

January 2021

5-Point Intersection Safety & Capacity Improvement Study



Table of Contents

1. WILMAPCO Resolution	1
2. Project Introduction	2
A. Project Background	4
B. Existing Transportation Network	6
C. Existing Traffic Volumes and Capacity Analysis	7
D. Crash Data	10
E. Other Planning Studies	11
3. Planning Process	11
A. Project Scope and Schedule	11
B. Agency Coordination	11
C. Stakeholder Coordination and Public Engagement	12
4. Purpose and Need	13
5. Existing Conditions	14
A. Land Use	14
B. Demographic Characteristics	17
C. Environmental and Historic Features	20
6. Alternatives Considered	22
7. Traffic Analysis of the Alternatives Considered	24
A. Alternative A	24
B. Alternative B	25
C. Alternative C	27
D. Alternative D	28
8. Preferred Alternative	29
A. Preferred Alternative	29
B. Conceptual Cost Estimate	30
C. Direct, Indirect, and Cumulative Effects	31
9. Next Steps	31
A. Environmental Review	31
B. Mitigation Strategies	30
C. Traffic Monitoring	
C. Traffic Monitoring D. Critical Issues To Be Considered	



Appendices

Appendix A: FHWA PEL Checklist Appendix B: DTC's Monroe Street Maintenance and Operations Study Appendix C: Stakeholder and Public Engagement Appendix D: Alternatives Appendix E: Cost Estimates

Figures

Figure 1. Aerial View of Study Vicinity (Google Earth)	3
Figure 2. 5-Point Intersection Looking Southwest Towards Madison Street and Maryla	nd Avenue
	3
Figure 3. Study Area	5
Figure 4. 2018 Existing AM Peak Hour Balanced Volume Network	8
Figure 5. 2018 Existing PM Peak Hour Balanced Volume Network	8
Figure 6. Study Area Zoning	16
Figure 7. Study Area Block Groups	18
Figure 8. Environmental Features	21
Figure 9. Alternative Criteria Matrix	23
Figure 10. Alternative A: Two-Way Monroe Street	24
Figure 11. Alternative B: One-Way Monroe Street with Chestnut Street Extended	25
Figure 12. Alternative C: Private Monroe Street/Two-Way Maryland Avenue	27
Figure 13. Alternative D: I-95 Split Ramp	28

Tables

Table 1. Level of Service (LOS) Criteria for Signalized Intersections	9
Table 2. 2018 Existing Condition Signalized Intersection Control Delay/LOS	10
Table 3. Summary of Stakeholder and Public Engagement	12
Table 4. Demographic Analysis for the Study Area, New Castle County, and the State of	
Delaware	19
Table 5. Alternative A Signalized Intersection Control Delay and Level of Service	24
Table 6. Alternative B Signalized Intersection Control Delay and Level of Service	26
Table 7. Alternative C Signalized Intersection Control Delay and Level of Service	27
Table 8. Alternative D Signalized Intersection Control Delay and Level of Service	29



1. WILMAPCO Resolution

Wilmington Area Planning Council

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WILMAPCO Council:

John Sisson, Chair Delaware Transit Corporation Chief Executive Officer

Nicole Majeski Delaware Dept. of Transportation Acting Secretary

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Matthew Meyer New Castle County Executive

Heather Murphy Maryland Dept. of Transportation Director, Office of Planning and Capital Programming

Michael S. Purzycki Mayor of Wilmington

Michael Spencer Mayor of Newport

Dave Warnick Rising Sun Commissioner

WILMAPCO Executive Director Tigist Zegeve

RESOLUTION

BY THE WILMINGTON AREA PLANNING COUNCIL (WILMAPCO) TO ENDORSE THE SAFETY & CAPACITY IMPROVEMENT STUDY FOR 5-POINT INTERSECTION IN WILMINGTON, DELAWARE

WHEREAS, the Wilmington Area Planning Council (WILMAPCO) has been designated the Metropolitan Planning Organization (MPO) for Cecil County, Maryland and New Castle County, Delaware by the Governors of Maryland and Delaware, respectively; and

WHEREAS, the City of Wilmington and DelDOT/DTC requested that WILMAPCO coordinate with them to evaluate and recommend roadway and infrastructure improvements to address operational and safety issues in the vicinity of Maryland Avenue, S. Madison Street, Martin Luther King Jr. Boulevard and S. Monroe Street to improve the efficiency and effectiveness of the transportation grid which serves downtown Wilmington, the Christina Riverfront, local neighborhoods and regional interests.; and

WHEREAS, the Safety & Capacity Improvement Study assessed existing traffic congestion and safety issues while also reviewing pedestrian, bicycling, transit, land use, and environmental conditions; and

WIIEREAS, the Safety & Capacity Improvement Study employed continuous and rigorous stakeholder outreach and working meetings, with public engagement throughout the planning process; and

WHEREAS, the Safety & Capacity Improvement Study puts forth recommendations which will reduce congestion and improve safety in the vicinity of Maryland Avenue, S. Madison Street, Martin Luther King Jr. Boulevard and S Monroe Street while also preserving the necessary operations for DTC's DART bus service and other stakeholders in the area. The plan will add improvements for pedestrians and bicyclists, and, generally, improve the multimodal network;

NOW, THEREFORE, BE IT RESOLVED that the Wilmington Area Planning Council does hereby endorse the final report and recommendations of the Safety & Capacity Improvement Study for 5-Point Intersection in Wilmington, Delaware.

1/14/2021

Date:

John/Sisson, Chairperson Wilmington Area Planning Council



Partners with you in transportation planning



2. Project Introduction

The City of Wilmington in New Castle County, Delaware, is a prominent city in the Delaware Valley metropolitan area and the largest city in Delaware. With a population of approximately 71,000 (2010 US Census), Wilmington is currently experiencing a revitalization of its downtown and riverfront. Nestled along the western edge of the Christina River, the Wilmington Riverfront is home to a variety of attractions for residents and visitors alike with restaurants, museums, parks, athletic facilities, and entertainment venues. Recent mixed-use development projects support the City's goals of a vibrant, safe, and connected city.

Southwest of Wilmington's Central Business District, Martin Luther King, Jr., Boulevard (MLK) travels east-west between I-95 and downtown Wilmington and serves as a gateway to the Wilmington Riverfront. This section of Wilmington is predominantly in the Browntown-Hedgeville neighborhood area in Justison Landing. Other established neighborhoods, including West Center City, Quaker Hill, and the Riverfront neighborhoods are also near. As most of the study area is within an industrial or commercial zone, some parcels are underutilized with vacant parcels (such as along Maryland Avenue) and extensive surface parking.

Within this area known as West Center City is the 5-Point Intersection. The 5-Point Intersection is where eastbound Martin Luther King, Jr. (MLK) Boulevard, Maryland Avenue, and Madison Street (**Figure 1**) join to provide cross connections across the City. The intersection serves as a critical junction between I-95 and the Christina Riverfront, the Central Business District (CBD), neighborhoods, and institutions, including Delaware Technical Community College. The intersection serves as the primary access point for a major transit facility, Delaware Transit Corporation (DART)'s Monroe Street Bus Operations Facility.

The 5-Point Intersection and adjoining roads are used by motorists, bicyclists, pedestrians, and buses. Travelers through the 5-Point Intersection experience access and safety challenges (**Figure 2**). Motorist mobility has been increasingly impeded by congestion, causing delays extending along MLK Boulevard and Maryland Avenue to the I-95 exit ramp and northbound I-95. The 5-Point Intersection also poses considerable challenges for pedestrians and cyclists accessing neighborhoods, businesses, transit connections, and the riverfront. Issues include wide street crossings, gaps in the sidewalk network (including lack of sidewalks, crosswalks, and ADA facilities), lack of bicycle facilities, inadequate lighting, high volumes of traffic, and motorists traveling at high speeds.

The Wilmington Area Planning Council (WILMAPCO) is leading a study to identify transportation improvements at the 5-Point Intersection to provide a more accessible and connected multi-modal street network for those that live, work, and play within and adjacent to the study area.





Figure 1. Aerial View of Study Vicinity (Google Earth)

Figure 2. 5-Point Intersection Looking Southwest Towards Madison Street and Maryland Avenue (photo by RK&K)





A. Project Background

Study Partners

The Wilmington Area Planning Council (WILMAPCO), in collaboration with Wilmington Initiatives, is leading the 5-Point Intersection Safety & Capacity Improvements Study. Wilmington Initiatives is a multi-agency partnership between the City of Wilmington, Delaware Department of Transportation (DeIDOT), Delaware Transit Corporation (DTC, operating as DART First State), and WILMAPCO. RK&K is leading the planning efforts for the study.

Study Area

The 5-Point Intersection Safety & Capacity Improvement Study area is located southwest of Wilmington's Central Business District (CBD) at the intersection of Maryland Avenue, Martin Luther King, Jr. (MLK) Boulevard and South Madison Street (**Figure 3**). The study area includes this intersection and the surrounding area bounded by I-95, West 2nd Street, West Street and Amtrak, and extends southwest to DTC's Beech Street facilities west of I-95 on Maryland Avenue. The existing intersection serves as a critical junction between I-95 and the Christina Riverfront, the CBD, communities such as Quaker Hill and Hedgeville, and institutions including Delaware Technical Community College.

The study area is occupied by DTC's Fixed Route Operations Center (distributed among seven locations within the area), Delmarva Power, the State Medical Examiner's Office, and several residences and small businesses. DTC Administration and some paratransit facilities are located west of I-95 at Maryland Avenue and Beech Street. Several vacant lots and buildings are located within the study area, which could become valuable redevelopment opportunities within the development of a more accessible, multi-modal and efficiently functioning street network. Industry in this vicinity includes healthcare and social services; management, administration, and waste management; manufacturing; and public administration.



VILMAPCO 5-Point Intersection Safety & Capacity Improvement Study

West Center City enn Square ledgeville 202 MARTIN LU READ ST SENTING SOMEWED Riverfront UBERNY STREET 95 Justison Landing Ontsina Rivel Browntown Legend 5 - Point Intersection StudyArea 🔠 Bus Stops Safety & Capacity 5-Point Intersection **Improvement Study** NORTH DART Moving Forward VILMAPCO - - - Bus Routes 400 Feet 0 100 200 Study Area لتتبليتنا

Figure 3. Study Area



Streamlined Project Delivery

This study is being completed as part of a streamlined project development process in accordance with the Federal Highway Administration's Planning and Environmental Linkages (PEL) guidelines. PEL is a "collaborative and integrated approach to transportation decision-making that considers benefits and impacts of proposed transportation system improvements to the environment, community, and economy during the transportation planning process¹" (FHWA, accessed 2019). This study will inform the environmental review phase of the project in accordance with the National Environmental Policy Act (NEPA) as well as preliminary engineering. In collaboration with our partners and the public, this study identifies the following:

- Purpose and need
- Range of alternatives
- Preferred alternative
- Preliminary analysis of potential environmental impacts
- Preliminary cost estimates
- Implementation considerations

This report serves as a response to the PEL Questionnaire, and a checklist is provided in **Appendix A**. Study recommendations will be considered for implementation in DelDOT's Capital Transportation Program (CTP).

B. Existing Transportation Network

Regional Roadway Network

Wilmington, Delaware is accessed by several major interstates, including I-95, I-295, and I-495. United States highway routes in the vicinity include U.S. 13 and U.S. 202. State Routes include Route 4, Route 48, and Route 9.

Local Roadway Network

The City of Wilmington local street network is predominantly a traditional grid pattern. South of MLK Boulevard and north of the Christina River, the streets include pockets of radial and loop patterns that follow the geometry of the river. Predominant arterials in the study area include east-west routes (MLK Boulevard, South 2nd Street) and north-south (Jackson Street, Adams Street, Monroe Street, and Madison Street).

Transit

Fixed route bus transit is available throughout the study area (**Figure 3**) on local streets with service provided by DART. Primary transit corridors in the study area include Jackson Street,

¹ Federal Highway Administration, *Environmental Review Toolkit: FHWA Initiatives to Accelerate Project Delivery – Planning and Environmental Linkages*, <u>https://www.environment.fhwa.dot.gov/env_initiatives/PEL.aspx</u> (accessed November 30, 2020).



Maryland Avenue, MLK Boulevard, and 2nd Street. DART also offers paratransit and on-demand services.

Amtrak's major Delaware transit hub, the Joseph R. Biden Wilmington Station, is located east of the study area. The Wilmington Station serves the following Amtrak routes: Northeast Regional, Wilmington/Newark Line, Acela Express, Silver Star, and Crescent, along with the Southeastern Pennsylvania Transportation Authority (SEPTA). Wilmington Station and the recently opened Wilmington Transit Center also connects travelers to regional bus service, including DART, BoltBus and Greyhound.

Biking and walking are common forms of transportation in the study area. People traverse the study area to connect to schools, activity centers, and businesses from neighborhoods and the region. Popular routes include the Jack Markell pedestrian and bike trail that connects people to experience the Wilmington Riverfront.

C. Existing Traffic Volumes and Capacity Analysis

WILMAPCO provided 2018 weekday peak hour turning movement counts for the key intersections within the project area listed below:

- MLK Boulevard at Maryland Avenue / Madison Street
- MLK Boulevard at Adams Street
- MLK Boulevard at Monroe Street
- MLK Boulevard at Jackson Street
- Maryland Avenue at Beech Street
- Maryland Avenue at Bird Street
- Maryland Avenue at Maple Street
- Maryland Avenue at Sycamore Street
- Maryland Avenue at Adams Street
- Adams Street at Chestnut Street
- Jackson Street at 2nd Street
- South Madison Street at Read Street
- South Madison Street at 2nd Street
- West 2nd Street at Monroe Street

In addition to the count data provided by WILMAPCO, RK&K collected a weekday peak hour turning movement count at the intersection of MLK Boulevard and Justison Street / Washington Street on March 13, 2019. Using the weekday peak hour turning movement count data, RK&K developed a 2018 balanced volume network for the weekday AM and PM peak hours, depicted in **Figures 4** and **5**.





Figure 4. 2018 Existing AM Peak Hour Balanced Volume Network

Figure 5. 2018 Existing PM Peak Hour Balanced Volume Network





The existing condition, using the weekday AM and the PM peak hour volumes depicted in **Figures 4** and **5**, was evaluated to model the existing traffic operations within the general project area as well as the focus area, which includes the intersection of MLK Boulevard and Maryland Avenue / Madison Street.

All traffic capacity analyses results for this project are reported in terms of Level of Service (LOS). Level of Service is a measure of the efficiency of traffic flow through an intersection. LOS is represented by letter grades ranging from A (best) through F (worst). Factors influencing LOS include traffic characteristics such as volumes, directional distribution and vehicle types as well as roadway characteristics, such as number and width of lanes, terrain and speed limits. **Table 1** provides the LOS that corresponds to average control delay values, measured in seconds per vehicles, for signalized intersections.

Level of Service	Control Delay per Vehicle				
А	≤ 10 sec/veh				
В	> 10 - 20 sec/veh				
С	> 20 - 35 sec/veh				
D	> 35 - 55 sec/veh				
E	> 55 - 80 sec/veh				
F	> 80 sec/veh				

Table 1. Level of Service (LOS) Criteria for Signalized Intersections

The existing condition was evaluated to model the existing traffic operations within the general study area, which includes the intersection of MLK Boulevard and Maryland Avenue / Madison Street. The AM and the PM peak hours volumes were obtained from the balanced volume network depicted in **Figures 4** and **5** and signal timing data was obtained from the City of Wilmington's Transportation Division. The SYNCHRO / SimTraffic software package (version 10.0) was used to model the study area and the traffic simulation models were calibrated using the maximum queue lengths observed during the field data collection and observations.

From the existing condition SimTraffic models, the intersection control delay and the corresponding LOS at the following key intersections were monitored for the purpose of comparison to the proposed improvement alternatives.

- MLK Boulevard at Maryland Avenue / Madison Street
- MLK Boulevard at Adams Street
- MLK Boulevard at Monroe Street
- Maryland Avenue at Adams Street

Table 2 below shows the 2018 existing condition overall intersection delay and the level of service for the key intersections.



	2018 Existing						
Intersection	AM Delay	AM LOS	PM Delay	PM LOS			
MLK Blvd @ Maryland Avenue / Madison Street	41.0	D	45.3	D			
MLK Boulevard @ Adams Street	22.3	С	21.6	С			
MLK Boulevard @ Monroe Street	16.0	В	10.4	В			
Maryland Avenue @ Adams Street	37.7	D	26.6	С			

Table 2. 2018 Existing Condition Signalized Intersection Control Delay/LOS

Results from the 2018 existing condition SimTraffic analyses showed that the study intersection of MLK Boulevard and Maryland Avenue / Madison Street is currently operating with a considerable delay (LOS D) during both the AM and the PM peak hours. The results also showed that the intersection MLK Boulevard and Adams Street currently operations with moderate delay (LOS C) during both the AM and the PM peak periods and the intersection of MLK Boulevard and Monroe Street currently operates with minimal delay (LOS B) during both the AM and the PM leak periods. Lastly, the results also showed that the intersection of Maryland Avenue and Adams Street is currently operating with considerable delay (LOS D) during the AM peak hour and moderate delay (LOS C) during the PM peak hour.

D. Crash Data

WILMAPCO provided the crash data for the study intersection of MLK Boulevard and Maryland Avenue / Madison Street, for a ten (10) year period between January 2008 and December 2017. The crash data showed that there were 83 reported crashes at or near the intersection of MLK Boulevard and Maryland Avenue / Madison Street, during the study period. The following trends were identified from the review of the crash data:

- There was one (1) fatal crash reported in 2008
- There were twenty (20) personal injury crashes reported
- There were two (2) crashes involving pedestrians
- There was one (1) crash involving a bicyclist
- There were thirty-one (31) angle crashes reported
- There were twenty-nine (29) same-direction sideswipe crashes reported
- There were fifteen (15) rear-end crashes reported
- There were two (2) hit-fixed-object (HFO) / runoff-the-road (ROR) type crashes reported
- There was one (1) head-on crash reported
- There were two (2) crashes which the cause was unknown

In addition, a search of the DelDOT archived data revealed that the intersection of MLK Boulevard and Maryland Avenue / Madison Street was reviewed in DelDOT's 2008 Highway Safety Improvement Program (HSIP). The HSIP study recommended the implementation of a third rightturn lane from the northbound Maryland Avenue approach to eastbound MLK Boulevard and also recommended guide sign improvements on the northbound Maryland Avenue approach. The proposed recommendations had been implemented and are currently present at the intersection.



E. Other Planning Studies

There are numerous other related planning studies and initiatives that support transportation improvements in and around Wilmington. These include:

- City of Wilmington Bike Plan (2019)
- City of Wilmington Economic Development Strategic Action Plan (2014)
- City of Wilmington, Delaware Neighborhood Revitalization Strategic Area (NRSA) (2016)
- Downtown District Development Plan, City of Wilmington (2016, revised)
- Economic Development SWOT Analysis (2014)
- Economic Development Target Industry Report (2014)
- Top Pedestrian Priority Segments (2012)
- Wilmington 2028 Comprehensive Plan (2019)
- WILMAPCO 2050 Regional Transportation Plan (2019)

These planning studies were used to inform this study and were consistent with the overall goals in improving transportation facilities to provide a safer and better-connected network for vehicles, pedestrians, and bicyclists.

3. Planning Process

WILMAPCO serves as the Metropolitan Planning Organization (MPO) for the region and manages the regional Unified Planning Work Program (UPWP). The UPWP is a program funded partially by the Federal Highway Administration and state and local partners to advance planning for priority projects. The 5-Point Intersection Safety and Capacity Improvements Study has been funded through the UPWP.

Wilmington Initiatives provided guidance to the Planning Project Team and served as the Project's Management Committee (PMC). As background information and analysis was developed during the Planning process, a Stakeholder's Group was formed to get input on priorities, key opportunities and constraints, and feedback on potential alternatives for transportation improvements.

A. Project Scope and Schedule

The study started in mid-2018, with the Stakeholder's engagement occurring mainly during 2019. Issues and constraints were identified, and evaluation criteria and alternatives were developed. The main part of the study was put on hold in late 2019 while a separate study was developed in looking at DTC's Monroe Street Maintenance and Operations, as noted later in the report and found in **Appendix B**. The DTC Study was completed in the Summer of 2020, and the stakeholders were re-engaged in November 2020 to present the finding of the DTC Study and redevelop the Study Recommendations.

B. Agency Coordination

Agency Coordination was handled through the work and coordination with Wilmington Initiatives. Membership on Wilmington Initiatives included:



- WILMAPCO
- The City of Wilmington
 - Mayor's Office
 - Planning
 - Public Works
 - Economic Development
- DelDOT
 - Project Development
 - o Planning
- DTC
 - Planning
 - Facilities

Due to the nature of the study area and potential improvements, the City of Wilmington provided key input on potential impacts to both cultural and natural resources. No additional coordination was developed with resource agencies, including the Army Corp of Engineers (ACOE), Delaware Department of Natural Resources and Environmental Control (DNREC), and the State Historic Preservation Office (SHPO).

C. Stakeholder Coordination and Public Engagement

The planning study utilized consistent coordination with Wilmington Initiatives and input from Stakeholders at key decision points during the life of the planning study. Stakeholder Meetings formed the backbone of the Public Engagement for the Study, in working with Wilmington Initiatives. The project was shown at both the June 2018 and June 2019 annual Wilmington Initiatives Public Workshops to provide an overview of the Study Objectives and get input on priorities and needs. **Table 3** provides a summary of the public engagement and the key topics discussed.

DTC Operations Me	etings
April 5, 2019	Study process and schedule
	Monroe Street Bus Operations Facility
	 Existing facilities and programs
	 Planned facilities and programs
	 Operations needs assessment
	Previous Study alternatives
July 11, 2019	Initial Review of Preliminary Concepts
Wilmington Initiativ	es (Joint Management Committee/Technical Committee) Briefings
May 16, 2018	Study process and overview
	 Identify Purpose and Need, Goals and objectives
	Data collection and analysis
	 Issues, constraints and opportunities
	Stakeholder assessment

Table 3. Summary of Stakeholder and Public Engagement



	Public involvement process
January 16, 2019	Study Update
	 Initial discussion with stakeholders including Delmarva
March 20, 2019	Discussion on upcoming Stakeholder Meeting
June 12, 2019	Report on May 20, 2019 Stakeholder Meeting
July 17, 2019	DTC Operations meeting review
	Study alternatives
	 Parking garage concept discussion
	Alternatives evaluation process
August 21, 2019	 Update on August 8, 2019 Stakeholders Meeting
January 15, 2020	 Review Alternatives and input from Stakeholders
	 Discuss future DTC Garage Study needed to complete 5-Point Study
July 15, 2020	Present DTC Garage Study
	 Input on path forward, including upcoming Stakeholder's meeting
November 17,	 Update on November 5, 2020 Stakeholders meeting
2020	 Finalize Recommendations and Path Forward
Stakeholder Group	Vleetings
Stakeholder Group I May 20, 2019	Welcome/introductions
Stakeholder Group I May 20, 2019	 Meetings Welcome/introductions Study overview
Stakeholder Group I May 20, 2019	 Meetings Welcome/introductions Study overview User and prioritization exercise
Stakeholder Group I May 20, 2019	 Meetings Welcome/introductions Study overview User and prioritization exercise Criteria testing
Stakeholder Group I May 20, 2019	 Meetings Welcome/introductions Study overview User and prioritization exercise Criteria testing Next steps
Stakeholder Group I May 20, 2019 August 8, 2019	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process
Stakeholder Group I May 20, 2019 August 8, 2019	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives
Stakeholder Group I May 20, 2019 August 8, 2019	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives • Stakeholder involvement
Stakeholder Group I May 20, 2019 August 8, 2019 November 5, 2020	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives • Stakeholder involvement • Review of Alternatives A, B, C, and D
Stakeholder Group I May 20, 2019 August 8, 2019 November 5, 2020	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives • Stakeholder involvement • Review of Alternatives A, B, C, and D • Presentation of DTC Garage Study
Stakeholder Group I May 20, 2019 August 8, 2019 November 5, 2020	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives • Stakeholder involvement • Review of Alternatives A, B, C, and D • Presentation of DTC Garage Study • Path Forward
Stakeholder Group I May 20, 2019 August 8, 2019 November 5, 2020 Wilmington Initiativ	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives • Stakeholder involvement • Review of Alternatives A, B, C, and D • Presentation of DTC Garage Study • Path Forward
Stakeholder Group IMay 20, 2019August 8, 2019November 5, 2020Wilmington InitiativJune 20, 2018	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives • Stakeholder involvement • Review of Alternatives A, B, C, and D • Presentation of DTC Garage Study • Path Forward • Study process and schedule
Stakeholder Group IMay 20, 2019August 8, 2019November 5, 2020Wilmington InitiativJune 20, 2018June 19, 2019	Meetings • Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps • Alternatives evaluation process • Study alternatives • Stakeholder involvement • Review of Alternatives A, B, C, and D • Presentation of DTC Garage Study • Path Forward es Annual Public Workshops • Study area

Applicable meeting documents can be found in **Appendix C**.

4. Purpose and Need

Establishing the project Purpose and Need is an important step in the NEPA process as defined in CEQ regulation 1502.13. It establishes a foundation for decision-making by providing the rationale and justification for a proposed action. For this PEL document it will provide the foundation as NEPA documentation is developed in the future for the implementation of federally participating actions.



The Study's purpose is to identify transportation improvements at the 5-Point Intersection to provide a more accessible and connected multi-modal street network for those that live, work, and play within and adjacent to the study area.

To address the Study's purpose, needs were developed as part of the early stakeholder involvement are summarized as below:

- Improve Traffic Operations In the study area traffic volumes are heavy on Maryland Avenue and MLK Boulevard, and on the ramp coming off of I-95 NB. This leads to backups, mainly during the peak traffic hours, at locations like the 5-Points Intersection and the ramp, which at times backs up on the I-95 Mainline. The heavy traffic volumes also contribute to crashes, especially along MLK Boulevard.
- Improve Multi-Modal access for Pedestrians, Bicyclists, and Transit Users The study area provides a link between neighborhoods including Browntown with the Wilmington Riverfront, the Central Business District (CBD), and transportation centers like the Wilmington Train Station and recently opened Wilmington Transit Center. In that regard, missing sidewalks and ADA deficiencies cause access deficiencies, and the lack of a bicycle network limits access to other identified bicycle corridors like 2ND Street. The skate park currently under construction next to the Amtrak Northeast Corridor near I-95 will also need access improvements for all modes especially pedestrians and bicyclists.
- <u>Support Economic Development</u> While the study area has property owners like DTC and Delmarva that have established operations that are not anticipated to change for many years, there are other properties including some owned by Reybold Homes that are looking to redevelop. The existing transportation network may limit opportunities for continued economic development.
- <u>Gateway Enhancements</u> The area is a "gateway" for users from I-95 and Maryland Avenue into the Riverfront and the CBD, but generally does not include aesthetics that promote a gateway feel.

5. Existing Conditions

A. Land Use

The 5-Point Intersection Safety& Capacity Improvement Study area is located within the municipal boundary of the City of Wilmington. According to the Wilmington 2028 Comprehensive Plan², the current land use of the study area is a mixed use of infrastructure, parking, commercial, industrial, and institutional land uses. Future land use designates a majority of the study area as infrastructure and mixed commercial/light manufacturing.

² City of Wilmington, Delaware, *Wilmington 2028: A comprehensive Plan for Our City and Communities*, <u>https://www.wilmingtonde.gov/government/city-departments/planning-and-development/wilmington-2028-comprehensive-plan/full-plan-and-summary-document</u> (accessed November 30, 2020)



According to the City of Wilmington and shown in **Figure 6**, current zoning (2018) for the study area consists primarily of industrial and commercial. The area west of I-95 is mainly residential. The southeast portion of the study area is designated as mixed-use.

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VILMAPCO 5-Point Intersection Safety & Capacity Improvement Study



Figure 6. Study Area Zoning



B. Demographic Characteristics

The United States Census Bureau's most recent American Community Survey Five-Year Estimates data was used to determine the demographic characteristics of the project study area. The study area includes portions of five US Census Block Groups (BG). **Figure 7** depicts the identified BGs.

Table 4 provides a detailed demographic analysis of the study area. According to the 2014-2018 ACS data, every block group intersecting the study area contained more than 50 percent minority population³ which qualifies the area as an Environmental Justice population. Twenty-nine (29) percent of the study area population had an income below the poverty level and approximately 9.5 percent was considered linguistically isolated (speaks English "not well" or "not at all"). Approximately 23 percent of individuals had less than a high school education. Nine (9) percent of the study area population was under the age of five with 9.7 percent over the age of 65.

As a result, all efforts must be taken to ensure there are no disproportionate impacts to minority and low-income groups, to include the critical component of public engagement throughout the planning, design, and construction processes to ensure community needs are met. However, the study area includes a larger demographic area than does the potential limits of disturbance (LOD) (i.e., where construction would take place). It is anticipated that few, if any, residences would exist within the LOD. This does not deter from the possible occurrence of traditionally underserved populations that may rely on the transportation network within the LOD.

³ A population is identified as minority in an area affected by the policy action if "either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." Council on Environmental Quality, 1997, *Environmental Justice: Guidance Under the National Environmental Policy Act*, <u>https://www.epa.gov/sites/production/files/2015-</u> 02/documents/ej_guidance_nepa_ceq1297.pdf





Figure 7. Study Area Block Groups



Table 4. Demographic Analysis for the Study Area, New Castle County, and the State of Delaware

Demographic	Dolow		New Castle	Study Area Block Groups										
Characteristic	Delaw	are			CT 21 I	BG 2	CT 22 I	3G 2	CT 26	BG 2	CT 26 I	3G 3	CT 27 E	3G 1
Total Population	949,4	95	555,1	33	998	3	711	L	86	867 1,093		3	1,116	
Race	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
White	654,905	69.0%	358,183	64.5%	16	1.6%	251	35.3%	229	26.4%	242	22.1%	405	36.3%
Black or African American	209,892	22.1%	138,308	24.9%	803	80.5%	169	23.8%	511	58.9%	734	67.2%	523	46.9%
American Indian and Alaska Native	3,455	0.4%	1,434	>0.1%	0	0%	0	0%	0	0%	0	0%	0	0%
Asian	36,723	3.9%	30,593	5.5%	27	2.7%	33	4.6%	38	4.4%	0	0%	102	9.1%%
Native Hawaiian and Other Pacific Islander	477	>0.1%	182	>0.1%	0	0%	0	0%	0	0%	0	0%	0	0%
Some Other Race	18,034	1.9%	12,286	2.2%	48	4.8%	258	36.3%	89	10.3%	96	8.8%	50	4.5%
Two or More Races	26,009	2.7%	13,847	2.5%	14	1.4%	0	0%	0	0%	21	1.9%	36	3.2%
Hispanic or Latino	86,315	9.1%	54,071	9.7%	198	19.8%	484	68.1%	213	24.6%	187	17.1%	100	9.0%
Minority Population	294,590	31.0%	196,950	35.5%	982	98.4%	460	64.7%	638	73.6%	851	77.9%	711	63.7%
Persons Linguistically Isolated*	16,943	1.9%	10,841	2.1%	107	11.7%	96	15.3%	68	8.8%	75	7.2%	44	4.3%
Individuals with Income in Past 12 Months Below Poverty Level**	109,798	11.9%	61,530	11.4%	326	32.7%	304	42.8%	157	18.1%	306	28.0%	250	23.2%
Persons with less than a High School Education***	67,482	10.2%	32,485	8.5%	150	22.8%	159	35.3%	157	26.8%	177	24.8%	36	4.7%
Persons Under the Age of 5	54,854	5.8%	32,547	5.9%	65	6.5%	89	12.5%	109	12.6%	66	6.0%	88	7.9%
Persons Over the Age of 65	167,129	17.6%	81,440	14.7%	221	22.1%	28	3.9%	79	9.1%	65	5.9%	83	7.4%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2014-2018), Tables B01001, B02001, B03002, B15003, B16004, B17021.

* Speaking English "not well" or "not at all;" percentages are based on the population 5 years and older.

** Percentages based on the population for whom poverty status is determined.

*** Educated through Grade 12, no diploma; percentages based on population 25 years and older.



C. Environmental and Historic Features

A shown in **Figure 8**, a portion of the study area lies within the 100-year floodplain, which means the area has a 1% chance to be flooded by high river water every year. Furthermore, the entire study area is within a combined sewer shed where stormwater runoff and sewage water are directed into the same drainage system. This can cause flooding from storm drains with contaminated water during rain events even when the river is not flooding.

The Wilmington Rail Viaduct runs through the southeastern portion of the study area and is listed on the National Register of Historic Places. Additionally, there are several properties located within the study area that are identified as having aboveground or underground storage tanks. Due to historic land uses within and adjacent to the study area, there is the potential for additional hazardous materials concerns.

There are no emergency services, schools, or parks located within the study area; however, a skate park is currently under construction.





Figure 8. Environmental Features



6. Alternatives Considered

The City of Wilmington, DelDOT, DTC, WILMAPCO and other members of Wilmington Initiatives have been conducting studies in this area for several years. These studies have included traffic analysis and development of potential roadway solutions to address safety and capacity, pedestrian and bicycle connectivity, congestion impacting I-95, and improvements to DTC and Delmarva Power parking and access. While it was recognized that improvements were needed to address safety and capacity especially at the 5-Point Intersection, consensus was not achieved on what the best solution(s) would be, given the constrained area and the concerns of stakeholders including DTC. However, the previous studies provided good information and input to utilize for this renewed study.

Utilizing the alternatives that were first developed in previous studies and based upon the priorities and criteria that were developed with the Stakeholders at the May 20, 2019 Visioning Meeting, the Study Team developed and refined four (4) alternatives that addressed the Purpose and Need of the Study and the Criteria that were developed. They were:

- Alternative A: Two-Way Monroe Street
- Alternative B: One-Way Monroe Street with Chestnut Street Extended
- Alternative C: Private Monroe Street/Two-Way Maryland Avenue
- Alternative D: I-95 Split Ramp

All of the alternatives provided changes to the urban street grid and improvements for all modes includes vehicles, pedestrians, bicyclists, and access to transit. However, there were some tradeoffs with the alternatives related to the priorities and criteria, so a matrix was developed that provides a comparison of the four alternatives (**Figure 9**).

Partial conceptual drawings are presented in **Section 6**, **Traffic Analysis of the Alternatives Considered**. Full renderings of all four alternatives considered are included in **Appendix D**.

A detailed review of DTC's Monroe Maintenance facility was performed after concerns were raised by DTC that potential transportation improvements, especially a two-way Monroe Street, could significantly affect transit operations. The study helped provide a better understanding of what alternatives may be available to address both a replacement of the Monroe Maintenance Facility, and parking alternatives for buses and employees for both DTC and Delmarva Power. The summary of the analysis and results of the study is found in **Appendix B**.



Figure 9. Alternative Criteria Matrix

ILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection



CRITERIA MATRIX

CRITERIA			TRANSP	ORTATION	ŧ		LAND USE STAKEHOLDER CONCE		NCERNS	POTENTIAL STRUCTURED PARKING OPPORTUNITIES			ENVIRONMENTAL			созт		
Measure	Vehicle Conflicts and Crash Potential	I-95 Ramp Congestion and Queues During Peak Hour(s)	City Streets Congestion and Queues During Peak Hour(s)	Efficient Transportation Grid	Pedestrian Network	Bicycle Network	Opportunities for Economic Development	DTC Operations and Parking	Delmarva Access, Circulation and Customer Parking	Medical Examiner Parking	Parcels Separated by Public Street	Combined Parcels	Wayfinding/ Destination Signage	Aesthetics/ Lighting	Historic	Social/ Environmental Justice	Green Infrastructure Opportunities	Cost Estimate
No Improve- ments											No	No			\bigcirc			
Alt. A Two-way Monroe St.								*	0		Yes (2 Options)	Yes			\bigcirc			
Alt. B One-way Monroe St. with Chestnut St. extended											No	Yes			\bigcirc			
Alt. C Private Monroe St. / Two-way Maryland Ave.								%			No	Yes (2 Options)			\bigcirc			
Alt. D									\bigcirc	\bigcirc	Yes	No			\bigcirc			

* with Structured Parking





7. Traffic Analysis of the Alternatives Considered

A. Alternative A

A conceptual drawing of Alternative A is shown in Figure 10 below.





Table 5 below shows the SimTraffic analysis results from Alternative A for the few key intersections being monitored:

Table F Alternat	Aliza A Clausellined Ind	towasstian Control Dal	and land of Complete
Lable 5. Alterna	itive a Signalized in	tersection Control De	av and Level of Service

	Alternative A						
Intersection	AM Delay	AM LOS	PM Delay	PM LOS			
MLK Blvd @ Maryland Avenue / Monroe Street	28.3	С	27.0	С			
MLK Boulevard @ Adams Street	25.3	С	12.1	В			
MLK Boulevard @ Madison Street	7.7	А	12.7	В			
Maryland Avenue @ Adams Street	21.1	С	45.1	D			

Results from the Alternative A SimTraffic analysis showed that the new intersection of MLK Boulevard and Maryland Avenue / Monroe Street is expected to operate with moderate delay (LOS C) during both the AM and the PM peak hours. Results also showed that the intersection of



MLK Boulevard and Adams Street is expected to operate with moderate delay (LOS C) during the AM peak hour and minimal delay (LOS B) during the PM peak hour. In addition, results also showed that the intersection of MLK Boulevard and Madison Street is expected to operate with marginal delay (LOS A) during the AM peak hour and minimal delay (LOS B) during the PM peak hour. Lastly, results show that the intersection of Maryland Avenue and Adams Street is expected to operate with moderate delay (LOS C) during the AM peak hour and considerable delay (LOS D) during the PM peak hour. The increase in delay during the PM peak hour appears to be due to the traffic on eastbound Maryland Avenue being shifted to northbound Adams Street to reach MLK Boulevard.

B. Alternative B

A conceptual drawing of Alternative B is shown in Figure 11 below.







Table 6 below shows the SimTraffic analysis results from Alternative B for the few key intersections being monitored.

	Alternative B						
Intersection	AM	AM	PM	PM			
	Delay	LOS	Delay	LOS			
MLK Blvd @ Maryland Avenue / Madison Street	30.6	С	18.9	В			
MLK Boulevard @ Adams Street	23.1	С	12.6	В			
MLK Boulevard @ Monroe Street	12.3	В	13.7	В			
Maryland Avenue @ Chestnut Street Extension	2.6	А	2.4	А			
Maryland Avenue @ Adams Street	20.8	С	45.7	D			

Table 6. Alternative B Signalized Intersection Control Delay and Level of Service

Results from the Alternative B SimTraffic analysis showed that the intersection of MLK Boulevard and Maryland Avenue / Madison Street and the intersection of MLK Boulevard and Adams Street are expected to operate with moderate delay (LOS C) during the AM peak hour and minimal delay (LOS B) during the PM peak hours. Results also showed that the intersection of MLK Boulevard and Monroe Street is expected to operate with minimal delay (LOS B) during both the AM and the PM peak hours and the new intersection of Maryland Avenue and Chestnut Street Extension is expected to operate with marginal delay (LOS A) during both the AM and the PM peak hours. Lastly, results show that the intersection of Maryland Avenue and Adams Street is expected to operate with moderate delay (LOS C) during the AM peak hour and considerable delay (LOS D) during the PM peak hour. Similar to Alternative A, the increase in delay during the PM peak hour appears to be due to the traffic on eastbound Maryland Avenue being shifted to northbound Adams Street to reach MLK Boulevard.



C. Alternative C

A conceptual drawing of Alternative C is shown in **Figure 12** below.



Figure 12. Alternative C: Private Monroe Street/Two-Way Maryland Avenue

Table 7 below shows the SimTraffic analysis results from Alternative C for the few key intersections being monitored:

Tahlo 7	Alternative (C Signalized	Intersection	Control Delay	v and I evel of S	Sorvico
	Alternative	o olgnalizea	inter section	Control Delay		

Interrection	Alternative C			
Intersection	AM Delay	AM LOS	PM Delay	PM LOS
MLK Blvd @ Maryland Avenue / Madison Street	25.8	С	32.3	С
MLK Boulevard @ Adams Street	24.3	С	21.3	С
MLK Boulevard @ Monroe Street	6.9	А	12.9	В
Maryland Avenue @ Chestnut Street Extension	2.5	А	2.6	А
Maryland Avenue @ Adams Street	19.8	В	45.0	D



Results from the Alternative C SimTraffic analysis showed that the intersection of MLK Boulevard and Maryland Avenue / Madison Street and the intersection of MLK Boulevard and Adams Street are expected to operate with moderate delay (LOS C) during both the AM and the PM peak hours and the new intersection of Maryland Avenue and Chestnut Street Extension is expected to operate with marginal delay (LOS A) during both the AM and the PM peak hours. Also, the intersection of MLK Boulevard and Monroe Street is expected to operate with marginal delay (LOS A) during the AM peak hour and minimal delay (LOS B) during the PM peak hour. Lastly, results show that the intersection of Maryland Avenue and Adams Street is expected to operate with moderate delay (LOS C) during the AM peak hour and considerable delay (LOS D) during the PM peak hour appears to be due to the traffic on eastbound Maryland Avenue being shifted to northbound Adams Street to reach MLK Boulevard.

D. Alternative **D**

A conceptual drawing of Alternative D is shown in **Figure 13** below.



Figure 13. Alternative D: I-95 Split Ramp



Table 8 below shows the SimTraffic analysis results from Alternative D for the few key intersections being monitored:

	Alternative D			
Intersection	AM Delay	AM LOS	PM Delay	PM LOS
MLK Blvd @ Maryland Avenue / Monroe Street	28.1	С	28.3	С
MLK Boulevard @ Adams Street	26.2	С	15.7	В
MLK Boulevard @ Madison Street	7.9	А	13.1	В
Maryland Avenue @ Chestnut Street Extension	11.1	В	9.2	А
Maryland Avenue @ Adams Street	30.3	С	55.7	E

Table 8. Alternative D Signalized Intersection Control Delay and Level of Service

Results from the Alternative D SimTraffic analysis showed that the intersection of MLK Boulevard and Maryland Avenue / Monroe Street is expected to operate with moderate delay (LOS C) during both the AM and the PM peak hours and the intersection of MLK Boulevard and Adams Street is expected to operate with moderate delay (LOS C) during the AM peak hour and minimal delay (LOS B) during the PM peak hour. Results also showed that the intersection of MLK Boulevard and Madison Street is expected to operate with marginal delay (LOS A) during the AM peak hour and minimal delay (LOS B) during the PM peak hour and the new intersection of Maryland Avenue and Chestnut Street Extension is expected to operate with minimal delay (LOS B) during the AM peak hour and marginal delay (LOS A) during the PM peak hour. Lastly, results show that the intersection of Maryland Avenue and Adams Street is expected to operate with moderate delay (LOS C) during the AM peak hour and heavy delay (LOS E) during the PM peak hour. Similar to the other Improvement Alternatives, the increase in delay during the PM peak hour appears to be due to the traffic on eastbound Maryland Avenue being shifted to northbound Adams Street to reach MLK Boulevard.

8. Preferred Alternative

A. Preferred Alternative

Based upon the input from Wilmington Initiatives, the Stakeholders, and an assessment of the Purpose and Need, goals, and objectives (and as further detailed in the criteria matrix), Alternative A has been identified as the Preferred Alternative.

As shown in Figure 8, Alternative A includes the following:

- Reconstruction of the I-95 Ramp NB Terminus at Maryland Avenue, in order for:
 - Maryland Avenue traffic heading towards MLK Boulevard would have to make a left onto Adams Street
 - I-95 NB ramp traffic could either have a free-flow right turn onto Maryland Avenue, or stay straight onto Adams Street at the existing traffic signal
- Adding a right turn on Adams Street at the MLK Intersection to accommodate the additional traffic from Maryland Avenue diversions



- Reconstruction of Monroe Street between MLK and Maryland Avenue to provide two-way traffic separated by a median
- Reconstruction of the MLK Boulevard and Madison Street Intersection to a four-way intersection
- Construction of a new Chestnut Street Extended to connect Monroe Street with South Madison Street, with signals at both intersections.
- Reconstruction of existing Chestnut Street to eliminate access to Monroe Street, with access only provided to and from Adams Street.
- Reconstruction of South Madison Street from MLK Boulevard to the new intersection with Chestnut Street Extended.
- Shared Use Path along the Amtrak Viaduct and Madison Street, between Beech Street and 2nd Street
- Sidewalk and ADA Improvements
- Bus Stop Improvements
- Green Stormwater Instructure to address stormwater runoff

Each of the alternatives provide changes to the urban street grid with some improvements for all modes, including vehicles, pedestrians, bicyclists, and access to transit. However, Alternative A performed the best overall, in consideration of the criteria detailed in the criteria matrix. For the other alternatives, the biggest issues were as follows:

- Alternative B: The 5-Point Intersection was still maintained as part of this alternative, which did not best address the challenges created by the geometrics of the intersection for all modes. This alternative also limited future economic development opportunities.
- Alternative C: This alternative also maintained the 5-Point Intersection, but also made it more challenging due to Maryland Avenue having two-way traffic at the intersection.
- Alternative D: This alternative was significantly more expensive (\$35.6M) than the other three alternatives, without many additional benefits to traffic operations. This alternative also impacted the skate park that is currently under construction and impacted more future economic opportunities compared to the other alternatives.

B. Conceptual Cost Estimate

Conceptual Cost estimates were developed for all four alternatives. Alternative A as the preferred alternative, is estimated at \$7.6 Million, which does not include right-of-way costs. The detailed cost estimates are located in **Appendix E**.



C. Direct, Indirect, and Cumulative Effects

The 5-Point Intersection Safety & Capacity Improvement Study will introduce several community benefits and has the potential to encourage development and economic growth in Wilmington. Direct benefits of this study include:

- Improved transportation infrastructure
- Improved traffic operations
- Improved pedestrian and bicycle facilities and connections
- Potential redevelopment of vacant and underutilized properties

These direct effects support indirect benefits to the community to include:

- Improved mobility and community cohesion
- Improved access to potential redevelopment sites
- Improved safety

The cumulative benefits over time can have a significant improvement to the community.

9. Next Steps

The 5-Point Intersection Safety & Capacity Improvement Study has been developed to serve as a conceptual plan and preliminary NEPA analysis. As project components advance into preliminary design, more details and NEPA analysis will be required to obtain NEPA approval. Project improvements could then be advanced into final design and ultimately construction. All of these next steps are based upon availability funding.

However, as indicated in this report, there are issues and other improvements that need to be addressed before significant changes to the street network recommended by Alternative A can be implemented, mainly:

- Replacement of DTC's Monroe Street Maintenance Facility, depending on which concept may be chosen for implementation as noted in **Appendix B**
- Reconstruction and replacement of parking for buses
- Reconstruction and replacement of parking for DTC and Delmarva employees

The COVID-19 pandemic has also impacted travel patterns and volumes, at least since the publication of this report. Work place disruptions caused by the pandemic may extend for many years, causing additional uncertainty. The summer of 2020 opening of the Senator Margaret Rose Henry Bridge over the Christina River has now connected the Wilmington Riverfront with US 13, which provides traffic another way to access the Riverfront and lessens in the near-term some traffic needing to use I-95 NB and get off at the Maryland Avenue ramp.

A. Environmental Review

Due the potential for hazardous materials, to include aboveground and underground storage tanks, a Phase 1 hazardous materials assessment is recommended during the NEPA phase of the project. Although the Wilmington Rail Viaduct is not within the area of proposed improvements,



additional historic architectural and archeology review may be needed depending on the extent of anticipated disturbance through coordination with the State Historic Preservation Office.

B. Mitigation Strategies

To mitigate the potential impacts of flooding in the future, stormwater best management practices should be put into place for any new development. Landscapes that soak up and infiltrate water help to reduce flood impacts from high river water and combined sewer overflows.

C. Traffic Monitoring

Due to the opening of the Senator Margaret Rose Henry Bridge, traffic volumes on the I-95 NB ramp to Maryland Avenue have likely changed because of this additional access to the Riverfront. COVID-19 has also impacted traffic volumes (either short-term or long-term), and the impending reconstruction of the I-95 Viaduct starting in the late Winter of 2021 will further skew traffic volumes and patterns.

With all of these factors, additional monitoring of traffic (yearly or in regular intervals) is recommended to further understand future traffic patterns to better identify the timing of implementation.

D. Critical Issues to be Considered

As noted in the report, the implementation of the transportation improvements is dependent on the implementation of improvements to DTC's Monroe Street Maintenance and Operation Facilities. Along with the need for these improvements, additional critical issues need to be considered as part of the implementation:

- Design of any roadway changes will need to accommodate large vehicles, especially large construction/maintenance vehicles that operate out of Delmarva's site
- Avoidance of the underground Shipley Street Combined Sewer Outfall (CSO) facility that is under the Delmarva Parking lot off South Madison Street and is also under the DTC Maintenance Building Parcel. Any impacts to the CSO will be very expensive to mitigate.
- Staging of parking needs impacted during construction
- Any redevelopment that may have occurred on the Reybold Property since this report was completed.

10. Funding Opportunities

Funding for the 5-Point Intersection Safety & Capacity Improvement Study is not already accounted for in the WILMAPCO Constrained Regional Transportation Plan (RTP) and is also not found in DeIDOT's Six-Year Capital Transportation Plan (CTP). The project needs to be identified in the WILMAPCO RTP and DeIDOT's CTP before any federal funding can be allocated to the improvements recommended by the Study.

Along with traditional federal transportation funds allocated through federal formula appropriations (with a local match), other Federal Funding Opportunities include:



- <u>BUILD Discretionary Grant</u> Previously known as the TIGER Grant, this program is a competitive and merit-based federal funding program for transportation projects that play a critical role in economic development. Projects must be over \$6.25 million, and should also involve innovative technologies, explore ways to deliver projects faster while also saving on construction costs, and make needed investments in the Nation's infrastructure.
- <u>Congestion Mitigation and Air Quality Improvement (CMAQ) Grant</u> CMAQ funds may be used for a transportation project or program that is likely to contribute to the attainment or maintenance of a national ambient air quality standard, with a high level of effectiveness in reducing air pollution, and that is included in the metropolitan planning organization's (MPO's) current transportation plan and transportation improvement program (TIP) or the current state transportation improvement program (STIP) in areas without an MPO. Reducing traffic congestion and improving pedestrian, bicycle, and transit mobility are supported by the CMAQ program. The pedestrian, bicycle, and transit components of this project may qualify for this funding, but the roadway construction will not qualify.
- <u>Transportation Alternatives (TA) Grant</u> The TA program has set-aside funds for projects and activities that encompass a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity. These funds may be considered for components related improvements like the shared use path along the Amtrak Northeast Corridor.
- <u>Federal Transit Administration (FTA) Funding</u> For improvements to DTC's Monroe Street Facility, FTA Grant funds may be an option for additional funding for transit related improvements.



APPENDIX A FHWA PEL Checklist

APPENDIX B

DTC's Monroe Street Maintenance and Operations Study

APPENDIX C

Stakeholder and Public Engagement

- Wilmington Initiatives
 - o May 16, 2018 Presentation
 - o January 16, 2019 Minutes (Draft)
 - o March 20, 2019 Presentation
 - June 12, 2019 Minutes
 - o July 17, 2019 Presentation & Minutes (Draft)
 - August 21, 2019 Minutes (Draft)
 - o July 15, 2020 Presentation
 - November 17, 2020 Presentation
- Stakeholder Group Meetings
 - May 20, 2019 Presentation & Minutes
 - o August 8, 2019 Minutes
 - November 5, 2020 Presentation

APPENDIX D Alternatives

APPENDIX E Cost Estimates