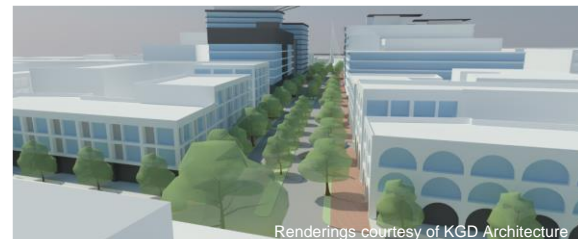
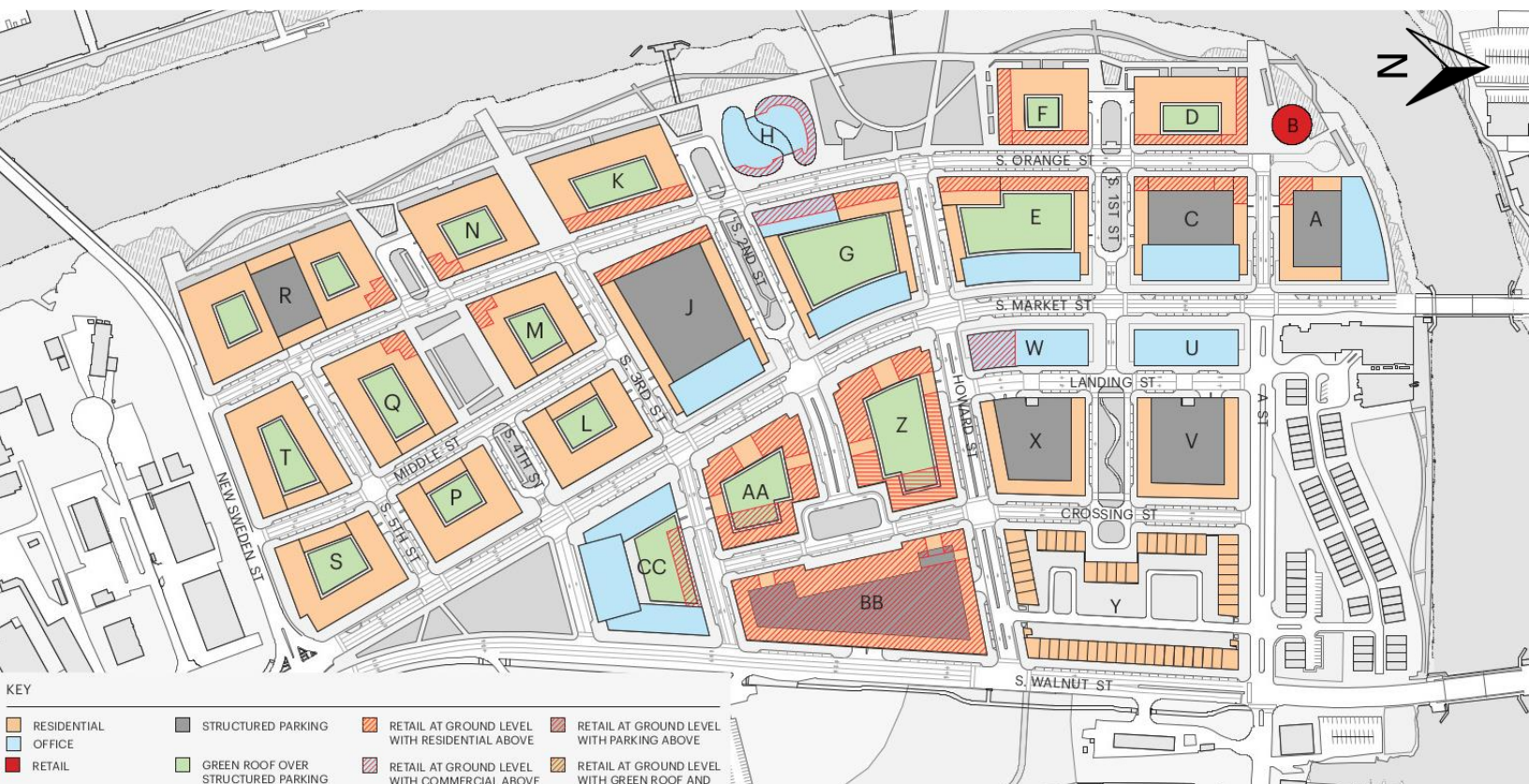


SOUTH MARKET STREET REDEVELOPMENT

Master Planning Traffic Operational Analysis



Renderings courtesy of KGD Architecture

RIVERFRONT
WILMINGTON

October 2021

RK&K

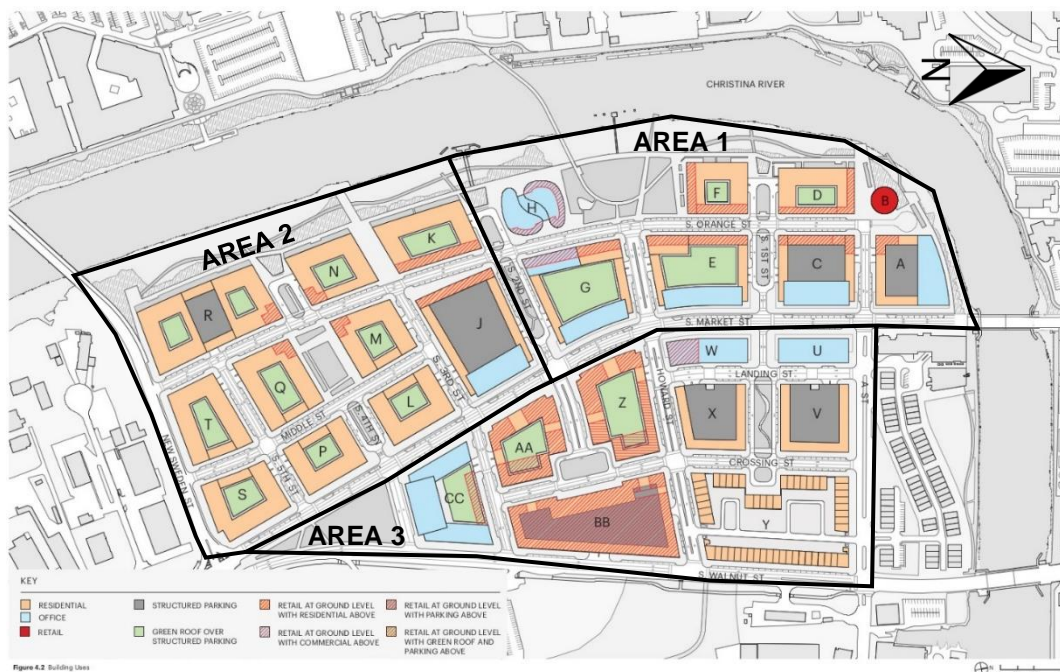
Executive Summary

RK&K conducted a traffic study to quantify the impact of a proposed 6.9M square foot re-development in the Wilmington Riverfront area, bounded by the Christina River to the north and west. Specifically, the study sought to determine how the roadway network would operate with the proposed development, if proposed signalized intersections were appropriately placed, if lane reductions along Market St are possible, and if capacity improvements are needed in the project area. The development is proposed to be built in three stages and will include the following:

Land Use	GSF (Gross Square Feet)	Units	New Trip Generation	
			AM	PM
Commercial	1,896,875	N/A	1,576	1,583
Residential	4,691,570	4,291	1,152	1,200
Retail	357,475	N/A	2,595	857
Total	6,945,920	4,291	5,323	3,640

Trips shown have been adjusted for pass-by, internal, and transit/non-motorized trips

Access to the development would primarily be along Market St and Walnut St, with several new access roads being constructed. The proposed development map, courtesy of the Riverfront Development Corporation, is shown below. The proposed development is anticipated to be complete in three phases (or Areas).



For this study, RK&K analyzed 13 traffic scenarios:

1. 2020 Existing
2. 2030 No-Build
3. 2030 Phase 1 without improvements
4. 2030 Phase 1 with improvements
5. 2040 No-Build
6. 2040 75% Build with improvements and 4 lanes on Market St and Walnut St
7. 2040 75% Build with additional improvements and 4 lanes on Market St and Walnut St

8. 2040 75% Build with improvements and 3 lanes on Market St and Walnut St
9. 2040 75% Build with additional improvements and 3 lanes on Market St and Walnut St
10. 2040 100% Build with improvements and 4 lanes on Market St and Walnut St
11. 2040 100% Build with additional improvements and 4 lanes on Market St and Walnut St
12. 2040 100% Build with improvements and 3 lanes on Market St and Walnut St
13. 2040 100% Build with additional improvements and 3 lanes on Market St and Walnut St

The analysis confirmed that signalization of the intersections of Market St at A St and Market St at 3rd St resulted in acceptable traffic operations within the project area. The analysis also found that a travel lane reduction on Market St between A Street and 2nd Street would operate acceptably with the full buildout (100% Build) of the proposed development.

The analysis found that the eastbound right turn from MLK Jr Blvd to Market St is failing under existing conditions and this movement worsens substantially as the area gets developed. This intersection and movement are severely constrained by right-of-way (ROW) and existing congestion. Additionally, the intersection of Market St and New Sweden St is projected to fail with the buildout of Phase 1 development, and there are other movements at various intersections throughout the project area that begin to fail when the additional development trips are added. To provide acceptable traffic operations under Build conditions and limit further congestion at the MLK Jr Blvd and Market St intersection, the following improvements are needed:

Prior to completion of Phase 1:

1. Market St at New Sweden St
 - a. Provide three (3) northbound through lanes
 - b. Provide exclusive left-turn lanes on the eastbound and westbound approaches
2. New Sweden St at S. Orange St
 - a. Extend S. Orange St to New Sweden St
 - b. Allow eastbound left turns from New Sweden St via a separate left-turn lane or roundabout

Note: These improvements will allow vehicles to/from the west along New Sweden to access the development without being required to go through the intersections of Market St at New Sweden St or MLK Jr Blvd at Market St

Prior to 75% of the proposed development being constructed:

1. Provide three (3) lanes in each direction along S. Market St between New Sweden St and the I-495 interchange
2. Provide three (3) southbound through lanes on S. Market St approaching the New Sweden St intersection
3. Install a traffic signal at the intersection of Market St and Rogers Rd

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I. Introduction

RK&K conducted a traffic study to quantify the impact of the proposed re-development in the Wilmington Riverfront area, bounded by the Christina River to the north and west, Walnut St to the east, and New Sweden St to the south, with the exception of existing residential areas between the Christina River and A St. Specifically, the study sought to determine how the roadway network would operate with the proposed development, if proposed signalized intersections were appropriately placed, if lane reductions along Market St are possible, and if capacity improvements are needed in the surrounding roadway network. Thirteen scenarios are discussed in this report:

- 2020 Existing
- 2030 No-Build
- 2030 Phase 1
- 2030 Phase 1 with improvements
- 2040 No-Build
- 4 travel lanes on Market St and Walnut St (existing number of lanes)
 - 2040 75% Build with improvements
 - 2040 75% Build with additional improvements
 - 2040 100% Build with improvements
 - 2040 100% Build with additional improvements
- 3 travel lanes on Market St and Walnut St (lane reduction to create on-street parking)
 - 2040 75% Build with improvements
 - 2040 75% Build with additional improvements
 - 2040 100% Build with improvements
 - 2040 100% Build with additional improvements

These scenarios are discussed in further detail in Section IV: Study Scenarios. Under all 13 scenarios, based on the magnitude of the development encompassing a large area of south Wilmington, it was assumed there would be no additional background developments and all existing businesses in the development area would be replaced. All scenarios included the opening of the Christina River Bridge and Wilmington Transit Center.

II. Project Description

The proposed development is a mixed-use redevelopment of approximately 79 acres. The existing land use is primarily industrial, with some retail space. Based on the Riverfront Development Corporation Master Plan, the development includes:

- 1.9 million SF of office space
- 4.7 million SF of residential space
- 360,000 SF of retail space
- Structured parking spaces (8,984 spaces), on-street parking spaces (647 spaces), and over 13 acres of open space

The proposed development is anticipated to be implemented in three phases, as shown in **Figure 1**. Each area represents a development phase.

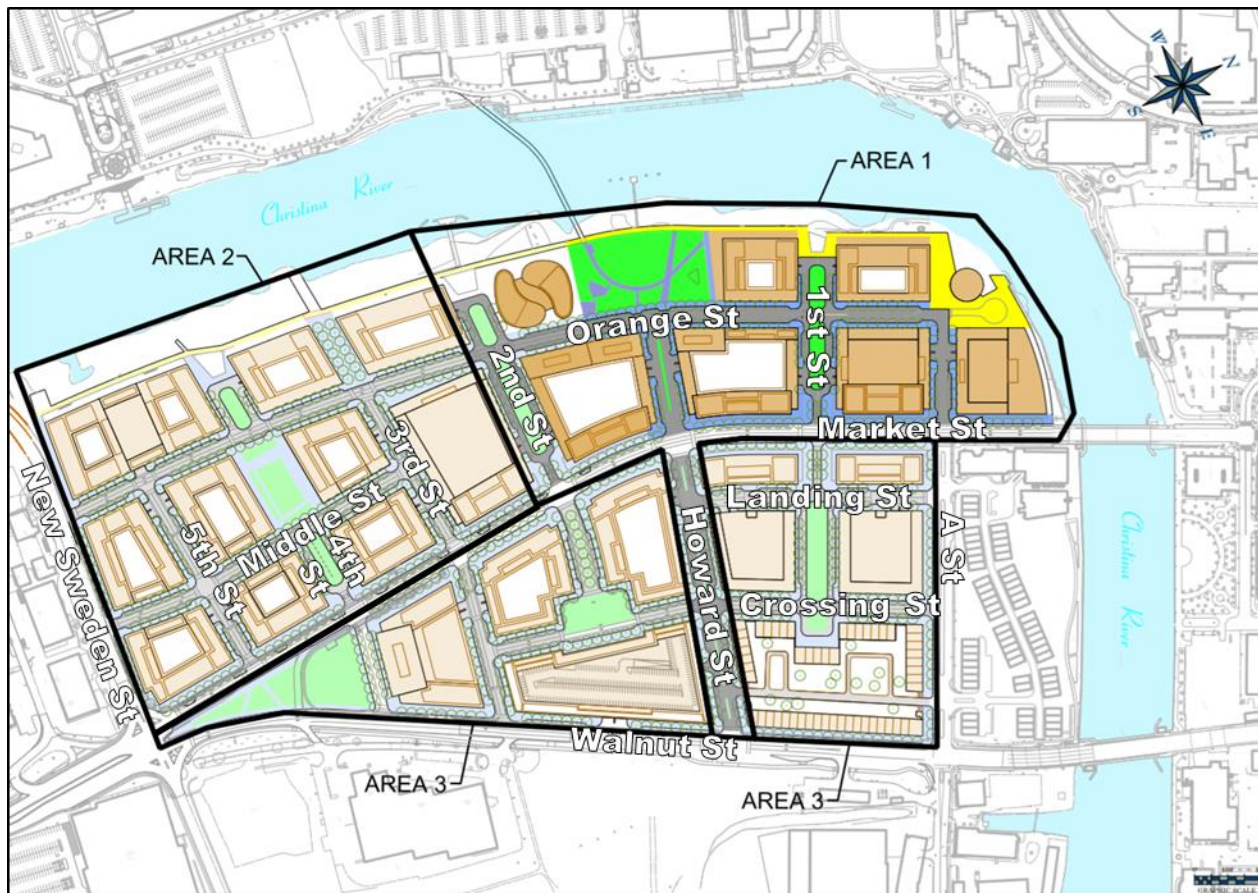


Figure 1: Project Phase Implementation

The construction of the Christina River Bridge and New Sweden St was a separate project that connects Market St to the west side of the Christina River. New Sweden St is the southern boundary of the proposed development. The bridge and New Sweden St opened to traffic in June 2020.

III. Study Area

Based on the proximity of the development to downtown Wilmington (the area north of the Christina River), the study area has been identified to include the following existing intersections, which are also shown in Figure 2:

- Market St at 2nd St
- Market St at MLK Blvd / Front St
- Market St at Shipley St / Rosa Parks Dr
- Market St at A St
- Market St at Howard St
- Market St / Walnut St at New Sweden St / Garasches Ln
- Market St / Walnut St at Rogers Rd
- Market St / Walnut St at Heald St (US 13)
- Dupont Hwy (US 13) at I-495 Ramps
- Rogers Rd at Heald St (US 13)
- Walnut St at Howard St
- Walnut St at A St
- Walnut St at Front St
- Walnut St at 2nd St
- 2nd St at King St
- 2nd St at French St
- Front St at King St
- Front St at French St

The posted speed limit on Market St is 25 mph from downtown Wilmington south to Howard St, 35 mph from Howard St south to the Rogers Rd area, and 45 mph from the Rogers Rd area south to the I-495 ramps. The posted speed limit on Walnut St is 45 mph from the I-495 ramps north to New Sweden St, 35 mph from New Sweden St north to Howard St, and 25 mph from Howard St north into downtown Wilmington. The posted speed limit on A St is 25 mph. The posted speed limit on Front St, 2nd St, King St, and French St is 25 mph. There is no posted speed limit on Howard St or French St, but a 25-mph speed limit was assumed when analyzing these roadways.

Market St maintains three southbound lanes between Front St and A St, adding a fourth lane south of A St that drops to three lanes at the U-turn north of New Sweden St. Market St drops to two southbound lanes at New Sweden St and maintains those lanes through the remainder of the study area. Walnut St maintains two northbound lanes between the I-495 ramps and New Sweden St. One additional northbound lane is added north of New Sweden St, and a fourth northbound lane is added north of the Market St. U-turn. Walnut St maintains four lanes north into downtown Wilmington.

Most study intersections along Market St and Walnut St are signalized; the only unsignalized study intersections are Market St at A St and Market St/Walnut St at Rogers Rd. Market St has a sidewalk on at least one side of the road from Front St to the Market St/Walnut St fork. Walnut St has a sidewalk on at least one side of the road from Front St to A St and from Howard St south to the existing shopping plaza rear driveway. Market St/Walnut St have a sidewalk on at least one side of the road from the Market St/Walnut St fork south to the bridge crossing the CSX railroad. Market St/Walnut St do not have any sidewalks from the CSX railroad bridge to the southern end of the study area. A St has sidewalks on the majority of both sides of the road and Howard St has short sidewalks at the eastern and western ends connecting the shopping plaza parking lot and sidewalks to the Market St and Walnut St sidewalks. All streets in downtown Wilmington have sidewalks except for the sweep from King St to MLK Jr Blvd. There are no bicycle facilities (bike paths, bike lanes, or sharrows) in the study area, but 2nd St, Front St, A St, and the portions of Market St and Walnut St between 2nd St and A St are parts of Delaware Statewide and Regional Bicycle Routes.

The study area outline is shown in **Figure 2**.

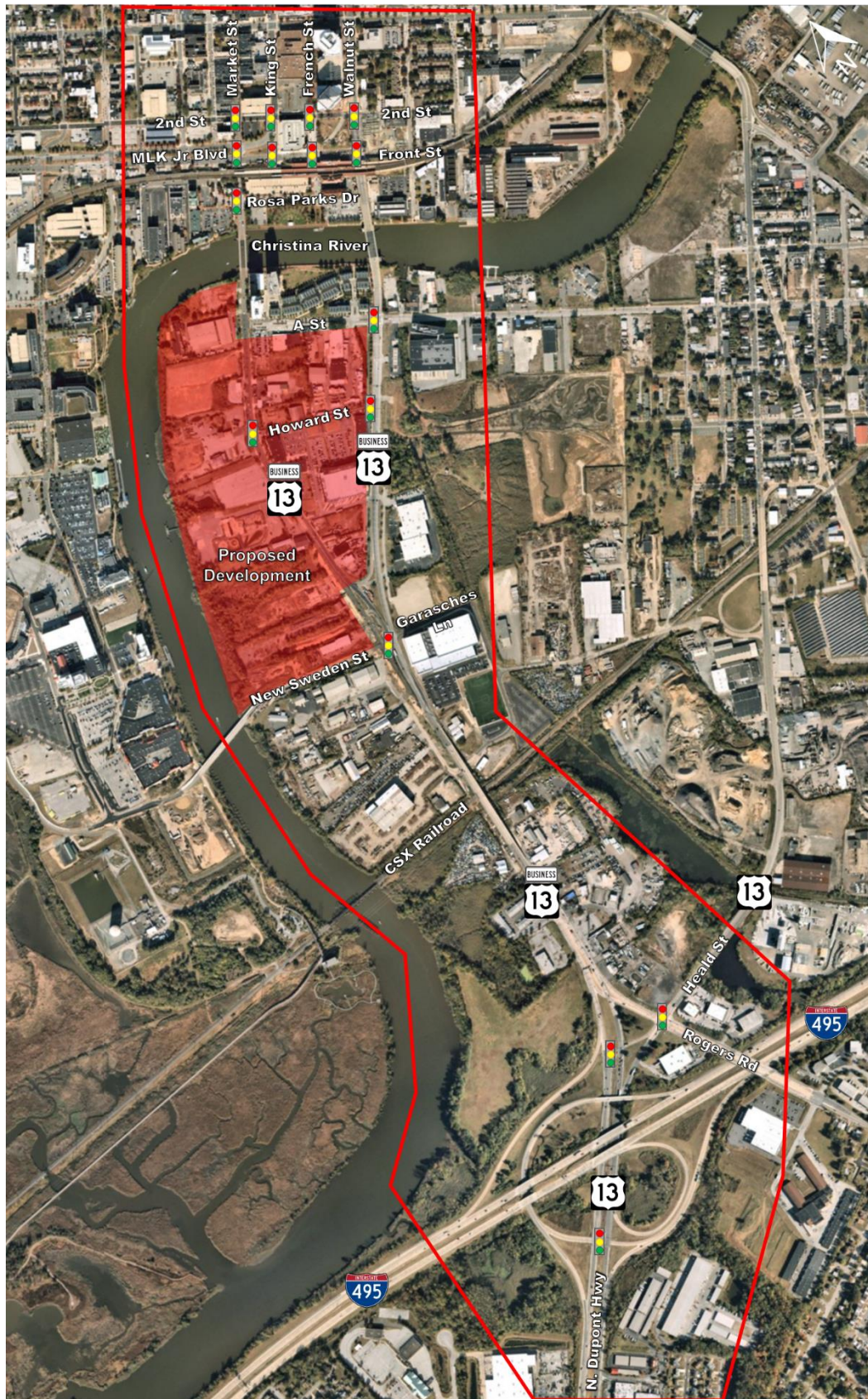


Figure 2: Study Area

IV. Study Scenarios

Scenario 1: 2020 Existing Conditions

This scenario modeled the existing conditions using 2020 volumes.

Scenario 2: 2030 No-Build

This scenario modeled the existing conditions using 2030 volumes, with no modifications to the roadway network or land use.

Scenario 3: 2030 Phase 1

This scenario modeled the first of three development phases using 2030 volumes.

Phase 1 includes development blocks A through H along with Orange St, 1st St, 2nd St, Howard St extension, A St extension, and all related driveways. However, it was assumed that S. Orange St would not extend to New Sweden St in this scenario. This resulted in most trips originating/destined for west of the development utilizing MLK Jr Blvd to access the development blocks. The analysis assumed Market St and Walnut St retain all existing lanes. A new traffic signal would be installed at the intersection of Market St and A St. A corresponding signal warrant analysis is provided in **Appendix A** showing that the proposed signal would meet multiple DE MUTCD signal warrants. Given that this report represents a projected/future condition, the warrant analyses were focused primarily on volume-based warrants (warrants 1-3), all of which were met.

Scenario 4: 2030 Phase 1 with Improvements

This scenario was developed based on Scenario 3 analysis results. Scenario 4 is the same as Scenario 3 but also added the following improvements:

- At the New Sweden St/Orange St intersection, an eastbound left turn lane was added, and eastbound left turns were no longer prohibited here.
- As a result of the available access to the development via the New Sweden St/Orange St intersection, 8% of all network-wide inbound and outbound trips were diverted away from the Market St/MLK Jr Blvd intersection to the Market St/New Sweden St intersection via Madison St and Justison St on the west side of the Christina River to avoid downtown congestion.
- At the Market St/New Sweden St intersection, an additional northbound through lane is carried through the intersection and an eastbound left turn lane and a westbound left turn lane were added.

Scenario 5: 2040 No-Build

This scenario modeled the existing conditions using 2040 volumes, with no modifications to the roadway network or land use.

Scenario 6: 2040 75% Build with Improvements

This scenario modeled 75% buildout of the development using 2040 volumes and includes the three improvements in Scenario 4. All proposed new roads (see **Figure 1**) will have been constructed. All development blocks will have been constructed but were coded to only generate 75% of the expected trips. Traffic signals will be installed at the Market St/A St intersection and Market St/3rd St intersection. A corresponding signal warrant analysis is provided in **Appendix A** showing that the proposed signal would meet multiple DE MUTCD signal warrants. Given that this report represents a projected/future condition, the warrant analyses were focused primarily on volume-based warrants (warrants 1-3), all of which were met.

Scenario 7: 2040 75% Build with Additional Improvements

This scenario was developed based on Scenario 6 analysis results. Scenario 7 is the same as Scenario 6 but also added the following improvements:

- At the Market St/New Sweden St intersection, an additional southbound through lane is carried through the intersection.
- A third lane is added along northbound and southbound Market St between New Sweden St and the I-495 ramps.
- A traffic signal is installed at the Market St/Rogers Rd intersection. A corresponding signal warrant analysis is provided in **Appendix A** showing that the proposed signal would meet multiple DE MUTCD signal warrants. Given that this report represents a projected/future condition, the warrant analyses were focused primarily on volume-based warrants (warrants 1-3), all of which were met.

Scenario 8: 2040 75% Build with Improvements and Lane Reduction

This scenario is identical to Scenario 6, but Market St and Walnut St have one lane reduction to provide either on-street parking or a bicycle lane.

Scenario 9: 2040 75% Build with Additional Improvements and Lane Reduction

This scenario is identical to Scenario 7, but Market St and Walnut St have one lane reduction to provide either on-street parking or a bicycle lane.

Scenario 10: 2040 100% Build with Improvements

This scenario modeled 100% Buildout of the development using 2040 volumes and includes the three improvements in Scenario 4.

As with Scenarios 6 and 7, all proposed new roads (see **Figure 1**) and development blocks will have been constructed. Full trip generation volumes were coded. Traffic signals will be installed at the Market St/A St intersection and Market St/3rd St intersection.

Scenario 11: 2040 100% Build with Additional Improvements

This scenario was developed based on Scenario 10 analysis results. Scenario 11 is the same as Scenario 10 but also added the same improvements as in Scenario 7:

- At the Market St/New Sweden St intersection, an additional southbound through lane is carried through the intersection.
- A third lane is added along northbound and southbound Market St between New Sweden St and the I-495 ramps.
- A traffic signal is installed at the Market St/Rogers Rd intersection.

Scenario 12: 2040 100% Build with Improvements and Lane Reduction

This scenario is identical to Scenario 10, but Market St and Walnut St have one lane reduction to provide either on-street parking or a bicycle lane.

Scenario 13: 2040 100% Build with Additional Improvements and Lane Reduction

This scenario is identical to Scenario 11, but Market St and Walnut St have one lane reduction to provide either on-street parking or a bicycle lane.

V. Methodology

Creation of Existing Volume Network

A volume network was created by obtaining historic turning movement count data throughout the study area. New counts were not conducted due to abnormal traffic patterns during the COVID-19 pandemic. Counts were available for most study area intersections and ranged from 2008 data to 2020 data, as well as projections for the New Sweden St intersection. The turning movement counts are provided in **Appendix B**. All counts were grown to the analysis year (2020, 2030, or 2040) using a 0.5% annual growth rate. The AM peak hour was determined to be 7:30 to 8:30 AM and the PM peak hour was 4:45 to 5:45 PM. Count data for intersections without available data were estimated based on adjacent intersections. Counts were manually balanced between adjacent intersections.

Counts were adjusted for several factors. Counts near the former Front St “sweep” between French St and Walnut St were adjusted to account for the removal of the “sweep” that occurred after counts were recorded. Also, nominal volumes of inbound and outbound trips were added along MLK Blvd/Front Street and 2nd Street during each peak hour to account for the Wilmington Transit Center, located on the northeast corner of Walnut St and Front St, because it was opened after count data were collected.

Trips to and from existing businesses that will be replaced by the development blocks were removed from the network. The larger businesses that were removed included Shoprite, Speedway Gas Station, Collins Supply, Winner Auto, Osbornes Auto Repair, and Grubb Lumber. The number of these trips was estimated using the ITE *Trip Generation Manual*, 10th Edition, and the distribution of these trips was assumed to be the same as the distribution of new trips, as discussed in the “Trip Distribution” section below.

The existing volume network was used for the 2020 Existing, 2030 No-Build, and 2040 No-Build scenarios. The Build scenarios added development trips as discussed in the next section.

Trip Generation

The trip generation process included generating raw trips, then adjusting them for internal trips, transit/non-motorized trips, and pass-by trips. The Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition was used to generate raw trips for the development. To obtain accurate results in such a large development, each block was analyzed as a separate unit using the equations shown below in **Table 1**. Detailed trip generation calculations are included in **Appendix C**.

Table 1: Trip Generation Information

Land Use	Trip Generation Formula	Directional Distribution		Vehicle Occupancy
		In	Out	
General Office Building (ITE-710, GSF)	Morning Trips = $0.94 \times \left(\frac{GSF}{1000}\right) + 26.49$	86%	14%	1.47
	Evening Trips = $e^{0.95 \times \ln\left(\frac{GSF}{1000}\right) + 0.36}$	12%	84%	1.46
Mid-Rise Residential (ITE-221, Units)	Morning Trips = $e^{0.98 \times \ln(Units) - 0.98}$	26%	74%	1.90
	Evening Trips = $e^{0.96 \times \ln(Units) - 0.63}$	61%	39%	2.00
Shopping Center (ITE-820, GSF)	Morning Trips = $0.50 \times \left(\frac{GSF}{1000}\right) + 151.78$	62%	38%	1.31
	Evening Trips = $e^{0.74 \times \ln\left(\frac{GSF}{1000}\right) + 2.89}$	48%	52%	1.43

Each Build scenario used the above formulas but applied them to a different number of development blocks. The two Phase 1 scenarios used Blocks A through H, while the four 75% Build and 100% Build scenarios used all Blocks. Raw trip generation of each Block is shown in **Table 2**; these values are valid for both 2030 and 2040 scenarios because the above equations are not dependent on existing volumes or year of development.

Table 2: Raw Trip Generation (vehicle-trips)

Scenarios	Development Block	Morning Peak Hour			Evening Peak Hour		
		In	Out	Total	In	Out	Total
All Scenarios (Phase 1 Scenarios and Build Scenarios)	Block A	245	105	350	110	216	326
	Block B	97	59	156	40	43	83
	Block C	231	110	341	106	194	300
	Block D	111	99	210	87	77	164
	Block E	246	170	416	193	253	446
	Block F	111	99	210	92	83	175
	Block G	276	166	442	170	261	431
	Block H	281	90	371	94	246	340
Build Scenarios Only	Block J	236	125	361	120	202	322
	Block K	115	113	228	108	91	199
	Block L	15	44	59	46	29	75
	Block M	111	103	214	70	55	125
	Block N	112	106	218	72	57	129
	Block P	15	43	58	45	29	74
	Block Q	113	112	225	79	59	138
	Block R	132	165	297	131	92	223
	Block S	18	50	68	52	34	86
	Block T	18	51	69	54	34	88
	Block U	137	22	159	25	132	157
	Block V	8	23	31	24	16	40
	Block W	241	83	324	73	189	262
	Block X	8	21	29	23	14	37
	Block Y	5	13	18	15	9	24
	Block Z	127	124	251	196	186	382
	Block AA	123	115	238	175	168	343
	Block BB	157	149	306	382	384	766
	Block CC	724	161	885	158	685	843
Phase 1 Scenarios	Total	1,598	898	2,496	892	1,373	2,265
Build Scenarios	Total	4,013	2,521	6,534	2,740	3,838	6,578

After the raw trips were generated, they were adjusted to account for internal trips with origins and destinations within the development. This was done by transforming the above vehicle-trips into person-trips using vehicle occupancy data from the ITE *Trip Generation Manual*, 10th edition. The National Cooperative Highway Research Program (NCHRP) 8-51 Internal Trip Capture Estimation Tool, an Excel tool that estimates internal trip capture for multi-use developments, was used to estimate internal trips. Input data included total trip generation for each land use and vehicle occupancy.

Transit/non-motorized (walking and biking) trips were estimated by using data from the American Community Survey (ACS) including residents and workers for the City of Wilmington. A weighted average revealed that there are approximately 8.5% of trips attributed to transit and 4.5% of trips attributed to non-motorized modes; the NCHRP tool takes these percentages into consideration and outputs adjusted trip generation results. The NCHRP 8-51 Internal Trip Capture Estimation Tool reports can be found in **Appendix D**. The percentage of generated trips that were considered internal capture are shown in **Table 3**. These trips were subtracted from the trips obtained in the previous step.

Table 3: Internal Trip Capture Percentages

Land Use	Morning Peak Hour		Evening Peak Hour	
	In	Out	In	Out
Office	6%	28%	20%	8%
Residential	5%	8%	18%	28%
Commercial	2%	3%	25%	17%

After the trips were adjusted for internal and transit/non-motorized trips, they were adjusted to account for pass-by trips. Person-trips were transformed back to vehicle-trips using vehicle occupancy for each land use. The only land use in the development that has a documented pass-by percentage is the retail land use. According to the ITE *Trip Generation Manual*, 0% of trips in the AM peak hour and 26% of trips in the PM peak hour are attributed to pass-by trips. **Table 4** provides the total number of pass-by trips that are expected to access the development. These pass-by trips were subtracted from the trips obtained in the previous step.

Table 4. Pass-By Trips

Scenarios	Morning Peak Hour			Evening Peak Hour		
	In	Out	Total	In	Out	Total
Phase 1	0	0	0	157	157	314
Phase 2 & Phase 3	0	0	0	300	300	600
Total	0	0	0	457	457	914

After the transit trips, non-motorized trips, and internal trips are subtracted from the raw trip generation, the above pass-by trips are subtracted to find the number of new vehicle trips that are expected to access the development. The number of new vehicle trips that were added to the roadway network, after subtracting out internal trips, transit/non-motorized trips, and pass-by trips are shown in **Table 5**. The previously removed pass-by trips were then added to the network to model vehicles that were already on the network taking a slight diversion to access one of the many development blocks.

Table 5: New Trips Generated, Adjusted for Internal, Transit/Non-Motorized, and Pass-by Trips (vehicle-trips)

Scenarios	Development Block	Morning Peak Hour			Evening Peak Hour		
		In	Out	Total	In	Out	Total
All Scenarios (Phase 1 Scenarios and Build Scenarios)	Block A	202	82	284	49	139	188
	Block B	82	49	131	11	16	27
	Block C	190	87	277	52	126	178
	Block D	94	81	175	40	35	75
	Block E	204	133	337	99	152	251
	Block F	94	81	175	42	37	79
	Block G	227	131	358	93	170	263
	Block H	230	70	300	38	168	206
Build Scenarios Only	Block J	194	98	292	62	130	192
	Block K	97	93	190	52	42	94
	Block L	13	34	47	32	17	49
	Block M	94	84	178	40	26	66
	Block N	95	87	182	41	28	69
	Block P	13	33	46	31	17	48
	Block Q	96	92	188	46	28	74
	Block R	111	134	245	82	49	131
	Block S	15	39	54	36	20	56
	Block T	15	40	55	38	20	58
	Block U	111	13	124	17	104	121
	Block V	6	18	24	17	9	26
	Block W	198	65	263	30	129	159
	Block X	6	17	23	16	8	24
	Block Y	4	10	14	11	5	16
	Block Z	107	102	209	76	77	153
	Block AA	104	94	198	68	70	138
	Block BB	133	121	254	130	152	282
	Block CC	591	109	700	92	525	617
Phase 1 Scenarios	Total	1,323	714	2,037	424	843	1,267
Build Scenarios	Total	3,326	1,997	5,323	1,341	2,299	3,640

Trip Distribution

After the number of new trips were generated, they were distributed across the network. A Cordon line was drawn around the study area (shown in **Figure 3**) and trip distribution patterns were estimated proportionally along all of the key ingress and egress routes based on the AADT of those roads. The percent of newly generated trips originating from origins and traveling to destinations are shown in **Figure 3**. As discussed earlier, the Scenario 3 (2030 Phase 1) trip distributions were slightly different from the other Build scenarios at MLK Jr Blvd and New Sweden St due to the lack of a connection between Orange St and New Sweden St. Without the Orange St connection, 8% more trips will utilize the MLK Jr Blvd/Market St intersection than when the connection is provided. These differences are noted in **Figure 3**.



Figure 3: Trip Distribution Origins and Destinations

Due to the anticipated congestion along eastbound MLK Jr Blvd resulting from the new development, it was assumed that additional diversions will occur to the new Christina River Bridge. It was assumed that 100 vehicles per hour destined for the area south of the development (such as I-495) would be rerouted from the eastbound right turn at MLK Jr Blvd at Market St through Justison Landing and to the eastbound right turn at the New Sweden St at Market St intersection, south of the new riverfront development.

New trips were routed through existing and new intersections using the Synchro Traffic Impact Analysis (TIA) tool. The TIA tool uses the trip generation volumes, Cordon line origins and destinations shown above, and roadway speed limits and travel times to determine the fastest routes between the development blocks and Cordon line origins and destinations. The resulting volumes on these routes were modified for 75% and 100% Build scenarios. Also, some northbound left-turning vehicles at Market St/New Sweden St were manually rerouted to turn at Howard St to more accurately model traffic operations.

Traffic Analysis

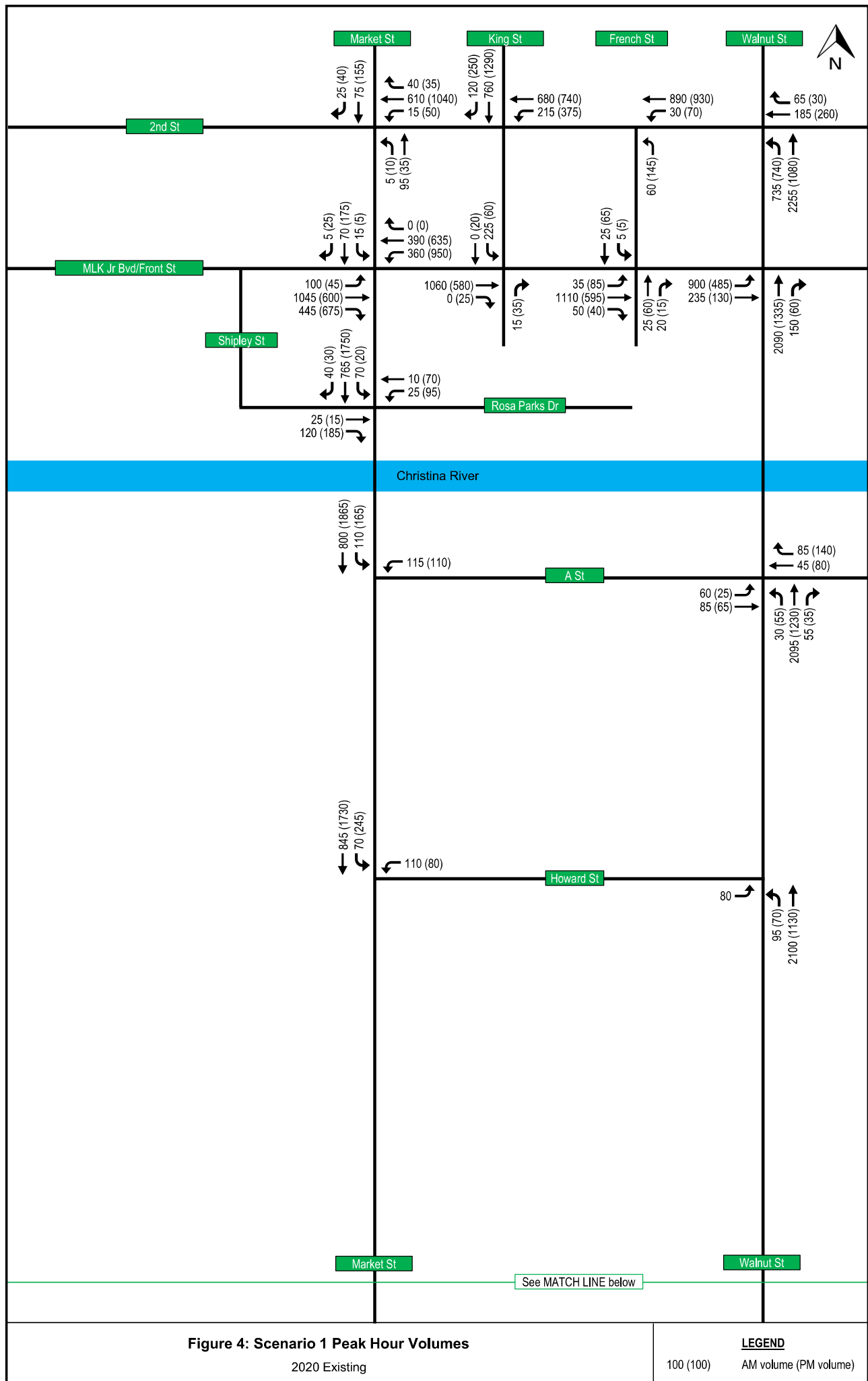
Operational analyses were performed using Synchro Traffic Signal Timing and Analysis software, Version 10, as well as its companion simulation software SimTraffic. Synchro analysis results include average delay, measured in seconds per vehicle, and level of service (LOS) based on Highway Capacity Manual (HCM) 2000 methodology. HCM 2000 methodology was used instead of HCM 2010 or HCM 6 methodologies because the latter two methods cannot analyze intersections with over four approaches, and there were several intersections that had to be coded with over four approaches in Synchro to model all of the intersections within the project area appropriately based on their geometry. SimTraffic results are based on the average of five (5) simulation runs, each consisting of a 15-minute seeding period and 60-minute run time. The SimTraffic measure of effectiveness was the 95th percentile queue. It is noted that due to the stochasticity inherent to microsimulations and the rounding of queues to the nearest 25 feet, results may seem counterintuitive when comparing similar 95th percentile queue lengths across scenarios (e.g. the queue of a No-Build scenario could be 275 feet while a Build scenario could be 300 feet).

VI. Results

2020 Scenario

2020 Existing Conditions

The peak hour volumes used in the 2020 Existing Conditions analyses are shown below in **Figure 4**. The level of service and delay at all subject intersections is shown in **Table 6**. 95th percentile queues for the development are shown in **Table 7**.



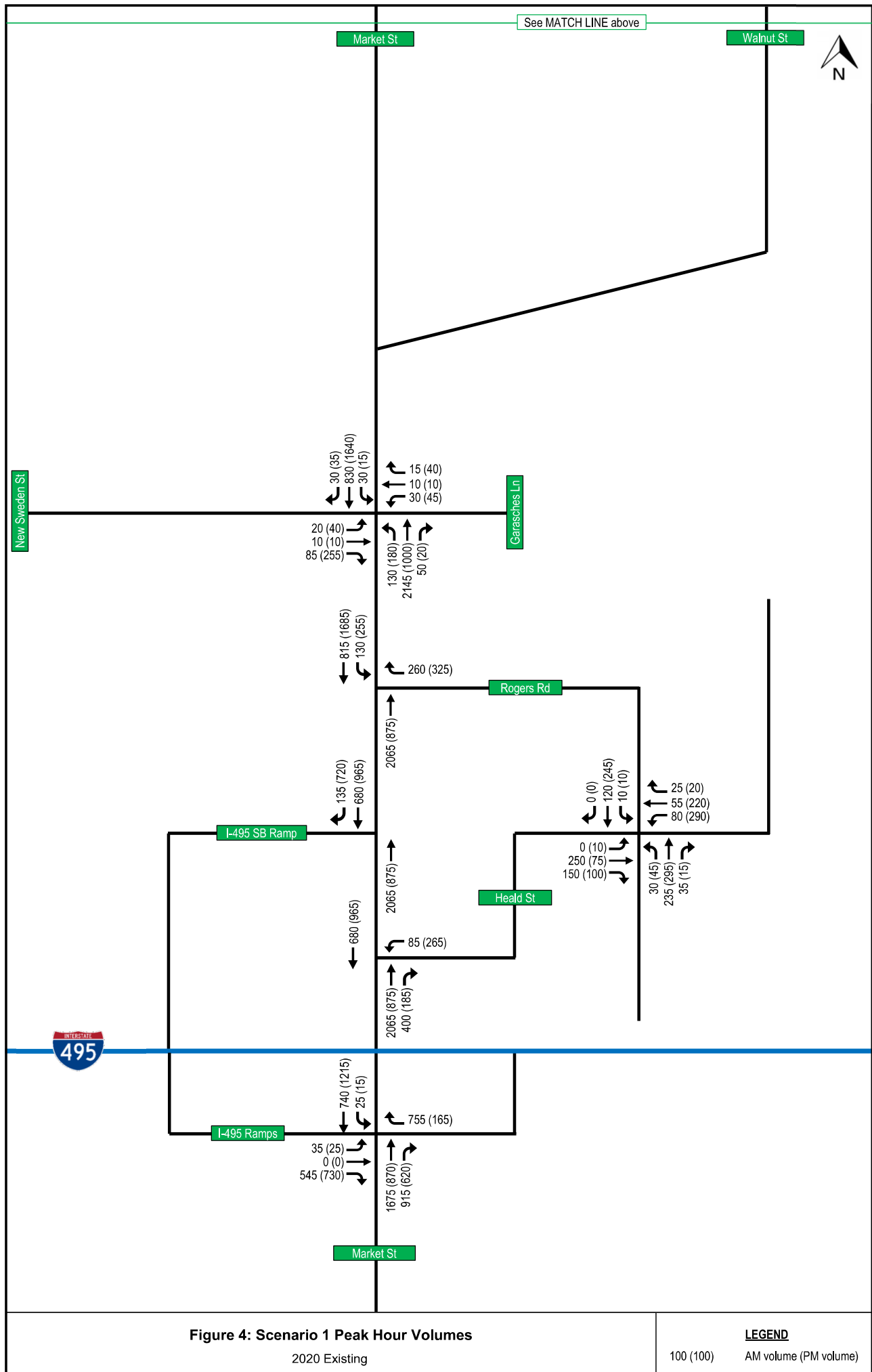


Table 6: 2020 LOS Results

Intersection		Approach	Movement	2020 Existing			
				AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS
1	N. Market St @ 2nd St	WB	WBL	9.4	A	6.6	A
			WBT	11.3	B	8.2	A
			WBR	0.0	A	0.0	A
			Approach	11.3	B	8.1	A
		NB	NBL	0.0	A	0.0	A
			NBT	25.8	C	24.6	C
			Approach	25.8	C	24.6	C
		SB	SBT	37.7	D	42.4	D
			SBR	0.0	A	0.0	A
			Approach	37.7	D	42.4	D
		Intersection		16.0	B	13.5	B
2	MLK Blvd / N. King St @ 2nd St	WB	WBL	0.0	A	0.0	A
			WBT	5.8	A	8.5	A
			Approach	5.8	A	8.5	A
		SB	SBT	36.4	D	83.7	F
			SBR	0.0	A	0.0	A
			Approach	36.4	D	83.7	F
		Intersection		21.0	C	52.1	D
3	French St @ 2nd St	WB	WBL	0.0	A	0.0	A
			WBT	5.6	A	7.3	A
			Approach	5.6	A	7.3	A
		NB	NBL	47.8	D	59.7	E
			Approach	47.8	D	59.7	E
		Intersection		8.2	A	14.0	B
4	S. Walnut St @ 2nd St	WB	WBT	47.9	D	49.2	D
			WBR	0.0	A	0.0	A
			Approach	47.9	D	49.2	D
		NB	NBL	1.3	A	1.8	A
			NBT	8.1	A	8.8	A
			Approach	6.5	A	5.9	A
		Intersection		9.7	A	11.9	B

Table 6: 2020 LOS Results

6	S. Market St / N. Market St @ MLK Blvd	EB	EBL	23.5	C	22.4	C
			EBT	0.0	A	0.0	A
			EBR	127.7	F	47.9	D
			Approach	95.8	F	42.5	D
		WB	WBL	18.3	B	66.1	E
			WBT	18.5	B	27.4	C
			WBR	0.0	A	0.0	A
			Approach	18.4	B	50.6	D
		SB	SBL	0.0	A	0.0	A
			SBT	21.3	C	35.3	D
			SBR	0.0	A	0.0	A
			Approach	21.3	C	35.3	D
		Intersection		69.2	E	46.2	D
8	King St @ Front St	EB	EBT	1.0	A	0.6	A
			Approach	1.0	A	0.6	A
		NB	NBR	34.6	C	34.8	C
			Approach	34.6	C	34.8	C
		SB	SBL	25.4	C	41.7	D
			Approach	25.4	C	41.8	D
		Intersection		5.6	A	6.9	A
9	French @ Front St	EB	EBL	0.0	A	0.0	A
			EBT	8.7	A	6.0	A
			EBR	0.0	A	0.0	A
			Approach	8.7	A	6.0	A
		NB	NBT	21.5	C	41.3	D
			NBR	0.0	A	0.0	A
			Approach	21.5	C	41.3	D
		SB	SBL	41.0	D	38.1	D
			SBT	38.8	D	37.5	D
			Approach	39.1	D	37.5	D
		Intersection		9.9	A	11.6	B
10	S. Walnut St @ Front St	EB	EBL	37.3	D	26.6	C
			EBT	22.8	C	22.1	C
			Approach	34.3	C	25.6	C
		NB	NBT	2.6	A	3.8	A
			NBR	0.0	A	0.0	A
			Approach	2.6	A	3.8	A
		Intersection		13.2	B	10.5	B

Table 6: 2020 LOS Results

11	S. Market St @ S Shipley St / Rosa Parks Dr	EB	EBT	31.2	C	36.0	D
			EBR				
			Approach				
		WB	WBL	18.4	B	38.6	D
			WBT				
			Approach				
		SB	SBL	10.8	B	11.7	B
			SBT				
			SBR				
			Approach				
Intersection			13.8	B	16.0	B	

12	S. Market St @ A St	EB	EBT	Unsignalized			
			EBR				
			Approach				
		WB	WBL				
			WBT				
			Approach				
		SB	SBL				
			SBT				
			SBR				
			Approach				
Intersection							

14	S. Market St @ Howard St	EB	EBT	0.0	A	0.0	A
			EBR	0.0	A	0.0	A
			Approach	0.0	A	0.0	A
		WB	WBL	34.4	C	36.7	D
			WBT	0.0	A	0.0	A
			Approach	34.4	C	36.7	D
		SB	SBL	0.0	A	0.0	A
			SBT	13.3	B	24.5	C
			SBR	0.0	A	0.0	A
			Approach	13.3	B	24.5	C
Intersection			15.5	B	25.0	C	

Table 6: 2020 LOS Results

16	S. Market St @ S. 3rd St	EB	EBT	Unsignalized			
			EBR				
			Approach				
		WB	WBL				
			WBT				
			Approach				
		SB	SBL				
			SBT				
			SBR				
			Approach				
Intersection							

21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL	62.2	E	63.8	E
			EBT				
			EBR	0.1	A	0.2	A
			Approach	16.5	B	10.6	B
		WB	WBL	56.2	E	57.0	E
			WBT				
			WBR	0.0	A	0.0	A
			Approach	41.2	D	33.2	C
		NB	NBL	28.2	C	35.0	C
			NBT	20.7	C	3.8	A
			NBR	0.0	A	0.0	A
			Approach	20.7	C	8.4	A
		SB	SBL	71.6	E	62.1	E
			SBT	8.2	A	60.1	E
			SBR	0.0	A	0.0	A
			Approach	10.1	B	58.9	E
Intersection			18.1	B	35.3	D	

23	US 13 @ S Heald St	WB	WBL	50.0	D	54.3	D
			Approach	50.0	D	54.3	D
		NB	NBT	5.9	A	0.7	A
			Approach	5.9	A	0.7	A
		SB	SBT	0.8	A	0.8	A
			SBR	0.1	A	0.5	A
			Approach	0.7	A	0.7	A
		Intersection			5.7	A	5.7

Table 6: 2020 LOS Results

25	US 13 @ I-495 Ramps	EB	EBL	42.6	D	42.3	D
			EBT	42.6	D	42.4	D
			EBR	0.7	A	1.1	A
			Approach	3.2	A	2.5	A
		WB	WBR	1.2	A	0.1	A
			Approach	1.2	A	0.1	A
			NB	NBT	72.4	E	23.2
		NBR		1.9	A	0.8	A
		Approach		47.5	D	13.9	B
		SB	SBL	27.2	C	26.7	C
			SBT	1.3	A	2.4	A
			Approach	2.1	A	2.7	A
Intersection			27.2	C	7.1	A	

26	S Heald St @ Rogers Rd	EB	EBL	0.0	A	65.6	E
			EBT	21.4	C	201.7	F
			EBR	0.0	A	0.0	A
			Approach	21.4	C	194.3	F
		WB	WBL	42.0	D	73.4	E
			WBT	28.7	C	30.7	C
			WBR	0.0	A	0.0	A
			Approach	35.4	D	54.1	D
		NB	NBL	56.8	E	60.6	E
			NBT	27.8	C	29.6	C
			NBR	23.1	C	22.9	C
			Approach	30.2	C	33.3	C
		SB	SBL	34.8	C	36.0	D
			SBT	9.8	A	13.2	B
			Approach	11.7	B	14.1	B
Intersection			25.1	C	60.5	E	

47	S. Walnut St @ A St	EB	EBL	0.0	A	0.0	A
			EBT	19.3	B	14.3	B
			Approach	19.3	B	14.3	B
		WB	WBT	25.6	C	26.3	C
			WBR	26.1	C	27.6	C
			Approach	25.9	C	27.1	C
		NB	NBL	0.0	A	0.0	A
			NBT	14.4	B	10.1	B
			NBR	0.0	A	0.0	A
			Approach	14.4	B	10.1	B
Intersection			15.3	B	12.6	B	

Table 6: 2020 LOS Results

48	S. Walnut St @ Howard St	EB	EBL	13.7	B	13.5	B
			Approach	13.7	B	13.5	B
		NB	NBL	0.0	A	0.0	A
			NBT	3.7	A	3.6	A
			Approach	3.7	A	3.6	A
		Intersection			4.0	A	4.9

22	US 13 @ Rogers Rd	WB	WBR	Unsignalized
			Approach	
		NB	NBT	
			Approach	
		SB	SBL	
			SBT	
			Approach	
		Intersection		

Table 7: 2020 95th Percentile Queue Results

Intersection	Approach	Movement	2020 Existing		
			Storage Length (ft)	AM Peak	PM Peak
1	N. Market St @ 2nd St	WB	WBL	225	25
			WBT	225	175
			WBT/WEB	225	200
		NB	NBL/NBT	125	100
		SB	SBT/SBR	375	150
2	MLK Blvd / N. King St @ 2nd St	WB	WBL/WBT	175	250
			WBT	175	200
		SB	SBT	600	675
			SBT/SBR	600	725
3	French St @ 2nd St	WB	WBL/WBT	300	400
			WBT	300	350
		NB	NBL	200	125
4	S. Walnut St @ 2nd St	WB	WBT	300	300
			WBT/WEB	300	350
		NB	NBL	100	275
			NBT	200	150
6	S. Market St / N. Market St @ MLK Blvd	EB	EBL	875	1150
			EBT	875	975
			EBT/EBR	875	975
		WB	WBL	275	275
			WBT	275	125
		SB	SBL/T/R	125	125
8	King St @ Front St	EB	EBT	200	250
			EBT/EBR	200	300
		NB	NBR	225	50
		SB	SBL	100	225
9	French St @ Front St	EB	EBL/EBT	200	250
			EBT	200	250
			EBT/EBR	200	275
		NB	NBT/NBR	225	50
			SBL	200	25
		SB	SBT	200	50
10	S. Walnut St @ Front St	EB	EBL	325	425
			EBT	325	175
		NB	NBT	1125	1225
			NBT/NBR	1125	900

Table 7: 2020 95th Percentile Queue Results

Intersection		Approach	Movement	2020 Existing		
				Storage Length (ft)	AM Peak	PM Peak
11	S. Market St @ Rosa Parks Dr	EB	EBT/EBR	425	100	175
		WB	WBL/WBT	475	50	200
		SB	SBL/SBT	200	100	225
			SBT	200	100	225
			SBT/SBR	200	75	175
12	S. Market St @ A St	EB	EBT/EBR	N/A		
		WB	WBL	900	75	100
			WBT/WBL	N/A		
		SB	SBL			
			SBT			
SBT/SBR						
14	S. Market St @ Howard St	EB	EBT/EBR	N/A		
		WB	WBL	850	125	100
			WBT/WBL	N/A		
		SB	SBL/SBT	700	125	275
			SBT	800	150	300
SBT/SBR	N/A					
21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL/EBT	2625	75	75
			EBL	N/A		
			EBT			
			EBR	475	25	200
		WB	WBL/WBT	325	75	100
			WBL	N/A		
			WBT			
			WBR	50	50	75
		NB	NBL	275	175	200
			NBT/NBR	N/A		
			NBT	3025	375	100
			NBR	225	150	0
		SB	SBL	175	50	25
			SBT/SBR	N/A		
SBT	1775		150	250		
SBR	1775		0	0		
22	US 13 @ Rogers Rd (Unsignalized)	NB	NBT	300	150	0
		SB	L	825	125	150
		WB	R	350	25	0
23	US 13 @ I-495 SB On-Ramp / S. Heald St	WB	WBL	275	75	125
		NB	NBT	1400	200	0
		SB	SBT	3025	0	25

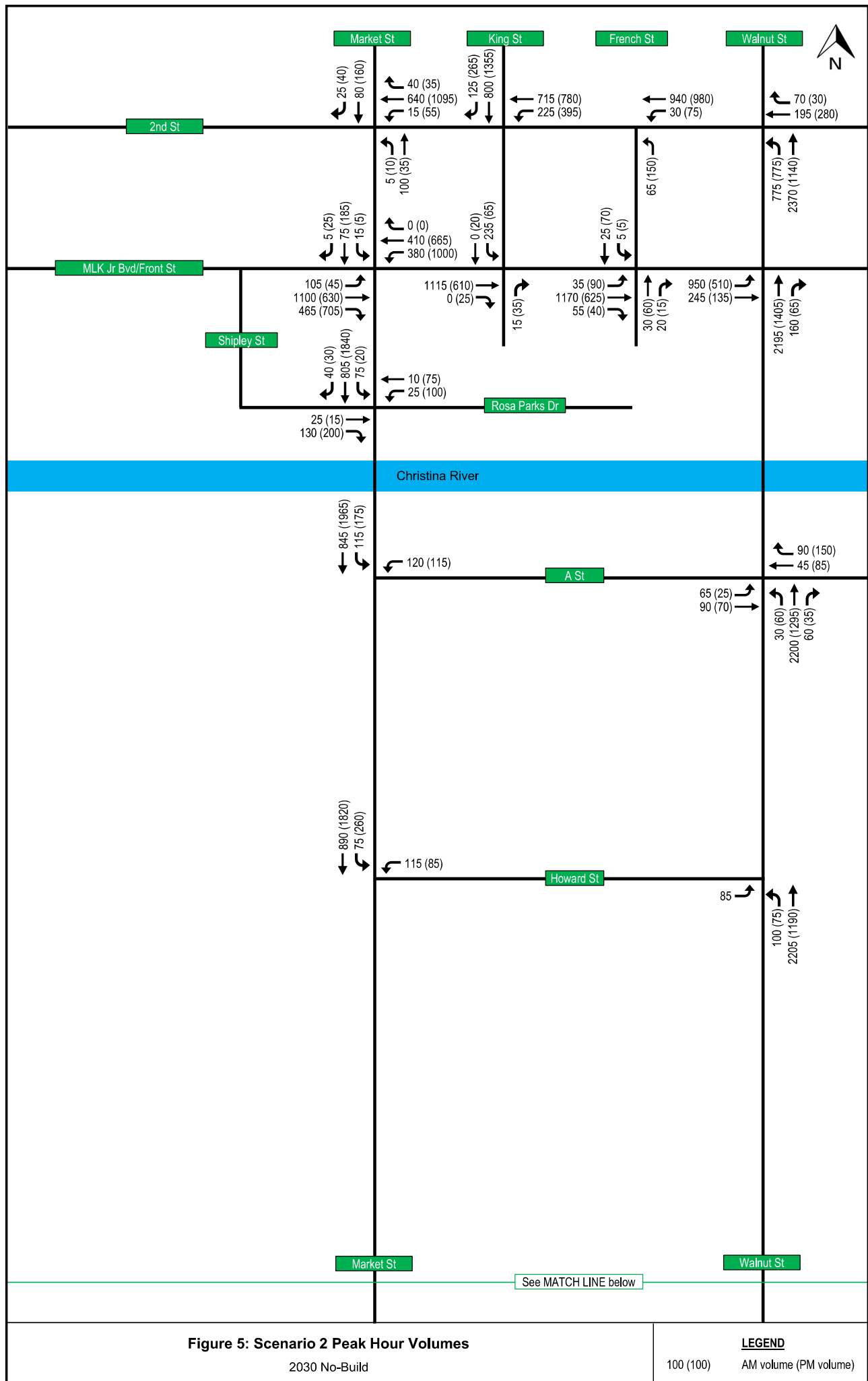
Table 7: 2020 95th Percentile Queue Results

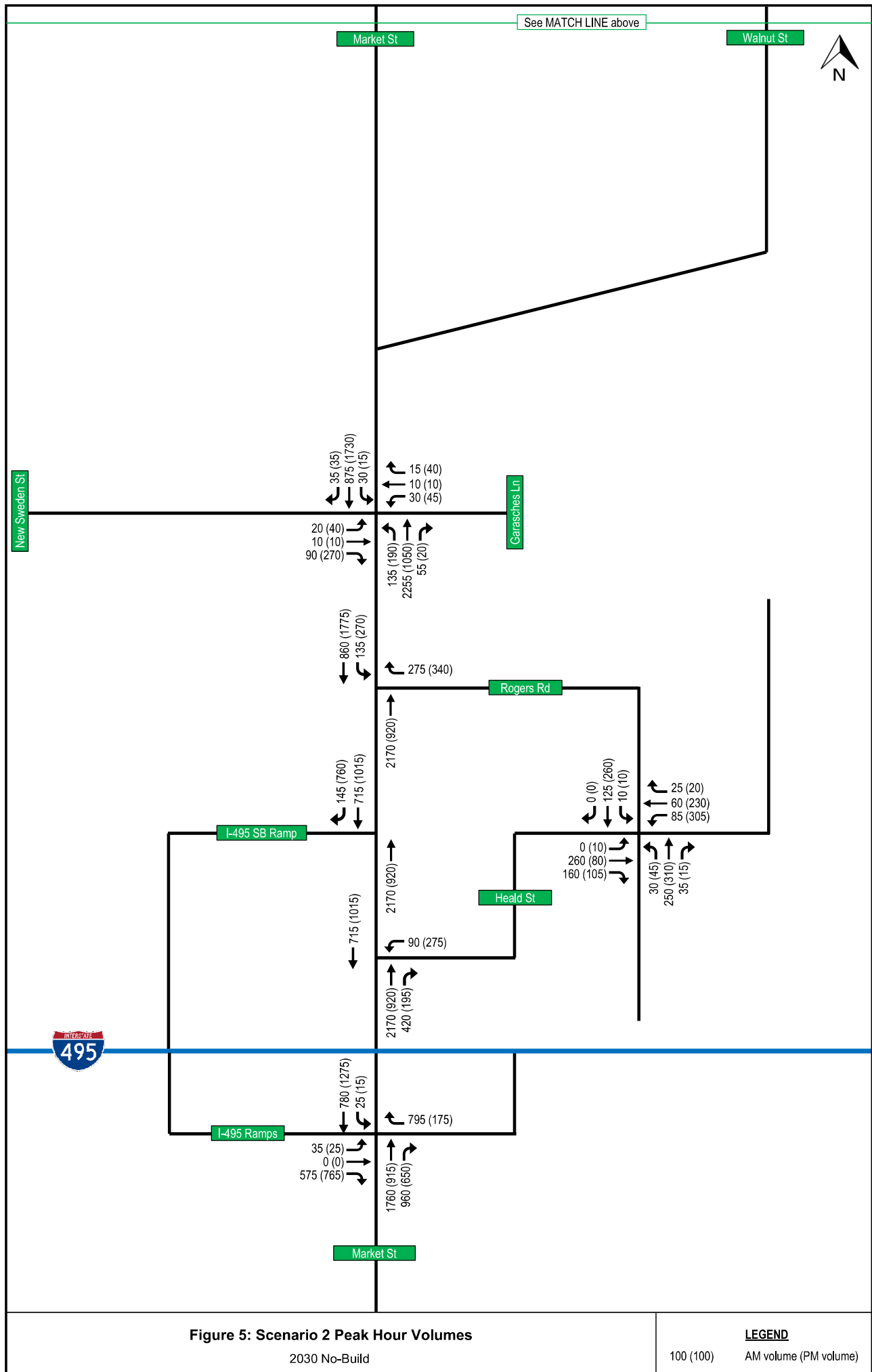
Intersection		Approach	Movement	2020 Existing			
				Storage Length (ft)	AM Peak	PM Peak	
25	US 13 @ I-495 Ramps	EB	EBL	525	50	50	
			EBL/EBT	525	25	475	
		WB	WBR	650	50	0	
			NB	NBT	1450	1575	250
		NBR		1450	1500	0	
		SB	SBL	675	50	25	
SBT	1075		50	150			
26	S. Heald St @ Rogers Rd	EB	EBT	450	175	75	
			EBR	325	200	125	
		WB	WBL	1125	100	375	
			WBT	1125	75	200	
			WBR	50	50	50	
		NB	NBL	900	50	75	
			NBT	900	200	250	
			NBR	125	100	75	
SB	SBL	350	25	25			
	SBT	350	125	225			
47	S. Walnut St @ A St	EB	EBL/EBT	900	300	75	
		WB	WBT	1200	250	100	
			WBR	225	150	75	
			NB	NBL/NBT	600	550	150
		NBT		600	550	125	
48	S. Walnut St @ Howard St	NB	NBT/NBR	600	550	100	
			EB	EBL	850	125	175
			NB	NBL/NBT	625	525	100
NBT	625	525		75			

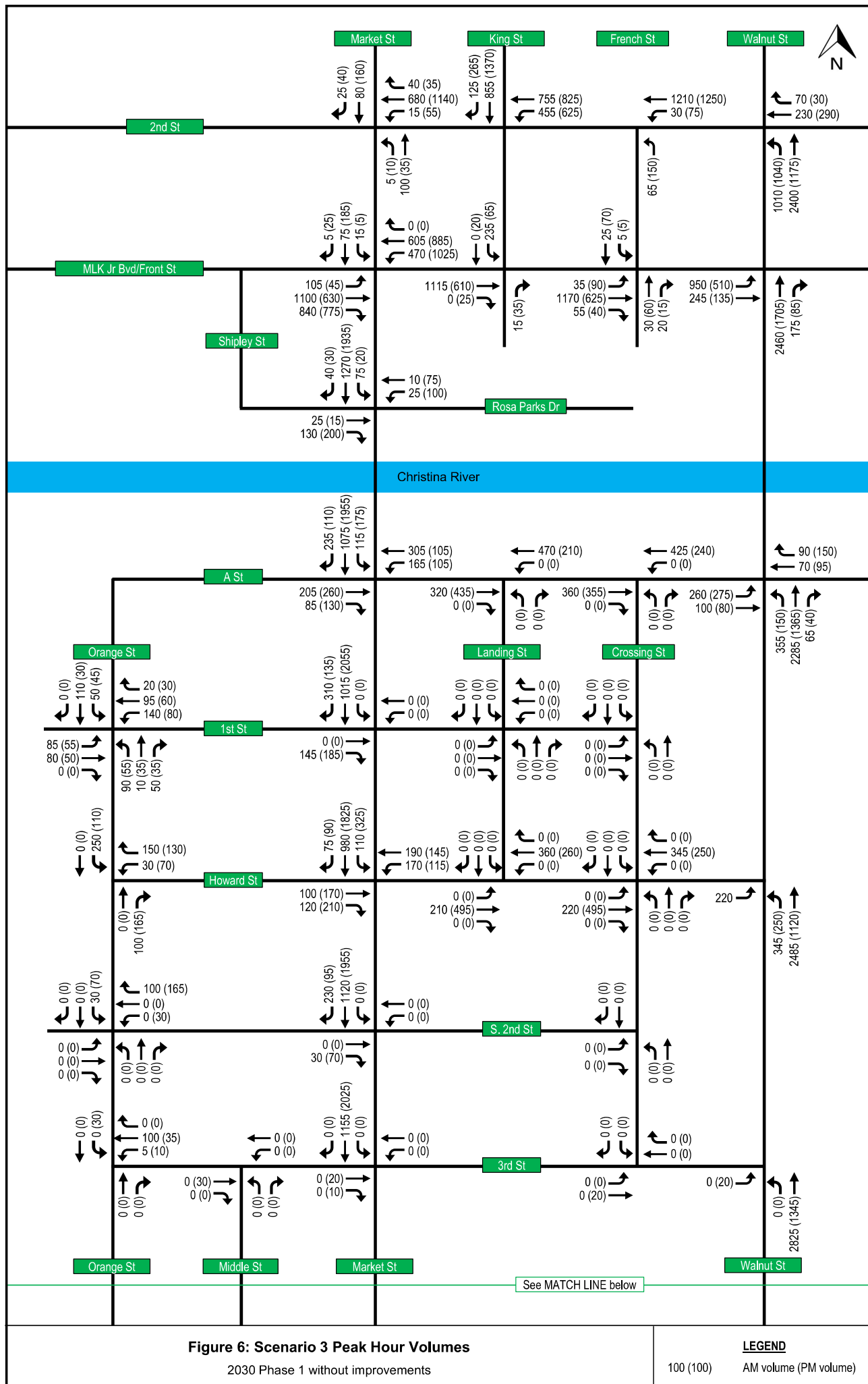
Under 2020 existing conditions, all intersections operate at a LOS E or better. However, there are some movements that operate at a LOS F under existing conditions. At the intersection of 2nd St and King St, the southbound through movement operates at a LOS F during the PM peak hour. At the intersection of MLK Blvd and Market St, the eastbound right turn operates at a LOS F during the AM peak hour. All other movements operate at a LOS E or better. The high volumes along the network result in several 95th percentile queues exceeding the roadway segments allocated for the movement. Both of the movements that have failing LOS mentioned above have 95th percentile queues that spill back to the upstream intersection. Northbound US 13 near the southern edge of the study area is congested and results in long 95th percentile queues.

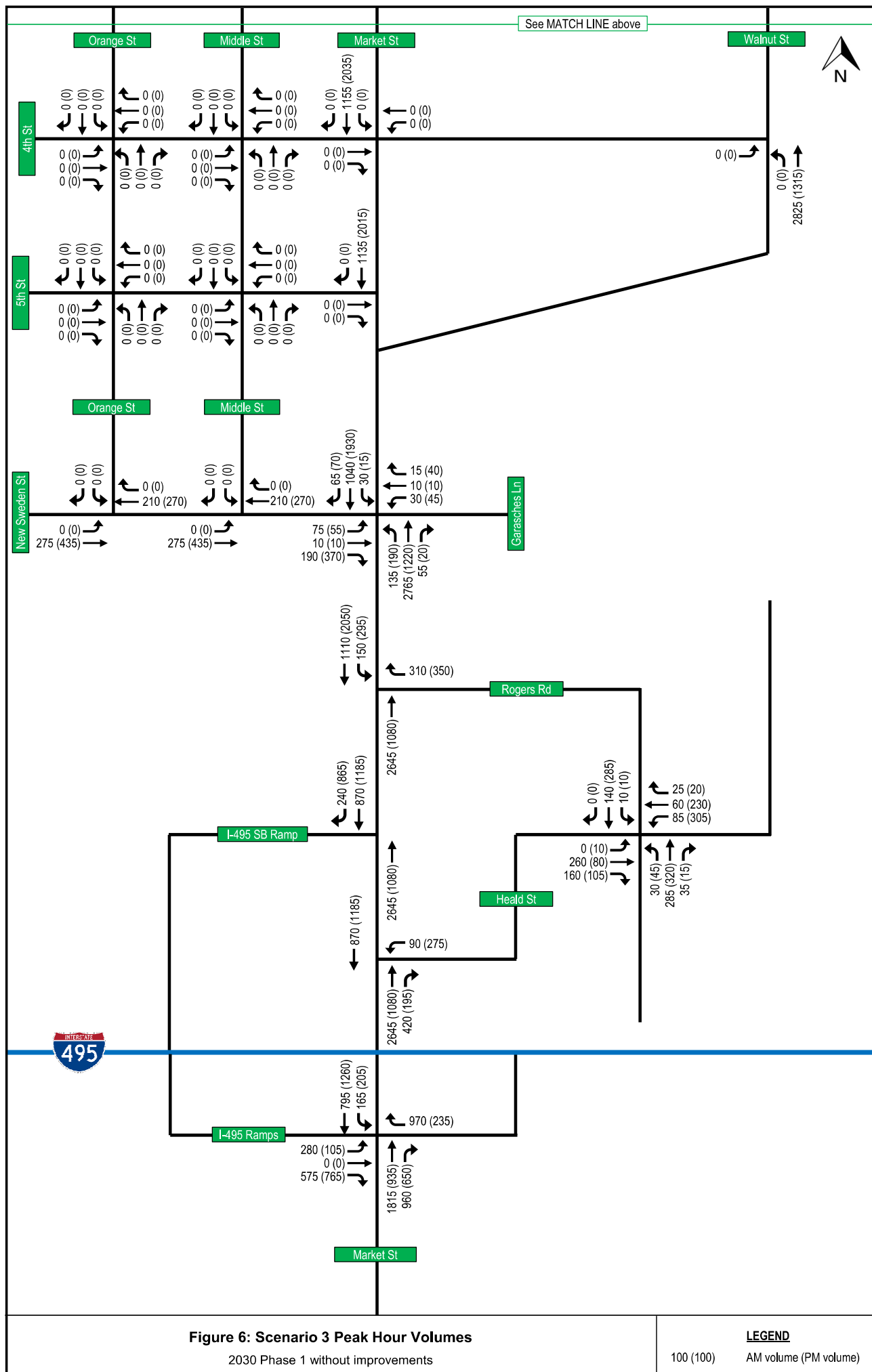
2030 Scenarios

The peak hour volumes used in the 2030 No-Build Conditions analyses are shown in **Figure 5**, and the peak hour volumes used in the 2030 Phase 1 analysis are shown in **Figure 6**. Peak hour volumes used in the 2030 Phase 1 with Improvements analysis are included in **Appendix E**. The level of service and delay at all subject intersections for the three 2030 scenarios are shown in **Table 8**. 95th percentile queues for the development are shown in **Table 9**.









Intersection		Approach	Movement	2030 No Build				2030 Build Phase 1 w/o improvements				2030 Build Phase 1 w/ improvements			
				AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	N. Market St @ 2nd St	WB	WBL	9.2	A	6.6	A	8.9	A	7.7	A	8.9	A	7.4	A
			WBT	11.4	B	8.4	A	11.6	B	10.1	B	11.6	B	9.7	A
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	11.3	B	8.3	A	11.6	B	10.0	A	11.6	B	9.6	A
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			NBT	26.1	C	24.6	C	26.1	C	24.6	C	26.1	C	24.6	C
			Approach	26.1	C	24.6	C	26.1	C	24.6	C	26.1	C	24.6	C
		SB	SBT	37.9	D	42.7	D	37.9	D	42.7	D	37.9	D	42.7	D
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	37.9	D	42.7	D	37.9	D	42.7	D	37.9	D	42.7	D
Intersection			16.1	B	13.6	B	16.1	B	14.9	B	16.1	B	14.6	B	
2	MLK Blvd / N. King St @ 2nd St	WB	WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT	6.0	A	8.4	A	8.0	A	8.5	A	7.0	A	8.3	A
			Approach	6.0	A	8.4	A	8.0	A	8.5	A	7.0	A	8.3	A
		SB	SBT	37.1	D	104.8	F	38.0	D	109.1	F	38.0	D	108.1	F
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	37.1	D	104.8	F	38.0	D	109.1	F	38.0	D	108.1	F
Intersection			21.4	C	64.3	E	21.4	C	61.9	E	21.1	C	62.4	E	
3	French St @ 2nd St	WB	WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT	5.6	A	7.6	A	5.3	A	6.4	A	5.5	A	6.7	A
			Approach	5.6	A	7.6	A	5.3	A	6.4	A	5.5	A	6.7	A
		NB	NBL	49.7	D	59.3	E	49.4	D	59.2	E	49.2	D	59.4	E
			Approach	49.7	D	59.3	E	49.4	D	59.2	E	49.2	D	59.4	E
			Intersection			8.4	A	14.0	B	7.6	A	11.7	B	7.7	A
4	S. Walnut St @ 2nd St	WB	WBT	48.5	D	50.0	D	49.9	D	50.5	D	49.9	D	50.4	D
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	48.5	D	50.0	D	49.9	D	50.5	D	49.9	D	50.4	D
		NB	NBL	1.2	A	2.0	A	1.3	A	1.9	A	1.2	A	2.0	A
			NBT	8.4	A	8.5	A	8.1	A	8.2	A	8.2	A	8.1	A
			Approach	6.6	A	5.9	A	6.1	A	5.2	A	6.2	A	5.3	A
Intersection			9.9	A	12.0	B	9.6	A	10.9	B	9.7	A	11.1	B	

Intersection		Approach	Movement	2030 No Build				2030 Build Phase 1 w/o improvements				2030 Build Phase 1 w/ improvements			
				AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
6	S. Market St / N. Market St @ MLK Blvd	EB	EBL	23.6	C	22.4	C	23.6	C	22.4	C	23.6	C	22.4	C
			EBT	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBR	155.1	F	55.0	D	226.9	F	67.8	E	184.2	F	51.7	D
			Approach	115.0	F	47.6	D	159.2	F	56.6	E	130.0	F	45.3	D
		WB	WBL	18.3	B	87.3	F	25.0	C	103.8	F	24.2	C	100.4	F
			WBT	18.4	B	28.0	C	27.1	C	42.0	D	25.6	C	35.8	D
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	18.4	B	63.6	E	26.2	C	75.2	E	25.0	C	71.5	E
		SB	SBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			SBT	20.8	C	37.7	D	20.4	C	38.1	D	20.5	C	38.0	D
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	20.8	C	37.7	D	20.4	C	38.1	D	20.5	C	38.0	D
Intersection			81.6	F	55.1	E	110.6	F	65.4	E	90.7	F	59.0	E	
8	King St @ Front St	EB	EBT	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A
			Approach	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A
		NB	NBR	34.6	C	34.8	C	34.6	C	34.8	C	34.6	C	34.8	C
			Approach	34.6	C	34.8	C	34.6	C	34.8	C	34.6	C	34.8	C
		SB	SBL	27.9	C	41.6	D	30.9	C	41.7	D	30.8	C	41.7	D
			Approach	27.9	C	41.7	D	30.9	C	41.7	D	30.8	C	41.7	D
Intersection			6.0	A	6.9	A	6.5	A	6.8	A	6.5	A	6.9	A	
9	French @ Front St	EB	EBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBT	8.9	A	5.9	A	8.7	A	5.7	A	8.7	A	6.0	A
			EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	8.9	A	5.9	A	8.7	A	5.7	A	8.7	A	6.0	A
		NB	NBT	22.8	C	41.7	D	30.4	C	42.2	D	27.6	C	41.7	D
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	22.8	C	41.7	D	30.4	C	42.2	D	27.6	C	41.7	D
		SB	SBL	37.6	D	36.4	D	37.2	D	39.9	D	38.7	D	41.1	D
			SBT	38.2	D	36.4	D	37.0	D	39.8	D	37.3	D	38.8	D
			Approach	38.1	D	36.4	D	37.0	D	39.8	D	37.6	D	39.0	D
Intersection			10.1	B	11.4	B	10.1	B	11.5	B	10.1	B	11.6	B	
10	S. Walnut St @ Front St	EB	EBL	41.8	D	26.7	C	41.7	D	26.4	C	41.7	D	26.8	C
			EBT	22.8	C	22.0	C	22.7	C	21.7	C	22.6	C	22.1	C
			Approach	37.9	D	25.7	C	37.8	D	25.4	C	37.8	D	25.8	C
		NB	NBT	2.7	A	4.0	A	5.0	A	9.1	A	5.0	A	9.2	A
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	2.7	A	4.0	A	5.0	A	9.1	A	5.0	A	9.2	A
Intersection			14.6	B	10.6	B	15.2	B	13.4	B	15.3	B	13.7	B	

Intersection		Approach	Movement	2030 No Build				2030 Build Phase 1 w/o improvements				2030 Build Phase 1 w/ improvements									
				AM		PM		AM		PM		AM		PM							
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS						
11	S. Market St @ S Shipley St / Rosa Parks Dr	EB	EBT	31.3	C	36.8	D	33.1	C	36.9	D	32.7	C	36.8	D						
			EBR																		
			Approach																		
		WB	WBL	17.7	B	41.7	D	18.0	B	42.3	D	18.0	B	42.2	D						
			WBT																		
			Approach																		
		SB	SBL	10.7	B	12.5	B	12.2	B	13.1	B	11.4	B	12.4	B						
			SBT																		
			SBR																		
		Intersection			13.8	B	17.0	B	14.4	B	17.4	B	13.8	B	17.0	B					
12	S. Market St @ A St	EB	EBT	Unsignalized				25.4	C	28.9	C	25.2	C	28.0	C						
			EBR					0.0	A	0.0	A	0.0	A	0.0	A						
			Approach					25.4	C	28.9	C	25.2	C	28.0	C						
		WB	WBL					0.0	A	0.0	A	0.0	A	0.0	A						
			WBT					71.2	E	31.2	C	36.6	D	26.5	C						
			Approach					71.2	E	31.2	C	36.6	D	26.5	C						
		SB	SBL					16.0	B	23.0	C	15.2	B	22.0	C						
			SBT					19.2	B	34.5	C	17.6	B	30.2	C						
			SBR					0.0	A	0.0	A	0.0	A	0.0	A						
			Approach					18.9	B	33.6	C	17.4	B	29.5	C						
		Intersection						31.0	C	32.8	C	21.9	C	29.1	C						
		14	S. Market St @ Howard St					EB	EBT	0.0	A	0.0	A	25.3	C	30.8	C	25.3	C	30.6	C
									EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A		
Approach	0.0			A	0.0	A	25.3		C	30.8	C	25.3	C								
WB	WBL			34.8	C	36.6	D	0.0	A	0.0	A	0.0	A								
	WBT			0.0	A	0.0	A	42.1	D	48.8	D	39.5	D								
	Approach			34.8	C	36.6	D	42.1	D	48.8	D	39.5	D								
SB	SBL			0.0	A	0.0	A	0.0	A	0.0	A	0.0	A								
	SBT			13.6	B	26.3	C	9.2	A	8.3	A	9.9	A								
	SBR			0.0	A	0.0	A	0.0	A	0.0	A	0.0	A								
	Approach			13.6	B	26.3	C	9.2	A	8.3	A	9.9	A								
Intersection			15.9	B	26.7	C	18.0	B	14.9	B	17.9	B	13.4	B							

Intersection		Approach	Movement	2030 No Build				2030 Build Phase 1 w/o improvements				2030 Build Phase 1 w/ improvements			
				AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
16	S. Market St @ S. 3rd St	EB	EBT	Unsignalized				Unsignalized				Unsignalized			
			EBR												
			Approach												
		WB	WBL												
			WBT												
			Approach												
		SB	SBL												
			SBT												
			SBR												
		Approach													
Intersection															
21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL	62.2	E	63.8	E	59.2	E	62.0	E	59.9	E	58.7	E
			EBT									73.7	E	73.7	E
			EBR	0.1	A	0.3	A	0.2	A	0.4	A	0.2	A	0.4	A
			Approach	15.7	B	10.1	B	18.6	B	9.9	A	6.8	A	7.0	A
		WB	WBL	56.2	E	57.0	E	56.7	E	57.0	E	59.5	E	56.9	E
			WBT									58.8	E	59.5	E
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	41.2	D	33.2	C	41.6	D	33.2	C	43.5	D	33.4	C
		NB	NBL	29.3	C	35.4	D	33.9	C	32.8	C	40.8	D	34.9	C
			NBT	35.8	D	3.9	A	179.9	F	5.2	A	9.3	A	3.8	A
			NBR	0.0	A	0.0	A	8.8	A	7.7	A	0.0	A	0.0	A
			Approach	34.6	C	8.6	A	170.0	F	8.9	A	11.9	B	8.7	A
		SB	SBL	71.8	E	65.7	E	68.5	E	67.9	E	66.0	E	77.7	E
			SBT	8.6	A	83.9	F	23.3	C	167.7	F	15.0	B	79.6	E
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	10.3	B	82.1	F	23.2	C	161.2	F	15.7	B	77.3	E
		Intersection			27.6	C	47.3	D	121.3	F	86.7	F	13.0	B	43.8
23	US 13 @ S Heald St	WB	WBL	48.9	D	57.6	E	48.9	D	57.6	E	48.9	D	57.6	E
			Approach	48.9	D	57.6	E	48.9	D	57.6	E	48.9	D	57.6	E
		NB	NBT	7.8	A	0.7	A	23.6	C	0.9	A	23.6	C	0.9	A
			Approach	7.8	A	0.7	A	23.6	C	0.9	A	23.6	C	0.9	A
		SB	SBT	0.8	A	0.8	A	0.8	A	0.6	A	2.2	A	1.3	A
			SBR	0.1	A	0.5	A	0.2	A	0.1	A	0.2	A	0.8	A
			Approach	0.7	A	0.7	A	0.7	A	0.4	A	1.8	A	1.1	A
		Intersection			7.0	A	6.0	A	17.6	B	5.2	A	17.9	B	5.7

Intersection		Approach	Movement	2030 No Build				2030 Build Phase 1 w/o improvements				2030 Build Phase 1 w/ improvements			
				AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
25	US 13 @ I-495 Ramps	EB	EBL	42.6	D	42.3	D	53.2	D	44.8	D	53.2	D	44.4	D
			EBT	42.6	D	42.4	D	53.2	D	44.8	D	53.2	D	44.5	D
			EBR	0.7	A	1.3	A	0.7	A	1.3	A	0.7	A	1.3	A
		WB	Approach	3.1	A	2.5	A	17.9	B	6.5	A	17.9	B	6.0	A
			WBR	1.3	A	0.1	A	2.1	A	0.2	A	2.1	A	0.2	A
			Approach	1.3	A	0.1	A	2.1	A	0.2	A	2.1	A	0.2	A
		NB	NBT	93.0	F	23.7	C	107.9	F	24.0	C	107.9	F	23.9	C
			NBR	2.2	A	0.9	A	2.2	A	0.9	A	2.2	A	0.9	A
			Approach	60.9	E	14.3	B	71.3	E	14.5	B	71.3	E	14.5	B
		SB	SBL	26.5	C	26.5	C	32.1	C	36.4	D	42.7	D	40.7	D
			SBT	1.3	A	2.5	A	1.5	A	2.6	A	1.4	A	2.3	A
			Approach	2.1	A	2.8	A	6.9	A	7.3	A	8.6	A	7.3	A
Intersection			34.6	C	7.3	A	39.9	D	9.5	A	40.2	D	9.4	A	
26	S Heald St @ Rogers Rd	EB	EBL	0.0	A	64.8	E	0.0	A	67.7	E	0.0	A	68.0	E
			EBT	21.0	C	164.5	F	24.3	C	137.5	F	24.3	C	141.0	F
			EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	21.0	C	159.3	F	24.3	C	133.9	F	24.3	C	137.2	F
		WB	WBL	42.3	D	81.7	F	42.3	D	81.7	F	42.3	D	81.7	F
			WBT	28.8	C	30.8	C	28.8	C	30.8	C	28.8	C	30.8	C
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	35.5	D	58.8	E	35.5	D	58.8	E	35.5	D	58.8	E
		NB	NBL	56.8	E	60.6	E	56.8	E	60.6	E	56.8	E	60.6	E
			NBT	28.3	C	30.1	C	29.3	C	30.4	C	29.3	C	30.3	C
			NBR	23.1	C	22.9	C	23.1	C	22.9	C	23.1	C	22.9	C
			Approach	30.4	C	33.5	C	31.0	C	33.7	C	31.0	C	33.7	C
		SB	SBL	33.8	C	35.7	D	30.2	C	39.9	D	35.6	D	36.6	D
			SBT	9.6	A	13.6	B	8.5	A	16.8	B	11.6	B	13.3	B
			Approach	11.4	B	14.4	B	9.9	A	17.6	B	13.2	B	14.2	B
Intersection			25.0	C	57.5	E	26.2	C	53.9	D	26.6	C	53.8	D	
47	S. Walnut St @ A St	EB	EBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBT	19.8	B	14.4	B	35.6	D	42.1	D	33.4	C	37.9	D
			Approach	19.8	B	14.4	B	35.6	D	42.1	D	33.4	C	37.9	D
		WB	WBT	25.6	C	26.4	C	26.1	C	26.6	C	26.1	C	26.6	C
			WBR	26.3	C	28.0	C	26.3	C	28.0	C	26.3	C	28.0	C
			Approach	26.0	C	27.4	C	26.2	C	27.4	C	26.2	C	27.4	C
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			NBT	15.2	B	10.2	B	22.3	C	14.0	B	18.9	B	13.7	B
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
		Approach	15.2	B	10.2	B	22.3	C	14.0	B	18.9	B	13.7	B	
Intersection			16.0	B	12.8	B	24.0	C	20.1	C	21.0	C	19.4	B	

Intersection		Approach	Movement	2030 No Build				2030 Build Phase 1 w/o improvements				2030 Build Phase 1 w/ improvements			
				AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
48	S. Walnut St @ Howard St	EB	EBL	13.4	B	13.6	B	41.1	D	85.9	F	39.9	D	61.3	E
			Approach	13.4	B	13.6	B	41.1	D	85.9	F	39.9	D	61.3	E
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			NBT	4.0	A	3.6	A	4.7	A	3.9	A	5.4	A	4.2	A
			Approach	4.0	A	3.6	A	4.7	A	3.9	A	5.4	A	4.2	A
		Intersection			4.4	A	4.9	A	7.4	A	23.7	C	7.8	A	17.2
22	US 13 @ Rogers Rd	WB	WBR	Unsignalized				Unsignalized				Unsignalized			
			Approach												
		NB	NBT												
			Approach												
		SB	SBL												
			SBT												
		Approach													
Intersection															

Intersection		Approach	Movement	2030 No Build			2030 Build Phase 1 with no improvements			2030 Build Phase 1 with improvements		
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak
1	N. Market St @ 2nd St	WB	WBL	225	25	50	225	0	50	225	25	50
			WBT	225	200	175	225	125	175	225	150	175
			WBT/WBR	225	200	200	225	150	200	225	150	200
		NB	NBL/NBT	125	100	75	125	100	100	125	100	75
		SB	SBT/SBR	375	125	225	375	300	250	375	125	225
2	MLK Blvd / N. King St @ 2nd St	WB	WBL/WBT	175	225	125	175	200	200	175	225	150
			WBT	175	225	150	175	175	175	175	175	175
		SB	SBT	600	675	650	600	650	650	600	650	650
			SBT/SBR	600	800	750	600	825	725	600	750	725
3	French St @ 2nd St	WB	WBL/WBT	300	400	225	300	350	275	300	375	250
			WBT	300	325	150	300	350	125	300	325	150
		NB	NBL	200	150	175	200	100	175	200	150	200
4	S. Walnut St @ 2nd St	WB	WBT	300	375	175	300	400	175	300	400	175
			WBT/WBR	300	375	200	300	425	200	300	400	175
		NB	NBL	100	275	75	100	300	100	100	300	75
			NBT	200	125	125	200	175	125	200	125	125
6	S. Market St / N. Market St @ MLK Blvd	EB	EBL	875	1000	75	875	1000	75	875	1000	50
			EBT	875	900	350	875	925	350	875	925	350
			EBT/EBR	875	925	400	875	925	400	875	925	400
		WB	WBL	275	275	225	275	300	325	275	275	300
			WBT	275	150	125	275	200	225	275	200	175
		SB	SBL/T/R	125	125	150	125	150	150	125	125	150
8	King St @ Front St	EB	EBT	200	250	25	200	225	25	200	250	25
			EBT/EBR	200	300	0	200	300	0	200	300	25
		NB	NBR	225	50	50	225	150	50	225	50	50
		SB	SBL	100	225	50	100	200	75	100	225	75
9	French St @ Front St	EB	EBL/EBT	200	250	125	200	250	125	200	275	125
			EBT	200	250	175	200	250	175	200	250	150
			EBT/EBR	200	275	75	200	250	75	200	275	75
		NB	NBT/NBR	225	50	100	225	175	100	225	75	75
			SBL	200	25	25	200	25	25	200	0	25
			SBT	200	50	100	200	50	75	200	50	75
10	S. Walnut St @ Front St	EB	EBL	325	400	375	325	425	375	325	425	350
			EBT	325	200	150	325	200	175	325	200	150
		NB	NBT	1125	1575	125	1125	1525	825	1125	1550	475
			NBT/NBR	1125	1475	75	1125	1525	125	1125	1525	100

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 9: 2030 95th Percentile Queue Results

October 2021

Intersection		Approach	Movement	2030 No Build			2030 Build Phase 1 with no improvements			2030 Build Phase 1 with improvements			
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	
11	S. Market St @ Rosa Parks Dr	EB	EBT/EBR	425	100	150	425	150	175	425	125	150	
		WB	WBL/WBT	475	50	200	475	50	200	475	50	175	
		SB	SBL/SBT	200	125	225	200	150	225	200	125	225	
			SBT	200	75	225	200	150	225	200	125	225	
			SBT/SBR	200	75	200	200	175	200	200	150	200	
12	S. Market St @ A St	EB	EBT/EBR	N/A			175	225	225	175	225	225	
		WB	WBL	900	75	100	N/A			N/A			
			WBT/WBL	N/A			100	225	175	100	200	150	
		SB	SBL				125	125	175	125	150	200	
			SBT				825	550	350	825	450	350	
			SBT/SBR				825	575	375	825	475	350	
		14	S. Market St @ Howard St	EB	EBT/EBR	N/A			175	200	225	175	175
WB	WBL			850	150	100	N/A			N/A			
	WBT/WBL			N/A			25	125	100	25	25	25	
SB	SBL/SBT			700	125	300	375	225	150	375	375	375	
	SBT			800	175	325	375	125	175	375	375	375	
	SBT/SBR			N/A		0	0	375	100	150	375	375	375
				N/A		0	0	375	100	150	375	375	375
21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL/EBT	2625	75	100	2625	375	125	N/A			
			EBL	N/A			N/A			200	50	75	
			EBT							2625	50	25	
			EBR	475	25	200	400	275	325	400	50	325	
		WB	WBL/WBT	325	100	100	325	275	125	N/A			
			WBL	N/A			N/A			200	125	75	
			WBT							300	125	25	
			WBR	50	50	75	50	50	75	50	50	50	
		NB	NBL	275	200	200	300	175	200	300	275	200	
			NBT/NBR	N/A			N/A			3025	325	100	
			NBT	3025	375	125	3025	300	200	3025	300	200	
			NBR	225	125	0	225	100	0	N/A			
		SB	SBL	175	50	50	175	100	75	175	25	50	
			SBT/SBR	N/A			N/A			N/A			
			SBT	1775	125	325	225	225	325	225	150	275	
			SBR	1775	0	0	225	0	0	225	0	0	
22	US 13 @ Rogers Rd (Unsignalized)	NB	NBT	300	0	0	300	475	0	300	450	0	
		SB	L	825	100	175	825	975	225	825	775	175	
		WB	R	350	0	0	350	325	0	350	200	0	
23	US 13 @ I-495 SB On-Ramp / S. Heald St	WB	WBL	275	75	150	275	75	150	275	100	150	
		NB	NBT	1400	200	0	200	275	0	200	300	0	
		SB	SBT	3025	0	25	300	25	75	300	25	50	
		EB	EBL	525	50	50	525	450	100	525	325	100	

Intersection		Approach	Movement	2030 No Build			2030 Build Phase 1 with no improvements			2030 Build Phase 1 with improvements		
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak
25	US 13 @ I-495 Ramps	EB	EBL/EBT	525	25	725	525	475	650	525	300	650
		WB	WBR	650	0	0	650	875	0	650	800	0
		NB	NBT	1450	1775	250	1450	1600	275	1450	1700	275
			NBR	1450	2050	0	1450	1975	0	1450	2075	0
		SB	SBL	675	50	25	675	125	200	675	150	200
26	S. Heald St @ Rogers Rd	EB	EBT	450	200	75	450	175	75	450	175	75
			EBR	325	225	125	325	225	125	325	225	150
		WB	WBL	1125	100	350	1125	125	400	1125	100	350
			WBT	1125	75	200	1125	375	225	1125	75	200
			WBR	50	50	50	50	50	50	50	25	50
		NB	NBL	900	50	75	900	625	75	900	50	75
			NBT	900	225	225	900	725	275	900	375	250
			NBR	125	100	75	125	100	75	125	100	75
		SB	SBL	350	25	25	350	25	25	350	25	25
			SBT	350	150	250	350	100	275	350	125	250
47	S. Walnut St @ A St	EB	EBL/EBT	900	125	75	200	325	250	200	325	250
		WB	WBT	1200	150	100	1200	825	100	1200	225	100
			WBR	225	150	100	225	225	100	225	200	100
		NB	NBL/NBT	600	725	175	600	800	275	600	825	275
			NBT/NBR	600	725	125	600	800	225	600	850	225
48	S. Walnut St @ Howard St	EB	EBL	850	100	175	200	325	325	200	350	300
		NB	NBL/NBT	625	550	100	1725	350	175	1725	400	175
			NBT	625	575	100	1725	375	125	1725	400	125

Under 2030 No-Build conditions, all intersections are projected to operate at a LOS E or better with the exception of Market St/MLK Jr Blvd, which is expected to fail during the AM peak hour. All movements that were failing under 2020 Existing conditions are expected to either stay the same or get worse due to the added 0.5% background traffic growth. The westbound left turn at the intersection of MLK Blvd and Market St is expected to begin operating at a LOS F and the southbound through movement at the intersection of Market St and New Sweden St are both expected to begin to operate at LOS F during the PM peak hour under No-Build conditions. Eastbound 95th percentile queues at the intersection of MLK Blvd and Market St are expected to spill back to the downstream intersection. Northbound 95th percentile queues along Walnut St and US 13 are projected to spill back from the intersection of Walnut St and Front St under 2030 No-Build.

Under 2030 Phase 1 without improvements, the intersection of Market St and New Sweden St is expected to operate at a LOS F during both peak hours due to the increase in vehicles traveling to and from the Phase 1 development blocks. The eastbound left at the intersection of Walnut St and Howard St is also expected to operate at a LOS F during the PM peak hour. Eastbound 95th percentile queues at the intersection of MLK Blvd and Market St are expected to continue to spill back to the downstream intersection. Northbound 95th percentile queues along Walnut St and US 13 are projected to spill back from the intersection of Walnut St and Front St without improvements.

By including the improvements listed for Scenario 4, the intersection of Market St and New Sweden St is projected to operate at a LOS E during both peak hours. Additionally, all movements at that intersection begin to operate at a LOS E or higher. The Phase 1 improvements are also expected to reduce the delay for the eastbound approach at the intersection of Walnut St and Howard St.

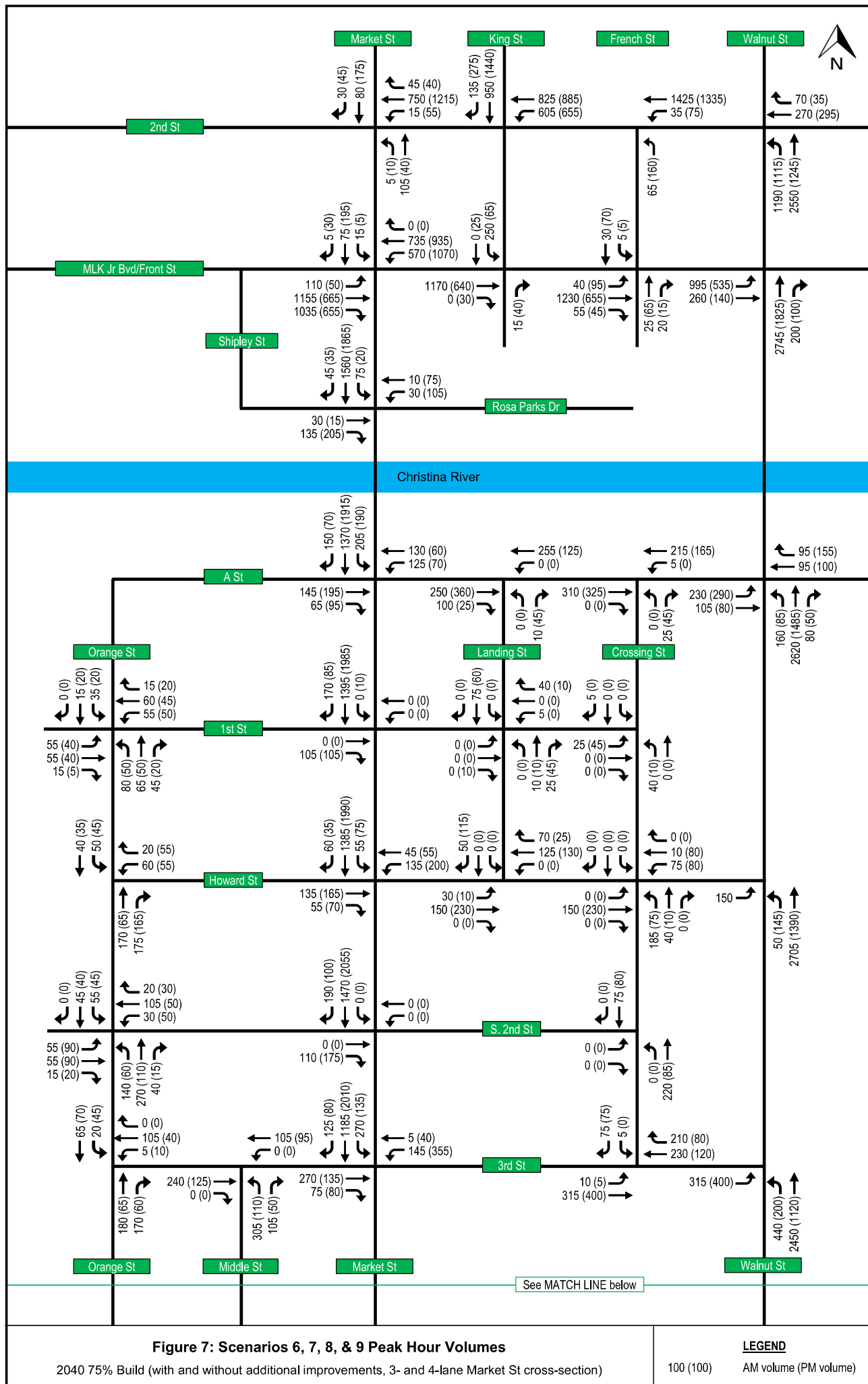
2040 No-Build

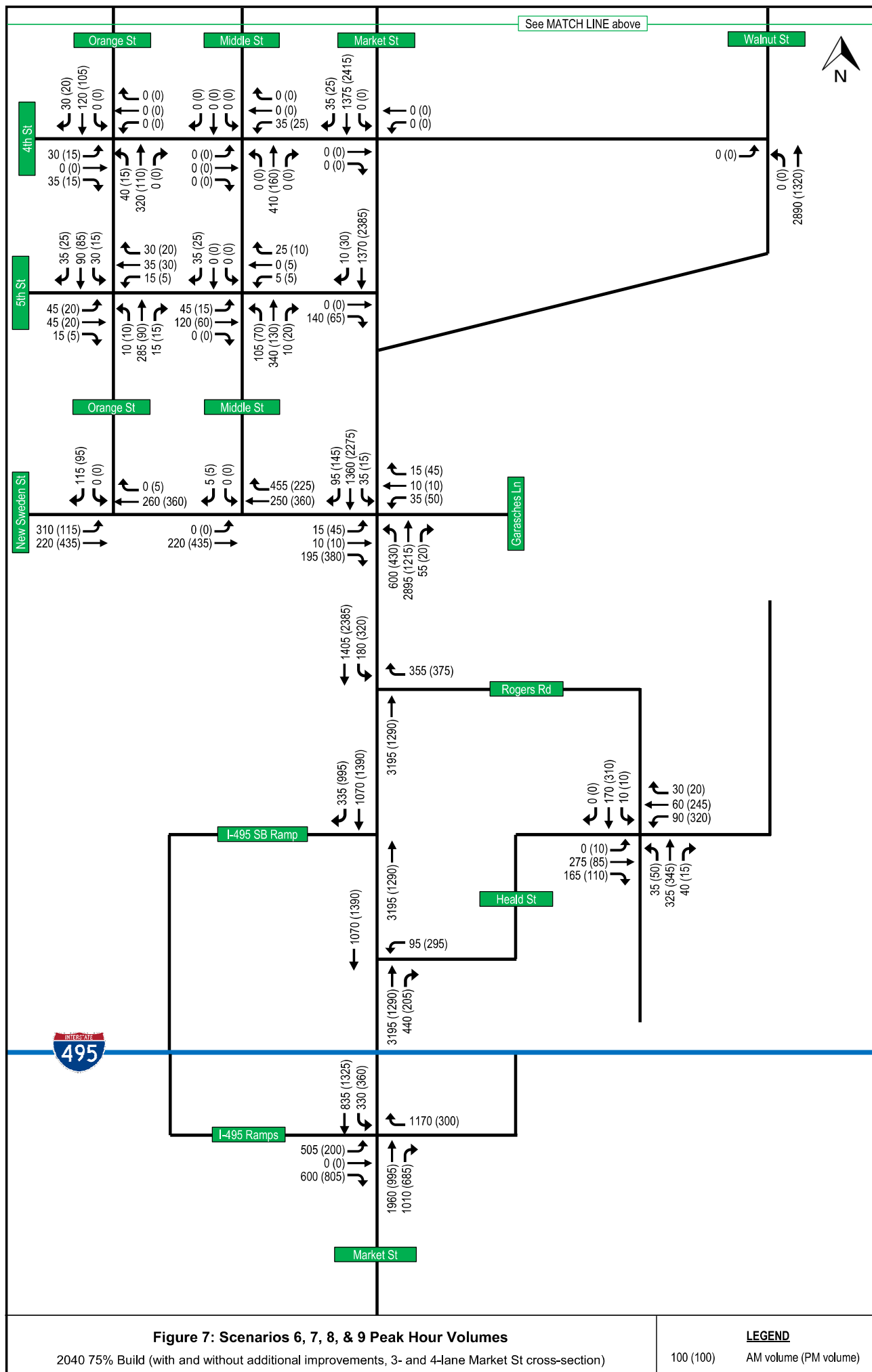
Peak hour volumes used in the 2040 No-Build analysis are shown in **Appendix E**. The level of service and delay at all subject intersections are shown with the 2040 75% Build and 100% Build Scenarios in **Table 10** and **Table 12**. 95th percentile queues for the development are also shown with the 2040 75% Build and 100% Build Scenarios in **Table 11** and **Table 13**.

Under 2040 No-Build conditions, delays are expected to worsen as compared to 2030 No-Build conditions, and all failing movements from 2030 No-Build are expected to continue to fail in 2040 No-Build. Eastbound 95th percentile queues at the intersection of MLK Jr Blvd and Market St are expected to continue to exceed the city block length.

2040 75% Build Scenarios

The peak hour volumes used in the 2040 75% Build analyses are shown in **Figure 7**. The level of service and delay at all subject intersections for the four 2040 75% Build scenarios are shown in **Table 10**. 95th percentile queues for the development are shown in **Table 11**.





**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 10: 2040 75% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 75% Build w/o add'l improvements (4 lanes)				2040 75% Build w/ add'l improvements (4 lanes)				2040 75% Build w/o add'l improvements (3 lanes)				2040 75% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	N. Market St @ 2nd St	WB	WBL	8.9	A	6.7	A	8.1	A	7.8	A	8.1	A	7.8	A	8.1	A	7.8	A	8.1	A	7.8	A
			WBT	11.4	B	8.8	A	11.2	B	10.7	B	11.2	B	10.7	B	11.2	B	10.7	B	11.2	B	10.7	B
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	11.3	B	8.7	A	11.2	B	10.6	B	11.2	B	10.6	B	11.2	B	10.6	B	11.2	B	10.6	B
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			NBT	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C
			Approach	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C
		SB	SBT	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D
Intersection			16.1	B	14.3	B	15.7	B	15.7	B	15.7	B	15.7	B	15.7	B	15.7	B	15.7	B	15.7	B	
2	MLK Blvd / N. King St @ 2nd St	WB	WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT	6.3	A	9.1	A	9.8	A	8.7	A	9.8	A	8.7	A	11.2	B	8.6	A	11.2	B	8.6	A
			Approach	6.3	A	9.1	A	9.8	A	8.7	A	9.8	A	8.7	A	11.2	B	8.6	A	11.2	B	8.6	A
		SB	SBT	37.9	D	127.4	F	39.9	D	131.7	F	39.9	D	131.7	F	39.9	D	131.7	F	39.9	D	131.7	F
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	37.9	D	127.4	F	39.9	D	131.7	F	39.9	D	131.7	F	39.9	D	131.7	F	39.9	D	131.7	F
		Intersection			22.0	C	77.6	E	22.8	C	73.5	E	22.8	C	73.5	E	23.6	C	73.5	E	23.6	C	73.5
3	French St @ 2nd St	WB	WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT	5.7	A	7.4	A	5.4	A	6.2	A	5.4	A	6.2	A	5.4	A	6.2	A	5.4	A	6.2	A
			Approach	5.7	A	7.4	A	5.4	A	6.2	A	5.4	A	6.2	A	5.4	A	6.2	A	5.4	A	6.2	A
		NB	NBL	46.0	D	60.9	E	45.8	D	61.0	E	45.8	D	61.0	E	45.8	D	61.0	E	45.8	D	61.0	E
			Approach	46.0	D	60.9	E	45.8	D	61.0	E	45.8	D	61.0	E	45.8	D	61.0	E	45.8	D	61.0	E
			Intersection			8.1	A	14.4	B	7.1	A	11.8	B	7.1	A	11.8	B	7.1	A	11.8	B	7.1	A
4	S. Walnut St @ 2nd St	WB	WBT	48.9	D	50.7	D	51.9	D	51.0	D	51.9	D	51.0	D	51.9	D	51.0	D	51.9	D	51.0	D
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	48.9	D	50.7	D	51.9	D	51.0	D	51.9	D	51.0	D	51.9	D	51.0	D	51.9	D	51.0	D
		NB	NBL	1.2	A	1.8	A	1.2	A	2.0	A	1.2	A	2.0	A	1.2	A	2.0	A	1.2	A	2.0	A
			NBT	8.6	A	8.7	A	8.0	A	7.9	A	8.0	A	7.9	A	8.0	A	7.9	A	8.0	A	7.9	A
			Approach	6.8	A	5.9	A	5.8	A	5.1	A	5.8	A	5.1	A	5.8	A	5.1	A	5.8	A	5.1	A
		Intersection			10.0	A	12.1	B	9.7	A	10.7	B	9.7	A	10.7	B	9.7	A	10.7	B	9.7	A	10.7

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 10: 2040 75% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 75% Build w/o add'l improvements (4 lanes)				2040 75% Build w/ add'l improvements (4 lanes)				2040 75% Build w/o add'l improvements (3 lanes)				2040 75% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
6	S. Market St / N. Market St @ MLK Blvd	EB	EBL	23.7	C	22.5	C	23.7	C	22.5	C	23.7	C	22.5	C	23.7	C	22.5	C	23.7	C	22.5	C
			EBT	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBR	182.4	F	68.1	E	307.5	F	53.3	D	307.5	F	53.3	D	307.5	F	53.3	D	307.5	F	53.3	D
			Approach	133.8	F	56.8	E	220.3	F	46.4	D	220.3	F	46.4	D	220.3	F	46.4	D	220.3	F	46.4	D
		WB	WBL	18.5	B	109.2	F	29.0	C	124.6	F	29.0	C	124.6	F	29.0	C	124.6	F	29.0	C	124.6	F
			WBT	18.6	B	27.8	C	33.3	C	51.1	D	33.3	C	51.1	D	33.3	C	51.1	D	33.3	C	51.1	D
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	18.5	B	76.6	E	31.4	C	90.3	F	31.4	C	90.3	F	31.4	C	90.3	F	31.4	C	90.3	F
		SB	SBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			SBT	21.2	C	41.0	D	21.2	C	41.5	D	21.2	C	41.5	D	21.2	C	41.5	D	21.2	C	41.5	D
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	21.2	C	41.0	D	21.2	C	41.5	D	21.2	C	41.5	D	21.2	C	41.5	D	21.2	C	41.5	D
		Intersection			94.1	F	65.8	E	148.6	F	70.5	E	148.6	F	70.5	E	148.6	F	70.5	E	148.6	F	70.5
8	King St @ Front St	EB	EBT	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A
			Approach	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A
		NB	NBR	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C
			Approach	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C
		SB	SBL	31.1	C	42.0	D	35.8	D	41.7	D	35.8	D	41.7	D	35.8	D	41.7	D	35.8	D	41.7	D
			Approach	31.1	C	42.0	D	35.8	D	41.7	D	35.8	D	41.7	D	35.8	D	41.7	D	35.8	D	41.7	D
		Intersection			6.5	A	6.9	A	7.4	A	6.9	A	7.4	A	6.9	A	7.4	A	6.9	A	7.4	A	6.9
9	French @ Front St	EB	EBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBT	9.2	A	5.9	A	8.9	A	6.1	A	8.9	A	6.1	A	8.9	A	6.1	A	8.9	A	6.1	A
			EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	9.2	A	5.9	A	8.9	A	6.1	A	8.9	A	6.1	A	8.9	A	6.1	A	8.9	A	6.1	A
		NB	NBT	24.3	C	42.3	D	37.3	D	42.2	D	37.3	D	42.2	D	37.3	D	42.2	D	37.3	D	42.2	D
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	24.3	C	42.3	D	37.3	D	42.2	D	37.3	D	42.2	D	37.3	D	42.2	D	37.3	D	42.2	D
		SB	SBL	38.3	D	36.1	D	38.3	D	40.6	D	38.3	D	40.6	D	37.6	D	40.2	D	37.6	D	40.2	D
			SBT	37.5	D	37.2	D	36.6	D	40.1	D	36.6	D	40.1	D	36.2	D	39.6	D	36.2	D	39.6	D
			Approach	37.6	D	37.1	D	36.9	D	40.1	D	36.9	D	40.1	D	36.4	D	39.6	D	36.4	D	39.6	D
Intersection			10.4	B	11.4	B	10.5	B	11.8	B	10.5	B	11.8	B	10.5	B	11.8	B	10.5	B	11.8	B	
10	S. Walnut St @ Front St	EB	EBL	48.1	D	26.9	C	48.0	D	27.3	C	48.0	D	27.3	C	48.0	D	27.3	C	48.0	D	27.3	C
			EBT	22.9	C	21.8	C	22.8	C	22.1	C	22.8	C	22.1	C	22.8	C	22.1	C	22.8	C	22.1	C
			Approach	42.9	D	25.8	C	42.7	D	26.2	C	42.7	D	26.2	C	42.7	D	26.2	C	42.7	D	26.2	C
		NB	NBT	2.8	A	4.1	A	5.2	A	9.6	A	5.2	A	9.4	A	4.1	A	8.5	A	4.1	A	8.5	A
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	2.8	A	4.1	A	5.2	A	9.6	A	5.2	A	9.4	A	4.1	A	8.5	A	4.1	A	8.5	A
		Intersection			16.3	B	10.7	B	16.4	B	13.9	B	16.4	B	13.8	B	15.7	B	13.1	B	15.7	B	13.1

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 10: 2040 75% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 75% Build w/o add'l improvements (4 lanes)				2040 75% Build w/ add'l improvements (4 lanes)				2040 75% Build w/o add'l improvements (3 lanes)				2040 75% Build w/ add'l improvements (3 lanes)									
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM							
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS						
11	S. Market St @ S Shipley St / Rosa Parks Dr	EB	EBT	31.5	C	37.2	D	34.1	C	37.1	D	34.1	C	37.1	D	34.1	C	37.1	D	34.1	C	37.1	D						
			EBR																										
			Approach																										
		WB	WBL	19.5	B	42.6	D	19.9	B	43.2	D	19.9	B	43.2	D	19.9	B	43.2	D	19.9	B	43.2	D						
			WBT																										
			Approach																										
		SB	SBL	10.5	B	13.1	B	13.4	B	12.6	B	13.4	B	12.6	B	13.4	B	12.6	B	13.4	B	12.6	B						
			SBT																										
			SBR																										
			Approach																										
Intersection				13.8	B	17.5	B	15.3	B	17.3	B	15.3	B	17.3	B	15.3	B	17.3	B	15.3	B	17.3	B						
12	S. Market St @ A St	EB	EBT	Unsignalized				23.6	C	25.8	C	23.6	C	25.8	C	23.6	C	25.8	C	23.6	C	25.8	C						
			EBR					0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A						
			Approach					23.6	C	25.8	C	23.6	C	25.8	C	23.6	C	25.8	C	23.6	C	25.8	C						
		WB	WBL					0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A		
			WBT					21.6	C	17.7	B	21.6	C	17.5	B	20.5	C	16.6	B	20.5	C	16.6	B	20.5	C	16.6	B		
			Approach					21.6	C	17.7	B	21.6	C	17.5	B	20.5	C	16.6	B	20.5	C	16.6	B	20.5	C	16.6	B		
		SB	SBL					19.0	B	22.7	C	19.0	B	22.7	C	19.0	B	22.7	C	19.0	B	22.7	C	19.0	B	22.7	C		
			SBT					22.2	C	31.6	C	22.2	C	31.6	C	22.2	C	31.6	C	22.2	C	31.6	C	22.2	C	31.6	C		
			SBR					0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A		
			Approach					21.8	C	30.9	C	21.8	C	30.9	C	21.8	C	30.9	C	21.8	C	30.9	C	21.8	C	30.9	C		
		Intersection										22.0	C	29.6	C	22.0	C	29.6	C	21.9	C	29.6	C	21.9	C	29.6	C		
		14	S. Market St @ Howard St					EB	EBT	0.0	A	0.0	A	24.5	C	25.9	C	24.5	C	25.9	C	24.5	C	25.9	C	24.5	C	25.9	C
EBR	0.0			A	0.0	A	0.0		A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A						
Approach	0.0			A	0.0	A	24.5		C	25.9	C	24.5	C	25.9	C	24.5	C	25.9	C	24.5	C	25.9	C						
WB	WBL			35.0	C	35.7	D	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A						
	WBT			0.0	A	0.0	A	38.6	D	44.3	D	38.6	D	44.3	D	38.6	D	44.3	D	38.6	D	44.3	D						
	Approach			35.0	C	35.7	D	38.6	D	44.3	D	38.6	D	44.3	D	38.6	D	44.3	D	38.6	D	44.3	D						
SB	SBL			0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A						
	SBT			14.2	B	28.1	C	7.3	A	6.2	A	7.3	A	6.2	A	8.6	A	10.7	B	8.6	A	10.7	B						
	SBR			0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A						
	Approach			14.2	B	28.1	C	7.3	A	6.2	A	7.3	A	6.2	A	8.6	A	10.7	B	8.6	A	10.7	B						
Intersection				16.4	B	28.4	C	14.7	B	12.6	B	14.7	B	12.6	B	15.6	B	16.1	B	15.6	B	16.1	B						

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 10: 2040 75% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 75% Build w/o add'l improvements (4 lanes)				2040 75% Build w/ add'l improvements (4 lanes)				2040 75% Build w/o add'l improvements (3 lanes)				2040 75% Build w/ add'l improvements (3 lanes)							
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM					
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS				
16	S. Market St @ S. 3rd St	EB	EBT	Unsignalized				24.7	C	21.8	C	24.7	C	21.8	C	24.7	C	21.8	C	24.7	C	21.8	C				
			EBR					24.7	C	21.8	C	24.7	C	21.8	C	24.7	C	21.8	C	24.7	C	21.8	C				
			Approach					24.7	C	21.8	C	24.7	C	21.8	C	24.7	C	21.8	C	24.7	C	21.8	C				
		WB	WBL					28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E
			WBT					28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E
			Approach					28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E	28.8	C	58.1	E
		SB	SBL					11.7	B	14.3	B	11.7	B	14.3	B	14.3	B	49.6	D	14.3	B	49.6	D	14.3	B	49.6	D
			SBT					11.7	B	14.3	B	11.7	B	14.3	B	14.3	B	49.6	D	14.3	B	49.6	D	14.3	B	49.6	D
			SBR					11.7	B	14.3	B	11.7	B	14.3	B	14.3	B	49.6	D	14.3	B	49.6	D	14.3	B	49.6	D
		Approach	11.7					B	14.3	B	11.7	B	14.3	B	14.3	B	49.6	D	14.3	B	49.6	D	14.3	B	49.6	D	
Intersection			15.2	B	21.0	C	15.2	B	21.0	C	17.1	B	48.7	D	17.1	B	48.7	D	17.1	B	48.7	D					
21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL	62.2	E	70.1	E	60.9	E	56.5	E	60.9	E	56.5	E	60.9	E	56.5	E	60.9	E	56.5	E				
			EBT					73.7	E	73.7	E	73.7	E	73.7	E	73.7	E	73.7	E	73.7	E	73.7	E				
			EBR	0.1	A	0.3	A	0.2	A	0.4	A	0.2	A	0.4	A	0.2	A	0.4	A	0.2	A	0.4	A				
			Approach	15.2	B	11.8	B	7.8	A	7.9	A	7.8	A	7.9	A	7.8	A	7.9	A	7.8	A	7.9	A				
		WB	WBL	56.4	E	57.7	E	59.8	E	57.0	E	59.8	E	57.0	E	59.8	E	57.0	E	59.8	E	57.0	E				
			WBT					58.6	E	72.0	E	58.6	E	72.0	E	58.6	E	72.0	E	58.6	E	72.0	E				
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A				
			Approach	42.5	D	32.9	C	44.9	D	33.9	C	44.9	D	33.9	C	44.9	D	33.9	C	44.9	D	33.9	C				
		NB	NBL	30.5	C	35.9	D	159.4	F	105.2	F	160.4	F	105.7	F	159.4	F	105.2	F	160.4	F	105.7	F				
			NBT	59.2	E	4.1	A	20.1	C	4.3	A	19.9	B	1.9	A	20.1	C	4.3	A	19.9	B	1.9	A				
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A				
			Approach	56.3	E	8.8	A	35.6	D	25.9	C	35.5	D	24.1	C	35.6	D	25.9	C	35.5	D	24.1	C				
		SB	SBL	79.7	E	67.2	E	70.3	E	75.6	E	70.3	E	75.6	E	72.0	E	73.2	E	72.0	E	73.2	E				
			SBT	9.3	A	109.9	F	14.2	B	173.4	F	9.8	A	27.1	C	12.4	B	169.9	F	9.2	A	21.0	C				
			SBR	0.0	A	0.0	A	0.1	A	0.1	A	0.0	A	0.0	A	0.1	A	0.0	A	0.0	A	0.0	A				
			Approach	11.5	B	107.2	F	15.3	B	161.8	F	12.0	B	27.7	C	13.8	B	158.6	F	11.5	B	21.6	C				
Intersection			42.9	D	60.4	E	28.9	C	96.0	F	27.9	C	24.7	C	28.4	C	94.3	F	27.7	C	21.5	C					
23	US 13 @ S Heald St	WB	WBL	51.4	D	69.1	E	51.4	D	69.1	E	33.2	C	19.5	B	51.4	D	69.1	E	33.2	C	19.5	B				
			Approach	51.4	D	69.1	E	51.4	D	69.1	E	0.0	A	0.0	A	51.4	D	69.1	E	0.0	A	0.0	A				
		NB	NBT	10.0	A	0.7	A	108.9	F	1.1	A	34.9	C	4.2	A	108.9	F	1.1	A	34.9	C	4.2	A				
			Approach	10.0	A	0.7	A	108.9	F	1.1	A	34.9	C	4.2	A	108.9	F	1.1	A	34.9	C	4.2	A				
		SB	SBT	0.9	A	0.8	A	1.9	A	1.3	A	1.8	A	1.5	A	1.8	A	1.3	A	1.4	A	1.5	A				
			SBR	0.1	A	0.4	A	0.3	A	0.2	A	0.3	A	1.4	A	0.3	A	0.2	A	0.3	A	1.4	A				
			Approach	0.7	A	0.6	A	1.5	A	0.8	A	1.8	A	1.5	A	1.5	A	0.8	A	1.4	A	1.5	A				
Intersection			8.6	A	7.1	A	75.6	E	6.0	A	24.9	C	3.7	A	75.6	E	6.0	A	24.8	C	3.7	A					

**Wilmington Riverfront Development
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Table 10: 2040 75% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 75% Build w/o add'l improvements (4 lanes)				2040 75% Build w/ add'l improvements (4 lanes)				2040 75% Build w/o add'l improvements (3 lanes)				2040 75% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
25	US 13 @ I-495 Ramps	EB	EBL	42.7	D	42.5	D	99.3	F	48.5	D	99.3	F	48.5	D	99.3	F	48.5	D	99.3	F	48.5	D
			EBT	42.8	D	42.5	D	99.3	F	48.5	D	99.3	F	48.5	D	99.3	F	48.5	D	99.3	F	48.5	D
			EBR	0.8	A	1.4	A	0.8	A	1.4	A	0.8	A	1.4	A	0.8	A	1.4	A	0.8	A	1.4	A
			Approach	3.4	A	2.9	A	45.8	D	10.7	B	99.3	F	48.5	D	45.8	D	10.7	B	99.3	F	48.5	D
		WB	WBR	1.4	A	0.2	A	4.0	A	0.3	A	4.0	A	0.3	A	4.0	A	0.3	A	4.0	A	0.3	A
			Approach	1.4	A	0.2	A	4.0	A	0.3	A	0.0	A	0.0	A	4.0	A	0.3	A	0.0	A	0.0	A
		NB	NBT	116.7	F	24.4	C	146.6	F	24.8	C	146.6	F	24.8	C	146.6	F	24.8	C	146.6	F	24.8	C
			NBR	2.5	A	1.0	A	2.5	A	1.0	A	2.5	A	1.0	A	2.5	A	1.0	A	2.5	A	1.0	A
			Approach	76.4	E	14.7	B	97.6	F	15.1	B	146.6	F	24.8	C	97.6	F	15.1	B	146.6	F	24.8	C
		SB	SBL	26.6	C	26.9	C	87.7	F	112.6	F	86.1	F	112.3	F	87.3	F	112.6	F	85.7	F	112.3	F
			SBT	1.3	A	2.6	A	1.2	A	2.1	A	2.1	A	4.6	A	1.2	A	2.1	A	2.1	A	4.6	A
			Approach	2.2	A	2.9	A	25.6	C	25.7	C	2.1	A	4.6	A	25.5	C	25.7	C	2.1	A	4.6	A
		Intersection		43.2	D	7.6	A	58.5	E	17.0	B	58.5	E	17.7	B	58.5	E	17.0	B	58.5	E	17.7	B
26	S Heald St @ Rogers Rd	EB	EBL	0.0	A	64.7	E	0.0	A	68.8	E	0.0	A	68.8	E	0.0	A	68.8	E	0.0	A	68.8	E
			EBT	20.7	C	124.8	F	27.1	C	94.4	F	27.1	C	94.4	F	27.1	C	94.4	F	27.1	C	94.4	F
			EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	20.7	C	121.8	F	27.1	C	93.2	F	0.0	A	68.8	E	27.1	C	93.2	F	0.0	A	68.8	E
		WB	WBL	42.6	D	91.6	F	42.6	D	91.6	F	42.6	D	91.6	F	42.6	D	91.6	F	42.6	D	91.6	F
			WBT	28.8	C	31.0	C	28.8	C	31.0	C	28.8	C	31.0	C	28.8	C	31.0	C	28.8	C	31.0	C
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	35.7	D	64.2	E	35.7	D	64.2	E	28.8	C	31.0	C	35.7	D	64.2	E	28.8	C	31.0	C
		NB	NBL	57.9	E	62.1	E	57.9	E	62.1	E	57.9	E	62.1	E	57.9	E	62.1	E	57.9	E	62.1	E
			NBT	28.5	C	30.6	C	30.6	C	31.3	C	30.6	C	31.3	C	30.6	C	31.3	C	30.6	C	31.3	C
			NBR	23.1	C	22.9	C	23.1	C	22.9	C	23.1	C	22.9	C	23.1	C	22.9	C	23.1	C	22.9	C
			Approach	31.0	C	34.3	C	32.2	C	34.7	C	30.6	C	31.3	C	32.2	C	34.7	C	30.6	C	31.3	C
		SB	SBL	33.7	C	35.6	D	37.1	D	35.7	D	80.4	F	76.1	E	36.9	D	35.7	D	81.7	F	76.1	E
			SBT	9.7	A	13.5	B	11.1	B	13.8	B	48.0	D	49.1	D	11.0	B	13.8	B	48.0	D	49.1	D
			Approach	11.3	B	14.3	B	12.6	B	14.5	B	48.0	D	49.1	D	12.5	B	14.5	B	48.0	D	49.1	D
		Intersection		25.0	C	54.7	D	27.9	C	49.7	D	33.5	C	57.2	E	27.9	C	49.7	D	33.5	C	57.2	E
47	S. Walnut St @ A St	EB	EBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBT	20.2	C	14.6	B	36.0	D	44.9	D	36.0	D	44.9	D	36.0	D	44.9	D	36.0	D	44.9	D
			Approach	20.2	C	14.6	B	36.0	D	44.9	D	36.0	D	44.9	D	36.0	D	44.9	D	36.0	D	44.9	D
		WB	WBT	25.7	C	26.5	C	26.6	C	26.7	C	26.6	C	26.7	C	26.6	C	26.7	C	26.6	C	26.7	C
			WBR	26.4	C	28.1	C	26.4	C	28.1	C	26.4	C	28.1	C	26.4	C	28.1	C	26.4	C	28.1	C
			Approach	26.1	C	27.5	C	26.5	C	27.6	C	26.6	C	26.7	C	26.5	C	27.6	C	26.6	C	26.7	C
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			NBT	15.9	B	10.3	B	22.4	C	12.4	B	20.9	C	9.5	A	105.7	F	14.2	B	105.2	F	10.9	B
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	15.9	B	10.3	B	22.4	C	12.4	B	20.9	C	9.5	A	105.7	F	14.2	B	105.2	F	10.9	B
		Intersection		16.7	B	12.9	B	24.0	C	19.4	B	22.7	C	17.4	B	94.4	F	20.8	C	94.0	F	18.4	B

**Wilmington Riverfront Development
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Table 10: 2040 75% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 75% Build w/o add'l improvements (4 lanes)				2040 75% Build w/ add'l improvements (4 lanes)				2040 75% Build w/o add'l improvements (3 lanes)				2040 75% Build w/ add'l improvements (3 lanes)							
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM					
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS				
48	S. Walnut St @ Howard St	EB	EBL	15.1	B	13.6	B	37.5	D	41.7	D	37.5	D	41.7	D	37.5	D	41.7	D	37.5	D	41.7	D				
			Approach	15.1	B	13.6	B	37.5	D	41.7	D	37.5	D	41.7	D	37.5	D	41.7	D	37.5	D	41.7	D				
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A				
			NBT	4.3	A	3.5	A	5.9	A	6.5	A	4.3	A	5.9	A	22.8	C	7.4	A	21.6	C	6.7	A				
			Approach	4.3	A	3.5	A	5.9	A	6.5	A	4.3	A	5.9	A	22.8	C	7.4	A	21.6	C	6.7	A				
		Intersection			4.7	A	4.9	A	7.4	A	10.9	B	5.9	A	10.3	B	23.5	C	11.6	B	22.4	C	11.0	B			
22	US 13 @ Rogers Rd	WB	WBR	Unsignalized				Unsignalized				0.3	A	0.3	A	Unsignalized				0.3	A	0.3	A				
			Approach									0.3	A	0.3	A					0.3	A	0.3	A				
		NB	NBT									28.4	C	2.6	A					28.4	C	2.6	A	28.4	C	2.6	A
			Approach									28.4	C	2.6	A					28.4	C	2.6	A	28.4	C	2.6	A
		SB	SBL									61	E	68.3	E					59.7	E	67.6	E				
			SBT									5	A	9.5	A					4.4	A	8.8	A				
			Approach									5	A	9.5	A					4.4	A	8.8	A				
		Intersection										21.2	C	11	B					21	C	10.5	B				

Intersection		Approach	Movement	2040 No Build			2040 75% Build w/o add'l improvements (4 lanes)			2040 75% Build w/ add'l improvements (4 lanes)			2040 75% Build w/o add'l improvements (3 lanes)			2040 75% Build w/ add'l improvements (3 lanes)		
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak
1	N. Market St @ 2nd St	WB	WBL	225	25	50	225	25	50	225	25	50	225	25	50	225	25	50
			WBT	225	175	200	225	150	175	225	100	175	225	150	200	225	150	200
			WBT/WBR	225	200	200	225	150	200	225	125	200	225	175	200	225	150	200
		NB	NBL/NBT	125	100	75	125	100	75	125	75	75	125	100	75	125	100	75
2	MLK Blvd / N. King St @ 2nd St	WB	SBT/SBR	375	125	225	375	175	300	375	375	300	375	250	225	375	200	350
			WBL/WBT	175	250	150	175	225	200	175	200	175	175	225	175	175	225	200
			WBT	175	200	175	175	200	175	175	200	175	175	200	175	175	200	175
		SB	SBT	600	750	650	600	650	650	600	650	650	600	650	650	600	650	650
3	French St @ 2nd St	WB	SBT/SBR	600	800	775	600	775	775	600	650	725	600	800	725	600	825	725
			WBL/WBT	300	375	225	300	350	275	300	325	275	300	350	275	300	350	275
			WBT	300	325	125	300	375	150	300	325	150	300	350	150	300	325	150
		NB	NBL	200	100	200	200	125	200	200	275	200	200	125	200	200	150	200
4	S. Walnut St @ 2nd St	WB	WBT	300	275	175	300	400	200	300	350	200	300	375	200	300	400	200
			WBT/WBR	300	275	200	300	400	225	300	350	225	300	375	200	300	400	200
		NB	NBL	100	200	75	100	300	125	100	325	100	100	300	100	100	300	100
			NBT	200	125	125	200	150	125	200	150	125	200	150	125	200	150	125
6	S. Market St / N. Market St @ MLK Blvd	EB	WBL/WBT	875	900	75	875	1000	225	875	1075	75	875	950	75	875	900	75
			EBT	875	900	375	875	900	450	875	925	350	875	900	375	875	925	350
			EBT/EBR	875	925	425	875	900	450	875	900	375	875	900	400	875	925	375
		WB	WBL	275	300	250	275	350	325	275	375	325	275	400	325	275	400	300
			WBT	275	150	125	275	250	250	275	175	200	275	250	250	275	250	250
		SB	SBL/T/R	125	125	150	125	125	150	125	150	175	125	150	150	125	125	150
8	King St @ Front St	EB	EBL/EBT	200	250	25	200	275	50	200	250	25	200	300	25	200	300	25
			EBT/EBR	200	325	0	200	275	0	200	275	0	200	275	0	200	275	25
		NB	NBR	225	50	50	225	25	50	225	150	50	225	50	50	225	25	50
		SB	SBL	100	200	75	100	250	75	100	200	75	100	250	75	100	250	75
9	French St @ Front St	EB	EBL/EBT	200	250	150	200	275	150	200	250	150	200	275	150	200	275	125
			EBT	200	250	175	200	300	200	200	250	175	200	300	200	200	300	175
			EBT/EBR	200	275	75	200	275	75	200	300	75	200	275	75	200	275	75
		NB	NBT/NBR	225	50	100	225	50	100	225	175	100	225	50	100	225	50	100
			SBL	200	25	25	200	25	25	200	0	25	200	0	25	200	0	25
			SBT	200	50	100	200	25	75	200	25	100	200	50	100	200	50	100
10	S. Walnut St @ Front St	EB	EBL	325	400	375	325	450	400	325	425	375	325	475	375	325	450	375
			EBT	325	200	150	325	200	175	325	200	175	325	200	175	325	200	150
		NB	NBT	1125	850	175	1125	1575	850	1125	1425	1000	1125	1475	1025	1125	1625	825
			NBT/NBR	1125	575	75	1125	1525	100	1125	1500	175	1125	1100	250	1125	1250	100

Intersection		Approach	Movement	2040 No Build			2040 75% Build w/o add'l improvements (4 lanes)			2040 75% Build w/ add'l improvements (4 lanes)			2040 75% Build w/o add'l improvements (3 lanes)			2040 75% Build w/ add'l improvements (3 lanes)		
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak
11	S. Market St @ Rosa Parks Dr	EB	EBT/EBR	425	100	200	425	300	250	425	225	175	425	375	225	425	325	175
		WB	WBL/WBT	475	50	200	475	50	200	475	50	200	475	50	225	475	50	175
		SB	SBL/SBT	200	150	225	200	200	225	200	175	225	200	225	225	200	200	200
			SBT	200	125	225	200	200	225	200	150	225	200	225	225	200	200	200
			SBT/SBR	200	100	225	200	200	200	200	175	200	200	225	200	200	200	200
12	S. Market St @ A St	EB	EBT/EBR	N/A			175	250	200	175	250	200	175	225	200	175	200	200
		WB	WBL	900	75	100	N/A			N/A			N/A			N/A		
			WBT/WBL	N/A			100	125	100	100	100	100	100	125	100	100	125	100
		SB	SBL				125	175	200	125	175	175	125	150	200	125	150	175
			SBT				825	800	525	825	700	325	825	925	650	825	775	350
			SBT/SBR				825	775	525	825	475	350	825	925	650	825	775	375
14	S. Market St @ Howard St	EB	EBT/EBR	N/A			200	175	175	200	175	175	200	200	200	200	200	200
		WB	WBL	850	125	125	N/A			N/A			N/A			N/A		
			WBT/WBL	N/A			25	25	25	25	25	25	25	25	25	25	25	25
		SB	SBL/SBT	700	125	300	375	375	375	375	375	375	375	375	375	375	375	375
			SBT	800	150	350	375	375	375	375	375	375	375	375	375	375	375	375
			SBT/SBR	N/A			375	375	375	375	375	375	375	375	375	375	375	375
21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL/EBT	2625	75	100	N/A			N/A			N/A			N/A		
			EBL	N/A			200	25	75	200	100	75	200	25	75	200	25	75
			EBT				2625	25	25	2625	50	25	2625	25	25	2625	25	25
			EBR	475	25	225	400	400	350	375	50	200	400	525	350	375	50	225
		WB	WBL/WBT	325	100	100	N/A			N/A			N/A			N/A		
			WBL	N/A			200	250	75	200	200	75	200	250	75	200	100	75
			WBT				300	250	150	300	250	50	300	275	50	300	150	25
			WBR	50	50	75	50	50	50	50	50	50	50	50	50	50	50	50
		NB	NBL	275	225	200	300	300	250	300	275	225	300	300	275	300	300	225
			NBT/NBR	N/A			3025	325	175	3025	325	125	3025	300	200	3025	325	150
			NBT	3025	475	150	3025	325	325	3025	300	300	3025	325	325	3025	300	325
			NBR	225	150	-	N/A			N/A			N/A			N/A		
		SB	SBL	175	50	50	175	50	125	175	75	25	175	50	125	175	50	25
			SBT/SBR	N/A			N/A			200	175	150	N/A			200	225	200
			SBT	1775	125	400	225	350	350	200	200	150	225	350	325	200	125	175
			SBR	1775	0	0	225	0	175	N/A			225	0	150	N/A		
22	US 13 @ Rogers Rd (Unsignalized)	NB	NBT	300	0	0	300	550	300	300	375	75	300	525	175	300	375	75
		SB	L	825	100	175	825	950	575	825	100	250	825	950	400	825	100	325
		WB	R	350	0	0	2645	1475	550	2645	25	150	2645	1475	300	2645	25	0
23	US 13 @ I-495 SB On-Ramp / S. Heald St	WB	WBL	275	75	175	350	400	200	350	400	75	350	400	125	350	400	100
		NB	NBT	1400	200	0	275	225	250	275	50	75	275	175	200	275	75	75
		SB	SBT	3025	0	25	200	250	150	200	275	50	200	250	100	200	275	50

Intersection		Approach	Movement	2040 No Build			2040 75% Build w/o add'l improvements (4 lanes)			2040 75% Build w/ add'l improvements (4 lanes)			2040 75% Build w/o add'l improvements (3 lanes)			2040 75% Build w/ add'l improvements (3 lanes)		
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak
25	US 13 @ I-495 Ramps	EB	EBL	525	50	50	300	0	50	300	0	25	300	0	50	300	0	50
			EBL/EBT	525	25	775	525	600	300	525	625	225	525	625	225	525	600	200
		WB	WBR	650	0	0	525	600	750	525	650	700	525	625	700	525	625	725
			NBT	1450	1650	275	650	950	325	650	900	0	650	975	175	650	900	0
		NB	NBR	1450	2025	0	1450	1475	775	1450	1575	275	1450	1575	550	1450	1625	275
			SBL	675	50	25	1450	1525	650	1450	1850	0	1450	1675	300	1450	1875	0
26	S. Heald St @ Rogers Rd	EB	EBT	450	175	75	1075	25	375	1075	50	525	1075	50	150	1075	50	350
			EBR	325	225	150	450	150	75	450	450	75	450	150	75	450	550	75
		WB	WBL	1125	100	550	325	200	150	325	200	150	325	175	150	325	225	150
			WBT	1125	75	250	1125	100	650	1125	200	350	1125	125	400	1125	100	375
			WBR	50	50	50	1125	250	600	1125	625	225	1125	250	300	1125	325	225
		NB	NBL	900	50	75	50	75	50	50	75	50	50	75	50	50	75	50
			NBT	900	225	275	900	300	75	900	925	75	900	225	100	900	500	75
			NBR	125	100	50	900	825	550	900	1100	275	900	850	400	900	950	275
		SB	SBL	350	25	25	125	100	50	125	100	75	125	100	50	125	100	50
			SBT	350	150	250	350	0	25	325	25	25	350	0	25	325	25	25
47	S. Walnut St @ A St	EB	EBL/EBT	900	125	75	350	50	275	325	175	300	350	50	300	325	175	300
			WBT	1200	75	100	200	250	225	200	225	225	200	225	200	200	225	200
		WB	WBR	225	100	100	1200	125	125	1200	1175	100	1200	200	100	1200	300	100
			NBL/NBT	600	275	175	225	150	100	225	275	100	225	150	100	225	150	100
			NBT	600	250	150	600	800	175	600	775	200	600	650	200	600	825	225
			NBT/NBR	600	250	125	600	800	150	600	800	175	600	650	175	600	825	200
48	S. Walnut St @ Howard St	EB	EBL	850	100	175	600	775	125	600	800	150	600	625	150	600	825	175
			NBL/NBT	625	150	100	200	225	225	200	250	225	200	200	200	200	200	225
		NB	NBT	625	175	100	275	350	200	275	350	200	275	300	225	275	350	200

75% Build - No Lane Reduction

Under 75% Build conditions, which include the Phase 1 improvements, the intersection of Market St and New Sweden St is expected to operate at a LOS F during the PM peak hour. If an additional southbound through lane is added at the intersection, it is expected to operate at a LOS C during the PM peak hour. Under 75% Build conditions, the northbound through at the intersection of US 13 and Heald St is projected to operate at a LOS F during the AM peak hour. With an added northbound through lane, the movement is expected to operate at a LOS C during the AM peak hour. The intersection of US 13 and I-495 ramps has a few movements that are expected to operate at a LOS F during the AM peak hour, however, the intersection as a whole is expected to operate at a LOS E.

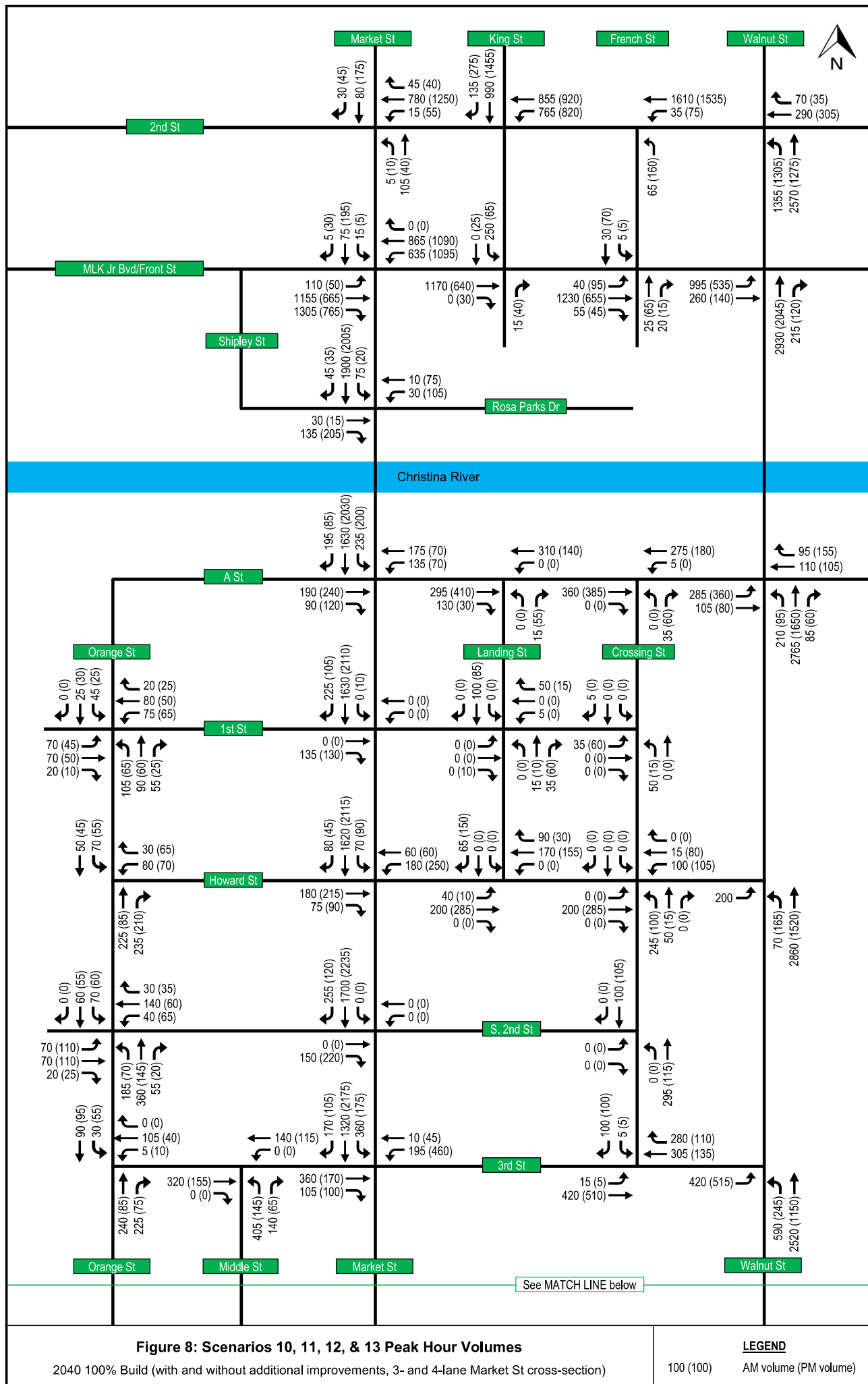
95th percentile queues are expected to spill back from the intersection of MLK Jr Blvd and Market St. Northbound Market St is expected to spillback from the New Sweden intersection.

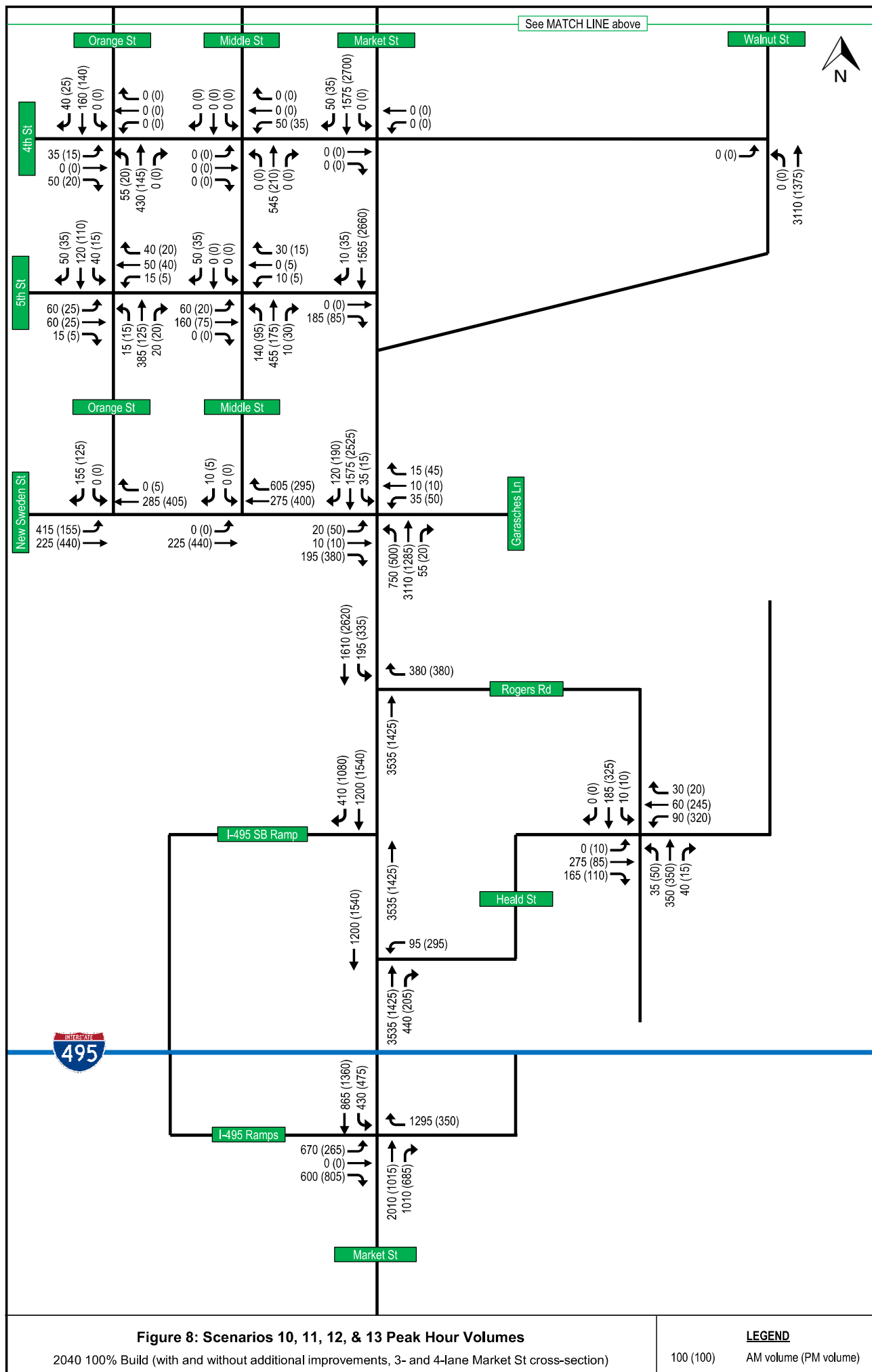
75% Build - Lane Reduction

Incorporating a lane reduction along Market St between A St and south of 3rd St maintains many of the benefits from the additional improvements mentioned above. The intersection of Market St and New Sweden is still expected to operate at a LOS C during the PM peak. However, incorporating a lane reduction along Walnut St between A St and south of 3rd St results in the intersection of Walnut St and A St operating at a LOS F during the AM peak, compared to a LOS C without the lane reduction. All three signalized intersections along Market St impacted by the lane reduction (Market St at A St, Market St at Howard St, and Market St at 3rd St) are expected to operate at the same LOS regardless of the number of through lanes. The lane reduction does not greatly impact 95th percentile queues for 75% Build because the intersections to the north and south meter the number of vehicles that can travel along the segment, regardless of the number of through lanes.

2040 100% Build Scenarios

The peak hour volumes used in the 2040 100% Build analyses are shown in **Figure 8**. The level of service and delay at all subject intersections for the four 2040 100% Build scenarios are shown in **Table 12**. 95th percentile queues for the development are shown in **Table 13**.





**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 12: 2040 100% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 100% Build w/o add'l improvements (4 lanes)				2040 100% Build w/ add'l improvements (4 lanes)				2040 100% Build w/o add'l improvements (3 lanes)				2040 100% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	N. Market St @ 2nd St	WB	WBL	8.9	A	6.7	A	8.0	A	8.1	A	8.0	A	8.1	A	8.0	A	8.1	A	8.0	A	8.1	A
			WBT	11.4	B	8.8	A	10.9	B	11.7	B	10.9	B	11.7	B	10.9	B	11.7	B	10.9	B	11.7	B
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	11.3	B	8.7	A	10.9	B	11.6	B	10.9	B	11.6	B	10.9	B	11.6	B	10.9	B	11.6	B
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			NBT	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C
			Approach	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C	26.2	C	24.7	C
		SB	SBT	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D	38.1	D	44.1	D
Intersection				16.1	B	14.3	B	15.3	B	16.4	B	15.3	B	16.4	B	15.3	B	16.4	B	15.3	B	16.4	B
2	MLK Blvd / N. King St @ 2nd St	WB	WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT	6.3	A	9.1	A	11.4	B	9.0	A	11.4	B	9.0	A	12.2	B	9.1	A	12.2	B	9.1	A
			Approach	6.3	A	9.1	A	11.4	B	9.0	A	11.4	B	9.0	A	12.2	B	9.1	A	12.2	B	9.1	A
		SB	SBT	37.9	D	127.4	F	40.9	D	136.8	F	40.9	D	136.8	F	40.9	D	136.8	F	40.9	D	136.8	F
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	37.9	D	127.4	F	40.9	D	136.8	F	40.9	D	136.8	F	40.9	D	136.8	F	40.9	D	136.8	F
		Intersection				22.0	C	77.6	E	23.5	C	72.8	E	23.5	C	72.8	E	23.9	C	72.9	E	23.9	C
3	French St @ 2nd St	WB	WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT	5.7	A	7.4	A	5.3	A	5.7	A	5.3	A	5.7	A	5.3	A	5.7	A	5.3	A	5.7	A
			Approach	5.7	A	7.4	A	5.3	A	5.7	A	5.3	A	5.7	A	5.3	A	5.7	A	5.3	A	5.7	A
		NB	NBL	46.0	D	60.9	E	46.0	D	60.8	E	46.0	D	60.8	E	46.0	D	60.8	E	46.0	D	60.8	E
			Approach	46.0	D	60.9	E	46.0	D	60.8	E	46.0	D	60.8	E	46.0	D	60.8	E	46.0	D	60.8	E
		Intersection				8.1	A	14.4	B	6.9	A	10.7	B	6.9	A	10.7	B	6.9	A	10.7	B	6.9	A
4	S. Walnut St @ 2nd St	WB	WBT	48.9	D	50.7	D	53.3	D	51.4	D	53.3	D	51.4	D	53.3	D	51.4	D	53.3	D	51.4	D
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	48.9	D	50.7	D	53.3	D	51.4	D	53.3	D	51.4	D	53.3	D	51.4	D	53.3	D	51.4	D
		NB	NBL	1.2	A	1.8	A	1.2	A	2.6	A	1.2	A	2.6	A	1.2	A	2.3	A	1.2	A	2.3	A
			NBT	8.6	A	8.7	A	7.7	A	7.6	A	7.7	A	7.6	A	7.7	A	7.6	A	7.7	A	7.6	A
			Approach	6.8	A	5.9	A	5.4	A	5.0	A	5.4	A	5.0	A	5.4	A	4.9	A	5.4	A	4.9	A
		Intersection				10.0	A	12.1	B	9.5	A	10.4	B	9.5	A	10.4	B	9.5	A	10.3	B	9.5	A

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 12: 2040 100% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 100% Build w/o add'l improvements (4 lanes)				2040 100% Build w/ add'l improvements (4 lanes)				2040 100% Build w/o add'l improvements (3 lanes)				2040 100% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
6	S. Market St / N. Market St @ MLK Blvd	EB	EBL	23.7	C	22.5	C	23.7	C	22.5	C	23.7	C	22.5	C	23.7	C	22.5	C	23.7	C	22.5	C
			EBT	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBR	182.4	F	68.1	E	400.3	F	72.9	E	400.3	F	72.9	E	400.3	F	72.9	E	400.3	F	72.9	E
			Approach	133.8	F	56.8	E	299.2	F	60.1	E	299.2	F	60.1	E	299.2	F	60.1	E	299.2	F	60.1	E
		WB	WBL	18.5	B	109.2	F	32.8	C	138.7	F	32.8	C	138.7	F	32.8	C	138.7	F	32.8	C	138.7	F
			WBT	18.6	B	27.8	C	45.9	D	120.3	F	45.9	D	120.3	F	45.9	D	120.3	F	45.9	D	120.3	F
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	18.5	B	76.6	E	40.4	D	129.5	F	40.4	D	129.5	F	40.4	D	129.5	F	40.4	D	129.5	F
		SB	SBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			SBT	21.2	C	41.0	D	21.9	C	42.4	D	21.9	C	42.4	D	21.9	C	42.4	D	21.9	C	42.4	D
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	21.2	C	41.0	D	21.9	C	42.4	D	21.9	C	42.4	D	21.9	C	42.4	D	21.9	C	42.4	D
		Intersection			94.1	F	65.8	E	199.6	F	98.0	F	199.6	F	98.0	F	199.6	F	98.0	F	199.6	F	98.0
8	King St @ Front St	EB	EBT	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A
			Approach	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A	1.0	A	0.6	A
		NB	NBR	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C
			Approach	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C	34.6	C	34.9	C
		SB	SBL	31.1	C	42.0	D	37.6	D	41.7	D	37.6	D	41.7	D	37.6	D	41.7	D	37.6	D	41.7	D
			Approach	31.1	C	42.0	D	37.6	D	41.6	D	37.6	D	41.6	D	37.6	D	41.6	D	37.6	D	41.6	D
		Intersection			6.5	A	6.9	A	7.7	A	6.9	A	7.7	A	6.9	A	7.7	A	6.9	A	7.7	A	6.9
9	French @ Front St	EB	EBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBT	9.2	A	5.9	A	8.7	A	5.9	A	8.7	A	5.9	A	8.7	A	5.9	A	8.7	A	5.9	A
			EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	9.2	A	5.9	A	8.7	A	5.9	A	8.7	A	5.9	A	8.7	A	5.9	A	8.7	A	5.9	A
		NB	NBT	24.3	C	42.3	D	43.6	D	42.6	D	43.6	D	42.6	D	43.6	D	42.6	D	43.6	D	42.6	D
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	24.3	C	42.3	D	43.6	D	42.6	D	43.6	D	42.6	D	43.6	D	42.6	D	43.6	D	42.6	D
		SB	SBL	38.3	D	36.1	D	35.6	D	40.1	D	35.6	D	40.1	D	35.6	D	39.7	D	35.6	D	39.7	D
			SBT	37.5	D	37.2	D	36.1	D	40.6	D	36.1	D	40.6	D	36.0	D	40.3	D	36.0	D	40.3	D
			Approach	37.6	D	37.1	D	36.0	D	40.5	D	36.0	D	40.5	D	36.0	D	40.2	D	36.0	D	40.2	D
Intersection			10.4	B	11.4	B	10.5	B	11.7	B	10.5	B	11.7	B	10.5	B	11.7	B	10.5	B	11.7	B	
10	S. Walnut St @ Front St	EB	EBL	48.1	D	26.9	C	47.9	D	26.9	C	47.9	D	26.9	C	47.9	D	26.9	C	47.9	D	26.9	C
			EBT	22.9	C	21.8	C	22.7	C	21.7	C	22.7	C	21.7	C	22.7	C	21.7	C	22.7	C	21.7	C
			Approach	42.9	D	25.8	C	42.7	D	25.8	C	42.7	D	25.8	C	42.7	D	25.8	C	42.7	D	25.8	C
		NB	NBT	2.8	A	4.1	A	6.7	A	10.7	B	6.7	A	10.6	B	5.4	A	9.0	A	5.4	A	9.0	A
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	2.8	A	4.1	A	6.7	A	10.7	B	6.7	A	10.6	B	5.4	A	9.0	A	5.4	A	9.0	A
		Intersection			16.3	B	10.7	B	16.9	B	14.3	B	16.9	B	14.2	B	16.0	B	13.0	B	16.0	B	13.0

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Table 12: 2040 100% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 100% Build w/o add'l improvements (4 lanes)				2040 100% Build w/ add'l improvements (4 lanes)				2040 100% Build w/o add'l improvements (3 lanes)				2040 100% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
11	S. Market St @ S Shipley St / Rosa Parks Dr	EB	EBT	31.5	C	37.2	D	34.4	C	37.2	D	34.4	C	37.2	D	34.4	C	37.2	D	34.4	C	37.2	D
			EBR																				
			Approach																				
		WB	WBL	19.5	B	42.6	D	20.1	C	43.4	D	20.1	C	43.4	D	20.1	C	43.4	D	20.1	C	43.4	D
			WBT																				
			Approach																				
		SB	SBL	10.5	B	13.1	B	14.4	B	13.6	B	14.4	B	13.6	B	14.4	B	13.6	B	14.4	B	13.6	B
			SBT																				
			SBR																				
		Intersection		13.8	B	17.5	B	16.0	B	17.9	B	16.0	B	17.9	B	16.0	B	17.9	B	16.0	B	17.9	B
12	S. Market St @ A St	EB	EBT	Unsignalized				25.4	C	28.0	C	25.4	C	28.0	C	25.4	C	28.0	C	25.4	C	28.0	C
			EBR					0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach					25.4	C	28.0	C	25.4	C	28.0	C	25.4	C	28.0	C	25.4	C	28.0	C
		WB	WBL					0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT					28.1	C	22.0	C	28.1	C	22.0	C	26.4	C	21.3	C	26.3	C	21.3	C
			Approach					28.1	C	22.0	C	28.1	C	22.0	C	26.4	C	21.3	C	26.3	C	21.3	C
		SB	SBL					23.5	C	24.1	C	23.5	C	24.1	C	23.5	C	24.1	C	23.5	C	24.1	C
			SBT					29.2	C	37.8	D	29.2	C	37.8	D	29.2	C	37.8	D	29.2	C	37.8	D
			SBR					0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach					28.5	C	36.7	D	28.5	C	36.7	D	28.5	C	36.7	D	28.5	C	36.7	D
Intersection		28.2	C	34.8	C	28.2	C	34.8	C	27.9	C	34.8	C	27.9	C	34.8	C						
14	S. Market St @ Howard St	EB	EBT	0.0	A	0.0	A	26.2	C	27.8	C	26.2	C	27.8	C	26.2	C	27.8	C	26.2	C	27.8	C
			EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A		
			Approach	0.0	A	0.0	A	26.2	C	27.8	C	26.2	C	27.8	C	26.2	C	27.8	C	26.2	C		
		WB	WBL	35.0	C	35.7	D	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			WBT	0.0	A	0.0	A	107.5	F	133.6	F	107.5	F	133.6	F	107.5	F	133.6	F	107.5	F	133.6	F
			Approach	35.0	C	35.7	D	107.5	F	133.6	F	107.5	F	133.6	F	107.5	F	133.6	F	107.5	F	133.6	F
		SB	SBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			SBT	14.2	B	28.1	C	7.6	A	6.9	A	7.6	A	6.9	A	9.5	A	16.9	B	9.5	A	16.9	B
			SBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	14.2	B	28.1	C	7.6	A	6.9	A	7.6	A	6.9	A	9.5	A	16.9	B	9.5	A	16.9	B
Intersection		16.4	B	28.4	C	29.6	C	26.5	C	29.6	C	26.5	C	31.0	C	34.1	C	31.0	C	34.1	C		

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Table 12: 2040 100% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 100% Build w/o add'l improvements (4 lanes)				2040 100% Build w/ add'l improvements (4 lanes)				2040 100% Build w/o add'l improvements (3 lanes)				2040 100% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
16	S. Market St @ S. 3rd St	EB	EBT	Unsignalized				28.4	C	23.1	C	28.4	C	23.1	C	28.4	C	23.1	C	28.4	C	23.1	C
			EBR					28.4	C	23.1	C	28.4	C	23.1	C	28.4	C	23.1	C	28.4	C	23.1	C
			Approach					28.4	C	23.1	C	28.4	C	23.1	C	28.4	C	23.1	C	28.4	C	23.1	C
		WB	WBL					73.7	E	207.4	F	73.7	E	207.4	F	73.7	E	207.4	F	73.7	E	207.4	F
			WBT					73.7	E	207.4	F	73.7	E	207.4	F	73.7	E	207.4	F	73.7	E	207.4	F
			Approach					73.7	E	207.4	F	73.7	E	207.4	F	73.7	E	207.4	F	73.7	E	207.4	F
		SB	SBL					13.2	B	19.0	B	13.2	B	19.0	B	18.5	B	96.0	F	18.5	B	96.0	F
			SBT					13.2	B	19.0	B	13.2	B	19.0	B	18.5	B	96.0	F	18.5	B	96.0	F
			SBR					13.2	B	19.0	B	13.2	B	19.0	B	18.5	B	96.0	F	18.5	B	96.0	F
		Approach	13.2					B	19.0	B	13.2	B	19.0	B	18.5	B	96.0	F	18.5	B	96.0	F	
Intersection		20.8	C	48.7	D	20.8	C	48.7	D	24.8	C	107.2	F	24.8	C	107.2	F						
21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL	62.2	E	70.1	E	57.5	E	57.0	E	57.5	E	57.0	E	57.5	E	57.0	E	57.5	E	57.0	E
			EBT					72.0	E	73.7	E	72.0	E	73.7	E	72.0	E	73.7	E	72.0	E	73.7	E
			EBR	0.1	A	0.3	A	0.2	A	0.4	A	0.2	A	0.4	A	0.2	A	0.4	A	0.2	A	0.4	A
			Approach	15.2	B	11.8	B	8.5	A	8.5	A	8.5	A	8.5	A	8.5	A	8.5	A	8.5	A	8.5	A
		WB	WBL	56.4	E	57.7	E	59.8	E	57.0	E	59.8	E	57.0	E	59.8	E	57.0	E	59.8	E	57.0	E
			WBT					66.6	E	73.7	E	66.6	E	73.7	E	66.6	E	73.7	E	66.6	E	73.7	E
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	42.5	D	32.9	C	46.3	D	34.1	C	46.3	D	34.1	C	46.3	D	34.1	C	46.3	D	34.1	C
		NB	NBL	30.5	C	35.9	D	279.5	F	159.7	F	275.7	F	160.1	F	279.5	F	159.7	F	275.7	F	160.1	F
			NBT	59.2	E	4.1	A	58.4	E	4.4	A	55.7	E	2.1	A	58.4	E	4.4	A	55.7	E	2.1	A
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	56.3	E	8.8	A	85.5	F	39.2	D	82.7	F	37.4	D	85.5	F	39.2	D	82.7	F	37.4	D
		SB	SBL	79.7	E	67.2	E	70.2	E	72.8	E	70.2	E	72.8	E	70.0	E	71.5	E	70.0	E	71.5	E
			SBT	9.3	A	109.9	F	18.2	B	241.1	F	11.1	B	74.2	E	14.9	B	238.8	F	10.0	A	71.8	E
			SBR	0.0	A	0.0	A	0.1	A	0.1	A	0.0	A	0.0	A	0.1	A	0.0	A	0.0	A	0.0	A
			Approach	11.5	B	107.2	F	18.6	B	222.8	F	12.9	B	74.2	E	15.7	B	220.7	F	11.9	B	71.8	E
		Intersection		42.9	D	60.4	E	62.5	E	135.3	F	59.0	E	54.7	D	61.6	E	134.2	F	58.7	E	53.4	D
23	US 13 @ S Heald St	WB	WBL	51.4	D	69.1	E	51.4	D	69.1	E	33.2	C	19.5	B	51.4	D	69.1	E	33.2	C	19.5	B
			Approach	51.4	D	69.1	E	51.4	D	69.1	E	0.0	A	0.0	A	51.4	D	69.1	E	0.0	A	0.0	A
		NB	NBT	10.0	A	0.7	A	165.5	F	1.3	A	85.4	F	4.2	A	165.5	F	1.3	A	85.4	F	4.2	A
			Approach	10.0	A	0.7	A	165.5	F	1.3	A	85.4	F	4.2	A	165.5	F	1.3	A	85.4	F	4.2	A
		SB	SBT	0.9	A	0.8	A	1.9	A	2.0	A	1.8	A	2.2	A	1.9	A	2.0	A	1.5	A	2.2	A
			SBR	0.1	A	0.4	A	0.3	A	0.3	A	0.4	A	1.5	A	0.3	A	0.3	A	0.4	A	1.5	A
			Approach	0.7	A	0.6	A	1.5	A	1.3	A	1.8	A	2.2	A	1.5	A	1.3	A	1.5	A	2.2	A
		Intersection		8.6	A	7.1	A	113.0	F	5.9	A	58.7	E	3.9	A	113.0	F	5.9	A	58.6	E	3.9	A

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Table 12: 2040 100% Build LOS Results

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Intersection		Approach	Movement	2040 No-Build				2040 100% Build w/o add'l improvements (4 lanes)				2040 100% Build w/ add'l improvements (4 lanes)				2040 100% Build w/o add'l improvements (3 lanes)				2040 100% Build w/ add'l improvements (3 lanes)			
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
25	US 13 @ I-495 Ramps	EB	EBL	42.7	D	42.5	D	210.2	F	52.2	D	210.2	F	52.2	D	210.2	F	52.2	D	210.2	F	52.2	D
			EBT	42.8	D	42.5	D	210.2	F	52.2	D	210.2	F	52.2	D	210.2	F	52.2	D	210.2	F	52.2	D
			EBR	0.8	A	1.4	A	0.8	A	1.4	A	0.8	A	1.4	A	0.8	A	1.4	A	0.8	A	1.4	A
			Approach	3.4	A	2.9	A	111.4	F	14.0	B	210.2	F	52.2	D	111.4	F	14.0	B	210.2	F	52.2	D
		WB	WBR	1.4	A	0.2	A	6.9	A	0.3	A	6.9	A	0.3	A	6.9	A	0.3	A	6.9	A	0.3	A
			Approach	1.4	A	0.2	A	6.9	A	0.3	A	0.0	A	0.0	A	6.9	A	0.3	A	0.0	A	0.0	A
		NB	NBT	116.7	F	24.4	C	160.7	F	25.1	C	160.7	F	25.1	C	160.7	F	25.1	C	160.7	F	25.1	C
			NBR	2.5	A	1.0	A	2.5	A	1.0	A	2.5	A	1.0	A	2.5	A	1.0	A	2.5	A	1.0	A
			Approach	76.4	E	14.7	B	107.8	F	15.4	B	160.7	F	25.1	C	107.8	F	15.4	B	160.7	F	25.1	C
		SB	SBL	26.6	C	26.9	C	196.6	F	255.5	F	194.3	F	253.8	F	196.1	F	255.6	F	193.7	F	253.8	F
SBT	1.3		A	2.6	A	1.1	A	2.2	A	1.9	A	4.4	A	1.1	A	2.2	A	1.9	A	4.4	A		
Approach	2.2		A	2.9	A	65.7	E	67.8	E	1.9	A	4.4	A	65.6	E	67.8	E	1.9	A	4.4	A		
Intersection				43.2	D	7.6	A	81.5	F	33.4	C	81.5	F	33.9	C	81.5	F	33.4	C	81.5	F	33.9	C
26	S Heald St @ Rogers Rd	EB	EBL	0.0	A	64.7	E	0.0	A	70.3	E	0.0	A	70.3	E	0.0	A	70.3	E	0.0	A	70.3	E
			EBT	20.7	C	124.8	F	29.5	C	92.6	F	29.5	C	92.6	F	29.5	C	92.6	F	29.5	C	92.6	F
			EBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	20.7	C	121.8	F	29.5	C	91.5	F	0.0	A	70.3	E	29.5	C	91.5	F	0.0	A	70.3	E
		WB	WBL	42.6	D	91.6	F	42.6	D	91.6	F	42.6	D	91.6	F	42.6	D	91.6	F	42.6	D	91.6	F
			WBT	28.8	C	31.0	C	28.8	C	31.0	C	28.8	C	31.0	C	28.8	C	31.0	C	28.8	C	31.0	C
			WBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	35.7	D	64.2	E	35.7	D	64.2	E	28.8	C	31.0	C	35.7	D	64.2	E	28.8	C	31.0	C
		NB	NBL	57.9	E	62.1	E	57.9	E	62.1	E	57.9	E	62.1	E	57.9	E	62.1	E	57.9	E	62.1	E
			NBT	28.5	C	30.6	C	31.4	C	31.6	C	31.4	C	31.6	C	31.4	C	31.6	C	31.4	C	31.6	C
			NBR	23.1	C	22.9	C	23.1	C	22.9	C	23.1	C	22.9	C	23.1	C	22.9	C	23.1	C	22.9	C
			Approach	31.0	C	34.3	C	32.8	C	34.9	C	31.4	C	31.6	C	32.8	C	34.9	C	31.4	C	31.6	C
		SB	SBL	33.7	C	35.6	D	35.0	C	35.0	C	80.0	E	75.6	E	34.9	C	35.0	C	80.0	E	75.6	E
			SBT	9.7	A	13.5	B	10.6	B	14.0	B	48.1	D	49.3	D	10.6	B	14.0	B	48.1	D	49.3	D
			Approach	11.3	B	14.3	B	11.9	B	14.6	B	48.1	D	49.3	D	11.9	B	14.6	B	48.1	D	49.3	D
Intersection				25.0	C	54.7	D	28.8	C	49.1	D	34.7	C	56.8	E	28.8	C	49.1	D	34.7	C	56.8	E
47	S. Walnut St @ A St	EB	EBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			EBT	20.2	C	14.6	B	51.6	D	85.9	F	51.6	D	85.9	F	51.6	D	85.9	F	51.6	D	85.9	F
			Approach	20.2	C	14.6	B	51.6	D	85.9	F	51.6	D	85.9	F	51.6	D	85.9	F	51.6	D	85.9	F
		WB	WBT	25.7	C	26.5	C	27.0	C	26.9	C	27.0	C	26.9	C	27.0	C	26.9	C	27.0	C	26.9	C
			WBR	26.4	C	28.1	C	26.4	C	28.1	C	26.4	C	28.1	C	26.4	C	28.1	C	26.4	C	28.1	C
			Approach	26.1	C	27.5	C	26.7	C	27.6	C	27.0	C	26.9	C	26.7	C	27.0	C	26.7	C	26.9	C
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			NBT	15.9	B	10.3	B	33.2	C	13.2	B	32.7	C	10.4	B	144.6	F	15.8	B	144.7	F	12.7	B
			NBR	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
			Approach	15.9	B	10.3	B	33.2	C	13.2	B	32.7	C	10.4	B	144.6	F	15.8	B	144.7	F	12.7	B
Intersection				16.7	B	12.9	B	34.9	C	27.4	C	34.4	C	25.5	C	128.0	F	29.3	C	128.1	F	27.1	C

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 12: 2040 100% Build LOS Results

October 2021

Intersection		Approach	Movement	2040 No-Build				2040 100% Build w/o add'l improvements (4 lanes)				2040 100% Build w/ add'l improvements (4 lanes)				2040 100% Build w/o add'l improvements (3 lanes)				2040 100% Build w/ add'l improvements (3 lanes)											
				AM		PM		AM		PM		AM		PM		AM		PM		AM		PM									
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS								
48	S. Walnut St @ Howard St	EB	EBL	15.1	B	13.6	B	39.9	D	46.2	D	39.9	D	46.2	D	39.9	D	46.2	D	39.9	D	46.2	D								
			Approach	15.1	B	13.6	B	39.9	D	46.2	D	39.9	D	46.2	D	39.9	D	46.2	D	39.9	D	46.2	D								
		NB	NBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A								
			NBT	4.3	A	3.5	A	7.8	A	7.3	A	6.2	A	6.7	A	52.5	D	8.5	A	50.9	D	7.9	A								
			Approach	4.3	A	3.5	A	7.8	A	7.3	A	6.2	A	6.7	A	52.5	D	8.5	A	50.9	D	7.9	A								
		Intersection			4.7	A	4.9	A	9.7	A	12.7	B	8.1	A	12.2	B	51.7	D	13.7	B	50.3	D	13.2	B							
22	US 13 @ Rogers Rd	WB	WBR	Unsignalized				Unsignalized				0.3	A	0.3	A	Unsignalized				0.3	A	0.3	A								
			Approach									0.3	A	0.3	A					0.3	A	0.3	A								
		NB	NBT									78.1	E	2.5	A					78.1	E	2.5	A	78.1	E	2.5	A				
			Approach									78.1	E	2.5	A					78.1	E	2.5	A	78.1	E	2.5	A				
		SB	SBL									60.4	E	67.2	E					58.7	E	67	E	4.9	A	11	B	4.9	A	11	B
			SBT									5.7	A	11.3	B					5.7	A	11.3	B	5.7	A	11.3	B	5.7	A	11.3	B
			Approach									5.7	A	11.3	B					5.7	A	11.3	B	5.7	A	11.3	B	5.7	A	11.3	B
		Intersection										51.9	D	11.7	B					51.7	D	11.6	B								

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 13: 2040 100% Build 95th Queue Percentile Results

September 2020

Intersection		Approach	Movement	2040 No Build			2040 100% Build w/o add'l improvements (4 lanes)			2040 100% Build w/ add'l improvements (4 lanes)			2040 100% Build w/o add'l improvements (3 lanes)			2040 100% Build w/ add'l improvements (3 lanes)		
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak
1	N. Market St @ 2nd St	WB	WBL	225	25	50	225	25	50	225	25	50	225	25	50	225	0	50
			WBT	225	175	200	225	100	175	225	100	175	225	100	175	225	75	175
			WBT/WBR	225	200	200	225	125	200	225	125	175	225	125	200	225	100	175
		NB	NBL/NBT	125	100	75	125	100	75	125	100	100	125	100	75	125	75	75
		SB	SBT/SBR	375	125	225	375	375	400	375	350	275	375	350	425	375	400	275
2	MLK Blvd / N. King St @ 2nd St	WB	WBL/WBT	175	250	150	175	225	225	175	225	200	175	200	225	175	200	200
			WBT	175	200	175	175	200	175	175	200	175	175	200	175	125	175	
		SB	SBT	600	750	650	600	650	650	600	700	650	600	825	650	600	675	650
			SBT/SBR	600	800	775	600	800	825	600	750	725	600	775	850	600	725	725
3	French St @ 2nd St	WB	WBL/WBT	300	375	225	300	350	325	300	350	300	300	350	375	300	325	300
			WBT	300	325	125	300	300	275	300	300	150	300	325	275	300	275	150
		NB	NBL	200	100	200	200	150	225	200	125	200	200	175	250	200	175	200
4	S. Walnut St @ 2nd St	WB	WBT	300	275	175	300	375	300	300	375	200	300	400	325	300	375	200
			WBT/WBR	300	275	200	300	375	300	300	375	200	300	400	325	300	375	200
		NB	NBL	100	200	75	100	300	200	100	325	100	100	300	225	100	300	100
			NBT	200	125	125	200	150	150	200	150	125	200	150	150	200	125	125
6	S. Market St / N. Market St @ MLK Blvd	EB	EBL	875	900	75	875	975	250	875	975	75	875	1200	50	875	950	75
			EBT	875	900	375	875	900	900	875	925	375	875	900	950	875	900	375
			EBT/EBR	875	925	425	875	925	900	875	900	400	875	900	950	875	900	400
		WB	WBL	275	300	250	275	450	400	275	450	375	275	425	400	275	275	350
			WBT	275	150	125	275	250	275	275	250	300	275	225	375	275	200	325
		SB	SBL/T/R	125	125	150	125	150	150	125	150	150	125	150	150	125	150	150
8	King St @ Front St	EB	EBT	200	250	25	200	275	25	200	275	25	200	300	25	200	275	25
			EBT/EBR	200	325	0	200	200	0	200	200	0	200	200	0	200	300	25
		NB	NBR	225	50	50	225	50	50	225	50	50	225	50	50	225	175	50
		SB	SBL	100	200	75	100	275	50	100	250	75	100	275	50	100	225	75
9	French St @ Front St	EB	EBL/EBT	200	250	150	200	275	150	200	250	125	200	275	125	200	275	125
			EBT	200	250	175	200	300	175	200	300	175	200	300	175	200	275	175
			EBT/EBR	200	275	75	200	225	75	200	225	75	200	200	75	200	275	75
		NB	NBT/NBR	225	50	100	225	50	100	225	50	100	225	50	100	225	175	100
		SB	SBL	200	25	25	200	0	25	200	0	25	200	25	25	200	0	25
SBT	200		50	100	200	25	75	200	25	75	200	25	75	200	25	75		
10	S. Walnut St @ Front St	EB	EBL	325	400	375	325	475	450	325	500	375	325	500	425	325	475	375
			EBT	325	200	150	325	175	175	325	175	175	325	175	175	325	225	175
		NB	NBT	1125	850	175	1125	1625	975	1125	1600	1450	1125	1525	1075	1125	1500	1375
NBT/NBR	1125		575	75	1125	1300	375	1125	1375	975	1125	825	525	1125	775	800		

**Wilmington Riverfront Development
Master Planning Traffic Study**

Table 13: 2040 100% Build 95th Queue Percentile Results

September 2020

Intersection		Approach	Movement	2040 No Build			2040 100% Build w/o add'l improvements (4 lanes)			2040 100% Build w/ add'l improvements (4 lanes)			2040 100% Build w/o add'l improvements (3 lanes)			2040 100% Build w/ add'l improvements (3 lanes)		
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak
11	S. Market St @ Rosa Parks Dr	EB	EBT/EBR	425	100	200	425	475	450	425	525	200	425	475	475	425	275	175
		WB	WBL/WBT	475	50	200	475	50	275	475	75	175	475	50	350	475	25	175
		SB	SBL/SBT	200	150	225	200	250	250	200	275	225	200	250	250	200	175	225
			SBT	200	125	225	200	250	250	200	250	225	200	275	250	200	200	225
			SBT/SBR	200	100	225	200	250	250	200	250	225	200	250	250	200	200	200
12	S. Market St @ A St	EB	EBT/EBR	N/A			175	250	250	175	250	225	175	225	225	175	225	225
		WB	WBL	900	75	100	N/A			N/A			N/A			N/A		
			WBT/WBL	N/A			100	125	100	100	125	100	100	125	125	100	100	100
		SB	SBL				125	175	200	125	200	200	125	150	175	125	175	200
			SBT				825	1025	925	825	1100	375	825	1000	1000	825	725	375
			SBT/SBR				825	950	850	825	975	400	825	1000	1000	825	725	375
		14	S. Market St @ Howard St				EB	EBT/EBR	N/A			200	175	175	200	175	175	200
WB	WBL			850	125	125	N/A			N/A			N/A			N/A		
	WBT/WBL			N/A			25	25	25	25	25	25	25	25	25	25	25	25
SB	SBL/SBT			700	125	300	375	375	375	375	375	375	375	375	375	375	375	375
	SBT			800	150	350	375	375	375	375	375	375	375	375	375	375	375	375
	SBT/SBR			N/A			375	375	375	375	375	375	375	375	375	375	375	375
21	S. Walnut St / S. Market St @ New Sweden St	EB	EBL/EBT	2625	75	100	N/A			N/A			N/A			N/A		
			EBL	N/A			200	75	75	200	25	100	200	50	75	200	50	100
			EBT				2625	25	25	2625	25	25	2625	25	25	2625	25	50
			EBR	475	25	225	400	575	475	375	50	250	400	525	475	375	50	250
		WB	WBL/WBT	325	100	100	N/A			N/A			N/A			N/A		
			WBL	N/A			200	275	225	200	125	75	200	200	250	200	100	75
			WBT				300	325	275	300	125	25	300	300	300	300	275	25
			WBR	50	50	75	0	50	50	50	50	50	50	25	50	50	50	50
		NB	NBL	275	225	200	300	300	300	300	275	225	300	275	300	300	275	225
			NBT/NBR	N/A			3025	225	150	3025	275	150	3025	275	200	3025	300	200
			NBT	3025	475	150	3025	275	300	3025	275	275	3025	325	300	3025	325	275
			NBR	225	150	-	N/A			N/A			N/A			N/A		
		SB	SBL	175	50	50	0	50	75	175	50	50	175	50	100	175	25	50
			SBT/SBR	N/A			N/A			200	300	225	N/A			200	225	225
			SBT	1775	125	400	225	375	300	200	150	200	225	350	300	200	100	200
			SBR	1775	0	0	225	0	150	N/A			225	0	150	N/A		
22	US 13 @ Rogers Rd (Unsignalized)	NB	NBT	300	0	0	300	450	450	300	375	300	300	450	475	300	375	100
		SB	L	825	100	175	825	875	1050	825	75	275	825	850	1100	825	75	275
		WB	R	350	0	0	2645	1425	1400	2645	0	0	2645	1450	1425	2645	0	0
23	US 13 @ I-495 SB On-Ramp / S. Heald St	WB	WBL	275	75	175	350	475	400	350	425	300	350	475	325	350	400	100
		NB	NBT	1400	200	0	275	75	275	275	50	325	275	125	225	275	50	325
		SB	SBT	3025	0	25	200	250	325	200	250	175	200	250	325	200	250	50

Intersection		Approach	Movement	2040 No Build			2040 100% Build w/o add'l improvements (4 lanes)			2040 100% Build w/ add'l improvements (4 lanes)			2040 100% Build w/o add'l improvements (3 lanes)			2040 100% Build w/ add'l improvements (3 lanes)			
				Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	Storage Length (ft)	AM Peak	PM Peak	
25	US 13 @ I-495 Ramps	EB	EBL	525	50	50	300	0	50	300	0	425	300	0	25	300	0	400	
			EBL/EBT	525	25	775	525	575	550	525	550	250	525	550	475	525	550	225	
		WB	WBR	650	0	0	525	550	700	525	550	625	525	550	650	525	550	525	
			NB	NBT	1450	1650	275	650	925	725	650	975	#N/A	650	875	600	650	975	0
				NBR	1450	2025	0	1450	1475	1575	1450	1475	350	1450	1475	1325	1450	1525	275
					SBL	675	50	25	1450	1475	1500	1450	1525	0	1450	1475	1150	1450	1650
		SB	SBT	1075	50	175	675	275	775	675	450	800	675	375	775	675	675	800	
26	S. Heald St @ Rogers Rd	EB	EBT	450	175	75	1075	25	825	1075	100	1675	1075	175	625	1075	575	1700	
			EBR	325	225	150	450	100	75	450	400	200	450	100	100	450	300	75	
		WB	WBL	1125	100	550	325	150	125	325	150	150	325	125	150	325	150	150	
			WBT	1125	75	250	1125	325	725	1125	350	875	1125	125	425	1125	575	850	
			WBR	50	50	50	1125	600	750	1125	725	1000	1125	625	425	1125	825	925	
		NB	NBL	900	50	75	50	75	75	50	75	50	50	75	75	50	75	50	
			NBT	900	225	275	900	650	425	900	1175	200	900	925	600	900	1050	250	
			NBR	125	100	50	900	1100	900	900	1175	350	900	1150	800	900	1150	275	
		SB	SBL	350	25	25	125	75	50	125	75	100	125	100	75	125	75	75	
			SBT	350	150	250	350	0	25	325	25	25	350	0	25	325	25	25	
47	S. Walnut St @ A St	EB	EBL/EBT	900	125	75	350	25	225	325	150	300	350	25	200	325	175	300	
		WB	WBT	1200	75	100	200	250	225	200	250	225	200	250	225	200	200	225	
			WBR	225	100	100	1200	800	150	1200	950	125	1200	700	650	1200	1350	100	
		NB	NBL/NBT	600	275	175	225	250	100	225	250	125	225	200	100	225	300	125	
			NBT	600	250	150	600	775	175	600	825	550	600	750	200	600	775	425	
			NBT/NBR	600	250	125	600	775	125	600	850	525	600	750	175	600	800	400	
48	S. Walnut St @ Howard St	EB	EBL	850	100	175	600	625	100	600	775	325	600	750	150	600	800	375	
		NB	NBL/NBT	625	150	100	200	250	225	200	275	225	200	225	225	200	250	225	
			NBT	625	175	100	275	325	175	275	375	225	275	325	300	275	325	250	

100% Build - No Lane Reduction

Under 100% Build conditions, which include the Phase 1 improvements, the intersection of Market St and New Sweden St is expected to worsen as compared to 75% Build during both peak hours. With the additional southbound through lane, the delay is expected to increase to a LOS D during the PM peak hour. The northbound through movement at the intersection of US 13 and Heald St is expected to operate at a LOS F during the AM peak hour, and with the additional northbound lane is expected to operate at a LOS E.

The Market St at 3rd St westbound approach is expected to operate at a LOS F, with approximately 200 seconds of delay during the PM peak. The overall intersection is expected to operate at a LOS D or better under 100% Build conditions, with or without improvements.

Northbound US 13 queues are still expected to spill back from New Sweden St through the network. Additionally, the northbound left turn at Walnut St and 2nd St begins to queue along Walnut St due to the capacity constraints of the intersection.

100% Build - Lane Reduction

Similar to 75% Build with a lane reduction, removing a southbound through lane between A St and just south of 3rd St is projected to result in the intersection of Market St and 3rd St operating at a LOS F, compared to a LOS D without a lane reduction. However, the westbound left movement remains a LOS F with the lane reduction. The other two signalized intersections impacted by the lane reduction (Market St at A St and Market St at Howard St) are expected to operate at LOS C regardless of the number of through lanes. Similar to the 75% Build, the lane reduction does not greatly impact 95th percentile queues for 100% Build due to the capacity constraints for the intersections of MLK Jr Blvd at Market St and Market St at New Sweden St.

VII. Summary and Required Improvements

The Wilmington Riverfront development is projected to include 6.9M square feet of new development which is expected to generate 5,323 new vehicle trips during the AM peak period and 3,640 trips during the PM peak period to the surrounding roadway network.

The analysis confirmed that signalization of the intersections of Market St at A St and Market St at 3rd St resulted in reasonable traffic operations within the project area, and all streets connecting Walnut St and the development west of Market St would be signalized at Market St. The analysis also found that a travel lane reduction on Market St between A Street and 2nd Street would operate acceptably with the full buildout (100% Build) of the proposed development.

The analysis found that the eastbound right turn from MLK Jr Blvd to Market St is already failing under existing conditions and this movement worsens substantially as the area gets developed. The intersection and movement are severely constrained by right-of-way (ROW) and existing congestion. Additionally, the intersection of Market St and New Sweden St is projected to fail before Phase 1 development is complete, and there are several other movements at various intersections throughout the project area that begin to fail when the added stress of the development trips is added.

To maintain acceptable traffic operations under Build conditions, the following improvements are needed:

Prior to completion of Phase 1

1. Market St at New Sweden St
 - a. Provide three (3) northbound through lanes
 - b. Provide exclusive left-turn lanes on the eastbound and westbound approaches

2. New Sweden St at S. Orange St
 - a. Extend S. Orange St to New Sweden
 - b. Allow eastbound left turns from New Sweden St via a separate left-turn lane or roundabout
- Note: These improvements will allow vehicles to/from the west along New Sweden to access the development without being required to go through the intersections of Market St at New Sweden St or MLK Jr Blvd at Market St

Prior to 75% of the proposed development being constructed:

1. Provide three (3) lanes in each direction along S. Market St between New Sweden St and the I-495 ramps
2. Provide three (3) southbound through lanes on S. Market St approaching the New Sweden St intersection
3. Install a traffic signal at the intersection of US 13 and Rogers Rd

**Appendix A:
Signal Warrant Analyses**



Supplemental Traffic Signal Evaluation Form

RK&K

Location Market St at A St
County New Castle County

Date October 1, 2021
Analyst Nicole Wilson
Analysis Scenario 2030 Phase 1

Summary Sheet

The following Signal Warrant Evaluation is based on the criteria presented in the
2009 Edition of the Manual on Uniform Traffic Control Devices,
Part 4 (Highway Traffic Signals), Chapter C

All hours were estimated based on trip generation manual estimates. Off-peak hours were estimated based on existing diurnal curves

NOTE: the 70% criteria do not apply for these analyses

NOTE: the 56% criteria do not apply for these analyses

NOTE: Right turns from the Minor street ARE NOT included in these analyses

	MUTCD Min. Requirement	Current Conditions	Criteria Met?	Warrant Met?
Warrant 1 - 8 Hour Volumes				
A. Minimum Volume	8 hours	11 hour(s)	Yes	YES
B. Continuous Traffic	8 hours	11 hour(s)	Yes	
C. 80% of A and B	8 hours	12 hour(s)	Yes	
NOTE: Warrant 1 is met if <u>any</u> of criteria A, B or C are met				
Warrant 2 - Four Hour Vehicular Volume				
A. Four Hour Volume	4 hours	11 hour(s)	Yes	YES
Warrant 3 - Peak Hour				
"Unusual" Case Clause	"Unusual" Case?		Yes	YES
A. Peak Hour Delay	14,400 seconds	26,869 seconds	Yes	
	100 vehicles	275 vehicles		
	650 vehicles	2,004 vehicles		
B. Peak Hour Volume	1 hour	8 hour(s)	Yes	
NOTE: Warrant 3 is met if <u>either</u> criteria A or B is met AND it is an "Unusual" Case				
Warrant 4 - Pedestrian Volume				
Is there a signalized or stop-controlled intersection which controls the street that pedestrians desire cross within 300 feet?			No	Warrant Applies
Would the traffic signal restrict progressive movement of traffic?			No	
A. Four Hour Volume	8 hours	0 hour(s)	No	NO
B. Peak Hour Volume	1 hour	0 hour(s)	No	
NOTE: Warrant 4 is met if <u>either</u> criteria A and B is met AND there are no signals or stop-controlled intersections controlling the major pedestrian movements, unless the proposed signal does not restrict progressive movement of traffic				
Warrant 5 - School Crossing				
A. Student Crossing Volume	20 peds./hr.	0 peds./hr.	No	NO
B. Acceptable gaps (calculated based on pedestrian volume)			N/A	
Tried other remedial measures			No	
Nearby signal < 300 feet away?			No	
Would the traffic signal restrict progressive movement of traffic?			No	
NOTE: Warrant 5 is met if <u>both</u> criteria A or B are met AND no signals are within 300' and progressive flow is not restricted or other remedial measures have been tried				
Warrant 6 - Coordinated Signal System				
A. One-Way Street: existing signals widely spaced (inadequate platooning)?			Yes	NO
B. Two-Way Street: existing signals widely spaced (inadequate platooning)?			No	
If a signal were installed, would resulting signal spacing > 1,000 feet?			No	
NOTE: Warrant 6 is met if <u>either</u> criteria A or B is met AND the resulting signal spacing > 1000 feet				
Warrant 7 - Crash Experience				
A. Have other remedial measures been tried?			No	NO
B. Accident Experience	5 acc./yr.	0 acc./yr.	No	
C. 8 hour volume @ 80%	8 hours	12 hours	Yes	
NOTE: Warrant 7 is met if <u>ALL</u> three of these criteria are satisfied				
Warrant 8 - Roadway Network				
A. Total Entering Volume	1 Hour	11 hour(s)	Yes	NO
B. Projected Volumes	1 Hour	N/A hour(s)	No	
Is this the junction of two or more MAJOR routes?			No	
NOTE: Warrant 8 is met if <u>either</u> criteria A or B is met AND the intersection is the junction of major roads				
Warrant 9 - Intersection Near a Grade Crossing				
A. Grade crossing exists within 140 ft of stop line on minor approach			No	N/A
B. Adjusted highest minor street approach volume exceeds threshold			No	
NOTE: Warrant 9 is met if <u>both</u> criteria A and B are met				



Supplemental Traffic Signal Evaluation Form

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Location Market St at A St
County New Castle County

Date October 1, 2021
Analyst Nicole Wilson

Warrant 1 - 8 Hour Volumes

MUTCD Requirements:

Number of Lanes for moving traffic on each approach

Major Street	Minor Street
1	1
2 or more	1
2 or more	2 or more
1	2 or more

Condition A - Minimum Vehicular Volume							
Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
100%	80%	70%	56%	100%	80%	70%	56%
500	400	350	280	150	120	105	84
600	480	420	336	150	120	105	84
600	480	420	336	200	160	140	112
500	400	350	280	200	160	140	112

Number of Lanes for moving traffic on each approach

Major Street	Minor Street
1	1
2 or more	1
2 or more	2 or more
1	2 or more

Condition B - Interruption of Continuous Traffic							
Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
100%	80%	70%	56%	100%	80%	70%	56%
750	600	525	420	75	60	53	42
900	720	630	504	75	60	53	42
900	720	630	504	100	80	70	56
750	600	525	420	100	80	70	56

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Condition A met?	Condition B met?	A & B Condition met?
7 AM	788	138	No	No	Yes
8 AM	1,010	176	Yes	Yes	Yes
9 AM	1,130	197	Yes	Yes	Yes
10 AM	1,222	213	Yes	Yes	Yes
11 AM	1,346	235	Yes	Yes	Yes
12 PM	1,496	261	Yes	Yes	Yes
1 PM	1,519	265	Yes	Yes	Yes
2 PM	1,580	276	Yes	Yes	Yes
3 PM	1,794	313	Yes	Yes	Yes
4 PM	1,973	344	Yes	Yes	Yes
5 PM	2,217	387	Yes	Yes	Yes
6 PM	1,578	275	Yes	Yes	Yes

Warrant 1 Summary	Hours Met	Warrant Met?
Condition A:	11	Yes
Condition B:	11	Yes
A & B Combination:	12	Yes

(70 percent criteria does not apply)
(70 percent criteria does not apply)
(56 percent criteria does not apply)

Is Warrant 1 Satisfied? **YES**



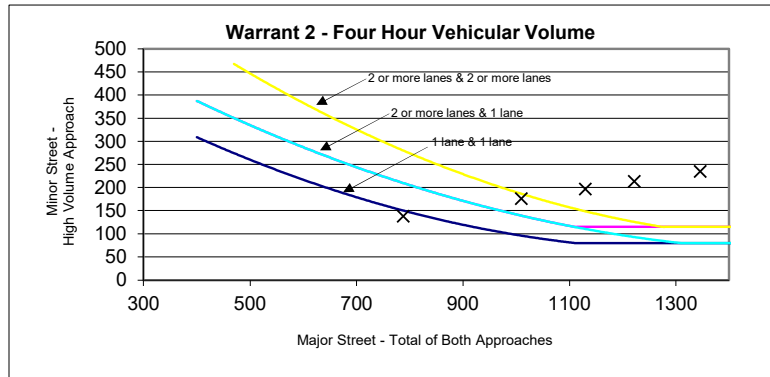
Supplemental Traffic Signal Evaluation Form

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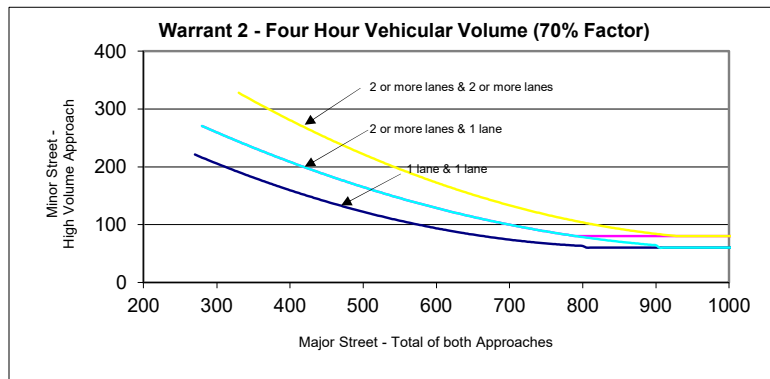
Location Market St at A St

Date October 1, 2021

Warrant 2 - Four Hour Vehicular Volume



NOTE: some plotted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,500 vph)



NOTE: This chart not used (70% Criteria does not apply)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	788	138	210	No
8 AM	1,010	176	139	Yes
9 AM	1,130	197	111	Yes
10 AM	1,222	213	93	Yes
11 AM	1,346	235	80	Yes
12 PM	1,496	261	80	Yes
1 PM	1,519	265	80	Yes
2 PM	1,580	276	80	Yes
3 PM	1,794	313	80	Yes
4 PM	1,973	344	80	Yes
5 PM	2,217	387	80	Yes
6 PM	1,578	275	80	Yes

	Hours Met	Warrant Met?
Total Hours Met:	11	Yes

70 percent criteria does not apply

Is Warrant 2 Satisfied? **YES**



Supplemental Traffic Signal Evaluation Form

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Location Market St at A St

Date October 1, 2021

Warrant 3 - Peak Hour

NOTE: Warrant 3 is applicable because this area IS considered an 'unusual' case

An "unusual" case refers to locations such as an office complex, a manufacturing plant, an industrial plant, or a facility that discharges/attracts a large volume of traffic over a short time

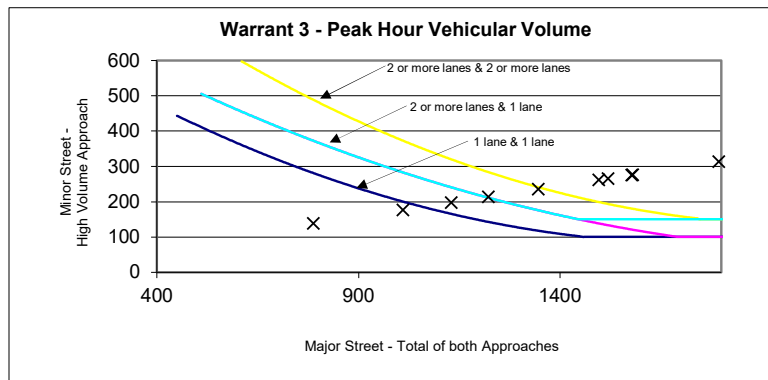
Criteria A: Peak Hour Delay

- | | | |
|---|--------|------------------|
| 1. Total Stopped Delay | 26,869 | vehicle-seconds |
| 2. Volume on Minor Street Approach during same hour | 275 | vehicles |
| 3. Total entering traffic during hour more than 650 vehicles? | Yes | (2004 vehicles) |

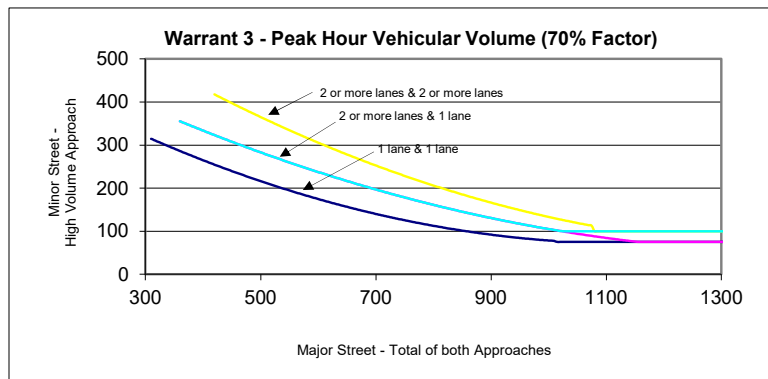
Minimum Required
14,400
100
650

Is the Peak Hour Delay Criteria Met? **Yes**

Criteria B: Peak Hour Volume



NOTE: some plotted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,800 vph)



NOTE: This chart not used (70% Criteria does not apply)

- Warrant 3 Worksheet Continued on Next Page -



Supplemental Traffic Signal Evaluation Form

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Location Market St at A St

Date October 1, 2021

Warrant 3 - Peak Hour (Continued)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	788	138	372	No
8 AM	1,010	176	283	No
9 AM	1,130	197	241	No
10 AM	1,222	213	211	Yes*
11 AM	1,346	235	175	Yes
12 PM	1,496	261	138	Yes
1 PM	1,519	265	133	Yes
2 PM	1,580	276	120	Yes
3 PM	1,794	313	100	Yes
4 PM	1,973	344	100	Yes
5 PM	2,217	387	100	Yes
6 PM	1,578	275	121	Yes

* Highest minor approach volume is within 5 vehicles of minimum required; use with caution.

	Hours Met	Warrant Met?
Is the Peak Hour Volume Criteria Met?	8	Yes

70 percent criteria does not apply

Warrant 3 Summary:	Warrant Met?
Warrant 3.A - Peak Hour Delay:	Yes
Warrant 3.B - Peak Hour Volume:	Yes

70 percent criteria does not apply

Is Warrant 3 Satisfied?	YES
-------------------------	-----

(NOTE: Criteria B - Peak Hour Volume is not recognized by Maryland SHA)

Warrant 4 - Pedestrian Volume

The need for a traffic control signal at an intersection or midblock crossing shall be considered if either of the following criteria is met:

- A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5.
- B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.

The pedestrian warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic

Distance to nearest signalized or stop-controlled intersection 800 feet
 Would a new signal restrict progressive movement? No



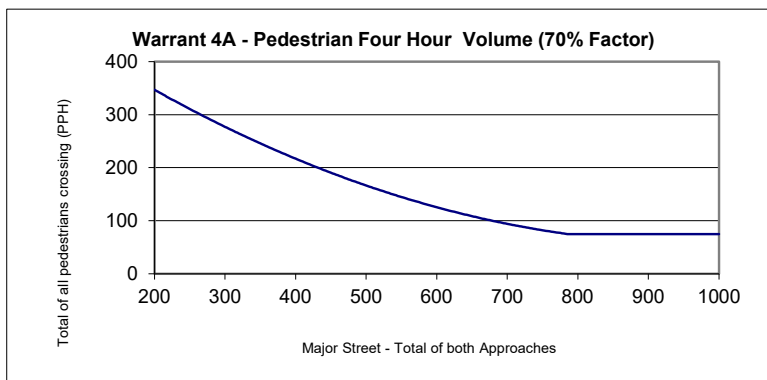
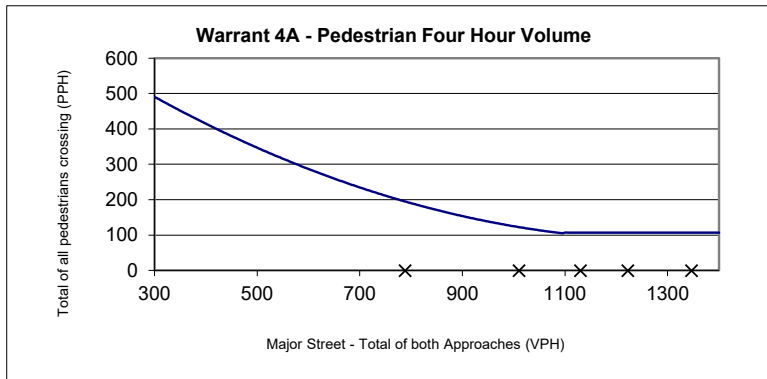
Supplemental Traffic Signal Evaluation Form

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Location Market St at A St

Date October 1, 2021

Warrant 4 - Pedestrian Volume (Continued)



Hour Ending	Combined Major Approach	Pedestrian Total Crossing	Minimum Required	Warrant met?
7 AM	788	0	195	No
8 AM	1,010	0	123	No
9 AM	1,130	0	107	No
10 AM	1,222	0	107	No
11 AM	1,346	0	107	No
12 PM	1,496	0	107	No
1 PM	1,519	0	107	No
2 PM	1,580	0	107	No
3 PM	1,794	0	107	No
4 PM	1,973	0	107	No
5 PM	2,217	0	107	No
6 PM	1,578	0	107	No



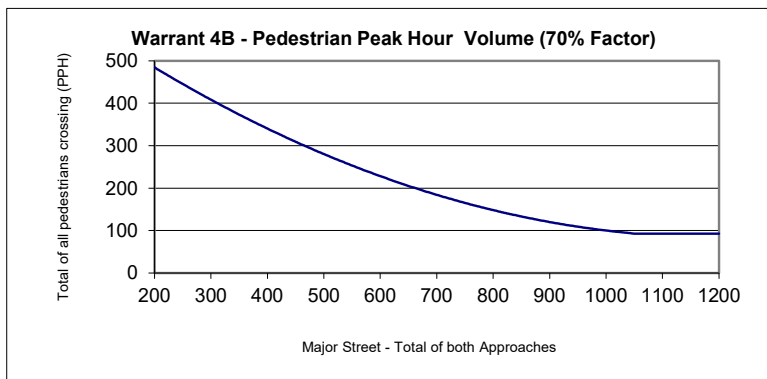
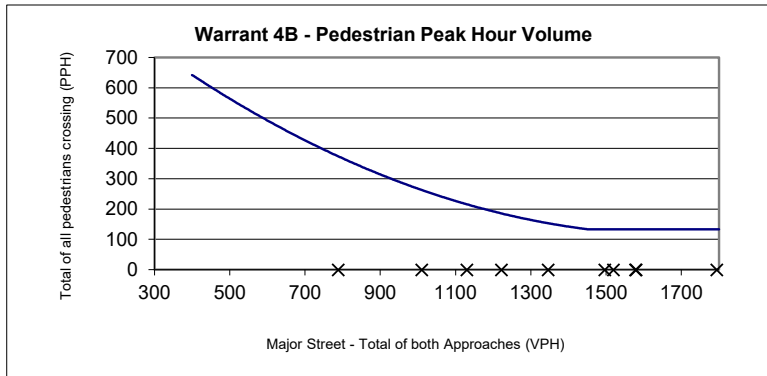
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Location Market St at A St

Date October 1, 2021

Warrant 4 - Pedestrian Volume (Continued)



Hour Ending	Combined Major Approach	Pedestrian Total Crossing	Minimum Required	Warrant met?
7 AM	788	0	374	No
8 AM	1,010	0	263	No
9 AM	1,130	0	216	No
10 AM	1,222	0	133	No
11 AM	1,346	0	133	No
12 PM	1,496	0	133	No
1 PM	1,519	0	133	No
2 PM	1,580	0	133	No
3 PM	1,794	0	133	No
4 PM	1,973	0	133	No
5 PM	2,217	0	133	No
6 PM	1,578	0	133	No

Warrant 4 Summary	Hours Met	Warrant Met?
Condition A:	0	No
Condition B:	0	No

(70 percent criteria does not apply)

(70 percent criteria does not apply)

Is Warrant 4 Satisfied? NO



Supplemental Traffic Signal Evaluation Form

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Location Market St at A St

Date October 1, 2021

Warrant 5 - School Crossing

1. Are there 20 or more students during the highest crossing hour?
2. Are there an adequate number of gaps?

No
N/A

NOTE: A formal Gap Study was not conducted because

3. Have other remedial measures been tried?
(items can include warning signs, flashers, crossing guards, etc.)
4. Is there another nearby signal located < 300 feet from the intersection?
5. Would a new signal restrict progressive movement?

No

No

No

Is Warrant 5 Satisfied?	NO
-------------------------	----

Warrant 6 - Coordinated Signal System

The need for a signal based on Warrant 6 shall be considered if either of the following criteria is met AND if the resultant spacing of traffic control signals would be > 1,000 feet:

- A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning
- B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will provide collectively progressive operation

Met

Not Met

If a signal were installed, would the resulting signal spacing be > 1,000 feet?

No

Is Warrant 6 Satisfied?	NO
-------------------------	----

Warrant 7 - Crash Experience

- A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.
- B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage, apparently exceeding the applicable requirements for a reportable crash
- C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1, or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major street and on the higher volume minor street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Not Met

Not Met

Met

Is Warrant 7 Satisfied?	NO
-------------------------	----



Supplemental Traffic Signal Evaluation Form

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Location Market St at A St

Date October 1, 2021

Warrant 8 - Roadway Network

The need for a signal based on Warrant 8 shall be considered if either of the following criteria is met AND if the intersection is a junction of two or more MAJOR roads:

NOTE: Portions of the criteria for Warrant 8 are based on projected traffic volumes and weekend traffic volumes. However, projected and weekend volumes were not available during the preparation of this study, so Warrant 8 was only evaluated based on current weekday traffic conditions.

- A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has a 5-year projected traffic volume, based on an engineering study, that meets one or more of Warrants 1, 2 and 3 during an average weekday

Met

- B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of and 5 hours of a non-normal business day (Saturday or Sunday).

N/A

Is this the junction of two or more MAJOR routes?

No

Is Warrant 8 Satisfied? **NO**

Warrant 9 - Intersection Near a Grade Crossing

The need for a signal based on Warrant 9 shall be considered if both of the following criteria are met:

- A. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and

N/A

- B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure 4C-9 or 4C-10 for the existing combination of approach lanes over the track and the distance D, which is the clear storage distance as defined in Section 1A.13.

N/A

Distance to railroad

140 ft

	Number	Adj. Factor
Daily frequency of rail traffic	4	1.00
Percentage of high-occupancy buses	1	1.00
Percentage of tractor-trailer trucks	8	1.00

Table 4C-2

Table 4C-3

Table 4C-4

Total Adjustment 1.00

Highest Rail Traffic Hour	Combined Major Approach	Minor Approach	Combined Adjusted Approach	Minimum Required	Warrant met?
11 - 12 PM	1,496	261	261	25	Yes

Is Warrant 9 Satisfied? **N/A**



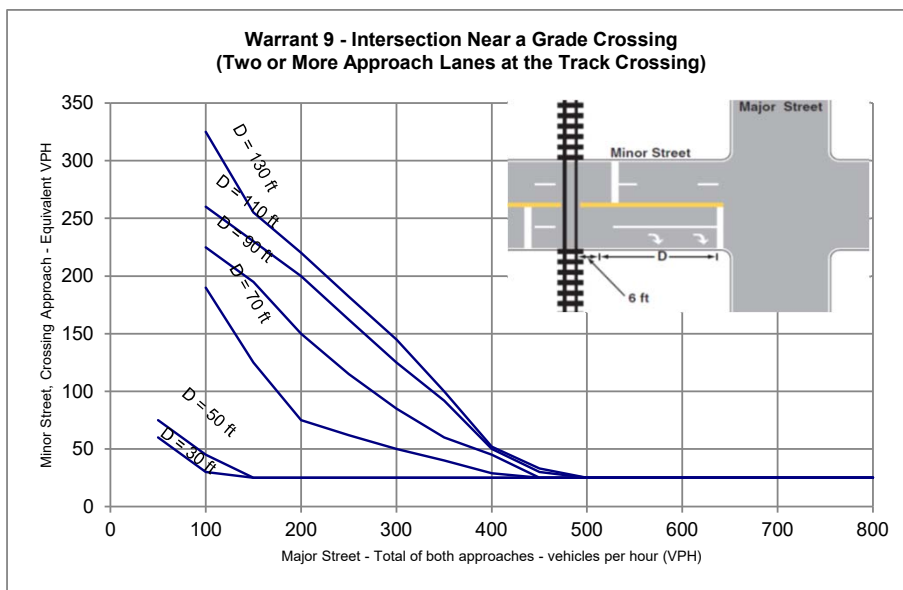
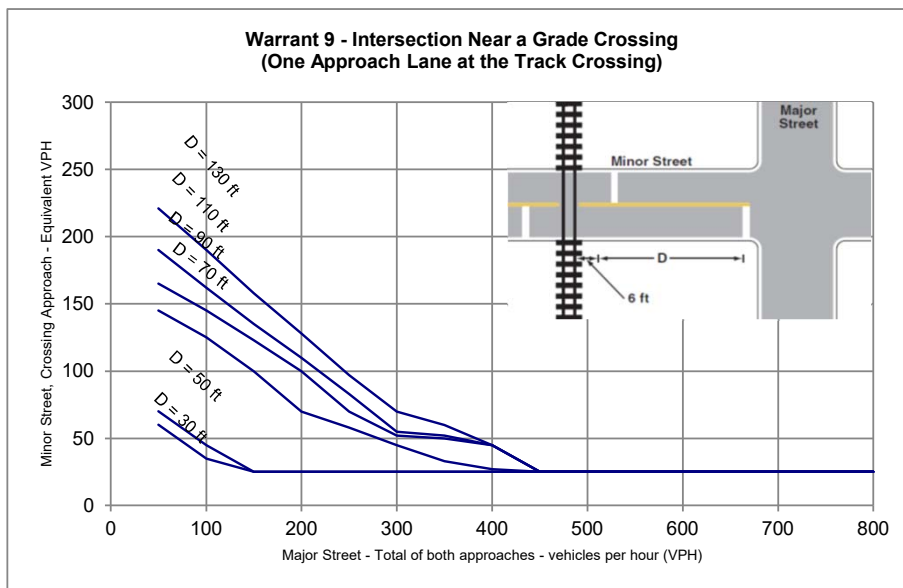
Supplemental Traffic Signal Evaluation Form

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Location Market St at A St

Date October 1, 2021

Warrant 9 - Intersection Near a Grade Crossing (Continued)





Supplemental Traffic Signal Evaluation Form

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Location Market St at 3rd St
County New Castle County

Date October 1, 2021
Analyst Nicole Wilson
Analysis Scenario 2040 75% Build

Summary Sheet

The following Signal Warrant Evaluation is based on the criteria presented in the
2009 Edition of the Manual on Uniform Traffic Control Devices,
Part 4 (Highway Traffic Signals), Chapter C

All hours were estimated based on trip generation manual estimates. Off-peak hours were estimated based on existing diurnal curves

NOTE: the 70% criteria do not apply for these analyses

NOTE: the 56% criteria do not apply for these analyses

NOTE: Right turns from the Minor street ARE included in these analyses

	MUTCD Min. Requirement	Current Conditions	Criteria Met?	Warrant Met?
Warrant 1 - 8 Hour Volumes				
A. Minimum Volume	8 hours	11 hour(s)	Yes	YES
B. Continuous Traffic	8 hours	11 hour(s)	Yes	
C. 80% of A and B	8 hours	12 hour(s)	Yes	
NOTE: Warrant 1 is met if <u>any</u> of criteria A, B or C are met				
Warrant 2 - Four Hour Vehicular Volume				
A. Four Hour Volume	4 hours	11 hour(s)	Yes	YES
Warrant 3 - Peak Hour				
"Unusual" Case Clause	"Unusual" Case?		Yes	YES
A. Peak Hour Delay	14,400 seconds	20,035 seconds	Yes	
	100 vehicles	152 vehicles		
	650 vehicles	2,021 vehicles		
B. Peak Hour Volume	1 hour	9 hour(s)	Yes	
NOTE: Warrant 3 is met if <u>either</u> criteria A or B is met AND it is an "Unusual" Case				
Warrant 4 - Pedestrian Volume				
Is there a signalized or stop-controlled intersection which controls the street that pedestrians desire cross within 300 feet?			No	Warrant Applies
Would the traffic signal restrict progressive movement of traffic?			No	
A. Four Hour Volume	8 hours	0 hour(s)	No	NO
B. Peak Hour Volume	1 hour	0 hour(s)	No	
NOTE: Warrant 4 is met if <u>either</u> criteria A and B is met AND there are no signals or stop-controlled intersections controlling the major pedestrian movements, unless the proposed signal does not restrict progressive movement of traffic				
Warrant 5 - School Crossing				
A. Student Crossing Volume	20 peds./hr.	0 peds./hr.	No	NO
B. Acceptable gaps (calculated based on pedestrian volume)			N/A	
Tried other remedial measures			No	
Nearby signal < 300 feet away?			No	
Would the traffic signal restrict progressive movement of traffic?			No	
NOTE: Warrant 5 is met if <u>both</u> criteria A or B are met AND no signals are within 300' and progressive flow is not restricted or other remedial measures have been tried				
Warrant 6 - Coordinated Signal System				
A. One-Way Street: existing signals widely spaced (inadequate platooning)?			Yes	NO
B. Two-Way Street: existing signals widely spaced (inadequate platooning)?			No	
If a signal were installed, would resulting signal spacing > 1,000 feet?			No	
NOTE: Warrant 6 is met if <u>either</u> criteria A or B is met AND the resulting signal spacing > 1000 feet				
Warrant 7 - Crash Experience				
A. Have other remedial measures been tried?			No	NO
B. Accident Experience	5 acc./yr.	0 acc./yr.	No	
C. 8 hour volume @ 80%	8 hours	12 hours	Yes	
NOTE: Warrant 7 is met if <u>ALL</u> three of these criteria are satisfied				
Warrant 8 - Roadway Network				
A. Total Entering Volume	1 Hour	11 hour(s)	Yes	NO
B. Projected Volumes	1 Hour	N/A hour(s)	No	
Is this the junction of two or more MAJOR routes?			No	
NOTE: Warrant 8 is met if <u>either</u> criteria A or B is met AND the intersection is the junction of major roads				
Warrant 9 - Intersection Near a Grade Crossing				
A. Grade crossing exists within 140 ft of stop line on minor approach			No	N/A
B. Adjusted highest minor street approach volume exceeds threshold			No	
NOTE: Warrant 9 is met if <u>both</u> criteria A and B are met				



Supplemental Traffic Signal Evaluation Form

RK&K

Location Market St at 3rd St
County New Castle County

Date October 1, 2021
Analyst Nicole Wilson

Warrant 1 - 8 Hour Volumes

MUTCD Requirements:

Number of Lanes for moving traffic on each approach

Major Street	Minor Street
1	1
2 or more	1
2 or more	2 or more
1	2 or more

Condition A - Minimum Vehicular Volume							
Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
100%	80%	70%	56%	100%	80%	70%	56%
500	400	350	280	150	120	105	84
600	480	420	336	150	120	105	84
600	480	420	336	200	160	140	112
500	400	350	280	200	160	140	112

Number of Lanes for moving traffic on each approach

Major Street	Minor Street
1	1
2 or more	1
2 or more	2 or more
1	2 or more

Condition B - Interruption of Continuous Traffic							
Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
100%	80%	70%	56%	100%	80%	70%	56%
750	600	525	420	75	60	53	42
900	720	630	504	75	60	53	42
900	720	630	504	100	80	70	56
750	600	525	420	100	80	70	56

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Condition A met?	Condition B met?	A & B Condition met?
7 AM	793	140	No	No	Yes
8 AM	1,017	180	Yes	Yes	Yes
9 AM	1,137	201	Yes	Yes	Yes
10 AM	1,230	218	Yes	Yes	Yes
11 AM	1,355	240	Yes	Yes	Yes
12 PM	1,505	266	Yes	Yes	Yes
1 PM	1,529	271	Yes	Yes	Yes
2 PM	1,590	282	Yes	Yes	Yes
3 PM	1,806	320	Yes	Yes	Yes
4 PM	1,986	352	Yes	Yes	Yes
5 PM	2,231	395	Yes	Yes	Yes
6 PM	1,588	281	Yes	Yes	Yes

Warrant 1 Summary	Hours Met	Warrant Met?
Condition A:	11	Yes
Condition B:	11	Yes
A & B Combination:	12	Yes

(70 percent criteria does not apply)
(70 percent criteria does not apply)
(56 percent criteria does not apply)

Is Warrant 1 Satisfied? YES



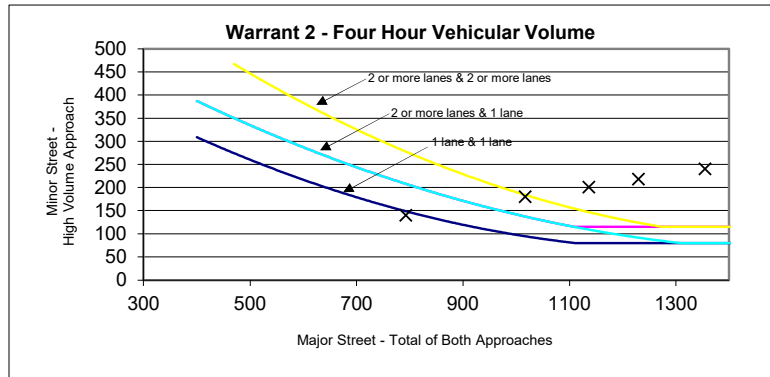
Supplemental Traffic Signal Evaluation Form

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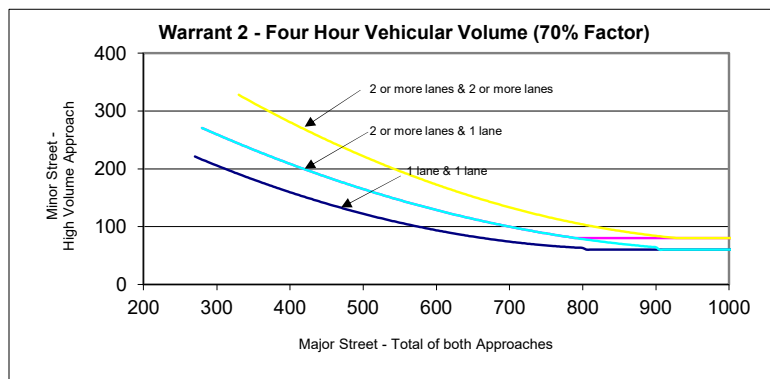
Location Market St at 3rd St

Date October 1, 2021

Warrant 2 - Four Hour Vehicular Volume



NOTE: some plotted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,500 vph)



NOTE: This chart not used (70% Criteria does not apply)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	793	140	208	No
8 AM	1,017	180	137	Yes
9 AM	1,137	201	109	Yes
10 AM	1,230	218	92	Yes
11 AM	1,355	240	80	Yes
12 PM	1,505	266	80	Yes
1 PM	1,529	271	80	Yes
2 PM	1,590	282	80	Yes
3 PM	1,806	320	80	Yes
4 PM	1,986	352	80	Yes
5 PM	2,231	395	80	Yes
6 PM	1,588	281	80	Yes

	Hours Met	Warrant Met?
Total Hours Met:	11	Yes

70 percent criteria does not apply

Is Warrant 2 Satisfied? **YES**



Supplemental Traffic Signal Evaluation Form

RK&K

Location Market St at 3rd St

Date October 1, 2021

Warrant 3 - Peak Hour

NOTE: Warrant 3 is applicable because this area IS considered an 'unusual' case

An "unusual" case refers to locations such as an office complex, a manufacturing plant, an industrial plant, or a facility that discharges/attracts a large volume of traffic over a short time

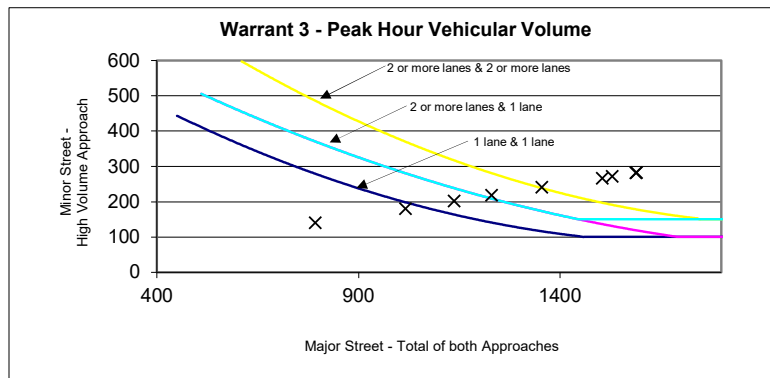
Criteria A: Peak Hour Delay

- | | | |
|---|--------|------------------|
| 1. Total Stopped Delay | 20,035 | vehicle-seconds |
| 2. Volume on Minor Street Approach during same hour | 152 | vehicles |
| 3. Total entering traffic during hour more than 650 vehicles? | Yes | (2021 vehicles) |

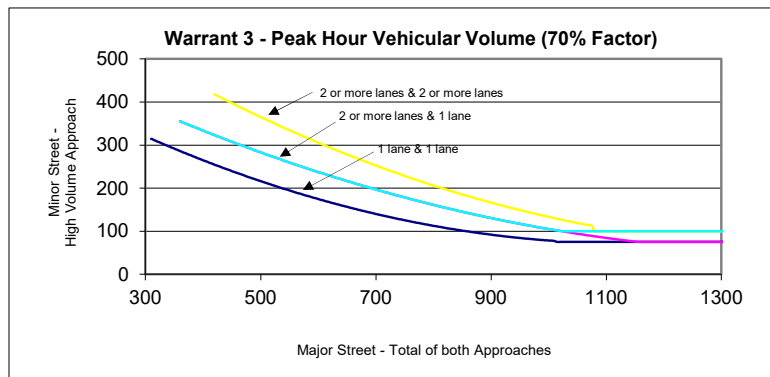
Minimum Required
14,400
100
650

Is the Peak Hour Delay Criteria Met? **Yes**

Criteria B: Peak Hour Volume



NOTE: some plotted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,800 vph)



NOTE: This chart not used (70% Criteria does not apply)

- Warrant 3 Worksheet Continued on Next Page -



Supplemental Traffic Signal Evaluation Form

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Location Market St at 3rd St

Date October 1, 2021

Warrant 3 - Peak Hour (Continued)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	793	140	370	No
8 AM	1,017	180	280	No
9 AM	1,137	201	238	No
10 AM	1,230	218	209	Yes
11 AM	1,355	240	173	Yes
12 PM	1,505	266	136	Yes
1 PM	1,529	271	131	Yes
2 PM	1,590	282	118	Yes
3 PM	1,806	320	100	Yes
4 PM	1,986	352	100	Yes
5 PM	2,231	395	100	Yes
6 PM	1,588	281	119	Yes

	Hours Met	Warrant Met?
Is the Peak Hour Volume Criteria Met?	9	Yes

70 percent criteria does not apply

Warrant 3 Summary:	Warrant Met?
Warrant 3.A - Peak Hour Delay:	Yes
Warrant 3.B - Peak Hour Volume:	Yes

70 percent criteria does not apply

Is Warrant 3 Satisfied?	YES
--------------------------------	------------

(NOTE: Criteria B - Peak Hour Volume is not recognized by Maryland SHA)

Warrant 4 - Pedestrian Volume

The need for a traffic control signal at an intersection or midblock crossing shall be considered if either of the following criteria is met:

- A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5.
- B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.

The pedestrian warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic

Distance to nearest signalized or stop-controlled intersection 750 feet
 Would a new signal restrict progressive movement? No



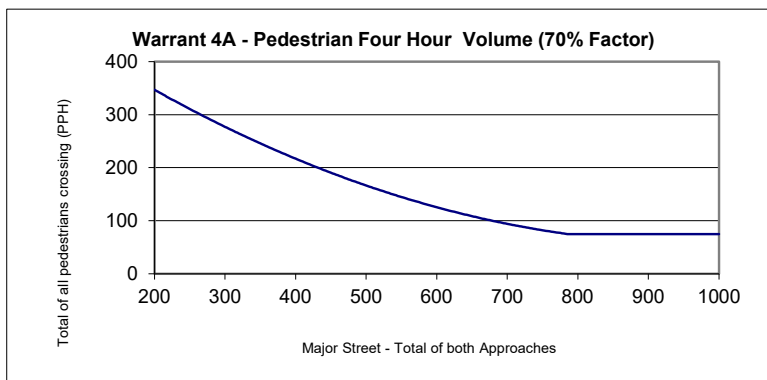
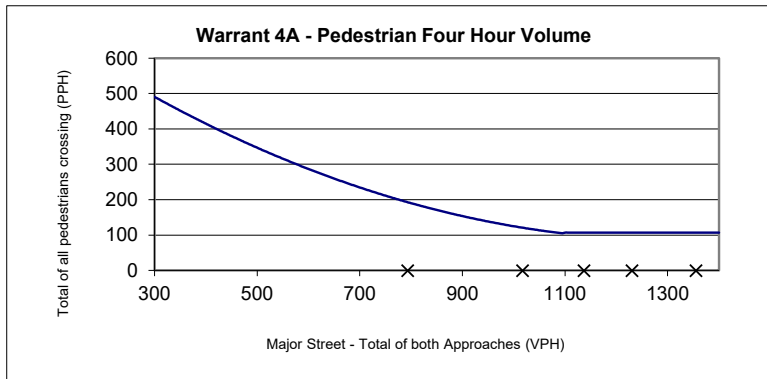
Supplemental Traffic Signal Evaluation Form

RK&K

Location Market St at 3rd St

Date October 1, 2021

Warrant 4 - Pedestrian Volume (Continued)



Hour Ending	Combined Major Approach	Pedestrian Total Crossing	Minimum Required	Warrant met?
7 AM	793	0	193	No
8 AM	1,017	0	121	No
9 AM	1,137	0	107	No
10 AM	1,230	0	107	No
11 AM	1,355	0	107	No
12 PM	1,505	0	107	No
1 PM	1,529	0	107	No
2 PM	1,590	0	107	No
3 PM	1,806	0	107	No
4 PM	1,986	0	107	No
5 PM	2,231	0	107	No
6 PM	1,588	0	107	No



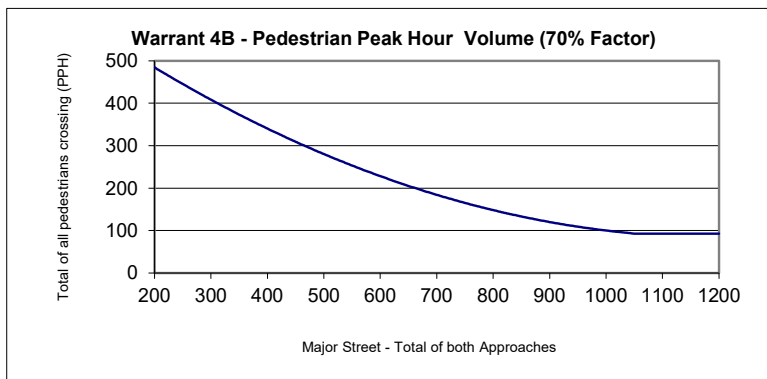
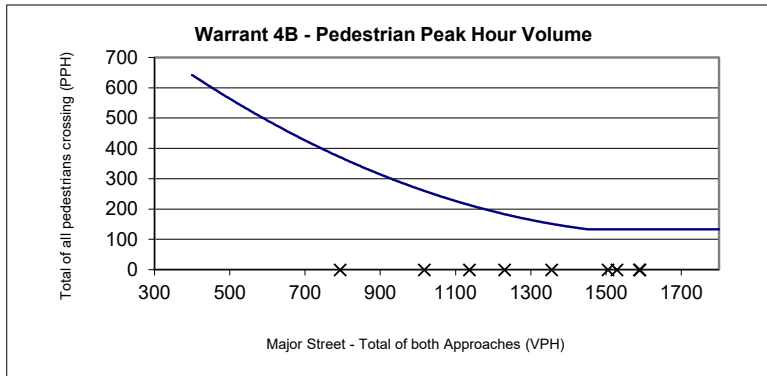
Supplemental Traffic Signal Evaluation Form

RK&K

Location Market St at 3rd St

Date October 1, 2021

Warrant 4 - Pedestrian Volume (Continued)



Hour Ending	Combined Major Approach	Pedestrian Total Crossing	Minimum Required	Warrant met?
7 AM	793	0	371	No
8 AM	1,017	0	260	No
9 AM	1,137	0	213	No
10 AM	1,230	0	133	No
11 AM	1,355	0	133	No
12 PM	1,505	0	133	No
1 PM	1,529	0	133	No
2 PM	1,590	0	133	No
3 PM	1,806	0	133	No
4 PM	1,986	0	133	No
5 PM	2,231	0	133	No
6 PM	1,588	0	133	No

Warrant 4 Summary	Hours Met	Warrant Met?
Condition A:	0	No
Condition B:	0	No

(70 percent criteria does not apply)

(70 percent criteria does not apply)

Is Warrant 4 Satisfied? NO



Supplemental Traffic Signal Evaluation Form

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Location Market St at 3rd St

Date October 1, 2021

Warrant 5 - School Crossing

1. Are there 20 or more students during the highest crossing hour?

No

2. Are there an adequate number of gaps?

N/A

NOTE: A formal Gap Study was not conducted because

3. Have other remedial measures been tried?

No

(items can include warning signs, flashers, crossing guards, etc.)

4. Is there another nearby signal located < 300 feet from the intersection?

No

5. Would a new signal restrict progressive movement?

No

Is Warrant 5 Satisfied? NO

Warrant 6 - Coordinated Signal System

The need for a signal based on Warrant 6 shall be considered if either of the following criteria is met AND if the resultant spacing of traffic control signals would be > 1,000 feet:

A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning

Met

B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will provide collectively progressive operation

Not Met

If a signal were installed, would the resulting signal spacing be > 1,000 feet?

No

Is Warrant 6 Satisfied? NO

Warrant 7 - Crash Experience

A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.

Not Met

B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage, apparently exceeding the applicable requirements for a reportable crash

Not Met

C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1, or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major street and on the higher volume minor street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Met

Is Warrant 7 Satisfied? NO



Supplemental Traffic Signal Evaluation Form

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Location Market St at 3rd St

Date October 1, 2021

Warrant 8 - Roadway Network

The need for a signal based on Warrant 8 shall be considered if either of the following criteria is met AND if the intersection is a junction of two or more MAJOR roads:

NOTE: Portions of the criteria for Warrant 8 are based on projected traffic volumes and weekend traffic volumes. However, projected and weekend volumes were not available during the preparation of this study, so Warrant 8 was only evaluated based on current weekday traffic conditions.

- A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has a 5-year projected traffic volume, based on an engineering study, that meets one or more of Warrants 1, 2 and 3 during an average weekday

Met

- B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of and 5 hours of a non-normal business day (Saturday or Sunday).

N/A

Is this the junction of two or more MAJOR routes?

No

Is Warrant 8 Satisfied? NO

Warrant 9 - Intersection Near a Grade Crossing

The need for a signal based on Warrant 9 shall be considered if both of the following criteria are met:

- A. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and

N/A

- B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure 4C-9 or 4C-10 for the existing combination of approach lanes over the track and the distance D, which is the clear storage distance as defined in Section 1A.13.

N/A

Distance to railroad

140 ft

	Number	Adj. Factor
Daily frequency of rail traffic	4	1.00
Percentage of high-occupancy buses	1	1.00
Percentage of tractor-trailer trucks	8	1.00

Table 4C-2

Table 4C-3

Table 4C-4

Total Adjustment 1.00

Highest Rail Traffic Hour	Combined Major Approach	Minor Approach	Combined Adjusted Approach	Minimum Required	Warrant met?
11 - 12 PM	1,505	144	144	25	Yes

Is Warrant 9 Satisfied? N/A



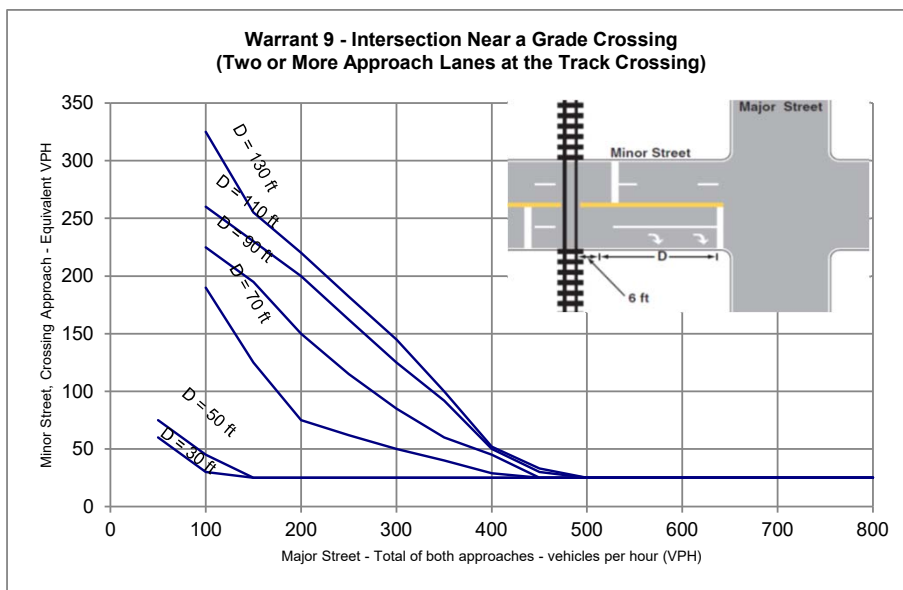
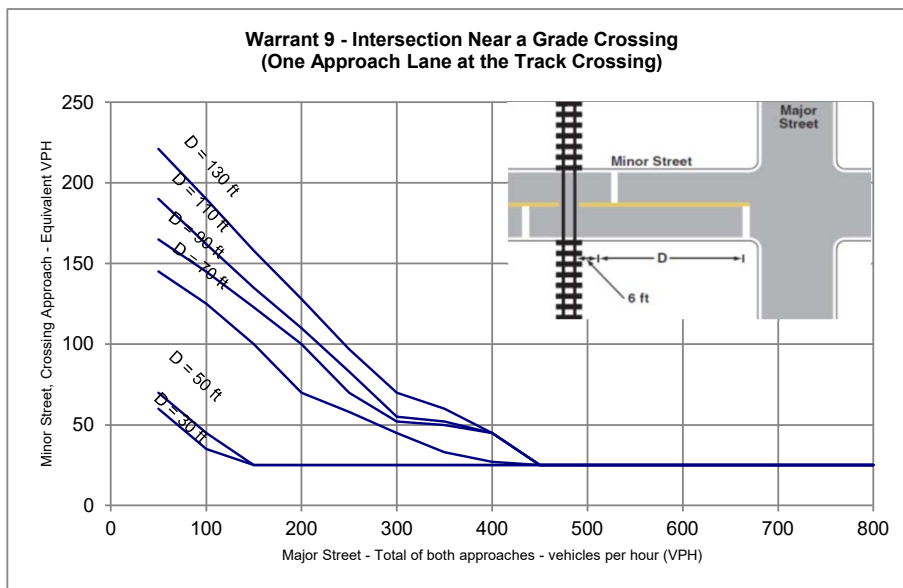
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Location Market St at 3rd St

Date October 1, 2021

Warrant 9 - Intersection Near a Grade Crossing (Continued)





Supplemental Traffic Signal Evaluation Form

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Location US 13 at Rogers Rd
County New Castle County

Date October 1, 2021
Analyst Nicole Wilson
Analysis Scenario 2040 75% Build

Summary Sheet

The following Signal Warrant Evaluation is based on the criteria presented in the **2009 Edition** of the Manual on Uniform Traffic Control Devices, Part 4 (Highway Traffic Signals), Chapter C

All hours were estimated based on trip generation manual estimates. Off-peak hours were estimated based on existing diurnal curves

NOTE: the 70% criteria do not apply for these analyses

NOTE: the 56% criteria do not apply for these analyses

NOTE: Right turns from the Minor street ARE included in these analyses

	MUTCD Min. Requirement	Current Conditions	Criteria Met?	Warrant Met?
Warrant 1 - 8 Hour Volumes				
A. Minimum Volume	8 hours	12 hour(s)	Yes	YES
B. Continuous Traffic	8 hours	12 hour(s)	Yes	
C. 80% of A and B	8 hours	12 hour(s)	Yes	
NOTE: Warrant 1 is met if <u>any</u> of criteria A, B or C are met				
Warrant 2 - Four Hour Vehicular Volume				
A. Four Hour Volume	4 hours	12 hour(s)	Yes	YES
Warrant 3 - Peak Hour				
"Unusual" Case Clause	"Unusual" Case?		Yes	YES
A. Peak Hour Delay	14,400 seconds	3,574 seconds	No	
	100 vehicles	354 vehicles		
	650 vehicles	5,139 vehicles		
B. Peak Hour Volume	1 hour	12 hour(s)	Yes	
NOTE: Warrant 3 is met if <u>either</u> criteria A or B is met AND it is an "Unusual" Case				
Warrant 4 - Pedestrian Volume				
Is there a signalized or stop-controlled intersection which controls the street that pedestrians desire cross within 300 feet?			No	Warrant Applies
Would the traffic signal restrict progressive movement of traffic?			No	
A. Four Hour Volume	8 hours	0 hour(s)	No	NO
B. Peak Hour Volume	1 hour	0 hour(s)	No	
NOTE: Warrant 4 is met if <u>either</u> criteria A and B is met AND there are no signals or stop-controlled intersections controlling the major pedestrian movements, unless the proposed signal does not restrict progressive movement of traffic				
Warrant 5 - School Crossing				
A. Student Crossing Volume	20 peds./hr.	0 peds./hr.	No	NO
B. Acceptable gaps (calculated based on pedestrian volume)			N/A	
Tried other remedial measures			No	
Nearby signal < 300 feet away?			No	
Would the traffic signal restrict progressive movement of traffic?			No	
NOTE: Warrant 5 is met if <u>both</u> criteria A or B are met AND no signals are within 300' and progressive flow is not restricted or other remedial measures have been tried				
Warrant 6 - Coordinated Signal System				
A. One-Way Street: existing signals widely spaced (inadequate platooning)?			No	NO
B. Two-Way Street: existing signals widely spaced (inadequate platooning)?			No	
If a signal were installed, would resulting signal spacing > 1,000 feet?			No	
NOTE: Warrant 6 is met if <u>either</u> criteria A or B is met AND the resulting signal spacing > 1000 feet				
Warrant 7 - Crash Experience				
A. Have other remedial measures been tried?			No	NO
B. Accident Experience	5 acc./yr.	0 acc./yr.	No	
C. 8 hour volume @ 80%	8 hours	12 hours	Yes	
NOTE: Warrant 7 is met if <u>ALL</u> three of these criteria are satisfied				
Warrant 8 - Roadway Network				
A. Total Entering Volume	1 Hour	12 hour(s)	Yes	NO
B. Projected Volumes	1 Hour	N/A hour(s)	No	
Is this the junction of two or more MAJOR routes?			No	
NOTE: Warrant 8 is met if <u>either</u> criteria A or B is met AND the intersection is the junction of major roads				
Warrant 9 - Intersection Near a Grade Crossing				
A. Grade crossing exists within 140 ft of stop line on minor approach			No	N/A
B. Adjusted highest minor street approach volume exceeds threshold			No	
NOTE: Warrant 9 is met if <u>both</u> criteria A and B are met				



Supplemental Traffic Signal Evaluation Form

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Location US 13 at Rogers Rd
County New Castle County

Date October 1, 2021
Analyst Nicole Wilson

Warrant 1 - 8 Hour Volumes

MUTCD Requirements:

Number of Lanes for moving traffic on each approach

Major Street	Minor Street
1	1
2 or more	1
2 or more	2 or more
1	2 or more

Condition A - Minimum Vehicular Volume							
Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
100%	80%	70%	56%	100%	80%	70%	56%
500	400	350	280	150	120	105	84
600	480	420	336	150	120	105	84
600	480	420	336	200	160	140	112
500	400	350	280	200	160	140	112

Number of Lanes for moving traffic on each approach

Major Street	Minor Street
1	1
2 or more	1
2 or more	2 or more
1	2 or more

Condition B - Interruption of Continuous Traffic							
Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
100%	80%	70%	56%	100%	80%	70%	56%
750	600	525	420	75	60	53	42
900	720	630	504	75	60	53	42
900	720	630	504	100	80	70	56
750	600	525	420	100	80	70	56

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Condition A met?	Condition B met?	A & B Condition met?
7 AM	3,071	227	Yes	Yes	Yes
8 AM	4,785	354	Yes	Yes	Yes
9 AM	3,879	287	Yes	Yes	Yes
10 AM	3,146	233	Yes	Yes	Yes
11 AM	2,981	221	Yes	Yes	Yes
12 PM	3,245	240	Yes	Yes	Yes
1 PM	3,389	251	Yes	Yes	Yes
2 PM	3,315	245	Yes	Yes	Yes
3 PM	3,468	257	Yes	Yes	Yes
4 PM	3,513	260	Yes	Yes	Yes
5 PM	3,534	261	Yes	Yes	Yes
6 PM	3,085	228	Yes	Yes	Yes

Warrant 1 Summary	Hours Met	Warrant Met?
Condition A:	12	Yes
Condition B:	12	Yes
A & B Combination:	12	Yes

(70 percent criteria does not apply)
(70 percent criteria does not apply)
(56 percent criteria does not apply)

Is Warrant 1 Satisfied? **YES**



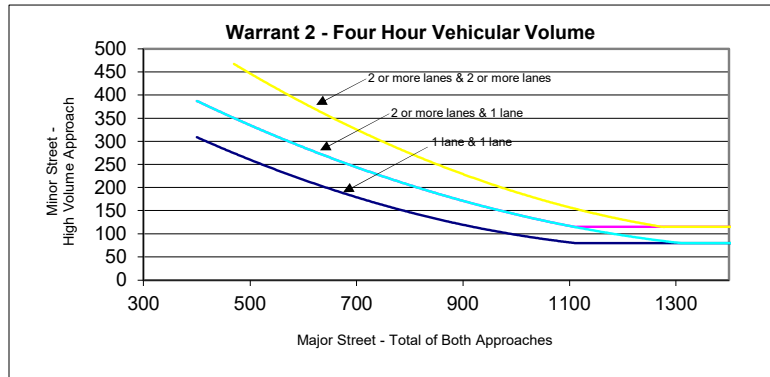
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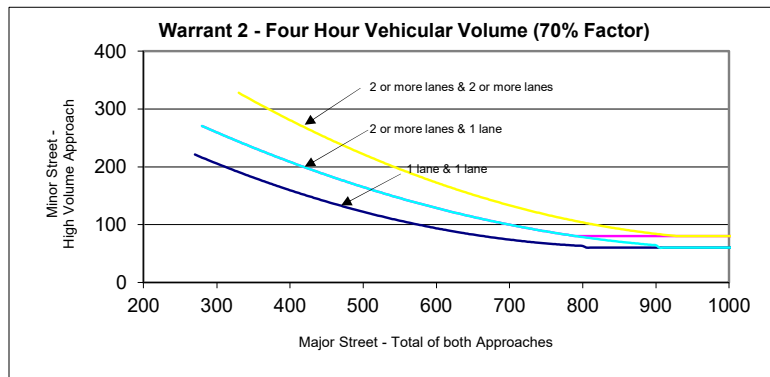
Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 2 - Four Hour Vehicular Volume



NOTE: some plotted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,500 vph)



NOTE: This chart not used (70% Criteria does not apply)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	3,071	227	80	Yes
8 AM	4,785	354	80	Yes
9 AM	3,879	287	80	Yes
10 AM	3,146	233	80	Yes
11 AM	2,981	221	80	Yes
12 PM	3,245	240	80	Yes
1 PM	3,389	251	80	Yes
2 PM	3,315	245	80	Yes
3 PM	3,468	257	80	Yes
4 PM	3,513	260	80	Yes
5 PM	3,534	261	80	Yes
6 PM	3,085	228	80	Yes

	Hours Met	Warrant Met?
Total Hours Met:	12	Yes

70 percent criteria does not apply

Is Warrant 2 Satisfied?	YES
-------------------------	-----



Supplemental Traffic Signal Evaluation Form

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Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 3 - Peak Hour

NOTE: Warrant 3 is applicable because this area IS considered an 'unusual' case

An "unusual" case refers to locations such as an office complex, a manufacturing plant, an industrial plant, or a facility that discharges/attracts a large volume of traffic over a short time

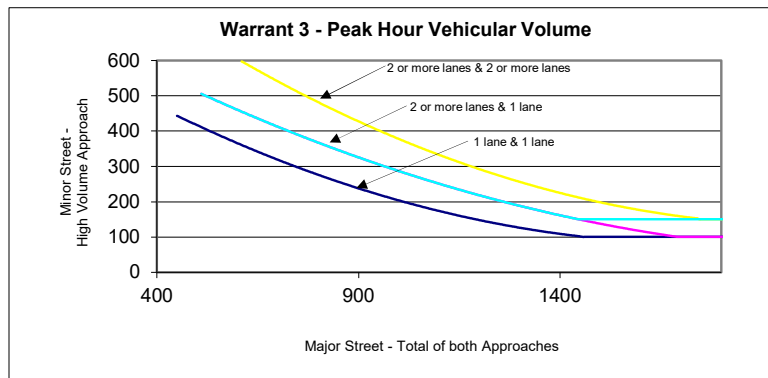
Criteria A: Peak Hour Delay

- | | | |
|---|-------|------------------|
| 1. Total Stopped Delay | 3,574 | vehicle-seconds |
| 2. Volume on Minor Street Approach during same hour | 354 | vehicles |
| 3. Total entering traffic during hour more than 650 vehicles? | Yes | (5139 vehicles) |

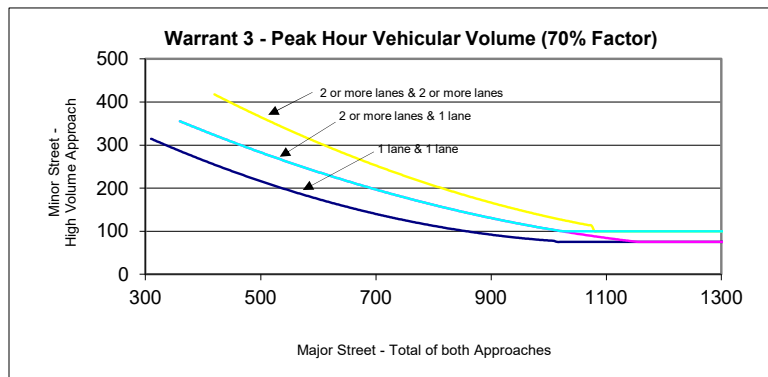
Minimum Required
14,400
100
650

Is the Peak Hour Delay Criteria Met? **No**

Criteria B: Peak Hour Volume



NOTE: some plotted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,800 vph)



NOTE: This chart not used (70% Criteria does not apply)

- Warrant 3 Worksheet Continued on Next Page -



Supplemental Traffic Signal Evaluation Form

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Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 3 - Peak Hour (Continued)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	3,071	227	100	Yes
8 AM	4,785	354	100	Yes
9 AM	3,879	287	100	Yes
10 AM	3,146	233	100	Yes
11 AM	2,981	221	100	Yes
12 PM	3,245	240	100	Yes
1 PM	3,389	251	100	Yes
2 PM	3,315	245	100	Yes
3 PM	3,468	257	100	Yes
4 PM	3,513	260	100	Yes
5 PM	3,534	261	100	Yes
6 PM	3,085	228	100	Yes

	Hours Met	Warrant Met?
Is the Peak Hour Volume Criteria Met?	12	Yes

70 percent criteria does not apply

Warrant 3 Summary:	Warrant Met?
Warrant 3.A - Peak Hour Delay:	No
Warrant 3.B - Peak Hour Volume:	Yes

70 percent criteria does not apply

Is Warrant 3 Satisfied?	YES
--------------------------------	------------

(NOTE: Criteria B - Peak Hour Volume is not recognized by Maryland SHA)

Warrant 4 - Pedestrian Volume

The need for a traffic control signal at an intersection or midblock crossing shall be considered if either of the following criteria is met:

- A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5.
- B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.

The pedestrian warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic

Distance to nearest signalized or stop-controlled intersection 500 feet
 Would a new signal restrict progressive movement? No



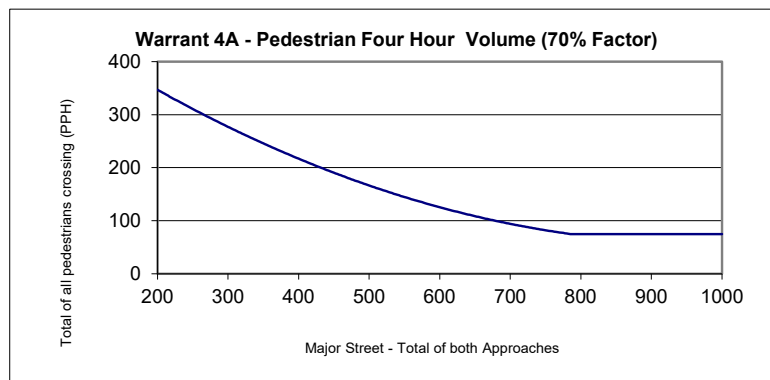
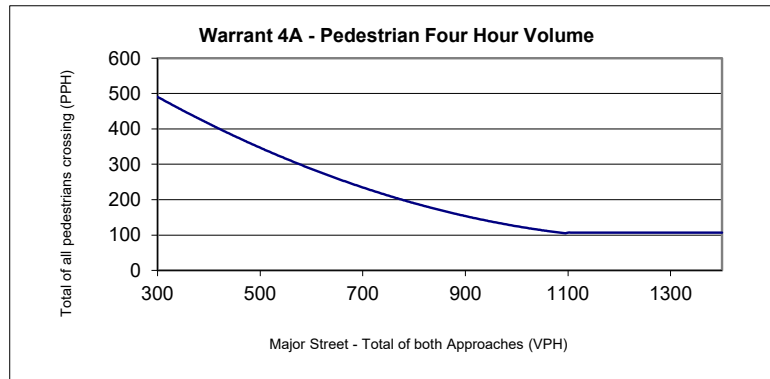
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Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 4 - Pedestrian Volume (Continued)



Hour Ending	Combined Major Approach	Pedestrian Total Crossing	Minimum Required	Warrant met?
7 AM	3,071	0	107	No
8 AM	4,785	0	107	No
9 AM	3,879	0	107	No
10 AM	3,146	0	107	No
11 AM	2,981	0	107	No
12 PM	3,245	0	107	No
1 PM	3,389	0	107	No
2 PM	3,315	0	107	No
3 PM	3,468	0	107	No
4 PM	3,513	0	107	No
5 PM	3,534	0	107	No
6 PM	3,085	0	107	No



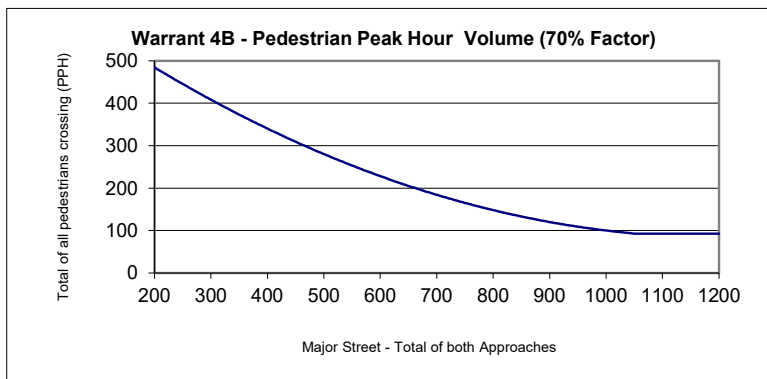
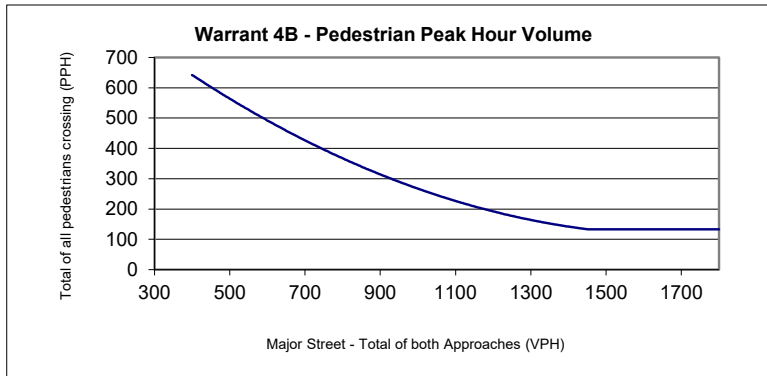
Supplemental Traffic Signal Evaluation Form

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Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 4 - Pedestrian Volume (Continued)



Hour Ending	Combined Major Approach	Pedestrian Total Crossing	Minimum Required	Warrant met?
7 AM	3,071	0	133	No
8 AM	4,785	0	133	No
9 AM	3,879	0	133	No
10 AM	3,146	0	133	No
11 AM	2,981	0	133	No
12 PM	3,245	0	133	No
1 PM	3,389	0	133	No
2 PM	3,315	0	133	No
3 PM	3,468	0	133	No
4 PM	3,513	0	133	No
5 PM	3,534	0	133	No
6 PM	3,085	0	133	No

Warrant 4 Summary	Hours Met	Warrant Met?
Condition A:	0	No
Condition B:	0	No

(70 percent criteria does not apply)

(70 percent criteria does not apply)

Is Warrant 4 Satisfied?	NO
--------------------------------	-----------



Supplemental Traffic Signal Evaluation Form

RK&K

Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 5 - School Crossing

1. Are there 20 or more students during the highest crossing hour?

No

2. Are there an adequate number of gaps?

N/A

NOTE: A formal Gap Study was not conducted because

3. Have other remedial measures been tried?

No

(items can include warning signs, flashers, crossing guards, etc.)

4. Is there another nearby signal located < 300 feet from the intersection?

No

5. Would a new signal restrict progressive movement?

No

Is Warrant 5 Satisfied? NO

Warrant 6 - Coordinated Signal System

The need for a signal based on Warrant 6 shall be considered if either of the following criteria is met AND if the resultant spacing of traffic control signals would be > 1,000 feet:

A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning

Not Met

B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will provide collectively progressive operation

Not Met

If a signal were installed, would the resulting signal spacing be > 1,000 feet?

No

Is Warrant 6 Satisfied? NO

Warrant 7 - Crash Experience

A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.

Not Met

B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage, apparently exceeding the applicable requirements for a reportable crash

Not Met

C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1, or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major street and on the higher volume minor street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Met

Is Warrant 7 Satisfied? NO



Supplemental Traffic Signal Evaluation Form

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Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 8 - Roadway Network

The need for a signal based on Warrant 8 shall be considered if either of the following criteria is met AND if the intersection is a junction of two or more MAJOR roads:

NOTE: Portions of the criteria for Warrant 8 are based on projected traffic volumes and weekend traffic volumes. However, projected and weekend volumes were not available during the preparation of this study, so Warrant 8 was only evaluated based on current weekday traffic conditions.

- A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has a 5-year projected traffic volume, based on an engineering study, that meets one or more of Warrants 1, 2 and 3 during an average weekday

Met

- B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of and 5 hours of a non-normal business day (Saturday or Sunday).

N/A

Is this the junction of two or more MAJOR routes?

No

Is Warrant 8 Satisfied? NO

Warrant 9 - Intersection Near a Grade Crossing

The need for a signal based on Warrant 9 shall be considered if both of the following criteria are met:

- A. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and

N/A

- B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure 4C-9 or 4C-10 for the existing combination of approach lanes over the track and the distance D, which is the clear storage distance as defined in Section 1A.13.

N/A

Distance to railroad

140 ft

	Number	Adj. Factor
Daily frequency of rail traffic	4	1.00
Percentage of high-occupancy buses	1	1.00
Percentage of tractor-trailer trucks	8	1.00

Table 4C-2

Table 4C-3

Table 4C-4

Total Adjustment 1.00

Highest Rail Traffic Hour	Combined Major Approach	Minor Approach	Combined Adjusted Approach	Minimum Required	Warrant met?
11 - 12 PM	3,245	0	0	25	No

Is Warrant 9 Satisfied? N/A



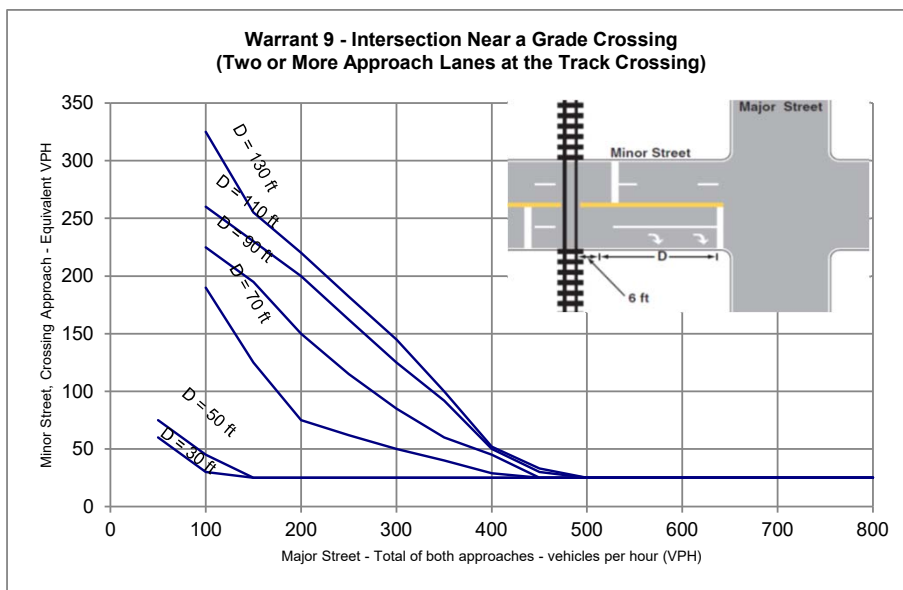
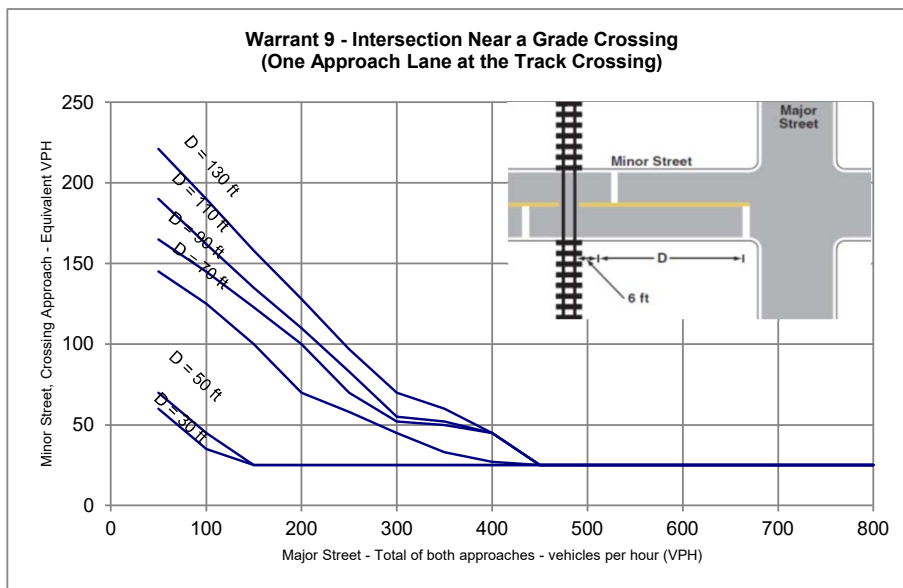
Supplemental Traffic Signal Evaluation Form

RK&K

Location US 13 at Rogers Rd

Date October 1, 2021

Warrant 9 - Intersection Near a Grade Crossing (Continued)



HCS7 Two-Way Stop-Control Report

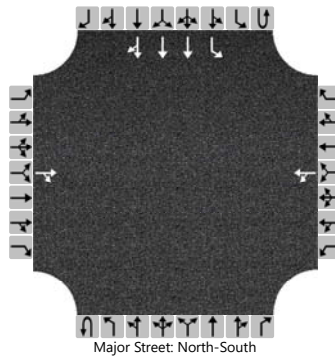
General Information

Analyst	NEW
Agency/Co.	RK&K
Date Performed	12/3/2020
Analysis Year	2040
Time Analyzed	7AM
Intersection Orientation	North-South
Project Description	South Market Street Development

Site Information

Intersection	Market St at A St
Jurisdiction	DelDOT
East/West Street	A St
North/South Street	Market St
Peak Hour Factor	0.94
Analysis Time Period (hrs)	1.00

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	0	0	0	1	3	0
Configuration				TR		LT								L	T	TR
Volume (veh/h)			242	121		72	68							198	2031	198
Percent Heavy Vehicles (%)			3	3		3	3							3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)			6.5	7.1		6.4	6.5							5.3		
Critical Headway (sec)			6.56	7.16		6.46	6.56							5.36		
Base Follow-Up Headway (sec)			4.0	3.9		3.8	4.0							3.1		
Follow-Up Headway (sec)			4.03	3.93		3.83	4.03							3.13		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				386		149								211		
Capacity, c (veh/h)				25										1150		
v/c Ratio				15.76										0.18		
95% Queue Length, Q ₉₅ (veh)				184.0										0.7		
Control Delay (s/veh)				26869.5										8.8		
Level of Service (LOS)				F										A		
Approach Delay (s/veh)	26869.5												0.7			
Approach LOS	F															

HCS 2010 Two-Way Stop-Control Report

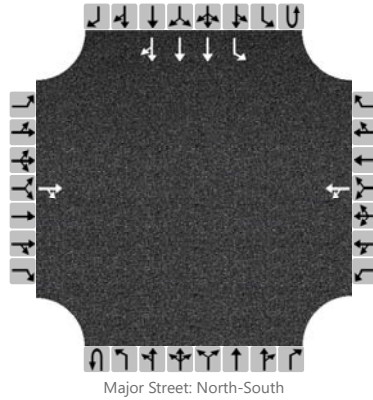
General Information

Analyst	NEW
Agency/Co.	RK&K
Date Performed	12/3/2020
Analysis Year	2040
Time Analyzed	5 PM
Intersection Orientation	North-South
Project Description	South Market Street Development

Site Information

Intersection	Market St at 3rd St
Jurisdiction	DeIDOT
East/West Street	3rd St
North/South Street	Market St
Peak Hour Factor	0.94
Analysis Time Period (hrs)	1.00

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	0	0	0	1	3	0
Configuration				TR		LT								L	T	TR
Volume, V (veh/h)			172	100		461	43							175	2176	105
Percent Heavy Vehicles (%)			3	3		3	3							3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)			6.5	7.1		6.4	6.5							5.3		
Critical Headway (sec)			6.56	7.16		6.46	6.56							5.36		
Base Follow-Up Headway (sec)			4.0	3.9		3.8	4.0							3.1		
Follow-Up Headway (sec)			4.03	3.93		3.83	4.03							3.13		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				289		536								186		
Capacity, c (veh/h)				24		76								1150		
v/c Ratio				11.96		7.01								0.16		
95% Queue Length, Q ₉₅ (veh)				135.6		233.2								0.6		
Control Delay (s/veh)				20035.8		10918.8								8.7		
Level of Service, LOS				F		F								A		
Approach Delay (s/veh)	20035.8				10918.8								0.6			
Approach LOS	F				F											

HCS7 Two-Way Stop-Control Report

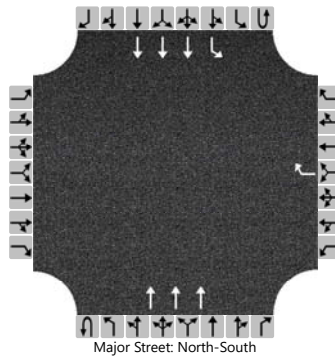
General Information

Analyst	NEW
Agency/Co.	RK&K
Date Performed	12/3/2020
Analysis Year	2040
Time Analyzed	7AM
Intersection Orientation	North-South
Project Description	South Market Street Development

Site Information

Intersection	US 13 at Rogers Rd
Jurisdiction	DelDOT
East/West Street	Rogers Rd
North/South Street	US 13
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	3	0	0	1	3	0
Configuration								R			T			L	T	
Volume (veh/h)							378				3537		0	195	1612	
Percent Heavy Vehicles (%)							3						3	3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					Yes											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)								7.1						5.3		
Critical Headway (sec)								7.16						5.36		
Base Follow-Up Headway (sec)								3.9						3.1		
Follow-Up Headway (sec)								3.93						3.13		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								411						212		
Capacity, c (veh/h)								48						13		
v/c Ratio								8.58						16.28		
95% Queue Length, Q ₉₅ (veh)								48.5						27.7		
Control Delay (s/veh)								3574.0						7441.8		
Level of Service (LOS)								F						F		
Approach Delay (s/veh)					3574.0								803.1			
Approach LOS					F											

**Appendix B:
Raw Traffic Counts**

Rummel, Klepper & Kahl, LLP

700 E Pratt St
Suite 500
Baltimore MD, 21202

Responsive People/Creative Solutions

Location: Market St @ 2nd St
County: New Castle
Weather: Clear
Counters: TK

File Name : Market St @ 2nd St
Site Code : 1806216
Start Date : 2/27/2020
Page No : 1

Groups Printed- Vehicles

Start Time	Market St From North					2nd St From East					Market St From South					2nd St From West					Int. Total
	Left	Thru	Right	U-turn	App. Total	Left	Thru	Right	U-turn	App. Total	Left	Thru	Right	U-turn	App. Total	Left	Thru	Right	U-turn	App. Total	
07:00 AM	0	10	3	0	13	1	101	6	0	108	2	13	0	0	15	0	0	0	0	0	136
07:15 AM	0	19	4	0	23	1	124	7	0	132	0	13	0	0	13	0	0	0	0	0	168
07:30 AM	0	12	4	0	16	1	133	11	0	145	0	16	0	0	16	0	0	0	0	0	177
07:45 AM	0	19	6	0	25	3	132	7	0	142	2	27	0	0	29	0	0	0	0	0	196
Total	0	60	17	0	77	6	490	31	0	527	4	69	0	0	73	0	0	0	0	0	677
08:00 AM	0	19	8	0	27	1	154	10	0	165	1	26	0	0	27	0	0	0	0	0	219
08:15 AM	0	9	8	0	17	3	166	12	0	181	1	30	0	0	31	0	0	0	0	0	229
08:30 AM	0	10	7	0	17	1	158	14	0	173	1	20	0	0	21	0	0	0	0	0	211
08:45 AM	0	24	6	0	30	3	143	17	0	163	0	19	0	0	19	0	0	0	0	0	212
Total	0	62	29	0	91	8	621	53	0	682	3	95	0	0	98	0	0	0	0	0	871
Break																					
04:00 PM	0	25	8	0	33	9	194	7	0	210	0	4	0	0	4	0	0	0	0	0	247
04:15 PM	0	27	13	0	40	6	213	10	0	229	0	15	0	0	15	0	0	0	0	0	284
04:30 PM	0	24	5	0	29	13	244	5	0	262	0	11	0	0	11	0	0	0	0	0	302
04:45 PM	0	27	7	0	34	6	212	14	0	232	2	12	0	0	14	0	0	0	0	0	280
Total	0	103	33	0	136	34	863	36	0	933	2	42	0	0	44	0	0	0	0	0	1113
05:00 PM	0	25	9	0	34	9	262	6	0	277	2	5	0	0	7	0	0	0	0	0	318
05:15 PM	0	28	13	0	41	14	209	8	0	231	2	9	0	0	11	0	0	0	0	0	283
05:30 PM	0	30	9	0	39	10	233	8	0	251	3	13	0	0	16	0	0	0	0	0	306
05:45 PM	0	22	6	0	28	9	186	6	0	201	2	14	0	0	16	0	0	0	0	0	245
Total	0	105	37	0	142	42	890	28	0	960	9	41	0	0	50	0	0	0	0	0	1152
Grand Total	0	330	116	0	446	90	2864	148	0	3102	18	247	0	0	265	0	0	0	0	0	3813
Apprch %	0	74	26	0		2.9	92.3	4.8	0		6.8	93.2	0	0		0	0	0	0	0	
Total %	0	8.7	3	0	11.7	2.4	75.1	3.9	0	81.4	0.5	6.5	0	0	6.9	0	0	0	0	0	

Rummel, Klepper & Kahl, LLP

700 E Pratt St
Suite 500
Baltimore MD, 21202

Responsive People/Creative Solutions

File Name : Market St @ 2nd St
Site Code : 1806216
Start Date : 2/27/2020
Page No : 2

	Market St From North					2nd St From East					Market St From South					2nd St From West					
Start Time	Left	Thru	Right	U-turn	App. Total	Left	Thru	Right	U-turn	App. Total	Left	Thru	Right	U-turn	App. Total	Left	Thru	Right	U-turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	19	8	0	27	1	154	10	0	165	1	26	0	0	27	0	0	0	0	0	219
08:15 AM	0	9	8	0	17	3	166	12	0	181	1	30	0	0	31	0	0	0	0	0	229
08:30 AM	0	10	7	0	17	1	158	14	0	173	1	20	0	0	21	0	0	0	0	0	211
08:45 AM	0	24	6	0	30	3	143	17	0	163	0	19	0	0	19	0	0	0	0	0	212
Total Volume	0	62	29	0	91	8	621	53	0	682	3	95	0	0	98	0	0	0	0	0	871
% App. Total	0	68.1	31.9	0		1.2	91.1	7.8	0		3.1	96.9	0	0		0	0	0	0		
PHF	.000	.646	.906	.000	.758	.667	.935	.779	.000	.942	.750	.792	.000	.000	.790	.000	.000	.000	.000	.000	.951
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	27	7	0	34	6	212	14	0	232	2	12	0	0	14	0	0	0	0	0	280
05:00 PM	0	25	9	0	34	9	262	6	0	277	2	5	0	0	7	0	0	0	0	0	318
05:15 PM	0	28	13	0	41	14	209	8	0	231	2	9	0	0	11	0	0	0	0	0	283
05:30 PM	0	30	9	0	39	10	233	8	0	251	3	13	0	0	16	0	0	0	0	0	306
Total Volume	0	110	38	0	148	39	916	36	0	991	9	39	0	0	48	0	0	0	0	0	1187
% App. Total	0	74.3	25.7	0		3.9	92.4	3.6	0		18.8	81.2	0	0		0	0	0	0		
PHF	.000	.917	.731	.000	.902	.696	.874	.643	.000	.894	.750	.750	.000	.000	.750	.000	.000	.000	.000	.000	.933

Rummel, Klepper & Kahl, LLP

700 E Pratt St
Suite 500
Baltimore MD, 21202

Responsive People/Creative Solutions

Location: Market St @ 2nd St
County: New Castle
Weather: Clear
Counters: TK

File Name : Market St @ 2nd St
Site Code : 1806216
Start Date : 2/27/2020
Page No : 3

Groups Printed- Heavy Vehicles/Peds

Start Time	Market St From North					2nd St From East					Market St From South					2nd St From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	0	0	3	3	0	0	0	0	0	0	0	0	3	3	0	0	0	5	5	11
07:15 AM	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	6
07:30 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	3	3	0	0	0	2	2	10
07:45 AM	0	0	0	7	7	0	0	0	2	2	0	0	0	1	1	0	0	0	6	6	16
Total	0	0	0	17	17	0	0	0	4	4	0	0	0	7	7	0	0	0	15	15	43
08:00 AM	0	0	0	3	3	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	5
08:15 AM	0	0	0	16	16	0	0	0	1	1	0	0	0	1	1	0	0	0	9	9	27
08:30 AM	0	0	0	6	6	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	11
08:45 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	1	1	0	0	0	3	3	7
Total	0	0	0	27	27	0	0	0	3	3	0	0	0	3	3	0	0	0	17	17	50
Break																					
04:00 PM	0	0	0	2	2	0	2	1	0	3	0	0	0	1	1	0	0	0	4	4	10
04:15 PM	0	2	0	7	9	0	0	1	1	2	0	0	0	1	1	0	0	0	2	2	14
04:30 PM	0	0	0	1	1	0	7	1	0	8	0	0	0	0	0	0	0	0	1	1	10
04:45 PM	0	3	0	9	12	0	4	1	3	8	0	1	0	0	1	0	0	0	5	5	26
Total	0	5	0	19	24	0	13	4	4	21	0	1	0	2	3	0	0	0	12	12	60
05:00 PM	0	1	1	11	13	0	5	2	2	9	0	0	0	0	0	0	0	0	4	4	26
05:15 PM	0	2	0	4	6	0	4	2	0	6	0	1	0	1	2	0	0	0	5	5	19
05:30 PM	0	0	0	7	7	0	5	1	2	8	0	0	0	1	1	0	0	0	5	5	21
05:45 PM	0	2	0	0	2	0	4	2	0	6	0	1	0	0	1	0	0	0	2	2	11
Total	0	5	1	22	28	0	18	7	4	29	0	2	0	2	4	0	0	0	16	16	77
Grand Total	0	10	1	85	96	0	31	11	15	57	0	3	0	14	17	0	0	0	60	60	230
Apprch %	0	10.4	1	88.5		0	54.4	19.3	26.3		0	17.6	0	82.4		0	0	0	100		
Total %	0	4.3	0.4	37	41.7	0	13.5	4.8	6.5	24.8	0	1.3	0	6.1	7.4	0	0	0	26.1	26.1	

Rummel, Klepper & Kahl, LLP

700 E Pratt St
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Baltimore MD, 21202

Responsive People/Creative Solutions

File Name : Market St @ 2nd St
Site Code : 1806216
Start Date : 2/27/2020
Page No : 4

	Market St From North					2nd St From East					Market St From South					2nd St From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	7	7	0	0	0	2	2	0	0	0	1	1	0	0	0	6	6	16
08:00 AM	0	0	0	3	3	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	5
08:15 AM	0	0	0	16	16	0	0	0	1	1	0	0	0	1	1	0	0	0	9	9	27
08:30 AM	0	0	0	6	6	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	11
Total Volume	0	0	0	32	32	0	0	0	4	4	0	0	0	3	3	0	0	0	20	20	59
% App. Total	0	0	0	100		0	0	0	100		0	0	0	100		0	0	0	100		
PHF	.000	.000	.000	.500	.500	.000	.000	.000	.500	.500	.000	.000	.000	.750	.750	.000	.000	.000	.556	.556	.546
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	3	0	9	12	0	4	1	3	8	0	1	0	0	1	0	0	0	5	5	26
05:00 PM	0	1	1	11	13	0	5	2	2	9	0	0	0	0	0	0	0	0	4	4	26
05:15 PM	0	2	0	4	6	0	4	2	0	6	0	1	0	1	2	0	0	0	5	5	19
05:30 PM	0	0	0	7	7	0	5	1	2	8	0	0	0	1	1	0	0	0	5	5	21
Total Volume	0	6	1	31	38	0	18	6	7	31	0	2	0	2	4	0	0	0	19	19	92
% App. Total	0	15.8	2.6	81.6		0	58.1	19.4	22.6		0	50	0	50		0	0	0	100		
PHF	.000	.500	.250	.705	.731	.000	.900	.750	.583	.861	.000	.500	.000	.500	.500	.000	.000	.000	.950	.950	.885

Rummel, Klepper & Kahl, LLP

700 E Pratt St
Suite 500
Baltimore MD, 21202

Responsive People/Creative Solutions

Location: Market St @ 2nd St
County: New Castle
Weather: Clear
Counters: TK

File Name : Market St @ 2nd St
Site Code : 1806216
Start Date : 2/27/2020
Page No : 5

Groups Printed- Bikes

[illegible]

Rummel, Klepper & Kahl, LLP

700 E Pratt St
Suite 500
Baltimore MD, 21202

Responsive People/Creative Solutions

File Name : Market St @ 2nd St

Site Code : 1806216

Start Date : 2/27/2020

Page No : 6

[illegible]

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

[illegible]



Rummel, Klepper & Kahl, LLP
700 East Pratt Street

Baltimore, Maryland, United States 21202
(800) 787-3755 tkastner@rkk.com
Consulting Engineers

Count Name: Martin Luther King Jr Blvd @
Market St - AM
Site Code:
Start Date: 02/27/2020
Page No: 1

Turning Movement Data

Start Time	Market St Southbound						Martin Luther King Jr Blvd Westbound						Market St Northbound						Martin Luther King Jr Blvd Eastbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	6	3	0	0	10	68	55	0	0	0	123	0	0	0	0	10	0	15	133	97	2	5	247	380
7:15 AM	0	16	5	0	0	21	69	65	0	3	1	137	0	0	0	0	3	0	11	114	65	1	4	191	349
7:30 AM	3	11	1	0	0	15	69	62	0	1	1	132	0	0	0	0	7	0	20	174	87	1	1	282	429
7:45 AM	1	19	0	0	0	20	80	82	0	2	1	164	0	0	0	0	8	0	25	124	75	2	5	226	410
Hourly Total	5	52	9	0	0	66	286	264	0	6	3	556	0	0	0	0	28	0	71	545	324	6	15	946	1568
8:00 AM	3	18	1	0	0	22	70	56	0	3	1	129	0	0	0	0	4	0	29	174	81	2	2	286	437
8:15 AM	2	9	3	0	0	14	77	90	0	3	0	170	0	0	0	0	11	0	25	124	81	1	7	231	415
8:30 AM	1	6	2	0	0	9	75	81	0	1	0	157	0	0	0	0	10	0	27	173	87	2	5	289	455
8:45 AM	1	17	5	0	0	23	71	75	0	3	2	149	0	0	0	0	1	0	16	125	86	0	1	227	399
Hourly Total	7	50	11	0	0	68	293	302	0	10	3	605	0	0	0	0	26	0	97	596	335	5	15	1033	1706
Grand Total	12	102	20	0	0	134	579	566	0	16	6	1161	0	0	0	0	54	0	168	1141	659	11	30	1979	3274
Approach %	9.0	76.1	14.9	0.0	-	-	49.9	48.8	0.0	1.4	-	-	0.0	0.0	0.0	0.0	-	-	8.5	57.7	33.3	0.6	-	-	-
Total %	0.4	3.1	0.6	0.0	-	4.1	17.7	17.3	0.0	0.5	-	35.5	0.0	0.0	0.0	0.0	-	0.0	5.1	34.9	20.1	0.3	-	60.4	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.1	0.0	0.0	-	0.1	0.0
Cars	7	90	17	0	-	114	462	461	0	1	-	924	0	0	0	0	-	0	152	979	505	11	-	1647	2685
% Cars	58.3	88.2	85.0	-	-	85.1	79.8	81.4	-	6.3	-	79.6	-	-	-	-	-	-	90.5	85.8	76.6	100.0	-	83.2	82.0
Light Goods Vehicles	1	6	2	0	-	9	54	51	0	0	-	105	0	0	0	0	-	0	7	101	118	0	-	226	340
% Light Goods Vehicles	8.3	5.9	10.0	-	-	6.7	9.3	9.0	-	0.0	-	9.0	-	-	-	-	-	-	4.2	8.9	17.9	0.0	-	11.4	10.4
Buses	4	5	1	0	-	10	48	22	0	15	-	85	0	0	0	0	-	0	4	50	10	0	-	64	159
% Buses	33.3	4.9	5.0	-	-	7.5	8.3	3.9	-	93.8	-	7.3	-	-	-	-	-	-	2.4	4.4	1.5	0.0	-	3.2	4.9
Single-Unit Trucks	0	0	0	0	-	0	13	29	0	0	-	42	0	0	0	0	-	0	5	10	23	0	-	38	80
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	2.2	5.1	-	0.0	-	3.6	-	-	-	-	-	-	3.0	0.9	3.5	0.0	-	1.9	2.4
Articulated Trucks	0	0	0	0	-	0	2	3	0	0	-	5	0	0	0	0	-	0	0	0	3	0	-	3	8
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.3	0.5	-	0.0	-	0.4	-	-	-	-	-	-	0.0	0.0	0.5	0.0	-	0.2	0.2
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	1.0	0.0	-	-	0.7	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	54	-	-	-	-	-	30	-	-

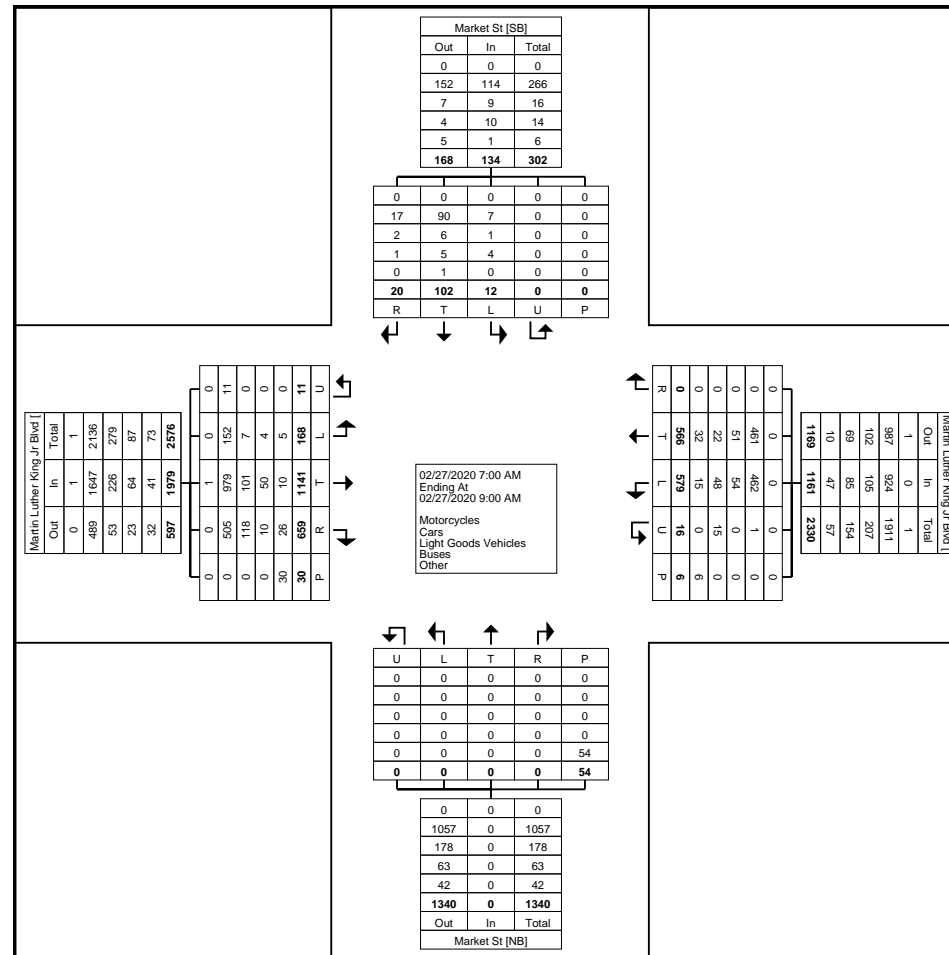
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Turning Movement Data Plot



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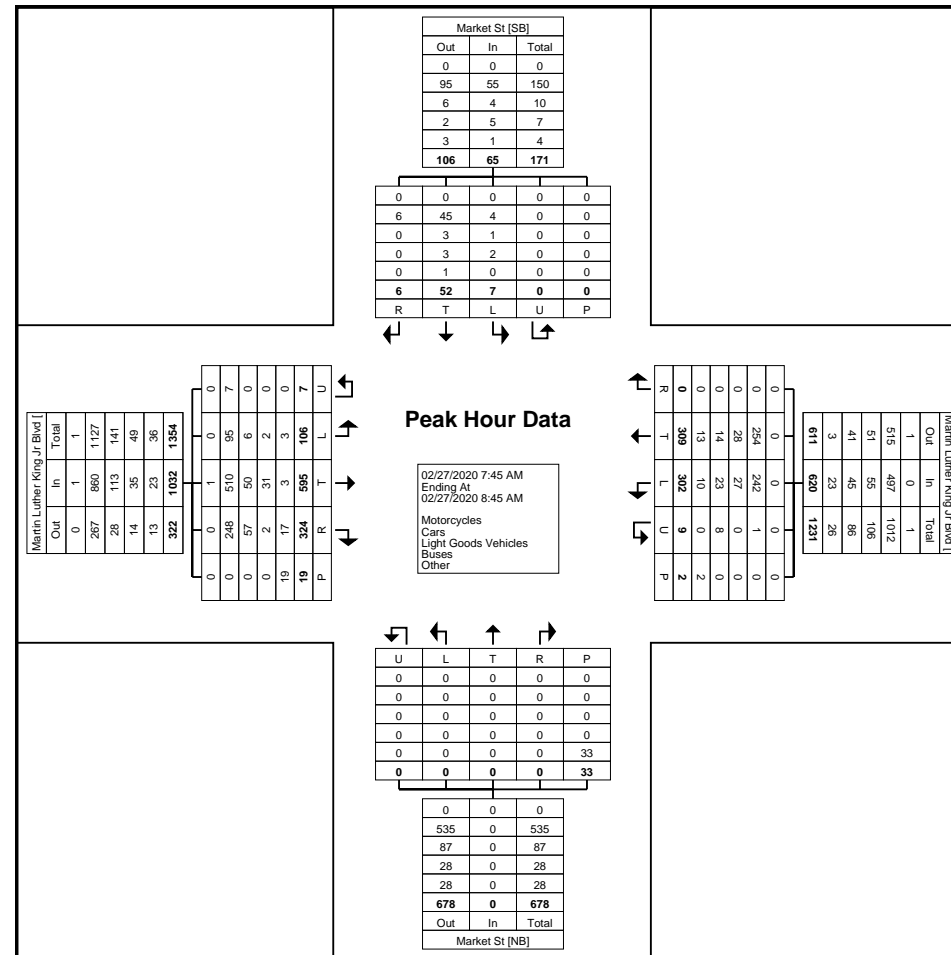
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Market St Southbound						Martin Luther King Jr Blvd Westbound						Market St Northbound						Martin Luther King Jr Blvd Eastbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	1	19	0	0	0	20	80	82	0	2	1	164	0	0	0	0	8	0	25	124	75	2	5	226	410
8:00 AM	3	18	1	0	0	22	70	56	0	3	1	129	0	0	0	0	4	0	29	174	81	2	2	286	437
8:15 AM	2	9	3	0	0	14	77	90	0	3	0	170	0	0	0	0	11	0	25	124	81	1	7	231	415
8:30 AM	1	6	2	0	0	9	75	81	0	1	0	157	0	0	0	0	10	0	27	173	87	2	5	289	455
Total	7	52	6	0	0	65	302	309	0	9	2	620	0	0	0	0	33	0	106	595	324	7	19	1032	1717
Approach %	10.8	80.0	9.2	0.0	-	-	48.7	49.8	0.0	1.5	-	-	0.0	0.0	0.0	0.0	-	-	10.3	57.7	31.4	0.7	-	-	-
Total %	0.4	3.0	0.3	0.0	-	3.8	17.6	18.0	0.0	0.5	-	36.1	0.0	0.0	0.0	0.0	-	0.0	6.2	34.7	18.9	0.4	-	60.1	-
PHF	0.583	0.684	0.500	0.000	-	0.739	0.944	0.858	0.000	0.750	-	0.912	0.000	0.000	0.000	0.000	-	0.000	0.914	0.855	0.931	0.875	-	0.893	0.943
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.2	0.0	0.0	-	0.1	0.1
Cars	4	45	6	0	-	55	242	254	0	1	-	497	0	0	0	0	-	0	95	510	248	7	-	860	1412
% Cars	57.1	86.5	100.0	-	-	84.6	80.1	82.2	-	11.1	-	80.2	-	-	-	-	-	-	89.6	85.7	76.5	100.0	-	83.3	82.2
Light Goods Vehicles	1	3	0	0	-	4	27	28	0	0	-	55	0	0	0	0	-	0	6	50	57	0	-	113	172
% Light Goods Vehicles	14.3	5.8	0.0	-	-	6.2	8.9	9.1	-	0.0	-	8.9	-	-	-	-	-	-	5.7	8.4	17.6	0.0	-	10.9	10.0
Buses	2	3	0	0	-	5	23	14	0	8	-	45	0	0	0	0	-	0	2	31	2	0	-	35	85
% Buses	28.6	5.8	0.0	-	-	7.7	7.6	4.5	-	88.9	-	7.3	-	-	-	-	-	-	1.9	5.2	0.6	0.0	-	3.4	5.0
Single-Unit Trucks	0	0	0	0	-	0	10	13	0	0	-	23	0	0	0	0	-	0	3	3	16	0	-	22	45
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	3.3	4.2	-	0.0	-	3.7	-	-	-	-	-	-	2.8	0.5	4.9	0.0	-	2.1	2.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.3	0.0	-	0.1	0.1
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	1.9	0.0	-	-	1.5	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	33	-	-	-	-	-	19	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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Turning Movement Peak Hour Data Plot (7:45 AM)



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Turning Movement Data

Start Time	Market St Southbound						Martin Luther King Jr Blvd Westbound						Market St Northbound						Martin Luther King Jr Blvd Eastbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	1	34	3	0	0	38	178	134	0	3	0	315	0	0	0	0	8	0	6	115	128	1	3	250	603
4:15 PM	1	34	6	0	0	41	222	148	0	1	1	371	0	0	0	0	13	0	11	111	119	0	3	241	653
4:30 PM	0	37	4	0	1	41	199	148	0	4	0	351	0	0	0	0	10	0	11	114	152	0	1	277	669
4:45 PM	2	41	4	0	0	47	228	150	0	2	3	380	0	0	0	0	6	0	12	89	113	1	7	215	642
Hourly Total	4	146	17	0	1	167	827	580	0	10	4	1417	0	0	0	0	37	0	40	429	512	2	14	983	2567
5:00 PM	2	40	6	0	0	48	203	129	0	6	0	338	0	0	0	0	7	0	6	115	165	0	6	286	672
5:15 PM	1	52	8	0	0	61	214	195	0	1	0	410	0	0	0	0	4	0	9	90	118	1	8	218	689
5:30 PM	1	40	8	0	0	49	168	161	2	5	2	336	0	0	0	0	6	0	14	106	130	4	6	254	639
5:45 PM	1	35	6	0	2	42	165	147	0	2	0	314	0	0	0	0	2	0	12	99	101	3	5	215	571
Hourly Total	5	167	28	0	2	200	750	632	2	14	2	1398	0	0	0	0	19	0	41	410	514	8	25	973	2571
Grand Total	9	313	45	0	3	367	1577	1212	2	24	6	2815	0	0	0	0	56	0	81	839	1026	10	39	1956	5138
Approach %	2.5	85.3	12.3	0.0	-	-	56.0	43.1	0.1	0.9	-	-	0.0	0.0	0.0	0.0	-	-	4.1	42.9	52.5	0.5	-	-	-
Total %	0.2	6.1	0.9	0.0	-	7.1	30.7	23.6	0.0	0.5	-	54.8	0.0	0.0	0.0	0.0	-	0.0	1.6	16.3	20.0	0.2	-	38.1	-
Motorcycles	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.1	0.0	0.0	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars	5	293	45	0	-	343	1439	1113	2	5	-	2559	0	0	0	0	-	0	73	752	881	10	-	1716	4618
% Cars	55.6	93.6	100.0	-	-	93.5	91.2	91.8	100.0	20.8	-	90.9	-	-	-	-	-	-	90.1	89.6	85.9	100.0	-	87.7	89.9
Light Goods Vehicles	0	14	0	0	-	14	73	85	0	0	-	158	0	0	0	0	-	0	4	49	99	0	-	152	324
% Light Goods Vehicles	0.0	4.5	0.0	-	-	3.8	4.6	7.0	0.0	0.0	-	5.6	-	-	-	-	-	-	4.9	5.8	9.6	0.0	-	7.8	6.3
Buses	4	6	0	0	-	10	57	6	0	19	-	82	0	0	0	0	-	0	4	36	10	0	-	50	142
% Buses	44.4	1.9	0.0	-	-	2.7	3.6	0.5	0.0	79.2	-	2.9	-	-	-	-	-	-	4.9	4.3	1.0	0.0	-	2.6	2.8
Single-Unit Trucks	0	0	0	0	-	0	7	8	0	0	-	15	0	0	0	0	-	0	0	2	29	0	-	31	46
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.4	0.7	0.0	0.0	-	0.5	-	-	-	-	-	-	0.0	0.2	2.8	0.0	-	1.6	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	7	0	-	7	7
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.7	0.0	-	0.4	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	2.6	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	6	-	-	-	-	-	56	-	-	-	-	-	38	-	-

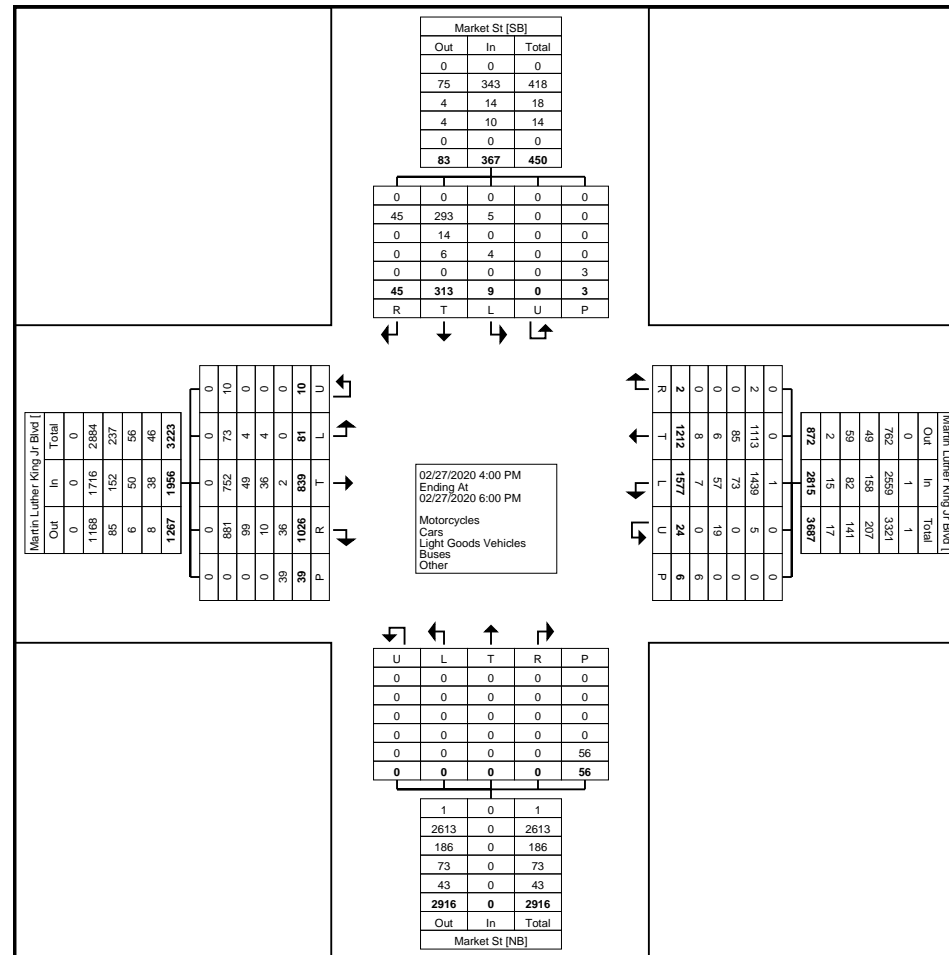
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	97.4	-	-
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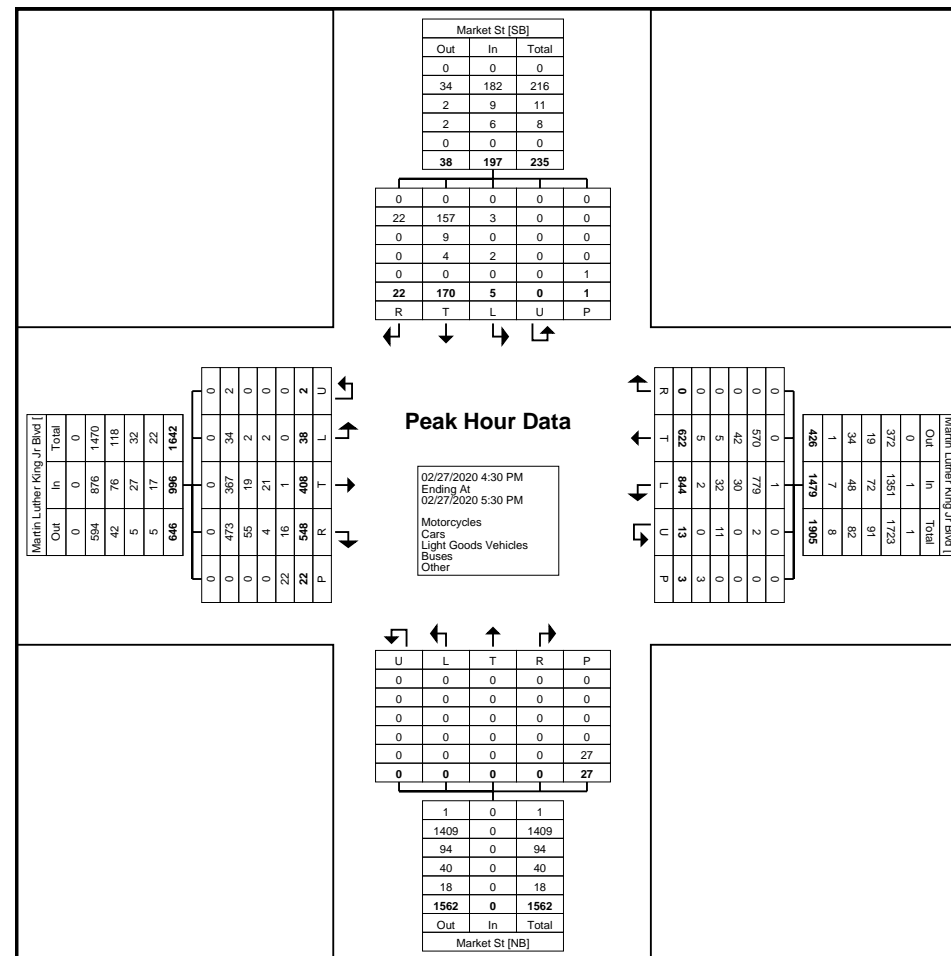
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Market St Southbound						Martin Luther King Jr Blvd Westbound						Market St Northbound						Martin Luther King Jr Blvd Eastbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	0	37	4	0	1	41	199	148	0	4	0	351	0	0	0	0	10	0	11	114	152	0	1	277	669
4:45 PM	2	41	4	0	0	47	228	150	0	2	3	380	0	0	0	0	6	0	12	89	113	1	7	215	642
5:00 PM	2	40	6	0	0	48	203	129	0	6	0	338	0	0	0	0	7	0	6	115	165	0	6	286	672
5:15 PM	1	52	8	0	0	61	214	195	0	1	0	410	0	0	0	0	4	0	9	90	118	1	8	218	689
Total	5	170	22	0	1	197	844	622	0	13	3	1479	0	0	0	0	27	0	38	408	548	2	22	996	2672
Approach %	2.5	86.3	11.2	0.0	-	-	57.1	42.1	0.0	0.9	-	-	0.0	0.0	0.0	0.0	-	-	3.8	41.0	55.0	0.2	-	-	-
Total %	0.2	6.4	0.8	0.0	-	7.4	31.6	23.3	0.0	0.5	-	55.4	0.0	0.0	0.0	0.0	-	0.0	1.4	15.3	20.5	0.1	-	37.3	-
PHF	0.625	0.817	0.688	0.000	-	0.807	0.925	0.797	0.000	0.542	-	0.902	0.000	0.000	0.000	0.000	-	0.000	0.792	0.887	0.830	0.500	-	0.871	0.970
Motorcycles	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.1	0.0	-	0.0	-	0.1	-	-	-	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars	3	157	22	0	-	182	779	570	0	2	-	1351	0	0	0	0	-	0	34	367	473	2	-	876	2409
% Cars	60.0	92.4	100.0	-	-	92.4	92.3	91.6	-	15.4	-	91.3	-	-	-	-	-	-	89.5	90.0	86.3	100.0	-	88.0	90.2
Light Goods Vehicles	0	9	0	0	-	9	30	42	0	0	-	72	0	0	0	0	-	0	2	19	55	0	-	76	157
% Light Goods Vehicles	0.0	5.3	0.0	-	-	4.6	3.6	6.8	-	0.0	-	4.9	-	-	-	-	-	-	5.3	4.7	10.0	0.0	-	7.6	5.9
Buses	2	4	0	0	-	6	32	5	0	11	-	48	0	0	0	0	-	0	2	21	4	0	-	27	81
% Buses	40.0	2.4	0.0	-	-	3.0	3.8	0.8	-	84.6	-	3.2	-	-	-	-	-	-	5.3	5.1	0.7	0.0	-	2.7	3.0
Single-Unit Trucks	0	0	0	0	-	0	2	5	0	0	-	7	0	0	0	0	-	0	0	1	12	0	-	13	20
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.2	0.8	-	0.0	-	0.5	-	-	-	-	-	-	0.0	0.2	2.2	0.0	-	1.3	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	4	0	-	4	4
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.7	0.0	-	0.4	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	4.5	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	27	-	-	-	-	-	21	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	95.5	-	-

Rummel, Klepper & Kahl, LLP
700 East Pratt Street

Baltimore, Maryland, United States 21202
(800) 787-3755 tkastner@rkk.com
Consulting Engineers

Count Name: Martin Luther King Jr Blvd @
Market St - PM
Site Code:
Start Date: 02/27/2020
Page No: 5



Turning Movement Peak Hour Data Plot (4:30 PM)



Rummel, Klepper & Kahl, LLP
700 East Pratt Street

Baltimore, Maryland, United States 21202
(800) 787-3755 tkastner@rkk.com
Consulting Engineers

Count Name: Martin Luther King Jr Blvd @
Market St - PM
Site Code:
Start Date: 02/27/2020
Page No: 6

File Name: M:\standards\Traffic\Counts\DE\2008\Market St@Shipley St.ppd

Start Date: 1/16/2008

Start Time: 7:00:00 AM

Site Code: 1041301A

Comment 1: Location: Market St & Shipley St

Comment 2: County: New Castle

Comment 3: Weather: Cloudy

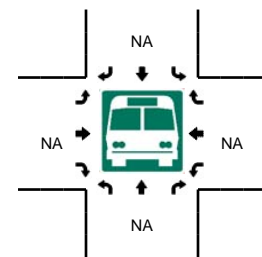
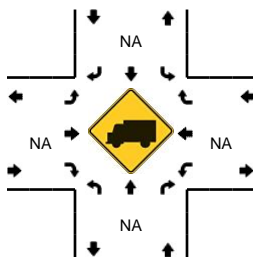
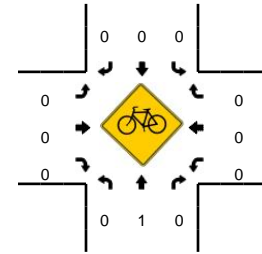
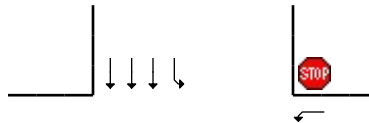
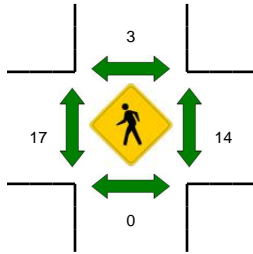
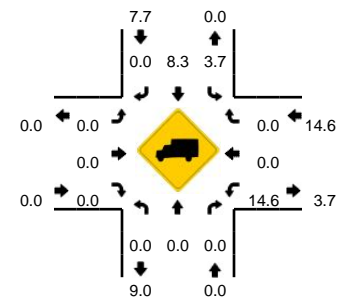
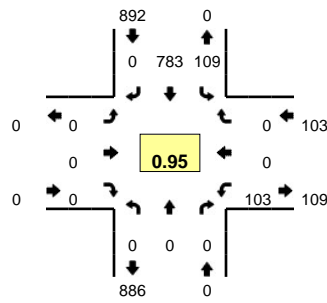
Comment 4: Counters: LH

Start Time	Market Street From North				Rosa Parks Street From East				Market Street From South				Shipley Street From West			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
07:00 AM	7	138	10	0	0	8	8	0	0	0	0	0	6	1	0	0
07:15 AM	2	165	3	0	0	0	11	0	0	0	0	0	10	1	0	0
07:30 AM	8	165	18	0	0	4	9	1	0	0	0	0	13	4	0	0
07:45 AM	12	176	19	0	0	1	2	0	0	0	0	0	27	6	0	0
08:00 AM	7	180	13	0	0	5	8	0	0	0	0	0	17	7	0	0
08:15 AM	13	167	18	0	0	1	3	0	0	0	0	0	13	6	0	0
08:30 AM	11	164	12	0	0	6	8	0	0	0	0	0	14	5	0	0
08:45 AM	9	179	11	0	0	3	4	0	0	0	0	0	12	3	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	7	334	4	0	0	9	15	0	0	0	0	0	21	2	0	0
04:15 PM	8	331	3	0	0	7	13	0	0	0	0	0	30	2	0	0
04:30 PM	6	365	5	0	0	13	9	0	0	0	0	0	34	1	0	0
04:45 PM	7	403	7	0	0	4	15	0	0	0	0	0	40	6	0	0
05:00 PM	8	407	5	0	0	23	34	0	0	0	0	0	56	4	0	0
05:15 PM	5	425	2	0	0	14	25	0	0	0	0	0	44	2	0	0
05:30 PM	8	406	4	0	0	24	17	0	0	0	0	0	35	2	0	0
05:45 PM	19	338	5	0	0	18	23	0	0	0	0	0	37	1	0	0
06:00 PM	8	269	6	0	0	17	24	0	0	0	0	0	24	1	0	0
06:15 PM	6	243	4	0	0	6	12	0	0	0	0	0	19	2	0	0

LOCATION: S Market St -- A St
CITY/STATE: Wilmington, DE

QC JOB #: 13798007
DATE: Tue, May 17 2016

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



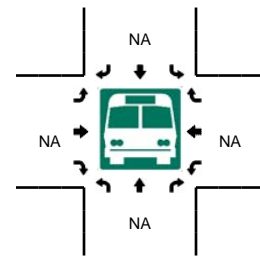
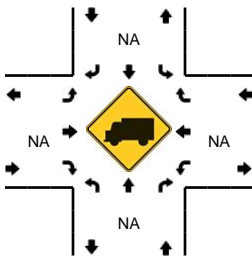
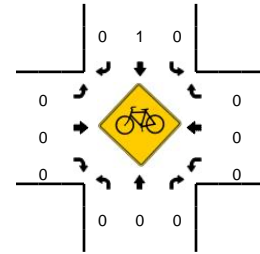
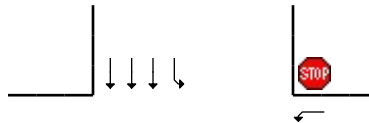
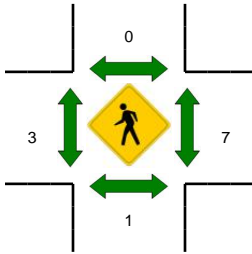
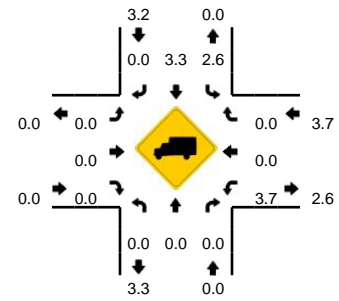
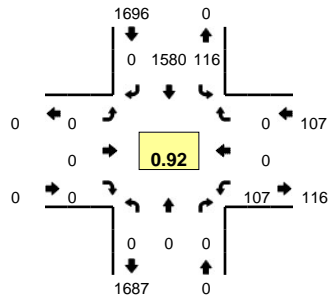
15-Min Count Period Beginning At	S Market St (Northbound)				S Market St (Southbound)				A St (Eastbound)				A St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	15	157	0	0	0	0	0	0	21	0	0	0	193	
7:15 AM	0	0	0	0	18	169	0	0	0	0	0	0	23	0	0	0	210	
7:30 AM	0	0	0	0	31	198	0	0	0	0	0	0	33	0	0	0	262	
7:45 AM	0	0	0	0	33	207	0	0	0	0	0	0	23	0	0	0	263	928
8:00 AM	0	0	0	0	28	186	0	0	0	0	0	0	32	0	0	0	246	981
8:15 AM	0	0	0	0	17	192	0	0	0	0	0	0	15	0	0	0	224	995
8:30 AM	0	0	0	0	27	160	0	0	0	0	0	0	17	0	0	0	204	937
8:45 AM	0	0	0	0	26	195	0	0	0	0	0	0	14	0	0	0	235	909
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	132	828	0	0	0	0	0	0	92	0	0	0	1052	
Heavy Trucks	0	0	0	0	4	84	0	0	0	0	0	0	16	0	0	0	104	
Pedestrians	0	0	0	0	4	4	0	0	12	0	0	0	20	0	0	0	36	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: S Market St -- A St
CITY/STATE: Wilmington, DE

QC JOB #: 13798008
DATE: Tue, May 17 2016

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

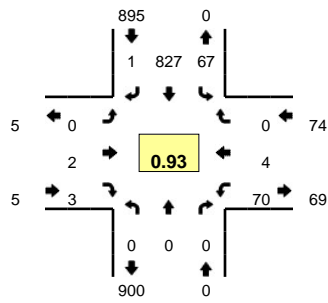


15-Min Count Period Beginning At	S Market St (Northbound)				S Market St (Southbound)				A St (Eastbound)				A St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	26	370	0	0	0	0	0	0	28	0	0	0	424	
4:15 PM	0	0	0	0	19	366	0	0	0	0	0	0	22	0	0	0	407	
4:30 PM	0	0	0	0	31	357	0	0	0	0	0	0	29	0	0	0	417	
4:45 PM	0	0	0	0	19	381	0	0	0	0	0	0	24	0	0	0	424	1672
5:00 PM	0	0	0	0	23	385	0	0	0	0	0	0	29	0	0	0	437	1685
5:15 PM	0	0	0	0	37	425	0	0	0	0	0	0	30	0	0	0	492	1770
5:30 PM	0	0	0	0	37	389	0	0	0	0	0	0	24	0	0	0	450	1803
5:45 PM	0	0	0	0	30	334	0	0	0	0	0	0	28	0	0	0	392	1771
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	148	1700	0	0	0	0	0	0	120	0	0	0	1968	
Heavy Trucks	0	0	0	0	4	60	0	0	0	0	0	0	4	0	0	0	68	
Pedestrians		4				0				0				12			16	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

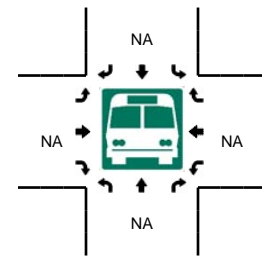
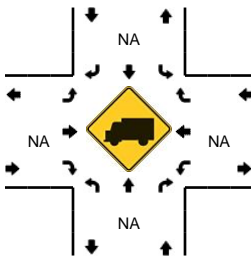
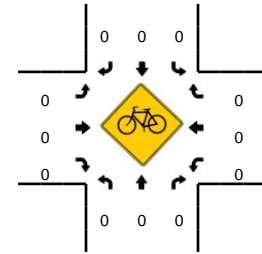
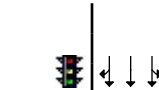
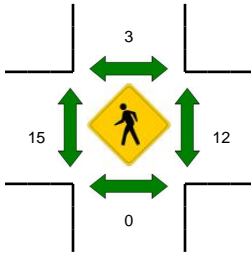
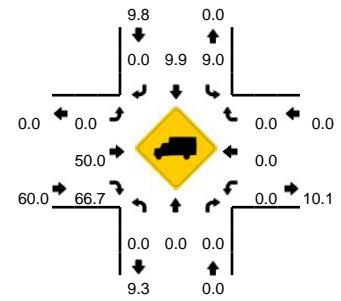
Comments:

LOCATION: S Market St -- Shop Rite
CITY/STATE: Wilmington, DE

QC JOB #: 13798003
DATE: Tue, May 17 2016



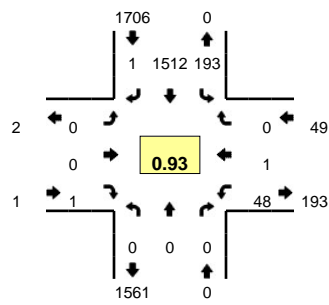
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

[illegible]

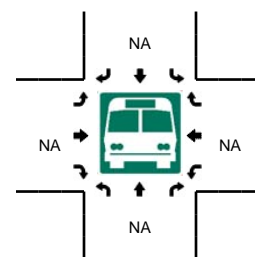
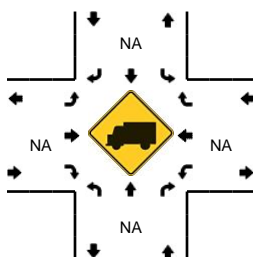
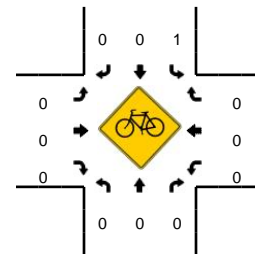
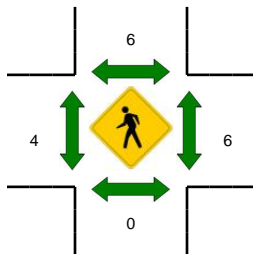
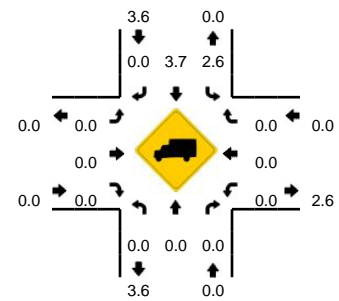
Comments:

LOCATION: S Market St -- Shop Rite
CITY/STATE: Wilmington, DE

QC JOB #: 13798004
DATE: Tue, May 17 2016



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



15-Min Count Period Beginning At	S Market St (Northbound)				S Market St (Southbound)				Shop Rite (Eastbound)				Shop Rite (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	46	364	1	0	0	3	0	0	9	1	0	0	424	
4:15 PM	0	0	0	0	51	335	0	0	0	0	1	0	10	0	0	0	397	
4:30 PM	0	0	0	0	56	349	0	0	0	1	1	0	20	0	0	0	427	
4:45 PM	0	0	0	0	54	352	0	0	0	0	1	0	15	0	0	0	422	1670
5:00 PM	0	0	0	0	43	379	0	0	0	0	0	0	9	0	0	0	431	1677
5:15 PM	0	0	0	0	45	406	1	0	0	0	0	0	17	1	0	0	470	1750
5:30 PM	0	0	0	0	51	375	0	0	0	0	0	0	7	0	0	0	433	1756
5:45 PM	0	0	0	0	59	304	0	0	0	0	0	0	18	0	0	0	381	1715
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	180	1624	4	0	0	0	0	0	68	4	0	0	1880	
Heavy Trucks	0	0	0	0	0	72	0	0	0	0	0	0	0	0	0	0	72	
Pedestrians	0	0	0	0	8	8	0	0	4	4	0	0	8	8	0	0	20	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

File Name: M:\standards\Traffic\Counts\DE\2008\Walnut St@Market St Connector.ppd

Start Date: 2/7/2008

Start Time: 6:00:00 AM

Site Code: 10612402

Comment 1: Location:Walnut St.&Market St. connect.

Comment 2: County: New Castle

Comment 3: Weather: Partly Cloudy

Comment 4: Counters: RMF

Start Time	Walnut Street From North				Partial Side Road to Cleaning Supplies/Jr. Achievement From East				Walnut Street From South				Market Street Connector From West			
	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn
06:00 AM	0	0	0	0	0	0	0	0	0	161	0	0	0	0	4	0
06:15 AM	0	0	0	0	1	0	0	0	2	179	0	0	0	0	3	0
06:30 AM	0	0	0	0	0	0	0	0	3	266	0	0	0	0	6	0
06:45 AM	0	0	0	0	0	0	0	0	5	358	0	0	0	3	6	0
07:00 AM	0	0	0	0	0	0	0	0	3	398	0	0	0	1	10	0
07:15 AM	0	0	0	0	0	0	0	0	6	487	0	0	0	4	11	0
07:30 AM	0	0	0	0	0	0	0	0	5	519	0	0	0	7	12	0
07:45 AM	0	0	0	0	0	0	0	0	8	644	0	0	0	5	8	0
08:00 AM	0	0	0	0	0	0	0	0	7	531	0	0	0	3	13	0
08:15 AM	0	0	0	0	0	0	0	0	6	518	0	0	0	3	8	0
08:30 AM	0	0	0	0	0	0	0	0	4	470	0	0	0	3	16	0
08:45 AM	0	0	0	0	1	0	0	0	6	421	0	0	0	1	16	0
09:00 AM	0	0	0	0	3	0	0	0	3	366	0	0	0	2	12	0
09:15 AM	0	0	0	0	3	0	0	0	10	271	0	0	0	3	28	0
09:30 AM	0	0	0	0	1	0	0	0	2	230	0	0	0	5	8	0
09:45 AM	0	0	0	0	6	0	0	0	5	212	0	0	0	1	18	0
10:00 AM	0	0	0	0	2	0	0	0	4	142	0	0	0	2	27	0
10:15 AM	0	0	0	0	3	0	0	0	4	180	0	0	0	1	19	0
10:30 AM	0	0	0	0	5	0	0	0	2	191	0	0	0	3	9	0
10:45 AM	0	0	0	0	3	0	0	0	7	202	0	0	0	4	17	0
11:00 AM	0	0	0	0	3	0	0	0	2	182	0	0	0	0	29	0
11:15 AM	0	0	0	0	4	0	0	0	0	193	0	0	0	2	14	0
11:30 AM	0	0	0	0	1	0	0	0	8	203	0	0	0	2	21	0
11:45 AM	0	0	0	0	0	0	0	0	1	209	0	0	0	3	27	0
12:00 PM	0	0	0	0	0	0	0	0	5	199	0	0	0	3	20	0
12:15 PM	0	0	0	0	5	0	0	0	7	204	0	0	0	3	26	0
12:30 PM	0	0	0	0	0	0	0	0	6	226	0	0	0	2	23	0
12:45 PM	0	0	0	0	4	0	0	0	3	217	0	0	0	5	24	0
01:00 PM	0	0	0	0	3	0	0	0	4	221	0	0	0	5	18	0
01:15 PM	0	0	0	0	4	0	0	0	1	203	0	0	0	1	22	0
01:30 PM	0	0	0	0	2	0	0	0	5	230	0	0	0	3	20	0
01:45 PM	0	0	0	0	9	0	0	0	6	186	0	0	0	4	18	0
02:00 PM	0	0	0	0	6	0	0	0	0	208	0	0	0	2	27	0
02:15 PM	0	0	0	0	3	0	0	0	6	206	0	0	0	2	23	0
02:30 PM	0	0	0	0	0	0	0	0	3	268	0	0	0	3	23	0
02:45 PM	0	0	0	0	2	0	0	0	5	239	0	0	0	2	26	0
03:00 PM	0	0	0	0	2	0	0	0	0	237	0	0	0	2	18	0
03:15 PM	0	0	0	0	1	0	0	0	1	212	0	0	0	4	25	0
03:30 PM	0	0	0	0	3	0	0	0	3	211	0	0	0	0	26	0
03:45 PM	0	0	0	0	3	0	0	0	4	209	0	0	0	0	27	0
04:00 PM	0	0	0	0	0	0	0	0	3	224	0	0	0	2	24	0
04:15 PM	0	0	0	0	0	0	0	0	4	219	0	0	0	5	22	0
04:30 PM	0	0	0	0	0	0	0	0	3	245	1	0	0	2	21	0
04:45 PM	0	0	0	0	0	0	0	0	2	184	1	0	0	3	25	0
05:00 PM	0	0	0	0	0	0	0	0	0	228	0	0	0	4	29	0
05:15 PM	0	0	0	0	0	0	0	0	5	206	1	0	0	3	26	0
05:30 PM	0	0	0	0	0	0	0	0	0	206	0	0	0	2	26	0
05:45 PM	0	0	0	0	0	0	0	0	0	189	0	0	0	3	32	0
06:00 PM	0	0	0	0	0	0	0	0	1	168	0	0	0	3	29	0
06:15 PM	0	0	0	0	0	0	0	0	0	191	0	0	0	0	30	0
06:30 PM	0	0	0	0	0	0	0	0	0	179	0	0	0	1	20	0
06:45 PM	0	0	0	0	0	0	0	0	0	164	0	0	0	0	10	0



Location: King St/MLK Blvd & 2nd St

Date: 5/17/2016

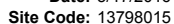
Site Code: 13798015

Start Time	King St Southbound					2nd St Westbound					King St Northbound					Martin Luther King Blvd From Southwest					2nd St Eastbound				
	Right	Thru to MLK Blvd	Thru	Left	U-Turns	Right	Thru	Left to MLK Blvd	Left	U-Turns	Right	Thru	Left	Left to MLK Blvd	U-Turns	Right to King St	Right to 2nd St	Thru to King St	Left to 2nd St	U-Turns	Right to MLK Blvd	Right	Thru	Left	U-Turns
07:00 AM	16	88	27	0	0	0	98	46	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	23	112	34	0	0	0	108	36	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	34	134	33	0	0	0	147	41	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	30	130	48	0	0	0	149	49	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	30	145	50	0	0	0	130	43	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	24	146	66	0	0	0	142	46	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	29	128	55	0	0	0	133	49	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	28	119	52	0	0	0	157	61	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	214	1002	365	0	0	0	1064	371	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour: 8:00 AM - 9:00 AM

Peak 15-Min: 8:15 AM - 8:30 AM

PHF: 0.961

[illegible]



Location: King St/MLK Blvd & 2nd St

Date: 5/17/2016

Site Code: 13798015

Start Time	King St Southbound					2nd St Westbound					King St Northbound					Martin Luther King Blvd From Southwest					2nd St Eastbound				
	Right	Thru to MLK Blvd	Thru	Left		Right	Thru	Left to MLK Blvd	Left		Right	Thru	Left	Left to MLK Blvd		Right to King St	Right to 2nd St	Thru to King St	Left to 2nd St		Right to MLK Blvd	Right	Thru	Left	
07:00 AM	1	12	6	0		0	3	8	0		0	0	0	0		0	0	0	0		0	0	0	0	
07:15 AM	2	12	5	0		0	7	5	0		0	0	0	0		0	0	0	0		0	0	0	0	
07:30 AM	2	20	5	0		0	5	7	0		0	0	0	0		0	0	0	0		0	0	0	0	
07:45 AM	6	20	7	0		0	7	7	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:00 AM	8	18	7	0		0	6	5	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:15 AM	5	12	9	0		0	4	5	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:30 AM	7	13	8	0		0	10	10	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:45 AM	8	11	6	0		0	7	10	0		0	0	0	0		0	0	0	0		0	0	0	0	
Total	39	118	53	0		0	49	57	0		0	0	0	0		0	0	0	0		0	0	0	0	



Location: King St/MLK Blvd & 2nd St

Date: 5/17/2016

Site Code: 13798015

Start Time	King St Southbound					2nd St Westbound					King St Northbound					Martin Luther King Blvd From Southwest					2nd St Eastbound				
	Right	Thru to MLK Blvd	Thru	Left	Peds	Right	Thru	Left to MLK Blvd	Left	Peds	Right	Thru	Left	Left to MLK Blvd	Peds	Right to King St	Right to 2nd St	Thru to King St	Left to 2nd St	Peds	Right to MLK Blvd	Right	Thru	Left	Peds
07:00 AM	0	0	0	0	12	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1
07:15 AM	0	0	0	0	18	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	23	0	0	0	0	16	0	0	0	0	4	0	0	0	0	4	0	0	0	0	3
07:45 AM	0	0	0	0	31	0	0	0	0	7	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0
08:00 AM	0	0	0	0	42	0	0	0	0	6	0	0	0	0	8	0	0	0	0	8	0	0	0	0	5
08:15 AM	0	0	0	0	51	0	1	0	0	25	0	0	0	0	13	0	0	0	0	13	0	0	0	0	12
08:30 AM	0	0	0	0	44	0	0	0	0	8	0	0	0	0	6	0	0	0	0	6	0	0	0	0	2
08:45 AM	0	0	0	0	40	0	0	0	0	3	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
Total	0	0	0	0	261	0	1	0	0	66	0	0	0	0	35	0	0	0	0	35	0	0	0	0	24



Location: King St/MLK Blvd & 2nd St

Date: 5/17/2016

Site Code: 13798015

Start Time	King St Southbound					2nd St Westbound					King St Northbound					Martin Luther King Blvd From Southwest					2nd St Eastbound				
	Right	Thru to MLK Blvd	Thru	Left	U-Turns	Right	Thru	Left to MLK Blvd	Left	U-Turns	Right	Thru	Left	Left to MLK Blvd	U-Turns	Right to King St	Right to 2nd St	Thru to King St	Left to 2nd St	U-Turns	Right to MLK Blvd	Right	Thru	Left	U-Turns
04:00 PM	48	291	23	0	0	0	129	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	46	273	20	0	0	0	174	76	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	45	266	18	0	0	0	136	77	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	53	275	17	0	0	0	176	84	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	46	296	14	0	0	0	179	97	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	39	285	17	0	0	0	179	96	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	57	280	12	0	0	0	143	70	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	45	204	16	0	0	0	158	68	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	379	2170	137	0	0	0	1274	631	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour: 4:45 PM - 5:45 PM

Peak 15-Min: 5:00 PM - 5:15 PM

PHF: 0.953



Location: King St/MLK Blvd & 2nd St

Date: 5/17/2016

Site Code: 13798015

[illegible]



Location: King St/MLK Blvd & 2nd St

Date: 5/17/2016

Site Code: 13798015

Start Time	King St Southbound					2nd St Westbound					King St Northbound					Martin Luther King Blvd From Southwest					2nd St Eastbound				
	Right	Thru to MLK Blvd	Thru	Left		Right	Thru	Left to MLK Blvd	Left		Right	Thru	Left	Left to MLK Blvd		Right to King St	Right to 2nd St	Thru to King St	Left to 2nd St		Right to MLK Blvd	Right	Thru	Left	
04:00 PM	2	4	6	0		0	5	5	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:15 PM	5	11	6	0		0	6	6	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:30 PM	1	7	5	0		0	4	6	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:45 PM	5	16	8	0		0	3	5	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:00 PM	0	3	9	0		0	5	4	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:15 PM	2	14	8	0		0	4	4	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:30 PM	4	6	9	0		0	3	4	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:45 PM	5	8	7	0		0	2	5	0		0	0	0	0		0	0	0	0		0	0	0	0	
Total	24	69	58	0		0	32	39	0		0	0	0	0		0	0	0	0		0	0	0	0	



Location: King St/MLK Blvd & 2nd St

Date: 5/17/2016

Site Code: 13798015

Start Time	King St Southbound					2nd St Westbound					King St Northbound					Martin Luther King Blvd From Southwest					2nd St Eastbound				
	Right	Thru to MLK Blvd	Thru	Left	Peds	Right	Thru	Left to MLK Blvd	Left	Peds	Right	Thru	Left	Left to MLK Blvd	Peds	Right to King St	Right to 2nd St	Thru to King St	Left to 2nd St	Peds	Right to MLK Blvd	Right	Thru	Left	Peds
04:00 PM	0	0	0	0	21	0	0	0	0	3	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2
04:15 PM	0	0	0	0	24	0	0	0	0	3	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0
04:30 PM	0	0	0	0	30	0	0	0	0	4	0	0	0	0	2	0	0	0	0	2	0	0	1	0	2
04:45 PM	0	0	0	0	34	0	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	50	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
05:15 PM	0	0	0	0	36	0	0	0	0	3	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	21	0	0	0	0	1	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0
05:45 PM	0	0	0	0	25	0	0	0	0	3	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0
Total	0	0	0	0	241	0	1	0	0	23	0	0	0	0	16	0	0	0	0	16	0	0	1	0	5

Comment 4: Counters: BM

	King Street From North					MLK Blvd From East					King Street From South					MLK Blvd From West				
Start Time	Right	Thru	Left	Utrn		Right	Thru	Left	Utrn		Right	Thru	Left	Utrn		Right	Thru	Left	Utrn	
07:00 AM	78	0	62	0		0	0	0	0		0	0	0	0		0	0	0	0	
07:15 AM	118	0	66	0		0	0	0	0		0	0	0	0		0	0	0	0	
07:30 AM	136	0	70	0		0	0	0	0		0	0	0	0		0	0	0	0	
07:45 AM	133	0	108	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:00 AM	140	0	102	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:15 AM	136	0	84	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:30 AM	131	0	72	0		0	0	0	0		0	0	0	0		0	0	0	0	
08:45 AM	133	0	70	0		0	0	0	0		0	0	0	0		0	0	0	0	
09:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
09:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
09:30 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
09:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
10:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
10:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
10:30 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
10:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
11:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
11:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
11:30 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
11:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
12:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
12:15 PM	0	0	84	0		0	0	0	0		0	0	0	0		0	0	0	0	
12:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
12:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
01:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
01:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
01:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
01:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
02:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
02:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
02:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
02:45 PM	0	0	84	0		0	0	0	0		0	0	0	0		0	0	0	0	
03:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
03:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
03:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
03:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:00 PM	275	0	46	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:15 PM	273	0	34	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:30 PM	272	0	34	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:45 PM	270	0	55	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:00 PM	307	0	36	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:15 PM	261	0	34	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:30 PM	275	0	32	0		0	0	0	0		0	0	0	0		0	0	0	0	
05:45 PM	301	0	34	0		0	0	0	0		0	0	0	0		0	0	0	0	

File Name: M:\standards\Traffic\Counts\DE\2004\MLK@French St.pwf

Start Date: 1/6/2004

Start Time: 7:00:00 AM

Site Code: 10312807

Comment 1: Location: MLK Blvd & French St.

Comment 2: County: New Castle

Comment 3: Weather: Cold & Windy

Comment 4: Counters: MF

Start Time	French Street From North				MLK Blvd From East				French Street From South				MLK Blvd From West			
	Right	Thru	Left	Utrn	Right	Thru	Left	French from N- hard left	Hard Right	Thru	Left	French from South- Right	Right	Thru	Left	Hard Left
07:00 AM	0	7	3	0	0	0	0	0	0	9	0	5	18	48	125	4
07:15 AM	0	1	4	0	0	0	0	0	3	2	0	1	8	56	152	14
07:30 AM	0	6	1	0	0	0	0	0	2	7	0	3	7	54	202	6
07:45 AM	0	5	2	0	0	0	0	1	1	5	0	1	14	56	219	11
08:00 AM	0	4	0	0	0	0	0	4	2	7	0	3	14	54	242	8
08:15 AM	0	8	2	0	0	0	0	0	2	5	0	3	13	48	213	9
08:30 AM	0	8	1	0	0	0	0	0	2	11	0	14	12	41	210	13
08:45 AM	0	1	0	0	0	0	0	0	1	4	0	1	8	38	153	8
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	17	2	0	0	0	0	2	2	10	0	0	5	42	87	7
04:15 PM	0	12	1	0	0	0	0	0	1	9	0	5	8	34	80	11
04:30 PM	0	11	2	0	0	0	0	0	3	15	0	1	8	32	78	16
04:45 PM	0	15	3	1	0	0	0	0	1	9	3	3	8	41	76	10
05:00 PM	0	16	2	0	0	0	0	2	2	9	0	2	13	37	104	12
05:15 PM	0	14	0	0	0	0	0	1	3	18	0	1	11	34	68	28
05:30 PM	0	13	0	1	0	0	0	2	0	20	0	4	5	43	75	19
05:45 PM	0	6	5	0	0	0	0	0	2	15	0	5	11	20	46	13



Location: Walnut St/Front St & 2nd St

Date: 5/17/2016

Site Code: 13798013

Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left	U-Turns	Right	Thru	Left to Front St	Left	U-Turns	Right	Thru	Left	Left to Front St	U-Turns	Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St	U-Turns	Right to Front St	Right	Thru	Left	U-Turns
07:00 AM	0	0	0	0	0	4	20	0	0	0	0	231	133	0	0	0	0	80	3	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	8	21	0	0	0	0	235	114	0	0	0	0	170	1	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	8	29	0	0	0	0	333	159	0	0	0	0	159	7	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	12	36	0	0	0	0	318	146	0	0	0	0	213	8	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	24	31	0	0	0	0	356	157	0	0	0	0	210	6	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	22	37	0	0	0	0	270	138	0	0	0	0	227	2	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	17	23	0	0	0	0	318	164	0	0	0	0	183	6	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	15	24	0	0	0	0	225	160	0	0	0	0	208	7	0	0	0	0	0	0
Total	0	0	0	0	0	110	221	0	0	0	0	2286	1171	0	0	0	0	1450	40	0	0	0	0	0	0

Peak Hour: 7:45 AM - 8:45 AM

Peak 15-Min: 8:00 AM - 8:15 AM

PHF: 0.932



Location: Walnut St/Front St & 2nd St

Date: 5/17/2016

Site Code: 13798013

Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left	U-Turns	Right	Thru	Left to Front St	Left	U-Turns	Right	Thru	Left	Left to Front St	U-Turns	Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St	U-Turns	Right to Front St	Right	Thru	Left	U-Turns
07:00 AM	0	0	0	0	0	4	18	0	0	0	0	216	121	0	0	0	0	75	3	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	6	19	0	0	0	0	223	104	0	0	0	0	164	1	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	7	26	0	0	0	0	302	151	0	0	0	0	153	6	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	12	32	0	0	0	0	294	139	0	0	0	0	206	7	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	23	29	0	0	0	0	340	149	0	0	0	0	205	5	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	22	36	0	0	0	0	258	131	0	0	0	0	218	1	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	17	19	0	0	0	0	304	153	0	0	0	0	175	5	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	15	23	0	0	0	0	219	147	0	0	0	0	204	5	0	0	0	0	0	0
Total	0	0	0	0	0	106	202	0	0	0	0	2156	1095	0	0	0	0	1400	33	0	0	0	0	0	0



Location: Walnut St/Front St & 2nd St

Date: 5/17/2016

Site Code: 13798013

Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left		Right	Thru	Left to Front St	Left		Right	Thru	Left	Left to Front St		Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St		Right to Front St	Right	Thru	Left	
07:00 AM	0	0	0	0		0	2	0	0		0	15	12	0		0	0	5	0		0	0	0	0	
07:15 AM	0	0	0	0		2	2	0	0		0	12	10	0		0	0	6	0		0	0	0	0	
07:30 AM	0	0	0	0		1	3	0	0		0	31	8	0		0	0	6	1		0	0	0	0	
07:45 AM	0	0	0	0		0	4	0	0		0	24	7	0		0	0	7	1		0	0	0	0	
08:00 AM	0	0	0	0		1	2	0	0		0	16	8	0		0	0	5	1		0	0	0	0	
08:15 AM	0	0	0	0		0	1	0	0		0	12	7	0		0	0	9	1		0	0	0	0	
08:30 AM	0	0	0	0		0	4	0	0		0	14	11	0		0	0	8	1		0	0	0	0	
08:45 AM	0	0	0	0		0	1	0	0		0	6	13	0		0	0	4	2		0	0	0	0	
Total	0	0	0	0		4	19	0	0		0	130	76	0		0	0	50	7		0	0	0	0	



Location: Walnut St/Front St & 2nd St

Date: 5/17/2016

Site Code: 13798013

Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left	Peds	Right	Thru	Left to Front St	Left	Peds	Right	Thru	Left	Left to Front St	Peds	Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St	Peds	Right to Front St	Right	Thru	Left	Peds
07:00 AM	0	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	6	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	2	0	0	0	0	5	0	0	0	0	2	0	0	0	0	2	0	0	0	0	3
07:45 AM	0	0	0	0	1	0	0	0	0	2	0	1	0	0	2	0	0	0	0	2	0	0	0	0	3
08:00 AM	0	0	0	0	3	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:15 AM	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	5	0	0	0	0	7	0	0	0	0	2	0	0	0	0	2	0	0	0	0	1
08:45 AM	0	0	0	0	7	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2
Total	0	0	0	0	28	0	2	0	0	22	0	1	0	0	8	0	0	0	0	8	0	0	0	0	16



Location: Walnut St/Front St & 2nd St

Date: 5/17/2016

Site Code: 13798014

Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left	U-Turns	Right	Thru	Left to Front St	Left	U-Turns	Right	Thru	Left	Left to Front St	U-Turns	Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St	U-Turns	Right to Front St	Right	Thru	Left	U-Turns
04:00 PM	0	0	0	0	0	6	50	0	0	0	0	139	146	0	0	0	0	99	2	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	5	61	0	0	0	0	118	150	0	0	0	0	77	6	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	3	44	0	0	0	0	143	151	0	0	0	0	89	1	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	12	54	0	0	0	0	153	142	0	0	0	0	77	6	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	7	63	0	0	0	0	167	181	0	0	0	0	81	8	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	6	63	0	0	0	0	155	161	0	0	0	0	91	11	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	6	28	0	0	0	0	151	168	0	0	0	0	84	7	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	4	27	0	0	0	0	116	134	0	0	0	0	89	8	0	0	0	0	0	0
Total	0	0	0	0	0	49	390	0	0	0	0	1142	1233	0	0	0	0	687	49	0	0	0	0	0	0

Peak Hour: 4:45 PM - 5:45 PM

Peak 15-Min: 5:00 PM - 5:15 PM

PHF: 0.928



Location: Walnut St/Front St & 2nd St

Date: 5/17/2016

Site Code: 13798014

Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left	U-Turns	Right	Thru	Left to Front St	Left	U-Turns	Right	Thru	Left	Left to Front St	U-Turns	Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St	U-Turns	Right to Front St	Right	Thru	Left	U-Turns
04:00 PM	0	0	0	0	0	6	48	0	0	0	0	126	138	0	0	0	0	91	2	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	4	59	0	0	0	0	112	143	0	0	0	0	71	3	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	3	43	0	0	0	0	134	146	0	0	0	0	80	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	12	53	0	0	0	0	145	138	0	0	0	0	73	5	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	6	63	0	0	0	0	155	175	0	0	0	0	74	7	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	5	63	0	0	0	0	148	155	0	0	0	0	87	10	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	6	28	0	0	0	0	144	164	0	0	0	0	81	5	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	4	27	0	0	0	0	111	130	0	0	0	0	85	6	0	0	0	0	0	0
Total	0	0	0	0	0	46	384	0	0	0	0	1075	1189	0	0	0	0	642	38	0	0	0	0	0	0



Location: Walnut St/Front St & 2nd St

Date: 5/17/2016

Site Code: 13798014

Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left		Right	Thru	Left to Front St	Left		Right	Thru	Left	Left to Front St		Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St		Right to Front St	Right	Thru	Left	
04:00 PM	0	0	0	0		0	2	0	0		0	13	8	0		0	0	8	0		0	0	0	0	
04:15 PM	0	0	0	0		1	2	0	0		0	6	7	0		0	0	6	3		0	0	0	0	
04:30 PM	0	0	0	0		0	1	0	0		0	9	5	0		0	0	9	1		0	0	0	0	
04:45 PM	0	0	0	0		0	1	0	0		0	8	4	0		0	0	4	1		0	0	0	0	
05:00 PM	0	0	0	0		1	0	0	0		0	12	6	0		0	0	7	1		0	0	0	0	
05:15 PM	0	0	0	0		1	0	0	0		0	7	6	0		0	0	4	1		0	0	0	0	
05:30 PM	0	0	0	0		0	0	0	0		0	7	4	0		0	0	3	2		0	0	0	0	
05:45 PM	0	0	0	0		0	0	0	0		0	5	4	0		0	0	4	2		0	0	0	0	
Total	0	0	0	0		3	6	0	0		0	67	44	0		0	0	45	11		0	0	0	0	



Location: Walnut St/Front St & 2nd St

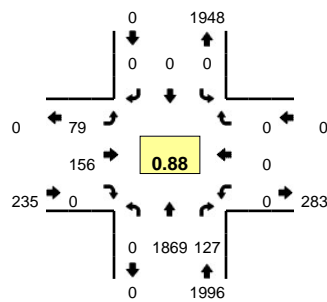
Date: 5/17/2016

Site Code: 13798014

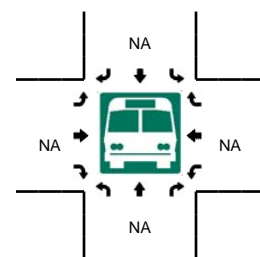
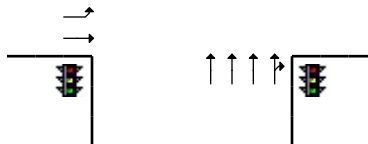
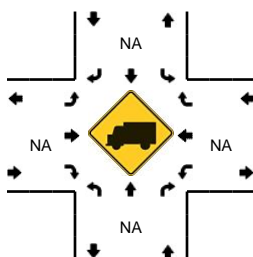
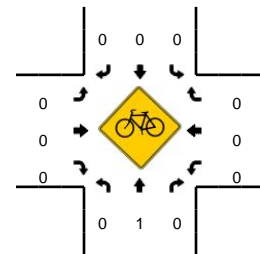
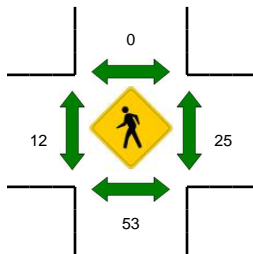
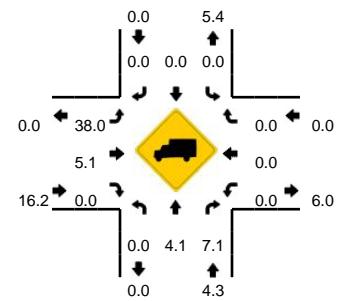
Start Time	Walnut St Southbound					2nd St Westbound					Walnut St Northbound					Front St From Southwest					2nd St Eastbound				
	Right	Thru to Front St	Thru	Left	Peds	Right	Thru	Left to Front St	Left	Peds	Right	Thru	Left	Left to Front St	Peds	Right to Walnut St	Right to 2nd St	Thru to Walnut St	Left to 2nd St	Peds	Right to Front St	Right	Thru	Left	Peds
04:00 PM	0	0	0	0	1	0	0	0	0	3	0	0	0	0	1	0	0	0	0	1	0	0	0	0	4
04:15 PM	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
04:30 PM	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	0	0	0	4	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
05:15 PM	0	0	0	0	6	0	0	0	0	14	0	0	0	0	1	0	0	0	0	1	0	0	0	0	3
05:30 PM	0	0	0	0	5	0	0	0	0	2	0	1	0	0	2	0	0	0	0	2	0	0	0	0	2
05:45 PM	0	0	0	0	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	36	0	0	0	0	27	0	1	0	0	4	0	0	0	0	4	0	0	0	0	30

LOCATION: S Walnut St/Front St -- MLK Blvd
CITY/STATE: Wilmington, DE

QC JOB #: 13798009
DATE: Tue, May 17 2016



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

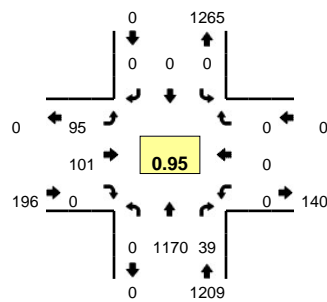


15-Min Count Period Beginning At	S Walnut St/Front St (Northbound)				S Walnut St/Front St (Southbound)				MLK Blvd (Eastbound)				MLK Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	290	11	0	0	0	0	0	20	34	0	0	0	0	0	0	356	
7:15 AM	1	399	26	0	0	0	0	0	17	29	0	0	0	0	0	0	472	
7:30 AM	0	441	33	0	0	0	0	0	20	29	0	0	0	0	0	0	523	
7:45 AM	0	525	35	0	0	0	0	0	26	49	0	0	0	0	0	0	635	1986
8:00 AM	0	439	34	0	0	0	0	0	21	45	0	0	0	0	0	0	539	2169
8:15 AM	0	464	25	0	0	0	0	0	12	33	0	0	0	0	0	0	534	2231
8:30 AM	1	401	23	0	0	0	0	0	20	40	0	0	0	0	0	0	485	2193
8:45 AM	0	434	24	0	0	0	0	0	19	34	0	0	0	0	0	0	511	2069
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	2100	140	0	0	0	0	0	104	196	0	0	0	0	0	0	2540	
Heavy Trucks	0	80	12		0	0	0		36	0	0		0	0	0		128	
Pedestrians		32				0				8				4			44	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

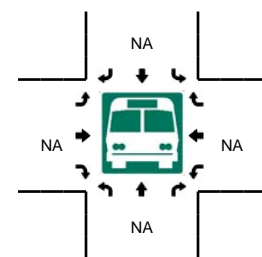
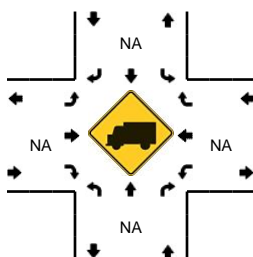
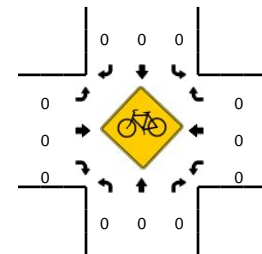
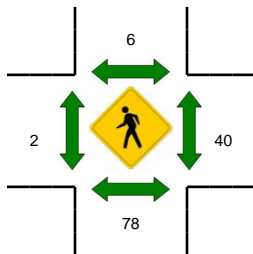
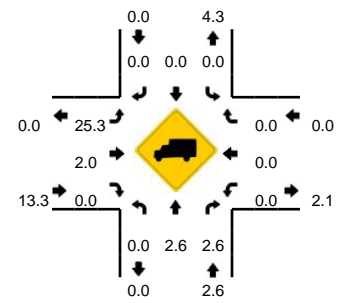
Comments:

LOCATION: S Walnut St/Front St -- MLK Blvd
CITY/STATE: Wilmington, DE

QC JOB #: 13798010
DATE: Tue, May 17 2016



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



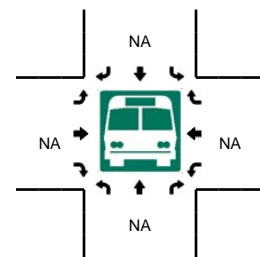
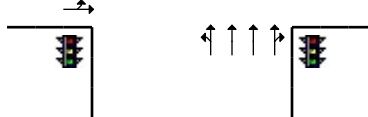
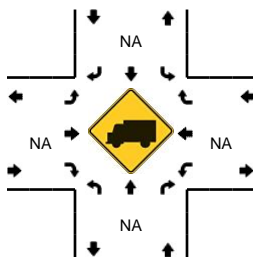
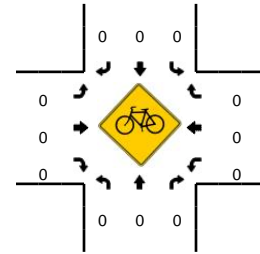
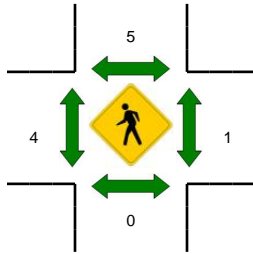
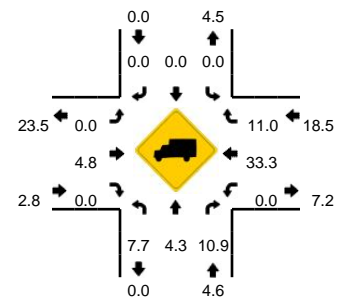
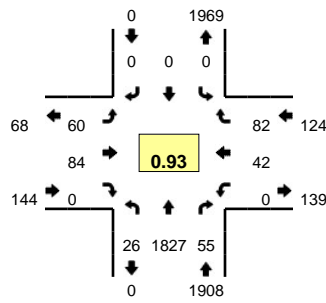
15-Min Count Period Beginning At	S Walnut St/Front St (Northbound)				S Walnut St/Front St (Southbound)				MLK Blvd (Eastbound)				MLK Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	216	15	0	0	0	0	0	29	27	0	0	0	0	0	0	287	
4:15 PM	1	292	15	0	0	0	0	0	18	26	0	0	0	0	0	0	352	
4:30 PM	0	240	14	0	0	0	0	0	19	23	0	0	0	0	0	0	296	
4:45 PM	0	311	15	0	0	0	0	0	19	25	0	0	0	0	0	0	370	1305
5:00 PM	0	289	10	0	0	0	0	0	32	30	0	0	0	0	0	0	361	1379
5:15 PM	0	314	6	0	0	0	0	0	22	23	0	0	0	0	0	0	365	1392
5:30 PM	0	256	8	0	0	0	0	0	22	23	0	0	0	0	0	0	309	1405
5:45 PM	1	269	16	0	0	0	0	0	18	17	0	0	0	0	0	0	321	1356
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	1244	60	0	0	0	0	0	76	100	0	0	0	0	0	0	1480	
Heavy Trucks	0	20	4	0	0	0	0	0	32	4	0	0	0	0	0	0	60	
Pedestrians	0	56	0	0	0	8	0	0	0	4	0	0	0	24	0	0	92	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: S Walnut St -- A St
CITY/STATE: Wilmington, DE

QC JOB #: 13798005
DATE: Tue, May 17 2016

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



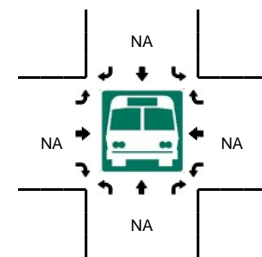
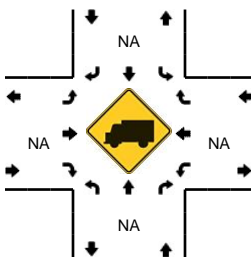
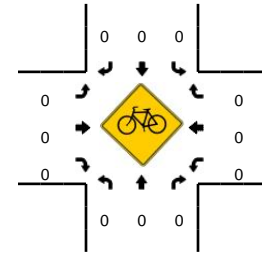
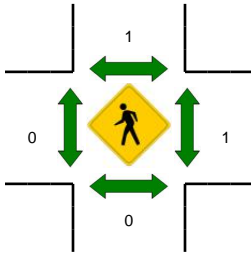
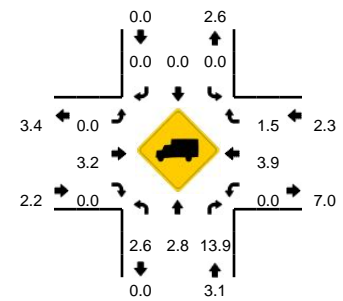
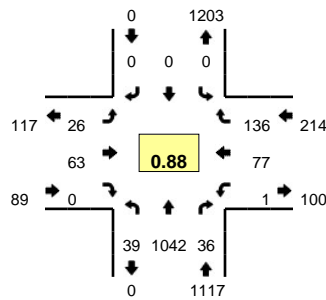
15-Min Count Period Beginning At	S Walnut St (Northbound)				S Walnut St (Southbound)				A St (Eastbound)				A St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	6	310	12	0	0	0	0	0	9	11	0	0	0	5	13	0	366	
7:15 AM	10	378	17	0	0	0	0	0	13	17	0	0	0	7	13	0	455	
7:30 AM	4	487	15	0	0	0	0	0	14	20	0	0	0	12	23	0	575	
7:45 AM	11	479	11	0	0	0	0	0	18	29	0	0	0	12	24	0	584	1980
8:00 AM	4	468	14	0	0	0	0	0	12	21	0	0	0	9	15	0	543	2157
8:15 AM	7	393	15	0	0	0	0	0	16	14	0	0	0	9	20	0	474	2176
8:30 AM	7	416	12	0	0	0	0	0	16	20	0	0	0	7	26	0	504	2105
8:45 AM	7	361	7	0	0	0	0	0	17	21	0	0	0	8	27	0	448	1969
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	44	1916	44	0	0	0	0	0	72	116	0	0	0	48	96	0	2336	
Heavy Trucks	0	68	4	0	0	0	0	0	0	8	0	0	0	16	20	0	116	
Pedestrians	0	0	0	0	12	0	0	0	0	8	0	0	0	0	0	0	20	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: S Walnut St -- A St
CITY/STATE: Wilmington, DE

QC JOB #: 13798006
DATE: Tue, May 17 2016

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

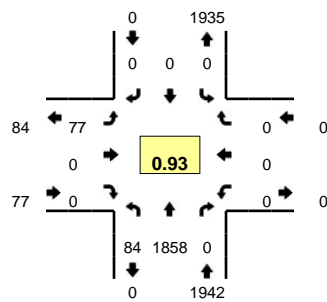


15-Min Count Period Beginning At	S Walnut St (Northbound)				S Walnut St (Southbound)				A St (Eastbound)				A St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	232	8	0	0	0	0	0	7	15	0	0	0	15	29	0	317	
4:15 PM	8	233	10	0	0	0	0	0	7	19	0	0	0	19	27	0	323	
4:30 PM	7	242	8	0	0	0	0	0	9	11	0	0	0	20	24	0	321	
4:45 PM	2	267	7	0	0	0	0	0	6	15	0	0	0	17	31	1	346	1307
5:00 PM	13	296	14	0	0	0	0	0	6	13	0	0	0	24	39	0	405	1395
5:15 PM	10	228	4	0	0	0	0	0	5	20	0	1	0	22	35	0	325	1397
5:30 PM	14	251	11	0	0	0	0	0	8	15	0	0	0	14	31	0	344	1420
5:45 PM	9	222	13	0	0	0	0	0	7	23	0	1	0	24	27	0	326	1400
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	52	1184	56	0	0	0	0	0	24	52	0	0	0	96	156	0	1620	
Heavy Trucks	4	48	4	0	0	0	0	0	0	4	0	0	0	4	4	0	68	
Pedestrians	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

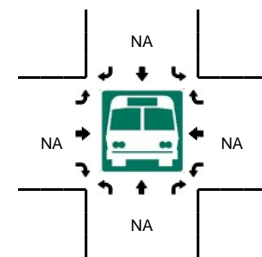
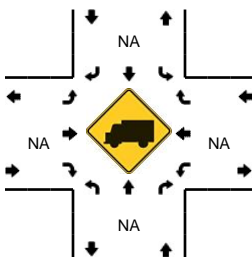
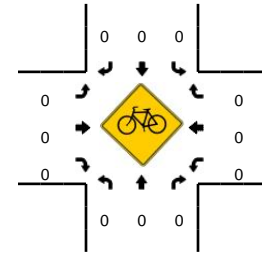
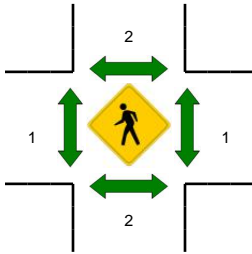
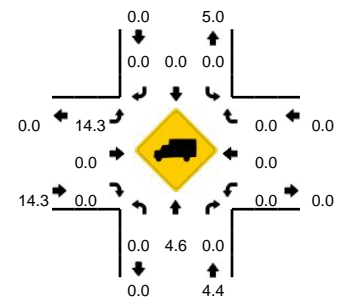
Comments:

LOCATION: S Walnut St -- Shop Rite
CITY/STATE: Wilmington, DE

QC JOB #: 13798001
DATE: Tue, May 17 2016



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



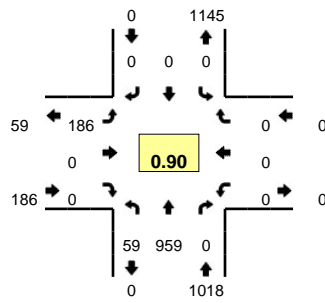
15-Min Count Period Beginning At	S Walnut St (Northbound)				S Walnut St (Southbound)				Shop Rite (Eastbound)				Shop Rite (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	9	313	0	0	0	0	0	0	12	0	0	0	0	0	0	0	334	
7:15 AM	12	408	0	0	0	0	0	0	12	0	0	0	0	0	0	0	432	
7:30 AM	18	478	0	0	0	0	0	0	21	0	0	0	0	0	0	0	517	
7:45 AM	20	500	0	0	0	0	0	0	22	0	0	0	0	0	0	0	542	1825
8:00 AM	22	469	0	0	0	0	0	0	14	0	0	0	0	0	0	0	505	1996
8:15 AM	24	411	0	0	0	0	0	0	20	0	0	0	0	0	0	0	455	2019
8:30 AM	39	422	0	0	0	0	0	0	12	0	0	0	0	0	0	0	473	1975
8:45 AM	27	369	0	0	0	0	0	0	24	0	0	0	0	0	0	0	420	1853

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	80	2000	0	0	0	0	0	0	88	0	0	0	0	0	0	0	2168
Heavy Trucks	0	72	0	0	0	0	0	0	20	0	0	0	0	0	0	0	92
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

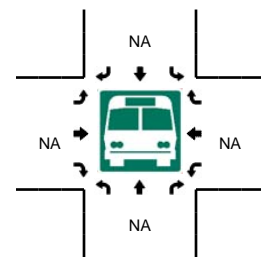
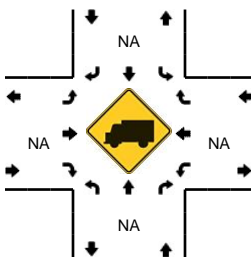
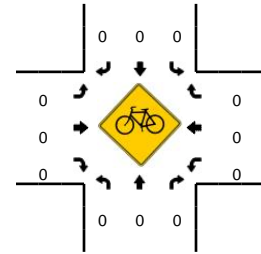
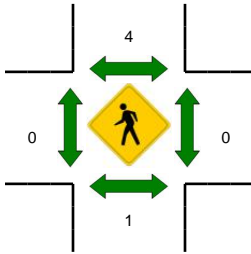
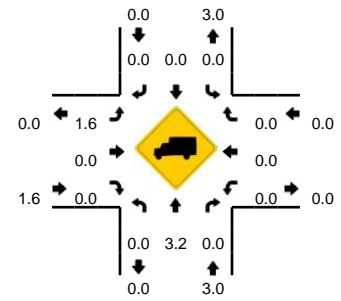
Comments:

LOCATION: S Walnut St -- Shop Rite
CITY/STATE: Wilmington, DE

QC JOB #: 13798002
DATE: Tue, May 17 2016



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	S Walnut St (Northbound)				S Walnut St (Southbound)				Shop Rite (Eastbound)				Shop Rite (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	214	0	0	0	0	0	0	33	0	0	0	0	0	0	0	259	
4:15 PM	16	230	0	0	0	0	0	0	35	0	0	0	0	0	0	0	281	
4:30 PM	20	228	0	0	0	0	0	0	30	0	0	0	0	0	0	0	278	
4:45 PM	15	226	0	0	0	0	0	0	58	0	0	0	0	0	0	0	299	1117
5:00 PM	6	280	0	0	0	0	0	0	48	0	0	0	0	0	0	0	334	1192
5:15 PM	13	215	0	0	0	0	0	0	42	0	0	0	0	0	0	0	270	1181
5:30 PM	25	238	0	0	0	0	0	0	38	0	0	0	0	0	0	0	301	1204
5:45 PM	10	209	0	0	0	0	0	0	53	0	0	0	0	0	0	0	272	1177
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	1120	0	0	0	0	0	0	192	0	0	0	0	0	0	0	1336	
Heavy Trucks	0	48	0	0	0	0	0	0	4	0	0	0	0	0	0	0	52	
Pedestrians	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

File Name: M:\standards\Traffic\Counts\DE\2008\Heald St@Rogers Rd.ppd

Start Date: 3/6/2008

Start Time: 7:00:00 AM

Site Code: 1041301A

Comment 1: Location: Heald St. & Rogers Rd

Comment 2: County: New Castle

Comment 3: Weather: Clear

Comment 4: Counters: RMF

Start Time	Market Street From North				Heald Street From East				Rogers Road From South				Heald Street From West			
	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn
07:00 AM	0	30	2	0	1	21	10	0	6	50	7	0	27	47	0	0
07:15 AM	0	29	0	0	5	15	14	0	5	59	8	0	28	49	0	0
07:30 AM	0	31	2	0	10	12	22	0	6	61	7	2	21	54	0	0
07:45 AM	0	33	0	0	8	21	17	0	15	63	9	0	36	51	1	0
08:00 AM	0	28	2	0	6	22	16	0	7	62	10	1	23	45	0	0
08:15 AM	0	35	6	0	5	17	19	0	10	55	8	1	28	37	0	0
08:30 AM	0	34	2	0	4	20	20	0	9	56	14	1	29	47	2	0
08:45 AM	0	41	3	0	6	15	16	0	7	61	17	0	18	27	1	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	72	8	0	8	36	36	0	4	51	8	0	18	17	2	0
04:15 PM	0	56	3	0	10	38	37	0	6	50	5	1	36	23	3	0
04:30 PM	0	67	3	0	10	31	62	0	6	56	4	3	25	15	2	0
04:45 PM	0	73	1	0	5	35	69	0	5	45	3	0	22	29	1	0
05:00 PM	0	61	4	0	7	46	69	0	0	63	20	1	27	12	1	1
05:15 PM	0	78	2	0	2	46	73	0	4	51	9	1	20	13	6	1
05:30 PM	0	64	2	0	4	33	62	0	4	49	3	0	25	18	0	0
05:45 PM	0	61	0	0	2	28	49	0	7	43	9	1	24	22	0	0
06:00 PM	0	57	1	0	1	27	31	0	2	52	6	0	17	16	1	0
06:15 PM	0	44	0	0	3	21	24	0	2	20	8	0	21	17	0	0

File Name: M:\standards\Traffic\Counts\DE\2008\US13@495 Ramps - Site 4.ppd

Start Date: 3/6/2008

Start Time: 7:00:00 AM

Site Code: 1041301A

Comment 1: Location: US 13_ To & From I-495-Site4

Comment 2: County: New Castle

Comment 3: Weather: Clear

Comment 4: Counters: SK, LH

Start Time	US13 From North				I-495 Ramp to US 13 NB From East				US13 NB/I-495 Ramp NB From South				I-495 SB Ramps to US 13 SB From West			
	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn	Right	Thru	Left	U-turn
07:00 AM	0	115	2	0	110	0	0	0	255	295	0	0	116	0	4	0
07:15 AM	0	110	4	0	126	0	0	0	286	371	0	0	129	1	5	0
07:30 AM	0	151	2	0	146	0	0	0	232	378	0	0	150	0	2	0
07:45 AM	0	127	6	0	157	0	0	0	241	403	0	0	131	0	10	0
08:00 AM	0	121	6	0	163	0	0	0	189	445	0	0	121	0	13	0
08:15 AM	0	116	8	1	171	0	0	0	200	385	0	0	109	0	6	0
08:30 AM	0	163	8	0	145	0	0	0	192	351	0	0	99	1	5	0
08:45 AM	0	163	6	0	120	0	0	0	152	295	0	0	101	0	12	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	273	8	0	45	0	0	0	170	183	0	0	168	1	2	0
04:15 PM	0	306	7	0	42	0	0	0	135	204	0	0	178	0	2	0
04:30 PM	0	317	6	0	36	0	0	0	166	190	0	0	186	0	2	0
04:45 PM	0	283	2	0	32	0	0	0	135	181	0	0	159	0	4	0
05:00 PM	0	349	9	0	36	0	0	0	134	178	0	0	162	0	7	1
05:15 PM	0	339	0	1	33	0	0	0	168	202	0	0	194	0	5	0
05:30 PM	0	301	5	1	36	0	0	0	148	200	0	0	171	0	7	0
05:45 PM	0	272	9	0	36	0	0	0	138	146	0	0	191	1	3	0
06:00 PM	0	230	8	0	13	0	0	0	127	173	0	0	158	0	5	0
06:15 PM	0	212	8	0	25	0	0	0	106	154	0	0	149	0	2	0

US 13 to I-495 SB

[illegible]

**Appendix C:
Trip Generation Calculations**

Wilmington Riverfront Development
Raw Trip Generation

Block	Land Use	GSF or (Units)	MORNING PEAK HOUR			EVENING PEAK HOUR		
			IN	OUT	TOTAL	IN	OUT	TOTAL
A	710	143,580	138	23	161	26	135	161
	221	(87)	8	22	30	24	15	39
	820	13,807	99	60	159	60	66	126
	Total		245	105	350	110	216	326
B	820	7,854	97	59	156	40	43	83
	Total		97	59	156	40	43	83
C	710	125,370	124	20	144	23	118	141
	221	(117)	10	30	40	32	20	52
	820	11,101	97	60	157	51	56	107
	Total		231	110	341	106	194	300
D	221	(157)	14	39	53	41	27	68
	820	9,657	97	60	157	46	50	96
	Total		111	99	210	87	77	164
E	710	111,921	114	18	132	20	107	127
	221	(365)	32	90	122	94	60	154
	820	19,911	100	62	162	79	86	165
	Total		246	170	416	193	253	446
F	221	(156)	14	39	53	41	27	68
	820	11,171	97	60	157	51	56	107
	Total		111	99	210	92	83	175
G	710	155,574	149	24	173	28	145	173
	221	(331)	29	82	111	85	55	140
	820	12,684	98	60	158	57	61	118
	Total		276	166	442	170	261	431
H	710	198,158	183	30	213	35	183	218
	820	13,234	98	60	158	59	63	122
	Total		281	90	371	94	246	340
J	710	123,966	123	20	143	22	118	140
	221	(181)	16	45	61	48	30	78
	820	10,668	97	60	157	50	54	104
	Total		236	125	361	120	202	322
K	221	(211)	18	53	71	56	35	91
	820	11,319	97	60	157	52	56	108
	Total		115	113	228	108	91	199
L	221	(174)	15	44	59	46	29	75
	Total		15	44	59	46	29	75
M	221	(177)	16	44	60	47	30	77
	820	3,716	95	59	154	23	25	48
	Total		111	103	214	70	55	125
N	221	(188)	17	47	64	49	32	81
	820	3,727	95	59	154	23	25	48
	Total		112	106	218	72	57	129

Wilmington Riverfront Development
Raw Trip Generation

Block	Land Use	GSF or (Units)	MORNING PEAK HOUR			EVENING PEAK HOUR		
			IN	OUT	TOTAL	IN	OUT	TOTAL
P	221	(170)	15	43	58	45	29	74
	Total		15	43	58	45	29	74
Q	221	(212)	18	53	71	56	35	91
	820	3,697	95	59	154	23	24	47
	Total		113	112	225	79	59	138
R	221	(432)	37	107	144	110	70	180
	820	3,208	95	58	153	21	22	43
	Total		132	165	297	131	92	223
S	221	(200)	18	50	68	52	34	86
	Total		18	50	68	52	34	86
T	221	(204)	18	51	69	54	34	88
	Total		18	51	69	54	34	88
U	710	140,628	137	22	159	25	132	157
	Total		137	22	159	25	132	157
V	221	(91)	8	23	31	24	16	40
	Total		8	23	31	24	16	40
W	710	149,502	144	23	167	27	140	167
	820	9,540	97	60	157	46	49	95
	Total		241	83	324	73	189	262
X	221	(84)	8	21	29	23	14	37
	Total		8	21	29	23	14	37
Y	221	(53)	5	13	18	15	9	24
	Total		5	13	18	15	9	24
Z	221	(231)	20	58	78	60	39	99
	820	41,499	107	66	173	136	147	283
	Total		127	124	251	196	186	382
AA	221	(200)	18	50	68	52	34	86
	820	36,335	105	65	170	123	134	257
	Total		123	115	238	175	168	343
BB	221	(269)	23	67	90	70	45	115
	820	127,672	134	82	216	312	339	651
	Total		157	149	306	382	384	766
CC	710	748,176	628	102	730	123	647	770
	820	6,675	96	59	155	35	38	73
	Total		724	161	885	158	685	843
Total Development Trips			4013	2521	6534	2740	3838	6578

**Appendix D:
NCHRP 8-51 Reports**

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Southeast Wilmington Waterfront			Organization:	RKK
Project Location:				Performed By:	NEW
Scenario Description:				Date:	5/5/2020
Analysis Year:				Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	1,896,875		2022	1740	282
Retail	820	357,475		3064	1896	1168
Restaurant				0		
Cinema/Entertainment				0		
Residential	221		4291	1448	377	1071
Hotel				0		
All Other Land Uses ²				0		
Total				6534	4013	2521

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.47	9%	5%	1.47	9%	5%
Retail	1.31	9%	5%	1.31	9%	5%
Restaurant						
Cinema/Entertainment						
Residential	1.90	9%	5%	1.90	9%	5%
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		116	0	0	0	0
Retail	102		0	0	14	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	41	20	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	9,738	5,758	3,980
Internal Capture Percentage	6%	5%	7%
External Vehicle-Trips ³	5,330	3,309	2,021
External Transit-Trips ⁴	778	465	313
External Non-Motorized Trips ⁴	413	247	166

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	6%	28%
Retail	5%	8%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	3%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

NCHRP 8-51 Internal Trip Capture Estimation Tool					
Project Name:	Southeast Wilmington Waterfront			Organization:	RKK
Project Location:				Performed By:	NEW
Scenario Description:				Date:	5/5/2020
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	1,896,875		2054	329	1725
Retail	820	357,475		2681	1287	1394
Restaurant				0		
Cinema/Entertainment				0		
Residential	221		4291	1843	1124	719
Hotel				0		
All Other Land Uses ²				0		
Total				6578	2740	3838

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.46	9%	5%	1.46	9%	5%
Retail	1.43	9%	5%	1.43	9%	5%
Restaurant						
Cinema/Entertainment						
Residential	2.00	9%	5%	2.00	9%	5%
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		147	0	0	50	0
Retail	40		0	0	518	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	58	184	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	10,518	4,568	5,950
Internal Capture Percentage	19%	22%	17%
External Vehicle-Trips ³	4,654	1,877	2,777
External Transit-Trips ⁴	724	303	421
External Non-Motorized Trips ⁴	384	161	223

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	20%	8%
Retail	18%	28%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	25%	17%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

**Appendix E:
Volume Figures (Scenarios 4 & 5)**

