Wilmington Initiatives

DART Moving Forward

WILMAPCO

DelDOT

January 2021

5-Point Intersection Safety & Capacity Improvement Study

RK&K

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Wilmington Area Planning Council

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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

WHEREAS, 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

WILMAPCO
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

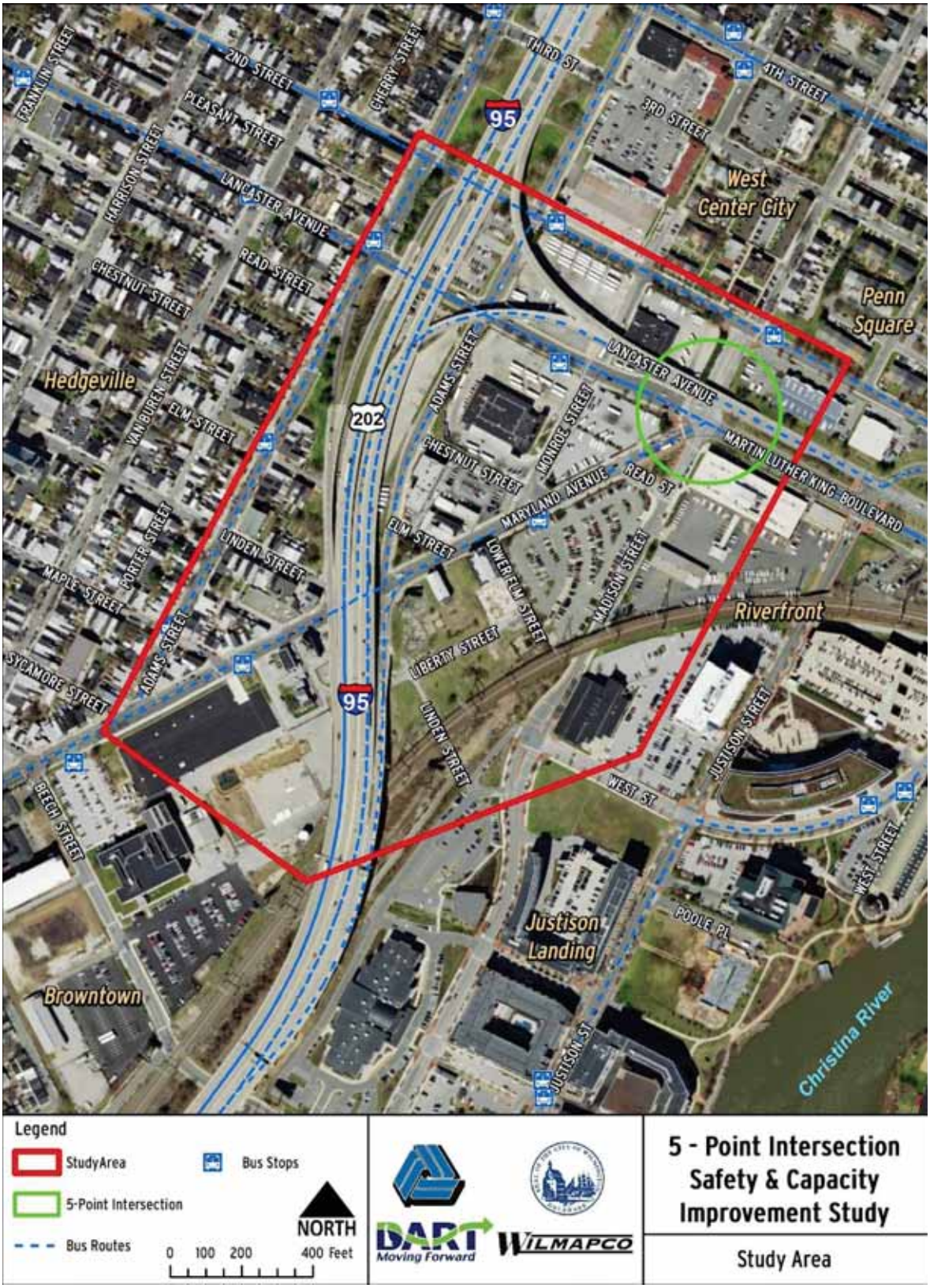
The Wilmington Area Planning Council (WILMAPCO), in collaboration with Wilmington Initiatives, is leading the 5-Point Intersection Safety & Capacity Improvements Study. Wilmington Initiatives is a multi-agency partnership between the City of Wilmington, Delaware Department of Transportation (DelDOT), 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.

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 process[1]" (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*, https://www.environment.fhwa.dot.gov/env_initiatives/PEL.aspx (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

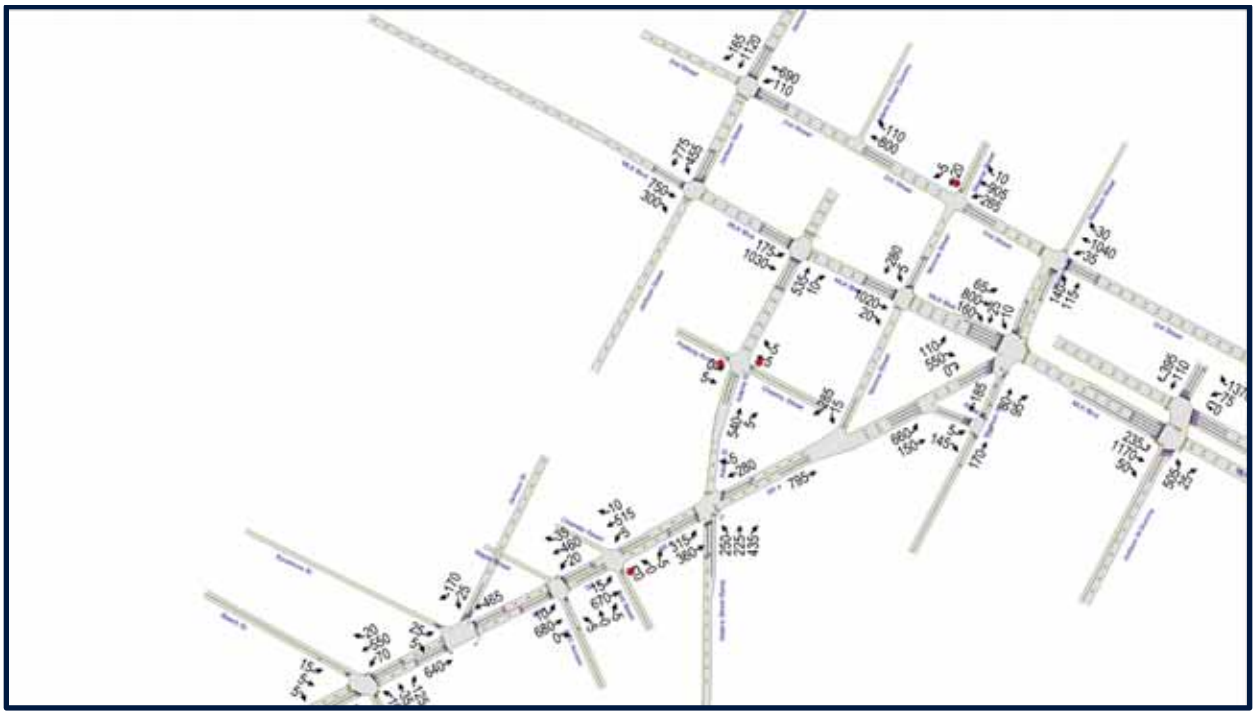
WILMAPCO provided 2018 weekday peak hour turning movement counts for the key intersections within the project area listed below:

- 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.

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

Level of Service	Control Delay per Vehicle
A	≤ 10 sec/veh
B	> 10 - 20 sec/veh
C	> 20 - 35 sec/veh
D	> 35 - 55 sec/veh
E	> 55 - 80 sec/veh
F	> 80 sec/veh

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.

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

Intersection	2018 Existing			
	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	C	21.6	C
MLK Boulevard @ Monroe Street	16.0	B	10.4	B
Maryland Avenue @ Adams Street	37.7	D	26.6	C

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 right-turn 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
  - 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.

Table 3. Summary of Stakeholder and Public Engagement

DTC Operations Meetings	
April 5, 2019	• Study process and schedule • Monroe Street Bus Operations Facility o Existing facilities and programs o Planned facilities and programs o Operations needs assessment • Previous Study alternatives
July 11, 2019	• Initial Review of Preliminary Concepts
Wilmington Initiatives (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

	• 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 o 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, 2020	• Update on November 5, 2020 Stakeholders meeting • Finalize Recommendations and Path Forward
Stakeholder Group Meetings	
May 20, 2019	• Welcome/introductions • Study overview • User and prioritization exercise • Criteria testing • Next steps
August 8, 2019	• Alternatives evaluation process • Study alternatives • Stakeholder involvement
November 5, 2020	• Review of Alternatives A, B, C, and D • Presentation of DTC Garage Study • Path Forward
Wilmington Initiatives Annual Public Workshops	
June 20, 2018 June 19, 2019	• Study process and schedule • Study area • Alternatives evaluation process

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.
- Support Economic Development – 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.
- Gateway Enhancements – 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 Plan[2], 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*, https://www.wilmingtonde.gov/government/city-departments/planning-and-development/wilmington-2028-comprehensive-plan/full-plan-and-summary-document (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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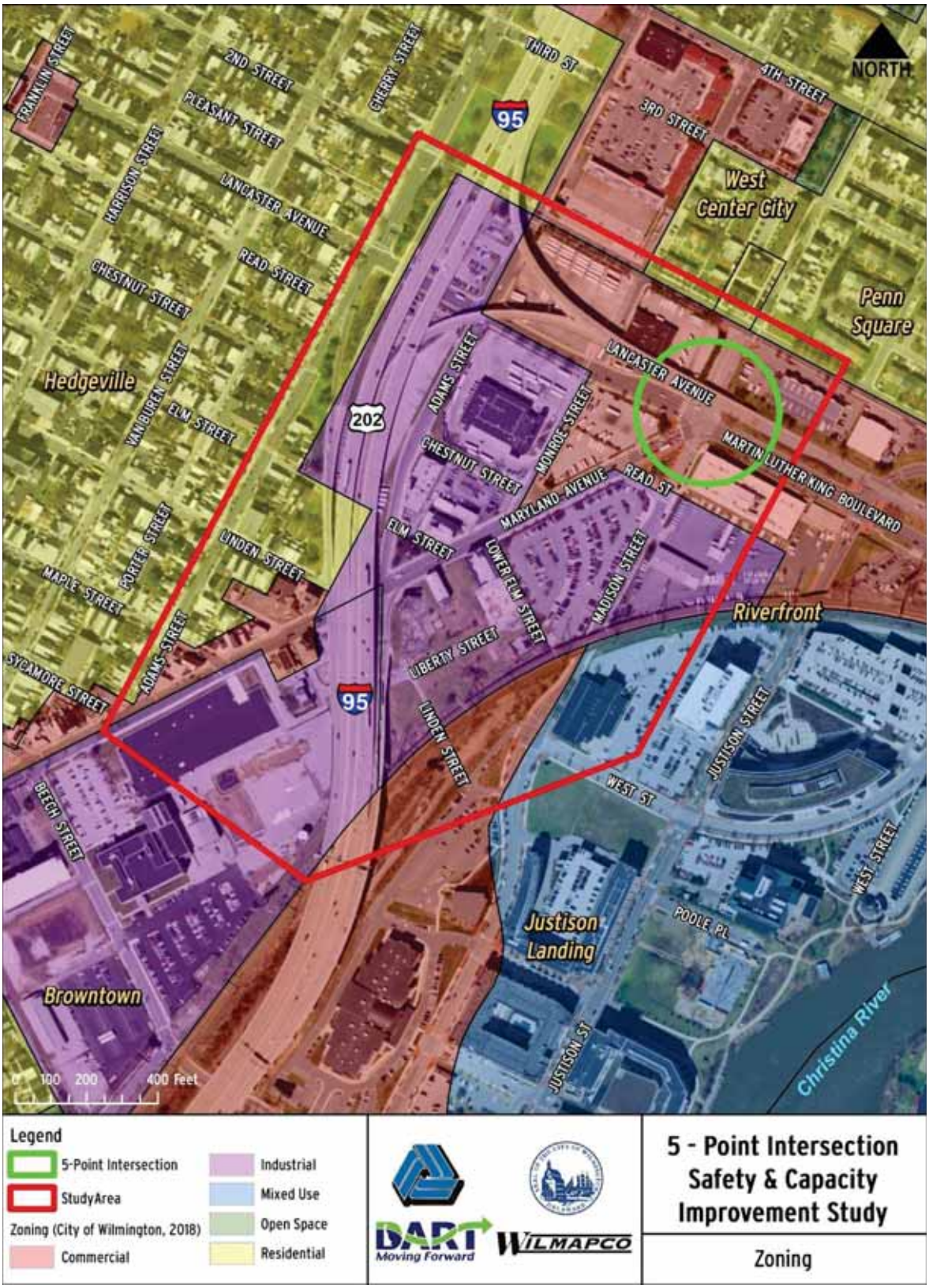
Figure 6. Study Area Zoning



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 population[3] 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*, https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf

Figure 7. Study Area Block Groups

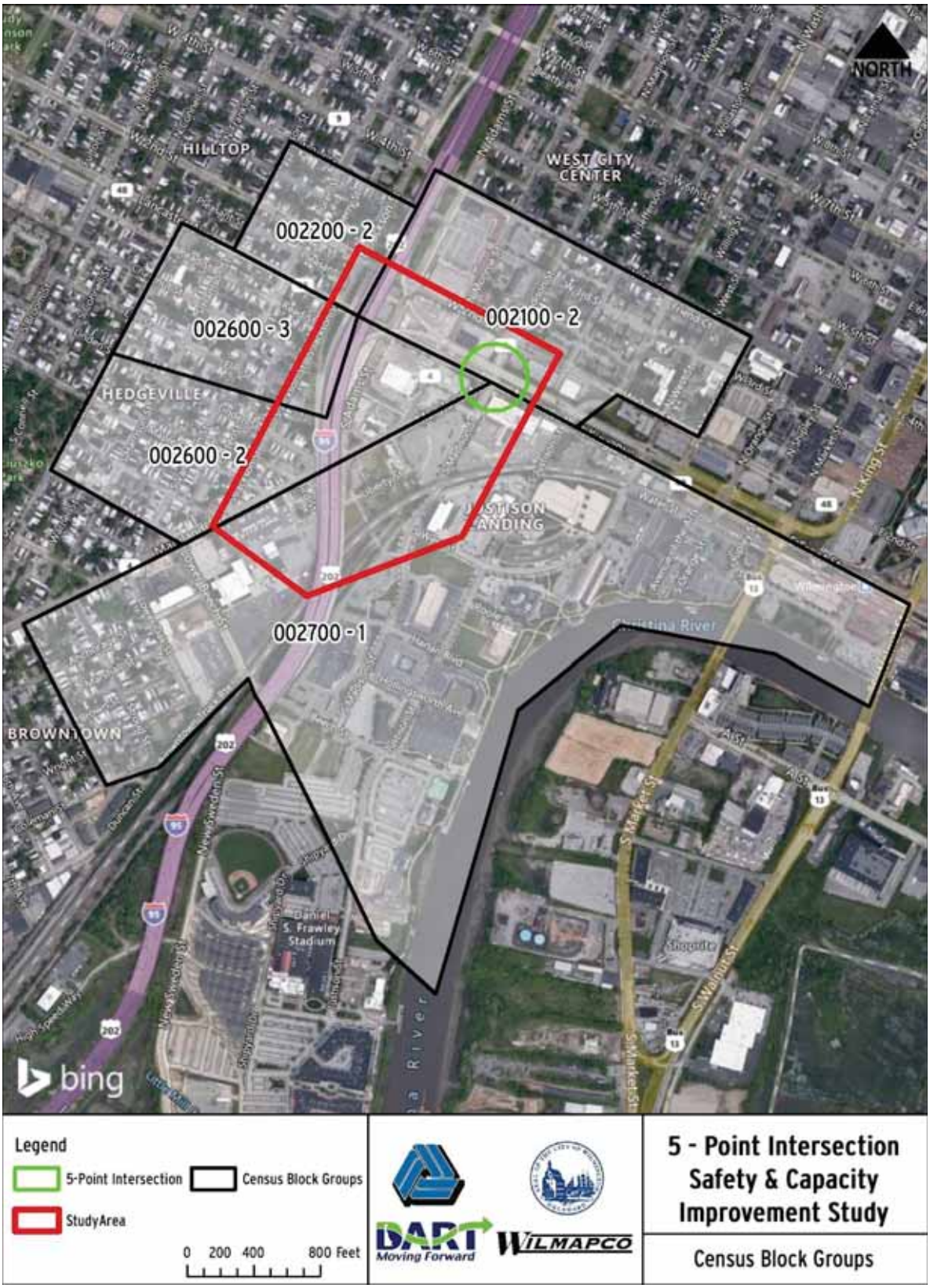


Table 4. Demographic Analysis for the Study Area, New Castle County, and the State of Delaware

Demographic Characteristic	Delaware		New Castle County		Study Area Block Groups									
					CT 21 BG 2		CT 22 BG 2		CT 26 BG 2		CT 26 BG 3		CT 27 BG 1	
Total Population	949,495		555,133		998		711		867		1,093		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 trade-offs 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

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection — 5-Point Wilmington DE

CRITERIA MATRIX

CRITERIA	TRANSPORTATION						LAND USE	STAKEHOLDER CONCERNS			POTENTIAL STRUCTURED PARKING OPPORTUNITIES		GATEWAY ENHANCEMENT OPPORTUNITIES		ENVIRONMENTAL			COST
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 Improvements	◐	●	●	◐	●	●	◐	◐	◐	◐	No	No	◐	●	○	●	◐	●
Alt. A Two-way Monroe St.	◑	◑	◑	●	◑	◑	●	●/★	○	◑	Yes (2 Options)	Yes	◑	◑	○	◑	●	◐
Alt. B One-way Monroe St. with Chestnut St. extended	◑	◑	◑	◐	◑	◑	◐	◔/★	◐	◑	No	Yes	◑	◑	○	◑	●	◐
Alt. C Private Monroe St. / Two-way Maryland Ave.	◑	◑	●	◐	◑	◑	◐	●/★	◐	◑	No	Yes (2 Options)	◑	◑	○	◑	●	◐
Alt. D I-95 Split Ramp	◑	●	◑	◑	◑	◑	●	●/★	○	○	Yes	No	●	◑	○	◑	◑	●

★ with Structured Parking

RATING:

- Most Adverse Effect
- ◐
- Neutral Impact
- ◑
- Most Positive Effect

5 Point Intersection Priority List *

1. Pedestrian Safety
2. Land Use
3. Bus Operations
4. Wayfinding / Legibility
5. Commuter Efficiency
6. Economic Development
7. Pedestrian / Bicycle Connectivity
8. Stakeholder Support
9. Public Support
10. Environmental Impact / Green Infrastructure

* Input from May 20th Stakeholders Meeting

7. Traffic Analysis of the Alternatives Considered

A. Alternative A

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

Figure 10. Alternative A: Two-Way Monroe Street

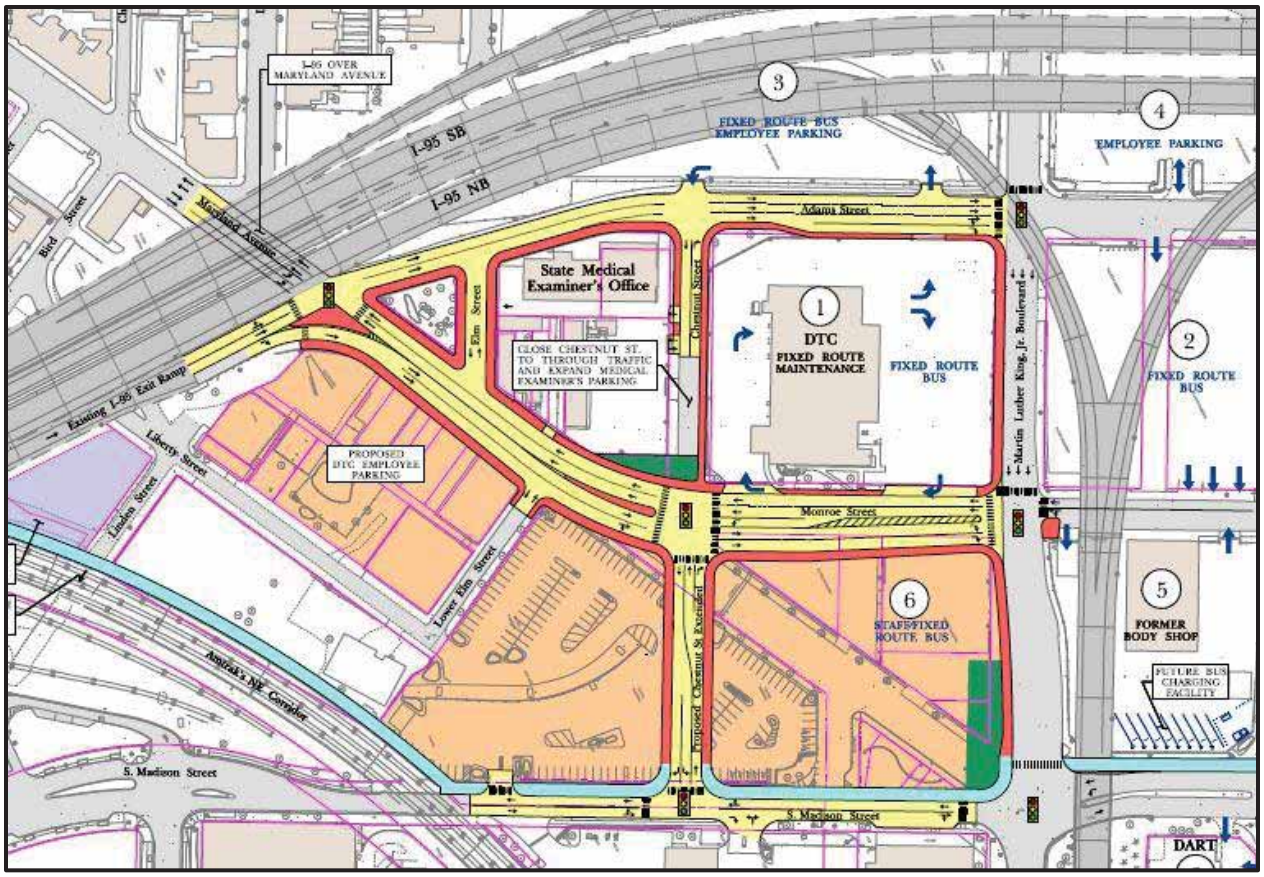


Table 5 below shows the SimTraffic analysis results from Alternative A for the few key intersections being monitored:

Table 5. Alternative A Signalized Intersection Control Delay and Level of Service

Intersection	Alternative A			
	AM Delay	AM LOS	PM Delay	PM LOS
MLK Blvd @ Maryland Avenue / Monroe Street	28.3	C	27.0	C
MLK Boulevard @ Adams Street	25.3	C	12.1	B
MLK Boulevard @ Madison Street	7.7	A	12.7	B
Maryland Avenue @ Adams Street	21.1	C	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.

Figure 11. Alternative B: One-Way Monroe Street with Chestnut Street Extended

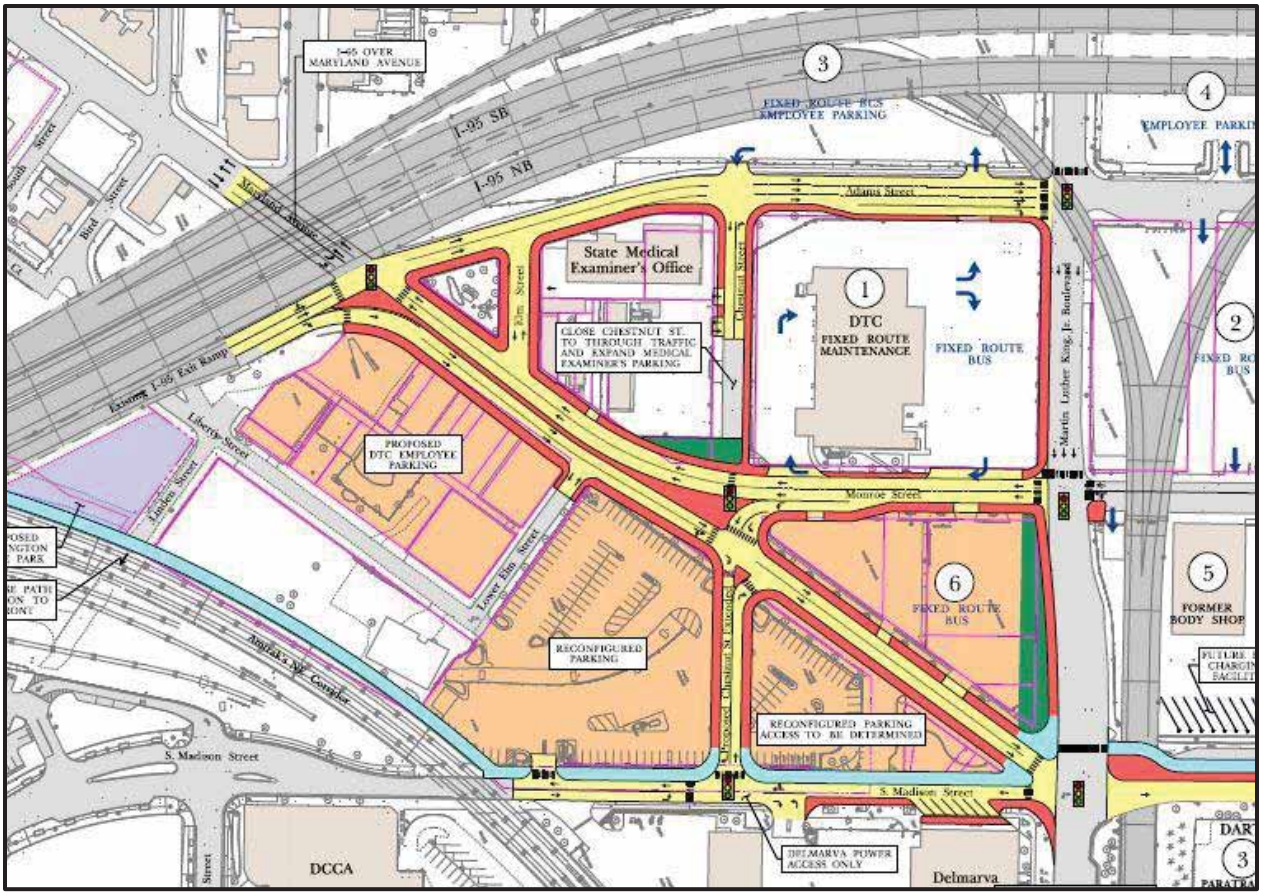


Table 6 below shows the SimTraffic analysis results from Alternative B for the few key intersections being monitored.

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

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

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

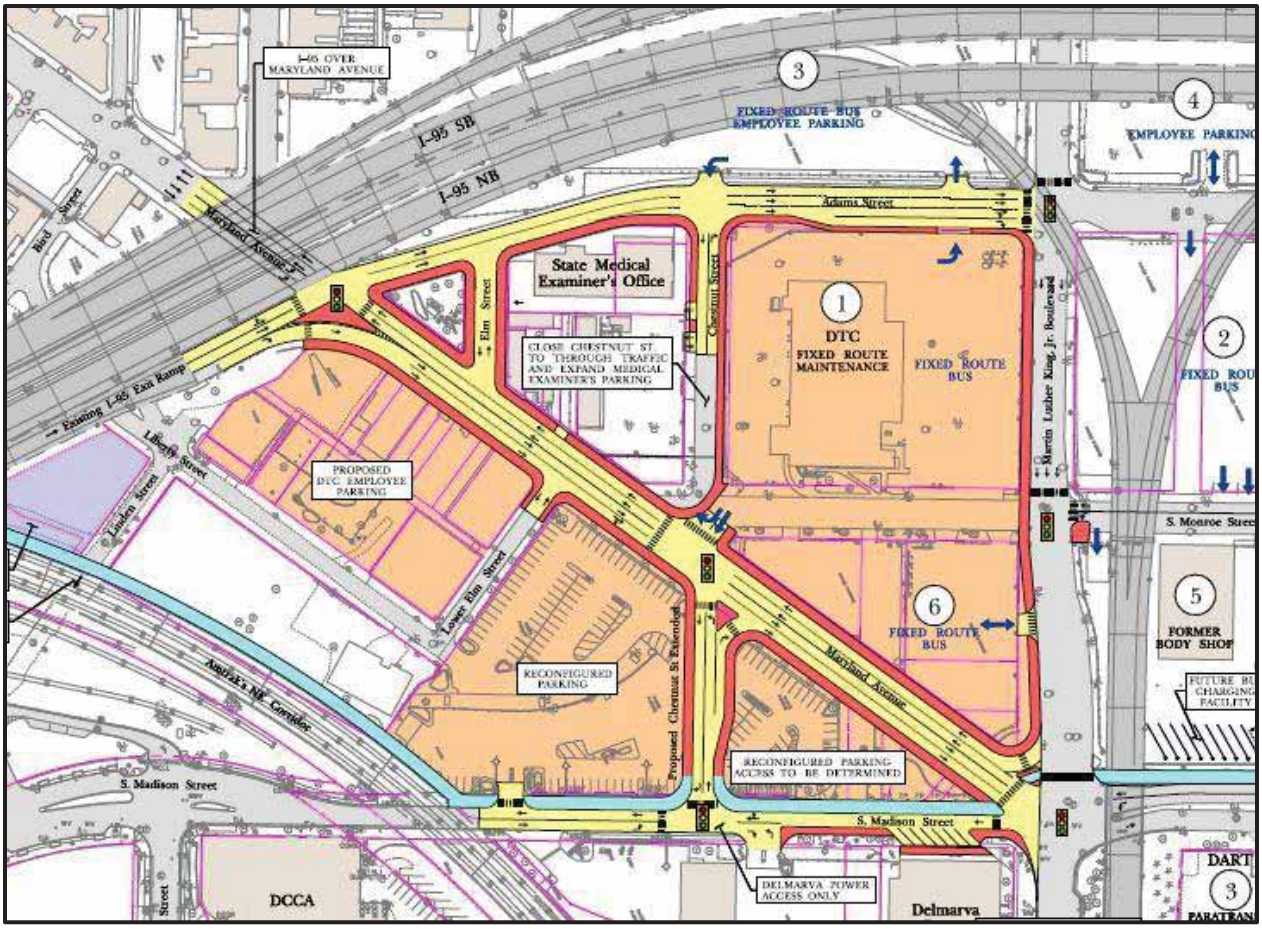


Table 7 below shows the SimTraffic analysis results from Alternative C for the few key intersections being monitored:

Table 7. Alternative C Signalized Intersection Control Delay and Level of Service

Intersection	Alternative C			
	AM Delay	AM LOS	PM Delay	PM LOS
MLK Blvd @ Maryland Avenue / Madison Street	25.8	C	32.3	C
MLK Boulevard @ Adams Street	24.3	C	21.3	C
MLK Boulevard @ Monroe Street	6.9	A	12.9	B
Maryland Avenue @ Chestnut Street Extension	2.5	A	2.6	A
Maryland Avenue @ Adams Street	19.8	B	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. Similar to Alternatives A and B, 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.

D. Alternative D

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

Figure 13. Alternative D: I-95 Split Ramp

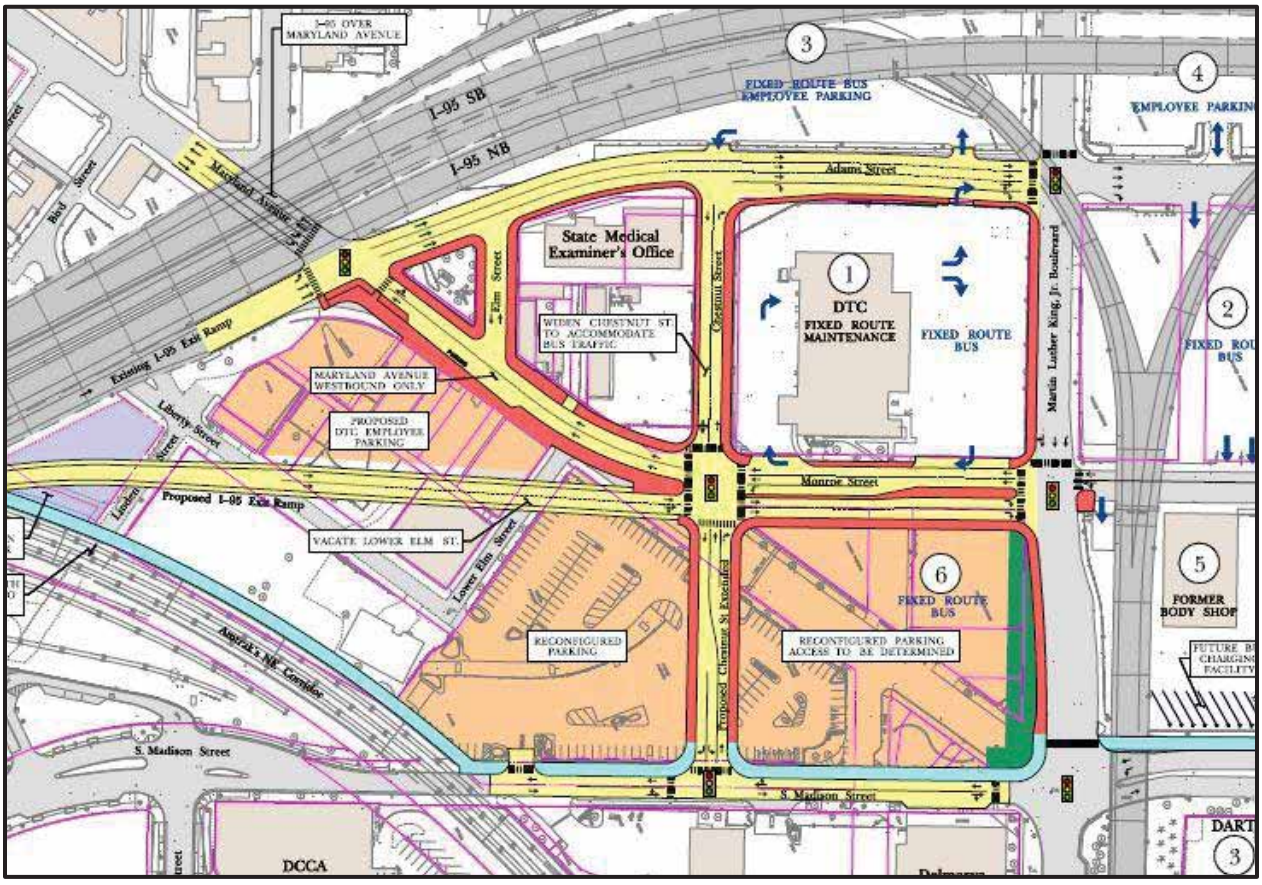


Table 8 below shows the SimTraffic analysis results from Alternative D for the few key intersections being monitored:

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

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

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 DelDOT's Six-Year Capital Transportation Plan (CTP). The project needs to be identified in the WILMAPCO RTP and DelDOT'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:

- BUILD Discretionary Grant – 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.
- Congestion Mitigation and Air Quality Improvement (CMAQ) Grant – 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.
- Transportation Alternatives (TA) Grant – 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.
- Federal Transit Administration (FTA) Funding – 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

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
1.	Background:		
a.	Who is the sponsor of the PEL study? (state DOT, Local Agency, Other)	Part 1.A.	
b.	What is the name of the PEL study document and other identifying project information (e.g. sub-account or STIP numbers, long-range plan, or transportation improvement program years)?		5-Point Intersection Safety & Capacity Improvement Study
c.	Who was included on the study team (Name and title of agency representatives, consultants, etc.)?	Part 1.A.	
d.	Provide a description of the existing transportation facility within the corridor, including project limits, modes, functional classification, number of lanes, shoulder width, access control and type of surrounding environment (urban vs. rural, residential vs. commercial, etc.)	Part 1.B and C; Part 4.A.	
e.	Provide a brief chronology of the planning activities (PEL study) including the year(s) the studies were completed.	Part 2.A.	
f.	Are there recent, current, or near future planning studies or projects in the vicinity? What is the relationship of this project to those studies/projects?	Part 1.E.	
2.	Methodology used:		
a.	What was the scope of the PEL study and the reason for completing it?	Parts 2 and 6	
b.	Did you use NEPA-like language? Why or why not?	Yes	
c.	What were the actual terms used and how did you define them? (Provide examples or list)		Purpose and Need, Existing Environment, Environmental Justice, Alternatives Considered, Indirect and Cumulative Effects, and Preferred Alternative
d.	How do you see these terms being used in NEPA documents?		The Purpose and Need and the analyses are described in the report for reference in a future NEPA study.

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments

e.	What were the key steps and coordination points in the PEL decision-making process? Who were the decision-makers and who else participated in those key steps? For example, for the corridor vision, the decision was made by state DOT and the local agency, with buy-in from FHWA, the USACE, and USFWS and other resource/regulatory agencies.	Part 2.B.	
f.	How should the PEL information be presented in NEPA?		The PEL Study may be attached
3.	Agency coordination:		
a.	Provide a synopsis of coordination with Federal, tribal, state and local environmental, regulatory and resource agencies. Describe their level of participation and how you coordinated with them.	Part 2.B.	
b.	What transportation agencies (e.g. for adjacent jurisdictions) did you coordinate with or were involved during the PEL study?	Part 2.B.	
c.	What steps will need to be taken with each agency during NEPA scoping?	Part 8	
4.	Public coordination:		
1.	Provide a synopsis of your coordination efforts with the public and stakeholders.	Part 2.C.	
5.	Purpose and Need for the PEL study:		
a.	What was the scope of the PEL study and the reason for completing it?	Part 1 and 1.A.	
b.	Provide the purpose and need statement, or the corridor vision and transportation goals and objectives to realize that vision.	Part 3.	
c.	What steps will need to be taken during the NEPA process to make this a project-level purpose and need statement?	Part 8.	
6.	Range of alternatives:		
a.	What types of alternatives were looked at?	Parts 5 and 6.	
b.	How did you select the screening criteria and screening process?	Part 7.A.	
c.	For alternative(s) that were screened out, briefly summarize the reasons for eliminating the alternative(s). (During the initial screenings, this generally will focus on fatal flaws.)	Parts 5, 6 and 7.A.	
d.	Which alternatives should be brought forward into NEPA and why?	Parts 5, 6, 7.A. and B.	
Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
e.	Did the public, stakeholders, and agencies have an opportunity to comment during this process?	Parts 2.B. and C.	
f.	Were there unresolved issues with the public, stakeholders, and/or agencies?		No
7.	Planning assumptions and analytical methods:		
a.	What is the forecast year used in the PEL study?	Parts 1.C. and 6.	
b.	What method was used for forecasting traffic volumes?	Parts 1.C. and 6.	

c.	Are the planning assumptions and the corridor vision/purpose and need statement consistent with each other and with the long-range transportation plan? Are the assumptions still valid?	Part 7.A.	
d.	What were the future year policy and/or data assumptions used in the transportation planning process related to land use, economic development, transportation costs, and network expansion?	Parts 4.A. and 6.	
8.	Environmental resources (wetlands, cultural, etc.) reviewed.		
a.	In the PEL study, at what level of detail was the resource reviewed and what was the method of review?	Part 4	
b.	Is this resource present in the area and what is the existing environmental condition for this resource?	Part 4	
c.	What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?	Parts 4.B. and C; Parts 8.A. and B.	
d.	How will the planning data provided need to be supplemented during NEPA?	Part 8	
9.	List environmental resources you are aware of that were not reviewed in the PEL study and why. Indicate whether or not they will need to be reviewed in NEPA and explain why.		None known based on available desktop data sources.
10.	Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where the analysis can be found.	Part 7.C.	
Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
11.	Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.		A flood plain study should be conducted to consider floodplain impacts; Phase 1 Environmental Assessment should be conducted to determine impacts to potential contamination concerns; additional above-ground historic and/or archeology surveys should be completed to assess impacts to potential resources not previously identified.
12.	What needs to be done during NEPA to make information from the PEL study available to the agencies and the public? Are there PEL study products which can be used or provided to agencies or the public during the NEPA scoping process?		The PEL Study will be available to agencies involved in the planning and design process.

13.	Are there any other issues a future project team should be aware of?		The Study Area includes an Environmental Justice Population, and engagement will be necessary to ensure the community is not disproportionately impacted. The Study Area also has a combined sewer system that should be considered during the design process.

APPENDIX B

DTC’s Monroe Street Maintenance and Operations Study

Five Points Study: DTC Monroe Street Garage Feasibility Study/Master Plan

Introduction

The 5-Point Intersection Study is evaluating multiple transportation improvement alternatives to address safety and capacity at and near the intersection of MLK Boulevard, Maryland Avenue, and Madison Street in Wilmington, Delaware.

As part of the review and assessment of opportunities and constraints, a critical element was identified that needed further study: the current and planned operations of the Delaware Transit Corporation (DTC) Operations and Maintenance facility at the intersection of Monroe Street and MLK Blvd. DTC operations also include separate lots for bus parking, employee parking, paratransit maintenance, and an electric bus charging facility.

It has been determined that any alternative that changes Monroe Street between MLK Blvd and Maryland Avenue from its current one-way configuration to a two-way configuration would severely impact DTC's Bus Operations, which use Monroe Street as a key component of its bus staging and deployment associated with buses from Lots 1, 2, and 6.

Two of the 5-Point Study improvement alternatives provide for two-way traffic on Monroe Street and therefore would create these transit operational issues; however, if all bus maintenance activities associated with Lots 1,2 and 6 can be oriented to allow maintenance operations to not rely on public streets, the transit operational concerns of a two-way configuration on Monroe Street can be mitigated.

It was recommended that the development of potential DTC Monroe Site layout scenarios was needed to help evaluate the study improvement alternatives. DTC has indicated that the evaluations should also be beneficial to help support maintenance building upgrade/replacement decisions, since the existing building is 40+ years old.

Below is a summary of the Feasibility Study Approach and Recommendations

Site Visit – February 26, 2020

On February 26, 2020, RK&K staff performed a site visit at the DTC Monroe Street facilities.

The site visit was used to understand daily site activities, evaluate facility conditions, identify any issues/constraints, and capture photographic images. As part of the evaluation, RK&K would also be considering site constraints including property ownership, traffic, and community impacts and expectations. Facilities evaluations were based primarily on what could be readily observed as well as from meetings with facilities maintenance personnel and division staff.

A summary of the site visit is found in **Attachment A.**

Architectural Massing Study

Based upon the initial site visit, interviews with personnel, and utilizing a Best Practices computer program created by HDR Maintenance Design Group, RK&K developed a conceptual building program establishing optimal building square footage and massing models that determined operational spatial relationships, interior building horizontal and vertical circulation and optimal site orientation and access. The modeling specifically addressed a multi-story, structured parking building solution for the facility to optimize the existing site(s) The assessment also considered building and site layouts that maximize public streetscape and access (such as improved bike and pedestrian streetscape, access and safety).

Work Session – April 15, 2020 and SiteOPS

Based upon the input received at the February 26th site visit and the recommendations from the architectural massing study, a site optimization tool SiteOPS was used to analyze existing topography, site features, parking configurations, building locations and order of magnitude site costs. A virtual GoToMeeting with DTC staff was held to allow participants to explore site planning "what-if" scenarios and reconfigurations in real time to immediately understand potential impacts. Usually this workshop is held on site and in person; however, the workshop was held as a virtual meeting because of the pandemic.

Four site models/layouts were ultimately developed in the SiteOPS program for possible site layouts to meet the program requirements. SiteOPS "optioneering" software allowed conceptual design of site layouts in a fraction of the time over traditional drafting methods. Layouts were dynamically generated in the interactive session instead of through an iterative process of passing drawings back and forth over weeks or even months.

The SiteOPS process allowed site elements (roads, parking lots, buildings, landscape areas, etc.) to be rapidly moved around the site or between sites to compare the impact of layouts in a matter of minutes. Parking lots with hundreds of spaces were redrawn in a matter of seconds. Grading decisions, like determining suitability for grading out a slope or installing a retaining wall were seen in real time. Sites were visualized in 3D to better understand the context in which the sites exist. All the "what-if" scenarios were rapidly compared to arrive at an optimal site solution that met DTC's needs all while optimizing cost and evaluating a site's constraints.

The presentation and summary of the work session is found in **Attachment B.**

Results

The results of the DTC Monroe Maintenance Facility Study are shown below. Cost estimates for a new Maintenance Building, Parking Structure(s), and site construction costs ranged from $45,960,000 to $99,725,000.

DTC Monroe Facility
Cost Estimates
16-Jun-20

	Concept 1		Concept 3		Concept 4	Concept 4 w/ Employee Garage
	Bus Parking on Top	Bus Parking on Bottom	Bus Parking on Top	Bus Parking on Bottom		
Buildings	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890
Parking Structure	$30,921,660	$30,921,660	$25,821,180	$25,821,180	$0	$17,123,040
80% Solar Panel Cover	$21,859,200	$0	$18,899,100	$0	$0	$0
Other Site Costs	$10,813,250	$10,812,450	$12,008,830	$12,007,930	$9,829,110	$9,831,070
Total Cost Estimate	**$99,725,000**	**$77,865,000**	**$92,860,000**	**$73,960,000**	**$45,960,000**	**$63,085,000**
Bus Parking Spaces	110 +/-	120 +/-	146 +/-	127 +/-	140 +/-	140 +/-
Employee Parking Spaces	520 +/-	380 +/-	460 +/-	400 +/-	159 +/-	300 +/-

*Assumes Solar Panels not needed for Bus Parking on Bottom since buses will be covered, but could be added later for energy reasons
*If Concept 4 is modified to allow two way access to Lot 1 from Chestnut Street, then Bus Parking Spaces are reduced 5-10 spaces
*Delmarva needs 225 +/- Employeee Parking Spaces
*DTC needs 100+ Employee Parking Spaces
*Total Cost Estimate does not Include real estate costs

A summary of results of the feasibility study are found in **Attachment C**, as presented to the DTC Working Group on June 15, 2020. The group has not identified a preferred concept, recognizing that many factors, both now and in the future, may affect decisions for future funding, design, and implementation.

Attachment A
Summary of February 26, 2020 Site Visit

DTC Monroe Street Garage Fesibility Study/Master Plan

Project Kick-off Meeting
February 26, 2020 | 1:00 PM -4:00 PM
DTC Administration Office
119 Lower Beech Street, Wilmington, DE 19805

MEETING NOTES

1. Trolley Square Conference Room Meeting

I. Introductions, Points of Contact

- Attendees Introduced themselves (Attendee List Attached)
- Dave Gula is WILMAPCO PM; Mark Tudor is Consultant PM

II. Project Purpose

- Scope and Schedule Review (Handout): Future dates were set as follows
  - Work Session: March 25th; 1-4PM; RK&K Wilmington Office
  - Progress Meeting/Conf Call: April 15th in the Afternoon
- SiteOPS Demonstration – Charlie Mitchell led a demo of SiteOPS

III. Programming Questions (Questionnaire)

- Denise led a discussion on the questionnaire (Handout). Notes are combined with the discussions that occurred during the Site Tour (below)

2. Monroe Street Site Tour

Operations

- Phasing: Consider phasing of the development, not to disrupt operations.
- Circulation: Two-way traffic on Monroe street may affect the current site circulation.
- Bus service lane, vault, fueling and wash creates back-ups and prevents in service buses being able to access lot. Buses in service lane stick out in lot travel lane restricting drive-by access for other buses returning to the garage.
- Daily Bus Cycle Sequence: Vault > Fuel > Clean > Wash > Park, One service lane bay all buses cycle through at once beginning at 6:00 PM each day.
- Vault: Cash collection will continue
- Internal circulation model preferred only for parking buses and the service lanes, preferably covered parking to avoid buses idling.

Garage Bus capacity and future service requirements

- No. of buses
  - Conventional: 115 – 100 (40ft), 10 (45ft), 3 (29 ft)/5 (30ft), 102 in wide
    Fixed Route Buses Only
    Future Fleet – Maybe 125?!
  - Electric: 8
    10 or more in near future
  - Articulated: 0
- Maximum Capacity: Current site is designed for 100 35 ft long and 96 in wide buses
- Peak pull-out/in: 85 buses
- DTC Planning to look at a fleet size for a 10-minute bus interval
- Electric or Hydrogen Buses in the future which may require Hydrogen storage, Chargers etc.

Current Operations and Maintenance Facility

- 24/7 facility, Operations and maintenance same union
- 65 maintenance Staff, 25-30 during shift that overlaps
- 6 Maintenance Offices on 1st Floor, 4 Operations office on 2nd Floor
- 85 Bus operators report during peak periods
- Conference /Training room exists
- Operator/Maintenance Breakrooms

Programming Requirements and Issues

Maintenance and Service Bays

- Bus maintenance bays are too narrow and short in length for current bus sizes, affects servicing and safety (tire change, lift capacity,).
- Parts shop too small
- Only bay 1A supports 45ft long bus and with the lift capacity.
- Future lifts: 2/3 post lifts, 1/3-wheel lifts
- 2 fuel tanks
- Back in bays preferred for maintenance.
- Electric Buses can pull in or back on (ports on both ends)
- One transformer / charger per bus
- Mid-County Facility good example of efficient maintenance shop layout

Storage:

- Not enough space in facility to store tires and their servicing. The repair /tools and storage spaces are disconnected. At one time 50-60 new tires – 50-60 old changed tires – refurbished – contractor to pick up.
- Parts Shop and storage split among two floors due to limited space
- Inadequate room for storage of Tools for cleaning, washing, repair etc.
- Storage space required for diagnostic boards

Administration (Air-conditioned spaces)

- Tech library for manuals, training manuals
- Training/conference room with a desktop connected to internet > dedicated preferred
- Operations dispatch prefers windows overlooking the bus yard
- Copier room
- Trim room/Farebox repair secured (expensive) and fare boxes Air conditioned
- Future staff: Safety office, facilities staff, data analytics people, performance management staff

Breakroom/Lockers

- The current breakroom for maintenance is underutilized/inadequate
- The Operators break room and dispatch area enough but need more full lockers and restrooms.
- Lockers/showers - No showers but more full lockers needed
- Kitchenette with vending machine
- Currently operator and maintenance room separated but could be combined.

General Programming comments and issues

- The maintenance floor lacks thermal comfort, good day lighting and ventilation; during summer and busy working hours the indoor air quality and thermal comfort are affected.
- Ceiling height too low, crammed up when bigger buses are inside. Taller, Wider and Open design preferred.
- Noise buffer for offices from the maintenance and circulation spaces
- Operations dispatch prefers windows overlooking the bus yard
- Less space in conduits- MEP issues

Site – parking - layout

- Approx. 125 staff and support vehicle parking spaces
- Operational Vehicles Also require Parking
- DPL Parking Spaces: Need to Determine
- Need for long term storage exists but quantity of buses varies
- Prefer Concrete surface for circulation area
- White line on pavement area for maintenance circulation. With all buses on site (at night), can't pull out of maintenance bays.
- Unable to secure main lot at night due to configuration.
- There are some large utilities passing through the site (Look into GIS Data)
- Lots 4,3,2,5 relocate to lots 1,6, developer site

3. Recap/Next Steps

Action Items

- **DTC Planning to determine Fleet Size for 10 Min Bus Intervals/Headway**
- **Bill Thatcher to compile Mid-County Plans and provide to RK&K**
- **Mark Tudor to schedule Work Session for March 15th from 1-4PM at RK&K's Wilmington Office**
- **Mark Tudor to schedule Progress Meeting on April 15th in the Afternoon**

DTC Monroe Street Garage Fesibility Study/Master Plan

Project Kick-off Meeting

February 26, 2020 | 1:00 PM -4:00 PM

DTC Administration Office

119 Lower Beech Street, Wilmington, DE 19805

Sign In Sheet

	NAME	AGENCY	EMAIL	PHONE
X	John Sisson	DTC	john.sisson@delaware.gov	
X	Bill Thatcher	DTC	bill.thatcher@delaware.gov	
X	Alan Bowser	DTC	alan.bowser@delaware.gov	
X	Tigist Zegeye	WILMAPCO	tzegeye@wilmapco.org	
X	Dave Gula	WILMAPCO	dgula@wilmapco.org	
X	Mark Tudor	RK&K	mtudor@rkk.com	
X	Denise Watkins	RK&K	dwatkins@rkk.com	
X	Steve McCarthy	RK&K	smccarthy@rkk.com	
X	Charlie Mitchell	RK&K	cmitchell@rkk.com	
X	Sminu Sudhakaran	RK&K	ssudhakaran@rkk.com	
	Charles Megginson	DTC	charles.megginson@delaware.gov	
	Rich Paprcka	DTC	rich.paprcka@delaware.gov	

Attachment B
April 15, 2020 Work Session Presentation and Summary

Work Session
April 15, 2020

DTC Monroe Street Feasibility Study/ Master Plan

RK&K

Work Session Agenda:

- Project to Date
- Objectives for Site and Building program
- Concepts
- Building Program
- Next Steps

Project To Date

- Since Kick Off meeting/ site visit on February 26, 2020
  - Developed proposed building program
  - Developed Option One: Decking over Lot 1 and Lot 6; Surface Parking on lot west of Chestnut Extended
  - Explored Option Two: Decking over Lot 6 and lot west of Chestnut Extended; Surface Parking on Lot 1
  - Developed Option Three: Decking over Delmarva and Developer lots west of Chestnut St; Surface parking Lots 2 and 6

5-Point Intersection Base Alternative

Objectives of Study

from site visit on February 26,2020

- **Site Circulation / Parking**
  - Address site circulation once Monroe St. becomes 2 way divided
  - Separate bus park, vault, fuel/wash from maintenance traffic
  - Provide parking for 125 +/- buses (preferably in one area)
  - Provide covered parking for buses
  - Provide parking for DTC employees and support vehicles
  - Provide parking for Delmarva employees
  - Consider decked structure
- **Building Program**
  - Consider phasing
  - Increase Maintenance bay widths
  - Provide more tire storage (interior) next to work area
  - Provide additional Break Room and Locker Room area
  - Provide additional support space for offices (copy, training,)

Three Concepts:

- Concept 1: Deck Over Lot 1 and Lot 6
- Concept 2: Deck Over Lot 6 and Lot West of Chestnut
- Concept 3: Deck Over Lot west of Chestnut and Rybold property

Concept 1

Provide Deck over Lot 1 and Lot 6 (in phased construction)

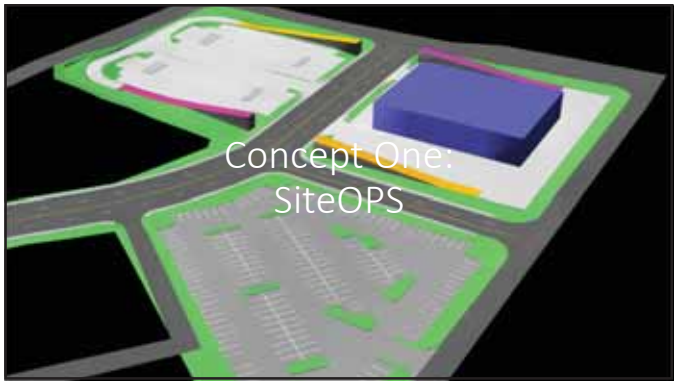
Maintenance Building on Lower Level Lot 6

Fuel/ Wash / Vault on Upper Level Deck

Bus Parking on Upper Level Deck

2 sets of ramps to circulate without crossing Monroe Street

Surface parking for DTC employees on Lot 1, Delmarva employees Lot w of Chestnut, DTC support vehicles on Lot 2



Concept One: Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Most aspects of Transportation Grid Reconfiguration will likely need to be constructed before new the DTC Building/Garage construction is started
- Challenges will be access along Monroe Street and parking (bus and employee)
- Construction Timeline: Approximate 24 – 36 months completion

Concept One: Phase 1

Current to Remain Operational	New Operational	Construction 18-24 Months	Notes
Lot 1: DTC Maintenance		Monroe Street realignment	How to access existing Maintenance facility while Monroe St is being realigned?
Lot 2: Bus Parking		West Chestnut Street extension	
Delmarva Parking (partial) on current lot west of Chestnut		Lot 6: Construction of new DTC Maintenance Facility and Deck Phase One (on Lot 6 only)	Bus Parking on Lot 6 to be temporarily relocated
		West Chestnut property revised and optional sewer outfall utility relocation (currently used for Delmarva employee Parking)	Delmarva Employee Parking temporarily relocated

Concept One: Phase 2

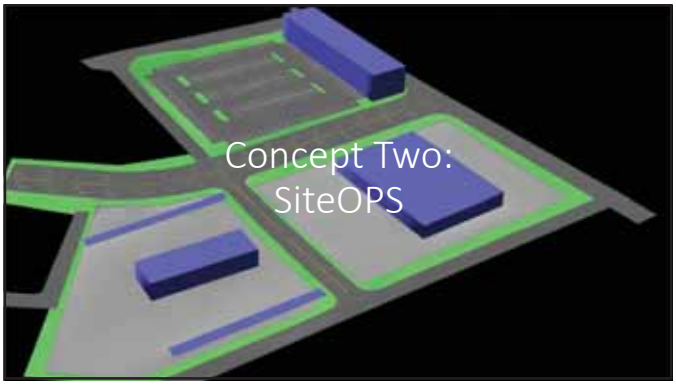
Current to Remain Operational	New Operational	Construction 12-18 Months	Notes
	Monroe Street Realignment	Lot 1: Demolition of existing DTC Maintenance Facility Construction of Surface Parking, access ramps and deck for new DTC Maintenance facility (Phase two)	Bus Parking to be temporarily relocated (Deck not yet accessible)
Lot 2: Bus Parking	West Chestnut Extension		
	New DTC Maintenance Facility Phase One (Lower Level only)		New Wash/ Fuel not yet accessible on new deck; Wash/ Fuel off site?
	West Chestnut property surface parking (Delmarva Employees)		

Concept One: Phase 3

Current to Remain Operational	New Operational	Construction 4 – 6 Weeks	Notes
	Monroe Street Realignment	Lot 2: Resurface and restripe	
	West Chestnut Extension		
	Lot 1 and Lot 6: New DTC Maintenance Facility with Wash/ Fuel and Bus Parking on upper deck level Surface parking (and optional Mezzanine parking) on Lot 1		
	West Chestnut property surface parking (Delmarva Employees)		

Concept Two:

- Provide Deck over Lot 6 and Lot west of Chestnut
- Maintenance Building on Lower Level Lot 6
- Fuel/ Wash / Vault on Lower Level at west lot (on area where current combined sewer is located-possible relocation)
- Bus Parking on upper deck level
- Buses enter site and circulate across Chestnut
- Surface parking for employees, Delmarva, support vehicles on Lot 1 and lot west of Chestnut
- CONCEPT TWO IS NOT RECOMMENDED FOR FURTHER STUDY



Concept 3

Provide deck over Delmarva and Reybold properties west of Chestnut St

Buses enter site on Chestnut St and/or Madison St.

Access to DTC Beech St from Liberty Street

Maintenance Building on lower level of Reybold Property

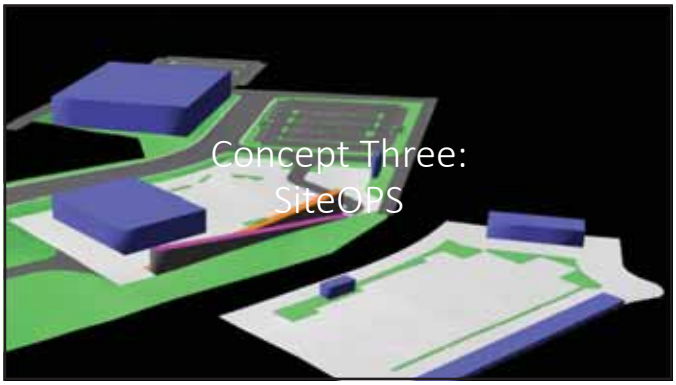
Bus Parking on upper deck level

Fuel/ Wash / Vault on Upper Level

Surface parking for DTC support vehicles on lower level

DTC employee/Delmarva parking on Lot 2 and Lot 6

Potential land swap with Reybold for Lot 1



Concept Three: Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Site can be developed with minimal impacts to DTC Operations
- Transportation Grid Reconfiguration can be constructed after DTC Building/Garage is completed
- Construction Timeline: Approximate 24 – 36 months completion

Concept Three: Phase 1

Current to Remain Operational	New Operational	Construction 18 – 24 Months	Notes
Lot 1: DTC Maintenance		West Chestnut Street extension	Delmarva Employee Parking(on current partial Lot 6)only. All other Delmarva parking temporarily relocated
Lot 2: Bus Parking		New DTC Maintenance Facility and Deck on site west of new Chestnut Street and Reybold Property	
Existing Monroe St. (if desired)			
Lot 6: Bus Parking			

Concept Three: Phase 2

Current to Remain Operational	New Operational	Construction 12-18 Months	Notes
	New DTC Maintenance Facility and Deck on site west of new Chestnut Street and Reybold Property	Lot 1: Demolition of DTC Maintenance facility	
	West Chestnut Street extension	Monroe Street Realignment	
		Lot 6: Surface Parking for Delmarva	Delmarva temp parking on Lot 2 since bus parking moved to new deck

Concept Three: Phase 3

Current to Remain Operational	New Operational	Construction 4 -6 Weeks	Notes
	New DTC Maintenance Facility and Deck on site west of new Chestnut Street and Reybold Property	Lot 2: Resurface and restripe	
	West Chestnut Street extension		
	Monroe Street Realignment		
	Lot 1: Ready for re-development		
	Lot 6: Surface Parking for Delmarva		

New Building Program Overview

- Maintenance Building: 27,000 sf footprint
- Fuel/ Wash: 2 bays
- Operations Offices: Increased SF
- Breakroom/ Lockers : Increased SF and lockers
- Total SF: 47,900 SF (on 2 floors) vs. 29,200 SF (existing)

**All SF is approximate*

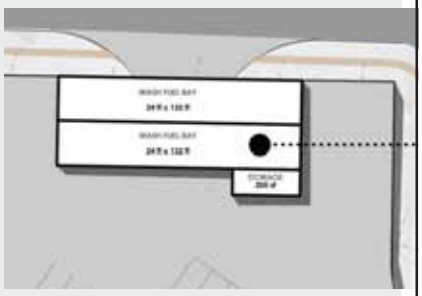
Building Program SF Comparison:

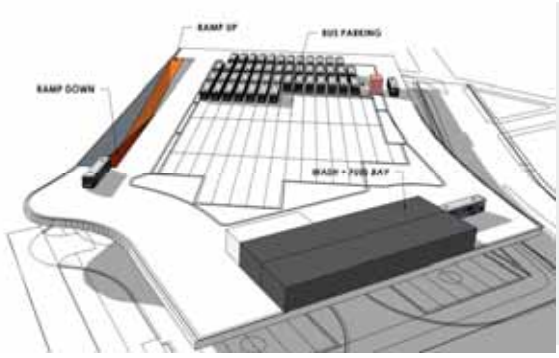
Building Program	Existing SF	HDR Program SF *(based upon 125 buses fleet)*	New SF
Maintenance Service Bays + Tools and parts storage + repair	19,456 (11 bays, 20 ft. W x 58 ft. L)	28,699	25,628 (11 bays, 22 ft. W x 60 ft. L)
Maintenance Offices + Training conference	1,040 (5 offices + Training room)	2,024	1,960 (7 offices + Training + Conference)
Fuel -Wash+ storage	3,268 (1 bay)	6,738 (2 bays)	6,536 (2 bays)
Operations including combined Break Room, Lockers, offices	5,747	7,800	7,000
Circulation + Mech room+ Services	3,739	Included in Program Elements	3,050
Total	**33,250 SF**	**45,261 SF**	**44,174 SF**

Building Program: Lower Level

Building Program: Mezzanine Level

Building Program: Upper Level





Next Steps:

- Questions/ Comments
- Order of Magnitude Cost Estimates
- Meeting with Other Stakeholders
- Development of Brief Written Report to Include as part of 5-Point Intersection Study

WILMAPCO/DTC Monroe Street Garage Concepts Work Session

April 15, 2020 Meeting Notes

Attendees:

John Sisson – DTC
Bill Thatcher, DTC
Charlie Megginson – DTC
Tigist Zegeye – WILMAPCO
Dave Gula – WILMAPCO
Mark Tudor – RKK
Denise Watkins – RKK
Charlie Mitchell – RKK
Sminu Sudhakaran – RKK
Steve McCarthy – RKK

Concept 1

- Denise W. introduced Concept 1 and highlighted the program features for each building level
- John S. asked if providing covered parking for bus deck would be possible.
    - Mark T. noted that covered parking will be explored with all concepts
- During review of bus parking deck level Charlie Megginson questioned bus circulation relating to the need for a service lane and wash/fuel options, he confirmed the current sequence; park>vault>wash/fuel>park
- Charlie Mitchell began the SiteOPS presentation and discussed bus circulation options for the bus parking deck to address DTC's concerns.
    - DTC was comfortable with the proposed bus circulation on the parking deck
    - Charlie Mitchell continued SiteOPS overview of building circulation for maintenance level and ramping to/from each level.
- DTC questioned access to Monroe St during AM/PM peak times due to potential of bus cueing
    - Charlie Mitchell added new access point in SiteOPS model to show potential of new access to abandoned Chestnut St to address DTC's concerns.
    - DTC agreed new access seemed feasible. RK&K will assess alternate access point in more detail

Concept 1 Phasing

- DTC raised concerns about fueling options until the bus parking deck is completed.
    - DTC to consider options

Concept 2

- Denise W. reviewed Concept 2 addressing concerns with feasibility of the concept supporting DTC's program needs.
- Charlie Mitchell reviewed same concerns in SiteOPS and noted many circulation constraints
- DTC agreed with project team's recommendation that Concept 2 will not work and recommended removal from further consideration

Concept 3

- Denise W. introduced Concept 3 and highlighted the program features for each building level
- Charlie Mitchell began the SiteOPS presentation and discussed bus parking/maintenance circulation options
- The concept provides the maximum available building area on mezzanine level if needed for future.
- Charlie Megginson questioned if the proposed fueling and wash occurred in same service lane
    - Denise confirmed that fuel/wash occurs in same service lane similar to current maintenance operations. Denise noted the concepts proposed an additional fuel/wash service lane for redundancy/efficiency.
    -

Concept 3 Phasing

- Denise W. reviewed proposed phasing for Concept 3 and the limited impact to DTC maintenance/operations activities during construction
- DTC noted big concern in need of land swap with private developer

Next Steps

- Overall, DTC likes Concepts 1 and 3, but for all concepts has concerns about how to address need for off-site temporary bus parking/maintenance activities during construction.
- DTC requested conceptual costs be developed for each concept
- Bill T mentioned if there is a way to not have a decked structure and have a new maintenance building for them with split parking on lots. Charlie looked at in SIteOps the maximum number of bus parking they would get at Lot 1. Decision may be made after cost analysis.

Attachment C
June 15, 2020 Presentation

June 16 Update Meeting

DTC Monroe Street Feasibility Study/ Master Plan

RK&K

April 15th Work Session Agenda:

- Project to Date
- Objectives for Site and Building program
- Concepts
- Building Program
- Next Steps

Project To Date

- Since Kick Off meeting/ site visit on February 26, 2020
  - Developed proposed building program
  - Developed Option One: Decking over Lot 1 and Lot 6; Surface Parking on lot west of Chestnut Extended
  - Explored Option Two: Decking over Lot 6 and lot west of Chestnut Extended; Surface Parking on Lot 1
  - Developed Option Three: Decking over Delmarva and Developer lots west of Chestnut St; Surface parking Lots 2 and 6

5-Point Intersection Base Alternative

Objectives of Study

from site visit on February 26,2020

- **Site Circulation / Parking**
  - Address site circulation once Monroe St. becomes 2 way divided
  - Separate bus park, vault, fuel/wash from maintenance traffic
  - Provide parking for 125 +/- buses (preferably in one area)
  - Provide covered parking for buses
  - Provide parking for DTC employees and support vehicles
  - Provide parking for Delmarva employees
  - Consider decked structure
- **Building Program**
  - Consider phasing
  - Increase Maintenance bay widths
  - Provide more tire storage (interior) next to work area
  - Provide additional Break Room and Locker Room area
  - Provide additional support space for offices (copy, training,)

Three Concepts:

- Concept 1: Deck Over Lot 1 and Lot 6
- Concept 2: Deck Over Lot 6 and Lot West of Chestnut
- Concept 3: Deck Over Lot west of Chestnut and Rybold property

Concept 1

Provide Deck over Lot 1 and Lot 6 (in phased construction)

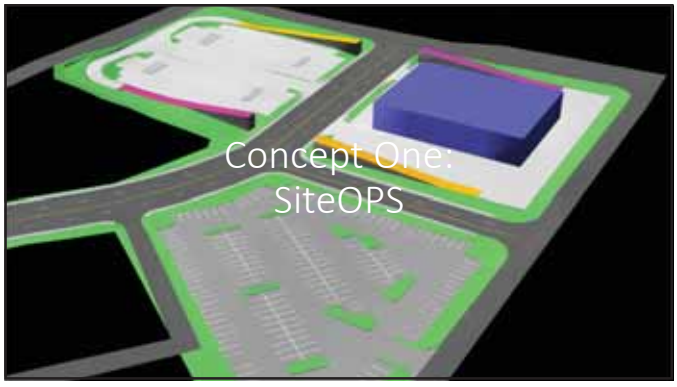
Maintenance Building on Lower Level Lot 6

Fuel/ Wash / Vault on Upper Level Deck

Bus Parking on Upper Level Deck

2 sets of ramps to circulate without crossing Monroe Street

Surface parking for DTC employees on Lot 1, Delmarva employees Lot w of Chestnut, DTC support vehicles on Lot 2



Concept One: Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Most aspects of Transportation Grid Reconfiguration will likely need to be constructed before new the DTC Building/Garage construction is started
- Challenges will be access along Monroe Street and parking (bus and employee)
- Construction Timeline: Approximate 24 – 36 months completion

Concept One: Phase 1

Current to Remain Operational	New Operational	Construction 18-24 Months	Notes
Lot 1: DTC Maintenance		Monroe Street realignment	How to access existing Maintenance facility while Monroe St is being realigned?
Lot 2: Bus Parking		West Chestnut Street extension	
Delmarva Parking (partial) on current lot west of Chestnut		Lot 6: Construction of new DTC Maintenance Facility and Deck Phase One (on Lot 6 only)	Bus Parking on Lot 6 to be temporarily relocated
		West Chestnut property revised and optional sewer outfall utility relocation (currently used for Delmarva employee Parking)	Delmarva Employee Parking temporarily relocated

Concept One: Phase 2

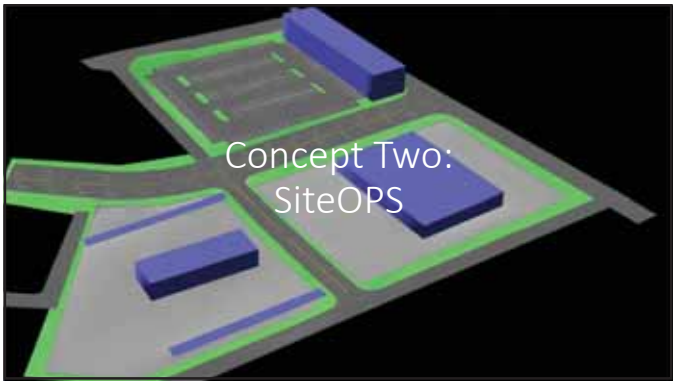
Current to Remain Operational	New Operational	Construction 12-18 Months	Notes
	Monroe Street Realignment	Lot 1: Demolition of existing DTC Maintenance Facility Construction of Surface Parking, access ramps and deck for new DTC Maintenance facility (Phase two)	Bus Parking to be temporarily relocated (Deck not yet accessible)
Lot 2: Bus Parking	West Chestnut Extension		
	New DTC Maintenance Facility Phase One (Lower Level only)		New Wash/ Fuel not yet accessible on new deck; Wash/ Fuel off site?
	West Chestnut property surface parking (Delmarva Employees)		

Concept One: Phase 3

Current to Remain Operational	New Operational	Construction 4 – 6 Weeks	Notes
	Monroe Street Realignment	Lot 2: Resurface and restripe	
	West Chestnut Extension		
	Lot 1 and Lot 6: New DTC Maintenance Facility with Wash/ Fuel and Bus Parking on upper deck level Surface parking (and optional Mezzanine parking) on Lot 1		
	West Chestnut property surface parking (Delmarva Employees)		

Concept Two:

- Provide Deck over Lot 6 and Lot west of Chestnut
- Maintenance Building on Lower Level Lot 6
- Fuel/ Wash / Vault on Lower Level at west lot (on area where current combined sewer is located-possible relocation)
- Bus Parking on upper deck level
- Buses enter site and circulate across Chestnut
- Surface parking for employees, Delmarva, support vehicles on Lot 1 and lot west of Chestnut
- CONCEPT TWO IS NOT RECOMMENDED FOR FURTHER STUDY



Concept 3

Provide deck over Delmarva and Reybold properties west of Chestnut St

Buses enter site on Chestnut St and/or Madison St.

Access to DTC Beech St from Liberty Street

Maintenance Building on lower level of Reybold Property

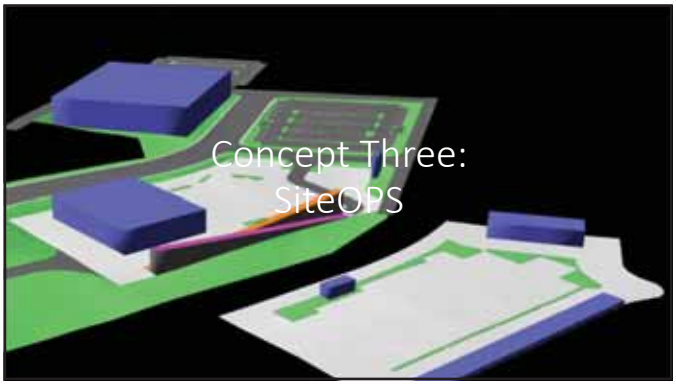
Bus Parking on upper deck level

Fuel/ Wash / Vault on Upper Level

Surface parking for DTC support vehicles on lower level

DTC employee/Delmarva parking on Lot 2 and Lot 6

Potential land swap with Reybold for Lot 1



Concept Three: Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Site can be developed with minimal impacts to DTC Operations
- Transportation Grid Reconfiguration can be constructed after DTC Building/Garage is completed
- Construction Timeline: Approximate 24 – 36 months completion

Concept Three: Phase 1

Current to Remain Operational	New Operational	Construction 18 – 24 Months	Notes
Lot 1: DTC Maintenance		West Chestnut Street extension	Delmarva Employee Parking(on current partial Lot 6)only. All other Delmarva parking temporarily relocated
Lot 2: Bus Parking		New DTC Maintenance Facility and Deck on site west of new Chestnut Street and Reybold Property	
Existing Monroe St. (if desired)			
Lot 6: Bus Parking			

Concept Three: Phase 2

Current to Remain Operational	New Operational	Construction 12-18 Months	Notes
	New DTC Maintenance Facility and Deck on site west of new Chestnut Street and Reybold Property	Lot 1: Demolition of DTC Maintenance facility	
	West Chestnut Street extension	Monroe Street Realignment	
		Lot 6: Surface Parking for Delmarva	Delmarva temp parking on Lot 2 since bus parking moved to new deck

Concept Three: Phase 3

Current to Remain Operational	New Operational	Construction 4 -6 Weeks	Notes
	New DTC Maintenance Facility and Deck on site west of new Chestnut Street and Reybold Property	Lot 2: Resurface and restripe	
	West Chestnut Street extension		
	Monroe Street Realignment		
	Lot 1: Ready for re-development		
	Lot 6: Surface Parking for Delmarva		

New Building Program Overview

- Maintenance Building: 27,000 sf footprint
- Fuel/ Wash: 2 bays
- Operations Offices: Increased SF
- Breakroom/ Lockers : Increased SF and lockers

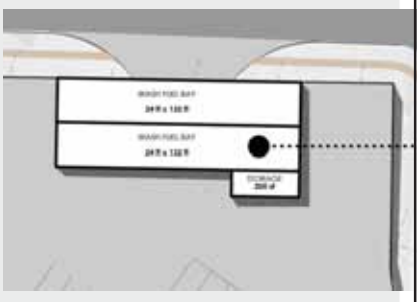
- Total SF: 47,900 SF (on 2 floors) vs. 29,200 SF (existing)

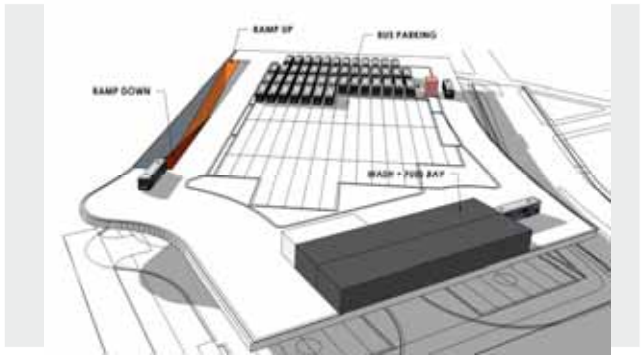
**All SF is approximate*

Building Program: Lower Level

Building Program: Mezzanine Level

Building Program: Upper Level





Next Steps:

- Questions/ Comments
- Order of Magnitude Cost Estimates
- Meeting with Other Stakeholders
- Development of Brief Written Report to Include as part of 5-Point Intersection Study

DTC Monroe Facility
Cost Estimates
16-Jun-20

	Concept 1		Concept 3		Concept 4	Concept 4
	Bus Parking on Top	Bus Parking on Bottom	Bus Parking on Top	Bus Parking on Bottom		w/ Employee Garage
Buildings	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890
Parking Structure	$30,921,660	$30,921,660	$25,821,180	$25,821,180	$0	$17,123,040
80% Solar Panel Cover	$21,859,200	$0	$18,899,100	$0	$0	$0
Other Site Costs	$10,813,250	$10,812,450	$12,008,830	$12,007,930	$9,829,110	$9,831,070
Total Cost Estimate	**$99,725,000**	**$77,865,000**	**$92,860,000**	**$73,960,000**	**$45,960,000**	**$63,085,000**
Bus Parking Spaces	110 +/-	120 +/-	146 +/-	127 +/-	140 +/-	140 +/-
Employee Parking Spaces	520 +/-	380 +/-	460 +/-	400 +/-	159 +/-	300 +/-

*Assumes Solar Panels not needed for Bus Parking on Bottom since buses will be covered, but could be added later for energy reasons
*If Concept 4 is modified to allow two way access to Lot 1 from Chestnut Street, then Bus Parking Spaces are reduced 5-10 spaces
*Delmarva needs 225 +/- Employeee Parking Spaces
*DTC needs 100+ Employee Parking Spaces
*Total Cost Estimate does not include real estate costs

APPENDIX C

Stakeholder and Public Engagement

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

Data

Collected	Need
Synchro model framework	2018 vehicle counts/ travel time runs
Base Imagery	Signal Progression
Previous Studies	Viaduct Traffic Analysis
DTC Facility Data	2018 Pedestrian/ Bike Counts
Environmental Features	Transit Boardings/ Alightings
	Land Use (Ex. and Planned) & Zoning
	Community Features

Agenda

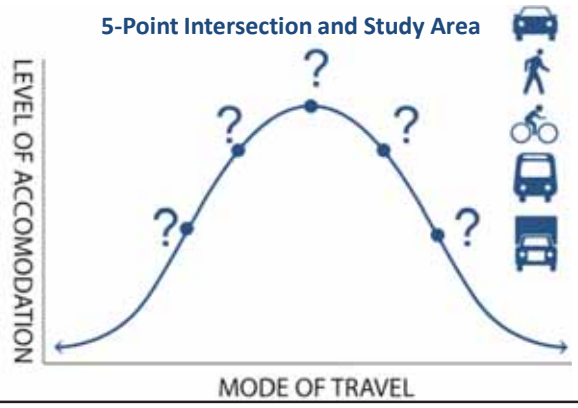
- Study Goals
- Data – What we have & what we need
- Stakeholders/ Potential Advisory Committee Members
- Issues & Constraints
- Study Process Discussion

Potential Stakeholders

Study Goals

- Optimize circulation and access
- Address operational and safety issues
- Improve the efficiency and effectiveness of the transportation grid
- Multimodal connectivity

5-Point Intersection and Study Area



WILMAPCO *Safety & Capacity Improvement Study for 5-Point Intersection*

Issues & Constraints Discussion

- Circulation/ Access
- Congestion
- Bike/ Ped Facilities
- Grid Opportunities/ Needs
- Destination or Pass-Through
- Encourage Economic Dev.
- I-95 – Consider access mods
- Skatepark status?
- Other proposed developments?
- Prioritization of Improvements

7

WILMAPCO *Safety & Capacity Improvement Study for 5-Point Intersection*

Study Process Discussion

- Project Area – Businesses w/ Communities surrounding
- Technical Led Process vs. Public Led Process
- Understand Issues to provide comprehensive solutions
  - Charrette with PMC/ AC
  - Public Meeting?
- Alternative Concepts
  - PMC/ AC led or Public

8

WILMAPCO *Safety & Capacity Improvement Study for 5-Point Intersection*

Schedule

9

Wilmington Initiatives

Streetscape Improvements
Transportation Improvements
Waterfront Access and Development

Joint Management/Technical Committee Meeting

January 16, 2019

DRAFT Minutes

Meeting Participants:

Cathy Smith	DART	302-576-6071	cathy.smith@state.de.us
Chip Kneavel	DelDOT	302-760-2527	Thomas.Kneavel@state.de.us
Diane Gunn	DelDOT	302-326-4487	Diane.gunn@state.de.us
Jennifer Hurley	HFA	215-988-9440	JLHurley@hfadesign.com
Dave Gula	WILMAPCO	302-737-6205 x122	dgula@wilmapco.org
Tigist Zegeye	WILMAPCO	302-737-6205 x114	tzegeye@wilmapco.org
Jim Eversman	Wilmington Initiatives	302-420-1984	jimwpa@aol.com
Leah Kacanda	Wilmington, Eco. Dev.	302-576-2131	lvkacanda@WilmingtonDE.gov
Gwinn Kaminsky	Wilmington, Planning	302-576-3105	gkaminsky@wilmingtonde.gov
Herb Inden	Wilmington, Planning	302-576-3100	HMInden@wilmingtonDE.gov
Jessica Molina	Wilmington, Planning	302-576-3117	jmolina@wilmingtonde.gov
Brian Mitchell	Wilmington, Public Works	302-576-3089	bmitchell@WilmingtonDE.gov
Don Philips	Delmarva Power	302-456-4486	Donald.phillips@delmarva.com
Mike Demney	Delmarva Power	302-283-5861	Michael.demney@delmarva.com
David Seay	Delmarva Power	302-454-4644	David.seay@delmarva.com
John Evans	Division of Forensic Science	302-407-4661	JohnR.Evans@state.de.us
Nancy Bergeron	RK&K	302-468-6880	nbergeron@rkk.com
Matt Goudy	RK&K	302-388-0174	mgoudy@rkk.com

I. UPCOMING MEETINGS: (typically 3rd Wednesday of each month)

Wednesday, 2/20/19, 1:15 PM, Management/Technical Committee Meeting

Future meeting topics for Wilmington Initiatives Management/Technical Committee include:

- Walnut Street 3rd – 13th scope
- Amtrak Viaduct Improvements coordination with Amtrak
- 4th Street project coordination (Downtown 4th, WTMF bus stop reconfiguration, pave and rehab)
- ITS Adaptive Signal Improvements proposed signal locations
- James Court stormwater and road improvements (City, County, DelDOT all needed)

II. TO-DO'S

a) Dave Gula will find out information about the Governor Printz Blvd road diet for presentation at a future Wilmington Initiatives meeting.

b) RK&K will develop Maryland/Monroe /MLK options based on current data and understanding of stakeholder needs.

c) RK&K will inquire about what stormwater management needs affect the Maryland/Monroe /MLK study area.

d) RK&K will finish Maryland/Monroe /MLK traffic analysis.

e) RK&K will find out the current status of property ownership in the Maryland/Monroe /MLK area.

f) RK&K will meet with DTC bus operations to understand their needs in the Maryland/Monroe /MLK study area.

g) Dave Gula will speak with Kevin Kelley, Parks and Rec, to find out what they plan for their property near Liberty Street.

h) Gwinn will confirm with the Mayor's Office that Option B is the City's preferred option for 12th Street.

i) Brian will coordinate MOT for the Tatnall/Concord signal with Chip since there are TAP projects in the area.

j) Diane and Leah will discuss getting access from A Street into the new wetland park.

k) Leah will share the wetland park MOT plans with Brian.

l) Diane will coordinate internally to identify a time for a public meeting for the Garasches area transportation improvements.

m) Diane will let Tanya know that the city has done stormwater modeling for the area that includes the S. Market Street flooding.

n) Dave and Jennifer will prepare a presentation for the next Wilmington Initiatives meeting to explain the prioritization process.

o) Dave and Brian will continue to try to get a meeting with the new Pave and Rehab coordinator.

p) Diane will find out what Pave and Rehab is planning for Union Street.

q)

III. DISCUSSION

1. Maryland/Monroe/MLK Intersection Improvements Study – Nancy Bergeron, RK&K

r) RK&K has conducted traffic counts and is developing a traffic model for the area.

s) Study goals are to optimize circulation and access, address operational and safety issues, improve efficiency and effectiveness of transportation grid, and improve multi-modal connectivity.

t) Delmarva is currently renovating their operations center, and they plan to remain in that location for the long term. Last year they did not have enough parking in the employee lot, but it is not clear what the current status is. The gate on Madison Street is their only entrance gate, and Madison backs up in the morning when employees are coming to work. The other two curb cuts are exit-only, one going left and one going right. Delmarva's lot is secured and employees must badge in, so the only customer parking for Delmarva is the on-street parking on Madison.

u) Shipley Run (stormwater management) runs through the Delmarva parking lot, and parts of it are deteriorated enough that they do not park on it.

v) Examiner's Office is currently over capacity for employee parking.

w) A road diet has been proposed for Maryland Avenue west of the study area that would reduce it to one travel lane in each direction with on-street parking on both sides. Traffic analysis shows this lane assignment would work in the Maryland/Monroe area as well.

x) Previous traffic analysis indicated that Adams Street is under-utilized.

y) Some property has changed ownership and/or land use since the previous options were developed, so there may be additional options that could be developed.

z) Previously considered options:

aa) 2009 Option 1

1. Close Maryland from Chestnut Street to MLK and shift that traffic onto Monroe Street.

2. This option creates some operational difficulties for DTC bus circulation but does not negatively impact Delmarva.

bb) 2009 Option 2

1. Close Maryland from Chestnut Street to MLK and shift that traffic onto Monroe Street and also extend Chestnut Street over to Madison to extend the grid.
2. This option creates some operational difficulties for DTC bus circulation and also affects Delmarva's parking lot.

cc) 2009 Option 3A & B

1. Close Maryland from Chestnut Street to MLK and shift that traffic onto Monroe Street and also extend Chestnut Street over to Madison to extend the grid, but shifted south from the existing Chestnut Street
2. This option creates some operational difficulties for DTC bus circulation. It reconfigures parking in a way that could result in additional parking for Delmarva and/or DTC.

*dd) **2011** Option A*

1. Close Maryland from Chestnut Street to MLK and shift that traffic onto Monroe Street, add a median on Monroe Street, extend Chestnut Street over to Madison to extend the grid, and change the ramp off I-95 and lane assignments on Maryland Ave.
2. Now that property ownership and land use has changed near Liberty, there are more opportunities to consider additional changes in this area.

ee) 2011 Option B

1. Add a new ramp off I-95 south of the current ramp and run directly into Monroe Street. Maryland Ave from Chestnut to Adams would become one-way westbound. Traffic from Maryland into the city would go onto Adams. Close Maryland from Chestnut Street to MLK, add a median on Monroe Street, and extend Chestnut Street over to Madison to extend the grid.
2. Now that property ownership and land use has changed near Liberty, there are more opportunities to consider additional changes in this area.
3. This option requires permission from federal highways to add an exit from I-95.

ff) 2011 Option C

1. Add a new ramp off I-95 south of the current ramp and run directly into Monroe Street. Maryland Ave from Chestnut to Adams would become one-way westbound. Traffic from Maryland into the city would go onto Adams. Close Maryland from Chestnut Street to MLK, add a median on Monroe Street, and extend Chestnut Street over to Madison to extend the grid. Roadway concept is the same as 2011b, but has a different configuration for DTC parking.
2. Now that property ownership and land use has changed near Liberty, there are more opportunities to consider additional changes in this area.
3. This option requires permission from federal highways to add an exit from I-95.

gg) Delmarva likes the idea of squaring off the parking lot, but they need their truck operations to be functional. Delmarva will want to secure the parking lot (with a secured fence), and they need to keep at least the current number of spaces.

hh) The Examiner's Office cannot lose spaces and would appreciate gaining additional spaces.

ii) RK&K will develop Maryland/Monroe /MLK options based on current data and understanding of stakeholder needs.

jj) RK&K will inquire about what stormwater management needs affect the Maryland/Monroe /MLK study area.

kk) RK&K will finish Maryland/Monroe /MLK traffic analysis.

ll) RK&K will find out the current status of property ownership in the Maryland/Monroe /MLK area.

mm) RK&K will meet with DTC bus operations to understand their needs in the Maryland/Monroe /MLK study area.

nn) Dave Gula will speak with Kevin Kelley, Parks and Rec, to find out what they plan for their property near Liberty Street.

2. UPWP: 12th Street Connector Alignment Study

a) January 7 public meeting had about 50 members of the public.

b) Community expressed the strongest support for Option B.

c) Gwinn will confirm with the Mayor's Office that Option B is the City's preferred option for 12th Street.

d) The next public workshop to display the preferred option will be in the spring, possibly mid-March.

3. UPWP: 7th Street Peninsula Study

e) The public workshop to present the concept design has been confirmed for February 6.

4. Pennsylvania Ave/Union Street Intersection

f) A public meeting is scheduled for January 22.

5. Village of St John

g) The city will be installing a traffic signal at Tatnall and Concord with City funding.

h) Brian will coordinate MOT for the Tatnall/Concord signal with Chip since there are TAP projects in the area.

6. Garasches Lane

i) Wetland Park is out to bid, with pre-bid meeting 1/17 and notice to proceed expected for April.

j) The City will install temporary sidewalks to provide access to the Wetland Park.

k) Diane is working on the design for A Street.

l) Diane and Leah will discuss getting access from A Street into the new wetland park.

m) Leah will share the wetland park MOT plans with Brian.

n) Diane will coordinate internally to identify a time for a public meeting for the Garasches area transportation improvements.

7. S. Market Street Flooding

o) There have been additional flooding events affecting Market Street. DelDOT is conducting work to identify the drainage infrastructure in the area, but this investigation will take about 6 months.

p) Diane will let Tanya know that the city has done stormwater modeling for the area that includes the S. Market Street flooding.

8. Governor Printz Boulevard Transportation Study

a) Dave will find out information about the Governor Printz Blvd transportation study for presentation at a future Wilmington Initiatives meeting.

b) The study area is north of the city.

c) DE Greenways wants to have a trail connection.

9. 2019 Project Prioritization

d) The Mayor's Office, Planning, and Public Works reviewed the 2018 prioritization list. Some items shifted in order on the list.

e) The intention with the prioritization process is to have one unified list that indicates the City of Wilmington's order of priority. Wilmapco and DelDOT will work to identify funding sources for the projects, so the list does not need to identify funding sources.

f) Dave and Jennifer will prepare a presentation for the next Wilmington Initiatives meeting to explain the prioritization process.

10. City-DelDOT Pave and Rehab Coordination

g) Dave and Brian will continue to try to get a meeting with the new Pave and Rehab coordinator.

h) Diane will find out what Pave and Rehab is planning for Union Street.

11. 9th Street

a) The City is working with a contractor who wants to install fiber optic to put it under the sidewalk, which will result in new sidewalk for that block.

12. DelDOT Update

a) Pam Steinbock is now the new Assistant Director, since Mark Tudor retired.

13. DTC Update

a) DTC is working to define how routes will interact with the new Wilmington Transit Center.

b) DTC is planning to conduct community outreach to neighborhoods to consider neighborhood shuttles to connect to key points.

Handouts/Displays:

- Maryland/Monroe/MLK Concept Options

Active TAP Updates – as of 1/16/19

Project	Status	Contact
11th Street Streetscape	• Under construction	
Brandywine South Pedestrian Improvements	• Construction estimated mid 2019, funding dependent • **Out to bid**	TP
Concord Ave Streetscape II	• The design engineer is working with the 2nd District Neighborhood Council regarding requests related to their garden • **Will go to bid when money comes in, possibly week of 1/21**	CK
Old Brandywine Village	• Project is under design, but is over budget, so design engineers are considering changes • **DelDOT is waiting for match**	CK
Wilmington Pedestrian Improvements	• This project is currently on hold due to potential transit conflicts • Project was originally 6 intersections but is now only one (a raised pedestrian crossing at Shipley & 10th St), since 5 intersections were incorporated into other projects (Orange Street and 4th Street) • One intersection is too small to advertise on its own, so if/once it is ready for construction, DelDOT will hold it to fit it into an open-end agreement, potentially with the Safe Routes to School program	AG
Southbridge Enhancements II	• **2020 obligation expected** • Working on a modified street light globe that would be mounted on the standard DP&L pole instead of free-standing	MH
9th Street Enhancements II	• Under design • Construction estimated 2019-2020, funding dependent	CK
Walnut Street (1300 block)	• Semi-final plans complete • **Construction estimated summer 2019**	TP
Two-Way King Street	• Under design, but waiting for Rotary to redesign park entrance. • TAP will stop at public right-of-way, and Rotary will fund and handle all of the work in the park • DelDOT will bring the TAP design for Two-Way King Street back to the Wilmington Initiatives Committee for review when ready • There are federal funds, so this project will need to go through the S. 106 consultation project	TP

RK&K

Wilmington Initiatives

Safety & Capacity Improvement Study for 5-Point Intersection

March 20, 2019

Potential Stakeholders – Who Are We Missing?

- Browntown
- Hedgeville
- Hilltop
- West Center City
- Quaker Hill
- Justison Landing

4

Agenda

- Review Action Items from January WI Meeting
- Initial Public Outreach - Focus Group
- Options Review
- Schedule

2

Focus Group Format

- Introduction to Study Area
- Who Are The Users?
- What Is Important to Each User?
- How Will We Evaluate the Alternatives?
- Testing Evaluation Criteria with Existing Alternatives

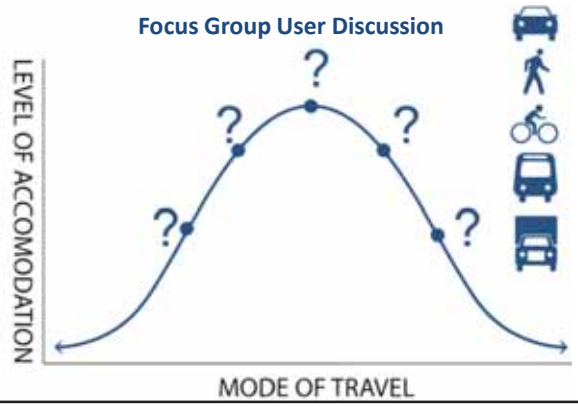
5

January Action Items

- Develop Alternatives
  - Examine Stormwater Impacts
  - Conduct Traffic Analysis
  - Ownership Evaluation
- Meet with DTC
  - Scheduled for April 5
- Speak with Parks about Property Near Liberty Street

3

Focus Group User Discussion



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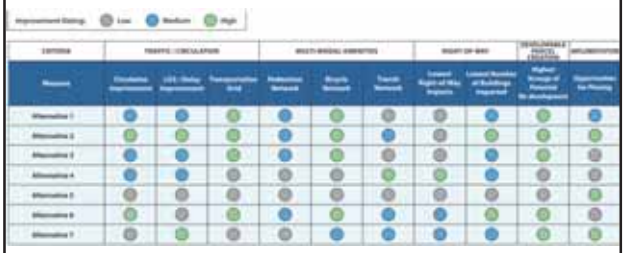
Proposed Evaluation Criteria



Option 3

Option 1

Option 4?

Option 2

Proposed Schedule

Wilmington Initiatives

Streetscape Improvements
Transportation Improvements
Waterfront Access and Development

Joint Management/Technical Committee Meeting

June 12, 2019

FINAL Minutes

Meeting Participants:

Chip Kneavel	DelDOT	302-760-2527	Thomas.Kneavel@state.de.us
Diane Gunn	DelDOT	302-326-4487	Diane.gunn@state.de.us
Paul Moser	DelDOT	302-760-2117	Paul.Moser@delaware.gov
Bill Thatcher	DelDOT	302-576-6138	Bill.Thatcher@state.de.us
Philip Franks	HFA	215-988-9440 X10	PEFranks@HFAdesign.com
Dave Gula	WILMAPCO	302-737-6205 x122	dgula@wilmapco.org
Tigist Zegeye	WILMAPCO	302-737-6205 x114	tzegeye@wilmapco.org
Brian Mitchell	Wilmington, Public Works	302-576-3089	bmitchell@WilmingtonDE.gov
Mark Tudor	RK&K	302-353-0607	mtudor@RKK.com

I. UPCOMING MEETINGS:

Wednesday, 7/17/19, 1:15 PM, Management/Technical Committee Meeting

Future meeting topics for Wilmington Initiatives Management/Technical Committee include:

- Follow up to the WI Open House held on June 19th
- Maryland/Monroe project evaluation and priorities
- The South Market Street Master Plan projects
- Walnut Street 3rd – 13th scope
- Amtrak Viaduct Improvements coordination with Amtrak
- 4th Street project coordination (Downtown 4th, WTMF bus stop reconfiguration, pave and rehab)
- James Court stormwater and road improvements (City, County, DelDOT all needed)

II. TO-DO'S

a) **Brian** is going to conduct a trial run to simulate the Orange Street lane closures to see how the traffic functions with four-way stop controls.

b) **Brian** is working with WRA to get a cost estimate for the Pennsylvania Ave/Union Street Intersection project to identify the funding gap.

c) **Brian** will check on the work that the City is conducting on the NE Blvd bridge.

d) **Brian** will notify the Mayor's office of the schedule for the various curb construction and paving projects. **Brian** will also consult with John Rago regarding the best way of notifying various affected neighborhoods about the disruption to be expected during construction.

e) **Dave** to provide the City Council Public Works and Transportation Committee with requested information on the Orange Street project and advise the Mayor's Office.

f) **Dave** will work with the City (Brian, Gwinn) and DelDOT (Paul Moser? Traffic?) to get a Union Street Reconfiguration Study UPWP application for fall submittal.

g) **Dave** will contact Ray Petrucci, who seems to be involved with the new South Market Street Master Plan project for details of about this new project.

h) **Jeff** Flynn will move the new CRB/Garasches area street names through the City approval process.

III. DISCUSSION

1. UPWP: 12th Street Connector Alignment Study

a) The draft report did not receive significant comments.

b) Dave presented the 12th Street, 7th Street Peninsula, and Maryland/Monroe/MLK Intersection Improvements study to City Council Public Works and Transportation Committee on Monday, 5/20. Dave to provide the committee with requested information on the Orange Street project and advise the Mayor's Office. Brian will check on the work that the City is conducting on the NE Blvd bridge.

c) Dave circulated the Final Report of the 12th Street Connector Study to DelDOT Traffic.

d) This project will go through the Wilmapco TAC and Council in the next few months.

c) There is funding in the RTP, but not the TIP for this project.

2. UPWP: 7th Street Peninsula Study

a) Dave will circulate a second draft of the 7th Street Peninsula report to the Wilmington Initiatives Committee by the end of this week. Comments are needed by July 11th, before the project goes to Council for consideration.

b) There is a July 15 submission deadline for the federal BUILD grant. It seems that 12th Street and 7th Street could be packaged together for an application. This would need combined City and DelDOT sponsorship to provide the local match. There is no defined match for the BUILD program, but applications are generally not successful unless the local/state match is at least 40%. The combined project is roughly $30M, so the combined local/state match would be $12M for $18M in federal funding. Herb will discuss the possibility of the City putting together a BUILD application for 12th + 7th Street with the Mayor's Office

3. UPWP - Maryland/Monroe/MLK Intersection Improvements Study

a) Mark Tudor led a discussion about the results of a series of project stakeholder focus group meetings held recently. Stakeholders have reviewed all of the previous design options and have suggested new alternatives. Mark is preparing an evaluation matrix for use in further project stakeholder discussions. Some stakeholders were interested in making improvements to reflect a new gateway entrance to downtown Wilmington. Dave will check with Jeff Flynn to determine if there is any interest by the City to pursue the City Gateway idea with this project. The number one priority appeared to be improving pedestrian safety, but DTC is also interested in improving operational parking conditions in the area. Mark will report on the results of the follow up evaluations at next month's meeting.

b) The new beginning of the project is to be presented to the Wilmapco TAC and Council.

4. Pennsylvania Ave/Union Street Intersection & Reconfiguration

a) DelDOT patching of Union Street is underway.

b) The reconfiguration project that will need both transportation planning/engineering as well as significant public outreach and consensus-building. Dave and Tigist spoke with the Mayor's Office, and they are in support of doing a UPWP project for the Union Street Reconfiguration Study. Dave will work with the City (Brian, Gwinn) and DelDOT (Paul Moser? Traffic?) to get a Union Street Reconfiguration Study UPWP application for fall submittal.

c) There is still interest in moving the Pennsylvania Ave/Union Street Intersection improvements project forward more quickly. DelDOT has committed $200k to the project, but that will not cover the full

cost. Brian is working with WRA to get a cost estimate for the Pennsylvania Ave/Union Street Intersection project to identify the funding gap.

d) There is a Union Street project on the TAP list for out-year funding.

5. Orange & King Street Transit Improvements

a) Brian is going to conduct a trial run to simulate the Orange Street lane closures to see how the traffic functions with four-way stop controls.

6. Garasches Lane and A, B, C and Church Street Area Improvements

a) 'A' Street is now a separate project. There was a discussion about the project limits, and the continuity and width of the proposed bike path.

b) Diane displayed a map showing the street for the new roads in the CRB/Garasches area. Jeff Flynn will move the street names through the official City approval process.

7. June 19th Workshop

Wilmington Initiatives will hold a June public workshop: List of projects to be displayed.

1. Maryland Avenue
2. I-95 Rehab/Viaduct
3. Pave and Rehab projects
4. 'A' Street
5. 7Th Street Peninsula
6. 12th Street
7. TAP Projects: Wilmington Bike Improvements, Southbridge Phase 2
8. All 3 UPWP
9. Orange and King Street improvements
10. Garasches
11. CRB
12. Transit Center
13. DART route changes

c) Dave will confirm via email, by Friday, which projects are to be presented.

8. I-95 Coordination

Chip showed the map of projects to be coordinated with the I-95 rehab, and the group discussed its content in preparation for June workshop. Brian will notify the Mayor's office of the schedule for the various curb construction and paving projects, and will consult with John Rago regarding the best way of notifying various affected neighborhoods about the disruption to be expected during construction.

9. South Market Street Master Plan

This appears to be a new City project. It is not yet known if federal funds are to be needed or expected. If federal funds will be required, then public outreach and information activities must begin immediately

and should be added to the Wilmington Initiatives coordination efforts. Dave will contact Ray Petrucci, who seems to be involved with the new South Market Street Master Plan project.

10. The 'Better Block' Project

DelDOT is working with a U of D landscape professor and students focusing on 'Good Example Projects' around the state; improved transportation outcomes and beautiful neighborhood improvements. Brian indicated that capping of a one block length over I-95 had been discussed, as well as identifying a 'better block' example on Union Street.

Handouts/Displays:

- Map with street names for the CRB/Garasches area
- I-95 Coordination Projects Map
- South Market Street Master Plan

Active TAP Updates – as of 3/20/19/19

Project	Status	Contact
11th Street Streetscape	• **Construction complete**	
9th Street Enhancements II	• Under design • Construction estimated 2019-2020, funding dependent • **Waiting on street closure permit for test holes**	CK
Brandywine South Pedestrian Improvements	• Construction estimated mid 2019, funding dependent • **Out to bid**	CK
Concord Ave Streetscape II	• The design engineer is working with the 2nd District Neighborhood Council regarding requests related to their garden • **Bids under analysis**	CK
Old Brandywine Village	• Project is under design, but is over budget, so design engineers are considering changes • **In process of being awarded**	CK
Southbridge Enhancements II	• 2020 obligation expected • Working on a modified street light globe that would be mounted on the standard DP&L pole instead of free-standing	MH

Project	Status	Contact
Two-Way King Street	• Under design, but waiting for Rotary to redesign park entrance. • TAP will stop at public right-of-way, and Rotary will fund and handle all of the work in the park • DelDOT will bring the TAP design for Two-Way King Street back to the Wilmington Initiatives Committee for review when ready • There are federal funds, so this project will need to go through the S. 106 consultation project • **Postponed until after I-95 Viaduct**	TP
Walnut Street (1300 block)	• Semi-final plans complete • **Construction estimated summer 2019**	TP
Wilmington Pedestrian Improvements	• Project was originally 6 intersections but is now only one (a raised pedestrian crossing at Shipley & 10th St), since 5 intersections were incorporated into other projects (Orange Street and 4th Street) • One intersection is too small to advertise on its own, so if/once it is ready for construction, DelDOT will hold it to fit it into an open-end agreement, potentially with the Safe Routes to School program • **ON HOLD - Need to evaluate if last intersection (10th & Shipley) is still needed since bus movements and area development have changed, and original design concept is no longer appropriate**	AG

Wilmington Initiatives Meeting

July 17, 2019

AGENDA

- Update on July 11 meeting with DTC
- Review of Alternatives and Garage Concept
- Alternatives Evaluation
- Next Steps

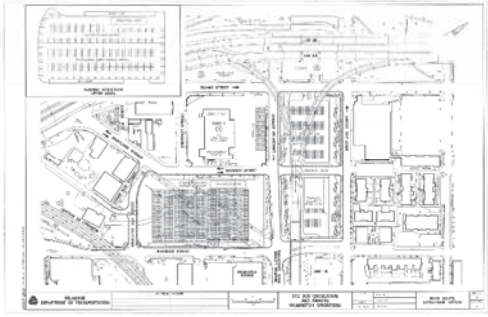
Alternative C

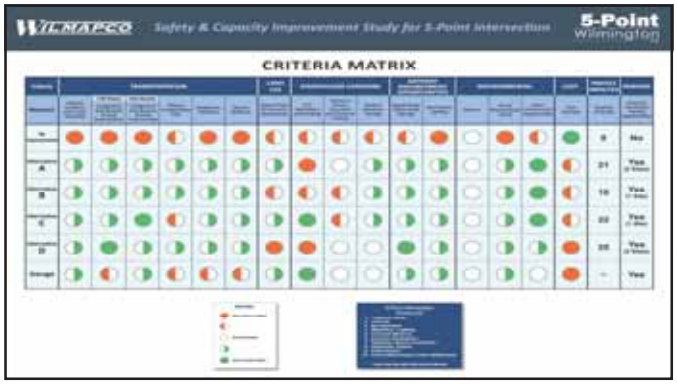
Alternative A

Alternative D

Alternative B

Garage Concept




WILMAPCO
Safety & Capacity Improvement Study for 5-Point Intersection
5-Point
Wilmington
CRITERIA MATRIX


WILMAPCO
Safety & Capacity Improvement Study for 5-Point Intersection
5-Point
Wilmington
Next Steps
Stakeholders Meeting
Public Workshop

Wilmington Initiatives

Streetscape Improvements
Transportation Improvements
Waterfront Access and Development

Joint Management/Technical Committee Meeting

July 17, 2019

DRAFT Minutes

Meeting Participants:

Bill Thatcher	DelDOT	302-576-6138	Bill.Thatcher@state.de.us
Philip Franks	HFA	215-988-9440 x10	PEFranks@HFAdesign.com
Dave Gula	WILMAPCO	302-737-6205 x122	dgula@wilmapco.org
Tigist Zegeye	WILMAPCO	302-737-6205 x114	tzegeye@wilmapco.org
Brian Mitchell	Wilmington, Public Works	302-576-3089	bmitchell@WilmingtonDE.gov
Gwinn Kaminsky	Wilmington, Planning	302-576-3105	gkaminsky@wilmingtonde.gov
Jim Eversman	Wilmington Initiatives	302-420-1984	jimwpa@aol.com
Sean Park	Wilmington, Econ. Development	302-576-2131	sjpark@WilmingtonDE.gov
Dawayne Sims	Wilmington, Econ. Development	302-576-2127	dsims@wilmingtonde.gov
Mark Tudor	RK&K	302-353-0607	mtudor@RKK.com
Barbara Hughes	RK&K	401-462-9231	bhughes@RKK.com

I. UPCOMING MEETINGS:

Wednesday, 8/21/19, 1:15 PM, Management/Technical Committee Meeting.

Future meeting topics for Wilmington Initiatives Management/Technical Committee include:

- Maryland/Monroe project evaluation and priorities following stakeholder meeting.
- The South Market Street Master Plan projects
- Walnut Street 3rd – 13th scope
- Amtrak Viaduct Improvements coordination with Amtrak
- 4th Street project coordination (Downtown 4th, WTMF bus stop reconfiguration, pave and rehab)
- James Court stormwater and road improvements (City, County, DelDOT all needed)

II. TO-DO'S

a) **Gwinn** will make arrangements for the August meeting on August 21st.

b) **Dave** will check with Jeff Flynn to determine if there is any interest by the City to pursue the City Gateway idea with the Maryland/Monroe project.

c) **Dave** will check with Public Works and Bryan Lennon for their reactions to the need for site flood controls on the East 7th Street Peninsula area.

d) **Brian** is going to conduct a trial run to simulate the Orange Street lane closures to see how the traffic functions with four-way stop controls.

e) **Brian** is working with WRA to get a cost estimate for the Pennsylvania Ave/Union Street Intersection project to identify the funding gap.

f) **Brian** will check on the work that the City is conducting on the NE Blvd bridge.

g) **Brian** will notify the Mayor's office of the schedule for the various curb construction and paving projects. **Brian** will also consult with John Rago regarding the best way of notifying various affected neighborhoods about the disruption to be expected during construction.

h) **Dave** to provide the City Council Public Works and Transportation Committee with requested information on the Orange Street project and advise the Mayor's Office.

i) **Dave** will work with the City (Brian, Gwinn) and DelDOT (Paul Moser? Traffic?) to get a Union Street Reconfiguration Study UPWP application for submittal after January 2020.

j) **Dave** will contact Ray Petrucci, who seems to be involved with the new South Market Street Master Plan project, for details of about this new project.

k) **Jeff** Flynn will move the new CRB/Garasches area street names through the City approval process.

III. DISCUSSION

1.

a) Follow up on the June 19th Wilmington Transportation Open House. There were a number of projects that were on display. Only 30-35 people visited the Open House event. It will be necessary to do more advance outreach to encourage better attendance at the next event.

2. UPWP - Maryland/Monroe/MLK Intersection Improvements Study

a) Mark Tudor led a discussion about the results of a series of project stakeholder focus group meetings held recently. Stakeholders have reviewed all of the previous design options and have suggested new alternatives. Mark prepared an evaluation matrix for use in further project stakeholder discussions and shared the matrix as part of the discussion. Some stakeholders were interested in making improvements to reflect a new gateway entrance to downtown Wilmington. Dave will check with Jeff Flynn to determine if there is any interest by the City to pursue the City Gateway idea with this project. The number one priority appeared to be improving pedestrian safety, but DTC is also interested in improving operational parking conditions in the area. It was suggested that a 'garage alternative' should be added and be part of ongoing discussions. At our August meeting, Mark will report the results of his follow up discussions with the Stakeholders.

UPWP: 12th Street Connector Alignment Study

a) This project has been approved and endorsed and the final report is almost complete. When completed, it will be posted on the Wilmapco website.

b) There is funding in the RTP, but not the TIP for this project.

2. UPWP: 7th Street Peninsula Study

a) Comments are yet to be included before the project goes to Council for consideration. There are some proposed projects that are already proceeding through the City approvals process. Expect the final report to be available by the end of August. Dave wants to know how Public Works and Bryan Lennon react to and address the need for site flood controls.

3. Pennsylvania Ave/Union Street Intersection & Reconfiguration

b) DelDOT patching of Union Street is underway.

c) The reconfiguration project that will need both transportation planning/engineering as well as significant public outreach and consensus-building. Dave and Tigist spoke with the Mayor's Office, and they are in support of doing a UPWP project for the Union Street Reconfiguration Study. Dave will work with the City (Brian, Gwinn) and DelDOT (Paul Moser? Traffic?) to get a Union Street Reconfiguration Study UPWP application for fall submittal.

d) There is still interest in moving the Pennsylvania Ave/Union Street Intersection improvements project forward more quickly. DelDOT has committed $200k to the project, but that will not cover the full cost. Brian is working with WRA to get a cost estimate for the Pennsylvania Ave/Union Street Intersection project to identify the funding gap.

e) There is a Union Street project on the TAP list for out-year funding.

5. Orange & King Street Transit Improvements

a) There was concern that the Mayor's Office was dropping support for this 'transit only' project. There seems to be some confusion about this project within the City's Council on Transportation. Brian will conduct a trial run to simulate the Orange Street lane closures to see how the traffic functions with four-way stop controls.

6. Garasches Lane and A, B, C and Church Street Area Improvements

a) Street names for the new roads in the CRB/Garasches area have to be resolved. Jeff Flynn will move the street names through the official City approval process.

7. I-95 Coordination

Brian will notify the Mayor's office of the schedule for the various curb construction and paving projects, and will consult with John Rago regarding the best way of notifying various affected neighborhoods about the disruption to be expected during construction.

9. South Market Street Master Plan

There was no new information about this project. Dave will contact Ray Petrucci, who seems to be involved with the new South Market Street Master Plan project.

10. The 'Better Block' Project

DelDOT is working with a U of D landscape professor and students focusing on 'Good Example Projects' around the state; improved transportation outcomes and beautiful neighborhood improvements. Brian indicated that capping of a one block length over I-95; including, the use of the 6th Street bridge, had been discussed, as well as identifying a 'better block' example on Union Street. It was reported that the Mayor's Office wants to have direct meetings with DelDOT to discuss what can do done to improve the future appearance and character of I-95 with enhanced signage, graphics, lighting, railings, sculpture, landscaping, and murals.

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Walnut Street (1300 block)	• Semi-final plans complete • **Construction estimated summer 2019**	TP
Wilmington Pedestrian Improvements	• Project was originally 6 intersections but is now only one (a raised pedestrian crossing at Shipley & 10th St), since 5 intersections were incorporated into other projects (Orange Street and 4th Street) • One intersection is too small to advertise on its own, so if/once it is ready for construction, DelDOT will hold it to fit it into an open-end agreement, potentially with the Safe Routes to School program • **ON HOLD - Need to evaluate if last intersection (10th & Shipley) is still needed since bus movements and area development have changed, and original design concept is no longer appropriate**	AG

Wilmington Initiatives

Streetscape Improvements
Transportation Improvements
Waterfront Access and Development

Joint Management/Technical Committee Meeting

August 21, 2019

DRAFT Minutes

Meeting Participants:

Bill Thatcher	DART	302-576-6138	Bill.Thatcher@state.de.us
Chip Kneavel	DelDOT	302-760-2527	Thomas.Kneavel@state.de.us
Jennifer Hurley	HFA	215-988-9440	JLHurley@hfadesign.com
Tigist Zegeye	WILMAPCO	302-737-6205 x114	tzegeye@wilmapco.org
Gwinn Kaminsky	Wilmington, Planning	302-576-3105	gkaminsky@wilmingtonde.gov
Herb Inden	Wilmington, Planning	302-576-3100	HMInden@wilmingtonDE.gov
Brian Mitchell	Wilmington, Public Works	302-576-3089	bmitchell@WilmingtonDE.gov
Mark Tudor	RK&K	302-468-4880	mtudor@rkk.com

I. UPCOMING MEETINGS:

Wednesday, 9/18/19, 1:15 PM, Management/Technical Committee Meeting.

Future meeting topics for Wilmington Initiatives Management/Technical Committee include:

- Maryland/Monroe project evaluation and priorities following stakeholder meeting.
- The South Market Street Master Plan projects
- Walnut Street 3rd – 13th scope
- Amtrak Viaduct Improvements coordination with Amtrak
- 4th Street project coordination (Downtown 4th, WTMF bus stop reconfiguration, pave and rehab)
- James Court stormwater and road improvements (City, County, DelDOT all needed)

II. TO-DO'S

a) **Brian and Herb** will be meeting with DelDOT to discuss notifying various affected neighborhoods about the disruption to be expected during construction.

b) **Brian** will conduct a trial run to simulate the Orange Street lane closures to see how the traffic functions with four-way stop controls.

c) **Jeff Flynn** will move the street names through the official City approval process.

d) **Jennifer** will ask Diane the current status of the Walnut St Improvements project (3rd-13th) and what improvements the project includes.

e) **Jennifer** will ask Diane to send the map with proposed CRB/Garasches area street names to Brian, Herb, Gwinn, Jeff, and Sean.

f) **Jennifer** will email DelDOT and City staff to resolve the question about what the project related to street improvements for the South Market Street Master Plan should be called in the CTP.

g) **RK&K** will develop a ball-park cost estimate for each alternative for the five points improvements study.

h) **RK&K** will work with DTC to examine the possibilities for structured parking for the five points improvements study.

i) The **City (Brian, Gwinn)** will work with **DelDOT (Paul Moser, Traffic)** to get a Union Street Reconfiguration Study UPWP application for January submittal to Wilmapco.

j) **Wilmapco** will coordinate a quarterly Wilmington Initiatives meeting with the Mayor's Office to review high level transportation issues.

III. DISCUSSION

1. UPWP – Five Points (Maryland/Monroe/MLK) Intersection Improvements Study

k) There was good attendance and discussion with stakeholders at the stakeholder focus group meetings. The primary takeaway from those meetings is that structured parking makes a big difference in the impact on DTC's operations, so we need to look more carefully at structured parking options.

l) Alternative A (two-way Monroe) appears to meet many criteria for the project, IF structured parking can work. Without structured parking, Alternative A has negative impacts on DTC's operations.

m) RK&K will work with DTC to examine the possibilities for structured parking for the five points improvements study.

n) In order for the project to be NEPA-ready, the public meeting will include presentation of all alternatives considered.

o) RK&K will develop a ball-park cost estimate for each alternative for the five points improvements study.

p) RK&K will complete the study analysis in October and then hold a public meeting. The goal is to complete the study by the end of the calendar year.

2. Miller Road Streetscape

q) Preliminary engineering is underway for this project with semi-final expected in October. Construction is expected to start in Spring 2020 and complete before I-95 construction.

3. UPWP: 12th Street Connector Alignment Study

r) Project adopted by WILMAPCO Council. Report available on website. Proposed to be included in 2021 DelDOT CTP for 8.1M.

4. UPWP: 7th Street Peninsula Study

s) Dave Gula is finalizing the E. 7th Street report and will circulate to the committee for another round of review.

t) Project adopted by WILMAPCO Council. Proposed to be included in 2021 DelDOT CTP for 13.5M.

5. Pennsylvania Ave/Union Street Intersection & Reconfiguration

u) The City (Brian, Gwinn) will work with DelDOT (Paul Moser Traffic) to get a Union Street Reconfiguration Study UPWP application for January submittal to Wilmapco. The reconfiguration project will need both transportation planning/engineering as well as significant public outreach and consensus-building.

v) There is still interest in moving the Pennsylvania Ave/Union Street Intersection improvements project forward more quickly. DelDOT has committed $200k to the project, but that will not cover the full cost. The City is paying for the design for the signal improvements.

w) There is a Union Street project on the TAP list for out-year funding.

6. Orange & King Street Transit Improvements

x) Brian will conduct a trial run to simulate the Orange Street lane closures to see how the traffic functions with four-way stop controls.

7. Garasches Lane and A, B, C and Church Street Area Improvements

y) Street names for the new roads in the CRB/Garasches area have to be resolved. Jeff Flynn will move the street names through the official City approval process. Jennifer will ask Diane to send the map with proposed CRB/Garasches area street names to Brian, Herb, Gwinn, Jeff, and Sean.

8. I-95 Coordination

z) Brian and Herb will be meeting with DelDOT to discuss notifying various affected neighborhoods about the disruption to be expected during construction.

9. South Market Street Master Plan

aa) The CTP project related to street improvements for the South Market Street Master Plan appears in the CTP as "South Wilmington Infrastructure Improvements". Should it be called South Market Street Riverfront Improvements to distinguish it from South Wilmington Network Improvements? Jennifer will email the question to DelDOT and City staff to resolve the question about what the project related to street improvements for the South Market Street Master Plan should be called in the CTP.

10. Walnut St Improvements (3rd – 13th)

bb) A question was raised about the current status of the Walnut St Improvements project (3rd-13th) and what improvements it includes.

cc) Jennifer will ask Diane the current status of the Walnut St Improvements project (3rd-13th) and what improvements the project includes.

11. Mayor's Office Coordination

dd) There are certain high-level questions that arise in the Wilmington Initiatives that need Mayor's Office input, but not everything discussed at the regular monthly meeting needs that level of input. We agreed to ask for quarterly meeting with Mayor's Office to review high level transportation issues.

12. Announcements

ee) Westside Grows is hosting an Open Streets event on 10/11 or 10/13. 7th Street between Adams & Jackson will be closed to traffic.

Active TAP Updates – as of 8/21/19

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Old Brandywine Village	• Construction starting August 26	CK

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Wilmington Initiatives Meeting

July 15, 2020

AGENDA

- DTC Monroe Street Feasibility Study/Master Plan
- Next Steps

CRITERIA MATRIX

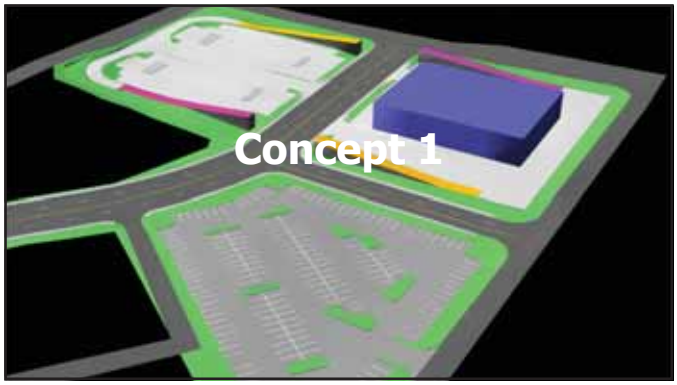
Alternative A

DTC Monroe Street Feasibility Study/Master Plan

- **Building Program**
  - Consider phasing
  - Increase Maintenance bay widths
  - Provide more tire storage (interior) next to work area
  - Provide additional Break Room and Locker Room area
  - Provide additional support space for offices (copy, training,)
- **Site Circulation / Parking**
  - Address site circulation once Monroe St. becomes 2 way divided
  - Separate bus park, vault, fuel/wash from maintenance traffic
  - Provide parking for 125 +/- buses (preferably in one area)
  - Provide covered parking for buses
  - Provide parking for DTC employees and support vehicles
  - Provide parking for Delmarva employees
  - Consider decked structure

DTC Monroe Street Feasibility Study/Master Plan

- **Developed Proposed Building Program - 47,900 SF (on 2 floors) vs. 29,200 SF Existing**
  - Maintenance Building: 27,000 sf footprint
  - Fuel/ Wash: 2 bays
  - Operations Offices: Increased SF
  - Breakroom/ Lockers : Increased SF and lockers
- **Developed Parking/Garage/Access Options**
  - Concept 1: Decking over Lot 1 and Lot 6; Surface Parking on lot west of Chestnut Extended
  - Concept 2: Decking over Lot 6 and lot west of Chestnut Extended; Surface Parking on Lot 1 (Not developed in more detail)
  - Concept 3: Decking over Delmarva and Developer lots west of Chestnut St; Surface parking Lots 2 and 6
  - Concept 4: Surface Bus Parking on Lot 1; New Maintenance Building on Lot 6



Concept 1

- Provide Deck over Lot 1 and Lot 6 (in phased construction)
- Maintenance Building Lower Level Lot 6
- Fuel/ Wash / Vault on Upper Level Deck
- Bus Parking on Upper Level Deck
- 2 sets of ramps to circulate without crossing Monroe Street
- Surface parking for DTC employees on Lot 1, Delmarva employees Lot w of Chestnut, DTC support vehicles on Lot 2

NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

Concept 1

- Provide Deck over Lot 1 and Lot 6 (in phased construction)
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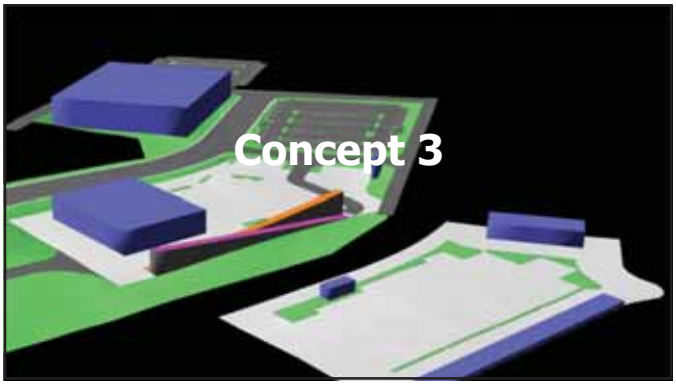
Concept 1: Construction Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Most aspects of Transportation Grid Reconfiguration will likely need to be constructed before the new DTC Building/Garage construction is started
- Challenges will be access along Monroe Street and parking (bus and employee)
- Construction Timeline: Approximate 24 – 36 months completion



Concept 3

- Provide deck over Delmarva and Reybold properties west of Chestnut St
- Buses enter site on Chestnut St and/or Madison St.
- Access to DTC Beech St from Liberty Street
- Maintenance Building on lower level of Reybold Property
- Bus Parking on upper deck level
- Fuel/ Wash / Vault on Upper Level
- Surface parking for DTC support vehicles on lower level
- DTC employee/Delmarva parking on Lot 2 and Lot 6
- Potential land swap with Reybold for Lot 1

NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

Concept 3

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- Bus Parking on upper deck level
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- Maintenance Building on lower level of Reybold Property
- Bus Parking on upper deck level
- Fuel/ Wash / Vault on Upper Level
- Surface parking for DTC support vehicles on lower level
- DTC employee/Delmarva parking on Lot 2 and Lot 6
- Potential land swap with Reybold for Lot 1

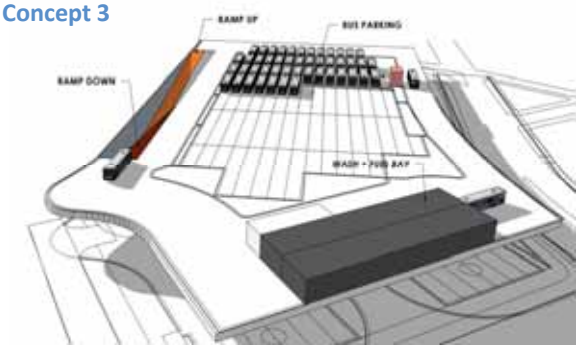
NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

Concept 3: Construction Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Site can be developed with minimal impacts to DTC Operations
- Transportation Grid Reconfiguration can be constructed after DTC Building/Garage is completed
- Construction Timeline: Approximate 24 – 36 months completion

Concept 3

Concept 3



Concept 4

Concept 4: Construction Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Most aspects of Transportation Grid Reconfiguration will likely need to be constructed before the new DTC Building is started

DTC Monroe Facility
Cost Estimates
16-Jun-20

	Concept 1		Concept 3		Concept 4	Concept 4
	Bus Parking on Top	Bus Parking on Bottom	Bus Parking on Top	Bus Parking on Bottom		w/ Employee Garage
Buildings	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890
Parking Structure	$30,921,660	$30,921,660	$25,821,180	$25,821,180	$0	$17,123,040
80% Solar Panel Cover	$21,859,200	$0	$18,899,100	$0	$0	$0
Other Site Costs	$10,813,250	$10,812,450	$12,008,830	$12,007,930	$9,829,110	$9,831,070
Total Cost Estimate	**$99,725,000**	**$77,865,000**	**$92,860,000**	**$73,960,000**	**$45,960,000**	**$63,085,000**
Bus Parking Spaces	110 +/-	120 +/-	146 +/-	127 +/-	140 +/-	140 +/-
Employee Parking Spaces	520 +/-	380 +/-	460 +/-	400 +/-	159 +/-	300 +/-

*Assumes Solar Panels not needed for Bus Parking on Bottom since buses will be covered, but could be added later for energy reasons
*If Concept 4 is modified to allow two way access to Lot 1 from Chestnut Street, then Bus Parking Spaces are reduced 5-10 spaces
*Delmarva needs 225 +/- Employeee Parking Spaces
*DTC needs 100+ Employee Parking Spaces
*Total Cost Estimate does not include real estate costs

Next Steps

- Stakeholders Meeting
- Recommendations and Report

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

WILMINGTON INITIATIVES UPDATE

November 17, 2020

AGENDA

- Review of Transportation Alternatives (A,B,C,D)
- Review of DTC Monroe Street Feasibility Study
- Recent Meetings
- Recommendations
- Final Steps

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

CRITERIA MATRIX

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

Alternative A: Two-Way Monroe Street

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

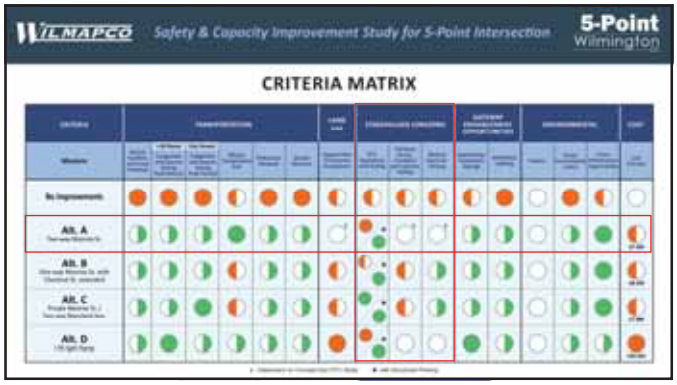
Alternative B: One-Way Monroe Street with Chestnut Street Extended

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

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

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

Alternative D: I-95 Split Ramp



WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

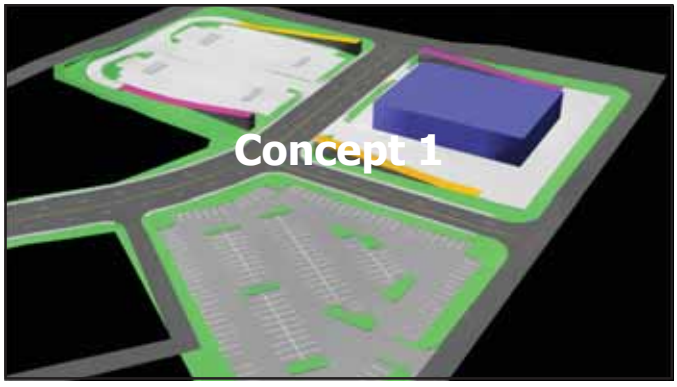
DTC Monroe Street Feasibility Study/Master Plan

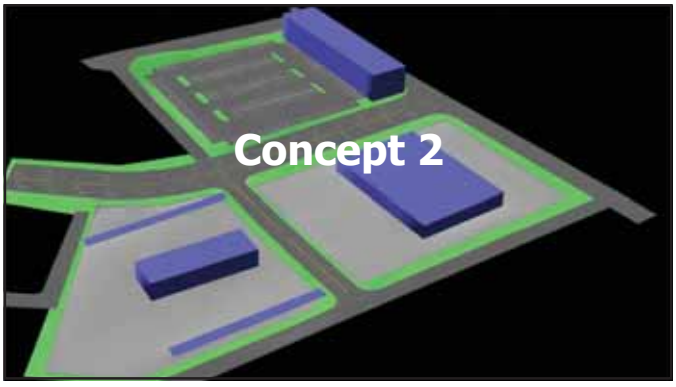
- **Site Circulation / Parking**
  - Address site circulation once Monroe St. becomes 2 way divided
  - Separate bus park, vault, fuel/wash from maintenance traffic
  - Provide parking for 125 +/- buses (preferably in one area)
  - Provide covered parking for buses
  - Provide parking for DTC employees and support vehicles
  - Provide parking for Delmarva employees
  - Consider decked structure
- **Building Program**
  - Consider phasing
  - Increase Maintenance bay widths
  - Provide more tire storage (interior) next to work area
  - Provide additional Break Room and Locker Room area
  - Provide additional support space for offices (copy, training,)

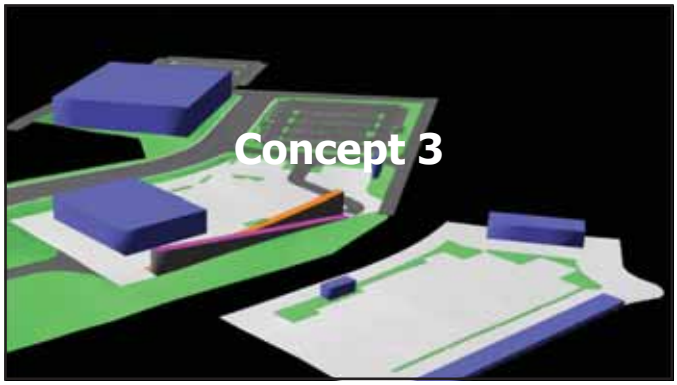
WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

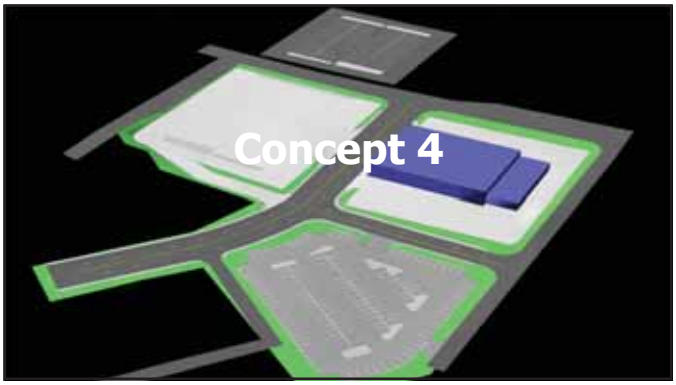
DTC Monroe Street Feasibility Study/Master Plan

- **Developed Parking/Garage/Access Concepts (Used Alternative A as base alternative)**
  - Concept 1: Decking over Lot 1 and Lot 6; Surface Parking on lot west of Chestnut Extended
  - Concept 2: Decking over Lot 6 and lot west of Chestnut Extended; Surface Parking on Lot 1 (Not developed in more detail)
  - Concept 3: Decking over Delmarva and Reybold lots west of Chestnut St; Surface parking Lots 2 and 6
  - Concept 4: Surface Bus Parking on Lot 1; New Maintenance Building on Lot 6. Concept included with or without employee garage
- **Developed Proposed Building Program - 47,900 SF (on 2 floors) vs. 29,200 SF Existing**
  - Maintenance Building: 27,000 sf footprint
  - Fuel/ Wash: 2 bays
  - Operations Offices: Increased SF
  - Breakroom/ Lockers : Increased SF and lockers









DTC Monroe Facility
Cost Estimates
16-Jun-20

	Concept 1		Concept 3		Concept 4	Concept 4
	Bus Parking on Top	Bus Parking on Bottom	Bus Parking on Top	Bus Parking on Bottom		w/ Employee Garage
Buildings	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890
Parking Structure	$30,921,660	$30,921,660	$25,821,180	$25,821,180	$0	$17,123,040
80% Solar Panel Cover	$21,859,200	$0	$18,899,100	$0	$0	$0
Other Site Costs	$10,813,250	$10,812,450	$12,008,830	$12,007,930	$9,829,110	$9,831,070
Total Cost Estimate	**$99,725,000**	**$77,865,000**	**$92,860,000**	**$73,960,000**	**$45,960,000**	**$63,085,000**
Bus Parking Spaces	110 +/-	120 +/-	146 +/-	127 +/-	140 +/-	140 +/-
Employee Parking Spaces	520 +/-	380 +/-	460 +/-	400 +/-	159 +/-	300 +/-

*Assumes Solar Panels not needed for Bus Parking on Bottom since buses will be covered, but could be added later for energy reasons
*If Concept 4 is modified to allow two way access to Lot 1 from Chestnut Street, then Bus Parking Spaces are reduced 5-10 spaces
*Delmarva needs 225 +/- Employeee Parking Spaces
*DTC needs 100+ Employee Parking Spaces
*Total Cost Estimate does not include real estate costs

Recent Meetings

- Stakeholder's Meeting – November 5th
  - Comments requested by November 20th
- WILMAPCO Council – November 12th

Recommendations

- Transportation Improvements - Alternative A
- DTC Monroe Street Feasibility Study - ??

Final Steps

- WILMAPCO TAC –November 19th
- Draft Report Submittal – December
- WILMAPCO TAC (ACTION ITEM) – December 17th
- WILMAPCO Council – January 14th

May 20, 2019

Kick-Off Meeting / Stakeholder Input

Safety & Capacity Improvement Study for 5-Point Intersection

WILMAPCO DelDOT

Agenda

- Welcome + Introductions
- Study Overview
- User + Prioritization Exercise
- Criteria Testing
- Closing Remarks + Next Steps

WELCOME + INTRODUCTIONS

Welcome + Introductions

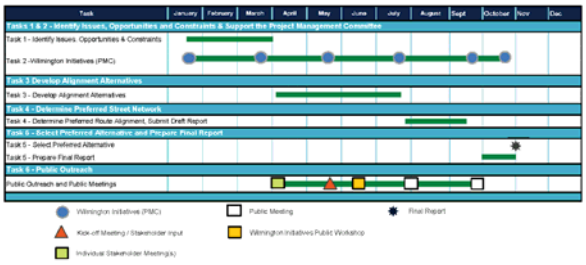
- Name
- Organization
- Why Do You Want To Be Involved In This Process?

STUDY OVERVIEW

Why Are We Here?

- Optimize Circulation, Access, and Safety
  - Improve Efficiency / Effectiveness of the Transportation Grid
- Improve Multimodal Connectivity
- Recommend Transportation Improvements that Support Existing and Potential Future Land Use

Proposed Schedule



What We Have Learned To Date

❖ Transportation and Circulation

- **Vehicular traffic** typically backs up on I-95 NB during the morning rush
- **Vehicular traffic** backups on Maryland Avenue at the MLK Blvd intersection were significantly improved by changing the lanes from 2 to 3 right turn lanes 6-7 years ago
- While there are not significant gaps in the sidewalk network, ADA compliance is a challenge and crossing the 5-Point intersection is difficult for **pedestrians**
- There are no separated **bicycle** facilities in the area and the roadway condition is difficult for many bicyclists to navigate
- **Bus** circulation is key to consider in concept development as this is DTC's maintenance hub for the regional system

What We Have Learned From Stakeholders To Date?

What We Have Learned From Stakeholders To Date?

delmarva power

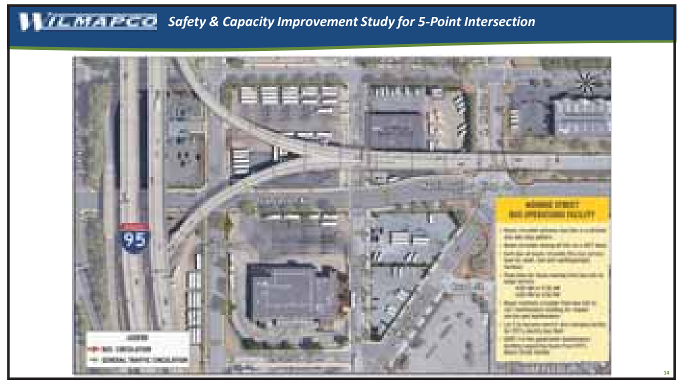
- Parking is important
  - Availability
  - Location
- Access for customers to pay bills
- Minimize impacts to Shipley Run combined sewer overflow (CSO) within existing parking lot

What Have We Learned From Stakeholders To Date?

What We Have Learned From Stakeholders To Date?

- No definitive plans to redevelop
- Planned leasing to DTC for employee parking


WILMAPCO
Safety & Capacity Improvement Study for 5-Point Intersection
What Have We Learned From Stakeholders To Date?
DART
• Skatepark in planning stages will introduce new users to area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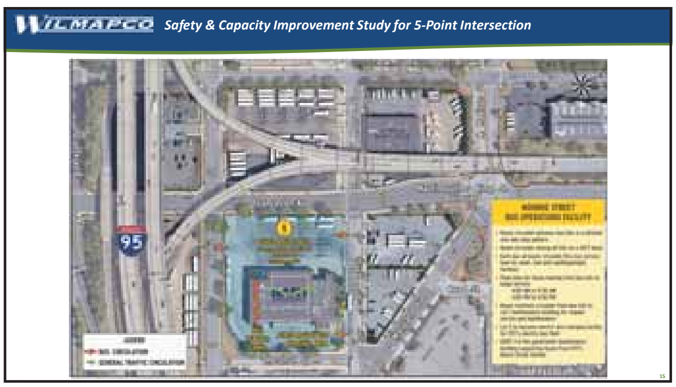
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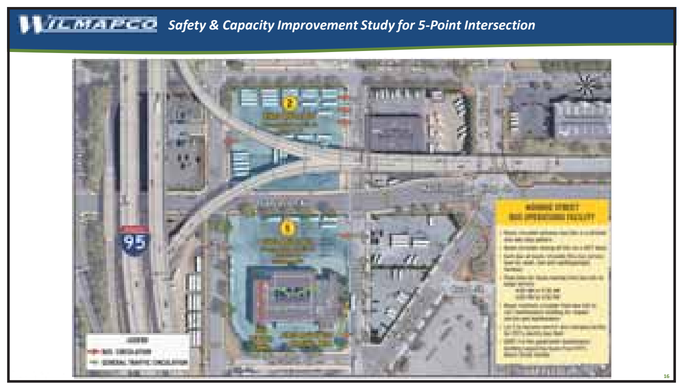
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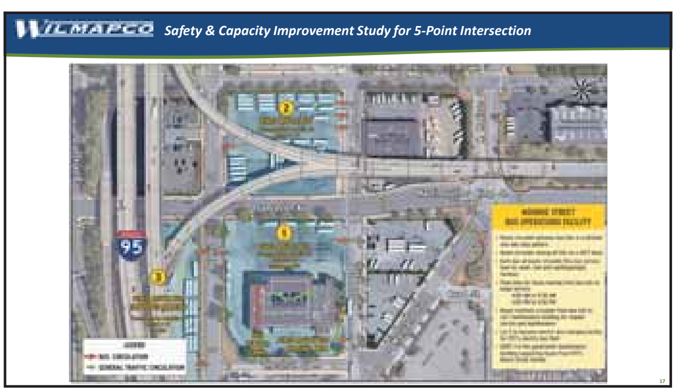
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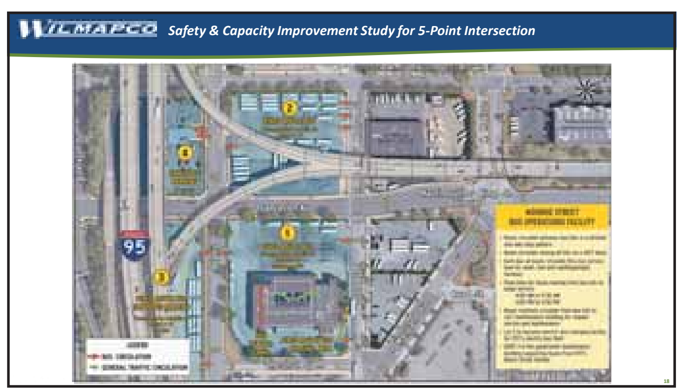
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What We Have Learned To Date

- History and Previous Alternatives
  - Initial Study 2009

What We Have Learned To Date

- History and Previous Alternatives
  - Initial Study 2009
  - Further Study 2011

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What We Have Learned To Date

- History and Previous Alternatives
  - Initial Study 2009
  - Further Study 2011
  - Current Study

USER + PRIORITIZATION EXERCISE

- Types of people
- Ages and abilities
- Think about time of day – how do users vary?
- Think about land use – which types of user are attracted to the area?
- Are there stakeholders who may not be users?

- Based on each of your users, how do these people use the space?
- What do they need?
- How do they feel?

- What is most important to people circulating to and through this area?
- Do some users have the same priorities?
- How would you rank each?

SAFETY (PED, BIKE, MOTORIST - VEHICLE, TRUCK, BUS)
EFFICIENT MOVEMENT
CONNECTED NETWORK (PED, BIKE, MOTORIST – VEHICLE, TRUCK, BUS)
ENVIRONMENTAL IMPACTS
PUBLIC SUPPORT
FOSTERS ECONOMIC DEVELOPMENT

COST
COMPLIMENTS EXISTING LAND USE
COMPLIMENTS POTENTIAL FUTURE LAND USE
PROMOTES SENSE OF COMMUNITY
ALIGNS WITH GOALS OF STAKEHOLDERS
ALIGNS WITH GOALS OF CITY

ROW IMPACTS
BUILDING / PROPERTY IMPACTS
"GREEN" INFRASTRUCTURE OPPORTUNITIES
ADDITION TO STREET GRID
ABILITY TO PHASE PROJECT

CRITERIA TESTING

Option 1

Option 2

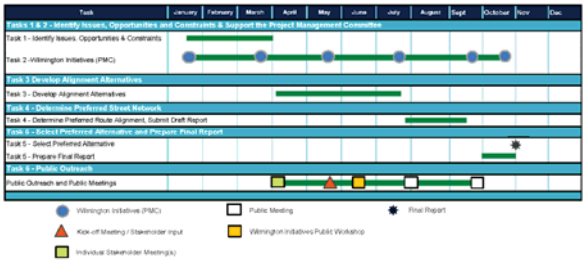
WILMAPCO *Safety & Capacity Improvement Study for 5-Point Intersection*

Option 3

CLOSING REMARKS + NEXT STEPS

WILMAPCO *Safety & Capacity Improvement Study for 5-Point Intersection*

Proposed Schedule



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5-Point Intersection Safety & Capacity Improvement Study

Kick-Off Meeting / Stakeholder Input

May 20, 2019

Meeting Notes & Summary

ATTENDEES

Name	Organization
Jeffrey Miles	Delmarva Power
Michael Denney	Delmarva Power
Diane Gunn	DelDOT
Megan McGlinchey	Riverfront Development Corp.
Venessa Karpeh	DE Senate
Bill Thatcher	Delaware Transit Corp.
Jerry Heisler	Reybold Development
Dave Gula	WILMAPCO
Mark Tudor	RK&K
Barbara Hughes	RK&K
Melissa Miklus	RK&K
Collin Hayward	RK&K

INTRODUCTIONS (WILMAPCO, RK&K)

To begin the meeting, each of the participants briefly shared a few details about their organization, their purpose for attending the meeting, and their experience regarding the study area. The major visions and concerns are noted below:

- Bill Thatcher (Delaware Transit Corporation)
  - Concerns for bus circulation and employees' safety crossing Maryland Avenue from proposed parking lot
- Mike Denny (Delmarva Power)
  - Noted the potential impact on their company parking lot and employees
- Jeff Miles (Delmarva Power)
  - Noted areas of concern included intersection alignment with Delmarva entrance, parking availability, and large vehicle movements
- Venessa Karpeh (DE Senate)
  - Wanted to better understand the project scope and how it may relate to current constituent concerns
- Diane Gunn (DelDOT)

  - Interested in project scope as DelDOT would ultimately be a key participant in future improvements
- Megan McGlinchey (Riverfront Development Corporation-RDC)
  - Intersection is a main entry point for the Riverfront and thus affects ongoing development in the region
- Jerry Heisler – Reybold Development
  - Owns property on Maryland Avenue and is interested in the project scope and potential impacts

PRESENTATION (RK&K)

Following the introductions, RK&K presented a current overview of the 5-Point Intersection and answered questions regarding the scope of the 5-Point Intersection Study. The major sections are summarized below with notes on the attendee's comments throughout the presentation.

Background & Schedule	• WILMAPCO has initiated the study to examine the area around the 5 Point intersection • The goal is to examine all modes of transportation and community considerations • Will recommend improvements based on land use, stakeholder input, transportation patterns, and planning analysis • Reviewed current milestones and overall schedule

What We Have Learned to Date	• Reviewed issues with traffic, pedestrian safety, and cyclist access
	• Reviewed previous feedback from major stakeholder organizations
	  o Delmarva Power, Delaware Transit Corporation (DART), Reybold Development, State of Delaware Medical Examiner's Office, Wilmington Department of Parks & Recreation
	  o Several stakeholders noted the planned skatepark and discussed the potential impact it could have on the recommended design
	  o Stakeholders also noted the Shipley Run combined sewer overflow and the potential impact it would have on planning and construction
	• Reviewed bus circulation patterns in the area and associated opportunities/constraints
	• Reviewed previous studies and plans for the area (2009, 2011)
	  o Jerry (Reybold) noted plans for a shared use path and potential Liberty Street Realignment
	  o Megan (RDC) noted that the Norfolk Southern rail line will be relocated at some point in the future to allow the construction of a garage south of the Amtrak Rail Corridor

PRIORITIZATION EXERCISE (Attendees, WILMAPCO, RK&K)

The meeting participants were then grouped together for a prioritization exercise in order to identify who the major users of the space are, how they use the space, and what their corresponding priorities

for the space are. The exercise was interactive, with participants discussing the various priorities and using post-it notes to display the relevant information on dispaly boards. The table below contains a summary of the information posted to the display boards by the participants.

Who Uses the Space?	How Do They Use the Space?	What Are Their Priorities?
• DART employees • DPL employees • Medical Examiner's Office employees • Construction and utility crews • Cyclists • Delivery trucks and drivers • Residents • Pedestrians • Commuters	• Recreational users (cyclists, skateboarders, pedestrians) • Riverfront access / stadium access • Commuting • Bus activity • Utility crew vehicle activity • Delmarva Power customers (paying bills) • Lower use at night than during the day	• Getting around easily (wayfinding) • Good lighting • Lanes wide enough for large vehicles • Better sidewalks and overall urban landscape • Efficiency and lack of congestion • Overall safety • Roadway condition • Quality of life

Several participants noted the importance of land-use to the discussion and expressed desire for the City of Wilmington to be included in future discussions regarding the 5-Point study. Participants also noted the potential impacts from the Christina River Bridge and noted that additional analysis would likely need to be completed once the project is completed. After the feedback from the attendees was collected on the board, the group developed a final priority list, ranking the user priorities from most important to least important. Participants acknowledged that the list is somewhat fluid depending on the user and noted that additional stakeholder coordination and public outreach should continue to inform the project priorities. The final priority list is shown to the right for reference.

5 Point Intersection
Priority List

1. **Pedestrian Safety**
2. **Land Use**
3. **Bus Operations**
4. **Wayfinding / Legibility**
5. **Commuter Efficiency**
6. **Economic Development**
7. **Pedestrian / Bicycle Connectivity**
8. **Stakeholder Support**
9. **Public Support**
10. **Environmental Impact / Green Infrastructure**

CONCEPT REVIEW & DISCUSSION (Attendees, WILMAPCO, RK&K)

Following the development of the priority list, the meeting participants used the newly developed content to evaluate three existing concept plans for the 5 Point Intersection. A roll plot of each concept was laid out for the group to review and analyze how the proposed changes would address the priorities previously identified. The group was notified that a preferred design has not yet been selected, but the discussion around the concepts would be used to inform future design decisions. The following topics were major points of discussion throughout the concept review:

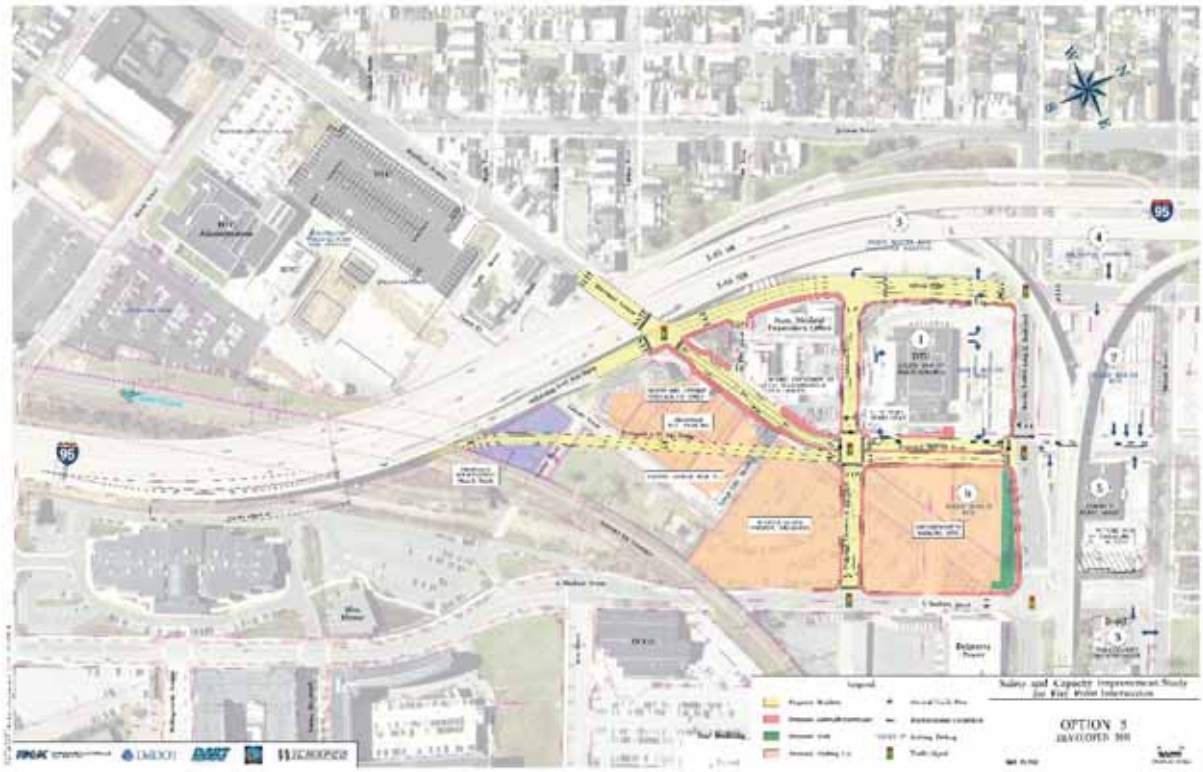
- Additional Interstate Ramp off I-95
    - Earlier studies indicated lack of space for new ramp

  - Project funding was re-directed to the Christina River Bridge
- Parking Needs
  - Key consideration for DART employees given the proposed changes
  - Delmarva Power discussed how they could gain additional parking space
- Gateway Considerations
  - Many attendees expressed a desire for the area to serve as a gateway to Wilmington
  - Would like to see attractive features that stand out to people entering the city
- Pedestrian Safety
  - Significant concerns with Option 2 regarding pedestrian crossings near the I-95 ramp
  - Discussed potential alternate routes for pedestrians to reduce conflicts
- Traffic Issues
  - Riverfront access is still a main driver of traffic
  - Many participants would like to see traffic slowed as it enters the city
  - Need to balance rush hour issues with conditions that occur for the majority of the day

Option 1 (Developed in 2009)

Option 2 (Developed in 2011)

Option 3 (Developed in 2011)



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5-Point Intersection Safety & Capacity Improvement Study

Follow Up Meeting / Stakeholder Input

August 8, 2019

Meeting Notes & Summary

ATTENDEES

Name	Organization	Email
Steve Spera	Delmarva Power	Steven.Spera@delmarva.com
John Evans	DFS	JohnR.Evans@delaware .gov
Diane Gunn	DelDOT	Diane.Gunn@delaware .gov
Megan McGlinchey	Riverfront Development Corp.	mmcglinchey@riverfrontwilm.com
Bill Thatcher	Delaware Transit Corp.	Bill.thatcher@delaware.gov
Jerry Heisler	Reybold Development	Jeromeheisler4@gmail.com
Brian Mitchell	City of Wilmington	bmitchell@wilmingtonde.gov
Dave Gula	WILMAPCO	dgula@wilmapco.org
Mark Tudor	RK&K	mtudor@rkk.com
Barbara Hughes	RK&K	bhughes@rkk.com

*include in distribution: Jeffrey Miles, Delmarva Power, Jeffrey.Miles@delmarva.com

PRESENTATION (WILMAPCO, RK&K)

This meeting was a follow up to the Stakeholders' meeting held on May 20, to review study progress, receive input on draft alternatives, and begin planning for the public workshop. The discussion included:

- Criteria Matrix developed as qualitative tool to evaluate alternatives
  - Ratings from Most Adverse Effect (Orange) to Most Positive Effect (Green)
  - Structured parking parameter added to evaluate each alternative with or without structure
- June 19th Wilmington Initiatives Public Workshop
  - Initial presentation to public, low attendance
- Alternatives review and discussion of criteria ratings
  - Common to all alternatives:
    - Divert Maryland Ave EB traffic to NB Adams Street
    - Free right from I-95 ramp to Maryland Ave EB
    - Relocation of Read Street (Chestnut Street Extended) to align with existing Chestnut Street

- Shared use path from Beech Street to Second Street with potential connection to Riverfront via Linden St underpass (for bike/ped traffic)
- Positive effect for **Transportation** parameters including Vehicle Conflicts/Crashes, Congestion/Queues, and Bicycle/Pedestrian Networks *(Exception was for Efficient Transportation Grid, which had adverse effect in Alternative C)*
- Positive effect with the addition of **Structured Parking**
- Neutral to Adverse Effect on **Delmarva** access, circulation and customer parking, depending on plans for reconfigured parking
- Positive effect on **Medical Examiner** parking with closure of existing Chestnut Street in Alternatives A-C
- Positive effect for **Gateway Enhancement Opportunities**
- Positive Effect for **Social/Environmental Justice** and **Green Infrastructure Opportunities**

○ ALT A (Two-Way Monroe Street):
- Creates uniform street grid, including eliminating 5-point intersection
- Maintains two-way S. Madison Street to MLK Blvd
- Significant adverse effect on DTC operations without structured parking
- Creates most opportunities for economic development within grid

○ ALT B (One-way Monroe St with Chestnut St Extended)
- Maintains existing traffic patterns except changes two-way S. Madison Street to one-way from Chestnut Street to MLK Blvd and closes existing Chestnut Street at Maryland Avenue
- Provides opportunity to eliminate N. Madison Street southbound movement at MLK Blvd which would further simplify signal phasing
- Concerns with one-way S. Madison Street because it eliminates one outlet for traffic leaving Riverfront events
- Adverse effect on DTC operations without structured parking
- Adverse effect on economic development without full grid

○ ALT C (Private Monroe St/Two-Way Maryland Ave)
- Vacates Monroe Street south of MLK Blvd for DTC use, requiring rerouting of Monroe Street traffic at MLK Blvd and closes existing Chestnut Street at Maryland Avenue
- Concerns with one-way S. Madison Street because it eliminates one outlet for traffic leaving Riverfront events
- Positive effect on DTC operations with or without structured parking
- Adverse effect on economic development without full grid

○ ALT D (I-95 Split Ramp):
- Creates uniform street grid adjacent to MLK Blvd, including eliminating 5-point intersection, but divides parcels bordered by I-95 ramp, Maryland Avenue, Amtrak and Chestnut Street
- Maintains two-way S. Madison Street to MLK Blvd
- Significant adverse effect on DTC operations without structured parking
- Significant adverse effect on economic development

NEXT STEPS

Structured Parking further study?

Public Workshop

\\balsrv06\v2018\2018\18084_5Points\Public Input\2019 August Stakeholder Follow Up Meeting\5.Point-Followup.Stakeholder-Meeting.Summary-2019.08.08.docx

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

Stakeholder Meeting

November 5, 2020

AGENDA

- Review of Transportation Alternatives (A,B,C,D)
- DTC Monroe Street Feasibility Study/Master Plan
- Next Steps

WILMAPCO Safety & Capacity Improvement Study for 5-Point Intersection 5-Point Wilmington

CRITERIA MATRIX

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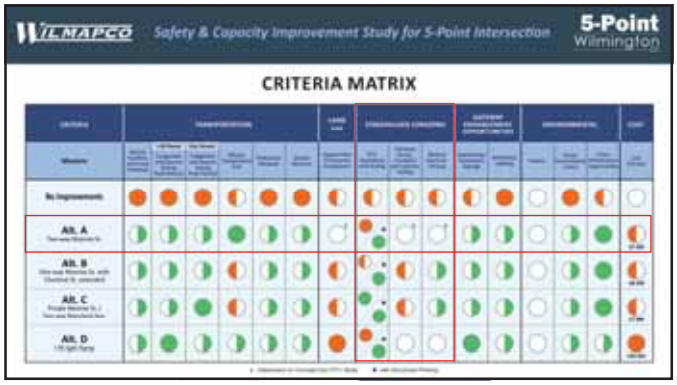

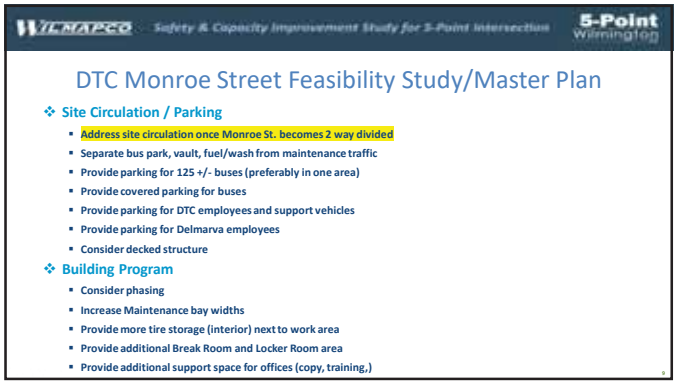

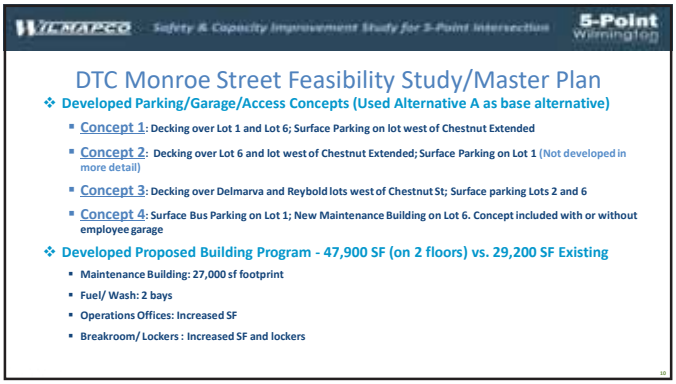

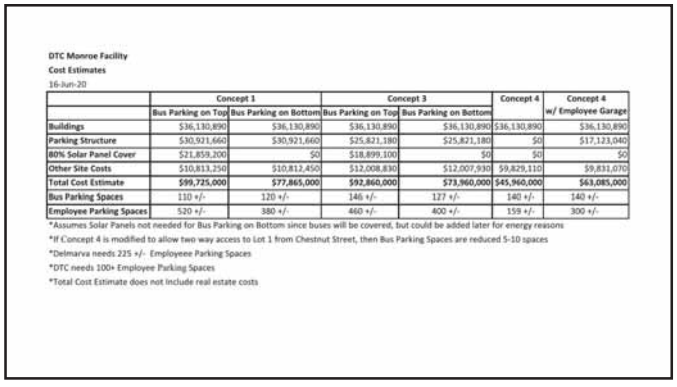

DTC Monroe Facility
Cost Estimates
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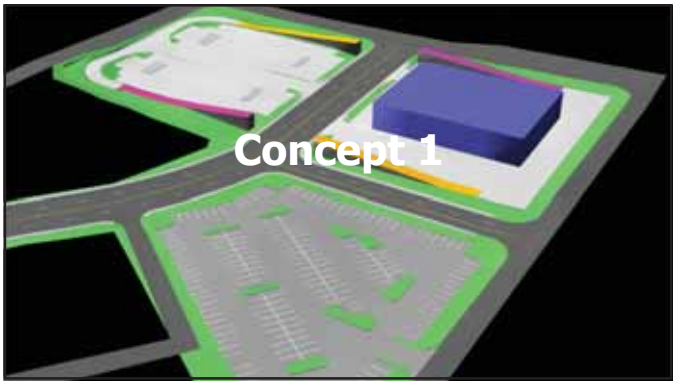
*Delmarva needs 225 +/- Employeee Parking Spaces
*DTC needs 100+ Employee Parking Spaces
*Total Cost Estimate does not include real estate costs



Concept 1

- Provide Deck over Lot 1 and Lot 6 (in phased construction)
- Maintenance Building Lower Level Lot 6
- Fuel/ Wash / Vault on Upper Level Deck
- Bus Parking on Upper Level Deck
- 2 sets of ramps to circulate without crossing Monroe Street
- Surface parking for DTC employees on Lot 1, Delmarva employees Lot w of Chestnut, DTC support vehicles on Lot 2

NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

Concept 1

- Provide Deck over Lot 1 and Lot 6 (in phased construction)
- Maintenance Building Lower Level Lot 6
- Fuel/ Wash / Vault on Upper Level Deck
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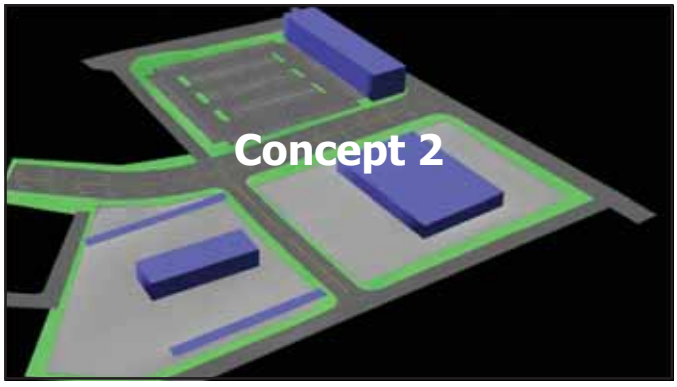
NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

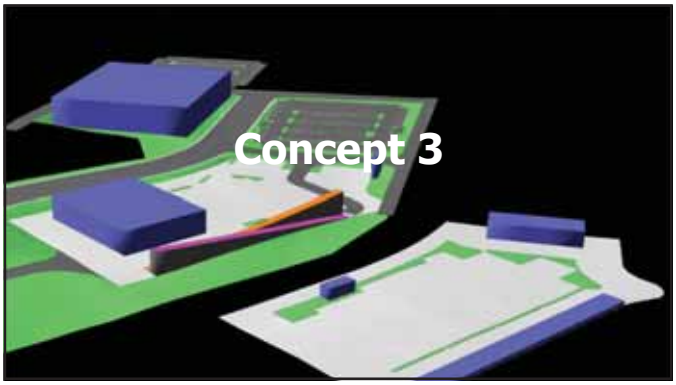
Concept 1: Construction Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Most aspects of Transportation Grid Reconfiguration will likely need to be constructed before the new DTC Building/Garage construction is started
- Challenges during construction will be access along Monroe Street and parking (bus and employee)
- Construction Timeline: Approximate 24 – 36 months completion



Concept 2:

- Provide Deck over Lot 6 and Lot west of Chestnut
- Maintenance Building on Lower Level Lot 6
- Fuel/ Wash / Vault on Lower Level at west lot (on area where current combined sewer is located- possible relocation)
- Bus Parking on upper deck level
- Buses enter site and circulate across Chestnut
- Surface parking for employees, Delmarva, support vehicles on Lot 1 and lot west of Chestnut
- CONCEPT TWO WAS NOT RECOMMENDED FOR FURTHER STUDY AND THEREFORE WAS NOT DEVELOPED IN MORE DETAIL



Concept 3

- Provide deck over Delmarva and Reybold properties west of Chestnut St
- Buses enter site on Chestnut St and/or Madison St.
- Access to DTC Beech St from Liberty Street
- Maintenance Building on lower level of Reybold Property
- Bus Parking on upper deck level
- Fuel/ Wash / Vault on Upper Level
- Surface parking for DTC support vehicles on lower level
- DTC employee/Delmarva parking on Lot 2 and Lot 6
- Provides potential land swap opportunity with Reybold for Lot 1

NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

Concept 3

- Provide deck over Delmarva and Reybold properties west of Chestnut St
- Buses enter site on Chestnut St and/or Madison St.
- Access to DTC Beech St from Liberty Street
- Maintenance Building on lower level of Reybold Property
- Bus Parking on upper deck level
- Fuel/ Wash / Vault on Upper Level
- Surface parking for DTC support vehicles on lower level
- DTC employee/Delmarva parking on Lot 2 and Lot 6
- Provides potential land swap opportunity with Reybold for Lot 1

NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

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- Maintenance Building on lower level of Reybold Property
- Bus Parking on upper deck level
- Fuel/ Wash / Vault on Upper Level
- Surface parking for DTC support vehicles on lower level
- DTC employee/Delmarva parking on Lot 2 and Lot 6
- Provides potential land swap opportunity with Reybold for Lot 1

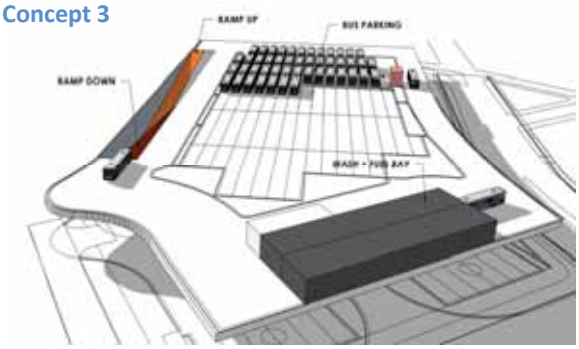
NOTE: Graphics show concept of bus parking mainly on upper level deck. Concept can be flipped to instead have bus parking mainly on lower level

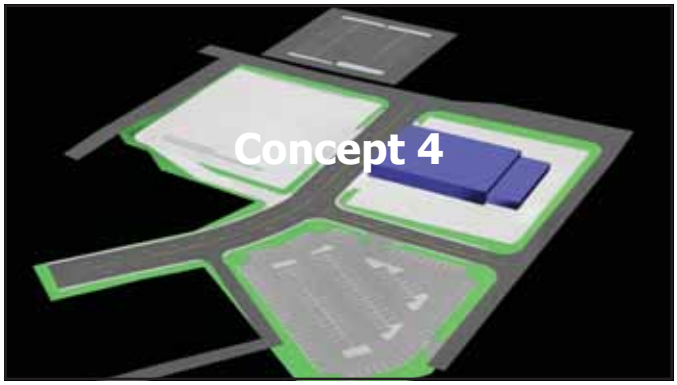
Concept 3: Construction Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Site can be developed with minimal impacts to DTC Operations
- Transportation Grid Reconfiguration can be constructed after DTC Building/Garage is completed
- Construction Timeline: Approximate 24 – 36 months completion

Concept 3

Concept 3





Concept 4

Concept 4: Construction Phasing

- Monroe Street Operations/Maintenance maintained during construction
- Most aspects of Transportation Grid Reconfiguration will likely need to be constructed before the new DTC Building is started

DTC Monroe Facility
Cost Estimates
16-Jun-20

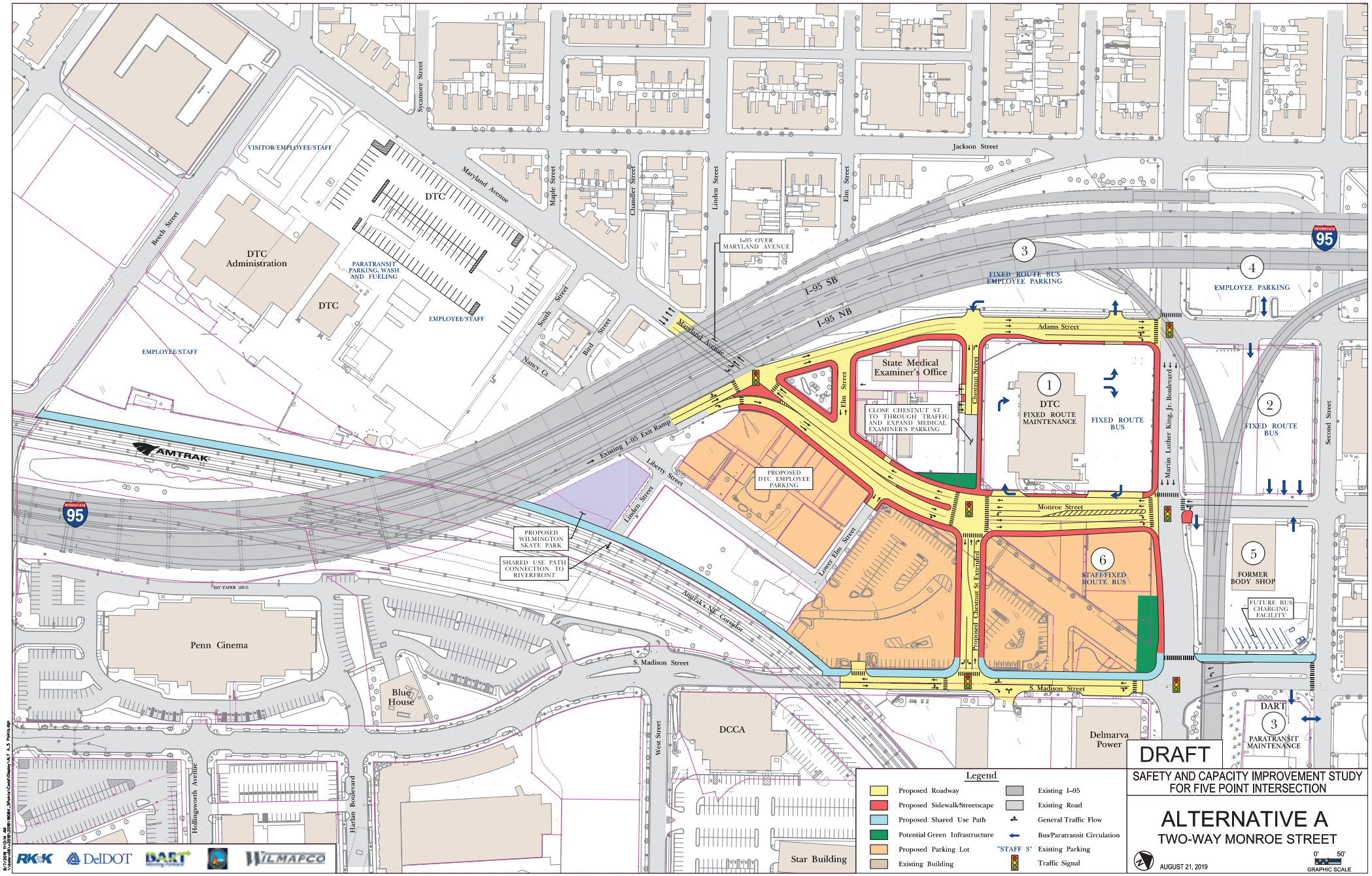
	Concept 1		Concept 3		Concept 4	Concept 4
	Bus Parking on Top	Bus Parking on Bottom	Bus Parking on Top	Bus Parking on Bottom		w/ Employee Garage
Buildings	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890	$36,130,890
Parking Structure	$30,921,660	$30,921,660	$25,821,180	$25,821,180	$0	$17,123,040
80% Solar Panel Cover	$21,859,200	$0	$18,899,100	$0	$0	$0
Other Site Costs	$10,813,250	$10,812,450	$12,008,830	$12,007,930	$9,829,110	$9,831,070
Total Cost Estimate	**$99,725,000**	**$77,865,000**	**$92,860,000**	**$73,960,000**	**$45,960,000**	**$63,085,000**
Bus Parking Spaces	110 +/-	120 +/-	146 +/-	127 +/-	140 +/-	140 +/-
Employee Parking Spaces	520 +/-	380 +/-	460 +/-	400 +/-	159 +/-	300 +/-

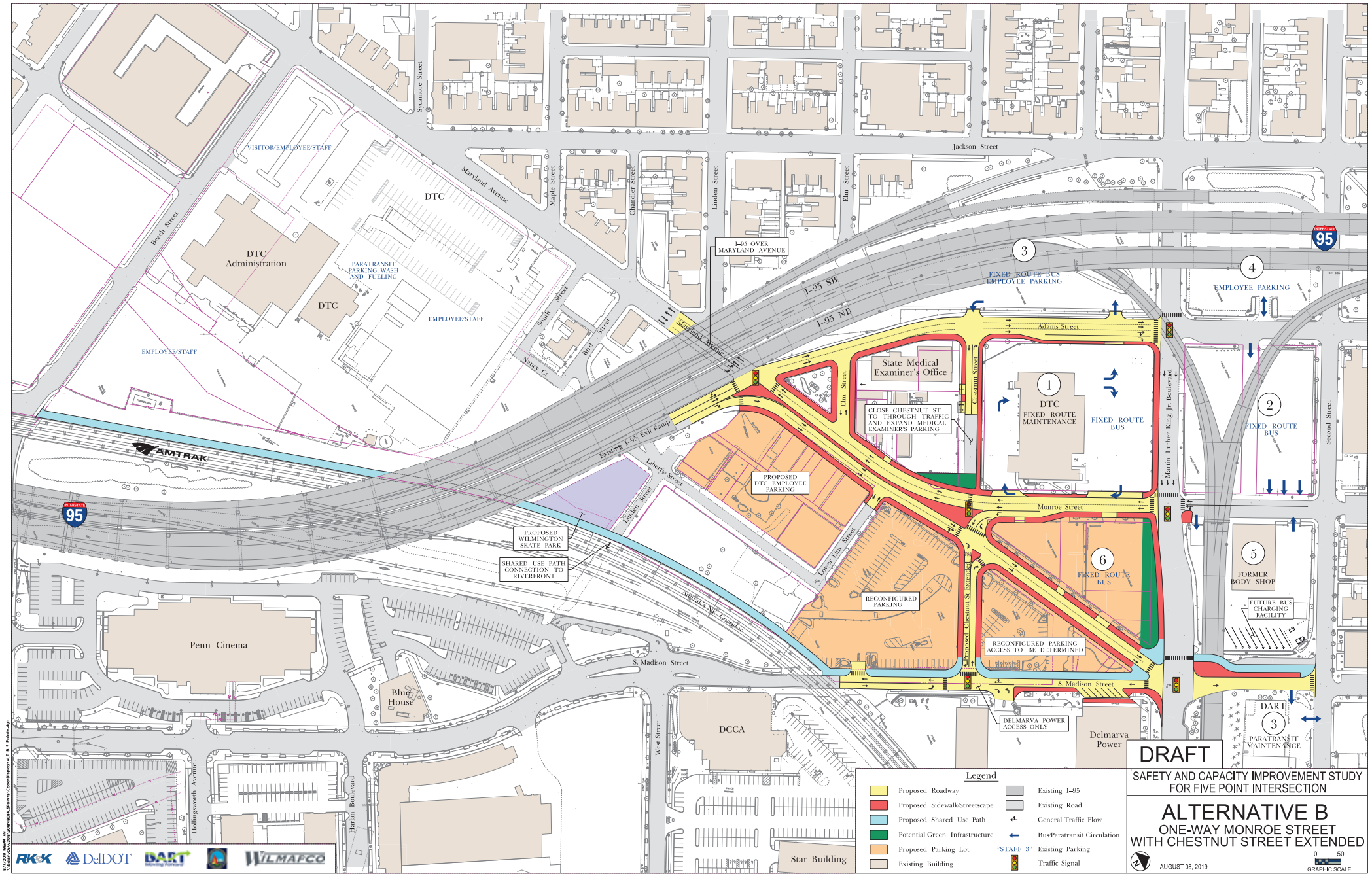
*Assumes Solar Panels not needed for Bus Parking on Bottom since buses will be covered, but could be added later for energy reasons
*If Concept 4 is modified to allow two way access to Lot 1 from Chestnut Street, then Bus Parking Spaces are reduced 5-10 spaces
*Delmarva needs 225 +/- Employeee Parking Spaces
*DTC needs 100+ Employee Parking Spaces
*Total Cost Estimate does not include real estate costs

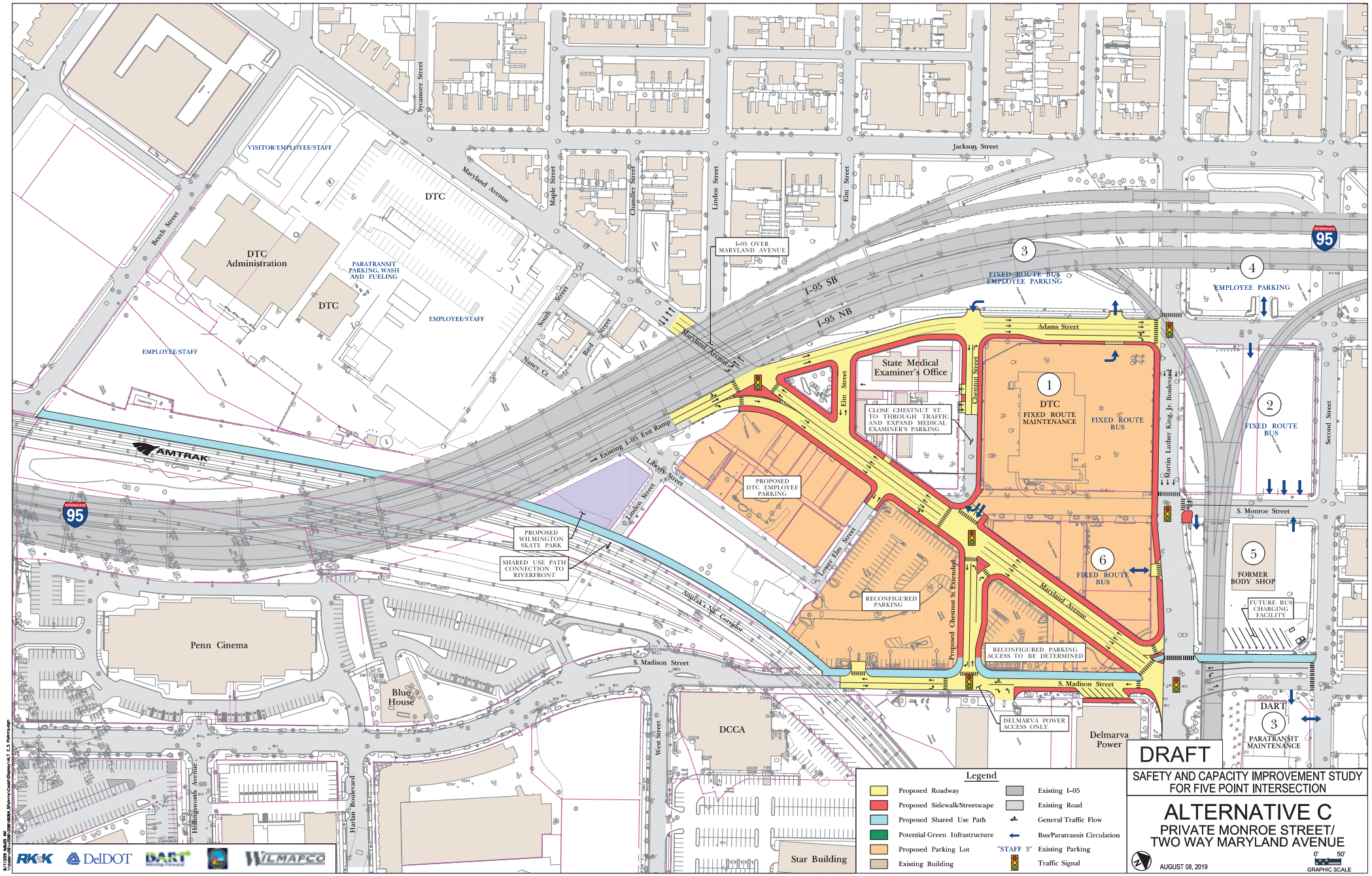

WILMAPCO
Safety & Capacity Improvement Study for 5-Point Intersection
5-Point
Wilmington
Next Steps
Finalize Study Recommendations
Develop Report

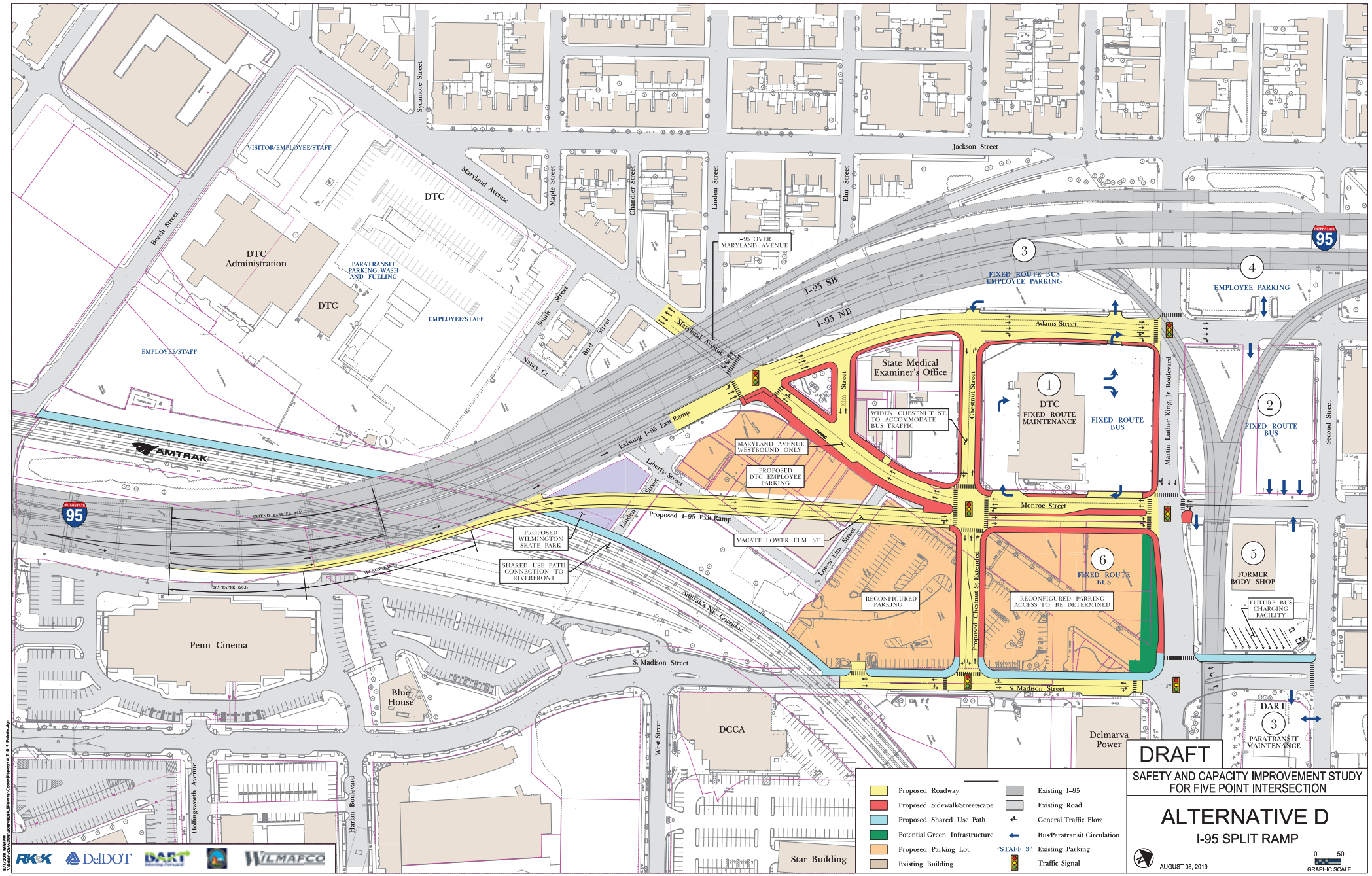
APPENDIX D

Alternatives


DRAFT
SAFETY AND CAPACITY IMPROVEMENT STUDY FOR FIVE POINT INTERSECTION
ALTERNATIVE A
TWO-WAY MONROE STREET
AUGUST 21, 2019
0' 50'
GRAPHIC SCALE
Legend
Proposed Roadway
Proposed Sidewalk/Streetscape
Proposed Shared Use Path
Potential Green Infrastructure
Proposed Parking Lot
Existing Building
Existing I-95
Existing Road
General Traffic Flow
Bus/Paratransit Circulation
"STAFF 3" Existing Parking
Traffic Signal
DTC
FIXED ROUTE MAINTENANCE
FIXED ROUTE BUS
STAFF/FIXED ROUTE BUS
FIXED ROUTE BUS EMPLOYEE PARKING
EMPLOYEE PARKING
FIXED ROUTE BUS
FORMER BODY SHOP
FUTURE BUS CHARGING FACILITY
DART PARATRANSIT MAINTENANCE
PROPOSED DTC EMPLOYEE PARKING
CLOSE CHESTNUT ST. TO THROUGH TRAFFIC AND EXPAND MEDICAL EXAMINER'S PARKING
State Medical Examiner's Office
PROPOSED WILMINGTON SKATE PARK
SHARED USE PATH CONNECTION TO RIVERFRONT
I-95 OVER MARYLAND AVENUE
I-95 SB
I-95 NB
Existing I-95 Exit Ramp
Proposed Chestnut St Extended
Lower Elm Street
Liberty Street
Linden Street
Elm Street
Chestnut Street
Adams Street
Monroe Street
S. Madison Street
Martin Luther King, Jr. Boulevard
Second Street
Jackson Street
Maryland Avenue
Sycamore Street
Beech Street
Maple Street
Chandler Street
Linden Street
Elm Street
South Street
Bird Street
Nancy Ct
VISITOR/EMPLOYEE/STAFF
DTC Administration
PARATRANSIT PARKING, WASH AND FUELING
EMPLOYEE/STAFF
AMTRAK
Amtrak's NEC Corridor
Penn Cinema
Blue House
DCCA
Star Building
Delmarva Power
Hollingsworth Avenue
Harbin Boulevard
West Street
RK&K
DelDOT
DART
WILMAPCO


Sycamore Street
Jackson Street
Maryland Avenue
Maple Street
Chandler Street
Linden Street
Elm Street
Beech Street
VISITOR/EMPLOYEE/STAFF
DTC
DTC Administration
DTC
PARATRANSIT PARKING, WASH AND FUELING
EMPLOYEE/STAFF
EMPLOYEE/STAFF
South Street
Bird Street
Nancy Ct.
I-95 OVER MARYLAND AVENUE
I-95 SB
I-95 NB
3
FIXED ROUTE BUS EMPLOYEE PARKING
4
EMPLOYEE PARKING
Adams Street
State Medical Examiner's Office
Elm Street
Chestnut Street
CLOSE CHESTNUT ST. TO THROUGH TRAFFIC AND EXPAND MEDICAL EXAMINER'S PARKING
1
DTC
FIXED ROUTE MAINTENANCE
FIXED ROUTE BUS
Martin Luther King, Jr. Boulevard
2
FIXED ROUTE BUS
Second Street
Existing I-95 Exit Ramp
Liberty Street
Linden Street
PROPOSED DTC EMPLOYEE PARKING
Monroe Street
PROPOSED WILMINGTON SKATE PARK
SHARED USE PATH CONNECTION TO RIVERFRONT
Lower Elm Street
6
FIXED ROUTE BUS
5
FORMER BODY SHOP
FUTURE BUS CHARGING FACILITY
RECONFIGURED PARKING
Proposed Chestnut St Extended
RECONFIGURED PARKING ACCESS TO BE DETERMINED
S. Madison Street
DELMARVA POWER ACCESS ONLY
Delmarva Power
DART
3
PARATRANSIT MAINTENANCE
Penn Cinema
Blue House
DCCA
West Street
Hollingsworth Avenue
Harlan Boulevard
Star Building
AMTRAK
INTERSTATE 95
Legend
Proposed Roadway
Proposed Sidewalk/Streetscape
Proposed Shared Use Path
Potential Green Infrastructure
Proposed Parking Lot
Existing Building
Existing I-95
Existing Road
General Traffic Flow
Bus/Paratransit Circulation
"STAFF 3" Existing Parking
Traffic Signal
RK&K
DelDOT
DART
WILMAPCO
DRAFT
SAFETY AND CAPACITY IMPROVEMENT STUDY FOR FIVE POINT INTERSECTION
ALTERNATIVE B
ONE-WAY MONROE STREET WITH CHESTNUT STREET EXTENDED
AUGUST 08, 2019
0' 50'
GRAPHIC SCALE


Sycamore Street
Jackson Street
Maryland Avenue
Maple Street
Chandler Street
Linden Street
Elm Street
Beech Street
VISITOR/EMPLOYEE/STAFF
DTC
DTC Administration
DTC
PARATRANSIT PARKING, WASH AND FUELING
EMPLOYEE/STAFF
EMPLOYEE/STAFF
South Street
Bird Street
Nancy Ct
I-95 OVER MARYLAND AVENUE
I-95 SB
I-95 NB
Maryland Avenue
3
FIXED ROUTE BUS EMPLOYEE PARKING
4
EMPLOYEE PARKING
Adams Street
State Medical Examiner's Office
Elm Street
Chestnut Street
CLOSE CHESTNUT ST. TO THROUGH TRAFFIC AND EXPAND MEDICAL EXAMINER'S PARKING
1
DTC
FIXED ROUTE MAINTENANCE
FIXED ROUTE BUS
Martin Luther King, Jr. Boulevard
2
FIXED ROUTE BUS
Second Street
AMTRAK
Existing I-95 Exit Ramp
Liberty Street
PROPOSED DTC EMPLOYEE PARKING
Linden Street
PROPOSED WILMINGTON SKATE PARK
SHARED USE PATH CONNECTION TO RIVERFRONT
Lower Elm Street
S. Monroe Street
5
FORMER BODY SHOP
FUTURE BUS CHARGING FACILITY
RECONFIGURED PARKING
Proposed Chestnut St. Extended
6
FIXED ROUTE BUS
Maryland Avenue
Amtrak NEC Corridor
Penn Cinema
S. Madison Street
Blue House
RECONFIGURED PARKING ACCESS TO BE DETERMINED
S. Madison Street
DART
3
PARATRANSIT MAINTENANCE
DELMARVA POWER ACCESS ONLY
DCCA
West Street
Delmarva Power
Star Building
Hollingsworth Avenue
Harlan Boulevard
Legend
Proposed Roadway
Proposed Sidewalk/Streetscape
Proposed Shared Use Path
Potential Green Infrastructure
Proposed Parking Lot
Existing Building
Existing I-95
Existing Road
General Traffic Flow
Bus/Paratransit Circulation
"STAFF 3" Existing Parking
Traffic Signal
DRAFT
SAFETY AND CAPACITY IMPROVEMENT STUDY FOR FIVE POINT INTERSECTION
ALTERNATIVE C
PRIVATE MONROE STREET/ TWO WAY MARYLAND AVENUE
AUGUST 08, 2019
0' 50'
GRAPHIC SCALE
RK&K
DelDOT
DART
WILMAPCO


Sycamore Street
Jackson Street
Maryland Avenue
Maple Street
Chandler Street
Linden Street
Elm Street
Beech Street
VISITOR/EMPLOYEE/STAFF
DTC
DTC Administration
DTC
PARATRANSIT PARKING, WASH AND FUELING
EMPLOYEE/STAFF
EMPLOYEE/STAFF
South Street
Bird Street
Nancy Ct
I-95 OVER MARYLAND AVENUE
I-95 SB
I-95 NB
3
FIXED ROUTE BUS EMPLOYEE PARKING
4
EMPLOYEE PARKING
Adams Street
State Medical Examiner's Office
Elm Street
WIDEN CHESTNUT ST. TO ACCOMMODATE BUS TRAFFIC
Chestnut Street
1
DTC
FIXED ROUTE MAINTENANCE
FIXED ROUTE BUS
Martin Luther King, Jr. Boulevard
2
FIXED ROUTE BUS
Second Street
AMTRAK
Existing I-95 Exit Ramp
MARYLAND AVENUE WESTBOUND ONLY
PROPOSED DTC EMPLOYEE PARKING
Liberty Street
Monroe Street
Proposed I-95 Exit Ramp
Linden Street
PROPOSED WILMINGTON SKATE PARK
SHARED USE PATH CONNECTION TO RIVERFRONT
VACATE LOWER ELM ST.
Lower Elm Street
6
FIXED ROUTE BUS
5
FORMER BODY SHOP
FUTURE BUS CHARGING FACILITY
RECONFIGURED PARKING
RECONFIGURED PARKING ACCESS TO BE DETERMINED
Proposed Chestnut St Extended
Amtrak's NEC Corridor
Penn Cinema
S. Madison Street
Blue House
DCCA
West Street
S. Madison Street
Delmarva Power
DART
3
PARATRANSIT MAINTENANCE
Hollingsworth Avenue
Harbin Boulevard
Star Building
Proposed Roadway
Proposed Sidewalk/Streetscape
Proposed Shared Use Path
Potential Green Infrastructure
Proposed Parking Lot
Existing Building
Existing I-95
Existing Road
General Traffic Flow
Bus/Paratransit Circulation
"STAFF 3" Existing Parking
Traffic Signal
DRAFT
SAFETY AND CAPACITY IMPROVEMENT STUDY FOR FIVE POINT INTERSECTION
ALTERNATIVE D
I-95 SPLIT RAMP
AUGUST 08, 2019
0' 50'
GRAPHIC SCALE
RK&K
DelDOT
DART
WILMAPCO

APPENDIX E

Cost Estimates

September, 2020

5 Points - Two-Way Monroe Street
Preliminary Cost Estimate - Alternative A

Enter Data
Computed Data

PAVING SECTION

	Length	Width	Sq Ft
			0

a. Surface:
1- 2" Superpave, Type C, 160 Gyrations, PG 76-22 (carbonate stone) (401007) Tons — 2" = 8.8 sy/ton

b. Base:
2 - 3" Superpave, Type B, 160 Gyrations, PG 76-22 (401016) Tons — 3" = 5.79 sy/ton

3 - 6" Superpave, Bituminous Concrete Base Course, 160 Gyrations, PG 64-22 (401021) Tons — 6" = 2.93 sy/ton

c. Subbase:
4 - 8 inches of Graded Aggregate Base Course, Type B (301001) CY

	NO Contigency	% Contingency 30	
1. GRADING	***$74,000***	***$96,200***	O18 $ used in CTP Est.
See Earthwork Summary Sheet			
a. Excavation 2,000 CY @ $26.00 =	$52,000	$67,600	
b. Borrow 1,000 CY @ $22.00 =	$22,000	$28,600	
Total	**$74,000**	**$96,200**	
2. DRAINAGE	***$401,179***	***$521,532***	
25 (Percentage of 1,3&5)	$401,179	$521,532	
Stormwater Management 0 EA $100,000.00 per EA =	$0	$0	
Total	**$401,179**	**$521,532**	
3. PAVEMENT	***$426,514***	***$554,468***	
28,575 sf / 9 = 3,175 SY Say: 3,200 SY — Full Depth Paving Only (1,2,3 & 4)			
103,875 sf / 9 = 11,542 SY Say: 11,600 SY — Mill and Overlay Only (1a)			
24,613 sf / 9 = 2,735 SY Say: 2,800 SY — HMA Path Only (1b, 4a)			
a. Surface:			
(1) 3,200 SY Div. by 8.80 sy/ton = 364 Ton,Times $110.00 per Ton =	$40,000		
(1a) 11,600 SY Div. by 8.80 sy/ton = 1,318 Ton,Times $110.00 per Ton =	$145,000		
(1b) 2,800 SY Div. by 8.80 sy/ton = 318 Ton,Times $110.00 per Ton =	$35,000		
Total	**$220,000**	**$286,000**	
b. Base:			
(2) 3,200 SY Div. by 5.79 sy/ton = 553 Ton,Times $100.00 per Ton =	$55,268		
(3) 3,200 SY Div. by 2.93 sy/ton = 1,092 Ton,Times $80.00 per Ton =	$87,372		
Total	**$142,640**	**$185,432**	
c. Subbase:			
(4) 28,575 SF times 0.666667 ft /27cf/cy = 706 CY, Times $55.00 per CY =	$38,806		
(4a) 24,613 SF times 0.5 ft /27cf/cy = 456 CY, Times $55.00 per CY =	$25,069		
Total	**$63,874**	**$83,036.66**	
4. EROSION / SEDIMENT CONTROL	***$0***	***$0***	
Included in Drainage	$0		
5. MISCELLANEOUS	***$1,104,200***	***$1,435,460***	
a. Curb (701012) 7,000 LF $33.00 per LF =	$231,000	$300,300	
b. 4" Sidewalk (705001)			
0 times 0 = 53,000 SF $10.00 per SF =	$530,000	$689,000	
c. Underdrain (709001) 7,000 LF $20.00 per LF =	$140,000	$182,000	
d. CPM Schedule 0 LS	$0	$0	
e. Clearing/Grubbing 1 LS	$10,000	$13,000	
f. Field Office 0 LS	$0	$0	
g. Milling (760010) 11,600 SY * 2" = 23,200 SY-IN,Times $1.00 per SY-IN =	$23,200	$30,160	
h. Chain Link Fencing (727000) 0 LF $45.00 per LF =	$0	$0	
i. Chain Link Gate (727010) 0 Each $2,500.00 per Each =	$0	$0	
j. Sawcutting (XXXXXX) 10,000 LF $5.00 per LF =	$50,000	$65,000	
k. PCC Removal (211001)			
0 times 0 = 4,800 SY $25.00 per SY =	$120,000	$156,000	
Total	**$1,104,200**	**$1,435,460**	
B. STRUCTURE CONSTRUCTION	***$0***	***$0***	
1. New Bridge 0 SF $350.00 per SF =	$0 plus 50%=	$0	
2. Old structure Removal	$0 plus 10%=	$0	
3. Retaining Wall	$0 plus 10%=	$0	
4. Box Culvert 0 SF $250.00 per SF =	$0 plus 10%=	$0	
Total	**$0**	**$0**	
C. LANDSCAPING	***$136,236***	***$177,106***	
a. Topsoil / Seed / Mulch 5 (Percentage of 1,3&5)	$80,236	$104,306	
b. Street Trees 140 $400.00 per EA =	$56,000	$72,800	assume 40 foot spacing
Total	**$136,236**	**$177,106**	
D. MAINTENANCE OF TRAFFIC (including temporary tie-ins)	***$320,943***	***$417,226***	
20 (Percentage of 1,3&5)	$320,943		
E. PROJECT TRAFFIC ITEMS	***$557,094***	***$724,223***	
1. Signing Structures	$0	$0	
2. Roadway Lighting 70 $7,500.00 per EA =	$525,000	$682,500	assume 80 foot spacing
3. Pavement Markings 2 (Percentage of 1,3&5)	$32,094	$41,723	
Total	**$557,094**	**$724,223**	
F. WETLAND MITIGATION	***$0***	***$0***	
0.0 Acres times 1 2:1 ratio = 0.0 Ac., Times $200,000.00 per Ac. =	$0	$0	
G. UTILITY RELOCATIONS IN CONTRACT	***$128,377***	***$166,890***	
1. Delmarva Electric	$0	$0	
2. Verizon	$0	$0	
3. Other Relocations 8 (Percentage of 1,3&5)	$128,377	$166,890	
Total	**$128,377**	**$166,890**	
H. SUBTOTAL	**$3,148,543**	**$4,093,105**	
I. MISCELLANEOUS ITEMS	**$629,709**	**$818,621**	
20 (Percentage of H)	$629,709	$818,621	
J. CONTRACTOR'S CONSTRUCTION ENGINEERING	**$94,456**	**$122,793**	
3 (Percentage of H)	$94,456	$122,793	
K. INITIAL EXPENSE	**$94,456**	**$122,793**	
3 (Percentage of H)	$94,456	$122,793	
L. CONSTRUCTION CONTINGENCY	**$314,854**	**$409,311**	
10 (Percentage of H)	$314,854	$409,311	
M. TOTAL CONSTRUCTION COSTS (H thru L)	**$4,282,018**	**$5,566,623**	
N. CONSTRUCTION ENGINEERING	**$642,303**	**$834,993**	
15 (Percentage of M)	$642,303	$834,993	
O. TOTAL CONSTRUCTION COSTS (M + N)	**$4,924,320**	**$6,401,617**	
P. REIMBURSABLE UTILITY RELOCATIONS BY OTHERS	***$0***	***$0***	
$0 DP Electric+ $0 Verizon = $0			
Q. TRAFFIC SECTION ITEMS	***$916,047***	***$1,190,861***	
1. Signing 1 (Percentage of 1,3&5)	$16,047	$20,861.28	
2. Signals 3 EA $250,000.00 per EA =	$750,000	$975,000	
3. Signal Modification 3 EA $50,000.00 per EA =	$150,000	$195,000	
Total	**$916,047**	**$1,190,861**	
CONSTRUCTION PROJECT ESTIMATE (O thru Q)	**$5,840,368**	**$7,592,478**	
HAZARDOUS MATERIALS		***$0***	

September, 2020

5 Points - One-Way Monroe Street with Chestnut Street Extended

Preliminary Cost Estimate - Alternative B

Enter Data
Computed Data

PAVING SECTION

	Length	Width	Sq Ft
			0

a. Surface:
1- 2" Superpave, Type C, 160 Gyrations, PG 76-22 (carbonate stone) (401007) Tons — 2" = 8.8 sy/ton

b. Base:
2 - 3" Superpave, Type B, 160 Gyrations, PG 76-22 (401016) Tons — 3" = 5.79 sy/ton

3 - 6" Superpave, Bituminous Concrete Base Course, 160 Gyrations, PG 64-22 (401021) Tons — 6" = 2.93 sy/ton

c. Subbase:
4 - 8 inches of Graded Aggregate Base Course, Type B (301001) CY

	NO Contigency	% Contingency 30	O18
1. GRADING	***$84,400***	***$109,720***	$ used in CTP Est.
See Earthwork Summary Sheet			
a. Excavation 2,400 CY @ $26.00 =	$62,400	$81,120	
b. Borrow 1,000 CY @ $22.00 =	$22,000	$28,600	
Total	**$84,400**	**$109,720**	
2. DRAINAGE	***$456,156***	***$593,002***	
25 (Percentage of 1,3&5)	$456,156	$593,002	
Stormwater Management 0 EA $100,000.00 per EA =	$0	$0	
Total	**$456,156**	**$593,002**	
3. PAVEMENT	***$291,722***	***$379,239***	
17,092 sf / 9 = 1,899 SY Say: 1,900 SY — Full Depth Paving Only (1,2,3 & 4)			
71,985 sf / 9 = 7,998 SY Say: 8,000 SY — Mill and Overlay Only (1a)			
24,613 sf / 9 = 2,735 SY Say: 2,800 SY — HMA Path Only (1b, 4a)			
a. Surface:			
(1) 1,900 SY Div. by 8.80 sy/ton = 216 Ton,Times $110.00 per Ton =	$23,750		
(1a) 8,000 SY Div. by 8.80 sy/ton = 909 Ton,Times $110.00 per Ton =	$100,000		
(1b) 2,800 SY Div. by 8.80 sy/ton = 318 Ton,Times $110.00 per Ton =	$35,000		
Total	**$158,750**	**$206,375**	
b. Base:			
(2) 1,900 SY Div. by 5.79 sy/ton = 328 Ton,Times $100.00 per Ton =	$32,815		
(3) 1,900 SY Div. by 2.93 sy/ton = 648 Ton,Times $80.00 per Ton =	$51,877		
Total	**$84,692**	**$110,100**	
c. Subbase:			
(4) 17,092 SF times 0.666667 ft /27cf/cy = 422 CY, Times $55.00 per CY =	$23,211		
(4a) 24,613 SF times 0.5 ft /27cf/cy = 456 CY, Times $55.00 per CY =	$25,069		
Total	**$48,280**	**$62,764.20**	
4. EROSION / SEDIMENT CONTROL	***$0***	***$0***	
Included in Drainage	$0		
5. MISCELLANEOUS	***$1,448,500***	***$1,883,050***	
a. Curb (701012) 10,000 LF $33.00 per LF =	$330,000	$429,000	
b. 4" Sidewalk (705001)			
0 times 0 = 72,000 SF $10.00 per SF =	$720,000	$936,000	
c. Underdrain (709001) 10,000 LF $20.00 per LF =	$200,000	$260,000	
d. CPM Schedule 0 LS	$0	$0	
e. Clearing/Grubbing 1 LS	$10,000	$13,000	
f. Field Office 0 LS	$0	$0	
g. Milling (760010) 8,000 SY * 2" = 16,000 SY-IN,Times $1.00 per SY-IN =	$16,000	$20,800	
h. Chain Link Fencing (727000) 0 LF $45.00 per LF =	$0	$0	
i. Chain Link Gate (727010) 0 Each $2,500.00 per Each =	$0	$0	
j. Sawcutting (XXXXXX) 10,000 LF $5.00 per LF =	$50,000	$65,000	
k. PCC Removal (211001)			
0 times 0 = 4,900 SY $25.00 per SY =	$122,500	$159,250	
Total	**$1,448,500**	**$1,883,050**	
B. STRUCTURE CONSTRUCTION	***$0***	***$0***	
1. New Bridge 0 SF $350.00 per SF =	$0 plus 50%=	$0	
2. Old structure Removal	$0 plus 10%=	$0	
3. Retaining Wall	$0 plus 10%=	$0	
4. Box Culvert 0 SF $250.00 per SF =	$0 plus 10%=	$0	
Total	**$0**	**$0**	
C. LANDSCAPING	***$159,231***	***$207,000***	
a. Topsoil / Seed / Mulch 5 (Percentage of 1,3&5)	$91,231	$118,600	
b. Street Trees 170 $400.00 per EA =	$68,000	$88,400	assume 40 foot spacing
Total	**$159,231**	**$207,000**	
D. MAINTENANCE OF TRAFFIC (including temporary tie-ins)	***$364,924***	***$474,402***	
20 (Percentage of 1,3&5)	$364,924		
E. PROJECT TRAFFIC ITEMS	***$711,492***	***$924,940***	
1. Signing Structures	$0	$0	
2. Roadway Lighting 90 $7,500.00 per EA =	$675,000	$877,500	assume 80 foot spacing
3. Pavement Markings 2 (Percentage of 1,3&5)	$36,492	$47,440	
Total	**$711,492**	**$924,940**	
F. WETLAND MITIGATION	***$0***	***$0***	
0.0 Acres times 1 2:1 ratio = 0.0 Ac., Times $200,000.00 per Ac. =	$0	$0	
G. UTILITY RELOCATIONS IN CONTRACT	***$145,970***	***$189,761***	
1. Delmarva Electric	$0	$0	
2. Verizon	$0	$0	
3. Other Relocations 8 (Percentage of 1,3&5)	$145,970	$189,761	
Total	**$145,970**	**$189,761**	
H. SUBTOTAL	**$3,662,396**	**$4,761,115**	
I. MISCELLANEOUS ITEMS	**$732,479**	**$952,223**	
20 (Percentage of H)	$732,479	$952,223	
J. CONTRACTOR'S CONSTRUCTION ENGINEERING	**$109,872**	**$142,833**	
3 (Percentage of H)	$109,872	$142,833	
K. INITIAL EXPENSE	**$109,872**	**$142,833**	
3 (Percentage of H)	$109,872	$142,833	
L. CONSTRUCTION CONTINGENCY	**$366,240**	**$476,111**	
10 (Percentage of H)	$366,240	$476,111	
M. TOTAL CONSTRUCTION COSTS (H thru L)	**$4,980,859**	**$6,475,116**	
N. CONSTRUCTION ENGINEERING	**$747,129**	**$971,267**	
15 (Percentage of M)	$747,129	$971,267	
O. TOTAL CONSTRUCTION COSTS (M + N)	**$5,727,987**	**$7,446,384**	
P. REIMBURSABLE UTILITY RELOCATIONS BY OTHERS	***$0***	***$0***	
$0 DP Electric+ $0 Verizon =	$0		
Q. TRAFFIC SECTION ITEMS	***$718,246***	***$933,720***	
1. Signing 1 (Percentage of 1,3&5)	$18,246	$23,720.09	
2. Signals 2 EA $250,000.00 per EA =	$500,000	$650,000	
3. Signal Modification 4 EA $50,000.00 per EA =	$200,000	$260,000	
Total	**$718,246**	**$933,720**	
CONSTRUCTION PROJECT ESTIMATE (O thru Q)	**$6,446,234**	**$8,380,104**	
HAZARDOUS MATERIALS		***$0***	

September, 2020

5 Points - Private Monroe Street/Two Way Maryland Avenue

Preliminary Cost Estimate - Alternative C

Enter Data
Computed Data

PAVING SECTION

			Length	Width	Sq Ft	
a. Surface:						
1-	2"	Superpave, Type C, 160 Gyrations, PG 76-22 (carbonate stone) (401007) Tons			0	2" = 8.8 sy/ton
b. Base:						
2 -	3"	Superpave, Type B, 160 Gyrations, PG 76-22 (401016) Tons				3" = 5.79 sy/ton
3 -	6"	Superpave, Bituminous Concrete Base Course, 160 Gyrations, PG 64-22 (401021) Tons				6" = 2.93 sy/ton
c. Subbase:						
4 -	8	inches of Graded Aggregate Base Course, Type B (301001) CY				

	NO Contigency	% Contingency 30	O18
1. GRADING	***$61,000***	***$79,300***	$ used in CTP Est.
See Earthwork Summary Sheet			
a. Excavation 1,500 CY @ $26.00 =	$39,000	$50,700	
b. Borrow 1,000 CY @ $22.00 =	$22,000	$28,600	
Total	**$61,000**	**$79,300**	
2. DRAINAGE	***$401,092***	***$521,419***	
25 (Percentage of 1,3&5)	$401,092	$521,419	
Stormwater Management 0 EA $100,000.00 per EA =	$0	$0	
Total	**$401,092**	**$521,419**	
3. PAVEMENT	***$325,567***	***$423,238***	
14,522 sf / 9 = 1,614 SY Say: 1,700 SY Full Depth Paving Only (1,2,3 & 4)			
106,606 sf / 9 = 11,845 SY Say: 11,900 SY Mill and Overlay Only (1a)			
24,613 sf / 9 = 2,735 SY Say: 2,800 SY HMA Path Only (1b, 4a)			
a. Surface:			
(1) 1,700 SY Div. by 8.80 sy/ton = 193 Ton,Times $110.00 per Ton =	$21,250		
(1a) 11,900 SY Div. by 8.80 sy/ton = 1,352 Ton,Times $110.00 per Ton =	$148,750		
(1b) 2,800 SY Div. by 8.80 sy/ton = 318 Ton,Times $110.00 per Ton =	$35,000		
Total	**$205,000**	**$266,500**	
b. Base:			
(2) 1,700 SY Div. by 5.79 sy/ton = 294 Ton,Times $100.00 per Ton =	$29,361		
(3) 1,700 SY Div. by 2.93 sy/ton = 580 Ton,Times $80.00 per Ton =	$46,416		
Total	**$75,777**	**$98,511**	
c. Subbase:			
(4) 14,522 SF times 0.666667 ft /27cf/cy = 359 CY, Times $55.00 per CY =	$19,721		
(4a) 24,613 SF times 0.5 ft /27cf/cy = 456 CY, Times $55.00 per CY =	$25,069		
Total	**$44,790**	**$58,227.04**	
4. EROSION / SEDIMENT CONTROL	***$0***	***$0***	
Included in Drainage	$0		
5. MISCELLANEOUS	***$1,217,800***	***$1,583,140***	
a. Curb (701012) 8,000 LF $33.00 per LF =	$264,000	$343,200	
b. 4" Sidewalk (705001)			
0 times 0 = 59,000 SF $10.00 per SF =	$590,000	$767,000	
c. Underdrain (709001) 8,000 LF $20.00 per LF =	$160,000	$208,000	
d. CPM Schedule 0 LS	$0	$0	
e. Clearing/Grubbing 1 LS	$10,000	$13,000	
f. Field Office 0 LS	$0	$0	
g. Milling (760010) 11,900 SY * 2" = 23,800 SY-IN,Times $1.00 per SY-IN =	$23,800	$30,940	
h. Chain Link Fencing (727000) 0 LF $45.00 per LF =	$0	$0	
i. Chain Link Gate (727010) 0 Each $2,500.00 per Each =	$0	$0	
j. Sawcutting (XXXXXX) 10,000 LF $5.00 per LF =	$50,000	$65,000	
k. PCC Removal (211001)			
0 times 0 = 4,800 SY $25.00 per SY =	$120,000	$156,000	
Total	**$1,217,800**	**$1,583,140**	
B. STRUCTURE CONSTRUCTION	***$0***	***$0***	
1. New Bridge 0 SF $350.00 per SF =	$0 plus 50%=	$0	
2. Old structure Removal	$0 plus 10%=	$0	
3. Retaining Wall	$0 plus 10%=	$0	
4. Box Culvert 0 SF $250.00 per SF =	$0 plus 10%=	$0	
Total	**$0**	**$0**	
C. LANDSCAPING	***$144,218***	***$187,484***	
a. Topsoil / Seed / Mulch 5 (Percentage of 1,3&5)	$80,218	$104,284	
b. Street Trees 160 $400.00 per EA =	$64,000	$83,200	assume 40 foot spacing
Total	**$144,218**	**$187,484**	
D. MAINTENANCE OF TRAFFIC (including temporary tie-ins)	***$320,873***	***$417,136***	
20 (Percentage of 1,3&5)	$320,873		
E. PROJECT TRAFFIC ITEMS	***$632,087***	***$821,714***	
1. Signing Structures	$0	$0	
2. Roadway Lighting 80 $7,500.00 per EA =	$600,000	$780,000	assume 80 foot spacing
3. Pavement Markings 2 (Percentage of 1,3&5)	$32,087	$41,714	
Total	**$632,087**	**$821,714**	
F. WETLAND MITIGATION	***$0***	***$0***	
0.0 Acres times 1 2:1 ratio = 0.0 Ac., Times $200,000.00 per Ac. =	$0	$0	
G. UTILITY RELOCATIONS IN CONTRACT	***$128,349***	***$166,854***	
1. Delmarva Electric	$0	$0	
2. Verizon	$0	$0	
3. Other Relocations 8 (Percentage of 1,3&5)	$128,349	$166,854	
Total	**$128,349**	**$166,854**	
H. SUBTOTAL	**$3,230,988**	**$4,200,284**	
I. MISCELLANEOUS ITEMS	**$646,198**	**$840,057**	
20 (Percentage of H)	$646,198	$840,057	
J. CONTRACTOR'S CONSTRUCTION ENGINEERING	**$96,930**	**$126,009**	
3 (Percentage of H)	$96,930	$126,009	
K. INITIAL EXPENSE	**$96,930**	**$126,009**	
3 (Percentage of H)	$96,930	$126,009	
L. CONSTRUCTION CONTINGENCY	**$323,099**	**$420,028**	
10 (Percentage of H)	$323,099	$420,028	
M. TOTAL CONSTRUCTION COSTS (H thru L)	**$4,394,143**	**$5,712,386**	
N. CONSTRUCTION ENGINEERING	**$659,122**	**$856,858**	
15 (Percentage of M)	$659,122	$856,858	
O. TOTAL CONSTRUCTION COSTS (M + N)	**$5,053,265**	**$6,569,244**	
P. REIMBURSABLE UTILITY RELOCATIONS BY OTHERS	***$0***	***$0***	
$0 DP Electric+ $0 Verizon = $0			
Q. TRAFFIC SECTION ITEMS	***$916,044***	***$1,190,857***	
1. Signing 1 (Percentage of 1,3&5)	$16,044	$20,856.78	
2. Signals 3 EA $250,000.00 per EA =	$750,000	$975,000	
3. Signal Modification 3 EA $50,000.00 per EA =	$150,000	$195,000	
Total	**$916,044**	**$1,190,857**	
CONSTRUCTION PROJECT ESTIMATE (O thru Q)	**$5,969,309**	**$7,760,101**	
HAZARDOUS MATERIALS		***$0***	

September, 2020

5 Points - I-95 Split Ramp
Preliminary Cost Estimate - Alternative D

Enter Data
Computed Data

PAVING SECTION

a. Surface:
1- 2" Superpave, Type C, 160 Gyrations, PG 76-22 (carbonate stone) (401007) Tons — Length | Width | Sq Ft: 0 — 2" = 8.8 sy/ton

b. Base:
2 - 3" Superpave, Type B, 160 Gyrations, PG 76-22 (401016) Tons — 3" = 5.79 sy/ton

3 - 6" Superpave, Bituminous Concrete Base Course, 160 Gyrations, PG 64-22 (401021) Tons — 6" = 2.93 sy/ton

c. Subbase:
4 - 8 inches of Graded Aggregate Base Course, Type B (301001) CY

	NO Contigency	% Contingency 30	O18
1. GRADING	***$79,200***	***$102,960***	$ used in CTP Est.
See Earthwork Summary Sheet			
a. Excavation 2,200 CY @ $26.00 =	$57,200	$74,360	
b. Borrow 1,000 CY @ $22.00 =	$22,000	$28,600	
Total	**$79,200**	**$102,960**	
2. DRAINAGE	***$446,808***	***$580,851***	
25 (Percentage of 1,3&5)	$446,808	$580,851	
Stormwater Management 0 EA $100,000.00 per EA =	$0	$0	
Total	**$446,808**	**$580,851**	
3. PAVEMENT	***$452,734***	***$588,554***	
33,711 sf / 9 = 3,746 SY Say: 3,800 SY — Full Depth Paving Only (1,2,3 & 4)			
92,774 sf / 9 = 10,308 SY Say: 10,400 SY — Mill and Overlay Only (1a)			
24,613 sf / 9 = 2,735 SY Say: 2,800 SY — HMA Path Only (1b, 4a)			
a. Surface:			
(1) 3,800 SY Div. by 8.80 sy/ton = 432 Ton,Times $110.00 per Ton =	$47,500		
(1a) 10,400 SY Div. by 8.80 sy/ton = 1,182 Ton,Times $110.00 per Ton =	$130,000		
(1b) 2,800 SY Div. by 8.80 sy/ton = 318 Ton,Times $110.00 per Ton =	$35,000		
Total	**$212,500**	**$276,250**	
b. Base:			
(2) 3,800 SY Div. by 5.79 sy/ton = 656 Ton,Times $100.00 per Ton =	$65,630		
(3) 3,800 SY Div. by 2.93 sy/ton = 1,297 Ton,Times $80.00 per Ton =	$103,754		
Total	**$169,385**	**$220,200**	
c. Subbase:			
(4) 33,711 SF times 0.666667 ft /27cf/cy = 832 CY, Times $55.00 per CY =	$45,780		
(4a) 24,613 SF times 0.5 ft /27cf/cy = 456 CY, Times $55.00 per CY =	$25,069		
Total	**$70,849**	**$92,103.92**	
4. EROSION / SEDIMENT CONTROL	***$0***	***$0***	
Included in Drainage	$0		
5. MISCELLANEOUS	***$1,255,300***	***$1,631,890***	
a. Curb (701012) 9,000 LF $33.00 per LF =	$297,000	$386,100	
b. 4" Sidewalk (705001)			
0 times 0 = 57,000 SF $10.00 per SF =	$570,000	$741,000	
c. Underdrain (709001) 9,000 LF $20.00 per LF =	$180,000	$234,000	
d. CPM Schedule 0 LS	$0	$0	
e. Clearing/Grubbing 1 LS	$10,000	$13,000	
f. Field Office 0 LS	$0	$0	
g. Milling (760010) 10,400 SY * 2" = 20,800 SY-IN,Times $1.00 per SY-IN =	$20,800	$27,040	
h. Chain Link Fencing (727000) 0 LF $45.00 per LF =	$0	$0	
i. Chain Link Gate (727010) 0 Each $2,500.00 per Each =	$0	$0	
j. Sawcutting (XXXXXX) 10,000 LF $5.00 per LF =	$50,000	$65,000	
k. PCC Removal (211001)			
0 times 0 = 5,100 SY $25.00 per SY =	$127,500	$165,750	
Total	**$1,255,300**	**$1,631,890**	
B. STRUCTURE CONSTRUCTION	***$11,606,000***	***$17,409,000***	
1. New Bridge 33,160 SF $350.00 per SF =	$11,606,000 plus 50%=	$17,409,000	
2. Old structure Removal	$0 plus 10%=	$0	
3. Retaining Wall	$0 plus 10%=	$0	
4. Box Culvert 0 SF $250.00 per SF =	$0 plus 10%=	$0	
Total	**$11,606,000**	**$17,409,000**	
C. LANDSCAPING	***$149,362***	***$194,170***	
a. Topsoil / Seed / Mulch 5 (Percentage of 1,3&5)	$89,362	$116,170	
b. Street Trees 150 $400.00 per EA =	$60,000	$78,000	assume 40 foot spacing
Total	**$149,362**	**$194,170**	
D. MAINTENANCE OF TRAFFIC (including temporary tie-ins)	***$357,447***	***$464,681***	
20 (Percentage of 1,3&5)	$357,447		
E. PROJECT TRAFFIC ITEMS	***$635,745***	***$826,468***	
1. Signing Structures	$0	$0	
2. Roadway Lighting 80 $7,500.00 per EA =	$600,000	$780,000	assume 80 foot spacing
3. Pavement Markings 2 (Percentage of 1,3&5)	$35,745	$46,468	
Total	**$635,745**	**$826,468**	
F. WETLAND MITIGATION	***$0***	***$0***	
0.0 Acres times 1 2:1 ratio = 0.0 Ac., Times $200,000.00 per Ac. =	$0	$0	
G. UTILITY RELOCATIONS IN CONTRACT	***$142,979***	***$185,872***	
1. Delmarva Electric	$0	$0	
2. Verizon	$0	$0	
3. Other Relocations 8 (Percentage of 1,3&5)	$142,979	$185,872	
Total	**$142,979**	**$185,872**	
H. SUBTOTAL	**$15,125,574**	**$21,984,446**	
I. MISCELLANEOUS ITEMS	**$3,025,115**	**$4,396,889**	
20 (Percentage of H)	$3,025,115	$4,396,889	
J. CONTRACTOR'S CONSTRUCTION ENGINEERING	**$453,767**	**$659,533**	
3 (Percentage of H)	$453,767	$659,533	
K. INITIAL EXPENSE	**$453,767**	**$659,533**	
3 (Percentage of H)	$453,767	$659,533	
L. CONSTRUCTION CONTINGENCY	**$1,512,557**	**$2,198,445**	
10 (Percentage of H)	$1,512,557	$2,198,445	
M. TOTAL CONSTRUCTION COSTS (H thru L)	**$20,570,781**	**$29,898,847**	
N. CONSTRUCTION ENGINEERING	**$3,085,617**	**$4,484,827**	
15 (Percentage of M)	$3,085,617	$4,484,827	
O. TOTAL CONSTRUCTION COSTS (M + N)	**$23,656,398**	**$34,383,674**	
P. REIMBURSABLE UTILITY RELOCATIONS BY OTHERS	***$0***	***$0***	
$0 DP Electric+ $0 Verizon = $0			
Q. TRAFFIC SECTION ITEMS	***$917,872***	***$1,193,234***	
1. Signing 1 (Percentage of 1,3&5)	$17,872	$23,234.04	
2. Signals 3 EA $250,000.00 per EA =	$750,000	$975,000	
3. Signal Modification 3 EA $50,000.00 per EA =	$150,000	$195,000	
Total	**$917,872**	**$1,193,234**	
CONSTRUCTION PROJECT ESTIMATE (O thru Q)	**$24,574,270**	**$35,576,908**	
HAZARDOUS MATERIALS		***$0***	