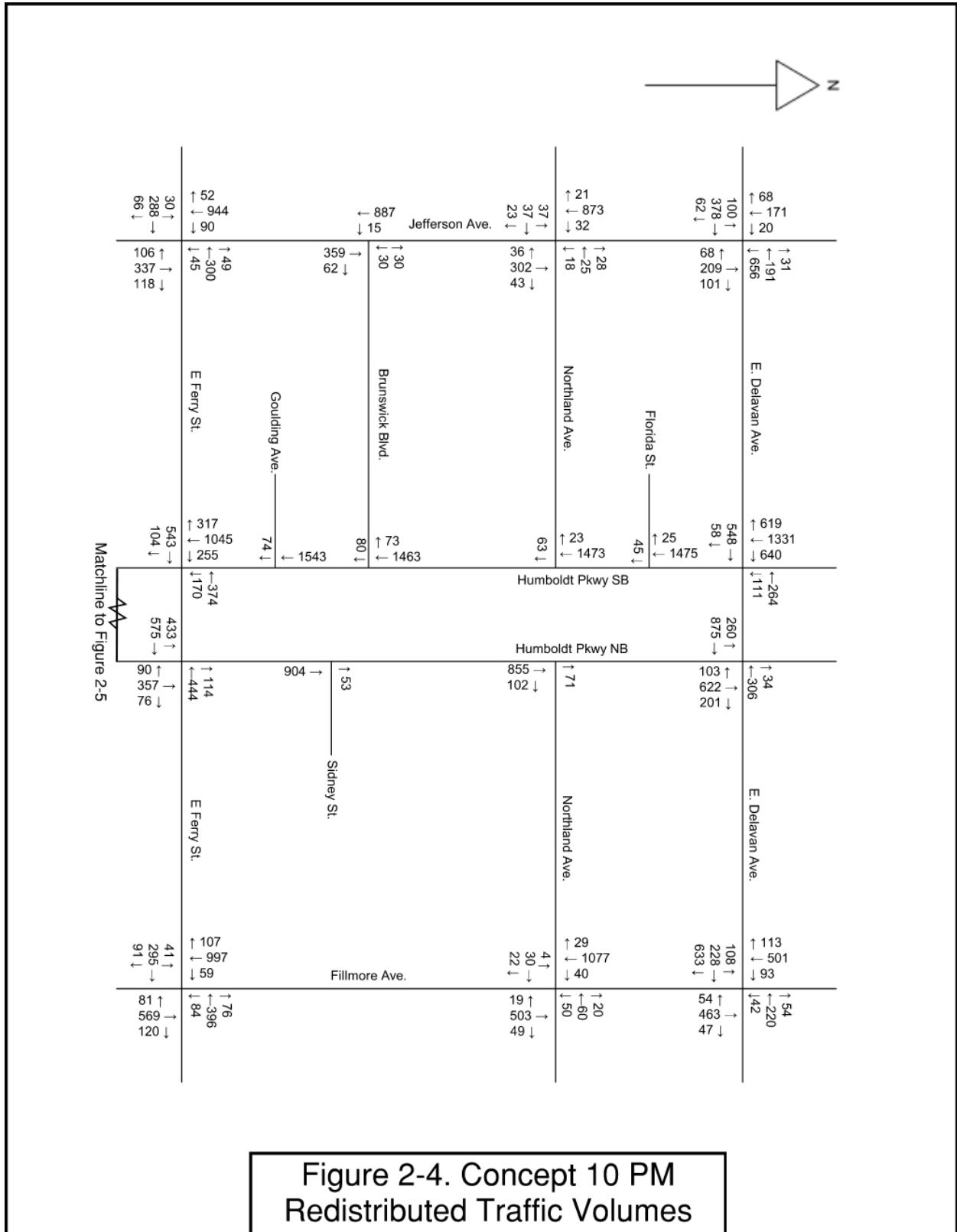


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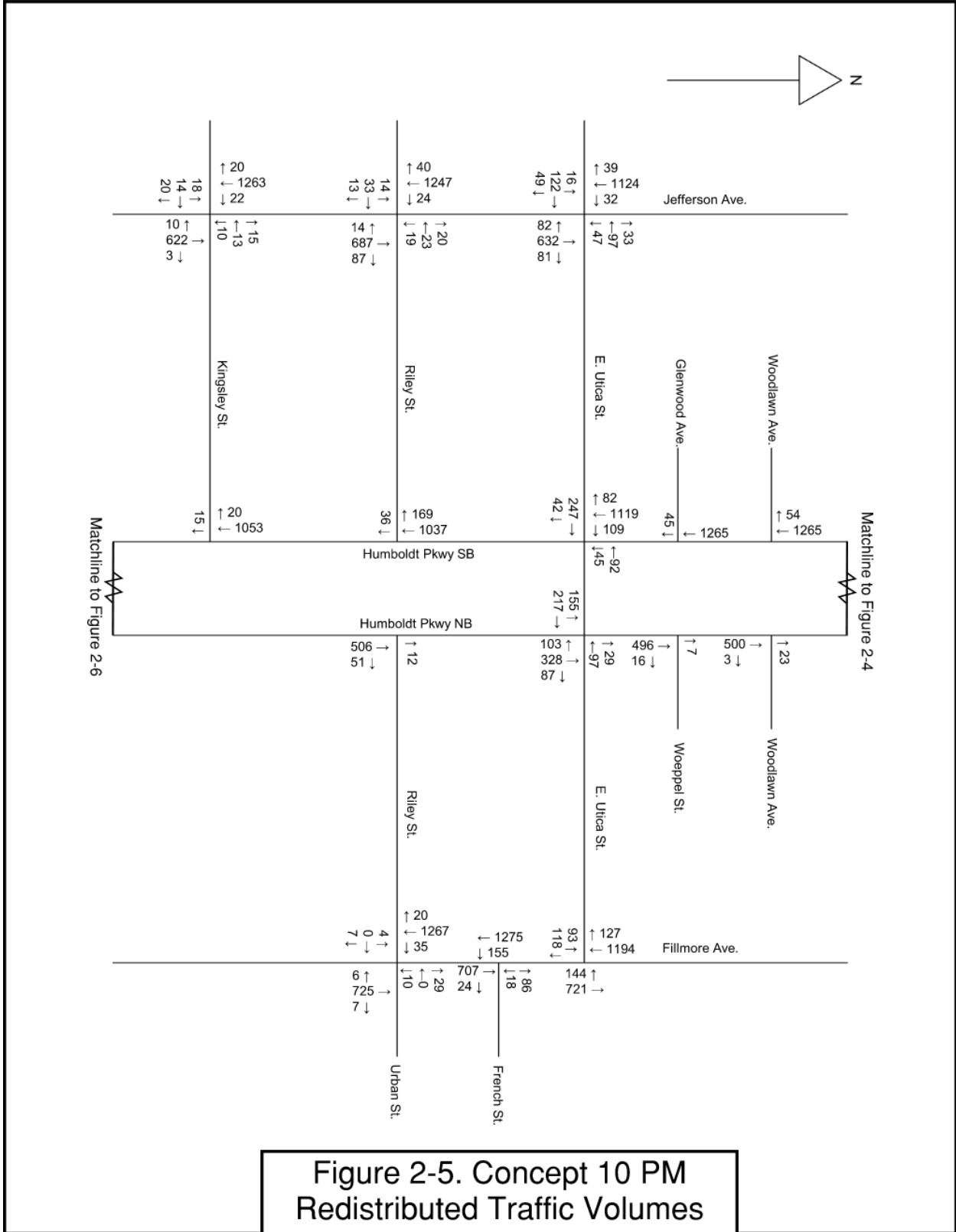
**Figure 2-3. Concept 10 AM
 Redistributed Traffic Volumes**

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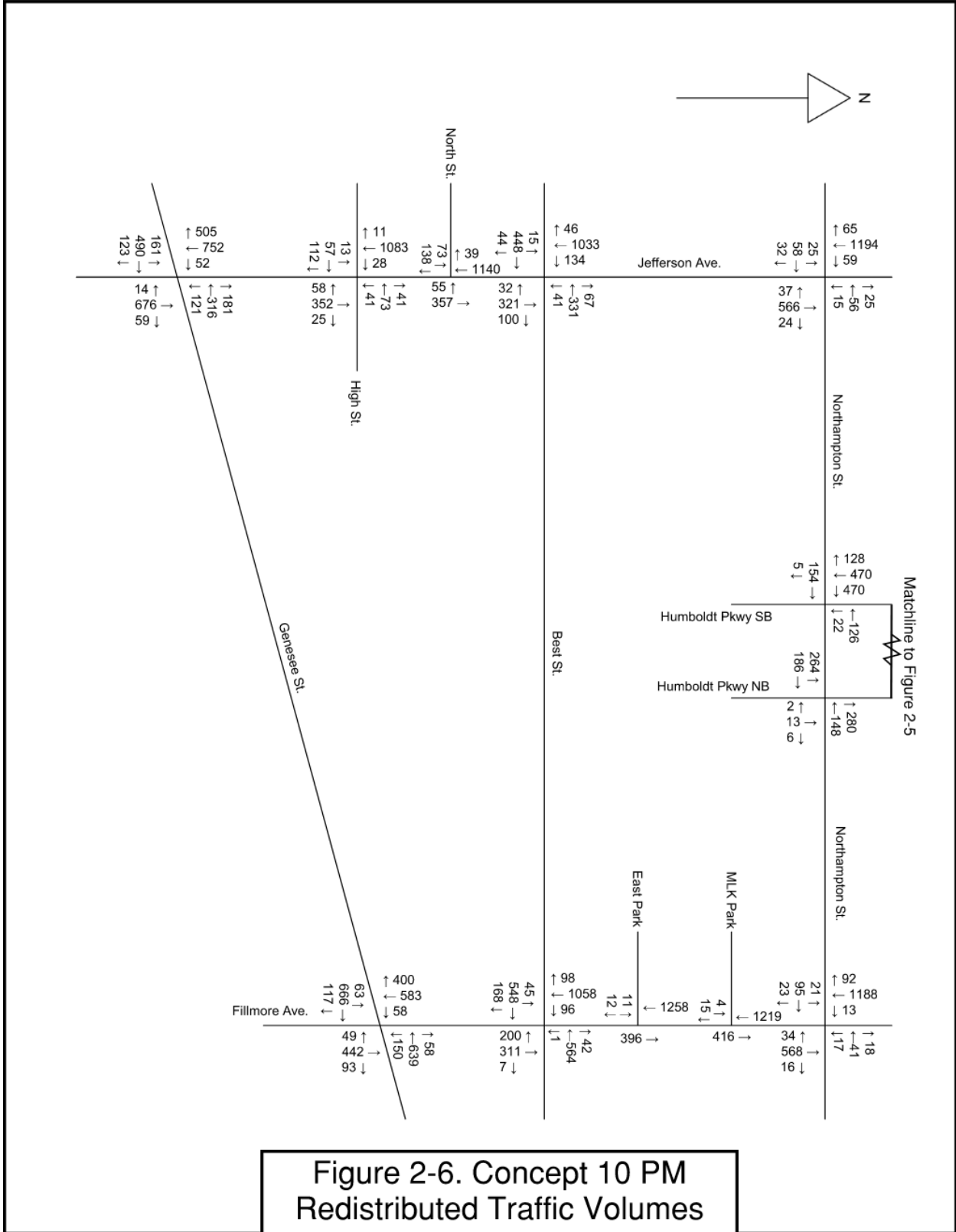


**Figure 2-4. Concept 10 PM
Redistributed Traffic Volumes**

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**Figure 2-6. Concept 10 PM
Redistributed Traffic Volumes**

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c) Traffic Analysis:

Traffic analysis for the No-Build versus Concept 10 Kensington Expressway Removal scenarios used Synchro Version 11 software for intersections and arterials, and Vissim11 software for freeway segments and ramps. The original Synchro traffic model with 62 intersections was expanded to include the 35 supplemental intersections.

The original Kensington Expressway Vissim model (2022) was expanded to add expressway segments I-190, I-90, I-290, and Rt. 198 included in the supplemental traffic analysis in order to compare the No-Build and Kensington Removal scenarios. A Vissim model prepared for NYSDOT's Skyway Removal project was reviewed for consistency.

d) Traffic Findings:

Traffic operation is evaluated and reported using Level of Service (LOS), which is an indication of how an intersection operates and the amount of delay a driver is likely to experience. LOS is reported using six letters ranging from "A" to "F" that correspond with the average delay that a vehicle is expected to experience while completing a turning movement at an intersection. LOS "A" indicates nearly free-flow operation with minimal delay, while LOS "F" indicates significant congestion and delay. Typically, a LOS between "A" and "D" for an overall intersection or individual approach is considered acceptable. A summary of LOS and corresponding delay for signalized and unsignalized intersections is provided in Table 4.

Table 4 - Intersection Level of Service Criteria

Level of Service	Signalized Intersection Control Delay per Vehicle (seconds)	Unsignalized Intersection Control Delay per Vehicle (seconds)
A	< 10	< 10
B	10 to 20	10 to 15
C	20 to 35	15 to 25
D	35 to 55	25 to 35
E	55 to 80	35 to 50
F	> 80	> 50

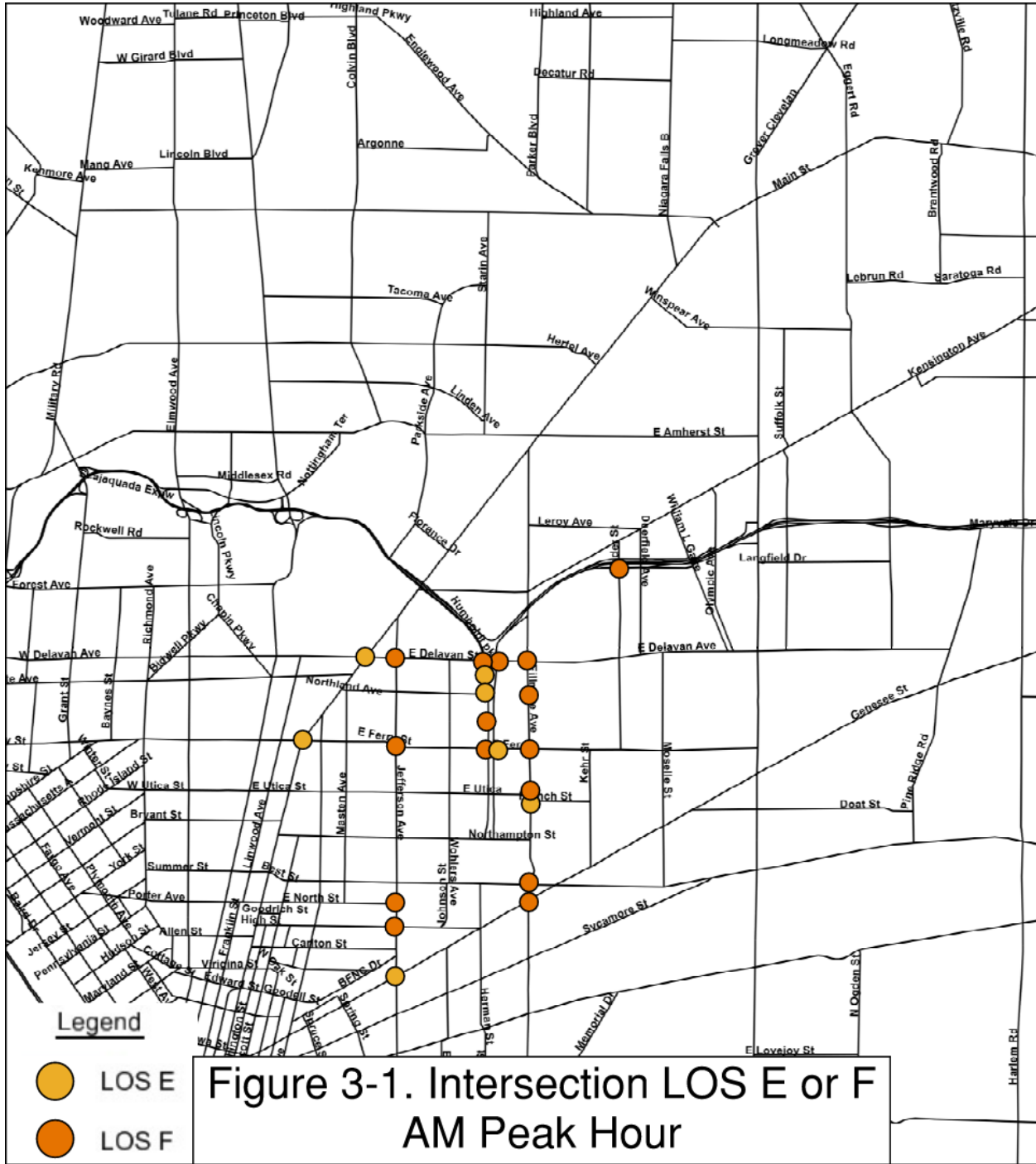
From an operations perspective, Concept 10 would result in a major redistribution of approximately 75,000 average daily vehicles throughout the region. The reconstructed Humboldt Parkway would not be able to replace the capacity provided by the expressway and drivers would select alternate routes that would minimize their travel time to their destination under the revised network conditions. It would be difficult for the surrounding freeways, such as NYS Route 198 (Scajaguada Expressway), Interstate 190 (I-190), Interstate 90 (I-90), and arterial roads, such as Fillmore Avenue, Jefferson Avenue, Main Street, and Genesee Street, to accommodate the increase in traffic and delays without major capacity improvements, particularly on the impacted freeway segments and affected intersections which are typically the restricting points in the roadway network.

1. Intersections

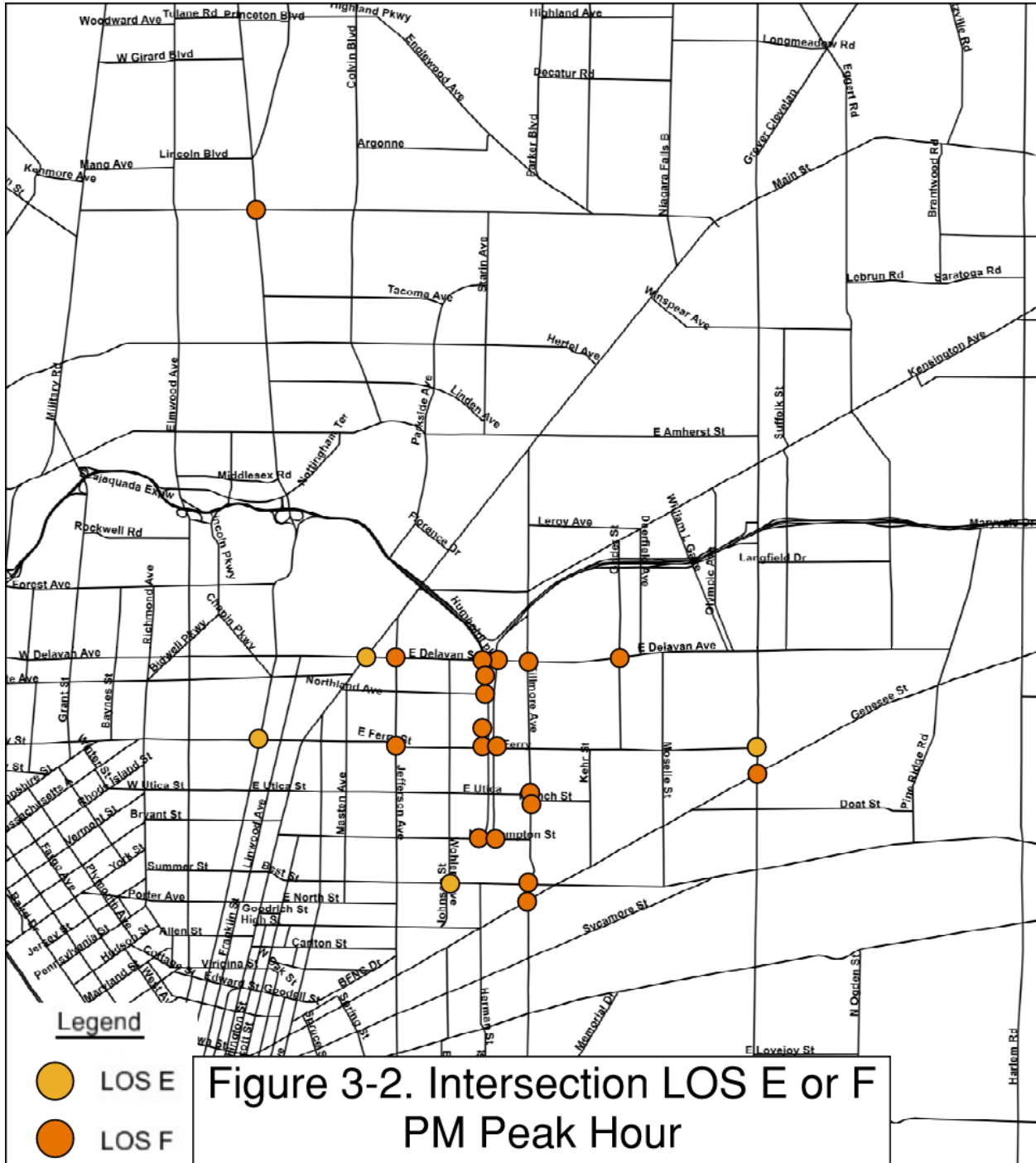
The full traffic analysis results (LOS, delay, and queue lengths) for intersections analyzed for the No-Build versus Concept 10 scenarios are documented in Appendix A-7.

The Concept 10 results show significant degradation of overall intersection Level of Service and delay at the following 42 intersections (Appendix A-7). 23 of the 42 intersections degrade to LOS of E or F with significant congestion and delay as shown in Figure 3-1 (AM peak) and 3-2 (PM peak).

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Tables 5-1 and 5-2 summarize intersections with major and minor LOS impacts for Concept 10.

42 intersections have major degradation of overall operations defined as multiple LOS letter grade change, or overall letter grade change with 20 seconds or greater increased delay.

Table 5-1 – LOS Impacts (Major)

Intersection ID	Intersection Name	AM	PM
4	Humboldt Pkwy SB & Northampton St		X
5	Humboldt Pkwy NB & Northampton St		X
8	Humboldt Pkwy SB & E. Ferry S	X	X
9	Humboldt Pkwy NB & E. Ferry St	X	X
12	Jefferson Ave & Genesee St	X	X
15	Fillmore Ave & Genesee St	X	X
16	Fillmore Ave & Best St	X	X
17	Fillmore Ave & E. Park Drive		X
19	Fillmore Ave & Northampton St	X	X
21	Fillmore Ave & Urban St		X
22	Fillmore Ave & French St	X	X
23	Fillmore Ave & E. Utica St	X	X
24	Fillmore Ave & E. Ferry St	X	X
25	Fillmore Ave & Northland Ave	X	X
26	Fillmore Ave & E. Delavan Ave	X	X
27	Humboldt Pkwy NB & E. Delavan Ave	X	X
28	Humboldt Pkwy SB & E. Delavan Ave	X	X
29	Jefferson Ave & E. Delavan Ave	X	X
32	Jefferson Ave & E. Ferry St	X	X
33	Jefferson Ave & E. Utica St	X	X
34	Jefferson Ave & Riley St	X	X
35	Jefferson Ave & Northampton St	X	X
37	Jefferson Ave & E. North St	X	X
38	Jefferson Ave & High St	X	X
42	Humboldt Pkwy SB & Glenwood Ave		X
43	Humboldt Pkwy SB & Riley St	X	X
44	Humboldt Pkwy SB & Kingsley St	X	X
45	Humboldt Pkwy SB & W. Parade Ave	X	
50	Humboldt Pkwy SB & Florida St	X	X
51	Humboldt Pkwy SB & Northland Ave	X	X
52	Humboldt Pkwy SB & Brunswick Blvd	X	X
60	Best St & Wohlers Ave		X
62	Jefferson Ave & Eaton St & Kingsley St	X	X
64	Elmwood Ave & Kenmore Ave		X
67	Delaware Ave & Kenmore Ave		X
68	Delaware Ave & W. Ferry St		X
69	W. Ferry St & Main St	X	
77	Grider St & Pembroke Ave & NY 33 EB Ramp	X	
78	Grider St & E. Delavan Ave		X
81	Main St & E. Delavan Ave	X	X
88	Bailey Ave & E. Ferry St		X
89	Bailey Ave & Genesee St		X

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Additionally, Concept 10 shows 31 intersections with minor degradation of overall operations defined as one LOS letter grade change but less than 20 seconds increased delay.

Table 5-2 – LOS Impacts (Minor)

Intersection ID	Intersection Name	AM	PM
3	Best St & Herman St & W. Parade Ave		X
4	Humboldt Pkwy SB & Northampton St	X	
5	Humboldt Pkwy NB & Northampton St	X	
6	Humboldt Pkwy SB & E. Utica St		X
7	Humboldt Pkwy NB & E. Utica St		X
13	Herman St & Genesee St		X
18	Fillmore Ave & MLK Park	X	
21	Fillmore Ave & Urban St	X	
24	Fillmore Ave & E. Ferry St		X
30	Jefferson Ave & Northland Ave	X	X
36	Jefferson Ave & Best St		X
42	Humboldt Pkwy SB & Glenwood Ave	X	
47	Humboldt Pkwy NB & Riley St	X	X
53	Humboldt Pkwy SB & Goulding Ave	X	X
54	Humboldt Pkwy NB & Sidney St		X
55	Humboldt Pkwy NB & Northland Ave	X	X
60	Best St & Wohlers Ave	X	
63	Elmwood Ave & Sheridan Dr		X
65	Elmwood Ave & W. Ferry St		X
69	W. Ferry St & Main St		X
72	Genesee St & Best St & Walden Ave		X
73	Fillmore Ave & Sycamore St	X	
74	Fillmore Ave & Broadway		X
75	Fillmore Ave & William St & Memorial Dr		X
76	Grider St & Warwick Ave & NY 33 WB Ramp	X	X
78	Grider St & E. Delavan Ave	X	
82	Sycamore St & Walden Ave	X	
87	Bailey Ave & E. Delavan Ave		X
89	Bailey Ave & Genesee St	X	
90	Bailey Ave & Walden Ave	X	X
94	Harlem Rd & Walden Ave	X	

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2. Road Segments

A traffic analysis was performed using Synchro software to compare the No-Build and Concept 10 scenarios for roadway corridor impacts due to increased redistributed traffic. Tables 6-1 (AM peak and 6-2 (PM peak) summarize overall LOS, travel time, vehicle speeds, emissions, and fuel consumption for select roadways which were identified as primary diversion routes.

The analysis of segment travel speed, emission and fuel usage indicates that corridors closest to the project area, including Humboldt Parkway NB and SB, Jefferson Avenue, Fillmore Avenue, Bailey Ave, Main St, and Genesee Street are expected to experience reductions in travel speed and increased vehicle emission and fuel usage as a result of the Kensington Expressway removal.

The AM peak travel speeds along the Humboldt Parkway NB and SB corridors would decrease as much as 85.2% to an average of 1.3 mph. Travel speeds along the Jefferson Avenue, Fillmore Avenue, Main Street, Genesee Street, and Bailey Avenue corridors would decrease from 1.3% to as much as 86.1%. The corresponding total peak hour delay time per roadway would increase from 63 hours to 2,163 hours for the study roadways as noted in Table 7-1 of the study.

The PM peak travel speeds along the Humboldt Parkway NB and SB corridors would decrease as much as 82.2% to an average of 0.8 mph. Travel speeds along the Jefferson Avenue, Fillmore Avenue, Main Street, Genesee Street, and Bailey Avenue corridors would decrease from 5.6% to as much as 92.0%. The corresponding total peak hour delay time per roadway would increase from 224 hours to 2,894 hours for the study roadways as noted in Table 7-2 of the study.

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**Table 6-1 (AM peak) – Segment LOS, Speed, Emissions and Fuel Usage Comparison
Scenario with Traffic Diversion from Humboldt Pkwy NB & SB**

Fillmore Ave – Genesee St to E. Delavan Ave				
Analysis Parameters	ETC+20 AM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	20.8	2.9	-17.9	-86.1%
Travel Time (Min:Sec) NB	4:52	34:43	29:51	613.4%
Overall Level of Service NB	C	F		
Average Arterial Speed (mph) SB	20.4	4.3	-16.1	-78.9%
Travel Time (Min:Sec) SB	4:26	20:55	16:29	371.8%
Overall Level of Service SB	C	F		
Carbon Monoxide (CO) Emissions (g)	57,875	138,410	80,535	139.2%
Hydrocarbons (HC) Emissions (g)	2,953	7,915	4,962	168.0%
Nitrogen Oxides (Nox) Emissions (g)	7,229	13,110	5,881	81.4%
Fuel Used (gal)	110.5	428.1	317.6	287.4%
Jefferson Ave – Genesee St to E. Delavan Ave				
Analysis Parameters	ETC+20 AM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	20.2	6.0	-14.2	-70.3%
Travel Time (Min:Sec) NB	5:59	20:12	14:13	237.6%
Overall Level of Service NB	C	F		
Average Arterial Speed (mph) SB	19.4	7.1	-12.3	-63.4%
Travel Time (Min:Sec) SB	5:46	15:42	9:56	172.3%
Overall Level of Service SB	C	F		
Carbon Monoxide (CO) Emissions (g)	58,752	147,886	89,134	151.7%
Hydrocarbons (HC) Emissions (g)	2,679	8,296	5,617	209.7%
Nitrogen Oxides (Nox) Emissions (g)	7,505	14,766	7,261	96.7%
Fuel Used (gal)	91.3	421.4	330.1	361.6%
Humboldt Pkwy NB & SB – Northampton St to Delavan Ave				
Analysis Parameters	ETC+20 AM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	13.0	12.1	-0.9	-6.9%
Travel Time (Min:Sec) NB	1:50	1:58	0:08	7.3%
Overall Level of Service NB	D	D		
Average Arterial Speed (mph) SB	8.8	1.3	-7.5	-85.2%
Travel Time (Min:Sec) SB	1:43	16:31	14:48	862.1%
Overall Level of Service SB	E	F		
Carbon Monoxide (CO) Emissions (g)	38,446	121,926	83,480	217.1%
Hydrocarbons (HC) Emissions (g)	1,785	6,229	4,444	249.0%
Nitrogen Oxides (Nox) Emissions (g)	4,911	10,887	5,976	121.7%
Fuel Used (gal)	58.3	560.2	501.9	860.9%

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Table 6-1 (AM peak) – Segment LOS, Speed, Emissions and Fuel Usage Comparison Scenario with Traffic Diversion from Humboldt Pkwy NB & SB (Continued)

Bailey Ave – William St to E. Delavan Ave				
Analysis Parameters	ETC+20 AM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	23.6	23.3	-0.3	-1.3%
Travel Time (Min:Sec) NB	6:54	7:13	0:19	4.6%
Overall Level of Service NB	C	C		
Average Arterial Speed (mph) SB	22.6	18.1	-4.5	-19.9%
Travel Time (Min:Sec) SB	7:07	8:57	1:50	25.8%
Overall Level of Service SB	C	C		
Carbon Monoxide (CO) Emissions (g)	89,461	109,174	19,713	22.0%
Hydrocarbons (HC) Emissions (g)	4,628	5,670	1,042	22.5%
Nitrogen Oxides (Nox) Emissions (g)	12,572	15,370	2,798	22.3%
Fuel Used (gal)	144.5	186.9	42.4	29.3%
Genesee St – Jefferson Ave to Fillmore Ave				
Analysis Parameters	ETC+20 AM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) EB	23.7	5.8	-17.9	-75.5%
Travel Time (Min:Sec) EB	2:31	10:14	7:43	306.6%
Overall Level of Service EB	C	F		
Average Arterial Speed (mph) WB	22.8	3.6	-19.2	-84.2%
Travel Time (Min:Sec) WB	2:36	16:35	13:59	537.8%
Overall Level of Service WB	C	F		
Carbon Monoxide (CO) Emissions (g)	28,494	93,563	65,069	228.4%
Hydrocarbons (HC) Emissions (g)	1,417	5,449	4,032	284.5%
Nitrogen Oxides (Nox) Emissions (g)	3,874	8,734	4,860	125.5%
Fuel Used (gal)	43.1	276.1	233.0	540.6%
Main St – E Ferry St to Kensington Ave				
Analysis Parameters	ETC+20 AM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) EB	22.8	22.3	-0.5	-2.2%
Travel Time (Min:Sec) EB	3:14	3:17	0:03	1.5%
Overall Level of Service EB	C	C		
Average Arterial Speed (mph) WB	17.3	6.8	-10.5	-60.7%
Travel Time (Min:Sec) WB	3:58	10:05	6:07	154.2%
Overall Level of Service WB	D	F		
Carbon Monoxide (CO) Emissions (g)	27,666	67,144	39,478	142.7%
Hydrocarbons (HC) Emissions (g)	950	3,199	2,249	236.7%
Nitrogen Oxides (Nox) Emissions (g)	2,496	6,974	4,478	179.4%
Fuel Used (gal)	167.6	315.3	147.7	88.1%

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**Table 6-2 (PM peak) – Segment LOS, Speed, Emissions and Fuel Usage Comparison
Scenario with Traffic Diversion from Humboldt Pkwy NB & SB**

Fillmore Ave – Genesee St to E. Delavan Ave				
Analysis Parameters	ETC+20 PM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	15.0	1.2	-13.8	-92.0%
Travel Time (Min:Sec) NB	5:57	72:23	66:26	1116.5%
Overall Level of Service NB	D	F		
Average Arterial Speed (mph) SB	18.6	3.7	-14.9	-80.1%
Travel Time (Min:Sec) SB	4:39	23:37	18:58	407.9%
Overall Level of Service SB	C	F		
Carbon Monoxide (CO) Emissions (g)	73,073	143,081	70,008	95.8%
Hydrocarbons (HC) Emissions (g)	3,587	8,260	4,673	130.3%
Nitrogen Oxides (Nox) Emissions (g)	8,696	12,166	3,470	39.9%
Fuel Used (gal)	144.2	488.1	343.9	238.5%
Jefferson Ave – Genesee St to E. Delavan Ave				
Analysis Parameters	ETC+20 PM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	19.2	12.1	-7.1	-37.0%
Travel Time (Min:Sec) NB	6:01	9:30	3:29	57.9%
Overall Level of Service NB	C	E		
Average Arterial Speed (mph) SB	18.4	8.5	-9.9	-53.8%
Travel Time (Min:Sec) SB	6:04	13:05	7:01	115.7%
Overall Level of Service SB	C	F		
Carbon Monoxide (CO) Emissions (g)	71,376	132,563	61,187	85.7%
Hydrocarbons (HC) Emissions (g)	3,229	6,861	3,632	112.5%
Nitrogen Oxides (Nox) Emissions (g)	9,024	14,360	5,336	59.1%
Fuel Used (gal)	108.5	347.5	239.0	220.3%
Humboldt Pkwy NB & SB – Northampton St to Delavan Ave				
Analysis Parameters	ETC+20 PM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	11.4	9.7	-1.7	-14.9%
Travel Time (Min:Sec) NB	2:16	2:39	0:23	16.9%
Overall Level of Service NB	D	D		
Average Arterial Speed (mph) SB	4.5	0.8	-3.7	-82.2%
Travel Time (Min:Sec) SB	3:14	18:12	14:58	462.9%
Overall Level of Service SB	F	F		
Carbon Monoxide (CO) Emissions (g)	57,142	169,653	112,511	196.9%
Hydrocarbons (HC) Emissions (g)	2,936	11,051	8,115	276.4%
Nitrogen Oxides (Nox) Emissions (g)	6,367	9,241	2,874	45.1%
Fuel Used (gal)	131.4	729.9	598.5	455.5%

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Table 6-2 (PM peak) – Segment LOS, Speed, Emissions and Fuel Usage Comparison Scenario with Traffic Diversion from Humboldt Pkwy NB & SB (Continued)

Bailey Ave – William St to E. Delavan Ave				
Analysis Parameters	ETC+20 PM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) NB	21.3	20.1	-1.2	-5.6%
Travel Time (Min:Sec) NB	7:38	8:07	0:29	6.3%
Overall Level of Service NB	C	C		
Average Arterial Speed (mph) SB	19.4	14.6	-4.8	-24.7%
Travel Time (Min:Sec) SB	8:17	11:02	2:45	33.2%
Overall Level of Service SB	C	D		
Carbon Monoxide (CO) Emissions (g)	133,002	142,424	9,422	7.1%
Hydrocarbons (HC) Emissions (g)	6,954	7,441	487	7.0%
Nitrogen Oxides (Nox) Emissions (g)	18,810	19,248	438	2.3%
Fuel Used (gal)	211.3	280.7	69.4	32.8%
Genesee St – Jefferson Ave to Fillmore Ave				
Analysis Parameters	ETC+20 PM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) EB	17.8	16.6	-1.2	-6.7%
Travel Time (Min:Sec) EB	3:21	3:36	0:15	7.5%
Overall Level of Service EB	D	D		
Average Arterial Speed (mph) WB	12.3	10.6	-1.7	-13.8%
Travel Time (Min:Sec) WB	4:49	5:33	0:44	15.2%
Overall Level of Service WB	E	E		
Carbon Monoxide (CO) Emissions (g)	67,191	105,630	38,439	57.2%
Hydrocarbons (HC) Emissions (g)	3,478	5,848	2,370	68.1%
Nitrogen Oxides (Nox) Emissions (g)	8,091	10,837	2,746	33.9%
Fuel Used (gal)	135.7	297.4	161.7	119.2%
Main St – E Ferry St to Kensington Ave				
Analysis Parameters	ETC+20 PM Peak Hour		Change	% Change
	No Build	Concept 10		
Average Arterial Speed (mph) EB	16.8	8.6	-8.2	-48.8%
Travel Time (Min:Sec) EB	4:27	8:44	4:17	96.3%
Overall Level of Service EB	D	F		
Average Arterial Speed (mph) WB	19.1	15.1	-4.0	-20.9%
Travel Time (Min:Sec) WB	3:36	4:33	0:57	26.4%
Overall Level of Service WB	C	D		
Carbon Monoxide (CO) Emissions (g)	83,913	121,387	37,474	44.7%
Hydrocarbons (HC) Emissions (g)	4,899	7,290	2,391	48.8%
Nitrogen Oxides (Nox) Emissions (g)	6,384	8,772	2,388	37.4%
Fuel Used (gal)	345.4	485.4	140.0	40.5%

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Travel Delay for Roadway Segments

Concept 10 will redistribute Kensington traffic and increase traffic on roadway segments which will have a negative impact due to increased travel times. Tables 7-1 (AM peak) and 7-2 (PM peak) summarize PM peak hour travel times and delay increases for select roadways which were identified as primary diversion routes.

Table 7-1 – AM Peak Hour Travel and Delay Times

Arterial	From	To	Total Travel Time in Hours (all vehicles)		Concept 10 Delay Increase All Vehicles (Hours)
			No Build ETC+20	Redistributed Concept 10 ETC+20	
Fillmore Ave	Genesee St	E Delavan Ave	237.7	1564.2	1326.5
Humboldt Pkwy NB & SB	Northampton St	E Delavan Ave	78.9	2242.0	2163.1
Jefferson Ave	Genesee St	E Delavan Ave	119.6	1466.2	1346.6
Bailey Ave	William St	E Delavan Ave	185.9	249.1	63.2
Genesee St	Jefferson Ave	Fillmore Ave	53.1	1017.2	964.1
Main St	E Ferry St	Kensington Ave	516.6	1129.0	612.4

Table 7-2 – PM Peak Hour Travel and Delay Times

Arterial	From	To	Total Travel Time in Hours (all vehicles)		Concept 10 Delay Increase All Vehicles (Hours)
			No Build ETC+20	Redistributed Concept 10 ETC+20	
Fillmore Ave	Genesee St	E Delavan Ave	356.8	1902.9	1546.1
Humboldt Pkwy NB & SB	Northampton St	E Delavan Ave	361.2	3255.2	2894.0
Jefferson Ave	Genesee St	E Delavan Ave	146.3	1085.7	939.4
Bailey Ave	William St	E Delavan Ave	292.4	516.8	224.4
Genesee St	Jefferson Ave	Fillmore Ave	341.6	1028.4	686.8
Main St	E Ferry St	Kensington Ave	1423.3	2007.0	583.7

In conclusion, delays and operating speeds would be impacted by implementing Concept 10. The greatest impacts can be expected in the immediate project area and adjacent corridors including Humboldt Parkway NB & SB, Fillmore Avenue, Jefferson Avenue, Main Street, Bailey Avenue, and Genesee Street. The local street network and intersections would not operate at an acceptable LOS and would not be able to adequately accommodate the volume of redistributed traffic from the Kensington Expressway.

3. Freeways

The study area was simulated and analyzed using Vissim11. The Levels of Service for freeways, ramps and weave sections are defined in terms of traffic density. Density is the average number of vehicles per lane per mile. Levels of Service range from A to F, where “A” indicates free-flow traffic and “F” indicates significant congestion and delay. The following Table 8 provides a summary of the Level of Service thresholds as defined in the Highway Capacity Manual.

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Table 8 – Level of Service by Density

Level of Service	Mainline Thresholds	Weaving & Ramp Thresholds
A – Free flow	Less than 11 v/la-mi	Less than 10 v/la-mi
B – Reasonable free flow	11.1 to 18.0 v/la-mi	10.1 to 20.0 v/la-mi
C – Stable flow	18.1 to 26.0 v/la-mi	20.1 to 28.0 v/la-mi
D – Approaching unstable flow	26.1 to 35.0 v/la-mi	28.1 to 35.0 v/la-mi
E – Unstable flow	35.1 to 45.0 v/la-mi	More than 35.1 v/la-mi
F – Breakdown flow	More than 45.0 v/la-mi	V/C More than 1

The Concept 10 traffic model predicts that vehicles would experience increased density volumes and lower speeds on already near-capacity roadways and ramps. The comparison of traffic operation at No-Build versus Concept 10 ETC+20 PM Peak Hour scenarios is summarized in Tables 9-1 (AM peak) and 9-2 (PM peak) for travel time and speed, and Tables 10-1 (AM peak) and 10-2 (PM peak) for density and LOS.

Significant degradation of LOS and vehicle speed is expected at:

- NYS Route 198 Eastbound between Parkside and NYS Route 33,
- I-90 Eastbound between I-190 and NYS Route 33,
- I-90 Westbound between Cleveland and Walden,
- I-90 Eastbound Between William and Walden,
- I-190 Northbound between Route 5 Skyway and Route 198,
- I-190 Eastbound between Michigan and Ogden.
- I-90 Westbound Ramp to NYS Route 33 Westbound,
- I-190 Eastbound Between NYS Route 198 and the Peace Bridge

Other segments and ramps are projected to experience increased density, degraded LOS, or reduced vehicle speed.

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Table 9-1 – Mainline Expressway Travel Time and Speed Comparison

Travel Time ID	Segment	Segment Distance (Miles)	No Build Scenario ETC+20, AM Peak Hr		Concept 10 Scenario ETC+20, AM Peak Hr	
			Travel Time (Min:Sec)	Speed (MPH)	Travel Time (Min:Sec)	Speed (MPH)
NYS Route 198 – Between I-190 and Elmwood Ave						
27	Eastbound	1.42	3:17	25.9	3:17	25.9
28	Westbound	1.41	2:32	33.4	2:32	33.4
NYS Route 198 – Between Elmwood Ave and Delaware Ave						
29	Eastbound	0.60	1:21	26.7	1:21	26.7
30	Westbound	0.60	1:05	33.2	1:04	33.8
NYS Route 198 – Between Delaware Ave and Parkside Ave						
1	Eastbound	0.67	2:00	20.1	1:58	20.4
2	Westbound	0.67	1:13	33.0	1:12	33.5
NYS Route 198 – Between Parkside Ave and Main St						
3	Eastbound	0.24	0:35	24.7	0:40	21.6
4	Westbound	0.24	0:52	16.6	0:51	16.9
NYS Route 198 – Between Main St and NYS Route 33						
5	Eastbound	0.72	1:04	40.5	1:11	36.5
6	Westbound	0.56	0:42	48.0	0:43	46.9
NYS Route 33 – Between NYS Route 198 and Grider St						
7	Eastbound	0.80	0:47	61.3	0:48	60.0
8	Westbound	0.81	0:52	56.1	0:53	55.0
I-290 – Between NYS Route 263 and NYS Route 384						
9	Eastbound	4.80	5:00	57.6	4:59	57.8
10	Westbound	4.81	5:01	57.5	5:01	57.5
I-90 – Between Cleveland Dr and NYS Route 33						
11	Eastbound	0.88	1:51	28.5	1:50	28.8
12	Westbound	0.89	0:55	58.3	0:55	58.3
I-90 – Between NYS Route 33 and Walden Ave						
13	Eastbound	1.63	2:50	34.5	2:54	33.7
14	Westbound	1.63	1:41	58.1	1:42	57.5
I-90 – Between Walden Ave and William St						
15	Eastbound	1.76	1:51	57.1	1:51	57.1
16	Westbound	1.75	1:49	57.8	1:49	57.8
I-90 – Between William St and I-190						
17	Eastbound	1.48	1:35	56.1	1:36	55.5
18	Westbound	1.42	1:31	56.2	1:52	45.6
I-190 – Between Rte. 198 and The Skyway						
31	Southbound	3.79	4:00	56.9	4:03	56.1
32	Northbound	3.78	3:54	58.2	3:54	58.2
I-190 – Between Michigan Ave and Hamburg St						
19	Eastbound	0.70	0:43	58.6	0:43	58.6
20	Westbound	0.70	0:44	57.3	0:45	56.0
I-190 – Between Hamburg St and Smith St						
21	Eastbound	0.66	0:40	59.4	0:40	59.4
22	Westbound	0.65	0:41	57.1	0:41	57.1
I-190 Between Smith St and Clinton St						
23	Eastbound	1.60	1:37	59.4	1:37	59.4
24	Westbound	1.58	1:40	56.9	1:41	56.3
I-190 – Between Clinton St and Ogden St						
25	Eastbound	0.86	0:53	58.4	0:53	58.4
26	Westbound	0.87	0:54	58.0	0:55	56.9

Speed reduction of 3-5 mph

Speed reduction of greater than 5 mph

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Table 9-2 – Mainline Expressway Travel Time and Speed Comparison

Travel Time ID	Segment	Segment Distance (Miles)	No Build Scenario ETC+20, PM Peak Hr		Concept 10 Scenario ETC+20, PM Peak Hr	
			Travel Time (Min:Sec)	Speed (MPH)	Travel Time (Min:Sec)	Speed (MPH)
NYS Route 198 – Between I-190 and Elmwood Ave						
27	Eastbound	1.42	3:17	25.9	3:17	25.9
28	Westbound	1.41	2:32	33.4	2:30	33.8
NYS Route 198 – Between Elmwood Ave and Delaware Ave						
29	Eastbound	0.60	1:20	27.0	1:20	27.0
30	Westbound	0.60	1:04	33.8	1:03	34.3
NYS Route 198 – Between Delaware Ave and Parkside Ave						
1	Eastbound	0.67	1:43	23.4	1:43	23.4
2	Westbound	0.67	1:14	32.6	1:13	33.0
NYS Route 198 – Between Parkside Ave and Main St						
3	Eastbound	0.24	0:32	27.0	0:43	20.1
4	Westbound	0.24	0:47	18.4	0:47	18.4
NYS Route 198 – Between Main St and NYS Route 33						
5	Eastbound	0.72	1:02	41.8	1:30	28.8
6	Westbound	0.56	0:43	46.9	0:42	48.0
NYS Route 33 – Between NYS Route 198 and Grider St						
7	Eastbound	0.80	0:48	60.0	0:48	60.0
8	Westbound	0.81	0:52	56.1	0:53	55.0
I-290 – Between NYS Route 263 and NYS Route 384						
9	Eastbound	4.80	5:22	53.7	5:10	55.7
10	Westbound	4.81	5:09	56.0	5:08	56.2
I-90 – Between Cleveland Dr and NYS Route 33						
11	Eastbound	0.88	2:22	22.3	2:08	24.8
12	Westbound	0.89	0:55	58.3	3:09	17.0
I-90 – Between NYS Route 33 and Walden Ave						
13	Eastbound	1.63	3:26	28.5	3:54	25.1
14	Westbound	1.63	1:45	55.9	2:34	38.1
I-90 – Between Walden Ave and William St						
15	Eastbound	1.76	1:50	57.6	2:47	37.9
16	Westbound	1.75	1:50	57.3	1:51	56.8
I-90 – Between William St and I-190						
17	Eastbound	1.48	1:36	55.5	4:38	19.2
18	Westbound	1.42	1:31	56.2	1:37	52.7
I-190 – Between Rte. 198 and The Skyway						
31	Southbound	3.79	2:58	57.3	3:58	57.3
32	Northbound	3.78	2:57	57.4	4:40	48.6
I-190 – Between Michigan Ave and Hamburg St						
19	Eastbound	0.70	0:45	56.0	0:50	50.4
20	Westbound	0.70	0:43	58.6	0:44	57.3
I-190 – Between Hamburg St and Smith St						
21	Eastbound	0.66	0:41	58.0	0:51	46.6
22	Westbound	0.65	0:40	58.5	0:40	58.5
I-190 Between Smith St and Clinton St						
23	Eastbound	1.60	1:41	57.0	2:20	41.1
24	Westbound	1.58	1:37	58.6	1:37	58.6
I-190 – Between Clinton St and Ogden St						
25	Eastbound	0.86	0:56	55.3	1:37	31.9
26	Westbound	0.87	0:53	59.1	0:54	58.0

Speed reduction of 3-5 mph

Speed reduction of greater than 5 mph

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Table 10-1 – Expressway Segment and Ramp Density and Level of Service Comparison

Link ID	Segment	No. of Lanes	No Build Scenario ETC+20, AM Peak Hour			Concept 10 Scenario ETC+20, AM Peak Hour		
			Volume	Density (Veh/ la-mi)	LOS	Volume	Density (Veh/ la-mi)	LOS
NYS Route 198 Eastbound								
369	Between I-190 and Grant	2	1669	31.9	D	1669	32.0	D
379	Between Grant and Elmwood	2	1480	27.7	D	1398	26.1	D
32	Between Elmwood and Delaware	2	1643	30.5	D	1568	29.0	D
381	Between Delaware and Parkside	2	1928	35.8	E	1853	34.0	D
18	Between Parkside and Main	3	2878	33.7	D	2019	27.2	D
299	Between Main and Route 33	3	2892	26.2	D	2030	20.0	C
NYS Route 198 Westbound								
110	Between Route 33 and Main	3	2214	13.1	B	2260	13.5	B
298	Between Main and Parkside	3	2021	16.5	B	2071	16.6	B
31	Between Parkside and Delaware	2	1517	23.1	C	1558	23.5	C
382	Between Delaware and Elmwood	2	1485	22.3	C	1535	22.9	C
380	Between Elmwood and Grant	2	1444	21.7	C	1492	22.2	C
365	Between Grant and I-190	2	1511	22.8	C	1573	23.6	C
NYS Route 33 Eastbound								
7	Between Route 198 and Grider	3	2637	14.6	B	1723	9.5	A
NYS Route 33 Westbound								
9	Between Grider and Route 198	3	5470	32.5	D	2500	16.4	B
I-90 Eastbound								
224	Between I-190 and William	3	5255	30.1	D	5561	32.0	D
235	Between William and Walden	3	5762	33.3	D	6076	35.2	E
259	Between Walden and Route 33	3	5676	60.8	F	5993	64.3	F
272	Between Route 33 and Cleveland	5	5933	43.1	E	5937	42.6	E
I-90 Westbound								
273	Between Cleveland and Route 33	4	5903	27.2	D	5902	26.2	D
260	Between Route 33 and Walden	3	4715	27.0	D	5471	31.5	D
236	Between Walden and William	3	4423	25.3	C	5064	29.1	D
223	Between William and I-190	3	4586	26.3	D	5180	33.2	D
I-190 Eastbound								
341	Between Rte. 198 and the Peace Bridge	2	3993	37.4	E	4480	42.6	E
330	Between the Peace Bridge and Virginia	3	4404	27.4	D	4837	29.7	D
316	Between Virginia and the Skyway	3	4209	26.0	C	4517	27.7	D
154	Between Michigan and Hamburg	3	2845	16.0	B	3110	17.7	B
166	Between Hamburg and Smith	3	2691	15.2	B	2955	16.7	B
184	Between Smith and Clinton	3	2083	11.7	B	2353	13.3	B
196	Between Clinton and Ogden	3	2217	12.5	B	2484	14.0	B
I-190 Westbound								
197	Between Ogden and Clinton	3	4610	26.4	D	5105	29.3	D
187	Between Clinton and Smith	3	4485	25.7	C	4981	28.7	D
167	Between Smith St. and Hamburg St.	3	4930	28.3	D	5412	31.2	D
155	Between Hamburg St. and Michigan Ave.	3	4928	29.3	D	5360	33.1	D
315	Between the Skyway and Virginia St.	3	3368	20.6	C	3461	21.3	C
328	Between Virginia and the Peace Bridge	3	3381	19.3	C	3458	19.7	C
344	Between the Peace Bridge and Rte. 198	2	2961	25.5	C	3033	26.2	C

LOS of E or F

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Table 10-1 – Expressway Segment and Ramp Density and Level of Service Comparison
(Continued)

Link ID	Segment	No. of Lanes	No Build Scenario ETC+20, AM Peak Hour			Concept 10 Scenario ETC+20, AM Peak Hour		
			Volume	Density (Veh/la-mi)	LOS	Volume	Density (Veh/la-mi)	LOS
I-90 / NYS Route 33 Interchange Ramps								
287	I-90 WB Ramp to Rte. 33 WB	1	1824	59.3	F	1348	43.4	E
288	Rte. 33 WB Ramp to I-90 WB	1	429	15.6	B	609	22.2	C
289	I-90 EB Off Ramp to Rte. 33 WB	1	711	26.1	C	763	28.1	D
286	Rte. 33 WB Ramp to I-90 EB	1	653	18.4	B	688	19.4	B
285	I-90 EB Ramp to Rte. 33 EB	1	634	21.1	C	715	23.9	C
290	Rte. 33 EB Ramp to I-90 EB	1	974	36.2	E	758	28.0	C
291	I-90 WB Ramp to Rte. 33 EB	1	508	19.0	B	509	19.0	B
284	Rte. 33 EB Ramp to I-90 WB	1	701	20.5	C	801	23.5	C

* - Volume low due to failing operations on Route 198

LOS of E or F

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Table 10-2 – Expressway Segment and Ramp Density and Level of Service Comparison

Link ID	Segment	No. of Lanes	No Build Scenario ETC+20, PM Peak Hour			Concept 10 Scenario ETC+20, PM Peak Hour		
			Volume	Density (Veh/ la-mi)	LOS	Volume	Density (Veh/ la-mi)	LOS
NYS Route 198 Eastbound								
369	Between I-190 and Grant	2	1543	29.2	D	1544	32.3	D
379	Between Grant and Elmwood	2	1530	28.2	D	1530	28.2	D
32	Between Elmwood and Delaware	2	1600	29.1	D	1601	29.1	D
381	Between Delaware and Parkside	2	1822	32.3	D	1821	32.3	D
18	Between Parkside and Main	3	2026	23.5	C	2028	28.2	D
299	Between Main and Route 33	3	2038	17.9	B	2042	20.8	C
NYS Route 198 Westbound								
110	Between Route 33 and Main	3	2965	18.3	C	2528	14.6	B
298	Between Main and Parkside	3	2747	24.6	C	2418	21.1	C
31	Between Parkside and Delaware	2	2114	32.7	D	2183	33.2	D
382	Between Delaware and Elmwood	2	1654	24.6	C	1740	25.4	C
380	Between Elmwood and Grant	2	1604	24.1	C	1693	25.1	C
365	Between Grant and I-190	2	1528	22.9	C	1709	25.5	C
NYS Route 33 Eastbound								
7	Between Route 198 and Grider	3	4641	26.2	D	2131	11.6	B*
NYS Route 33 Westbound								
9	Between Grider and Route 198	3	4052	24.0	C	2442	15.7	B
I-90 Eastbound								
224	Between I-190 and William	3	5358	30.9	D	5813	38.8	E
235	Between William and Walden	3	5226	30.4	D	5704	50.2	F
259	Between Walden and Route 33	3	5410	71.0	F	5584	74.1	F
272	Between Route 33 and Cleveland	5	6356	63.1	F	5895	50.1	F
I-90 Westbound								
273	Between Cleveland and Route 33	4	5901	26.1	D	5640	62.2	F
260	Between Route 33 and Walden	3	5901	34.4	D	6274	38.5	E
236	Between Walden and William	3	6062	35.1	E	6470	37.5	E
223	Between William and I-190	3	5981	34.5	D	6410	37.3	E
I-190 Eastbound								
341	Between Rte. 198 and the Peace Bridge	2	3612	28.4	D	3649	32.4	D
330	Between the Peace Bridge and Virginia	3	3695	22.9	C	4086	25.2	C
316	Between Virginia and the Skyway	3	4461	30.2	D	4792	32.1	D
154	Between Michigan and Hamburg	3	5074	29.6	D	5421	35.7	E
166	Between Hamburg and Smith	3	5474	31.5	D	5788	41.3	E
184	Between Smith and Clinton	3	5072	29.4	D	5319	47.4	F
196	Between Clinton and Ogden	3	5310	30.9	D	5503	58.4	F
I-190 Westbound								
197	Between Ogden and Clinton	3	2475	14.0	B	2691	15.2	B
187	Between Clinton and Smith	3	2336	13.1	B	2558	14.4	B
167	Between Smith St. and Hamburg St.	3	3217	18.2	B	3434	19.5	C
155	Between Hamburg St. and Michigan Ave.	3	3390	19.6	C	3633	21.2	C
315	Between the Skyway and Virginia St.	3	3156	18.8	B	3305	19.7	C
328	Between Virginia and the Peace Bridge	3	4111	23.7	C	4261	24.7	C
344	Between the Peace Bridge and Rte. 198	2	4067	36.2	E	4230	41.2	E

LOS of E or F

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Table 10-2 – Expressway Segment and Ramp Density and Level of Service Comparison
(Continued)

Link ID	Segment	No. of Lanes	No Build Scenario ETC+20, PM Peak Hour			Concept 10 Scenario ETC+20, PM Peak Hour		
			Volume	Density (Veh/la-mi)	LOS	Volume	Density (Veh/la-mi)	LOS
I-90 / NYS Route 33 Interchange Ramps								
287	I-90 WB Ramp to Rte. 33 WB	1	1135	36.4	E	785	25.0	C
288	Rte. 33 WB Ramp to I-90 WB	1	585	21.3	C	741	28.7	D
289	I-90 EB Off Ramp to Rte. 33 WB	1	653	24.9	C	742	28.4	D
286	Rte. 33 WB Ramp to I-90 EB	1	754	21.3	C	768	21.7	C
285	I-90 EB Ramp to Rte. 33 EB	1	634	22.1	C	726	25.3	C
290	Rte. 33 EB Ramp to I-90 EB	1	1503	83.4	F	1120	42.1	E
291	I-90 WB Ramp to Rte. 33 EB	1	676	25.4	C	692	26.1	C
284	Rte. 33 EB Ramp to I-90 WB	1	1200	35.5	F	1413	46.9	E

* - Volume low due to failing operations on Route 198

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a) Additional Considerations:

The traffic study also considered proposed road diets and bicycle lanes, safety, crash history, and air quality impacts as they relate to Concept 10.

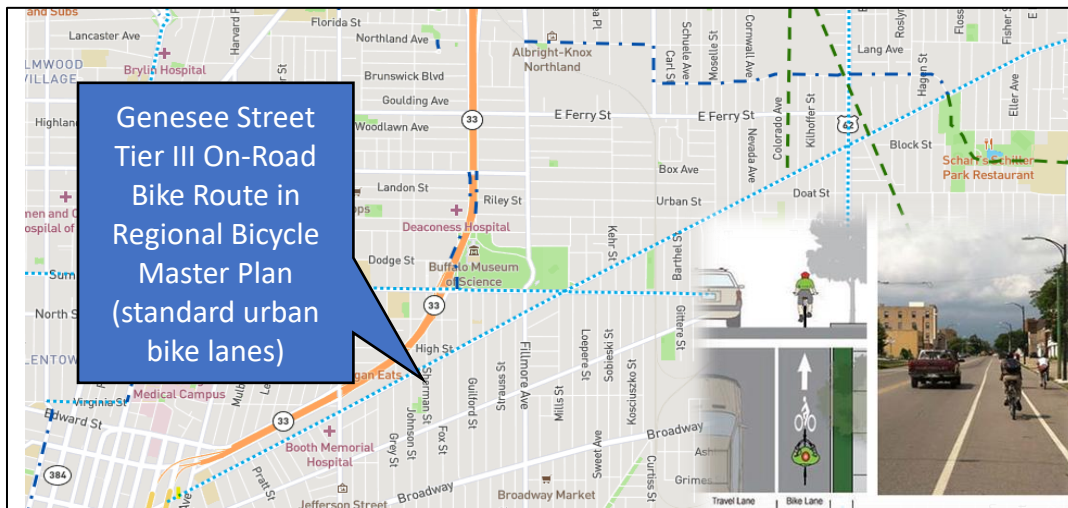
I. Road Diets & Bicycle Lanes

The following roadways are programmed for road diets and/or bike lane additions in accordance with the Bike Buffalo Niagara Regional Bicycle Master Plan¹ (refer to Table 11) and the GBNRTC 2023-2027 TIP.² (refer to Table 12). These projects were incorporated into the traffic modeling and further reduce the number of lanes and capacity of the affected roadways for vehicular traffic.

Table 11 – Bike Buffalo Niagara Regional Bicycle Master Plan

Proposed project	Trail Tier	Agency
Main St: Delavan Ave to Harlem Rd	2	Amherst & Buffalo
Main St: Virginia St to Ferry St	2	Buffalo
Humboldt Pkwy: Parkside Ave to Main St	2	Amherst & Buffalo
Fillmore Ave: Glenny Park to Main St	3	Buffalo
W. Delavan Ave: Delaware Ave to Jefferson Ave	2	Buffalo
Delaware Ave: North St to Forest Ave	3	Buffalo
Jefferson Ave: Delavan Ave to Trail	2	Buffalo
Genesee St: Elm St to Union Rd	3	Buffalo & Cheektowaga
Best St: Main St to Genesee St & Walden Ave; Genesee St to Northeast Greenway Trail	3	Buffalo
Broadway; Bailey Ave to Borden Rd	3	Buffalo, Cheektowaga & Depew
Bailey Ave: William Gaiter Pkwy Trail to Grover Cleveland Hwy	3	Amherst & Buffalo
Bailey Ave: McKinley Pkwy to Northeast Greenway Trail	3	Buffalo

Road Diets or Bike Lane Additions in Project Traffic Study Area



¹ <https://www.gbnrtc.org/regional-bike-buffalo-niagara-master-plan>

² <https://gbnrtc.maps.arcgis.com/apps/View/index.html?appid=d79c13fc38244edf9d41954e9ac70a8>

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Table 12 - GBNRTC 2023-2027 TIP

P.I.N.	Project	Agency	Planned Let Date
501924	NYS Route 265: Delaware Rd to Floradale Ave Ped signals, Restripe ped crossings, and ped signage	NYSDOT	2023
547022	NYS Route 198 Studying alternatives for capacity change	NYSDOT	2027
576060	Main St: Goodell St to Ferry St Convert from 4-lane to 2-lane with center turn lane and protected bike lanes	Buffalo	2023
576322	Jefferson Ave: E. Utica St to Swan St Resurfacing & Restriping to 3-lanes with bike lanes	Buffalo	2023
576333	Elmwood Ave: Kenmore Ave to Knoche Rd Reconstruction & Restriping with bike lanes, and signal upgrades	Erie County	2024
576446	W. Delavan Ave: Delaware Ave to Jefferson Ave Expand City bicycle network, traffic calming, and ADA ramps	Buffalo	2026
576446	Elmwood Ave: Nottingham Ter to Kenmore Ave Expand City bicycle network, traffic calming, and ADA ramps	Buffalo	2026
576446	Bailey Ave: E. Delavan Ave to S. Park Ave Expand City bicycle network, traffic calming, and ADA ramps	Buffalo	2026
582567	Bailey Ave: S. Park Ave to Main St Planning assessment for Bus Rapid Transit	NFTA	2023

*Does not include road overlay & signal replacement projects
TIP Projects in Project Traffic Study Area

II. Pedestrian and Bicyclist Safety

An advantage of accommodating regional traffic movements on an expressway is that direct conflicts with pedestrians and bicyclists are avoided. Pushing traffic flows onto local streets that are also used by pedestrians and bicyclists would increase the number of crashes, injuries and fatalities affecting these vulnerable road users. Further, adding traffic to surface roads conflicts with local and regional plans. For example, Genesee Street is designated a proposed on-road bicycle route in the Regional Bicycle Master Plan. Installing bicycle lanes on the four-lane sections of Genesee Street would likely require a road diet (reduction in travel lanes).

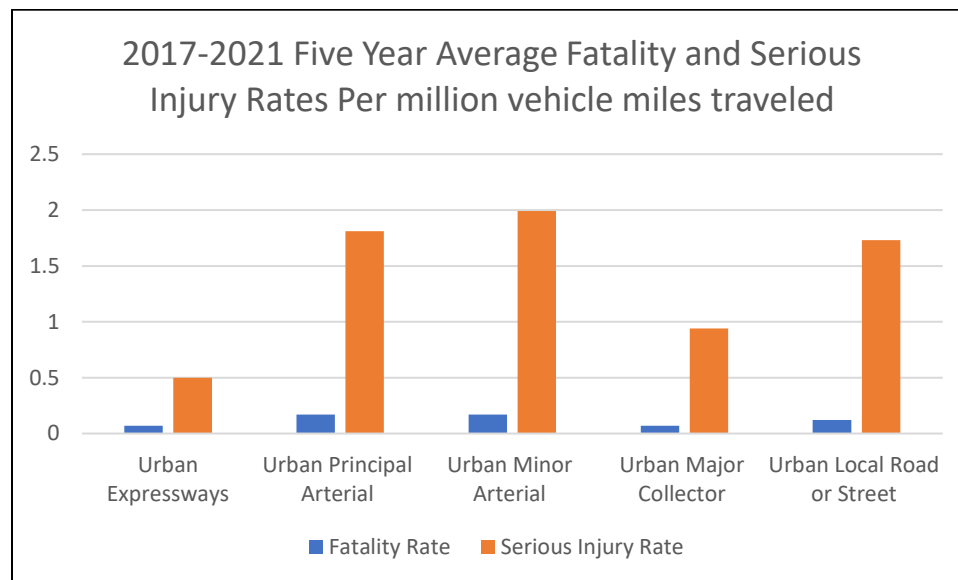
- Crash rates on expressways are substantially lower than on roadways that are not access controlled as shown in Table 13.³ Despite higher speeds, fatality and injury rates are also lower.
- Controlled access facilities eliminate some of the conflicts associated with crashes at intersections, such as left turns.

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Table 13 – Crash Rates by Roadway Type

Roadway Type	Fatality Rate (Accidents/Million Vehicle Miles)	Serious Injury Rate (Accidents/Million Vehicle Miles)
Urban Expressways	0.07	0.5
Urban Principal Arterial	0.17	1.81
Urban Minor Arterial	0.17	1.99
Urban Major Collector	0.07	0.94
Urban Local Road or Street	0.12	1.73

³ Source: NYSDOT Highway Safety Improvement Program 2022 Annual Report



III. NY Route 33/I-90 Interchange Crash History

NYSDOT’s Crash Location and Engineering Analysis Repository (CLEAR) safety management system was used to collect safety data for the NY 33 & I-90 interchange. The area includes the full interchange and ramps plus I-90 up to Cleveland Dr where it begins to split to I-290. A total of 460 crashes occurred during the most recent 3-year study period. This already problematic interchange would see increases in the number of crashes, injuries, and fatalities due to additional redistributed volumes.

IV. Regional Air Quality

The GBNRTC regional model includes an emissions calculation function based on MOVES emissions factors. The emission factors are intended for regional-planning level comparisons of different options and do not reflect detailed traffic operations information about delay or queues at specific intersections. The model estimates daily emissions for the entire transportation network. Comparing the emissions for the 2019 No Build and 2019 Concept 10 conditions demonstrates that the changes in vehicle routing under Concept 10 would result in a small net increase in emissions in the region as shown in Table 14. Specifically,

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- VOCs/hydrocarbons: 0.5% increase
- NOx: 0.2% increase
- CO: 0.4% increase
- PM10: 0.4% increase
- PM2.5: 0.4% increase

Greenhouse gas emissions (CO₂-equiv) would also increase by 0.3%.

Although not modeled in detail, it can be inferred from the traffic analysis that specific roadway segments and intersections with a substantial increase in volumes and delay would also experience increased mobile source emissions. Vehicle emissions of CO, PM_{2.5}, NO_x, and VOC under stop-and-go traffic conditions on local streets with traffic signals result in higher emissions than the same traffic travelling in free-flow conditions on an expressway.

Table 14 – GBNRTC Regional Model Daily Emissions

Daily Emissions (grams)	Existing Conditions 2019	Concept 10 2019	Change (grams)	% Change
	Total (grams)	Total (grams)		
Gaseous Hydrocarbons (HCS)	1,956,751	1,966,670	9,919	0.51%
Carbon Monoxide (CO)	72,048,140	72,308,266	260,126	0.36%
Oxides of Nitrogen (NO _x)	7,427,729	7,444,062	16,333	0.22%
Methane (MH ₄)	337,721	339,416	1,695	0.50%
Nitrous Oxide (N ₂ O)	51,021	51,486	465	0.91%
Sulfur Dioxide (SO ₂)	54,791	54,957	166	0.30%
Atmospheric CO ₂	8,805,655,051	8,832,334,439	26,679,388	0.30%
CO ₂ Equivalent (CO ₂ e)	8,829,299,248	8,856,159,471	26,860,223	0.30%
Primary Exhaust PM ₁₀ – Total	177,866	178,560	694	0.39%
Primary PM ₁₀ – Brakewear	902,466	914,312	11,846	1.31%
Primary PM ₁₀ – Tirewear	254,673	255,493	820	0.32%
Primary Exhaust PM ₂₅ – Total	160,856	161,488	632	0.39%
Primary PM ₂₅ – Breakwear	112,808	114,289	1,481	1.31%
Primary PM ₂₅ – Tirewear	38,201	38,324	123	0.32%

A second, independent air emission calculation was provided using the Synchro microsimulation traffic model for adjacent arterial roadways. The Synchro model estimates PM peak hour emissions for the identified corridors in Tables 6 and 7. The traffic simulation analysis for specific roadway segments and intersections with volume increases and delay also experience increased mobile source emissions. Vehicle emissions of CO, HC, and No_x under stop-and-go traffic conditions on local streets with traffic signals result in higher emissions.

General findings for the Kensington Expressway Removal with redistributed traffic onto local roadways indicate:

- Vehicle emissions under stop-and-go traffic conditions on local streets with traffic signals result in higher emissions than the same traffic travelling in free-flow conditions on an expressway.

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- As vehicles accelerate away from an intersection on a green signal, this increases engine load and emissions. Emission rates (e.g., grams of pollutant per mile travelled) when average speeds are 0 to 20 mph (as occurs on over-capacity roadways) can be four times higher than the emission rates on roadways with speeds between 25 and 75 mph.
- Thus, NYS Route 33 Removal increases mobile source emissions regionally and near specific locations.

4. Concept 10 Construction Cost Estimate:

An opinion of probable construction cost is defined as a level one cost estimate to facilitate budgetary and feasibility determinations, based on historical information with adjustments made for specific project conditions. Preliminary cost estimates indicate that the Concept 10 cost including filling in, and costs associated with mitigation measures required to accommodate the traffic diversions would likely exceed twice the cost of the current project.

APPENDIX A

Traffic Analysis Supporting Documentation

A-1

No Build Intersection Volumes

AM Peak Hour

Appendix A-1: AM Intersection Analysis - No Build - ETC+20

Intersection		EB			WB			NB			SB			Other			Int. Total
#	Roadways	L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2	
1	Best St/EB Ramps	335	518			333	311	39	60	129							1725
2	Best St/WB Ramps		500	44	116	258					356	0	457				1731
3	Best St/W Parade/Herman	4	508	90	42	519	2	51	18	5	61	37	76	44	25	1	1483
4	Northhampton/SB Humboldt		62	1	5	59					69	61	23				280
5	Northhampton/NB Humboldt	23	76			85	23	5	21	9							242
6	E Utica/SB Humboldt		91	36	79	116					55	387	66				830
7	E Utica/NB Humboldt	54	94			114	18	80	232	55							647
8	E Ferry/SB Humboldt		286	53	101	185					243	360	435				1663
9	E Ferry/NB Humboldt	240	296			241	71	49	212	43							1152
10	EB Ramps/Jefferson	13	7	0					348	212	143	544					1267
11	WB Ramps/Jefferson				262	23	408	42	316			413	21				1485
12	Genesee/Jefferson	36	85	11	77	175	38	9	440	26	29	437	69				1432
13	Genesee/Herman	12	185	3	14	378	10	18	59	5	31	89	12				816
14	Genesee/Rich/Reed	2	217	0	0	399	11	11	3	10	4		4				661
15	Genesee/Fillmore	30	171	31	87	321	4	33	251	51	10	316	39				1344
16	Best/Fillmore	39	332	155	2	389	15	125	220	9	18	234	43				1581
17	Humboldt/Fillmore	5		3					275			295					578
18	MLK/Fillmore	12		22					220			270					524
19	Northhampton/Fillmore	18	63	11	13	35	10	10	185	21	26	257	46				695
21	Riley/Fillmore	5		2	2		10	2	219	3	22	336	0				601
22	French/Fillmore				13		37		219	3	46	343					661
23	E Utica/Fillmore	57		89				44	204			303	73				770
24	E Ferry/Fillmore	54	227	63	33	220	53	25	203	43	36	303	68				1328
25	Northland/Fillmore	5	42	15	21	41	7	3	230	35	41	348	10				798
26	E Delavan/Fillmore	86	171	20	29	153	31	18	190	26	68	348	71				1211
27	E Delavan/NB Humboldt	296	174			223	18	51	170	81							1013
28	E Delavan/SB Humboldt		442	29	93	181					29	31	13				818
29	E Delavan/Jefferson	39	357	31	29	152	16	30	98	54	5	78	86				975
30	Northland/Jefferson	15	23	11	15	5	15	12	146	9	12	140	15				418
31	Brunswick/Jefferson				27		21		154	25	10	152					389
32	E Ferry/Jefferson	29	219	47	49	479	42	38	115	25	20	131	23				1217
33	E Utica/Jefferson	10	97	36	23	104	13	23	153	11	10	201	21				702
34	Riley/Jefferson	9	26	15	9	16	5	10	179	7	1	217	10				504
35	Northhampton/Jefferson	7	39	7	14	63	11	15	180	4	7	216	13				576
36	Best/Jefferson	22	383	43	48	426	60	22	163	49	46	192	26				1480
37	E North/Jefferson	64		82				182	174			225	59				786
38	High/Jefferson	3	37	89	21	77	36	174	314	33	10	269	16				1079
39	E Ferry/Wohlers	25	317	4	29	544	62	9	25	44							1059
40	E Utica/Wohlers	13	101	9	4	137	17	2	29	17	1	12	4				346
A	Woodlawn/SB Humboldt											474	38				512
B	Glenwood/SB Humboldt			31								479					510
C	Riley/ SB Humboldt			15								128	26				169
D	Kingsley/SB Humboldt			14								133	11				158
E	Dodge/W Parade		102			66					54		33				255
F	Dodge/Linden		101	1	5	93		1		1							202
G	Riley/NB Humboldt						9		74	5							88
H	Woepfel/NB Humboldt						4		293	5							302
I	Woodlawn/NB Humboldt						13		290	10							313
J	Florida/SB Humboldt			25								149	9				183
K	Northland/SB Humboldt			27								166	21				214
L	Brunswick/SB Humboldt			65								197	12				274
M	Goulding/SB Humboldt			48								991					1039

Appendix A-1: Intersection Analysis - No Build - ETC+20

Intersection		EB			WB			NB			SB			Other			Int. Total
#	Roadways	L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2	
N	Sidney/NB Humboldt						41		499								540
O	Northland/NB Humboldt						63		474	63							600
P	E Ferry/Roeher		330	10	16	538		2		21							917
Q	E Utica/Roeher	4	114	0	2	132	7	3	11	4	2	13	4				296
R	Northhampton/Wohlers	7	61	3	2	71	9	10	29	5	12	13	5				227
S	Northhampton/Roeher	0	64	2	3	78	4	4	15	2	4	15	0				191
T	Best/Wohlers	3	492			585	25				18		4				1127
U	Best/Roeher	4	476			573	20				15		7				1095
V	Eaton/Kingsley/Jefferson	2	9	3	3	14	1	4	192	1	5	229	4				467
1	Elmwood/Sheridan	17	513	60	165	789	38	54	260	130	20	269	37				2352
2	Elmwood/Kenmore	9	159	106	118	250	52	62	224	55	39	543	52				1669
3	Elmwood/W. Ferry	53	211	27	58	190	71	14	220	35	67	369	36				1351
4	Delaware/Sheridan	95	504	46	121	695	51	134	513	116	156	592	174				3197
5	Delaware/Kenmore	27	210	30	169	315	49	55	322	96	68	538	54				1933
6	Delaware/W. Ferry	23	268	53	59	265	115	46	378	68	52	584	67				1978
7	W. Ferry/Main	179	182	76	94	298	11	34	315	48	6	531	87				1861
8	Jefferson/Sycamore	21	59	10	17	94	31	28	415	14	16	382	20				1107
9	Jefferson/Broadway	26	145	10	31	259	68	9	344	44	63	305	38				1342
10	Genesee/Best	111	212	0	71	265	1	1	196	69	1	322	123				1372
11	Fillmore/Sycamore	26	73	28	30	140	43	27	295	36	26	331	32				1087
12	Fillmore/Broadway	36	178	20	22	308	63	18	213	21	82	195	48				1204
14	Grider/Warwick/Rt. 33 EB Ramp	0	0	0	720	95	96	146	194	0	0	213	157				1621
15	Grider/Pembroke/Rt. 33 WB Ramp	128	65	459	0	0	0	0	251	250	98	821	0				2072
16	Grider/E. Delavan	90	153	25	47	195	65	32	187	29	36	165	99				1123
17	Main/Kenmore	604	0	41	0	0	0	28	448	0	0	465	329				1915
18	Main/Kensington	94	90	121	312	0	0	0	576	161	280	728	0				2362
19	Main/ E. Delavan	338	297	60	52	147	11	33	472	148	6	665	246				2475
20	Best/Sycamore/Walden	0	244	0	150	376	0	0	0	98	0	0	0				868
21	Bailey/Sheridan	59	727	38	81	498	46	61	157	35	85	196	23				2006
22	Bailey/Rt. 263	0	0	0	1	596	12	226	372	6	6	26	490	6	28	3	1772
23	Bailey/Main	0	667	4	157	523	4	81	488	45	74	800	252				3095
24	Bailey/Kensington	83	133	49	47	235	111	41	583	25	53	642	110				2112
25	Bailey/E. Delavan	30	139	57	43	194	44	117	323	29	53	343	54				1426
26	Bailey/E. Ferry	84	3	115	0	0	0	192	405	4	1	382	81				1267
27	Bailey/Genesee	50	212	16	37	292	70	14	492	82	51	371	64				1751
28	Bailey/Walden	39	161	99	100	229	35	216	516	102	32	368	43				1940
29	Bailey/Broadway	80	164	87	81	363	297	117	443	64	164	349	77				2286
30	Bailey/William	49	145	75	117	319	47	166	499	115	42	432	124				2130
31	Harlem/Genesee	141	209	144	125	210	118	120	673	169	50	377	80				2416
32	Harlem/Walden	25	252	122	170	245	139	128	712	242	195	430	30				2690
33	Harlem/William	214	139	46	124	236	243	68	712	54	149	436	150				2571
34	William/I-90 WB Ramps	0	397	187	609	429	0	0	0	0	389	2	280				2293
35	William/I-90 EB Ramps	176	612	0	0	880	624	162	2	749	0	0	0				3205

Appendix A-1a: Intersection Analysis - No Build - ETC+20 (Fillmore/William Intersection)

Intersection		William EB				Fillmore NB				William WB				Memorial WB				Fillmore SB				Int. Total
#	Roadways	L	Memorial	T	R	L	T	Memorial	R	L	T	R	Memorial	William EB	Fillmore SB	William WB	Fillmore NB	Memorial	L	T	R	
13	Fillmore/William Intersection	12	21	96	10	23	160	65	16	20	171	43	0	7	64	33	6	4	77	140	18	986

A-2

No Build Intersection Volumes

PM Peak Hour

Appendix A-2: PM Intersection Analysis - No Build - ETC+20

Intersection		EB			WB			NB			SB			Other			Int. Total
#	Roadways	L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2	
1	Best St/EB Ramps	415	666			331	472	39	121	138							2182
2	Best St/WB Ramps		662	45	102	272					409	1	261				1752
3	Best St/W Parade/Herman	16	616	156	2	621	67	94	37	10	107	48	85	19	14	1	1893
4	Northhampton/SB Humboldt		123	4	17	98					92	102	25				461
5	Northhampton/NB Humboldt	51	149			115	39	2	13	6							375
6	E Utica/SB Humboldt		209	36	64	132					102	423	77				1043
7	E Utica/NB Humboldt	131	184			109	33	91	245	77							870
8	E Ferry/SB Humboldt		439	77	136	299					302	418	392				2063
9	E Ferry/NB Humboldt	321	426			355	91	80	282	67							1622
10	EB Ramps/Jefferson	13	10	1					371	330	337	723					1785
11	WB Ramps/Jefferson				250	13	105	47	343			818	20				1596
12	Genesee/Jefferson	43	131	33	54	141	81	12	578	50	52	552	123				1850
13	Genesee/Herman	12	343	28	23	355	27	22	109	23	36	143	20				1141
14	Genesee/Rich/Reed	3	378			396	16	18	14	27	12		14				878
15	Genesee/Fillmore	33	347	61	78	333	30	43	388	82	54	355	18				1822
16	Best/Fillmore	41	498	153	1	444	33	175	273	6	52	274	53				2003
17	Humboldt/Fillmore	11		10					347			368					736
18	MLK/Fillmore	4		14					365			347					730
19	Northhampton/Fillmore	21	95	23	16	38	17	21	355	10	7	330	50				983
21	Riley/Fillmore	4		7	10		29	3	394	4	19	373	11				854
22	French/Fillmore				13		64		384	13	84	377					935
23	E Utica/Fillmore	105		133				78	392			333	69				1110
24	E Ferry/Fillmore	42	304	94	60	283	54	44	309	65	45	315	81				1696
25	Northland/Fillmore	4	30	22	50	60	20	13	352	34	30	376	22				1013
26	E Delavan/Fillmore	100	221	50	34	179	44	38	324	33	62	334	75				1494
27	E Delavan/NB Humboldt	252	285			297	33	77	239	150							1333
28	E Delavan/SB Humboldt		494	52	110	261					43	64	27				1051
29	E Delavan/Jefferson	93	350	57	59	153	25	50	155	75	13	113	45				1188
30	Northland/Jefferson	30	30	19	13	18	20	27	224	32	21	193	14				641
31	Brunswick/Jefferson				28		28		272	47	10	202					587
32	E Ferry/Jefferson	27	257	59	62	411	67	70	223	78	50	202	28				1534
33	E Utica/Jefferson	13	102	41	52	107	36	42	319	41	18	306	22				1099
34	Riley/Jefferson	13	31	12	18	22	19	7	347	44	12	336	20				881
35	Northhampton/Jefferson	21	49	27	13	47	21	22	333	14	30	309	33				919
36	Best/Jefferson	16	477	47	42	341	69	29	287	89	79	265	27				1768
37	E North/Jefferson	89		155				49	319			328	23				963
38	High/Jefferson	14	63	124	34	61	34	52	314	22	25	447	10				1200
39	E Ferry/Wohlers	63	416	19	17	539	102	11	64	63							1294
40	E Utica/Wohlers	14	176	7	14	156	33	19	47	25	9	25	11				536
A	Woodlawn/SB Humboldt											570	54				624
B	Glenwood/SB Humboldt			42								567					609
C	Riley/ SB Humboldt			34								192	33				259
D	Kingsley/SB Humboldt			14								221	4				239
E	Dodge/W Parade		171			95					102		48				416
F	Dodge/Linden		169	7	6	138		0		2							322
G	Riley/NB Humboldt						11		99	10							120
H	Woepfel/NB Humboldt						7		384	14							405
I	Woodlawn/NB Humboldt						22		380	3							405
J	Florida/SB Humboldt			42								225	18				285
K	Northland/SB Humboldt			59								243	34				336
L	Brunswick/SB Humboldt			75								284	29				388
M	Goulding/SB Humboldt			69								992					1061

Appendix A-2: Intersection Analysis - No Build - ETC+20

Intersection		EB			WB			NB			SB			Other			Int. Total
#	Roadways	L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2	
N	Sidney/NB Humboldt						50		617								667
O	Northland/NB Humboldt						67		595	71							733
P	E Ferry/Roeher		455	16	30	516		18		44							1079
Q	E Utica/Roeher	12	170	10	7	163	17	17	28	18	11	31	9				493
R	Northhampton/Wohlers	7	99	10	6	90	17	13	83	13	18	33	9				398
S	Northhampton/Roeher	6	97	6	6	90	14	6	27	1	10	39	2				304
T	Best/Wohlers	16	671			470	38				19		12				1226
U	Best/Roeher	13	675			472	16				25		14				1215
V	Eaton/Kingsley/Jefferson	17	13	19	9	12	14	6	366	2	11	344	10				823
1	Elmwood/Sheridan	31	942	95	221	767	64	79	386	249	23	302	45				3204
2	Elmwood/Kenmore	54	282	156	145	280	83	117	739	208	53	567	61				2745
3	Elmwood/W. Ferry	57	201	30	59	277	73	38	444	39	47	363	51				1679
4	Delaware/Sheridan	208	903	100	255	815	101	110	732	208	235	866	127				4660
5	Delaware/Kenmore	80	414	59	229	345	109	83	760	270	97	678	70				3194
6	Delaware/W. Ferry	34	293	53	66	413	74	45	741	76	51	697	64				2607
7	W. Ferry/Main	141	228	68	93	329	19	85	577	85	19	437	122				2203
8	Jefferson/Sycamore	30	102	19	28	78	30	6	474	25	37	592	19				1440
9	Jefferson/Broadway	46	194	22	51	505	69	10	392	225	85	505	57				2161
10	Genesee/Best	184	371	2	61	251	3	1	386	126	1	261	124				1771
11	Fillmore/Sycamore	44	164	68	41	136	36	25	348	42	23	419	37				1383
12	Fillmore/Broadway	52	403	69	47	309	117	42	225	53	96	313	51				1777
14	Grider/Warwick/Rt. 33 EB Ramp	0	0	0	126	113	65	284	425	0	0	279	261				1553
15	Grider/Pembroke/Rt. 33 WB Ramp	254	162	207	0	0	0	0	454	490	138	268	0				1973
16	Grider/E. Delavan	95	368	43	59	232	59	32	203	63	108	197	91				1550
17	Main/Kenmore	429	0	39	0	0	0	90	622	0	0	654	497				2331
18	Main/Kensington	91	108	123	345	0	0	0	919	223	276	718	0				2803
19	Main/ E. Delavan	291	359	53	76	254	33	62	690	174	30	536	380				2938
20	Best/Sycamore/Walden	0	420	4	168	412	0	4	0	230	0	0	0				1238
21	Bailey/Sheridan	125	780	84	127	936	133	128	376	91	153	343	74				3350
22	Bailey/Rt. 263				2	477	17	528	612	7	6	17	478	5	35	5	2144
23	Bailey/Main	3	642	6	62	667	11	141	1022	111	65	587	365				3682
24	Bailey/Kensington	163	377	96	41	226	100	57	583	78	57	709	109				2596
25	Bailey/E. Delavan	65	401	120	64	217	61	109	481	68	95	474	55				2210
26	Bailey/E. Ferry	166	0	224	3	1	2	160	526	0	1	566	99				1748
27	Bailey/Genesee	102	416	33	86	281	105	23	482	92	125	588	64				2397
28	Bailey/Walden	57	312	155	141	307	58	160	498	157	101	573	51				2570
29	Bailey/Broadway	127	435	186	104	265	165	147	479	98	262	600	107				2975
30	Bailey/William	133	507	226	133	238	70	110	552	175	75	776	96				3091
31	Harlem/Genesee	113	372	256	222	292	92	174	598	182	126	749	74				3250
32	Harlem/Walden	33	504	221	313	443	463	163	645	271	382	811	31				4280
33	Harlem/William	291	308	100	136	188	177	61	562	102	252	799	218				3194
34	William/I-90 WB Ramps	0	651	169	430	474	0	0	0	0	487	3	164				2378
35	William/I-90 EB Ramps	222	880	0	0	794	504	117	2	749	0	0	0				3268

Appendix A-2a: Intersection Analysis - No Build - ETC+20 (Fillmore/William Intersection)

Intersection		William EB				Fillmore NB				William WB				Memorial WB				Fillmore SB				Int. Total
#	Roadways	L	Memorial	T	R	L	T	Memorial	R	L	T	R	Memorial	William EB	Fillmore SB	William WB	Fillmore NB	Memorial	L	T	R	
13	Fillmore/William Intersection	23	43	195	29	27	158	78	22	25	177	69	44	21	82	36	10	2	99	180	23	1343

A-3

Concept 10 Intersection Volumes

AM Peak Hour

Appendix A-3: AM Intersection Analysis - Concept 10 - ETC+20

#	Intersection Roadways	EB			WB			NB			SB			Other			Int. Total	Overall Growth from Existing Conditions
		L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2		
1	Best St/EB Ramps																0	N/A
2	Best St/WB Ramps																0	N/A
3	Best St/W Parade/Herman	3	391	69	38	472	2	52	18	5	61	37	76	44	25	1	1294	-6.84%
4	Northhampton/SB Humboldt		72	1	5	59					328	290	109				864	228.52%
5	Northhampton/NB Humboldt	27	88			121	33										269	17.98%
6	E Utica/SB Humboldt		97	39	88	129					61	426	73				913	17.20%
7	E Utica/NB Humboldt	58	101			127	20	113	327	78							824	35.75%
8	E Ferry/SB Humboldt		360	67	143	263					160	238	287				1518	-2.63%
9	E Ferry/NB Humboldt	302	373			342	101	69	299	61							1547	43.24%
10	EB Ramps/Jefferson																0	N/A
11	WB Ramps/Jefferson																0	N/A
12	Genesee/Jefferson	129	303	39	166	378	82	11	519	31	20	306	48				2032	51.42%
13	Genesee/Herman	21	327	5	25	669	18	22	71	6	31	89	12				1296	69.86%
14	Genesee/Rich/Reed	4	384			706	19	11	3	10	4		4				1145	84.98%
15	Genesee/Fillmore	53	303	55	154	568	7	36	276	56	11	360	44				1923	52.62%
16	Best/Fillmore	30	256	119	2	482	19	138	242	10	21	267	49				1635	10.40%
17	Humboldt/Fillmore	5		3					303			336					647	19.37%
18	MLK/Fillmore	12		22					323			397					754	53.56%
19	Northhampton/Fillmore	23	79	14	13	35	10	15	272	31	40	391	70				993	52.77%
21	Riley/Fillmore	5		2	2		10	3	333	5	33	511	0				904	60.85%
22	French/Fillmore				21		61		333	5	70	521					1011	63.33%
23	E Utica/Fillmore	51		80				67	310			461	111				1080	50.00%
24	E Ferry/Fillmore	44	186	52	49	323	78	38	309	65	129	1085	243				2601	108.92%
25	Northland/Fillmore	5	42	15	21	41	7	4	299	46	147	1246	36				1909	155.21%
26	E Delavan/Fillmore	83	166	19	38	202	41	23	247	34	114	581	119				1667	46.87%
27	E Delavan/NB Humboldt	311	183			277	22	67	224	107							1191	25.50%
28	E Delavan/SB Humboldt		464	30	115	224					38	41	17				929	21.28%
29	E Delavan/Jefferson	43	389	34	34	176	19	37	122	67	6	99	109				1135	24.04%
30	Northland/Jefferson	19	29	14	21	7	21	15	181	11	19	224	24				585	49.62%
31	Brunswick/Jefferson				27		21		209	34	16	243					550	51.52%
32	E Ferry/Jefferson	33	252	54	39	378	33	60	182	40	36	233	41				1381	21.03%
33	E Utica/Jefferson	13	123	46	23	102	13	52	347	25	18	360	38				1160	76.56%
34	Riley/Jefferson	9	26	15	9	16	5	23	406	16	2	493	23				1043	121.44%
35	Northhampton/Jefferson	9	51	9	16	70	12	21	257	6	16	490	30				987	82.44%
36	Best/Jefferson	21	364	41	50	443	62	31	233	70	66	275	37				1693	22.06%
37	E North/Jefferson	49		62				260	249			322	84				1026	39.21%
38	High/Jefferson	3	33	78	24	88	41	249	449	47	14	385	23				1434	41.84%
39	E Ferry/Wohlers	32	409	5	19	359	41	17	47	83							1012	2.12%
40	E Utica/Wohlers	18	142	13	3	108	13	5	68	40	2	27	9				448	38.27%
A	Woodlawn/SB Humboldt											3309	265				3574	644.58%
B	Glenwood/SB Humboldt			31								3343					3374	605.86%
C	Riley/ SB Humboldt			15								609	124				748	373.42%
D	Kingsley/SB Humboldt			14								633	52				699	372.30%
E	Dodge/W Parade		102			66					54		33				255	6.25%
F	Dodge/Linden		101	1	5	93		1		1							202	6.32%
G	Riley/NB Humboldt						9		352	24							385	369.51%
H	Woepfel/NB Humboldt						4		413	7							424	49.30%
I	Woodlawn/NB Humboldt						13		409	14							436	48.81%
J	Florida/SB Humboldt			25								1040	63				1128	559.65%
K	Northland/SB Humboldt			38								1159	147				1344	568.66%
L	Brunswick/SB Humboldt			65								1375	84				1524	493.00%
M	Goulding/SB Humboldt			48								6917					6965	615.09%
N	Sidney/NB Humboldt						41		659								700	38.34%
O	Northland/NB Humboldt						63		626	83							772	37.37%
P	E Ferry/Roher		261	8	21	694		2		21							1007	17.23%
Q	E Utica/Roher	6	161	0	2	129	7	3	11	4	2	13	4				342	22.58%

Appendix A-3: Intersection Analysis - Concept 10 - ETC+20

Intersection		EB			WB			NB			SB			Other			Int. Total	Overall Growth from Existing Conditions
#	Roadways	L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2		
R	Northhampton/Wohlers	10	85	4	3	97	12	17	49	8	28	30	12				355	66.67%
S	Northhampton/Roeher	0	92	3	4	97	5	4	15	2	4	15	0				241	33.89%
T	Best/Wohlers	3	487			608	26				40		9				1173	11.08%
U	Best/Roeher	4	471			596	21				15		7				1114	8.47%
V	Eaton/Kingsley/Jefferson	2	9	3	3	14	1	6	275	1	11	520	9				854	94.53%
1	Elmwood/Sheridan	17	513	60	170	813	39	54	260	130	20	274	38				2388	8.25%
2	Elmwood/Kenmore	9	161	107	122	258	54	63	226	56	40	554	53				1703	8.82%
3	Elmwood/W. Ferry	53	211	27	59	192	72	14	227	36	76	421	41				1429	12.79%
4	Delaware/Sheridan	96	509	46	125	716	53	135	518	117	159	604	177				3255	8.64%
5	Delaware/Kenmore	27	212	30	176	328	51	54	319	95	67	527	53				1939	7.01%
6	Delaware/W. Ferry	22	260	51	54	244	106	51	420	75	67	753	86				2189	18.07%
7	W. Ferry/Main	174	177	74	90	286	11	46	428	65	10	908	149				2418	38.57%
8	Jefferson/Sycamore	35	99	17	29	162	53	26	382	13	11	267	14				1108	6.85%
9	Jefferson/Broadway	34	189	13	37	308	81	8	316	40	55	265	33				1379	9.71%
10	Genesee/Best	92	176	0	84	313	1	2	347	122	1	435	166				1739	35.12%
11	Fillmore/Sycamore	33	92	35	47	218	67	28	307	37	30	381	37				1312	29.13%
12	Fillmore/Broadway	41	205	23	23	317	65	22	258	25	85	203	50				1317	16.45%
14	Grider/Warwick/Rt. 33 EB Ramp				943	124	126	130	173	0	0	190	140				1826	20.13%
15	Grider/Pembroke/Rt. 33 WB Ramp	91	46	326				0	547	545	322	2701	0				4578	135.86%
16	Grider/E. Delavan	104	177	29	48	199	66	73	428	66	118	543	326				2177	106.94%
17	Main/Kenmore	598	0	41				27	439	0	0	456	322				1883	4.96%
18	Main/Kensington	127	122	163	406	0	0	0	772	216	294	764	0				2864	29.48%
19	Main/ E. Delavan	362	318	64	60	171	13	43	609	191	9	1017	376				3233	39.35%
20	Best/Sycamore/Walden	0	227	0	185	462	0	0	0	165							1039	27.64%
21	Bailey/Sheridan	59	727	38	82	503	46	60	154	34	82	190	22				1997	6.17%
22	Bailey/Rt. 263				1	590	12	221	365	6	6	24	451	6	27	3	1712	3.01%
23	Bailey/Main	0	647	4	149	497	4	79	473	44	71	768	242				2978	2.69%
24	Bailey/Kensington	81	129	48	58	289	137	38	536	23	42	507	87				1975	-0.20%
25	Bailey/E. Delavan	37	171	70	50	225	51	147	407	37	75	487	77				1834	37.28%
26	Bailey/E. Ferry	81	3	112	0	0	0	228	482	5	2	615	130				1658	39.44%
27	Bailey/Genesee	74	312	24	44	350	84	15	541	90	82	597	103				2316	40.96%
28	Bailey/Walden	44	180	111	112	256	39	225	537	106	44	508	59				2221	22.03%
29	Bailey/Broadway	91	187	99	89	399	327	121	456	66	184	391	86				2496	16.47%
30	Bailey/William	52	155	80	124	338	50	178	534	123	46	475	136				2291	14.72%
31	Harlem/Genesee	152	226	156	150	252	142	130	727	183	55	415	88				2676	18.20%
32	Harlem/Walden	27	267	129	175	252	143	141	783	266	226	499	35				2943	16.79%
33	Harlem/William	231	150	50	133	253	260	67	705	53	153	449	155				2659	10.29%
34	William/I-90 WB Ramps	0	405	191	597	420	0				401	2	288				2304	7.21%
35	William/I-90 EB Ramps	180	624	0	0	862	612	156	2	719							3155	4.99%

Appendix A-3a: Intersection Analysis - Concept 10 - ETC+20

Intersection		William EB				Fillmore NB				William WB				Memorial WB				Fillmore SB				Int. Total	Growth
#	Roadways	L	Memorial	T	R	L	T	Memorial	R	L	T	R	Memorial	William EB	Fillmore SB	William WB	Fillmore NB	Memorial	L	T	R		
13	Fillmore/William Intersection	12	20	92	10	26	182	74	18	20	171	43	0	9	84	44	8	5	95	174	22	1109	-11.98%

A-4

Concept 10 Intersection Volumes

PM Peak Hour

Appendix A-4: PM Intersection Analysis - Concept 10 - ETC+20

#	Intersection Roadways	EB			WB			NB			SB			Other			Int. Total	Overall Growth from Existing Conditions
		L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2		
1	Best St/EB Ramps																0	N/A
2	Best St/WB Ramps																0	N/A
3	Best St/W Parade/Herman	18	678	172	3	789	85	107	42	11	116	52	92	20	15	1	2201	24.07%
4	Northhampton/SB Humboldt		154	5	22	126					470	521	128				1426	230.09%
5	Northhampton/NB Humboldt	64	186			148	50										448	26.91%
6	E Utica/SB Humboldt		247	42	45	92					109	453	82				1070	9.41%
7	E Utica/NB Humboldt	155	217			97	29	103	277	87							965	18.40%
8	E Ferry/SB Humboldt		593	104	170	374					755	1045	980				4021	108.13%
9	E Ferry/NB Humboldt	433	575			444	114	90	319	76							2051	34.93%
10	EB Ramps/Jefferson																0	N/A
11	WB Ramps/Jefferson																0	N/A
12	Genesee/Jefferson	161	490	123	121	316	181	14	676	59	52	552	123				2868	65.40%
13	Genesee/Herman	23	659	54	44	682	52	22	108	23	57	227	32				1983	85.33%
14	Genesee/Rich/Reed	6	726			760	31	19	15	29	13		15				1614	96.35%
15	Genesee/Fillmore	63	666	117	150	639	58	49	442	93	58	383	19				2737	60.25%
16	Best/Fillmore	45	548	168	1	564	42	200	311	7	96	504	98				2584	37.59%
17	Humboldt/Fillmore	12		11					396			677					1096	59.07%
18	MLK/Fillmore	4		15					416			638					1073	56.87%
19	Northhampton/Fillmore	21	95	23	17	41	18	34	568	16	13	607	92				1545	67.39%
21	Riley/Fillmore	4		7	10		29	6	725	7	35	686	20				1529	90.89%
22	French/Fillmore				18		86		707	24	155	694					1684	92.24%
23	E Utica/Fillmore	93		118				144	721			613	127				1816	74.62%
24	E Ferry/Fillmore	41	295	91	84	396	76	81	569	120	59	416	107				2335	46.95%
25	Northland/Fillmore	4	30	22	50	60	20	19	503	49	40	496	29				1322	39.16%
26	E Delavan/Fillmore	103	228	52	42	220	54	54	463	47	93	501	113				1970	40.61%
27	E Delavan/NB Humboldt	260	294			306	34	103	320	201							1518	21.54%
28	E Delavan/SB Humboldt		548	58	111	264					59	88	37				1165	18.27%
29	E Delavan/Jefferson	100	378	62	74	191	31	68	209	101	20	171	68				1473	32.58%
30	Northland/Jefferson	37	37	23	18	25	28	36	302	43	32	291	21				893	48.59%
31	Brunswick/Jefferson				30		30		359	62	15	305					801	45.90%
32	E Ferry/Jefferson	30	288	66	45	300	49	106	337	118	90	362	50				1841	28.11%
33	E Utica/Jefferson	16	122	49	47	97	33	83	632	81	32	542	39				1773	72.14%
34	Riley/Jefferson	14	33	13	19	23	20	14	687	87	24	665	40				1639	98.43%
35	Northhampton/Jefferson	25	58	32	15	56	25	37	566	24	59	612	65				1574	82.60%
36	Best/Jefferson	15	448	44	41	331	67	32	321	100	134	451	46				2030	22.58%
37	E North/Jefferson	79		138				55	357			558	39				1226	35.92%
38	High/Jefferson	13	57	112	41	73	41	58	352	25	28	501	11				1312	16.73%
39	E Ferry/Wohlers	71	470	21	11	334	63	19	108	106							1203	-0.82%
40	E Utica/Wohlers	18	222	9	11	119	25	32	79	42	16	44	19				636	26.95%
A	Woodlawn/SB Humboldt											610	58				668	14.19%
B	Glenwood/SB Humboldt			45								607					652	14.39%
C	Riley/ SB Humboldt			36								981	169				1186	388.07%
D	Kingsley/SB Humboldt			15								1129	20				1164	419.64%
E	Dodge/W Parade		182			101					102		48				433	11.03%
F	Dodge/Linden		180	7	6	147		0		2							342	13.25%
G	Riley/NB Humboldt						12		506	51							569	408.04%
H	Woepfel/NB Humboldt						7		434	16							457	20.26%
I	Woodlawn/NB Humboldt						23		429	3							455	19.74%
J	Florida/SB Humboldt			45								308	25				378	41.57%
K	Northland/SB Humboldt			63								333	47				443	40.63%
L	Brunswick/SB Humboldt			80								710	73				863	137.74%
M	Goulding/SB Humboldt			74								615					689	-30.75%
N	Sidney/NB Humboldt						53		882								935	49.60%
O	Northland/NB Humboldt						71		851	102							1024	48.84%
P	E Ferry/Roher		514	18	22	377		19		47							997	-1.38%
Q	E Utica/Roher	15	214	13	6	148	15	18	30	19	12	33	10				533	15.62%

Appendix A-4: Intersection Analysis - Concept 10 - ETC+20

Intersection		EB			WB			NB			SB			Other			Int. Total	Overall Growth from Existing Conditions
#	Roadways	L	T	R	L	T	R	L	T	R	L	T	R	EB L2	WB R2	NB R2		
R	Northhampton/Wohlers	10	139	14	8	124	23	26	164	26	35	65	18				652	74.80%
S	Northhampton/Roeher	8	126	8	8	114	18	6	29	1	11	42	2				373	30.42%
T	Best/Wohlers	16	664			738	60				35		22				1535	33.59%
U	Best/Roeher	13	668			415	14				27		15				1152	1.23%
V	Eaton/Kingsley/Jefferson	18	14	20	10	13	15	10	622	3	22	681	20				1448	88.05%
1	Elmwood/Sheridan	32	970	98	228	790	66	81	394	254	23	305	45				3286	9.42%
2	Elmwood/Kenmore	56	293	162	146	283	84	119	754	212	106	1134	122				3471	34.90%
3	Elmwood/W. Ferry	58	203	30	64	299	79	41	480	42	53	410	58				1817	15.51%
4	Delaware/Sheridan	216	939	104	263	839	104	113	754	214	240	883	130				4799	9.87%
5	Delaware/Kenmore	81	418	60	234	352	111	166	1520	540	96	671	69				4318	44.27%
6	Delaware/W. Ferry	32	278	50	65	409	73	52	852	87	65	892	82				2937	20.22%
7	W. Ferry/Main	134	217	65	87	309	18	122	825	122	31	721	201				2852	38.04%
8	Jefferson/Sycamore	53	179	33	49	137	53	7	521	28	40	639	21				1760	30.37%
9	Jefferson/Broadway	64	272	31	58	576	79	8	310	178	94	556	63				2289	13.04%
10	Genesee/Best	212	427	2	68	279	3	1	494	161	1	350	166				2164	30.36%
11	Fillmore/Sycamore	62	230	95	63	209	55	26	365	44	24	444	39				1656	27.78%
12	Fillmore/Broadway	61	476	81	48	318	121	53	286	67	98	319	52				1980	18.78%
14	Grider/Warwick/Rt. 33 EB Ramp				188	168	97	389	582	0	0	14	13				1451	-0.27%
15	Grider/Pembroke/Rt. 33 WB Ramp	13	8	10				0	622	671	377	732	0				2433	31.66%
16	Grider/E. Delavan	123	475	55	70	274	70	76	481	149	295	538	248				2854	96.69%
17	Main/Kenmore	433	0	39				87	603	0	0	667	507				2336	6.91%
18	Main/Kensington	112	133	151	393	0	0	0	1231	299	284	740	0				3343	27.30%
19	Main/ E. Delavan	332	409	60	95	318	41	82	911	230	46	815	578				3917	42.28%
20	Best/Sycamore/Walden	0	382	4	200	490	0	7	0	396							1479	27.39%
21	Bailey/Sheridan	125	780	84	127	936	133	124	365	88	150	336	73				3321	5.83%
22	Bailey/Rt. 263				2	467	17	507	588	7	6	16	454	5	34	5	2108	2.63%
23	Bailey/Main	3	629	6	57	614	10	135	981	107	62	564	350				3518	1.94%
24	Bailey/Kensington	147	339	86	47	258	114	47	478	64	50	617	95				2342	-3.66%
25	Bailey/E. Delavan	59	365	109	72	245	69	157	693	98	126	630	73				2696	30.18%
26	Bailey/E. Ferry	186	0	251	3	1	2	219	721	0	1	781	137				2302	40.45%
27	Bailey/Genesee	152	620	49	101	329	123	29	598	114	173	811	88				3187	41.83%
28	Bailey/Walden	69	378	188	159	347	66	168	523	165	127	722	64				2976	23.59%
29	Bailey/Broadway	144	492	210	115	294	183	157	513	105	280	642	114				3249	16.54%
30	Bailey/William	146	558	249	145	259	76	120	602	191	80	823	102				3351	15.67%
31	Harlem/Genesee	116	383	264	246	324	102	191	658	200	134	794	78				3490	14.58%
32	Harlem/Walden	35	529	232	322	456	477	187	742	312	420	892	34				4638	15.66%
33	Harlem/William	303	320	104	146	201	189	62	568	103	267	847	231				3341	11.59%
34	William/I-90 WB Ramps	0	644	167	421	465	0				477	3	161				2338	4.94%
35	William/I-90 EB Ramps	220	871	0	0	778	494	116	2	742							3223	5.22%

Appendix A-4a: Intersection Analysis - Concept 10 - ETC+20

Intersection		William EB			Fillmore NB				William WB				Memorial WB				Fillmore SB				Int. Total	Growth	
#	Roadways	L	Memorial	T	R	L	T	Memorial	R	L	T	R	Memorial	William EB	Fillmore SB	William WB	Fillmore NB	Memorial	L	T			R
13	Fillmore/William Intersection	24	45	205	30	32	185	91	26	26	182	71	45	28	108	48	13	2	123	223	29	1536	21.90%

A-5

**No-Build Versus Concept 10
Segment AADT and Volumes
AM Peak Hour**

Appendix A-5: Segment Analysis ETC+20

Roadway	Limits		Existing AADT	Existing AM Peak Hour Volume	AM Peak Hour No Build Scenario		AM Peak Hour Concept 10 Scenario		
	Start	End			AADT ETC+20	Volume ETC +20	AADT ETC+20	Volume ETC+20	% Change from No Build
Best St	Michigan	Jefferson	8,611	665	9166	708	8524	658	-7.00%
Best St	Jefferson	Wohlers	10,837	767	11535	816	11074	783	-4.00%
Best St	Wohlers	Fillmore	14,446	904	15376	962	13992	875	-9.00%
Humboldt Parkway SB	Kensington	E Delavan	2,005	107	2134	114	2817	150	32.00%
Humboldt Parkway SB	E Delavan	Florida	2,435	161	2592	171	18092	1194	598.00%
Humboldt Parkway SB	Butler	Goulding	12,515	865	13321	921	8792	608	-34.00%
Humboldt Parkway SB	Landon	E Utica	2,436	165	2593	176	2852	194	10.00%
Humboldt Parkway NB	Inter Park	Sidney	6,902	412	7347	439	9698	579	32.00%
Humboldt Parkway NB	Dignity	E Delavan	4,852	280	5165	298	6818	393	32.00%
E Ferry	Wohlers	Humboldt SB	11,997	782	12770	832	8428	549	-34.00%
E Ferry	Humboldt NB	Fillmore	9,420	580	10027	617	14238	876	42.00%
E Utica	Wohlers	Humboldt SB	4,500	285	4790	303	3784	239	-21.00%
E Utica	Humboldt NB	Fillmore	4,147	239	4414	254	4900	282	11.00%
Northhampton St	Wohlers	Fillmore	2,210	148	2352	158	3222	216	37.00%
Genesee St	Jefferson	Fillmore	5,249	346	5587	368	9889	651	77.00%
Route 33 WB Off Ramp	Route 33 WB	E Ferry	8,723	592	9285	630	N/A Roadway Removed		
Route 33 EB Off Ramp	Route 33 EB	Best	1,870	129	1990	137	N/A Roadway Removed		
Route 33 EB On Ramp	Best	Route 33 EB	9,436	540	10044	575	N/A Roadway Removed		
Route 33 EB Off Ramp	Route 33 EB	E Utica	2,874	218	3059	232	N/A Roadway Removed		
Route 33 WB On Ramp	E Utica	Route 33 WB	3,079	239	3277	254	N/A Roadway Removed		
Route 33 WB Off Ramp	Route 33 WB	Best	8,263	631	8795	672	N/A Roadway Removed		
Route 33 WB On Ramp	Best	Route 33 WB	1,848	137	1967	146	N/A Roadway Removed		
Route 33 Off Ramp	Route 33 EB	WB 198	11,076	622	11789	662	N/A Roadway Removed		
Route 33 On Ramp	E Delavan	Route 33 EB	10,374	646	11042	688	14686	915	33.00%
Route 198 On Ramp	Humboldt NB	Route 198 WB	2,633	170	2803	181	4289	277	53.00%
Route 198 Off Ramp	Route 198 EB	Route 33 EB	22,825	1,776	24295	1890	32069	2495	32.00%
Mainline AADT									
Route 33 EB	Fillmore	Grider	48,884	3,202	52033	3408	35382	2317	-32.00%
Route 33 WB	Grider	Fillmore	53,690	4,775	57148	5083	29145	2592	-49.00%
Route 33 EB	E Utica	NY 198	35,268	1,861	37540	1981	N/A Roadway Removed		
Route 33 WB	NY 198	E Utica	35,958	4,006	38274	4264	N/A Roadway Removed		
Route 33 EB	Best	E Utica	37,888	2,048	40328	2180	N/A Roadway Removed		
Route 33 WB	E Utica	Best	38,524	4,329	41005	4608	N/A Roadway Removed		
Route 33 EB	Jefferson	Best	29,958	1,825	31888	1943	N/A Roadway Removed		
Route 33 WB	Best	Jefferson	33,111	4,003	35244	4261	N/A Roadway Removed		
Route 33 EB	Michigan	Jefferson	25,411	1,550	27048	1650	N/A Roadway Removed		
Route 33 WB	Jefferson	Michigan	22,814	2,749	24283	2926	N/A Roadway Removed		

Appendix A-5: Segment Analysis ETC+20

Roadway	Limits		Existing AADT	Existing AM Peak Hour	AM Peak Hour No Build Scenario		AM Peak Hour Concept 10 Scenario		
	Start	End		Volume	AADT ETC+20	Volume ETC +20	AADT ETC+20	Volume ETC+20	% Change from No Build
Sycamore (EB)	Jefferson	Fillmore	2,043	136	2175	145	4198	280	93.00%
Sycamore (WB)	Jefferson	Fillmore	2,310	168	2459	179	4254	310	73.00%
Broadway (EB)	Jefferson	Fillmore	5,081	326	5408	347	6219	399	15.00%
Broadway (WB)	Jefferson	Fillmore	3,973	306	4229	326	5075	391	20.00%
William (EB)	Jefferson	Fillmore	2,753	160	2930	170	3135	182	7.00%
William (WB)	Jefferson	Fillmore	3,046	239	3242	254	3566	279	10.00%
E. Delavan (EB)	Fillmore	Grider	4,176	232	4445	247	5156	287	16.00%
E. Delavan (WB)	Fillmore	Grider	3,975	250	4231	266	5585	351	32.00%
E. Ferry (EB)	Fillmore	Grider	5,290	266	5631	283	7546	379	34.00%
E. Ferry (WB)	Fillmore	Grider	4,868	279	5182	297	8550	490	65.00%
Walden (EB)	Fillmore	Sycamore	4,364	267	4645	284	3902	239	-16.00%
Walden (WB)	Fillmore	Sycamore	4,301	327	4578	348	5539	421	21.00%
Sycamore (EB)	Fillmore	Walden	2,305	138	2453	147	4047	243	65.00%
Sycamore (WB)	Fillmore	Walden	2,007	132	2136	141	3567	235	67.00%
Genesee (EB)	Doat	Bailey	4,368	261	4649	278	6834	409	47.00%
Genesee (WB)	Doat	Bailey	4,667	357	4968	380	7899	604	59.00%
Walden (EB)	Bailey	Pine Ridge	5,686	387	6052	412	6657	453	10.00%
Walden (WB)	Bailey	Pine Ridge	5,856	366	6233	390	7106	445	14.00%
Broadway (EB)	Bailey	Harlem	7,127	400	7586	426	8041	452	6.00%
Broadway (WB)	Bailey	Harlem	6,712	618	7144	658	8287	763	16.00%
William (EB)	Rosler	Harlem	5,274	305	5614	325	6119	354	9.00%
William (WB)	Rosler	Harlem	4,954	371	5273	395	5800	435	10.00%
Elmwood (NB)	Kenmore	Hertel	10,187	724	10843	771	10951	779	1.00%
Elmwood (SB)	Kenmore	Hertel	10,192	669	10848	712	11173	733	3.00%
Delaware (NB)	Kenmore	Hertel	9,479	621	10090	661	9989	654	-1.00%
Delaware (SB)	Kenmore	Hertel	9,306	635	9905	676	9905	676	0.00%
Main (EB)	Amherst	Hertel	9,082	667	9667	710	10054	738	4.00%
Main (WB)	Amherst	Hertel	9,649	751	10271	799	10887	847	6.00%
I-190 (NB)	Vulcan	Ontario	29,926	2,112	31854	2248	32491	2293	2.00%
I-190 (SB)	Vulcan	Ontario	32,137	3,688	34207	3926	35233	4044	3.00%
I-190 (NB)	Amherst	Rt. 198	36,755	2,660	39122	2831	39904	2888	2.00%
I-190 (SB)	Amherst	Rt. 198	36,864	3,964	39238	4219	40808	4388	4.00%
Rt. 198 (EB)	Delaware	Parkside	20,877	1,836	22222	1954	21333	1876	-4.00%
Rt. 198 (WB)	Delaware	Parkside	20,625	1,402	21953	1492	22831	1552	4.00%
Rt. 198 (EB)	Parkside	Main	26,788	2,641	28513	2811	38493	3795	35.00%
Rt. 198 (WB)	Parkside	Main	26,641	1,700	28357	1809	26088	1664	-8.00%
Rt. 198 (EB)	Main	Rt. 33	31,466	2,980	33493	3172	21101	1998	-37.00%
Rt. 198 (WB)	Main	Rt. 33	34,205	2,528	36408	2691	37500	2772	3.00%
Rt. 33 (EB)	Rt. 198	Grider	47,444	3,265	50500	3475	34340	2363	-32.00%
Rt. 33 (WB)	Rt. 198	Grider	49,909	5,130	53124	5460	27093	2785	-49.00%
I-290 (NB)	Rt. 263	Rt. 324	57,134	4,686	60814	4988	60206	4938	-1.00%
I-290 (SB)	Rt. 263	Rt. 324	59,451	4,892	63280	5207	62014	5103	-2.00%

Appendix A-5: Segment Analysis ETC+20

Roadway	Limits		Existing AADT	Existing AM Peak Hour Volume	AM Peak Hour No Build Scenario		AM Peak Hour Concept 10 Scenario		
	Start	End			AADT ETC+20	Volume ETC +20	AADT ETC+20	Volume ETC+20	% Change from No Build
I-90 (EB)	Cleveland	Rt. 33	69,383	5,608	73852	5969	73852	5969	0.00%
I-90 (WB)	Cleveland	Rt. 33	69,757	5,516	74250	5871	73508	5812	-1.00%
I-90 (EB)	Rt. 33	Walden	62,719	5,094	66759	5422	70097	5693	5.00%
I-90 (WB)	Rt. 33	Walden	62,135	4,474	66137	4762	74073	5333	12.00%
I-90 (EB)	Walden	William	61,614	5,338	65583	5682	70174	6080	7.00%
I-90 (WB)	Walden	William	59,905	4,232	63764	4505	73329	5181	15.00%
I-90 (EB)	William	I-190	60,003	4,973	63868	5293	68339	5664	7.00%
I-90 (WB)	William	I-190	58,448	4,370	62213	4651	70301	5256	13.00%
Main (EB)	Ferry	Rt. 198	6,427	436	6841	464	9167	622	34.00%
Main (WB)	Ferry	Rt. 198	5,824	525	6199	559	9484	855	53.00%
Fillmore (NB)	Kensington	Ferry	3,884	234	4134	249	6904	416	67.00%
Fillmore (SB)	Kensington	Ferry	4,209	285	4480	303	6810	461	52.00%
Bailey (NB)	Walden	Broadway	9,870	714	10506	760	11031	798	5.00%
Bailey (SB)	Walden	Broadway	9,797	554	10428	590	11679	661	12.00%
I-90 WB Off Ramp to Rt. 33 WB			16,248	1,724	17295	1835	12798	1358	-26.00%
Rt. 33 WB Off Ramp to I-90 WB			6,309	414	6715	441	9602	631	43.00%
I-90 EB Off Ramp to Rt. 33 WB			8,705	706	9266	751	9915	804	7.00%
Rt. 33 WB Off Ramp to I-90 EB			8,205	600	8733	639	9170	671	5.00%
I-90 EB Off Ramp to Rt. 33 EB			7,539	560	8025	596	9068	673	13.00%
Rt. 33 EB Off Ramp to I-90 EB			13,339	906	14198	964	11074	752	-22.00%
I-90 WB Off Ramp to Rt. 33 EB			7,687	478	8182	509	8346	519	2.00%
Rt. 33 EB Off Ramp to I-90 WB			11,102	693	11817	738	13353	834	13.00%
I-190 (NB)	Michigan	Hamburg	41,314	4,670	43975	4971	47053	5319	7.00%
I-190 (SB)	Michigan	Hamburg	40,475	2,712	43082	2887	45236	3031	5.00%
I-190 (NB)	Hamburg	Smith	40,815	4,666	43444	4967	46920	5364	8.00%
I-190 (SB)	Hamburg	Smith	42,408	2,530	45140	2693	47397	2828	5.00%
I-190 (NB)	Smith	Clinton	33,896	4,238	36079	4511	40048	5007	11.00%
I-190 (SB)	Smith	Clinton	35,841	1,942	38150	2067	42347	2294	11.00%
I-190 (NB)	Clinton	S. Ogden	35,990	4,348	38308	4628	42522	5137	11.00%
I-190 (SB)	Clinton	S. Ogden	38,376	2,081	40848	2215	45750	2481	12.00%

A-6

**No-Build Versus Concept 10
Segment AADT and Volumes
PM Peak Hour**

Appendix A-6: Segment Analysis ETC+20

Roadway	Limits		Existing AADT	Existing PM Peak Hour Volume	PM Peak Hour No Build Scenario		PM Peak Hour Concept 10 Scenario		
	Start	End			AADT ETC+20	Volume ETC +20	AADT ETC+20	Volume ETC+20	% Change from No Build
Best St	Michigan	Jefferson	8,611	714	9166	760	8891	737	-3.00%
Best St	Jefferson	Wohlers	10,837	947	11535	1008	10151	887	-12.00%
Best St	Wohlers	Fillmore	14,446	1,171	15376	1246	15068	1221	-2.00%
Humboldt Parkway SB	Kensington	E Delavan	2,005	174	2134	185	2924	253	37.00%
Humboldt Parkway SB	E Delavan	Florida	2,435	222	2592	236	6480	590	150.00%
Humboldt Parkway SB	Butler	Goulding	12,515	1,093	13321	1163	33303	2908	150.00%
Humboldt Parkway SB	Landon	E Utica	2,436	212	2593	226	2775	242	7.00%
Humboldt Parkway NB	Inter Park	Sidney	6,902	564	7347	600	9845	804	34.00%
Humboldt Parkway NB	Dignity	E Delavan	4,852	385	5165	410	6921	549	34.00%
E Ferry	Wohlers	Humboldt SB	11,997	1,013	12770	1078	17240	1455	35.00%
E Ferry	Humboldt NB	Fillmore	9,420	837	10027	891	12534	1114	25.00%
E Utica	Wohlers	Humboldt SB	4,500	411	4790	437	5652	516	18.00%
E Utica	Humboldt NB	Fillmore	4,147	370	4414	394	3928	351	-11.00%
Northhampton St	Wohlers	Fillmore	2,210	205	2352	218	3246	301	38.00%
Genesee St	Jefferson	Fillmore	5,249	506	5587	539	10727	1035	92.00%
Route 33 WB Off Ramp	Route 33 WB	E Ferry	8,723	678	9285	722	N/A Roadway Removed		
Route 33 EB Off Ramp	Route 33 EB	Best	1,870	168	1990	179	N/A Roadway Removed		
Route 33 EB On Ramp	Best	Route 33 EB	9,436	855	10044	910	N/A Roadway Removed		
Route 33 EB Off Ramp	Route 33 EB	E Utica	2,874	250	3059	266	N/A Roadway Removed		
Route 33 WB On Ramp	E Utica	Route 33 WB	3,079	294	3277	313	N/A Roadway Removed		
Route 33 WB Off Ramp	Route 33 WB	Best	8,263	676	8795	720	N/A Roadway Removed		
Route 33 WB On Ramp	Best	Route 33 WB	1,848	156	1967	166	N/A Roadway Removed		
Route 33 Off Ramp	Route 33 EB	WB 198	11,076	1,177	11789	1253	N/A Roadway Removed		
Route 33 On Ramp	E Delavan	Route 33 EB	10,374	770	11042	820	14686	1091	33.00%
Route 198 On Ramp	Humboldt NB	Route 198 WB	2,633	247	2803	263	3756	352	34.00%
Route 198 Off Ramp	Route 198 EB	Route 33 EB	22,825	2,334	24295	2484	32312	3304	33.00%
Mainline AADT									
Route 33 EB	Fillmore	Grider	48,884	4,227	52033	4499	29138	2519	-44.00%
Route 33 WB	Grider	Fillmore	53,690	3,762	57148	4004	30288	2122	-47.00%
Route 33 EB	E Utica	NY 198	35,268	3,877	37540	4127	N/A Roadway Removed		
Route 33 WB	NY 198	E Utica	35,958	2,477	38274	2637	N/A Roadway Removed		
Route 33 EB	Best	E Utica	37,888	4,190	40328	4460	N/A Roadway Removed		
Route 33 WB	E Utica	Best	38,524	2,736	41005	2912	N/A Roadway Removed		
Route 33 EB	Jefferson	Best	29,958	3,100	31888	3300	N/A Roadway Removed		
Route 33 WB	Best	Jefferson	33,111	2,175	35244	2315	N/A Roadway Removed		
Route 33 EB	Michigan	Jefferson	25,411	2,805	27048	2986	N/A Roadway Removed		
Route 33 WB	Jefferson	Michigan	22,814	1,715	24283	1825	N/A Roadway Removed		

Appendix A-6: Segment Analysis ETC+20

Roadway	Limits		Existing AADT	Existing PM Peak Hour	PM Peak Hour No Build Scenario		PM Peak Hour Concept 10 Scenario		
	Start	End		Volume	AADT ETC+20	Volume ETC +20	AADT ETC+20	Volume ETC+20	% Change from No Build
Sycamore (EB)	Jefferson	Fillmore	2,043	204	2175	217	3806	380	75.00%
Sycamore (WB)	Jefferson	Fillmore	2,310	193	2459	205	4303	359	75.00%
Broadway (EB)	Jefferson	Fillmore	5,081	499	5408	531	6381	627	18.00%
Broadway (WB)	Jefferson	Fillmore	3,973	313	4229	333	4906	386	16.00%
William (EB)	Jefferson	Fillmore	2,753	316	2930	336	3487	400	19.00%
William (WB)	Jefferson	Fillmore	3,046	277	3242	295	4247	386	31.00%
E. Delavan (EB)	Fillmore	Grider	4,176	436	4445	464	5690	594	28.00%
E. Delavan (WB)	Fillmore	Grider	3,975	321	4231	342	5204	421	23.00%
E. Ferry (EB)	Fillmore	Grider	5,290	495	5631	527	6532	611	16.00%
E. Ferry (WB)	Fillmore	Grider	4,868	392	5182	417	7462	600	44.00%
Walden (EB)	Fillmore	Sycamore	4,364	436	4645	464	5481	548	18.00%
Walden (WB)	Fillmore	Sycamore	4,301	337	4578	359	5173	406	13.00%
Sycamore (EB)	Fillmore	Walden	2,305	223	2453	237	4170	403	70.00%
Sycamore (WB)	Fillmore	Walden	2,007	167	2136	178	3653	304	71.00%
Genesee (EB)	Doat	Bailey	4,368	440	4649	468	6927	697	49.00%
Genesee (WB)	Doat	Bailey	4,667	399	4968	425	7601	650	53.00%
Walden (EB)	Bailey	Pine Ridge	5,686	530	6052	564	6718	626	11.00%
Walden (WB)	Bailey	Pine Ridge	5,856	478	6233	509	6919	565	11.00%
Broadway (EB)	Bailey	Harlem	7,127	810	7586	862	8420	957	11.00%
Broadway (WB)	Bailey	Harlem	6,712	573	7144	610	8216	702	15.00%
William (EB)	Rosler	Harlem	5,274	597	5614	635	5839	660	4.00%
William (WB)	Rosler	Harlem	4,954	403	5273	429	5642	459	7.00%
Elmwood (NB)	Kenmore	Hertel	10,187	974	10843	1037	11060	1058	2.00%
Elmwood (SB)	Kenmore	Hertel	10,192	881	10848	938	10956	947	1.00%
Delaware (NB)	Kenmore	Hertel	9,479	888	10090	945	10090	945	0.00%
Delaware (SB)	Kenmore	Hertel	9,306	750	9905	798	9905	798	0.00%
Main (EB)	Amherst	Hertel	9,082	881	9667	938	9860	957	2.00%
Main (WB)	Amherst	Hertel	9,649	834	10271	888	10579	915	3.00%
I-190 (NB)	Vulcan	Ontario	29,926	3,608	31854	3840	32491	3917	2.00%
I-190 (SB)	Vulcan	Ontario	32,137	2,891	34207	3077	35575	3200	4.00%
I-190 (NB)	Amherst	Rt. 198	36,755	4,111	39122	4376	40296	4507	3.00%
I-190 (SB)	Amherst	Rt. 198	36,864	3,267	39238	3477	40808	3616	4.00%
Rt. 198 (EB)	Delaware	Parkside	20,877	1,788	22222	1903	22222	1903	0.00%
Rt. 198 (WB)	Delaware	Parkside	20,625	1,976	21953	2103	22173	2124	1.00%
Rt. 198 (EB)	Parkside	Main	26,788	2,200	28513	2342	35071	2881	23.00%
Rt. 198 (WB)	Parkside	Main	26,641	2,718	28357	2893	24671	2517	-13.00%
Rt. 198 (EB)	Main	Rt. 33	31,466	2,629	33493	2798	45885	3833	37.00%
Rt. 198 (WB)	Main	Rt. 33	34,205	3,728	36408	3968	60437	6587	66.00%
Rt. 33 (EB)	Rt. 198	Grider	47,444	5,112	50500	5441	28280	3047	-44.00%
Rt. 33 (WB)	Rt. 198	Grider	49,909	3,804	53124	4049	28156	2146	-47.00%
I-290 (NB)	Rt. 263	Rt. 324	57,134	4,772	60814	5079	60206	5028	-1.00%
I-290 (SB)	Rt. 263	Rt. 324	59,451	5,743	63280	6113	62647	6052	-1.00%

Appendix A-6: Segment Analysis ETC+20

Roadway	Limits		Existing AADT	Existing PM Peak Hour	PM Peak Hour No Build Scenario		PM Peak Hour Concept 10 Scenario		
	Start	End		Volume	AADT ETC+20	Volume ETC +20	AADT ETC+20	Volume ETC+20	% Change from No Build
I-90 (EB)	Cleveland	Rt. 33	69,383	5,963	73852	6347	73852	6347	0.00%
I-90 (WB)	Cleveland	Rt. 33	69,757	5,576	74250	5935	74250	5935	0.00%
I-90 (EB)	Rt. 33	Walden	62,719	5,141	66759	5472	73435	6019	10.00%
I-90 (WB)	Rt. 33	Walden	62,135	5,449	66137	5800	72751	6380	10.00%
I-90 (EB)	Walden	William	61,614	5,096	65583	5424	74109	6129	13.00%
I-90 (WB)	Walden	William	59,905	5,489	63764	5843	70778	6486	11.00%
I-90 (EB)	William	I-190	60,003	5,230	63868	5567	72171	6291	13.00%
I-90 (WB)	William	I-190	58,448	5,327	62213	5670	68434	6237	10.00%
Main (EB)	Ferry	Rt. 198	6,427	936	6841	996	9167	1335	34.00%
Main (WB)	Ferry	Rt. 198	5,824	474	6199	505	9422	768	52.00%
Fillmore (NB)	Kensington	Ferry	3,884	359	4134	382	5912	546	43.00%
Fillmore (SB)	Kensington	Ferry	4,209	389	4480	414	5914	546	32.00%
Bailey (NB)	Walden	Broadway	9,870	805	10506	857	11452	934	9.00%
Bailey (SB)	Walden	Broadway	9,797	957	10428	1019	11158	1090	7.00%
I-90 WB Off Ramp to Rt. 33 WB			16,248	1,088	17295	1158	12452	834	-28.00%
Rt. 33 WB Off Ramp to I-90 WB			6,309	582	6715	619	8394	774	25.00%
I-90 EB Off Ramp to Rt. 33 WB			8,705	637	9266	678	11305	827	22.00%
Rt. 33 WB Off Ramp to I-90 EB			8,205	704	8733	749	8908	764	2.00%
I-90 EB Off Ramp to Rt. 33 EB			7,539	592	8025	630	9710	762	21.00%
Rt. 33 EB Off Ramp to I-90 EB			13,339	1,400	14198	1490	10649	1118	-25.00%
I-90 WB Off Ramp to Rt. 33 EB			7,687	638	8182	679	8918	740	9.00%
Rt. 33 EB Off Ramp to I-90 WB			11,102	1,184	11817	1260	13708	1462	16.00%
I-190 (NB)	Michigan	Hamburg	41,314	3,083	43975	3282	48812	3643	11.00%
I-190 (SB)	Michigan	Hamburg	40,475	4,824	43082	5135	45236	5392	5.00%
I-190 (NB)	Hamburg	Smith	40,815	2,961	43444	3152	48223	3499	11.00%
I-190 (SB)	Hamburg	Smith	42,408	5,066	45140	5392	47397	5662	5.00%
I-190 (NB)	Smith	Clinton	33,896	2,243	36079	2387	41852	2769	16.00%
I-190 (SB)	Smith	Clinton	35,841	4,361	38150	4642	41584	5060	9.00%
I-190 (NB)	Clinton	S. Ogden	35,990	2,410	38308	2565	43288	2898	13.00%
I-190 (SB)	Clinton	S. Ogden	38,376	4,904	40848	5220	44116	5638	8.00%

A-7

No-Build Versus Concept 10

**Intersection Level of Service, Delay and
Queuing**

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
1	Best Street & NY 33 EB Ramps	S	EB	LT/T	E (60.1) 290 ft	N/A	F (86.6) 504 ft	N/A
			WB	T/TR	A (9.2) 86 ft		A (8.6) 95 ft	
			NB	LTR	A (7.7) 75 ft		C (24.5) 219 ft	
			Overall	C (34.2)	D (49.4)			
2	Best Street & NY 33 WB Ramps	S	EB	T/TR	B (14.7) 122 ft	N/A	B (13.6) 177 ft	N/A
			WB	LT/T	B (10.1) 46 ft		B (10.7) 64 ft	
			SB	LTR	F (85.0) 630 ft		F (119.9) 767 ft	
			Overall	D (46.8)	D (53.7)			
3	Best Street & Herman Street & West Parade Avenue	S	EB	LT/TR	B (12.1) 101 ft	B (12.1) 84 ft	B (14.0) 127 ft	B (19.4) 151 ft
			WB	LT/TR	C (22.8) 272 ft	C (25.9) 300 ft	C (22.7) 344 ft	C (26.4) 634 ft
			NB	LTR	B (15.5) 50 ft	B (12.3) 42 ft	B (18.1) 86 ft	C (31.7) 136 ft
			SB	LTR	B (11.7) 78 ft	B (18.8) 244 ft	B (17.0) 126 ft	C (33.4) 222 ft
			Overall	B (16.5)	B (18.7)	C (22.8)		
4	Humboldt Parkway SB & Northampton Street	S	EB	TR	B (11.9) 29 ft	C (29.0) 67 ft	B (11.3) 48 ft	C (24.9) 149 ft
			WB	LT	A (9.8) 14 ft	B (13.8) 15 ft	A (6.6) 16 ft	A (8.2) 30 ft
			SB	LTR	A (4.8) 34 ft	B (17.4) 704 ft	A (7.1) 70 ft	F (259.9) 1836 ft
			Overall	A (7.5)	B (18.0)	A (8.1)	F (205.7)	
5	Humboldt Parkway NB & Northampton Street	S	EB	LT	B (11.7) 34 ft	C (29.8) 71 ft	B (11.9) 57 ft	F (236.5) 468 ft
			WB	TR	B (11.4) 39 ft	C (34.5) 120 ft	A (9.7) 49 ft	C (25.6) 372 ft
			NB	LTR	A (4.1) 11 ft	A (3.3) 13 ft	A (5.9) 11 ft	B (16.6) 26 ft
			Overall	B (10.5)	C (29.2)	B (10.6)	F (130.9)	
6	Humboldt Parkway SB & E Utica Street	S	EB	TR	B (10.5) 43 ft	B (14.2) 58 ft	B (13.0) 83 ft	C (21.5) 142 ft
			WB	L	B (10.8) 27 ft	B (16.0) 39 ft	B (10.1) 28 ft	B (15.2) 24 ft
				T	A (9.8) 35 ft	B (14.1) 50 ft	A (9.8) 46 ft	B (13.8) 44 ft
			SB	LT/TR	A (5.6) 61 ft	A (7.7) 189 ft	A (8.0) 92 ft	B (16.1) 342 ft
			Overall	A (7.4)	A (9.4)	A (9.5)	B (16.8)	
7	Humboldt Parkway NB & E Utica Street	S	EB	L	A (9.7) 20 ft	B (12.6) 23 ft	B (10.0) 34 ft	B (13.6) 40 ft
			T	A (9.5) 29 ft	B (12.3) 36 ft	A (8.7) 44 ft	B (11.7) 51 ft	
			WB	TR	B (12.1) 49 ft	B (17.2) 70 ft	A (9.2) 46 ft	B (12.6) 58 ft
			NB	LT	A (7.2) 95 ft	A (7.5) 152 ft	A (9.9) 124 ft	B (10.9) 170 ft
				R	A (2.6) 12 ft	A (2.0) 15 ft	A (3.1) 18 ft	A (2.4) 17 ft
Overall	A (8.4)	A (9.7)	A (8.9)	B (11.0)				
8	Humboldt Parkway SB & E Ferry Street	S	EB	TR	B (17.3) 154 ft	C (29.1) 358 ft	B (18.7) 293 ft	D (45.0) 829 ft
			WB	L	B (10.3) 21 ft	C (24.3) 188 ft	B (15.9) 122 ft	F (225.2) 409 ft
				T	A (7.5) 32 ft	B (12.0) 63 ft	A (8.3) 60 ft	B (14.0) 107 ft
			SB	LT	D (50.1) 368 ft	F (228.2) 1395 ft	F (93.9) 654 ft	F (478.6) 2409 ft
				R	A (3.4) 43 ft	A (8.4) 111 ft	A (3.8) 53 ft	C (24.3) 266 ft
Overall	C (24.0)	F (122.5)	D (40.4)	F (246.5)				
9	Humboldt Parkway NB & E Ferry Street	S	EB	L	D (39.6) 156 ft	F (225.6) 419 ft	F (83.1) 290 ft	F (482.7) 735 ft
			T	B (14.2) 97 ft	C (30.4) 169 ft	C (25.4) 144 ft	E (72.1) 345 ft	
			WB	TR	B (14.4) 131 ft	C (28.2) 368	B (16.2) 238 ft	C (32.3) 569 ft
			NB	LT	B (11.0) 110 ft	C (22.4) 274 ft	C (22.1) 231 ft	E (61.4) 521 ft
				R	A (3.8) 14 ft	A (4.2) 23 ft	A (4.6) 24 ft	A (6.6) 37 ft
Overall	B (18.6)	E (64.9)	C (32.7)	F (141.9)				
10	Jefferson Avenue & Cherry Street & NY 33 EB On-ramp	S	EB	LTR	A (8.8) 14 ft	N/A	B (11.8) 21 ft	N/A
			NB	T/TR	A (8.3) 76 ft		A (4.0) 58 ft	
			SB	LT/T	B (17.3) 175 ft		B (17.4) 367 ft	
			Overall	B (13.2)	B (12.1)			
11	Jefferson Avenue & BNFC Drive & NY 33 WB Off-ramp	S	WB	LTR	D (35.9) 366 ft	N/A	D (55.0) 331 ft	N/A
			NB	LT/T	A (6.9) 28 ft		A (4.3) 31 ft	
			SB	T/TR	B (11.3) 77 ft		A (7.5) 130 ft	
			Overall	C (21.7)	B (17.6)			

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
12	Jefferson Avenue & Genesee Street	S	EB	LT/TR	B (10.6) 24 ft	E (59.2) 221 ft	B (10.6) 33 ft	E (60.2) 277 ft
			WB	LT/TR	B (12.2) 46 ft	F (102.4) 298 ft	A (9.8) 38 ft	C (26.1) 191 ft
			NB	LT/TR	A (6.4) 59 ft	A (8.2) 95 ft	A (6.3) 73 ft	B (14.3) 158 ft
			SB	LT/TR	A (6.5) 65 ft	F (80.9) 495 ft	A (6.8) 85 ft	E (55.7) 376 ft
			Overall		A (8.0)	E (67.7)	A (7.5)	D (42.4)
13	Herman Street & Genesee Street	S	EB	LT/TR	A (5.1) 24 ft	A (5.4) 41 ft	A (5.8) 48 ft	B (10.2) 128 ft
			WB	LT/TR	A (5.4) 46 ft	A (6.5) 88 ft	A (5.9) 51 ft	B (11.1) 143 ft
			NB	LTR	B (12.4) 35 ft	B (12.8) 41 ft	B (11.9) 54 ft	B (12.4) 63 ft
			SB	LTR	B (14.4) 51 ft	B (14.3) 51 ft	B (14.5) 72 ft	C (22.1) 143 ft
			Overall		A (7.5)	A (7.5)	A (8.2)	B (12.6)
14	Reed Street & Rich Street & Genesee Street	S	EB	LT/T	A (1.4) 18 ft	A (1.4) 32 ft	A (2.8) 33 ft	A (3.5) 71 ft
			WB	T/TR	A (1.4) 33 ft	A (1.6) 62 ft	A (2.7) 34 ft	A (3.4) 75 ft
			NB	LTR	B (11.7) 17 ft	B (11.7) 17 ft	A (9.9) 23 ft	A (10.0) 24 ft
			SB	LR	A (1.3) 2 ft	A (1.3) 2 ft	A (5.2) 10 ft	A (5.5) 10 ft
			Overall		A (1.8)	A (1.8)	A (3.3)	A (3.7)
15	Fillmore Avenue & Genesee Street	S	EB	LT/TR	A (9.5) 36 ft	D (50.4) 244 ft	B (14.3) 81 ft	E (69.6) 382 ft
			WB	LT/TR	B (13.8) 70 ft	F (157.5) 566 ft	B (16.4) 87 ft	F (192.2) 443 ft
			NB	LTR	B (10.4) 123 ft	B (13.8) 232 ft	B (12.6) 210 ft	C (33.6) 485 ft
			SB	LTR	B (10.7) 135 ft	F (153.5) 1667 ft	B (11.4) 171 ft	F (210.4) 1002 ft
			Overall		B (11.4)	F (120.2)	B (13.7)	F (138.8)
16	Fillmore Avenue & Best Street	S	EB	LTR	D (38.8) 283 ft	F (252.9) 622 ft	F (96.4) 514 ft	F (169.1) 469 ft
			WB	LTR	B (17.6) 164 ft	F (186.6) 705 ft	E (78.2) 255 ft	F (90.8) 341 ft
			NB	LTR	C (21.4) 215 ft	F (1573.0) 691 ft	E (65.1) 378 ft	F (1948.9) 431 ft
			SB	LT	A (3.7) 5 ft	D (50.0) 1179 ft	A (5.3) 74 ft	F (478.2) 492 ft
				R	A (0.2) 1 ft	A (0.1) 0 ft	A (0.2) 1 ft	A (0.2) 0 ft
Overall		C (22.8)	F (353.8)	E (67.6)	F (555.3)			
17	Fillmore Avenue & East Park Drive	S	EB	L	A (8.0) 5 ft	C (31.2) 12 ft	B (11.0) 11 ft	A (8.3) 9 ft
				R	A (6.0) 3 ft	C (20.7) 8 ft	A (6.4) 8 ft	A (5.6) 7 ft
			NB	T	A (5.6) 38 ft	A (4.2) 16 ft	A (6.3) 45 ft	A (5.7) 12 ft
				T	B (10.7) 55 ft	B (11.2) 279 ft	B (12.1) 77 ft	E (68.4) 318 ft
			Overall		A (8.2)	A (9.8)	A (9.3)	D (52.8)
18	Fillmore Avenue & MLK Park	S	EB	L	B (14.3) 12 ft	D (53.1) 29 ft	B (16.5) 7 ft	D (54.0) 15 ft
				R	A (8.4) 13 ft	C (23.5) 27 ft	B (10.4) 12 ft	C (27.4) 23 ft
			NB	T	A (1.7) 40 ft	A (1.4) 51 ft	A (1.5) 61 ft	A (1.2) 65 ft
				T	A (1.8) 49 ft	B (13.2) 890 ft	A (1.5) 58 ft	A (8.6) 810 ft
			Overall		A (2.2)	B (11.2)	A (1.7)	A (7.0)
19	Fillmore Avenue & Northampton Street	S	EB	LTR	B (13.3) 37 ft	F (89.2) 190 ft	B (13.2) 50 ft	F (97.6) 256 ft
			WB	LTR	B (11.5) 26 ft	E (64.2) 103 ft	B (10.2) 28 ft	E (69.6) 128 ft
			NB	LTR	A (4.6) 48 ft	A (3.8) 88 ft	A (6.7) 101 ft	A (8.1) 248 ft
			SB	LTR	A (5.2) 76 ft	E (63.2) 1758 ft	A (6.5) 98 ft	E (62.8) 17.6 ft
			Overall		A (6.6)	D (54.4)	A (7.8)	D (49.4)
21	Fillmore Avenue & Riley Street & Urban Street	S	EB	LTR	A (0.5) 1 ft	C (24.2) 13 ft	A (2.4) 4 ft	C (33.7) 23 ft
			WB	LTR	A (3.7) 6 ft	D (37.5) 25 ft	A (8.2) 15 ft	D (39.2) 50 ft
			NB	LTR	A (1.3) 35 ft	A (1.0) 50 ft	A (3.2) 76 ft	A (3.9) 194 ft
			SB	LTR	A (1.6) 60 ft	B (14.8) 1632 ft	A (3.3) 78 ft	D (37.9) 1656 ft
			Overall		A (1.5)	B (12.2)	A (3.5)	C (26.0)
22	Fillmore Avenue & French Street	S	WB	LR	B (10.1) 22 ft	D (37.4) 78 ft	B (10.8) 31 ft	C (33.5) 82 ft
			NB	TR	A (2.7) 44 ft	A (3.1) 74 ft	A (3.3) 80 ft	A (6.8) 236 ft
			SB	LT	A (3.4) 85 ft	E (69.6) 1879 ft	A (5.3) 109 ft	F (165.1) 2216 ft
			Overall		A (3.6)	E (55.8)	A (4.9)	F (108.0)

Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
23	Fillmore Avenue & E Utica Street	S	EB	LR	A (9.4) 38 ft	E (69.2) 172 ft	B (15.1) 82 ft	F (126.7) 390 ft
			NB	LT	A (6.1) 63 ft	F (228.4) 486 ft	B (12.8) 168 ft	E (2077.8) 1850 ft
			SB	TR	A (5.9) 91 ft	D (53.5) 1892 ft	A (6.3) 119 ft	D (51.0) 1760 ft
			Overall		A (6.6)	F (89.5)	B (10.9)	F (789.5)
24	Fillmore Avenue & E Ferry Street	S	EB	LT/TR	B (11.6) 51 ft	E (71.1) 200 ft	B (11.0) 62 ft	B (18.9) 105 ft
			WB	LT/TR	B (10.9) 46 ft	F (124.4) 335 ft	B (12.1) 61 ft	C (30.3) 177 ft
			NB	LT/TR	A (5.4) 33 ft	A (4.6) 62 ft	A (6.7) 55 ft	A (11.9) 153 ft
			SB	LT/TR	A (5.9) 48 ft	F (95.0) 1323 ft	A (6.5) 57 ft	B (15.4) 257 ft
Overall		A (8.4)	F (86.0)	A (9.0)	B (17.8)			
25	Fillmore Avenue & Northland Avenue	S	EB	LTR	B (10.5) 28 ft	E (64.2) 104 ft	A (8.4) 22 ft	C (29.9) 62 ft
			WB	LTR	B (12.4) 30 ft	F (82.3) 123 ft	B (13.8) 48 ft	E (62.6) 156 ft
			NB	LTR	A (3.7) 56 ft	A (2.6) 92 ft	A (6.7) 105 ft	A (5.9) 211 ft
			SB	LTR	A (4.6) 97 ft	F (364.3) 3839 ft	A (7.2) 118 ft	C (29.3) 1172 ft
Overall		A (5.4)	F (303.9)	A (7.9)	C (24.6)			
26	Fillmore Avenue & E Delavan Avenue	S	EB	LTR	C (28.0) 151 ft	F (244.3) 1448 ft	C (26.7) 207 ft	F (222.6) 707 ft
			WB	LTR	B (18.0) 105 ft	C (23.7) 237 ft	B (14.6) 106 ft	B (17.7) 162 ft
			NB	LTR	A (8.0) 81 ft	C (26.7) 264 ft	B (11.9) 151 ft	D (47.7) 405 ft
			SB	LTR	B (12.8) 208 ft	F (218.8) 1170 ft	B (14.2) 195 ft	F (158.5) 558 ft
Overall		B (16.3)	F (184.1)	B (16.7)	F (140.8)			
27	Humboldt Parkway NB & E Delavan Avenue	S	EB	LT/T	A (5.0) 36 ft	F (335.0) 536 ft	A (6.3) 54 ft	F (300.6) 455 ft
			WB	T/TR	A (5.8) 35 ft	C (34.6) 158 ft	A (6.9) 47 ft	D (37.5) 185 ft
			NB	LT	B (19.4) 98 ft	B (17.1) 214 ft	B (19.2) 139 ft	C (28.0) 726 ft
				R	A 94.7) 21 ft	B (12.3) 73 ft	A (3.9) 29 ft	B (13.0) 130 ft
Overall		A (8.3)	F (226.6)	A (9.2)	F (157.0)			
28	Humboldt Parkway SB & E Delavan Avenue	S	EB	TR	B (10.3) 184 ft	F (117.3) 725 ft	B (13.1) 221 ft	F (133.1) 998 ft
			WB	LT/T	A (4.5) 25 ft	C (25.5) 230 ft	A (5.7) 35 ft	C (27.4) 257 ft
			SB	LT	B (10.8) 32 ft	F (646.0) 4064 ft	B (12.6) 50 ft	F (520.3) 3552 ft
				R	A (2.5) 5 ft	F (405.4) 2823 ft	A (4.8) 11 ft	C (23.4) 558 ft
Overall		A (8.4)	F (460.8)	B (10.2)	F (316.7)			
29	Jefferson Avenue & E Delavan Avenue	S	EB	LTR	C (21.4) 183 ft	B (10.9) 278 ft	C (21.6) 221 ft	B (16.6) 367 ft
			WB	LTR	B (11.5) 74 ft	F (678.2) 3536 ft	B (11.2) 88 ft	F (393.3) 898 ft
			NB	LTR	A (8.8) 65 ft	F (156.2) 454 ft	B (13.4) 127 ft	F (179.1) 557 ft
			SB	LTR	A (6.4) 49 ft	E (68.3) 315 ft	B (10.8) 73 ft	D (47.4) 277 ft
Overall		B (14.4)	F (475.0)	B (16.0)	F (211.3)			
30	Jefferson Avenue & Northland Avenue	S	EB	LTR	B (11.7) 22 ft	D (36.7) 63 ft	B (11.9) 31 ft	C (32.7) 81 ft
			WB	LTR	A (9.9) 16 ft	C (28.2) 48 ft	A (9.5) 21 ft	C (23.4) 54 ft
			NB	LTR	A (3.2) 34 ft	A (2.5) 45 ft	A (4.5) 59 ft	A (4.4) 111 ft
			SB	LTR	A (3.2) 33 ft	B (13.2) 827 ft	A (4.4) 48 ft	B (12.0) 650 ft
Overall		A (4.7)	B (13.2)	A (5.8)	B (12.0)			
31	Jefferson Avenue & Brunswick Boulevard	S	WB	LR	B (12.6) 25 ft	C (32.0) 51 ft	B (11.4) 26 ft	C (23.9) 47 ft
			NB	TR	A (2.5) 34 ft	A (1.7) 44 ft	A (2.9) 61 ft	A (2.7) 88 ft
			SB	LT	A (2.7) 33 ft	A (9.3) 618 ft	A (2.8) 42 ft	A (6.8) 376 ft
Overall		A (3.8)	A (8.7)	A (3.6)	A (6.3)			
32	Jefferson Avenue & E Ferry Street	S	EB	LTR	B (10.7) 106 ft	E (74.7) 442 ft	B (12.1) 122 ft	F (94.3) 510 ft
			WB	LTR	C (23.1) 271 ft	F (131.6) 616 ft	C (23.6) 284 ft	F (145.7) 563 ft
			NB	LTR	B (15.1) 97 ft	B (11.3) 152 ft	B (16.7) 165 ft	C (31.7) 599 ft
			SB	LTR	B (14.8) 94 ft	F (91.2) 1260 ft	B (14.1) 120 ft	F (110.1) 1261 ft
Overall		B (17.7)	F (86.7)	B (17.6)	F (95.3)			

Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
33	Jefferson Avenue & E Utica Street	S	EB	LTR	B (11.7) 48 ft	E (76.5) 262 ft	B (10.5) 51 ft	E (58.6) 237 ft
			WB	LTR	B (13.7) 53 ft	E (79.1) 214 ft	B (13.8) 69 ft	F (110.2) 282 ft
			NB	LTR	A (6.0) 50 ft	A (6.2) 158 ft	A (8.3) 129 ft	C (28.2) 795 ft
			SB	LTR	A (6.1) 60 ft	D (38.3) 1351 ft	A (7.6) 105 ft	D (52.0) 1256 ft
			Overall		A (8.7)	D (37.7)	A (9.4)	D (48.8)
34	Jefferson Avenue & Riley Street	S	EB	LTR	B (11.1) 22 ft	E (65.5) 86 ft	B (11.0) 24 ft	E (74.5) 104 ft
			WB	LTR	B (12.9) 16 ft	E (62.8) 60 ft	B (10.3) 24 ft	E (73.7) 104 ft
			NB	LTR	A (3.3) 39 ft	A (3.9) 112 ft	A (3.8) 81 ft	A (8.0) 317 ft
			SB	LTR	A (3.3) 45 ft	C (32.2) 1674 ft	A (3.7) 75 ft	D (39.3) 1718 ft
			Overall		A (4.5)	C (26.8)	A (4.7)	C (30.1)
35	Jefferson Avenue & Northampton Street	S	EB	LTR	B (11.5) 24 ft	D (35.1) 71 ft	B (11.4) 35 ft	F (94.8) 208 ft
			WB	LTR	B (12.9) 35 ft	D (40.8) 97 ft	B (10.9) 31 ft	E (74.9) 155 ft
			NB	LTR	A (4.7) 45 ft	A (3.6) 77 ft	A (5.3) 85 ft	A (6.2) 260 ft
			SB	LTR	A (4.7) 53 ft	D (36.5) 837 ft	A (5.3) 85 ft	E (73.3) 1836 ft
			Overall		A (6.6)	C (30.5)	A (6.4)	D (55.0)
36	Jefferson Avenue & Best Street	S	EB	LT/TR	B (11.7) 70 ft	C (20.0) 109 ft	B (12.6) 84 ft	C (23.0) 131 ft
			WB	LT/TR	B (13.4) 86 ft	C (25.4) 148 ft	B (11.3) 68 ft	C (21.7) 112 ft
			NB	LT/TR	A (6.6) 34 ft	A (5.7) 44 ft	A (6.7) 54 ft	A (5.9) 60 ft
			SB	LT/TR	A (7.6) 41 ft	B (13.9) 256 ft	A (8.3) 59 ft	B (18.0) 355 ft
			Overall		B (10.8)	B (16.4)	A (10.0)	B (17.5)
37	Jefferson Avenue & E North Street	S	EB	LR	B (13.9) 53 ft	E (67.1) 150 ft	A (9.2) 53 ft	D (47.1) 187 ft
			NB	LT	A (7.1) 121 ft	F (511.1) 846 ft	A (7.8) 109 ft	C (20.6) 422 ft
			SB	TR	A (4.3) 66 ft	D (35.5) 1501 ft	A (7.0) 97 ft	E (56.0) 1129 ft
			Overall		A (7.3)	F (170.1)	A (7.9)	D (46.9)
38	Jefferson Avenue & High Street	S	EB	LTR	B (11.1) 48 ft	D (41.1) 131 ft	B (10.4) 56 ft	C (29.6) 128 ft
			WB	LTR	B (20.5) 72 ft	F (117.4) 309 ft	B (15.0) 53 ft	E (58.6) 167 ft
			NB	LTR	A (9.6) 219 ft	F (204.6) 727 ft	A (6.6) 111 ft	A (7.5) 175 ft
			SB	LTR	A (5.0) 80 ft	E (57.0) 1570 ft	A (7.0) 142 ft	D (45.9) 999 ft
			Overall		A (9.9)	F (109.3)	A (8.3)	D (36.5)
39	Wohlers Avenue & E Ferry Street	S	EB	LTR	B (11.2) 128 ft	C (20.5) 188 ft	B (16.4) 210 ft	C (21.1) 252 ft
			WB	LTR	C (23.5) 322 ft	B (17.6) 168 ft	C (20.9) 293 ft	B (11.7) 145 ft
			NB	LTR	A (9.0) 36 ft	A (6.4) 43 ft	B (10.0) 58 ft	B (12.6) 106 ft
			Overall		B (18.4)	B (17.3)	B (18.0)	B (16.3)
40	Wohlers Avenue & E Utica Street	S	EB	LTR	B (12.9) 48 ft	B (14.5) 65 ft	B (14.6) 73 ft	B (16.2) 92 ft
			WB	LTR	B (13.5) 58 ft	B (12.0) 47 ft	B (13.6) 71 ft	B (10.8) 54 ft
			NB	LTR	A (4.3) 15 ft	A (4.6) 29 ft	A (4.9) 26 ft	A (5.9) 44 ft
			SB	LTR	A (4.9) 8 ft	A (4.9) 14 ft	A (5.0) 16 ft	A (5.8) 27 ft
			Overall		B (11.6)	B (10.5)	B (11.8)	B (11.1)
42	Humboldt Parkway SB & Glenwood Ave	U	EB	R	B (12.1) 5 ft	C (23.8) 13 ft	B (13.1) 8 ft	D (34.1) 28 ft
43	Humboldt Parkway SB & Riley Street	U	EB	R	A (9.2) 3 ft	C (21.2) 5 ft	A (9.6) 4 ft	D (25.8) 18 ft
44	Humboldt Parkway SB & Kingsley Street	U	EB	R	A (9.2) 3 ft	C (19.4) 5 ft	A (9.6) 4 ft	C (21.8) 5 ft
45	Humboldt Parkway SB & W Parade Avenue	U	EB	T	A (8.0) 13 ft	A (9.7) 15 ft	A (8.8) 23 ft	A (9.2) 25 ft
			WB	T	A (7.8) 8 ft	A (9.3) 10 ft	A (8.2) 10 ft	A (8.5) 13 ft
			SB	LR	A (8.0) 10 ft	C (17.3) 147 ft	A (8.7) 18 ft	A (9.1) 20 ft
			Overall		A (7.9)	C (15.4)	A (8.6)	A (9.0)
46	Linden Park & Dodge Street & W Parade Avenue	U	WB	LT	A (7.5) 0 ft	A (7.5) 0 ft	A (7.6) 0 ft	A (7.7) 0 ft
			NB	LR	A (9.4) 0 ft	B (10.0) 0 ft	A (9.2) 0 ft	A (9.3) 0 ft
47	Humboldt Parkway NB & Riley Street	U	WB	R	A (8.8) 0 ft	B (10.7) 0 ft	A (8.9) 0 ft	B (12.4) 3 ft
48	Humboldt Parkway NB & Woepffel Street	U	WB	R	B (10.2) 0 ft	B (11.1) 0 ft	B (10.8) 0 ft	B (12.0) 0 ft
49	Humboldt Parkway NB & Woodlawn Avenue	U	WB	R	B (10.1) 3 ft	B (11.3) 3 ft	B (10.9) 0 ft	B (11.5) 3 ft
50	Humboldt Parkway SB & Florida Street	U	EB	R	A (9.3) 3 ft	E (41.3) 20 ft	A (9.9) 0 ft	F (53.0) 43 ft
51	Humboldt Parkway SB & Northland Avenue	U	EB	R	A (9.5) 3 ft	E (40.0) 28 ft	B (10.2) 0 ft	F (68.9) 70 ft

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
52	Humboldt Parkway SB & Brunswick Boulevard	U	EB	R	A (7.3) 8 ft	B (10.6) 8 ft	A (7.5) 8 ft	B (11.5) 10 ft
			SB	TR	A (8.7) 28 ft	F (331.3) 2020 ft	A (9.5) 45 ft	F (462.2) 2740 ft
			Overall		A (8.4)	F (316.6)	A (9.1)	F (439.9)
53	Humboldt Parkway SB & Goulding Ave	U	EB	R	B (13.7) 10 ft	C (17.1) 13 ft	B (13.7) 13 ft	C (21.9) 28 ft
54	Humboldt Parkway NB & Sidney Street	U	WB	R	B (12.5) 8 ft	B (14.7) 10 ft	B (14.0) 10 ft	C (20.4) 18 ft
55	Humboldt Parkway NB & Northland Ave	U	WB	R	B (13.0) 8 ft	C (15.5) 15 ft	B (14.6) 15 ft	C (21.8) 25 ft
56	Roehrer Avenue & E Ferry Street	U	WB	LT	A (8.2) 0 ft	A (8.0) 3 ft	A (8.5) 3 ft	A (8.8) 3 ft
			NB	LR	B (11.4) 3 ft	B (11.2) 3 ft	C (16.3) 15 ft	C (16.2) 18 ft
			Overall		A (8.1)	A (8.4)	A (8.8)	A (9.2)
57	Roehrer Avenue & E Utica Street	U	EB	LTR	A (8.1) 13 ft	A (8.5) 20 ft	A (9.0) 25 ft	A (8.6) 8 ft
			WB	LTR	A (8.2) 15 ft	A (8.3) 15 ft	A (8.9) 25 ft	A (9.7) 35 ft
			NB	LTR	A (7.7) 3 ft	A (7.9) 3 ft	A (8.3) 8 ft	A (9.0) 23 ft
			SB	LTR	A (7.7) 3 ft	A (7.9) 3 ft	A (8.3) 5 ft	A (8.6) 8 ft
			Overall		A (8.1)	A (8.4)	A (8.8)	A (9.2)
58	Wohlers Avenue & Northampton Street	U	EB	LTR	A (7.8) 8 ft	A (8.3) 13 ft	A (8.3) 15 ft	A (9.9) 25 ft
			WB	LTR	A (7.8) 8 ft	A (8.3) 13 ft	A (8.2) 13 ft	A (9.7) 23 ft
			NB	LTR	A (7.6) 5 ft	A (8.3) 10 ft	A (8.4) 13 ft	B (10.5) 35 ft
			SB	LTR	A (7.5) 3 ft	A (8.2) 8 ft	A (8.1) 8 ft	A (9.4) 18 ft
			Overall		A (7.8)	A (8.3)	A (8.3)	A (10.0)
59	Roehrer Avenue & Northampton Street	U	EB	LTR	A (7.6) 8 ft	A (7.9) 10 ft	A (7.9) 13 ft	A (8.4) 18 ft
			WB	LTR	A (7.7) 10 ft	A (7.9) 13 ft	A (7.9) 13 ft	A (8.3) 18 ft
			NB	LTR	A (7.6) 3 ft	A (7.7) 3 ft	A (7.8) 3 ft	A (8.0) 5 ft
			SB	LTR	A (7.6) 3 ft	A (7.8) 3 ft	A (7.9) 5 ft	A (8.2) 8 ft
			Overall		A (7.6)	A (7.9)	A (7.9)	A (8.3)
60	Best Street & Wohlers Avenue	U	EB	LT	A (9.1) 0 ft	A (9.2) 0 ft	A (8.6) 3 ft	A (9.8) 3 ft
			SB	LR	C (23.2) 10 ft	D (27.2) 23 ft	C (22.8) 13 ft	E (43.7) 45 ft
61	Best Street & Roehrer Avenue	U	EB	LT	A (9.0) 0 ft	A (9.1) 0 ft	A (8.5) 0 ft	A (8.4) 0 ft
			SB	LR	C (20.8) 8 ft	C (21.3) 8 ft	C (23.7) 15 ft	C (22.1) 15 ft
62	Jefferson Avenue & Eaton Street & Kingsley Street	S	EB	LTR	B (13.0) 13 ft	E (58.6) 35 ft	B (10.2) 21 ft	E (61.5) 84 ft
			WB	LTR	B (13.9) 15 ft	E (66.8) 44 ft	B (10.1) 17 ft	D (52.0) 62 ft
			NB	LTR	A (1.7) 35 ft	A (2.6) 46 ft	A (3.6) 75 ft	A (7.3) 187 ft
			SB	LTR	A (1.7) 43 ft	C (25.0) 1638 ft	A (3.6) 72 ft	D (38.6) 1660 ft
			Overall		A (2.5)	C (22.0)	A (4.3)	C (29.6)
63	Elmwood Avenue & Sheridan Drive	S	EB	L	C (25.2) 23 ft	C (25.4) 23 ft	C (28.3) 35 ft	C (28.8) 35 ft
				T/T/TR	B (16.7) 67 ft	B (16.6) 67 ft	B (18.9) 126 ft	B (19.4) 131 ft
			WB	L	C (28.3) 116 ft	C (28.9) 129 ft	D (44.6) 185 ft	E (60.1) 206 ft
				T/T/TR	B (10.2) 86 ft	B (10.2) 88 ft	B (10.2) 85 ft	B (10.9) 91 ft
			NB	LT/TR	B (12.4) 93 ft	B (12.5) 94 ft	C (22.2) 194 ft	C (21.4) 181 ft
			SB	LT/TR	B (13.6) 77 ft	B (13.7) 79 ft	B (17.4) 92 ft	B (17.0) 92 ft
Overall		B (14.0)	B (14.1)	B (19.1)	C (20.3)			
64	Elmwood Avenue & Kenmore Avenue	S	EB	L	A (9.0) 8 ft	A (9.0) 8 ft	B (11.5) 28 ft	C (22.3) 51 ft
				TR	B (10.4) 76 ft	B (10.3) 77 ft	B (16.9) 153 ft	C (32.9) 335 ft
			WB	L	B (15.1) 53 ft	B (15.1) 55 ft	D (44.1) 110 ft	F (182.6) 195 ft
				TR	B (14.9) 105 ft	B (14.9) 109 ft	B (14.3) 126 ft	C (25.0) 228 ft
			NB	L	A (9.7) 32 ft	B (10.1) 33 ft	B (15.3) 63 ft	F (172.9) 124 ft
				T/TR	A (6.2) 39 ft	A (6.4) 40 ft	B (11.8) 156 ft	B (11.6) 189 ft
			SB	LT/T	A (9.1) 96 ft	A (9.5) 99 ft	B (11.7) 110 ft	E (64.5) 468 ft
				R	A (3.4) 15 ft	A (3.4) 15 ft	A (3.4) 16 ft	A (4.0) 323 ft
			Overall		B (10.2)	B (10.3)	B (14.6)	D (47.3)

Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
65	Elmwood Avenue & W Ferry Street	S	EB	LTR	C (20.1) 129 ft	C (20.6) 132 ft	B (17.9) 128 ft	C (24.6) 179 ft
			WB	LTR	C (20.9) 137 ft	C (21.9) 143 ft	C (24.6) 217 ft	D (45.8) 324 ft
			NB	LTR	A (8.7) 94 ft	A (8.7) 95 ft	B (15.7) 234 ft	C (25.2) 366 ft
			SB	LTR	B (13.5) 201 ft	B (16.6) 290 ft	B (13.9) 189 ft	C (22.9) 333 ft
			Overall		B (15.7)	B (17.1)	B (17.7)	C (29.4)
66	Delaware Avenue & Sheridan Drive	S	EB	L	D (44.4) 107 ft	D (46.5) 108 ft	E (72.3) 256 ft	E (74.0) 267 ft
				T/T/TR	C (21.3) 81 ft	C (22.1) 82 ft	D (41.4) 213 ft	D (46.3) 244 ft
			WB	L	D (48.9) 137 ft	D (52.6) 142 ft	E (72.4) 302 ft	F (83.7) 320 ft
				T/T/TR	C (22.7) 111 ft	C (22.0) 114 ft	C (33.6) 183 ft	D (35.8) 192 ft
			NB	L	B (19.7) 73 ft	C (23.4) 79 ft	C (32.5) 85 ft	D (35.9) 96 ft
				T/TR	C (21.2) 182 ft	C (23.7) 188 ft	D (45.3) 415 ft	E (56.3) 446 ft
			SB	L	C (20.3) 88 ft	C (20.9) 88 ft	D (51.1) 231 ft	E (60.6) 246 ft
				T/TR	C (22.1) 235 ft	C (23.7) 259 ft	C (32.4) 369 ft	D (35.5) 419 ft
			Overall		C (23.4)	C (24.7)	D (42.1)	D (47.8)
67	Delaware Avenue & Kenmore Avenue	S	EB	L	A (10.0) 16 ft	B (10.1) 16 ft	B (13.2) 43 ft	D (43.8) 117 ft
				T/TR	B (11.8) 83 ft	B (11.8) 84 ft	B (15.2) 190 ft	D (39.4) 478 ft
			WB	L	B (16.2) 75 ft	B (16.6) 78 ft	E (66.0) 186 ft	F (366.3) 456 ft
				T/TR	B (16.3) 132 ft	B (16.9) 140 ft	B (14.1) 175 ft	D (38.2) 456 ft
			NB	L	B (10.5) 29 ft	B (10.4) 29 ft	C (23.5) 69 ft	C (34.2) 200 ft
				T/TR	A (7.0) 54 ft	A (7.0) 54 ft	B (18.3) 213 ft	F (139.9) 1264 ft
			SB	L	A (10.0) 33 ft	B (10.0) 33 ft	D (45.0) 95 ft	F (414.5) 191 ft
				T/TR	A (9.3) 92 ft	A (9.4) 90 ft	B (14.0) 139 ft	B (17.5) 235 ft
			Overall		B (11.1)	B (11.3)	C (20.5)	F (109.3)
68	Delaware Avenue & W Ferry Street	S	EB	LTR	B (18.2) 151 ft	C (26.1) 197 ft	C (24.3) 245 ft	C (34.5) 314 ft
				WB	LTR	C (30.5) 252 ft	D (45.5) 296 ft	D (53.7) 473 ft
			NB	L	B (14.9) 32 ft	C (24.2) 57 ft	C (34.0) 65 ft	F (85.7) 637 ft
				TR	B (12.4) 168 ft	B (11.1) 188 ft	D (41.0) 637 ft	E (60.2) 945 ft
			SB	L	A (9.7) 27 ft	A (8.9) 33 ft	D (39.6) 75 ft	F (132.9) 93 ft
				TR	C (22.9) 359 ft	C (30.6) 532 ft	C (31.2) 571 ft	E (72.1) 748 ft
			Overall		C (20.9)	C (27.4)	D (38.2)	E (69.3)
69	W Ferry Street & Main Street	S	EB	LTR	C (33.1) 277 ft	F (124.9) 664 ft	D (41.3) 259 ft	E (74.0) 399 ft
				WB	LTR	B (16.3) 173 ft	D (47.4) 452 ft	C (24.5) 237 ft
			NB	L	B (14.8) 27 ft	F (131.2) 126 ft	B (12.9) 43 ft	D (40.1) 143 ft
				T	B (16.8) 155 ft	B (19.7) 317 ft	C (25.0) 298 ft	D (46.2) 648 ft
			SB	R	A (4.9) 18 ft	A (3.2) 22 ft	A (3.2) 19 ft	A (2.5) 24 ft
				L	B (12.2) 8 ft	B (13.8) 14 ft	B (10.9) 14 ft	C (23.7) 37 ft
			T/TR	B (14.4) 130 ft	F (88.2) 1197 ft	A (9.1) 77 ft	B (13.7) 206 ft	
Overall		B (19.4)	E (77.9)	C (22.7)	D (36.0)			
70	Jefferson Avenue & Sycamore Street	S	EB	L	B (11.3) 14 ft	B (11.1) 19 ft	B (11.2) 26 ft	B (11.9) 27 ft
				TR	B (11.1) 29 ft	B (10.8) 42 ft	B (11.8) 44 ft	B (14.0) 74 ft
			WB	L	B (11.0) 12 ft	B (10.6) 17 ft	B (11.1) 23 ft	B (11.7) 25 ft
				TR	B (11.9) 43 ft	B (12.8) 70 ft	B (10.4) 38 ft	B (11.4) 61 ft
			NB	LT/TR	A (5.0) 47 ft	A (6.2) 57 ft	A (4.3) 51 ft	A (6.9) 80 ft
			SB	LT/TR	A (4.8) 42 ft	A (5.7) 38 ft	A (4.8) 69 ft	A (7.9) 109 ft
Overall		A (6.3)	A (8.1)	A (5.9)	A (8.9)			

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
71	Jefferson Avenue & Broadway	S	EB	L	A (8.2) 14 ft	A (8.2) 17 ft	B (10.9) 25 ft	B (17.6) 39 ft
				TR	B (14.2) 78 ft	B (14.2) 99 ft	B (15.9) 119 ft	B (19.8) 199 ft
			WB	L	A (8.2) 16 ft	A (7.9) 18 ft	A (9.4) 27 ft	B (11.2) 36 ft
				TR	C (20.3) 161 ft	C (21.2) 199 ft	D (36.8) 438 ft	D (51.1) 629 ft
			NB	LT/TR	B (10.7) 84 ft	B (12.1) 87 ft	B (13.4) 137 ft	B (17.0) 136 ft
			SB	LT/TR	B (11.4) 90 ft	B (12.6) 87 ft	C (21.6) 197 ft	D (35.8) 322 ft
			Overall		B (13.6)	B (14.9)	C (22.2)	C (32.9)
72	Genesee Street & Best Street & Walden Avenue	S	EB	LTR	C (22.8) 145 ft	C (23.4) 117 ft	C (27.1) 339 ft	D (35.7) 447 ft
				L	B (11.0) 33 ft	B (11.7) 38 ft	A (8.5) 28 ft	A (8.0) 31 ft
			WB	TR	B (13.1) 97 ft	B (15.7) 116 ft	A (9.0) 86 ft	A (8.2) 94 ft
				L/TR	A (6.5) 36 ft	A (6.7) 60 ft	B (14.7) 116 ft	C (23.0) 180 ft
			SB	L	A (8.0) 2 ft	A (8.0) 2 ft	B (14.0) 3 ft	B (17.0) 3 ft
				T/TR	A (6.7) 55 ft	A (7.3) 78 ft	B (10.7) 72 ft	B (16.7) 121 ft
			Overall		B (11.9)	B (11.3)	B (16.7)	C (22.8)
73	Fillmore Avenue & Sycamore Street	S	EB	LTR	A (8.8) 21 ft	A (9.7) 30 ft	B (12.4) 47 ft	B (16.5) 77 ft
				LTR	B (14.2) 74 ft	C (21.3) 145 ft	B (12.8) 41 ft	B (17.0) 70 ft
			NB	LTR	A (8.0) 113 ft	B (10.4) 137 ft	A (7.2) 115 ft	A (9.4) 168 ft
				LTR	A (8.3) 126 ft	B (11.8) 176 ft	B (8.0) 140 ft	B (10.6) 210 ft
			Overall		A (9.4) 0 ft	B (13.5)	B (12.7)	B (12.9)
74	Fillmore Avenue & Broadway	S	EB	L	B (10.7) 21 ft	B (11.3) 23 ft	B (13.2) 31 ft	B (16.0) 42 ft
				TR	B (11.7) 72 ft	B (12.3) 83 ft	D (40.2) 375 ft	D (50.2) 551 ft
			WB	L	A (9.0) 14 ft	A (9.0) 14 ft	B (13.1) 29 ft	B (17.4) 35 ft
				TR	B (17.8) 142 ft	B (18.3) 148 ft	C (33.9) 328 ft	D (36.8) 391 ft
			NB	LTR	B (10.5) 94 ft	B (11.4) 115 ft	B (16.4) 180 ft	C (25.7) 315 ft
				LTR	B (13.1) 132 ft	B (13.9) 141 ft	C (22.6) 330 ft	D (38.4) 462 ft
			Overall		B (13.6)	B (14.2)	C (28.3)	D (37.6)
75	Fillmore Avenue & William Street & Memorial Drive	S	EB	LTR	C (23.5) 50 ft	C (24.0) 50 ft	C (23.2) 84 ft	C (24.5) 89 ft
				LTR	C (26.4) 82 ft	C (27.1) 84 ft	C (21.7) 86 ft	C (22.3) 90 ft
			NB	L	B (10.5) 18 ft	B (11.0) 20 ft	A (9.7) 19 ft	A (10.5) 2 ft
				T	B (18.6) 106 ft	B (19.9) 125 ft	B (17.4) 97 ft	B (19.1) 117 ft
			SWB	TR	A (1.7) 11 ft	A (2.4) 17 ft	A (1.6) 11 ft	A (2.5) 18 ft
				L	C (28.8) 65 ft	C (29.9) 80 ft	D (44.0) 118 ft	E (63.8) 157 ft
			SB	R	A (0.8) 0 ft	A (1.0) 0 ft	A (1.0) 0 ft	A (1.5) 0 ft
				L	B (11.0) 46 ft	B (11.7) 56 ft	B (10.6) 51 ft	B (12.4) 63 ft
			TR	B (13.0) 46 ft	B (13.5) 58 ft	B (12.3) 54 ft	B (13.4) 68 ft	
			Overall		B (18.1)	B (18.4)	B (18.5)	C (21.2)
76	Grider Street & Warwick Avenue & NY 33 WB Ramp	S	WB	L	C (27.4) 269 ft	D (39.6) 386 ft	C (21.8) 73 ft	C (22.9) 105 ft
				LT	C (27.8) 274 ft	D (40.2) 393 ft	C (22.1) 81 ft	C (23.6) 115 ft
				R	A (3.8) 24 ft	A (3.5) 28 ft	A (3.1) 14 ft	A (5.5) 28 ft
			NB	L	B (11.2) 61 ft	B (11.8) 57 ft	A (8.0) 83 ft	B (11.3) 141 ft
				T/T	A (8.8) 36 ft	A (9.5) 35 ft	A (4.4) 53 ft	A (6.7) 87 ft
			SB	T/TR	A (9.7) 63 ft	A (10.0) 57 ft	A (7.5) 76 ft	B (10.3) 10 ft
			Overall		B (18.4)	C (27.1)	A (8.8)	B (12.0)
77	Grider Street & Pembroke Avenue & NY 33 EB Ramp	S	EB	L	B (14.0) 67 ft	D (45.3) 124 ft	C (20.7) 129 ft	C (34.8) 24 ft
				TR	D (37.7) 342 ft	F (160.7) 619 ft	B (19.2) 151 ft	C (25.1) 25 ft
			NB	T/TR	A (8.9) 74 ft	B (19.1) 385 ft	A (9.4) 132 ft	B (13.0) 322 ft
				L	B (10.9) 44 ft	E (60.1) 302 ft	B (12.3) 49 ft	D (35.8) 272 ft
			SB	T/TR	B (13.9) 160 ft	F (110.1) 1684 ft	A (6.7) 41 ft	A (2.1) 54 ft
Overall		B (18.6)	F (87.6)	B (12.5)	B (13.5)			

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)				
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10			
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue			
78	Grider Street & E Delavan Avenue	S	EB	LTR	B (18.8) 106 ft	E (62.7) 280 ft	C (22.9) 231 ft	F (234.5) 847 ft			
			WB	LTR	B (15.9) 109 ft	C (29.6) 224 ft	B (13.4) 133 ft	E (57.5) 465 ft			
			NB	L	A (8.2) 18 ft	D (51.1) 96	B (12.4) 24 ft	F (81.1) 142 ft			
				TR	A (8.3) 74 ft	B (10.6) 187 ft	B (12.9) 118 ft	C (22.5) 450 ft			
			SB	L	A (8.1) 19 ft	B (10.6) 57 ft	B (14.7) 63 ft	F (265.8) 321 ft			
				TR	A (7.3) 77 ft	C (31.5) 571 ft	B (12.8) 124 ft	D (35.8) 739 ft			
Overall					B (12.7)	C (30.5)	B (16.3)	F (106.5)			
79	Main Street & Kenmore Avenue	S	EB	L	C (22.9) 30 ft	C (22.8) 30 ft	D (36.5) 86 ft	D (37.0) 85 ft			
			WB	T/T	B (10.1) 71 ft	A (9.8) 68 ft	A (5.7) 67 ft	A (4.6) 52 ft			
				T/T	B (18.0) 117 ft	B (17.9) 114 ft	B (19.0) 147 ft	B (19.7) 153 ft			
			R	A (5.5) 51 ft	A (5.5) 51 ft	A (5.4) 56 ft	A (5.6) 57 ft				
				L/LR	B (12.7) 155 ft	B (12.6) 153 ft	B (14.3) 98 ft	B (14.5) 100 ft			
			Overall					B (12.3)	B (12.2)	B (12.3)	B (12.6)
80	Main Street & Kensington Avenue	S	WB	L/L	A (9.8) 49 ft	B (10.7) 63 ft	A (9.9) 54 ft	B (13.4) 74 ft			
			NB	T/T/TR	A (7.8) 60 ft	A (9.7) 87 ft	B (10.3) 109 ft	B (11.9) 168 ft			
			SB	T/T	E (72.5) 196 ft	E (72.1) 206 ft	E (72.1) 192 ft	E (71.9) 218 ft			
			Overall					D (37.1)	C (34.8)	C (32.6)	C (31.1)
81	Main Street & E Delavan Avenue	S	EB	L	D (56.1) 274 ft	F (159.4) 454 ft	E (60.5) 248 ft	F (130.9) 416 ft			
			WB	TR	B (19.4) 184 ft	C (31.8) 303 ft	B (19.1) 206 ft	C (25.4) 335 ft			
				LTR	B (17.1) 113 ft	D (36.7) 240 ft	C (31.4) 259 ft	F (120.8) 529 ft			
			NB	L	B (15.5) 27 ft	D (52.8) 81 ft	B (14.3) 41 ft	F (164.7) 153 ft			
				T	B (15.8) 220 ft	B (19.7) 389 ft	C (28.2) 438 ft	F (109.8) 906 ft			
				R	A (2.6) 25 ft	A (4.0) 46 ft	A (3.8) 37 ft	A (9.7) 97 ft			
			SB	L	A (8.8) 7 ft	A (10.0) 10 ft	B (16.9) 27 ft	E (56.5) 86 ft			
				T	C (28.8) 427 ft	F (108.1) 993 ft	B (17.5) 259 ft	E (66.4) 775 ft			
				R	A (2.6) 32 ft	A (2.5) 39 ft	A (2.8) 40 ft	B (10.9) 218 ft			
			Overall					C (23.3)	E (63.3)	C (23.4)	E (73.8)
			82	Sycamore Street & Walden Avenue	S	EB	TR	A (9.3) 83 ft	A (8.8) 95 ft	A (9.8) 150 ft	A (9.0) 135 ft
						WB	LT	C (23.3) 252 ft	D (36.8) 419 ft	D (37.7) 413 ft	E (63.1) 523 ft
NB	L	A (0.3) 0 ft				A (0.6) 0 ft	B (16.8) 7 ft	B (17.0) 11 ft			
	R	A (0.3) 0 ft				A (0.6) 0 ft	A (4.8) 47 ft	A (5.8) 59 ft			
Overall						B (16.8)	C (24.2)	C (22.0)	C (33.4)		
83	Bailey Avenue & Sheridan Drive	S	EB	L	D (38.4) 68 ft	D (38.4) 68 ft	F (80.2) 147 ft	E (72.3) 147 ft			
			WB	T/T/TR	C (21.8) 140 ft	C (21.8) 140 ft	C (22.9) 157 ft	C (22.6) 158 ft			
				L	D (42.7) 94 ft	D (43.0) 94 ft	E (80.0) 148 ft	E (72.0) 148 ft			
			NB	T/T/TR	B (17.3) 95 ft	B (17.4) 96 ft	C (27.1) 201 ft	C (27.1) 212 ft			
				L	B (11.9) 35 ft	B (11.8) 35 ft	B (15.3) 65 ft	B (15.9) 64 ft			
			SB	T/TR	B (14.8) 50 ft	B (14.8) 49 ft	B (20.0) 123 ft	B (19.5) 120 ft			
				L	B (12.3) 46 ft	B (12.3) 44 ft	B (18.5) 76 ft	B (18.8) 75 ft			
			T/TR	B (15.6) 60 ft	B (15.6) 58 ft	B (18.4) 109 ft	B (19.0) 108 ft				
				Overall					B (19.9)	B (19.9)	C (27.1)
			84	Bailey Avenue & NY 263 & Park Circle	S	NWB	LR	A (2.1) 5 ft	A (1.9) 5 ft	A (2.5) 10 ft	A (2.3) 9 ft
SWB	L/LR	B (17.2) 130 ft				B (17.1) 128 ft	C (26.2) 150 ft	C (24.5) 154 ft			
NB	T	B (13.7) 121 ft				B (13.6) 118 ft	D (52.0) 452 ft	D (50.5) 436 ft			
	R/R	B (10.2) 84 ft				B (10.1) 82 ft	C (23.5) 197 ft	C (23.3) 189 ft			
SB	LT/T	B (13.3) 128 ft				B (12.9) 117 ft	C (25.4) 164 ft	C (26.4) 147 ft			
Overall					B (13.8)	B (13.6)	C (31.0)	C (30.4)			

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)				
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10			
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue			
85	Bailey Avenue & Main Street	S	EB	T/TR	C (28.2) 198 ft	C (27.8) 191 ft	C (34.3) 250 ft	C (33.7) 248 ft			
				L	C (28.2) 101 ft	C (25.4) 91 ft	B (19.2) 45 ft	B (19.4) 43 ft			
			WB	T/TR	B (13.6) 115 ft	B (13.5) 110 ft	C (21.0) 193 ft	C (21.5) 177 ft			
				L	B (15.2) 43 ft	B (15.0) 43 ft	B (13.0) 67 ft	B (11.9) 65 ft			
			NB	T/TR	C (20.6) 146 ft	C (20.2) 141 ft	C (27.3) 412 ft	C (22.1) 395 ft			
				L	B (13.1) 40 ft	B (12.9) 39 ft	B (13.4) 35 ft	B (12.9) 34 ft			
			SB	T/T	C (29.1) 270 ft	C (27.1) 253 ft	B (18.4) 165 ft	B (17.8) 162 ft			
				R	A (6.5) 60 ft	A (5.1) 49 ft	B (14.6) 174 ft	B (13.2) 160 ft			
Overall					C (22.2)	C (21.2)	C (23.8)	C (21.9)			
86	Bailey Avenue & Kensington Avenue	S	EB	LT/TR	B (17.0) 65 ft	B (15.2) 64 ft	C (23.6) 172 ft	C (23.2) 155 ft			
				LT/TR	B (17.8) 91 ft	B (17.4) 114 ft	B (15.2) 88 ft	B (16.2) 102 ft			
			WB	L	A (7.0) 19 ft	A (7.3) 18 ft	A (10.0) 27 ft	A (9.3) 24 ft			
				TR	B (12.9) 137 ft	B (12.1) 124 ft	B (16.4) 163 ft	B (15.3) 132 ft			
			NB	L	A (7.0) 23 ft	A (7.3) 19 ft	A (9.4) 27 ft	A (9.9) 25 ft			
				TR	B (12.6) 177 ft	B (12.4) 134 ft	B (18.6) 212 ft	B (17.1) 181 ft			
			Overall					B (14.0)	B (13.7)	B (18.4)	B (17.7)
			87	Bailey Avenue & E Delavan Avenue	S	EB	LT/R	B (15.3) 51 ft	B (15.4) 61 ft	C (22.7) 148 ft	E (57.8) 268 ft
LT/R	B (19.2) 69 ft	B (19.8) 80 ft					B (18.4) 86 ft	D (50.2) 198 ft			
WB	L	A (5.9) 35 ft				A (9.0) 47 ft	A (9.6) 39 ft	B (16.9) 57 ft			
	TR	B (11.5) 160 ft				B (13.8) 223 ft	C (24.4) 358 ft	C (34.4) 692 ft			
NB	L	A (5.1) 19 ft				A (5.9) 26 ft	A (9.3) 35 ft	B (23.6) 59 ft			
	TR	B (13.6) 184 ft				C (20.7) 359 ft	C (22.5) 336 ft	C (24.9) 517 ft			
Overall						B (13.5)	B (16.5)	C (21.2)	D (37.3)		
88	Bailey Avenue & E Ferry Street	S				EB	L/R	B (15.5) 75 ft	D (35.4) 143 ft	E (61.7) 395 ft	F (123.1) 685 ft
			L	A (7.2) 54 ft	B (14.7) 106 ft		B (10.4) 56 ft	F (83.4) 333 ft			
			NB	T	A (5.9) 119 ft	A (5.4) 162 ft	A (8.7) 206 ft	B (17.2) 495 ft			
				TR	B (18.0) 270 ft	C (22.8) 630 ft	C (25.9) 577 ft	F (88.6) 1287 ft			
			Overall					B (12.1)	B (18.0)	C (27.3)	E (72.2)
89	Bailey Avenue & Genesee Street	S	EB	L	A (8.7) 22 ft	B (13.6) 38 ft	B (16.7) 55 ft	E (60.4) 193 ft			
				TR	B (14.8) 112 ft	C (22.7) 204 ft	D (41.6) 358 ft	F (148.1) 993 ft			
			WB	L	A (7.9) 18 ft	B (10.9) 26 ft	B (16.7) 48 ft	F (101.7) 169 ft			
				TR	C (23.5) 183 ft	D (37.6) 319 ft	C (30.4) 276 ft	E (66.0) 604 ft			
			NB	LTR	B (13.7) 128 ft	B (15.0) 151 ft	B (14.0) 138 ft	C (24.5) 308 ft			
				LTR	B (13.4) 107 ft	C (20.8) 223 ft	C (21.6) 236 ft	F (115.4) 753 ft			
			Overall					B (15.5)	C (22.2)	C (24.5)	F (91.1)
			90	Bailey Avenue & Walden Avenue	S	EB	L	B (12.5) 25 ft	B (12.8) 28 ft	B (12.8) 35 ft	B (15.3) 46 ft
TR	C (25.7) 148 ft	C (27.6) 170 ft					D (42.5) 372 ft	D (73.6) 575 ft			
WB	L	B (15.8) 53 ft				B (17.3) 58 ft	C (28.1) 98 ft	D (54.8) 170 ft			
	TR	C (21.9) 164 ft				C (26.2) 185 ft	C (23.1) 241 ft	C (28.4) 320 ft			
NB	L	B (18.9) 120 ft				C (28.6) 155 ft	C (26.9) 101 ft	D (52.7) 173 ft			
	T/TR	B (15.3) 168 ft				B (17.7) 177 ft	C (23.2) 200 ft	C (33.1) 259 ft			
SB	L	B (10.8) 22 ft				B (11.5) 27 ft	B (19.4) 61 ft	C (33.7) 95 ft			
	T/TR	B (17.8) 111 ft				C (20.6) 158 ft	C (27.9) 205 ft	D (48.1) 364 ft			
Overall					B (18.4)	C (21.7)	C (27.9)	D (46.0)			

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)				
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10			
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue			
91	Bailey Avenue & Broadway	S	EB	L	B (14.2) 44 ft	B (14.8) 49 ft	B (17.7) 73 ft	B (20.0) 84 ft			
				T/TR	B (13.6) 55 ft	B (13.4) 61 ft	C (26.4) 177 ft	C (34.1) 245 ft			
			WB	L	B (13.7) 45 ft	B (13.9) 48 ft	C (20.9) 62 ft	C (26.6) 74 ft			
				T/T	C (21.8) 103 ft	C (22.4) 113 ft	C (22.2) 84 ft	C (22.7) 94 ft			
			NB	R	A (6.3) 53 ft	A (6.3) 55 ft	A (5.9) 43 ft	A (6.0) 46 ft			
				L	B (12.8) 59 ft	B (13.7) 61 ft	B (16.0) 70 ft	C (27.1) 98 ft			
			SB	T/TR	B (18.1) 138 ft	B (19.6) 143 ft	C (23.9) 174 ft	C (26.7) 191 ft			
				L	B (15.4) 79 ft	B (19.2) 98 ft	C (21.2) 150 ft	D (37.7) 212 ft			
			T/TR	B (16.2) 110 ft	B (17.1) 124 ft	C (20.4) 203 ft	C (23.8) 223 ft				
			Overall					B (15.5)	B (16.4)	C (21.4)	C (26.8)
92	Bailey Avenue & William Street	S	EB	L	B (13.4) 31 ft	B (13.6) 32 ft	B (15.0) 68 ft	B (18.9) 87 ft			
				T/TR	B (14.3) 50 ft	B (14.2) 53 ft	C (24.6) 200 ft	D (45.4) 312 ft			
			WB	L	B (16.0) 61 ft	B (16.6) 64 ft	C (20.6) 68 ft	D (38.3) 112 ft			
				T/TR	B (19.9) 100 ft	C (20.6) 105 ft	B (16.2) 76 ft	C (22.3) 103 ft			
			NB	L	B (14.8) 77 ft	B (18.9) 90 ft	B (17.1) 56 ft	C (30.0) 88 ft			
				T/TR	B (15.8) 160 ft	B (16.2) 176 ft	C (21.6) 197 ft	C (23.5) 241 ft			
			SB	L	B (10.2) 25 ft	B (10.5) 27 ft	B (14.2) 41 ft	B (16.4) 46 ft			
				T/TR	B (16.5) 142 ft	B (18.3) 161 ft	C (28.5) 301 ft	D (35.8) 346 ft			
			Overall					B (16.3)	B (17.3)	C (23.0)	C (32.6)
			93	Harlem Road & Genesee Street	S	EB	L	B (17.5) 71 ft	C (23.1) 86 ft	B (17.6) 67 ft	B (19.8) 72 ft
T	C (26.1) 132 ft	C (29.2) 158 ft					D (47.4) 324 ft	E (60.3) 372 ft			
R	A (5.0) 31 ft	A (6.3) 42 ft					A (8.9) 77 ft	B (12.3) 103 ft			
WB	L	B (16.6) 64 ft				C (21.4) 85 ft	D (51.1) 190 ft	E (55.9) 225 ft			
	T	C (26.4) 133 ft				C (31.4) 175 ft	C (26.5) 205 ft	C (28.5) 241 ft			
	R	A (3.1) 19 ft				A (5.7) 36 ft	A (2.0) 13 ft	A (3.0) 22 ft			
NB	L	B (12.7) 60 ft				B (12.5) 64 ft	C (34.9) 141 ft	D (43.2) 167 ft			
	T/TR	C (21.0) 286 ft				C (20.7) 305	C (23.3) 237 ft	C (29.0) 282 ft			
SB	L	B (11.7) 30 ft				B (12.4) 32 ft	C (20.4) 68 ft	C (34.1) 104 ft			
	T/TR	B (16.3) 120 ft				B (18.0) 139 ft	C (29.7) 271 ft	D (37.1) 344 ft			
Overall					B (18.2)	B (19.9)	C (28.4)	C (34.9)			
94	Harlem Road & Walden Avenue	S	EB	L	B (12.8) 19 ft	B (14.7) 22 ft	B (14.1) 26 ft	B (16.4) 29 ft			
				T/T	C (23.1) 74 ft	C (26.1) 85 ft	C (31.3) 172 ft	D (37.0) 198 ft			
				R	A (4.1) 22 ft	A (5.7) 31 ft	A (7.8) 60 ft	B (12.5) 100 ft			
			WB	L/L	D (38.1) 76 ft	D (41.2) 84 ft	D (44.8) 141 ft	E (58.9) 164 ft			
				T/T	B (18.2) 72 ft	C (20.2) 81 ft	C (20.9) 137 ft	C (23.8) 156 ft			
				R	A (4.3) 30 ft	A (5.4) 38 ft	B (10.4) 146 ft	B (12.6) 175 ft			
			NB	L	B (11.4) 57 ft	B (11.1) 64 ft	D (37.7) 125 ft	D (50.3) 165 ft			
				T/T	C (21.6) 194 ft	C (22.3) 228 ft	C (32.1) 223 ft	D (37.3) 297 ft			
			SB	R	A (4.5) 45 ft	A (4.3) 47 ft	B (10.3) 92 ft	B (14.7) 137 ft			
				L/L	D (38.1) 85 ft	D (42.1) 105 ft	D (48.9) 173 ft	D (51.7) 197 ft			
T/T	B (15.9) 110 ft	B (17.6) 139 ft		C (27.7) 262 ft	C (29.8) 304 ft						
R	A (0.1) 0 ft	A (0.2) 0 ft	A (0.2) 0 ft	A (0.2) 0 ft							
Overall					B (18.7)	C (20.3)	C (27.3)	C (31.9)			
95	Harlem Road & William Street	S	EB	L	C (34.5) 135 ft	D (43.0) 163 ft	D (46.0) 214 ft	D (44.8) 259 ft			
				T/TR	B (16.1) 50 ft	B (16.0) 53 ft	C (28.7) 134 ft	C (32.3) 156 ft			
			WB	L	B (16.5) 68 ft	B (16.4) 72 ft	C (21.1) 84 ft	C (24.9) 100 ft			
				T/TR	B (17.1) 95 ft	B (18.3) 109 ft	B (17.4) 84 ft	C (22.5) 102 ft			
			NB	L	B (11.8) 40 ft	B (12.4) 40 ft	B (15.1) 38 ft	B (17.9) 41 ft			
				T/TR	C (24.7) 248 ft	C (25.5) 242 ft	C (25.4) 225 ft	C (29.1) 260 ft			
			SB	L	C (24.0) 102 ft	C (26.4) 107 ft	C (24.5) 175 ft	C (26.2) 202 ft			
				T/TR	B (16.0) 160 ft	B (16.7) 164 ft	C (24.6) 382 ft	C (26.8) 449 ft			
			Overall					C (20.7)	C (22.2)	C (26.1)	C (28.8)

Appendix A-7
Concept 10 - Kensington Removal
ETC+20 (Year 2047)
Comparison of LOS, Delay and Queue Length

#	Intersection	Control	Dir.	Lanes	AM_ETC+20 (Year 2047)		PM_ETC+20 (Year 2047)	
					No-Build	Rev_Concept 10	No-Build	Rev_Concept 10
					LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue	LOS (Delay) 95 th % Queue
96	William Street & I 90 WB Ramps	S	EB	T/TR	C (31.4) 195 ft	C (28.8) 183 ft	C (20.2) 185 ft	C (21.2) 191 ft
				L	D (54.7) 449 ft	E (58.8) 449 ft	D (46.9) 275 ft	D (47.2) 270 ft
			WB	T/T	A (8.1) 48 ft	A (7.9) 46 ft	A (8.1) 57 ft	A (8.0) 53 ft
				L/LT	C (31.6) 167 ft	C (30.6) 164 ft	D (37.7) 190 ft	D (38.7) 187 ft
			SB	R	A (6.5) 59 ft	A (6.4) 59 ft	A (2.9) 28 ft	A (3.0) 28 ft
				Overall	C (30.2)	C (30.2)	C (25.0)	C (25.6)
			97	William Street & I 90 EB Ramps	S	EB	L	C (20.8) 118 ft
T/T	D (44.2) 244 ft	D (40.7) 231 ft					C (24.1) 202 ft	C (24.9) 234 ft
WB	T/T	B (16.9) 232 ft				B (16.5) 218 ft	B (14.1) 158 ft	B (14.2) 156 ft
	R	A (4.0) 54 ft				A (4.0) 54 ft	A (3.7) 48 ft	A (3.8) 48 ft
NB	L	C (29.1) 132 ft				C (27.4) 121 ft	C (21.4) 75 ft	C (21.9) 75 ft
	TR	A (7.4) 76 ft				A (7.3) 71 ft	B (14.4) 141 ft	B (14.4) 138 ft
	R	A (7.3) 74 ft				A (7.2) 69 ft	B (14.2) 140 ft	B (14.1) 135 ft
Overall	B (18.2)	B (17.5)				B (15.4)	B (15.7)	